

Committed to becoming a leading global one-stop  
service supplier of microwave products



# Product manual



## Frequencies-idea Technology Co.,Ltd

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Frequencies-idea Technology Co.,Ltd.

## Company Profile

Frequencies-idea Technology Co., Ltd. was established in 2015. The company mainly focuses on the export of microwave devices and components. It has a Passive Microwave Division and an Active Microwave Division, both of which possess top-tier domestic research and production capabilities.

The core team members all come from senior management positions in military enterprises and are chief experts of key national projects. They have been engaged in the research and design of microwave RF devices and components for over 15 years, with extensive experience and capabilities in military project design and development.

Since its establishment, the company has developed and manufactured hundreds of products to replace imports, serving up to hundreds of customers both domestically and internationally, with its technology and after-sales service receiving high acclaim from clients.



## Corporate culture

### Enterprise mission

Based on scientific and technological innovation, to make high quality high power microwave products.

### Enterprise vision

Become a warm enterprise  
(respect talents, care for employees)  
To become a company respected by peers  
(integrity-based, honest communication)



# Qualifications honors



# Product Catalog

- ◆ 90 Degree Hybrids
  - Surface Mount ..... 01
  - Drop-in ..... 05
  - Impedance Transforming(50ohm&25ohm) ..... 08
  - Connectorized ..... 10
- ◆ Combiners
  - In-Phase Connectorized ..... 13
  - Radial ..... 19
  - Non-Phase Connectorized & Hybrid ..... 22
- ◆ Directional Couplers
  - Surface Mount ..... 26
  - Connectorized ..... 31
- ◆ Power dividers
  - Surface Mount ..... 40
  - Coaxial connectors ..... 42
- ◆ Attenuators
  - Coaxial fixed attenuators ..... 48
- ◆ Filters ..... 49
- ◆ Baluns ..... 59
- ◆ Isolators & Circulators ..... 61
- ◆ Other Components
  - Switch ..... 63
  - Combiner & Coupler Assembly ..... 64

Model:HLD-T011T02-3



**Features:**

- Miniaturized table mount device
- Low loss, ultra - broadband, high isolation, high power
- Acceptance of customization

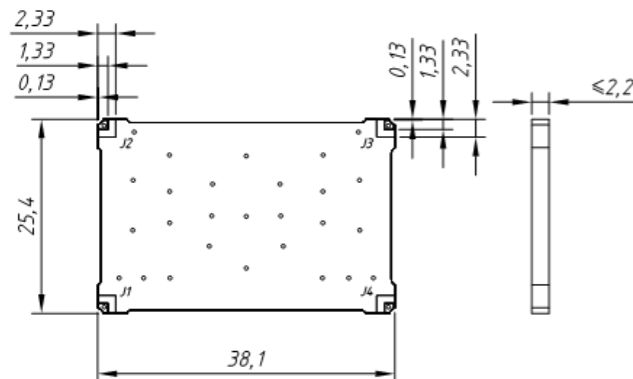
**Typical applications:**

It is mainly used for orthogonal power distribution synthesis, and can be widely used in electronic countermeasures, radar, communication, testing and measurement platforms.

**Performance index:**

- Frequency range: 300-6000MHz
- Insertion loss: ≤1.4dB
- VSWR: ≤1.4(TYP) ≤1.6(Max)
- Isolation : ≥15dB
- Phase balance: ≤±3°(TYP), ≤±5°(Max)
- Amplitude balance: ≤±1.4dB(0.3-0.4GHz) ≤1.2dB(0.4-6GHz)
- Power: 70W(CW)

**Outline:**

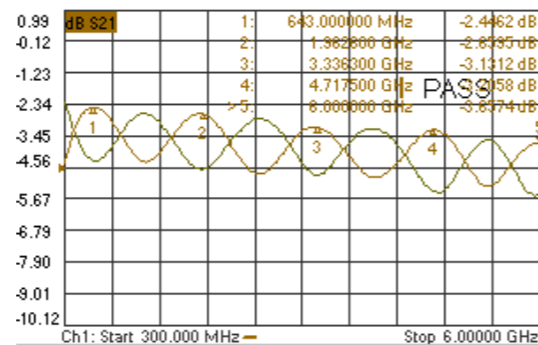


**Graph:**

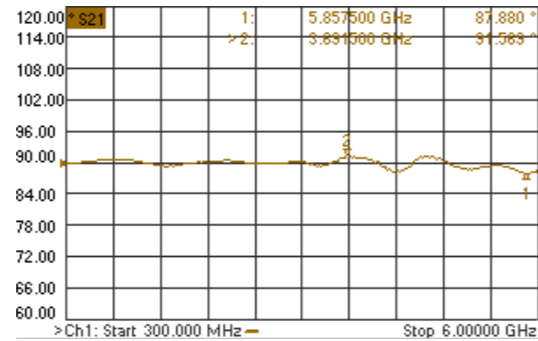
**VSWR:**



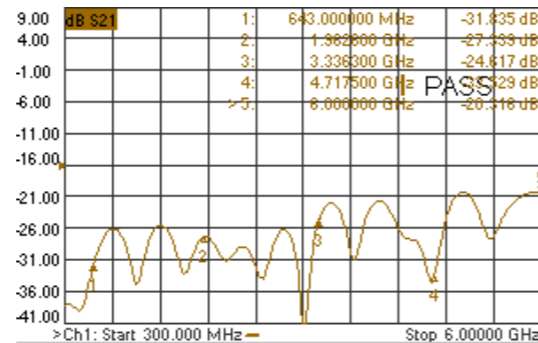
**Loss & amplitude:**



**Phase:**



**Isolation:**



**Typical product parameters:**

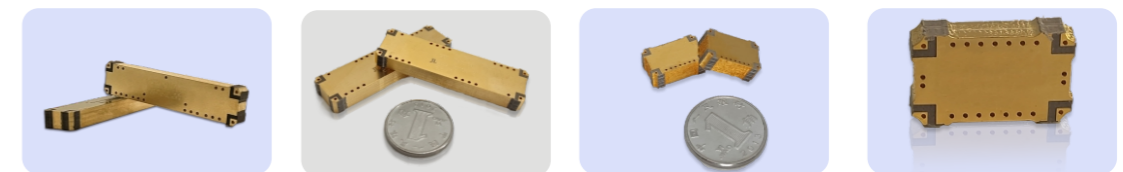
| Part number       | Freq Range (MHz) | Power (W/CW) | VSWR | Insertion Loss (dB) | Phase Balance (±°) | Amplitude Balance (±dB) | Isolation (dB) | Dimensions (mm) |
|-------------------|------------------|--------------|------|---------------------|--------------------|-------------------------|----------------|-----------------|
| HLD-T0188-3-350E  | 80-550           | 350          | 1.20 | 0.60                | 4                  | 1.8/1.0                 | 20             | 66.9*41*2.3     |
| HLD-T0142-3-250   | 80-1000          | 250          | 1.30 | 0.90                | 5                  | 1.00                    | 18             | 68*40*4.7       |
| HLD-T0142-3-75    | 80-1000          | 75           | 1.30 | 1.20                | 5                  | 1.00                    | 18             | 68*25*1.6       |
| HLD-T01009-3      | 87-108           | 100          | 1.20 | 0.40                | 3                  | 0.20                    | 20             | 57.95*20*2.2    |
| HLD-T010701-3     | 100-700          | 200          | 1.35 | 0.80                | 5                  | 1.00                    | 16/18          | 65.2*35*3       |
| HLD-T0188-3-100   | 100-520          | 150          | 1.30 | 0.60                | 5                  | 0.80                    | 18             | 50.8*19.05*6.7  |
| HLD-T0188-3-200   | 100-520          | 200          | 1.40 | 0.80                | 5                  | 1/1.5                   | 15             | 51.8*30*5       |
| HLD-T0188-3       | 100-520          | 400          | 1.30 | 0.45                | 5                  | 0.90                    | 17             | 83.8*38.1*5.6   |
| HLD-T0188-3-350D  | 100-605          | 350          | 1.30 | 0.55                | 5                  | 1.5/1.1                 | 18             | 69.8*41*2.3     |
| HLD-T010805-3     | 100-800          | 150          | 1.30 | 1.20                | 4                  | 0.90                    | 18             | 50.8*29.8*1.4   |
| HLD-T010805-3-400 | 100-800          | 400          | 1.30 | 0.70                | 4                  | 0.90                    | 18             | 69.8*40*2.5     |
| HLD-T010044-3     | 108-125          | 100          | 1.20 | 0.35                | 2                  | 0.15                    | 18             | 25.4*12.7*3.5   |
| HLD-T010T95-3     | 150-2700         | 75           | 1.45 | 1.20                | 5                  | 1.10                    | 16             | 65*29*2.4       |
| HLD-T010003-3     | 167-223          | 50           | 1.25 | 0.40                | 3                  | 0.50                    | 20             | 25.4*12.7*1.4   |
| HLD-T010801-3A    | 200-1000         | 300          | 1.30 | 0.50                | 4                  | 0.95                    | 15             | 37.34*28.7*4.58 |
| HLD-T010801-3     | 200-2000         | 200          | 1.40 | 0.90                | 5                  | 1.00                    | 14             | 37.34*28.7*4.6  |
| HLD-T010801-3-300 | 200-2000         | 300          | 1.30 | 0.70                | 5                  | 1.2/1.0                 | 18             | 50*28.7*3.7     |
| HLD-T010201-3     | 225-520          | 700          | 1.30 | 0.35                | 5                  | 0.80                    | 16             | 61.61*22.7*12.9 |
| HLD-T010312-3     | 225-678          | 50           | 1.3  | 0.50                | 4                  | 0.50                    | 18             | 50*19*3.9       |
| HLD-T010313-3     | 225-680          | 100          | 1.25 | 0.40                | 4                  | 0.60                    | 20             | 64*26.2*9       |
| HLD-T010307-3     | 225-680          | 200          | 1.25 | 0.30                | -                  | 0.50                    | 22             | 64*26.2*9       |
| HLDB-T010317-3-50 | 225-800          | 50           | 1.35 | 0.50                | 5                  | 1.20                    | 16             | 50*28*10        |
| HLDB-T010317-3    | 225-800          | 400          | 1.35 | 0.50                | 5                  | 1.20                    | 16             | 75*38*10        |
| HLD-T0128-3       | 225-1250         | 200          | 1.30 | 0.50                | 5                  | 0.90                    | 20             | 37.34*28.7*5.3  |
| HLD-T010603-3     | 300-2000         | 200          | 1.25 | 0.60                | 3                  | 0.60                    | 20             | 37.34*28.7*2.3  |
| HLD-T010T88-3     | 300-3000         | 200          | 1.40 | 0.80                | 5                  | 0.80                    | 18             | 50*28.7*3       |
| HLD-T011T02-3     | 300-6000         | 70           | 1.40 | 1.40                | 3                  | 1.4/1.2                 | 15             | 38.1*25.4*2.2   |
| HLD-T010216-3     | 350-860          | 200          | 1.30 | 0.20                | 4                  | 0.8/0.6                 | 18             | 14.22*8.9*2.1   |
| HLD-T010027-3     | 375-415          | 600          | 1.20 | 0.35                | 3                  | 0.30                    | 20             | 92*38.1*11      |
| HLD-T010502-3     | 380-2000         | 250          | 1.25 | 0.55                | 2.5                | 0.50                    | 19             | 50.8*19.04*2.3  |
| HLD-T010702-3     | 400-3000         | 200          | 1.4  | 0.80                | 4                  | 0.80                    | 16             | 70*48*12        |
| HLD-T01004-3      | 440-730          | 200          | 1.25 | 0.40                | 3                  | 0.50                    | 20             | 16.51*12.19*2.5 |
| HLD-T01004-3-400  | 440-730          | 400          | 1.25 | 0.25                | 2                  | 0.40                    | 20             | 25.4*12.7*3.7   |
| HLD-T010209-3     | 500-1300         | 200          | 1.25 | 0.25                | 5                  | 0.80                    | 18             | 25.4*12.7*2.6   |
| HLD-T0107-3-50    | 500-2500         | 50           | 1.35 | 0.60                | 5                  | 0.85                    | 16             | 25.4*12.7*5     |
| HLD-T0107-3       | 500-2500         | 100          | 1.30 | 0.60                | 5                  | 0.60                    | 18             | 45.7*12.7*5.5   |
| HLD-T0207-3       | 500-2500         | 200          | 1.50 | 0.70                | 10                 | 0.80                    | 17             | 95*80*12        |
| HLD-T0166-3A      | 500-2700         | 100          | 1.30 | 0.60                | 5                  | 0.80                    | 18             | 45.72*12.7*5.5  |
| HLD-T0166-3-200   | 500-2700         | 200          | 1.50 | 0.60                | 5                  | 0.90                    | 15             | 45.72*12.7*5.5  |
| HLD-T010601-3     | 500-2800         | 100          | 1.4  | 0.60                | 5                  | 0.80                    | 18             | 45.72*12.7*4.9  |

## Typical product parameters:

| Part number     | Freq Range (MHz) | Power (W/CW) | VSWR | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balance ( $\pm$ /dB) | Isolation (dB) | Dimensions (mm) |
|-----------------|------------------|--------------|------|---------------------|-------------------------------|--------------------------------|----------------|-----------------|
| HLD-T010601-3C  | 500-3000         | 200          | 1.30 | 0.60                | 5                             | 1.20                           | 18             | 31.75*19.05*2.5 |
| HLDB-T010601-3  | 500-3000         | 300          | 1.4  | 0.60                | 5                             | 0.7                            | 18             | 66*50*12        |
| HLD-T0149-3     | 500-6000         | 100          | 1.50 | 1.10                | 6                             | 1.70                           | 13             | 45.72*12.7*4.1  |
| HLD-T010310-3   | 600-2000         | 250          | 1.30 | 0.40                | 4                             | 0.40                           | 18             | 45.7*12.7*6     |
| HLD-T0156-3     | 600-6000         | 50           | 1.40 | 1.00                | 8                             | 1.10                           | 18             | 25.4*12.7*1.6   |
| HLD-T0156-3-100 | 600-6000         | 100          | 1.40 | 1.00                | 6                             | 0.9/1.1                        | 18             | 31.75*19.05*2.4 |
| HLD-T0141-3     | 698-2700         | 150          | 1.30 | 0.60                | 5                             | 0.80                           | 18             | 50*10*5         |
| HLD-T0141-3A    | 698-3000         | 100          | 1.30 | 0.60                | 5                             | 0.80                           | 18             | 50*10*5         |
| HLD-T010320-3   | 700-2100         | 250          | 1.35 | 0.50                | 5                             | 0.50                           | 16             | 45.72*12.7*5.1  |
| HLD-T0193-3A    | 800-2000         | 50           | 1.25 | 0.40                | 4                             | 0.80                           | 20             | 14.22*5.08*2.7  |
| HLD-T0193-3     | 800-2000         | 150          | 1.35 | 0.30                | 5                             | 0.80                           | 16             | 14.2*8.9*3.5    |
| HLD-T0193-3-300 | 800-2000         | 300          | 1.30 | 0.30                | 4                             | 0.80                           | 18             | 25.4*12.7*5.3   |
| HLD-T010302-3   | 800-3000         | 150          | 1.40 | 0.45                | 5                             | 0.65                           | 18             | 38.1*12.7*1.7   |
| HLD-T010401-3   | 800-3500         | 100          | 1.35 | 0.50                | 4                             | 0.80                           | 18             | 25.4*12.7*5.6   |
| HLD-T0197-3-200 | 800-4000         | 200          | 1.40 | 0.50                | 5                             | 0.90                           | 17             | 53*28*10        |
| HLD-T0197-3     | 800-4200         | 125          | 1.35 | 0.65                | 5                             | 0.80                           | 15             | 45.7*5.1*8.2    |
| HLD-T010015-3   | 900-1300         | 300          | 1.25 | 0.25                | 3                             | 0.25                           | 20             | 25.4*12.7*4     |
| HLD-T010012-3   | 900-1400         | 250          | 1.20 | 0.25                | 3                             | 0.30                           | 20             | 25.4*12.7*3.9   |
| HLD-T010222-3   | 900-2000         | 50           | 1.30 | 0.30                | 5                             | 0.60                           | 18             | 14.22*5.08*2.2  |
| HLD-T010318-3   | 900-3500         | 30           | 1.40 | 0.60                | 5                             | 0.60                           | 17             | 18*12*2         |
| HLD-T0129-3     | 960-1250         | 100          | 1.20 | 0.20                | 2                             | 0.30                           | 23             | 14.2*8.9*1.6    |
| HLD-T0131-3B    | 960-2000         | 60           | 1.30 | 0.40                | 5                             | 0.70                           | 20             | 14.2*8.9*1.4    |
| HLD-T013053-3   | 1000-1700        | 200          | 1.25 | 0.20                | 3                             | 0.40                           | 20             | 14.22*8.89*2.7  |
| HLD-T0131-3     | 1000-2000        | 200          | 1.25 | 0.40                | 3                             | 0.50                           | 20             | 14.22*8.89*2.7  |
| HLD-T0131-3-300 | 1000-2000        | 300          | 1.25 | 0.30                | 3                             | 0.50                           | 20             | 25.4*12.7*4     |
| HLD-T0138-3     | 1000-2500        | 150          | 1.35 | 0.35                | 5                             | 0.80                           | 15             | 14.2*8.9*2.9    |
| HLD-T0170-3-400 | 1000-3000        | 400          | 1.30 | 0.30                | 5                             | 1.10                           | 17             | 25.4*12.7*5.6   |
| HLD-T013303-3   | 1000-3400        | 50           | 1.35 | 0.50                | 5                             | 0.60                           | 17             | 18*12*2         |
| HLD-T0175-3A    | 1000-4000        | 100          | 1.30 | 0.50                | 5                             | 0.60                           | 18             | 45.72*10.16*4.6 |
| HLD-T0187-3-50  | 1000-6000        | 50           | 1.30 | 0.75                | 4                             | 1.20                           | 17             | 41.91*5.08*1.1  |
| HLD-T0187-3-100 | 1000-6000        | 100          | 1.35 | 0.90                | 6                             | 0.80                           | 18             | 31.75*19.05*2.4 |
| HLD-T0187-3-200 | 1000-6000        | 200          | 1.50 | 1.00                | 5                             | 0.60                           | 14             | 38.1*25.4*2.9   |
| HLD-T0150-3     | 1000-8000        | 60           | 1.50 | 1.00                | 6                             | 1.20                           | 16             | 55*32*10        |
| HLD-T013059-3   | 1100-1700        | 100          | 1.35 | 0.50                | 3                             | 0.40                           | 18             | 8.89*5.08*2.7   |
| HLD-T013041-3   | 1300-2300        | 50           | 1.25 | 0.30                | 5                             | 0.50                           | 19             | 14.22*5.08*2    |
| HLD-T0131-3A    | 1350-1850        | 150          | 1.20 | 0.30                | 2                             | 0.30                           | 20             | 14.22*8.9*1.4   |
| HLD-T013073-3   | 1500-2500        | 250          | 1.35 | 0.30                | 4                             | 0.40                           | 18             | 14.22*8.89*5.2  |
| HLD-T013027-3   | 1700-2300        | 400          | 1.20 | 0.25                | 3                             | 0.30                           | 20             | 25.4*12.7*3.9   |

## Typical product parameters:

| Part number       | Freq Range (MHz) | Power (W/CW) | VSWR | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balance ( $\pm$ /dB) | Isolation (dB) | Dimensions (mm) |
|-------------------|------------------|--------------|------|---------------------|-------------------------------|--------------------------------|----------------|-----------------|
| HLD-T013058-3     | 1800-2300        | 60           | 1.2  | 0.30                | 4                             | 0.25                           | 21             | 6.35*5.08*2.1   |
| HLD-T013039-3     | 1800-2500        | 300          | 1.25 | 0.25                | 3                             | 0.30                           | 20             | 16.5*12.2*2.8   |
| HLD-T013065-3     | 1800-2700        | 400          | 1.20 | 0.15                | 4                             | 0.30                           | 23             | 25.4*12.7*6     |
| HLD-T013050-3     | 2000-2300        | 100          | 1.20 | 0.15                | 2                             | 0.25                           | 26             | 14.2*5.1*2.1    |
| HLD-T0132-3-150   | 2000-4000        | 150          | 1.30 | 0.25                | 4                             | 0.50                           | 18             | 14.22*5.08*2.6  |
| HLD-T0132-3G      | 2000-4000        | 250          | 1.35 | 0.35                | 4                             | 0.55                           | 18             | 14.22*8.9*5.0   |
| HLD-T0146-3G      | 2000-6000        | 100          | 1.30 | 0.30                | 5                             | 1.00                           | 18             | 14.22*5.08*3.2  |
| HLD-T013206-3     | 2000-6500        | 100          | 1.40 | 0.35                | 5                             | 1.4/1.2                        | 17             | 14.2*8.9*3.5    |
| HLD-T013206-3A    | 2000-6500        | 200          | 1.3  | 0.40                | 5                             | 0.50                           | 18             | 16.51*12.19*2.5 |
| HLD-T013304-3     | 2000-7500        | 100          | 1.35 | 0.60                | 5                             | 0.80                           | 18             | 16.51*12.19*2   |
| HLD-T0123-3T      | 2000-8000        | 100          | 1.40 | 0.60                | 6                             | 0.80                           | 18             | 16.51*12.19*2   |
| HLD-T0123-3       | 2000-8000        | 150          | 1.35 | 0.50                | 5                             | 0.70                           | 18             | 48*25*11        |
| HLDB-T0123-3      | 2000-8000        | 200          | 1.40 | 0.70                | 5                             | 0.70                           | 17             | 38*25*11        |
| HLD-T013047-3     | 2300-4000        | 150          | 1.25 | 0.25                | 4                             | 0.40                           | 20             | 14.22*5.08*2.60 |
| HLD-T0145-3       | 2300-2700        | 200          | 1.20 | 0.20                | 2                             | 0.25                           | 23             | 14.22*8.89*4.2  |
| HLD-T013034-3     | 2700-3500        | 400          | 1.30 | 0.25                | 5                             | 0.25                           | 18             | 25.4*12.7*5.3   |
| HLD-T013208-3     | 2700-6200        | 250          | 1.40 | 0.50                | 5                             | 1.00                           | 17             | 14.22*8.89*2.5  |
| HLD-T013205-3     | 3000-6000        | 100          | 1.40 | 0.40                | 5                             | 0.50                           | 16             | 14.2*8.9*1.4    |
| HLD-T013028-3     | 4000-6000        | 100          | 1.3  | 0.30                | 3                             | 0.40                           | 18             | 14.22*5.08*3    |
| HLD-T0133-3       | 4000-8000        | 75           | 1.45 | 0.50                | 6                             | 0.70                           | 16             | 14.2*8.9*1.4    |
| HLD-T0133-3-100   | 4000-8000        | 100          | 1.40 | 0.50                | 5                             | 0.50                           | 16             | 10.16*5.08*3    |
| HLD-T0133-3-150   | 4000-8000        | 150          | 1.35 | 0.40                | 4                             | 0.60                           | 18             | 30*25*11        |
| HLD-T013211-3     | 4000-10000       | 100          | 1.30 | 0.65                | 5                             | 0.40                           | 17             | 25.4*12.7*2.6   |
| HLD-T013021-3-250 | 4400-6800        | 250          | 1.40 | 0.35                | 5                             | 0.50                           | 17             | 14.22*8.89*4    |
| HLD-T013045-3     | 5000-6000        | 50           | 1.25 | 0.25                | 3                             | 0.30                           | 20             | 6.35*5.08*1.7   |
| HLD-T013029-3     | 5000-7000        | 100          | 1.50 | 0.40                | 5                             | 0.25                           | 16             | 10.16*5.08*3    |
| HLD-T0134-3       | 5000-11000       | 50           | 1.40 | 0.80                | 5                             | 0.50                           | 18             | 36*25*9         |
| HLD-T013036-3     | 5100-5900        | 350          | 1.35 | 0.40                | 6                             | 0.25                           | 15             | 25.4*12.7*4     |
| HLD-T013035-3     | 5700-6800        | 250          | 1.30 | 0.30                | 4                             | 0.30                           | 18             | 48*25*11        |
| HLD-T0163-3A      | 8000-12000       | 50           | 1.50 | 0.60                | 6                             | 0.60                           | 15             | 6.35*5.08*2.2   |
| HLD-T0163-3B      | 8000-12000       | 100          | 1.50 | 0.60                | 6                             | 0.60                           | 15             | 14.22*8.89*1.3  |
| HLD-T016027-3     | 10000-13000      | 100          | 1.50 | 0.8                 | 6                             | 0.60                           | 15             | 14.22*8.89*1.3  |
| HLD-T0164-3       | 10000-13000      | 50           | 1.60 | 0.70                | 6                             | 0.50                           | 15             | 6.35*5.08*2.2   |



Model:HLD-F010601-3



### Features:

- Miniature embedded device
- Low loss, ultra - broadband, high isolation, high power
- Acceptance of customization

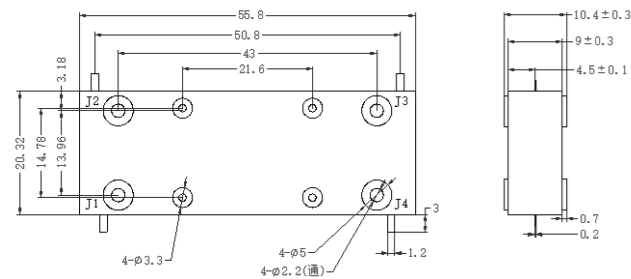
### Typical applications:

It is mainly used for orthogonal power distribution synthesis, and can be widely used in electronic countermeasures, radar, communication, testing and measurement platforms.

### Performance index:

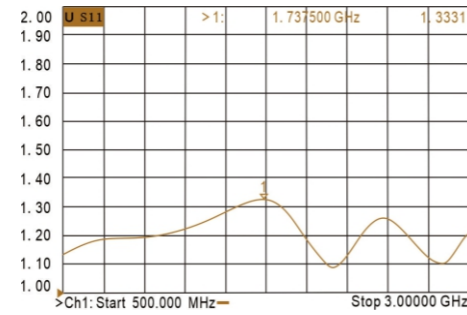
- Frequency range: 500-3000MHz
- Insertion loss:  $\leq 0.6\text{dB}$
- VSWR:  $\leq 1.5$
- Isolation :  $\geq 14\text{dB}$
- Phase balance:  $\leq \pm 6^\circ$
- Amplitude balance:  $\leq \pm 0.8\text{dB}$
- Power: 200W(CW)

### Outline:

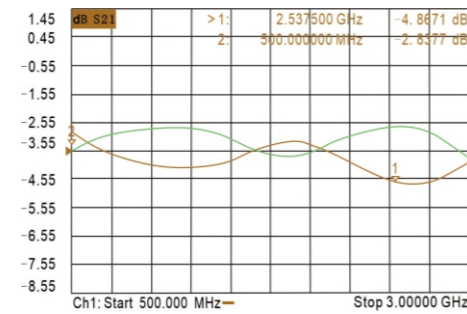


### Graph:

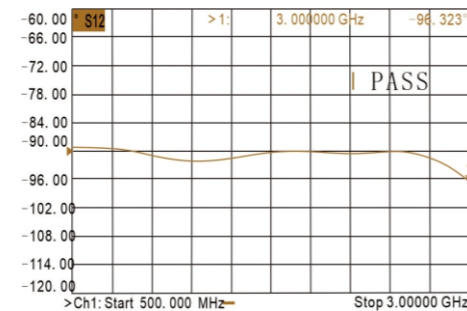
#### VSWR:



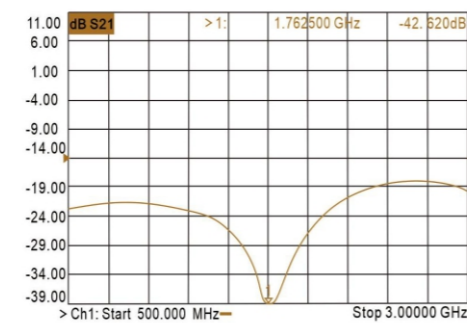
#### Loss & amplitude:



#### Phase:



#### Isolation:



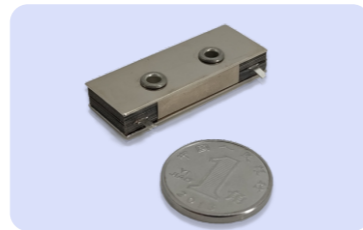
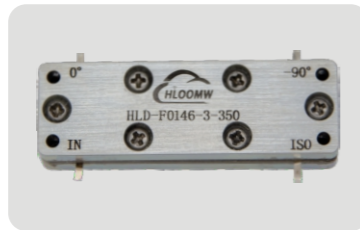
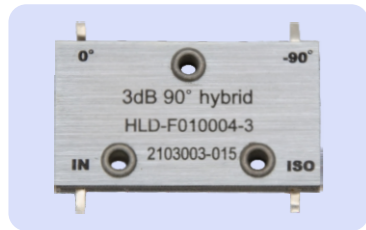
### Typical product parameters:

| Part number        | Freq Range (MHz) | Power (W/CW) | VSWR | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balance ( $\pm\text{dB}$ ) | Isolation (dB) | Dimensions (mm)  |
|--------------------|------------------|--------------|------|---------------------|-------------------------------|--------------------------------------|----------------|------------------|
| HLD-F010T11-3      | 20-520           | 200          | 1.30 | 0.80                | 10.0                          | 0.30                                 | 16             | 55.88*76.2*30    |
| HLD-F010311-3      | 30-110           | 50           | 1.35 | 0.50                | 5.0                           | 0.35                                 | 18             | 220*50*10        |
| HLD-F010206-3      | 30-88            | 200          | 1.30 | 0.60                | 6.0                           | 1.00                                 | 16             | 67.3*67.3*4.6    |
| HLD-T0196-3        | 80-400           | 800          | 1.30 | 0.35                | 5.0                           | 0.80                                 | 18             | 127*63.5*10.4    |
| HLD-F0188-3        | 100-500          | 500          | 1.30 | 0.35                | 5.0                           | 0.80                                 | 16             | 127*63.5*10.3    |
| HLD-F010607-3      | 100-678          | 200          | 1.35 | 0.70                | 5.0                           | 0.80                                 | 16             | 83.8*38.1*3.2    |
| HLD-F0122-3A       | 105-180          | 400          | 1.20 | 0.30                | 2.0                           | 0.50                                 | 20             | 55.9*20.22*2.7   |
| HLD-F010402-3-1000 | 108-512          | 1000         | 1.30 | 0.50                | 5.0                           | 1.00                                 | 16             | 127*63.5*12.5    |
| HLD-F010003-3      | 167-223          | 800          | 1.3  | 0.30                | 2.0                           | 0.40                                 | 20             | 100*38*6.1       |
| HLD-F010201-3-1000 | 220-520          | 1000         | 1.30 | 0.42                | 5.0                           | 0.75                                 | 16             | 87.82*38.1*10.5  |
| HLD-F010201-3A     | 225-512          | 200          | 1.25 | 0.30                | 5.0                           | 0.60                                 | 20             | 41.2*14.2*3.3    |
| HLD-F010201-3-400  | 225-520          | 400          | 1.25 | 0.25                | 5.0                           | 0.75                                 | 20             | 55.9*20.22*2.58  |
| HLD-F010201-3      | 225-520          | 200          | 1.25 | 0.25                | 5.0                           | 0.70                                 | 20             | 50.8*12.7*3.2    |
| HLD-F010307-3      | 225-680          | 400          | 1.35 | 0.60                | 5.0                           | 0.50                                 | 17             | 75*32.1*7.75     |
| HLD-F0137-3        | 300-1000         | 400          | 1.25 | 0.25                | 5.0                           | 1.50                                 | 20             | 50.8*12.7*5.5    |
| HLD-F010221-3      | 350-800          | 400          | 1.25 | 0.25                | 4.0                           | 0.70                                 | 20             | 50.8*12.7*5.5    |
| HLD-F0174-3        | 400-1000         | 200          | 1.25 | 0.25                | 5.0                           | 0.70                                 | 18.5           | 34.29*12.7*3.3   |
| HLD-F0174-3-400    | 400-1000         | 400          | 1.25 | 0.25/0.95           | 5.0                           | 0.70                                 | 20             | 50.8*12.7*5.5    |
| HLD-F0174-3-600    | 400-1000         | 600          | 1.25 | 0.20                | 3.0                           | 0.75                                 | 20             | 62*12.7*10.6     |
| HLDB-F010509-3     | 400-2000         | 300          | 1.3  | 0.50                | 5.0                           | 0.80                                 | 18             | 45*28*3.6        |
| HLD-F010604-3      | 400-2500         | 200          | 1.30 | 0.50                | 5.0                           | 0.80                                 | 17             | 55.88*33.02*8.9  |
| HLD-F010004-3      | 440-800          | 800          | 1.25 | 0.20                | 2.0                           | 0.40                                 | 20             | 37*20.7*5.5      |
| HLD-F010002-3      | 470-700          | 800          | 1.2  | 0.20                | 2.0                           | 0.40                                 | 20             | 37*20.7*5.5      |
| HLD-F0130-3        | 500-1000         | 400          | 1.25 | 0.25                | 5.0                           | 0.60                                 | 20             | 37*18.7*5.5      |
| HLDB-F0107-3       | 500-2500         | 400          | 1.30 | 0.50                | 4.0                           | 0.50                                 | 18             | 80*38*8          |
| HLD-F010601-3      | 500-3000         | 200          | 1.50 | 0.60                | 6.0                           | 0.8/1.0                              | 14             | 55.8*20.32*10.4  |
| HLD-F0149-3        | 500-6000         | 300          | 1.60 | 0.80                | 6.0                           | 1.80                                 | 15             | 152*60*20        |
| HLD-F010005-3      | 700-800          | 800          | 1.25 | 0.20                | 2.0                           | 0.40                                 | 20             | 37*20.7*5.5      |
| HLD-F010018-3      | 700-910          | 600          | 1.25 | 0.20                | 3.0                           | 0.40                                 | 20             | 37*20.7*5.32     |
| HLD-F010018-3-400  | 700-910          | 400          | 1.25 | 0.20                | 2.0                           | 0.30                                 | 18             | 37*20.7*5.8      |
| HLD-F010309-3      | 700-2700         | 300          | 1.35 | 0.45                | 6.0                           | 0.60                                 | 17             | 55.8*20.32*9.4   |
| HLD-F0193-3        | 800-2000         | 400          | 1.30 | 0.25                | 5.0                           | 0.80                                 | 18             | 34.4*12.7*6.8    |
| HLD-F0147-3        | 800-2500         | 200          | 1.40 | 0.55                | 5.0                           | 0.40                                 | 16             | 55.8*20.32*7.9   |
| HLD-F010023-3      | 900-930          | 1000         | 1.20 | 0.20                | 3.0                           | 0.25                                 | 20             | 60.96*25.4*14.54 |
| HLD-F010222-3      | 900-2000         | 400          | 1.30 | 0.30                | 5.0                           | 0.70                                 | 18             | 54*12.7*14       |
| HLD-F01101-3       | 930-960          | 480          | 1.30 | 0.20                | 2.0                           | 0.30                                 | 18             | 34.3*12.7*5.7    |
| HLD-F0129-3-150A   | 950-1225         | 150          | 1.25 | 0.30                | 2.0                           | 0.30                                 | 18             | 34.3*12.7*3.3    |
| HLD-F0129-3        | 960-1250         | 400          | 1.25 | 0.20                | 2.0                           | 0.30                                 | 18             | 34.4*12.7*5.7    |

## Typical product parameters:

| Part number      | Freq Range (MHz) | Power (W/CW) | VSWR | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balance ( $\pm$ /dB) | Isolation (dB) | Dimensions (mm)  |
|------------------|------------------|--------------|------|---------------------|-------------------------------|--------------------------------|----------------|------------------|
| HLD-F010208-3    | 960-2000         | 400          | 1.30 | 0.25                | 5.0                           | 0.70                           | 18             | 34.4*12.7*5.7    |
| HLD-F0131-3-1000 | 1000-2000        | 1000         | 1.25 | 0.20                | 5.0                           | 0.50                           | 18             | 60.96*25.4*13.64 |
| HLD-F0170-3      | 1000-3000        | 225          | 1.30 | 0.30                | 5.0                           | 1.10                           | 18             | 34.3*12.7*5.5    |
| HLD-F0178-3      | 1100-1700        | 400          | 1.25 | 0.20                | 3.0                           | 0.40                           | 20             | 34.4*12.7*5.7    |
| HLD-F0152-3      | 1200-1400        | 300          | 1.25 | 0.20                | 2.0                           | 0.40                           | 18             | 34.4*12.7*5.7    |
| HLD-F0178-3A     | 1300-1800        | 400          | 1.30 | 0.30                | 3.0                           | 0.50                           | 18             | 34.4*12.7*5.7    |
| HLD-F0178-3C     | 1800-1920        | 400          | 1.40 | 0.35                | 5.0                           | 0.50                           | 16             | 34.4*12.7*5.7    |
| HLD-F0132-3-400  | 2000-4000        | 400          | 1.30 | 0.30                | 5.0                           | 0.50                           | 18             | 34.29*12.7*8.2   |
| HLD-F0146-3-350  | 2000-6000        | 350          | 1.30 | 0.50                | 4.0                           | 0.70                           | 18             | 50*16*12         |
| HLD-F0123-3      | 2000-8000        | 200          | 1.40 | 0.80                | 5.0                           | 0.50                           | 18             | 46*18*10         |
| HLD-F013081-3    | 2490-2510        | 1000         | 1.20 | 0.50                | 3.0                           | 0.20                           | 20             | 44*38*12         |
| HLD-F013034-3    | 2700-3500        | 600          | 1.35 | 0.30                | 4.0                           | 0.30                           | 18             | 52*28*14         |
| HLD-T016010-3    | 12750-14500      | 80           | 1.5  | 0.50                | 5.0                           | 0.30                           | 15             | 25*13*11         |

## Product display:



Model:HLD-F0166-3-25



## Features:

- Miniaturized embedded devices, low loss, ultrabroadband, high isolation, high power
- Input 25 ohm, output 50 ohm impedance
- Easy to match with power amplifier tube, can effectively reduce the size of power amplifier tube module
- Acceptance of customization

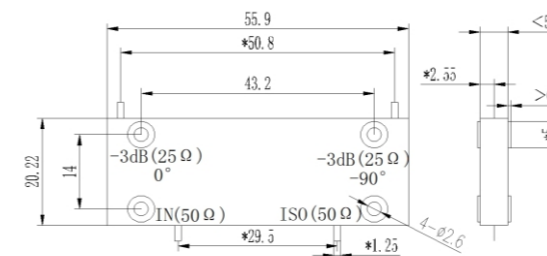
## Typical applications:

It is mainly used for the synthesis of orthogonal power allocation and can be widely used in electrons.

## Performance index:

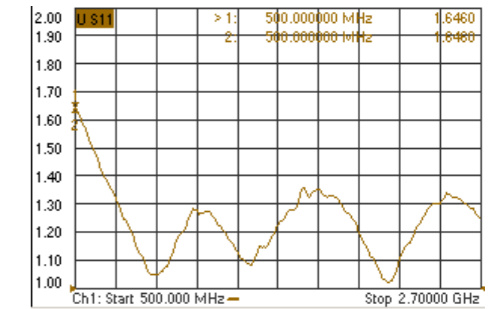
- Frequency range: 500-2700MHz
- Insertion loss:  $\leq 3.2\text{dB}@0.5-1\text{GHz}$   
 $\leq 2\text{dB}@1-2.7\text{GHz}$
- VSWR:  $\leq 1.8@0.5-1\text{GHz}$   
 $\leq 1.4@1-2.7\text{GHz}$
- Power: 250W
- Connector: Drop-in

## Outline:

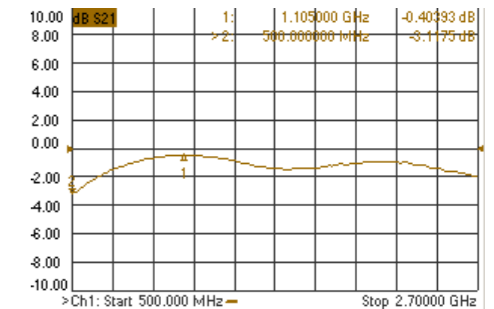


Graph:

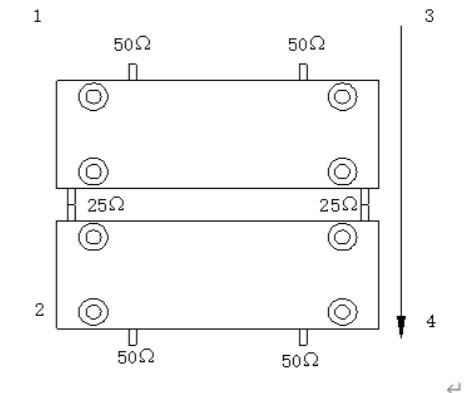
VSWR:



Loss :



## Test principle:

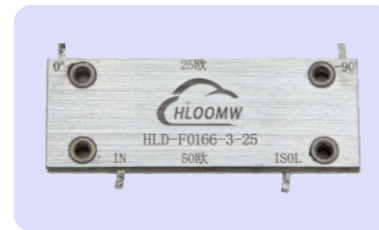
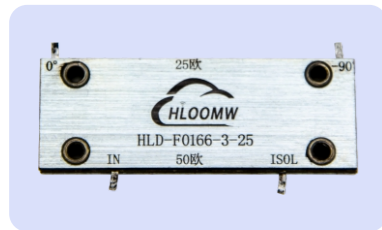


## 90 Degree Hybrids: Impedance Transforming(50ohm&25ohm)

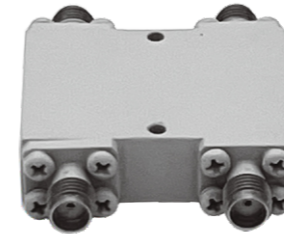
### Typical product parameters:

| Part Number       | Freq Range (MHz) | VSWR | Insertion Loss (dB) | Power (W) | Outline Dimensions (mm) |
|-------------------|------------------|------|---------------------|-----------|-------------------------|
| HLDZ-F010501-3-25 | 400-4200         | 1.70 | 3.00                | 300       | 68.2*34.2*9.4           |
| HLD-F0166-3-25    | 500-2700         | 1.80 | 3.20                | 250       | 55.9*20.2*25.1          |
| HLDZ-F010601-3-25 | 600-3000         | 1.70 | 2.50                | 300       | 55.9*20.2*9.1           |
| HLDZ-F0146-3-25   | 800-25200        | 1.70 | 2.50                | 200       | 58.2*21.2*4.9           |
| HLD-T013028-3-25  | 4000-6000        | 1.50 | 1.20                | 100       | 19.4*9.3*2.0            |

### Product display:



Model:HLD-A0157-3



### Characteristic:

- Low loss, ultra - broadband, high isolation
- Product serialization
- Acceptance of customization

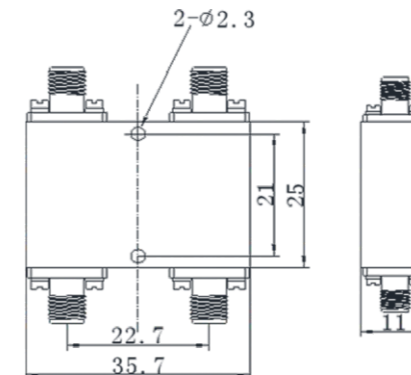
### Typical applications:

It is mainly used for orthogonal power distribution synthesis, and can be widely used in electronic countermeasures, radar, communication, testing and measurement platforms.

### Performance index:

- Frequency range: 6-18GHz
- Insertion loss:  $\leq 0.8\text{dB}$  (average)
- VSWR:  $\leq 1.6$
- Isolation:  $\geq 15\text{dB}$
- Phase balance:  $\leq \pm 8^\circ$
- Amplitude balance:  $\leq \pm 0.7\text{dB}$
- Power: 50W (CW)

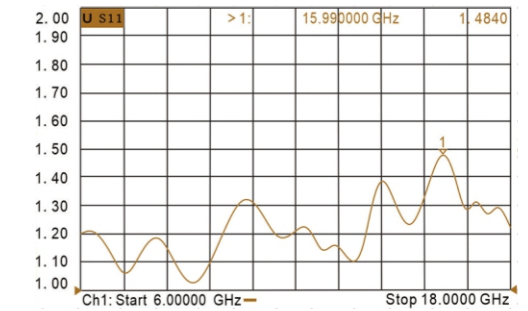
### Outline:



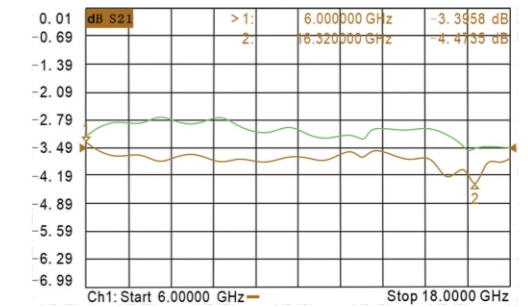
## 90 Degree Hybrids: Connectorized

Graph:

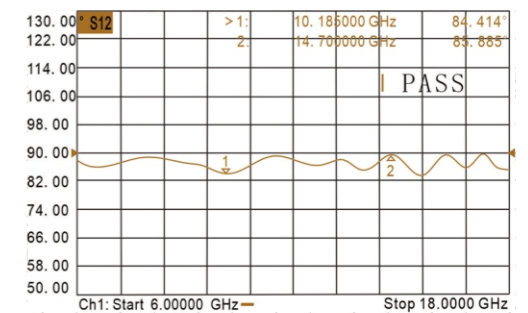
VSWR:



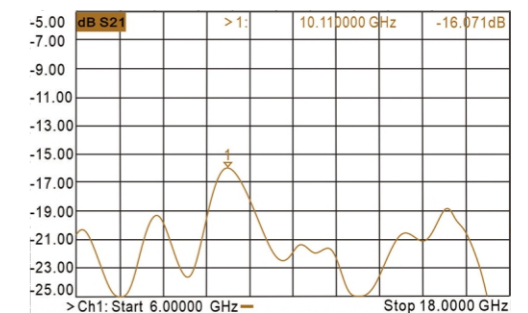
Loss & amplitude :



Phase:



Isolation:

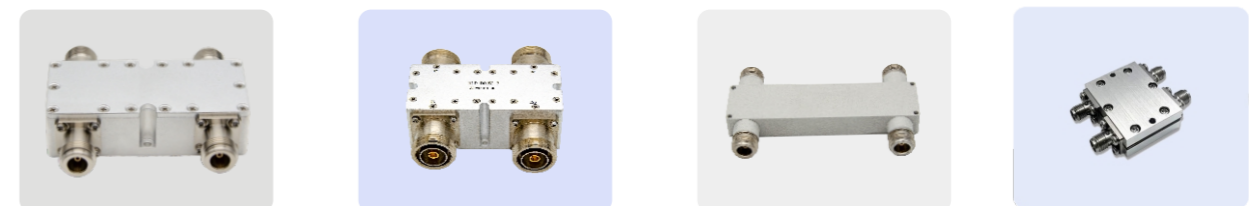


## Typical product parameters:

| Part number      | Freq Range (MHz) | Power (W/CW) | VSWR | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balance ( $\pm$ dB) | Isolation (dB) | Connector |
|------------------|------------------|--------------|------|---------------------|-------------------------------|-------------------------------|----------------|-----------|
| HLD-B010311-3    | 30-110           | 800          | 1.30 | 0.40                | 5.0                           | 0.35                          | 18             | N-F;SMA-F |
| HLD-A0142-3      | 80-1000          | 100          | 1.30 | 0.90                | 8.0                           | 1.3/1.5                       | 16             | SMA-F     |
| HLD-F0142-3N     | 80-1000          | 200          | 1.35 | 0.90                | 8.0                           | 1.30                          | 16             | N-F       |
| HLD-N0142-3-250  | 80-1000          | 250          | 1.30 | 1.00                | 5.0                           | 1.00                          | 18             | N-F       |
| HLDQ-N010403-3   | 100-400          | 800          | 1.30 | 0.35                | 5.0                           | 0.60                          | 18             | N-F       |
| HLD-N010201-3    | 225-520          | 200          | 1.25 | 0.25                | 5.0                           | 0.70                          | 20             | N-F       |
| HLDB-A010039-3   | 335-415          | 100          | 1.20 | 0.30                | 3.0                           | 0.30                          | 20             | SMA-F     |
| HLD-N0135-3      | 350-700          | 800          | 1.30 | 0.25                | 3.0                           | 0.50                          | 20             | N-F       |
| HLD-A0274-3      | 400-1000         | 50           | 1.40 | 1.00                | 10.0                          | 0.60                          | 20             | SMA-F     |
| HLD-E0174-3      | 400-1000         | 1000         | 1.35 | 0.50                | 5.0                           | 0.60                          | 16             | 7/16-F    |
| HLDQ-NF010037-3  | 400-700          | 800          | 1.30 | 0.25                | 3.0                           | 0.50                          | 20             | N-F;F 1.5 |
| HLD-N0184-3      | 450-820          | 800          | 1.30 | 0.25                | 3.0                           | 0.50                          | 20             | N-F       |
| HLDR-N0130-3     | 500-1000         | 1000         | 1.30 | 0.30                | 4.0                           | 0.50                          | 18             | N-F       |
| HLDQ-N0151-3     | 500-2000         | 500          | 1.40 | 0.35                | 5.0                           | 0.60                          | 16             | N-F       |
| HLDQ-N010601-3   | 500-3000         | 300          | 1.40 | 0.40                | 5.0                           | 0.80                          | 18             | N-F       |
| HLD-A0149-3      | 500-6000         | 100          | 1.50 | 1.50                | 6.0                           | 1.00                          | 14             | SMA-F     |
| HLD-N0149-3      | 500-6000         | 300          | 1.60 | 0.80                | 6.0                           | 1.80                          | 15             | N-F       |
| HLDB-N010406-3   | 600-2700         | 400          | 1.40 | 0.50                | 5.0                           | 0.60                          | 18             | N-F       |
| HLD-A0156-3      | 600-6000         | 100          | 1.40 | 1.20                | 6.0/8.0                       | 1.1/1.3                       | 18             | SMA-F     |
| HLD-N0187-3      | 700-6000         | 300          | 1.50 | 0.50                | 5.0                           | 0.5/1.2                       | 17             | N-F       |
| HLDB-A020225-3   | 750-1700         | 30           | 1.30 | 0.80                | 4.0                           | 0.40                          | 16             | SMA-F     |
| HLD-A0293-3      | 800-2000         | 20           | 1.40 | 0.60                | 5.0                           | 0.40                          | 17             | SMA-F     |
| HLD-A0197-3      | 800-4500         | 125          | 1.70 | 1.80                | 15.0                          | 1.80                          | 15             | SMA-F     |
| HLD-A0129-3      | 950-1230         | 50           | 1.30 | 0.50                | 4.0                           | 0.50                          | 18             | SMA-F     |
| HLD-N0129-3      | 950-1230         | 600          | 1.30 | 0.30                | 4.0                           | 0.50                          | 18             | N-F       |
| HLD-A0131-3      | 1000-2000        | 50           | 1.20 | 0.20                | 2.0                           | 0.50                          | 22             | SMA-F     |
| HLD-A0102-3      | 1000-4000        | 50           | 1.30 | 0.40                | 4.0                           | 0.60                          | 20             | SMA-F     |
| HLD-N0175-3      | 1000-4200        | 400          | 1.50 | 0.50                | 10.0                          | 0.80                          | 15             | N-F       |
| HLD-A0204-3C     | 1100-1700        | 20           | 1.40 | 0.60                | 4.0                           | 0.35                          | 17             | SMA-F     |
| HLD-A0204-3A     | 1200-2400        | 20           | 1.40 | 0.60                | 4.0                           | 0.35                          | 17             | SMA-F     |
| HLD-D0152-3      | 1200-1410        | 2000         | 1.30 | 0.30                | 4.0                           | 0.30                          | 18             | 7/16-F    |
| HLD-A0204-3      | 1300-2400        | 20           | 1.40 | 0.60                | 4.0                           | 0.35                          | 17             | SMA-F     |
| HLD-N023018-3    | 1500-1700        | 300          | 1.35 | 0.40                | 6.0                           | 0.30                          | 18             | N-F       |
| HLDB-A023099-3   | 1700-2600        | 100          | 1.30 | 0.80                | 4.0                           | 0.40                          | 16             | SMA-F     |
| HLD-N0176-3      | 1745-2125        | 200          | 1.30 | 0.30                | 5.0                           | 0.50                          | 20             | N-F       |
| HLD-E0176-3      | 1745-2125        | 800          | 1.30 | 0.30                | 5.0                           | 0.50                          | 20             | N-F;DIN-F |
| HLD-N0147-3-1724 | 1750-2400        | 200          | 1.35 | 0.50                | 5.0                           | 0.40                          | 22             | N-F       |
| HLD-A0192-3      | 2000-2400        | 20           | 1.20 | 0.30                | 3.0                           | 0.15                          | 22             | SMA-F     |

## Typical product parameters:

| Part number      | Freq Range (MHz) | Power (W/CW) | VSWR      | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balance ( $\pm$ dB) | Isolation (dB) | Connector             |
|------------------|------------------|--------------|-----------|---------------------|-------------------------------|-------------------------------|----------------|-----------------------|
| HLD-A0292-3      | 2000-2400        | 20           | 1.25      | 0.35                | 3.0                           | 0.15                          | 20             | SMA-F                 |
| HLD-N013038-3    | 2000-3000        | 600          | 1.30      | 0.30                | 5.0                           | 0.40                          | 18             | N-F                   |
| HLD-N0132-3      | 2000-4000        | 400          | 1.30      | 0.30                | 5.0                           | 0.30                          | 18             | N-F                   |
| HLD-E013202-3    | 2000-5000        | 1000         | 1.50      | 0.50                | 5.0                           | 0.50                          | 15             | DIN;MINI-DIN          |
| HLD-A0246-3      | 2000-6000        | 10           | 1.50      | 0.80                | 7.0                           | 0.60                          | 18             | SMA-F                 |
| HLD-N0146-3      | 2000-6000        | 200          | 1.50      | 0.40                | 5.0                           | 0.50                          | 15             | N-F                   |
| HLD-E0146-3      | 2000-6000        | 400          | 1.50      | 0.50                | 5.0                           | 0.50                          | 15             | N-F;SC-F              |
| HLD-A0123-3      | 2000-8000        | 50           | 1.35      | 0.50                | 5.0                           | 0.70                          | 18             | SMA-F                 |
| HLD-T0223-3      | 2000-8000        | 15           | 1.50      | 1.00                | 10.0                          | 0.50                          | 17             | SMA-F                 |
| HLD-A0204-3B     | 2100-2400        | 20           | 1.40      | 0.60                | 4.0                           | 0.35                          | 17             | SMA-F                 |
| HLD-A0292-3A     | 2180-2330        | 20           | 1.25/1.35 | 0.50                | 2.5                           | 0.25                          | 23             | SMA-F                 |
| HLD-A0192-3-2224 | 2200-2400        | 50           | 1.25      | 0.40                | 5.0                           | 0.30                          | 20             | SMA-F                 |
| HLD-A0292-3-2224 | 2200-2400        | 50           | 1.25      | 0.40                | 5.0                           | 0.30                          | 22             | SMA-F                 |
| HLD-A023014-3    | 2600-3300        | 30           | 1.40      | 0.70                | 3.0                           | 0.40                          | 20             | SMA-F                 |
| HLDB-A023212-3   | 2600-5850        | 100          | 1.40      | 0.80                | 4.0                           | 0.40                          | 16             | SMA-F                 |
| HLD-N0154-3      | 3300-3800        | 200          | 1.30      | 0.50                | 5.0                           | 0.30                          | 13             | N-F                   |
| HLD-A023015-3    | 3600-4800        | 30           | 1.40      | 0.70                | 3.0                           | 0.50                          | 18             | SMA-F                 |
| HLD-A0133-3      | 4000-8000        | 50           | 1.35      | 0.35                | 3.0                           | 0.50                          | 18             | SMA-F                 |
| HLD-A0233-3A     | 4000-8000        | 50           | 1.50      | 0.80                | 5.0                           | 0.50                          | 18             | SMA-F                 |
| HLD-F0133-3      | 4000-8000        | 400          | 1.50      | 0.30                | 5.0                           | 0.30                          | 15             | N-F;F 1.5pin          |
| HLD-A013301-3    | 4000-12000       | 50           | 1.50      | 0.60                | 5.0                           | 0.60                          | 16             | SMA-F                 |
| HLD-A013401-3    | 4000-18000       | 100          | 1.70      | 1.40                | 6.0                           | 0.90                          | 15             | SMA-F                 |
| HLD-A013201-3    | 4400-6800        | 160          | 1.35      | 0.35                | 4.0                           | 0.50                          | 18             | SMA-F;Microstrip port |
| HLDB-A023115-3   | 4400-7390        | 50           | 1.40      | 0.80                | 4.0                           | 0.30                          | 14             | SMA-F                 |
| HLD-A0182-3      | 5250-5850        | 50           | 1.50      | 0.60                | 5.0                           | 0.40                          | 18             | SMA-F                 |
| HLDR-A023098-3   | 5850-8200        | 100          | 1.60      | 0.80                | 6.0                           | 0.60                          | 15             | SMA-F                 |
| HLDB-A013207-3   | 6000-12000       | 100          | 1.60      | 0.80                | 5.0                           | 0.50                          | 16             | SMA-F                 |
| HLD-A0157-3      | 6000-18000       | 50           | 1.60      | 0.80                | 8.0                           | 0.70                          | 15             | SMA-F                 |
| HLD-A0257-3      | 6000-18000       | 50           | 1.80      | 2.00                | 12.0                          | 1.00                          | 15             | SMA-F                 |
| HLD-A0157-3A     | 7000-12750       | 50           | 1.50      | 0.80                | 5.0                           | 0.50                          | 15             | SMA-F                 |
| HLD-A013020-3    | 7000-13000       | 5            | 1.60      | 0.50                | 5.0                           | 0.50                          | 14             | SMA-F                 |
| HLDB-T0163-3     | 8000-12000       | 100          | 1.50      | 0.60                | 6.0                           | 0.60                          | 15             | Microstrip port       |
| HLD-A0214-3      | 15000-17000      | 50           | 1.50      | 1.20                | 8.0                           | 0.50                          | 18             | SMA-F                 |



Model:HLCL-N020T25



### Features:

- Low loss, ultra - broadband, high power
- Acceptance of customization

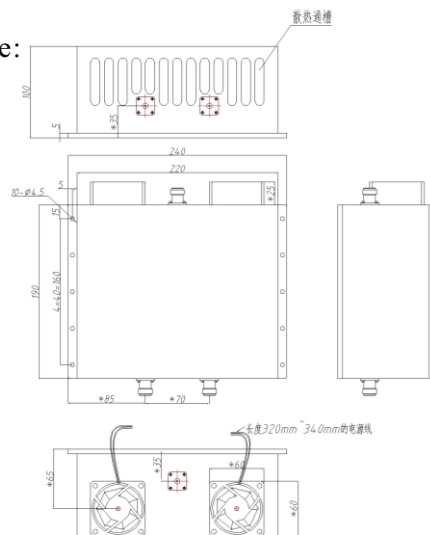
### Typical applications:

It is mainly used for the final power distribution or synthesis of multichannel high power amplifier circuit unit. It can be widely used in radar, communication, test and measurement and other application platforms.

### Performance index:

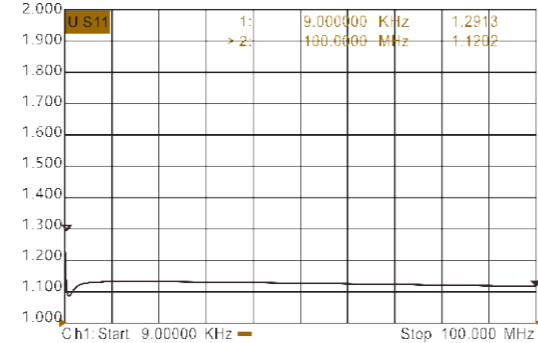
- Frequency range: 9KHz to 100MHz
- Insertion loss:  $\leq 0.6\text{dB}@9\text{KHz}-10\text{MHz}$   
 $\leq 0.4\text{dB}@10\text{MHz}-100\text{MHz}$
- VSWR:  $\leq 1.8@9\text{KHz}-10\text{MHz}$   
 $\leq 1.3@10\text{MHz}-100\text{MHz}$
- Amplitude balance:  $\leq \pm 0.1\text{dB}$
- Phase balance:  $\leq \pm 3^\circ$
- Isolation:  $\geq 16\text{dB}$
- Power: 500W

### Outline:

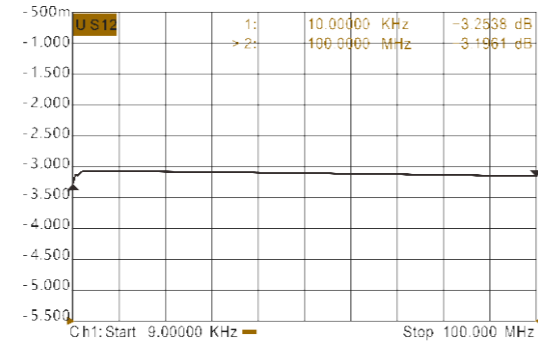


### Graph:

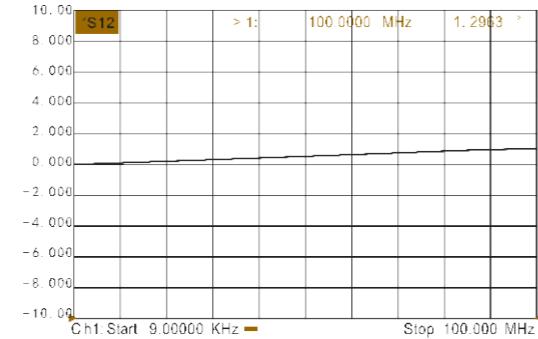
#### VSWR:



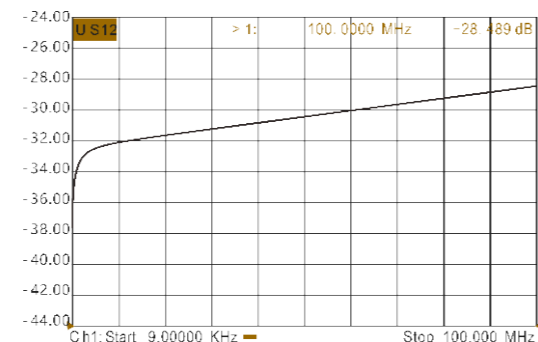
#### Loss :



#### Phase:



#### Isolation:



### Typical product parameters:

| Part number       | Freq Range (MHz) | Power (W/CW) | Number of ways | VSWR      | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balance ( $\pm\text{dB}$ ) | Isolation (dB) | Connector   |
|-------------------|------------------|--------------|----------------|-----------|---------------------|-------------------------------|--------------------------------------|----------------|-------------|
| HLCL-Z040T25-4000 | 0.009-100        | 4000         | 4              | 1.30/1.40 | 0.60                | 3                             | 0.15                                 | 15             | 7/16-F;N-F  |
| HLCL-Z040T25-10K  | 0.009-100        | 5000         | 4              | 1.3/1.4   | 0.60                | 3                             | 0.15                                 | 15             | IF70;N-F    |
| HLCL-N040T21      | 0.009-250        | 1000         | 4              | 1.6/1.4   | 0.8/0.6             | 5                             | 0.20                                 | 12             | N-F         |
| HLCL-N040T21-600  | 0.009-250        | 600          | 4              | 1.3/1.4   | 0.50                | 4                             | 0.15                                 | 18             | N-F         |
| HLCL-N040T17-300  | 0.009-400        | 300          | 4              | 1.75/2.0  | 1.0/0.7             | 6                             | 0.20                                 | 12             | N-F         |
| HLCL-N040T16-200  | 0.01-10          | 200          | 4              | 1.2/1.3   | 0.30                | 3                             | 0.15                                 | 20             | N-F         |
| HLCL-N040T16      | 0.01-10          | 1500         | 4              | 1.2/1.3   | 0.30                | 3                             | 0.15                                 | 20             | N-F         |
| HLCL-N040T08-1000 | 0.01-100         | 1000         | 4              | 1.8/2     | 0.60                | 3                             | 0.15                                 | 15             | N-F         |
| HLCL-D040T08      | 0.01-100         | 2000         | 4              | 1.30      | 0.50                | 3                             | 0.10                                 | 18             | 7/16-F;N-F  |
| HLCL-D040T08-5000 | 0.01-100         | 5000         | 4              | 1.3/1.4   | 0.60                | 3                             | 0.15                                 | 15             | IF70-F;N-F  |
| HLCL-A020T54      | 0.01-400         | 30           | 2              | 1.75/2.0  | 1.00                | 6                             | 0.20                                 | 12             | SMA-F       |
| HLCL-B020T54      | 0.01-400         | 300          | 2              | 1.75/2.0  | 1.0/0.60            | 6                             | 0.20                                 | 12             | N-F;SMA-F   |
| HLCL-N040T54      | 0.01-400         | 400          | 4              | 1.40      | 0.80                | 6                             | 0.10                                 | 15             | N-F         |
| HLCL-D040T08-4000 | 0.01-100         | 4000         | 4              | 1.3/1.4   | 0.60                | 3                             | 0.15                                 | 15             | 7/16-F;N-F  |
| HLCL-N020T07      | 0.1-400          | 300          | 2              | 2.5/1.4   | 1.5/0.5             | 6                             | 0.10                                 | 15             | N-F         |
| HLCL-N020T45      | 1-30             | 1500         | 2              | 1.30      | 0.40                | 2.0/5.0                       | 0.20                                 | 20             | N-F         |
| HLCL-N020T66      | 1-200            | 1500         | 2              | 1.35/1.30 | 0.40                | 2                             | 0.20                                 | 20             | N-F         |
| HLCL-N020T13      | 1.5-30           | 600          | 2              | 1.25      | 0.30                | 2                             | 0.20                                 | 18             | N-F         |
| HLCL-A040T55-10   | 2.3-27           | 10           | 4              | 1.15      | 0.30                | 3                             | 0.10                                 | 20             | SMA-F       |
| HLCL-A040T55      | 2.3-27           | 200          | 4              | 1.15      | 0.30                | 3                             | 0.10                                 | 20             | SMA-F       |
| HLCL-Z040T55      | 2.3-27           | 2500         | 4              | 1.15      | 0.30                | 3                             | 0.10                                 | 20             | 7/16-F;N-F  |
| HLCL-A020T28      | 3-30             | 100          | 2              | 1.2/1.3   | 0.30                | 2                             | 0.10                                 | 20             | SMA-F       |
| HLCL-A040T28      | 3-30             | 200          | 4              | 1.3/1.2   | 0.30                | 3                             | 0.15                                 | 18             | SMA-F       |
| HLCL-N020T28      | 3-30             | 700          | 2              | 1.20      | 0.30                | 2                             | 0.20                                 | 18             | N-F         |
| HLCL-D040T25-2000 | 3-30             | 2000         | 4              | 1.4/1.3   | 0.40                | 3                             | 0.15                                 | 18             | 7/16-F;N-F  |
| HLCL-N040T28      | 3-30             | 2500         | 4              | 1.30      | 0.30                | 3                             | 0.15                                 | 20             | N-F         |
| HLCL-N040T01-500  | 10-100           | 500          | 4              | 1.3/1.4   | 0.60                | 3                             | 0.15                                 | 15             | N-F         |
| HLCL-D040T01-3500 | 10-100           | 3500         | 4              | 1.3/1.4   | 0.60                | 3                             | 0.15                                 | 15             | 7/16-F;N-F  |
| HLCL-N020T67      | 10-128           | 200          | 2              | 1.3/1.2   | 0.40                | 2                             | 0.10                                 | 20             | N-F         |
| HLCL-Z040T04      | 10-200           | 2500         | 4              | 1.25      | 0.50                | 2                             | 0.20                                 | 10             | 7/16-F;N-F  |
| HLCL-E040T01      | 10-520           | 1000         | 4              | 1.25      | 0.50                | 5                             | 0.30                                 | 10             | 7/16-F;SC-F |
| HLCL-N040T04      | 20-200           | 1000         | 4              | 1.25      | 0.70                | 5                             | 0.20                                 | 10             | N-F         |
| HLCL-A0226        | 20-400           | 200          | 2              | 1.35/1.30 | 0.50                | 3                             | 0.10                                 | 18             | SMA-F       |
| HLCL-A0426        | 20-400           | 200          | 4              | 1.35      | 0.70                | 5                             | 0.20                                 | 12             | SMA-F       |
| HLCL-A0426A       | 20-400           | 300          | 4              | 1.35      | 0.70                | 5                             | 0.70                                 | 12             | SMA-F       |
| HLCL-N0426        | 20-400           | 1000         | 4              | 1.30      | 0.70                | 5                             | 0.20                                 | 10             | N-F         |
| HLCL-D0426        | 20-400           | 2500         | 4              | 1.25      | 0.60                | 3                             | 0.20                                 | 8              | 7/16-F;N-F  |
| HLCL-Q10226       | 20-400           | 4000         | 2              | 1.40      | 0.50                | 3                             | 0.20                                 | 18             | IF45;7/16-F |

Typical product parameters:

| Part number      | Freq Range (MHz) | Power (W/CW) | Number of ways | VSWR      | Insertion Loss (dB) | Phase Balance (±°) | Amplitude Balance(±dB) | Isolation (dB) | Connector       |
|------------------|------------------|--------------|----------------|-----------|---------------------|--------------------|------------------------|----------------|-----------------|
| HLCL-A040T11     | 20-500           | 200          | 4              | 1.25      | 0.60                | 3                  | 0.20                   | 14             | SMA-F;F 0.5pin  |
| HLCL-N020T11     | 20-500           | 350          | 2              | 1.6/1.7   | 1.00                | 2                  | 0.20                   | 8              | N-F             |
| HLCL-A0426-200   | 20-1000          | 200          | 4              | 1.30      | 1.00                | 5                  | 0.25                   | 12             | SMA-F           |
| HLCL-A080T05     | 20-520           | 200          | 8              | 1.6/1.4   | 1.00                | 5                  | 0.50                   | 12             | SMA-F           |
| HLCL-A020T02     | 30-650           | 200          | 2              | 1.6/1.35  | 0.95                | 2                  | 0.20                   | 10             | SMA-F           |
| HLCL-B020T02     | 30-520           | 600          | 2              | 1.60      | 0.60                | 3                  | 0.20                   | 15             | N-M;SMA-F       |
| HLCL-B080T02     | 30-520           | 500          | 8              | 1.60      | 1.40                | 5                  | 0.30                   | -              | N-F;SMA-F       |
| HLCL-E0488-1000  | 30-520           | 500          | 4              | 1.25      | 0.70                | 5                  | 0.20                   | 10             | N-F;SC-F        |
| HLCL-F020T02     | 30-520           | 300          | 2              | 1.40      | 0.60                | 2                  | 0.30                   | 15/10          | F 1.5           |
| HLCL-N020T02     | 30-520           | 600          | 2              | 1.60      | 0.60                | 3                  | 0.20                   | 15             | N-F             |
| HLCL-N040T02     | 30-520           | 1000         | 4              | 1.25      | 0.70                | 5                  | 0.20                   | 10             | N-F             |
| HLCL-E0488A      | 50-520           | 2000         | 4              | 1.25      | 0.70                | 5                  | 0.20                   | 10             | N-F;SC-F        |
| HLCL-N020T59     | 30-1000          | 500          | 2              | 1.50      | 0.80                | 4                  | 0.20                   | -              | N-F             |
| HLCL-N040T59     | 30-1000          | 300          | 4              | 1.30      | 0.90                | 5                  | 0.30                   | 10/5.0         | N-F             |
| HLCL-N0442       | 50-1000          | 500          | 4              | 1.35      | 0.85/1.0            | 5                  | 0.20                   | 12             | N-F             |
| HLCL-A040014-100 | 70-75            | 100          | 4              | 1.20      | 0.70                | 3                  | 0.30                   | 20             | SMA-F           |
| HLCL-A040014-500 | 70-75            | 500          | 4              | 1.20      | 0.70                | 3                  | 0.30                   | 20             | SMA-F           |
| HLCL-N020218     | 70-180           | 80           | 2              | 1.3/1.4   | 0.40                | 3                  | 0.30                   | 18             | N-F             |
| HLCL-Z0405       | 70-500           | 1400         | 4              | 1.35      | 0.90                | 3                  | 0.20                   | 8              | SC-F;pin        |
| HLCL-B080T15     | 70-1010          | 600          | 8              | 1.50      | 2.00                | 5                  | 0.30                   | 8              | N-F;SMA-F       |
| HLCL-D0296A      | 80-200           | 3000         | 2              | 1.45      | 0.60                | 5                  | 0.20                   | 14             | 7/16-F;N-F      |
| HLCL-D040T01A    | 80-200           | 3000         | 4              | 1.25      | 0.50                | 5                  | 0.20                   | 10             | 7/16-F;N-F      |
| HLCL-G0496       | 80-400           | 3500         | 4              | 1.40      | 0.50                | 4                  | 0.20                   |                | 1-5/8-F;7/16-F  |
| HLCL-A0488       | 80-520           | 200          | 4              | 1.30      | 0.70                | 5                  | 0.20                   | 12             | SMA-F           |
| HLCL-E0488       | 80-520           | 1500         | 4              | 1.25      | 0.70                | 5                  | 0.20                   | 10             | N-F;SC-F        |
| HLCL-A0242       | 80-1000          | 100          | 2              | 1.30      | 0.60                | 3                  | 0.20                   | 18             | SMA-F           |
| HLCL-A0442A      | 80-1000          | 200          | 4              | 1.35      | 0.90                | 5                  | 0.20                   | 12             | SMA-F           |
| HLCL-A0842       | 80-1000          | 200          | 8              | 1.35/1.50 | 1.30                | 5                  | 0.20                   | 15             | SMA-F           |
| HLCL-B0242       | 80-1000          | 250          | 2              | 1.50      | 0.90                | 5                  | 0.20                   | 10             | N-F;SMA-F       |
| HLCL-B0442       | 80-1000          | 500          | 4              | 1.30      | 0.90                | 5                  | 0.20                   | 5              | N-F;SMA-F       |
| HLCL-D0442       | 80-1000          | 1500         | 4              | 1.30      | 0.90                | 5                  | 0.30                   | 5              | 7/16-F;N-F      |
| HLCL-N0242       | 80-1000          | 500          | 2              | 1.50      | 0.70                | 5                  | 0.20                   | 10             | N-F             |
| HLCL-N0242A      | 80-1000          | 500          | 2              | 1.40      | 1.00                | 5                  | 0.20                   | 10             | N-F             |
| HLCL-N0442G      | 80-1000          | 1000         | 4              | 1.30      | 0.90                | 5                  | 0.30                   | 5.0/10         | N-F             |
| HLCL-T0242-100   | 80-1000          | 100          | 2              | 1.30      | 0.60                | 3                  | 0.20                   | 18             | F 0.9pin        |
| HLCL-T040009     | 87-108           | 3500         | 4              | 1.40      | 0.50                | 3                  | 0.10                   | 22             | Microstrip port |
| HLCL-A040505     | 100-520          | 200          | 4              | 1.35/2    | 0.90                | 5                  | 0.20                   | 12             | SMA-F           |
| HLCL-Z040505     | 100-520          | 600          | 4              | 1.30      | 0.70                | 3                  | 0.30                   | 18             | N-M;TNC-F       |
| HLCL-B040T05A    | 175-225          | 1300         | 4              | 1.35      | 0.70                | 3                  | 0.20                   | 10             | N-F;F 1.6pin    |

Typical product parameters:

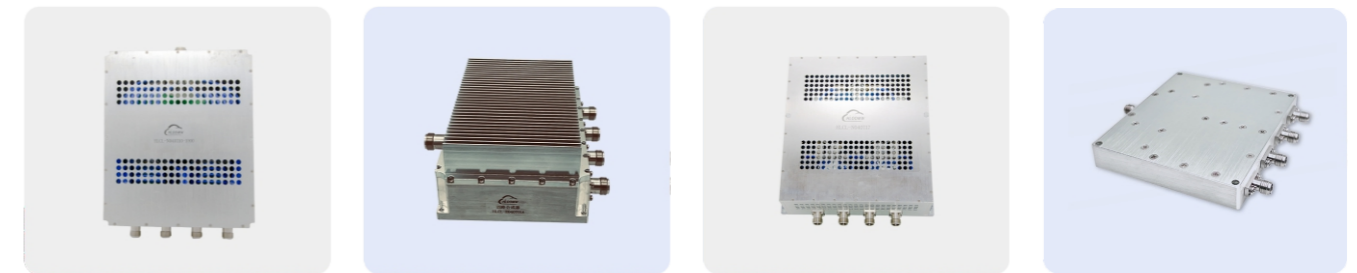
| Part number      | Freq Range (MHz) | Power (W/CW) | Number of ways | VSWR      | Insertion Loss (dB) | Phase Balance (±°) | Amplitude Balance(±dB) | Isolation (dB) | Connector       |
|------------------|------------------|--------------|----------------|-----------|---------------------|--------------------|------------------------|----------------|-----------------|
| HLCL-A0442A-3570 | 350-700          | 200          | 4              | 1.35      | 0.80                | 5                  | 0.20                   | 15             | SMA-F           |
| HLCP-D0288       | 80-400           | 2500         | 2              | 1.60      | 0.40                | 5                  | 0.20                   | 13             | 7/16-F          |
| HLCP-E0288A      | 80-500           | 2000         | 2              | 1.60      | 0.40                | 4                  | 0.20                   | 10             | N-F;SC-F        |
| HLCP-T020609     | 80-500           | 2000         | 2              | 1.60      | 0.40                | 5                  | 0.20                   | 8              | Microstrip port |
| HLCP-A0288       | 80-520           | 200          | 2              | 1.40      | 0.50                | 5                  | 0.20                   | 14             | SMA-F           |
| HLCP-D0288A      | 80-600           | 2000         | 2              | 1.50      | 0.50                | 3                  | 0.20                   | 13             | 7/16-F;N-F      |
| HLCP-N0242       | 80-1000          | 1000         | 2              | 1.40/1.30 | 0.60                | 2                  | 0.20                   | -              | N-F             |
| HLCP-D0242       | 80-1000          | 2000         | 2              | 1.40      | 0.60                | 2                  | 0.20                   | -              | 7/16-F          |
| HLCP-D0442       | 80-1000          | 2000         | 4              | 1.60      | 0.70                | 3                  | 0.20                   | -              | 7/16-F;SMA-F    |
| HLCP-D0442-2500  | 80-1000          | 2500         | 4              | 1.60      | 0.70                | 3                  | 0.20                   | -              | 7/16-F;N-F      |
| HLCP-G0242       | 80-1000          | 3500         | 2              | 1.40      | 0.60                | 2                  | 0.20                   | -              | 1-5/8-F;7/16-F  |
| HLCP-Z0442N      | 80-1000          | 3500         | 4              | 1.60      | 0.70                | 5                  | 0.20                   | -              | 1-5/8-F;N-F     |
| HLCF-F020009     | 87-108           | 2000         | 2              | 1.30      | 0.50                | 3                  | 0.20                   | 18             | F 1.5pin        |
| HLCN-N0801       | 100-200          | 1600         | 8              | 1.35      | 0.40                | 4                  | 0.20                   | -              | N-F             |
| HLCN-D110201     | 100-225          | 5000         | 11             | 1.40      | 0.40                | 4                  | 0.20                   | 12             | 7/16-N-F        |
| HLCN-D080314     | 100-300          | 4000         | 8              | 1.50      | 0.50                | 5                  | 0.20                   | 15             | 7/16-F;N-F      |
| HLCP-D040403     | 100-400          | 800          | 4              | 1.4/1.3   | 0.60                | 3                  | 0.20                   | 15             | 7/16-L;N-F      |
| HLCN-D080403     | 100-400          | 2500         | 8              | 1.40      | 0.40                | 4                  | 0.15                   | -              | 7/16-F;N-F      |
| HLCP-N0288       | 100-520          | 2000         | 2              | 1.60      | 0.40                | 5                  | 0.20                   | 13             | N-F             |
| HLPN-N060315     | 200-600          | 1200         | 6              | 1.35      | 0.50                | 4                  | 0.20                   | -              | N-F             |
| HLCN-N080315     | 200-600          | 1500         | 8              | 1.30      | 0.40                | 5                  | 0.20                   | -              | N-F             |
| HLCP-D020501     | 200-1000         | 2500         | 2              | 1.30      | 0.50                | 3                  | 0.30                   | -              | 7/16-F;N-F      |
| HLCP-Z0227       | 200-2000         | 400          | 2              | 1.50      | 0.80                | 6                  | 0.50                   | -              | TNC             |
| FICP-N040013     | 283-313          | 200          | 4              | 1.20      | 0.40                | 2                  | 0.20                   | 25             | N-F             |
| HLCP-Z0237       | 300-1000         | 1500         | 2              | 1.40      | 1.00                | 3                  | 0.30                   | 12             | 7/16-F;N-F      |
| HLCP-Z0227-G     | 300-2000         | 400          | 2              | 1.50      | 0.50                | 4                  | 0.20                   | -              | TNC             |
| HLCP-A0235       | 350-700          | 200          | 2              | 1.40      | 0.50                | 5                  | 0.20                   | 14             | SMA-F           |
| HLCP-Z0435       | 350-700          | 2500         | 4              | 1.50      | 0.80                | 3                  | 0.30                   | 12             | 7/16-F;N-F      |
| HLCP-Z0235       | 350-700          | 3200         | 2              | 1.40      | 0.60                | 3                  | 0.30                   | -              | 7/16-F;N-F      |
| HLCP-B0435       | 350-750          | 300          | 4              | 1.25      | 0.50                | 4                  | 0.20                   | 20             | N-F;SMA-F       |
| HLCP-Z040211     | 350-750          | 2000         | 4              | 1.25      | 0.50                | 4                  | 0.20                   | 15             | 7/16-F;N-F      |
| HLCN-D060223     | 350-1000         | 1500         | 6              | 1.50      | 0.50                | 4                  | 0.15                   | -              | 7/16-F;N-F      |
| HLCP-Z0274       | 400-1000         | 1500         | 2              | 1.30      | 0.50                | 5                  | 0.20                   | -              | N-F;SC-F        |
| HLCP-Z0442N-041  | 400-1000         | 3500         | 4              | 1.60      | 0.70                | 5                  | 0.20                   | -              | IF45;N-F        |
| HLCZ-N0874       | 400-1000         | 1100         | 8              | 1.60      | 0.80                | 5                  | 0.30                   | 8              | N-F             |
| HLCN-GN0874      | 400-1000         | 2500         | 8              | 1.40      | 0.60                | 4                  | 0.20                   | -              | IF70-F;N-F      |
| HLCN-N040509     | 400-2000         | 100          | 4              | 1.50      | 0.60                | 5                  | 0.20                   | -              | N-F             |
| HLCP-N020007     | 420-450          | 40           | 2              | 1.45      | 0.90                | 5                  | 0.30                   | 25             | N-F             |
| HLCN-D0651       | 500-2000         | 500          | 6              | 1.50      | 0.60                | 8                  | 0.40                   | -              | 7/16-F;N-F      |

## Typical product parameters:

| Part number    | Freq Range (MHz) | Power (W/CW) | Number of ways | VSWR    | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balance ( $\pm$ dB) | Isolation (dB) | Connector       |
|----------------|------------------|--------------|----------------|---------|---------------------|-------------------------------|-------------------------------|----------------|-----------------|
| HLCB-B0451     | 500-2000         | 400          | 4              | 1.50    | 0.70                | 5                             | 0.60                          | -              | N-F;SMA-F       |
| HLCB-N0251     | 500-2000         | 400          | 2              | 1.50    | 0.45                | 5                             | 0.40                          | -              | N-F             |
| HLCB-N0451     | 500-2000         | 600          | 4              | 1.35    | 0.60                | 5                             | 0.35                          | -              | N-F             |
| HLCN-D0251     | 500-2000         | 1200         | 2              | 1.35    | 0.50                | 5                             | 0.30                          | -              | 7/16-F          |
| HLCN-D0451     | 500-2000         | 1200         | 4              | 1.40    | 0.50                | 5                             | 0.30                          | -              | 7/16-F          |
| HLCZ-N0251     | 500-2000         | 350          | 2              | 1.30    | 0.50                | 3                             | 0.30                          | -              | N-F             |
| HLCB-B1007     | 500-2500         | 500          | 10             | 1.50    | 0.60                | 6                             | 0.40                          | -              | N-F;SMA-F       |
| HLCB-B0307     | 500-2500         | 400          | 3              | 1.40    | 0.60                | 5                             | 0.35                          | -              | N-F;SMA-F       |
| HLCB-A040601   | 500-3000         | 100          | 4              | 1.5/1.6 | 1.00                | 5                             | 1.20                          | 15             | SMA-F           |
| HLCB-B0443-500 | 698-960          | 500          | 4              | 1.40    | 0.40                | 3                             | 0.20                          | 15             | N-F;SMA-F       |
| HLCB-F040017   | 700-1224         | 400          | 4              | 1.40    | 0.50                | 5                             | 0.50                          | 18             | F 1.5pin        |
| HLCB-B040309   | 700-2700         | 500          | 4              | 1.50    | 0.70                | 8                             | 0.80                          | 16             | N-F;SMA-F       |
| HLCB-A080605   | 700-4200         | 100          | 8              | 1.5/1.3 | 2.00                | 5                             | 0.50                          | 18             | SMA-F           |
| HLCN-N030802   | 700-6000         | 400          | 3              | 1.50    | 0.80                | 6                             | 0.40                          | -              | N-F             |
| HLCB-T0493     | 800-2000         | 100          | 4              | 1.50    | 0.70                | 5                             | 0.50                          | 15             | Microstrip port |
| HLCB-Z02093    | 800-2000         | 400          | 2              | 1.50    | 0.50                | 5                             | 0.30                          | -              | TNC-F           |
| HLCB-N040302   | 800-3000         | 500          | 4              | 1.50    | 0.80                | 6                             | 0.25                          | 8              | N-F             |
| HLCB-B040010   | 850-1150         | 250          | 4              | 1.30    | 0.60                | 5                             | 0.40                          | 20             | N-F;SMA-F       |
| HLCB-Z040010   | 850-1150         | 800          | 4              | 1.30    | 0.60                | 5                             | 0.40                          | 20             | 7/16-F;N-F      |
| HLCB-Z040030   | 885-945          | 3500         | 4              | 1.40    | 0.50                | 5                             | 0.30                          | -              | IF45;F 1.7pin   |
| HLCN-GF060030  | 885-945          | 6000         | 6              | 1.30    | 0.40                | 5                             | 0.20                          | -              | IF70;F 1.7      |
| HLPN-X060030   | 885-945          | 6000         | 6              | 1.30    | 0.40                | 5                             | 0.20                          | -              | L52-M;F 1.7     |
| HLCB-F0429     | 950-1250         | 250          | 4              | 1.20    | 0.50                | 3                             | 0.30                          | 18             | F 0.9pin        |
| HLCB-N0443A    | 950-1220         | 450          | 4              | 1.30    | 0.50                | 3                             | 0.30                          | 18             | N-F             |
| HLCB-N0229     | 960-1250         | 100          | 2              | 1.30    | 0.30                | 5                             | 0.30                          | 18             | N-F             |
| HLCB-B0831     | 1000-2000        | 200          | 8              | 1.50    | 0.50                | 5                             | 0.50                          | 12             | N-F;SMA-F       |
| HLCB-N0431     | 1000-2000        | 200          | 4              | 1.50    | 0.60                | 10                            | 0.30                          | 15             | N-F             |
| HLCB-E0431B    | 1000-2000        | 400          | 4              | 1.50    | 0.60                | 10                            | 0.30                          | 15             | DIN-F;N-F       |
| HLCB-N0231     | 1000-2000        | 400          | 2              | 1.50    | 0.50                | 5                             | 0.40                          | 12             | N-F             |
| HLCN-N0231     | 1000-2000        | 800          | 2              | 1.30    | 0.35                | 5                             | 0.40                          | -              | N-F             |
| HLCB-E0431     | 1000-2000        | 800          | 4              | 1.5     | 0.60                | 10                            | 0.30                          | 15             | 7/16-F;N-F      |
| HLCB-B0838     | 1000-2500        | 300          | 8              | 1.5     | 0.70                | 8                             | 0.50                          | -              | N-F;SMA-F       |
| HLCB-D0338     | 1000-2500        | 800          | 3              | 1.6     | 0.50                | 6                             | 0.60                          | -              | 7/16-F;SMA-F    |
| HLP-A1638-250W | 1000-2500        | 250          | 16             | 1.60    | 1.20                | 5                             | 0.30                          | 16             | SMA-F           |
| HLCN-N0487     | 1000-6000        | 80           | 4              | 1.50    | 1.50                | 5                             | 0.30                          | 6              | N-F;N-M         |
| HLCB-B083059   | 1100-1700        | 200          | 8              | 1.40    | 1.40                | 5                             | 0.30                          | 16             | N-F;SMA-F       |
| HLCB-Z043023   | 1130-1250        | 1500         | 4              | 1.35    | 0.50                | 5                             | 0.30                          | 18             | 7/16-F;N-F      |
| HLCB-N0452     | 1200-1400        | 150          | 4              | 1.30    | 0.35                | 2                             | 0.20                          | 18             | N-F             |
| HLCB-E0452     | 1200-1400        | 1200         | 4              | 1.50    | 0.60                | 5                             | 0.20                          | -              | DIN-F;N-F       |

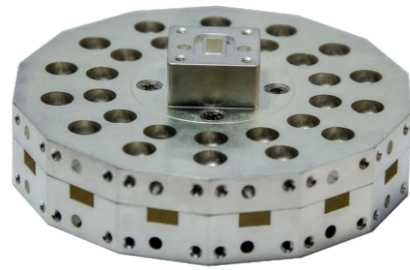
## Typical product parameters:

| Part number    | Freq Range (MHz) | Power (W/CW) | Number of ways | VSWR    | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balance ( $\pm$ dB) | Isolation (dB) | Connector       |
|----------------|------------------|--------------|----------------|---------|---------------------|-------------------------------|-------------------------------|----------------|-----------------|
| HLCG-D043116   | 1250-1350        | 1500         | 4              | 1.30    | 0.40                | 3                             | 0.20                          | 16             | 7/16-F;N-F      |
| HLCB-Z0852     | 1270-1460        | 1100         | 8              | 1.50    | 0.50                | 3                             | 0.20                          | 14             | SC-F;N-F        |
| HLCN-F063112   | 2000-2100        | 650          | 6              | 1.40    | 0.50                | 5                             | 0.20                          | -              | F 1.5           |
| HLCB-B0432     | 2000-4000        | 50           | 4              | 1.50    | 0.80                | 10                            | 0.50                          | 15             | N-F;SMA-F       |
| HLCN-F0432     | 2000-4000        | 100          | 4              | 1.40    | 0.50                | 6                             | 0.30                          | -              | F 1.5           |
| HLCB-B0232     | 2000-4000        | 100          | 2              | 1.35    | 0.40                | 5                             | 0.30                          | 16             | N-F;SMA-F       |
| HLCZ-N0246     | 2000-6000        | 400          | 2              | 1.40    | 0.40                | 4                             | 0.30                          | -              | N-F             |
| HLCB-N0446-400 | 2000-6000        | 400          | 4              | 1.60    | 0.80                | 10                            | 0.50                          | 15             | N-F             |
| HLCB-N0446     | 2000-6000        | 600          | 4              | 1.40    | 0.50                | 4                             | 0.30                          | -              | N-F             |
| HLCB-Z0446     | 2000-6000        | 650          | 4              | 1.50    | 0.60                | 10                            | 0.40                          | -              | 7/16;N-F        |
| HLCN-DN0246    | 2000-6000        | 800          | 2              | 1.40    | 0.40                | 4                             | 0.20                          | -              | 7/16-F;N-F      |
| HLCB-Z0846     | 2000-6000        | 800          | 8              | 1.60    | 1.00                | 8                             | 0.60                          | -              | 7/16-F;N-F      |
| HLCB-N0423     | 2000-8000        | 250          | 4              | 1.50    | 0.70                | 4                             | 0.20                          | -              | N-F             |
| HLCB-B083060   | 2400-2600        | 200          | 8              | 1.45    | 0.80                | 6                             | 0.40                          | 18             | N-F;SMA-F       |
| HLCB-T043028   | 2700-6200        | 150          | 4              | 1.40    | 0.70                | 5                             | 0.30                          | -              | Microstrip port |
| HLCB-B023091   | 2900-3100        | 100          | 2              | 1.40    | 0.50                | 5                             | 0.30                          | 18             | N-F;SMA-F       |
| HLCB-N043011   | 4400-5000        | 400          | 4              | 1.50    | 0.80                | 5                             | 0.40                          | 15             | N-F             |
| HLCZ-HN043011  | 4400-5000        | 1600         | 4              | 1.60    | 0.80                | 5                             | 0.40                          | 15             | WR187;N-F       |
| HLCN-N043045   | 5000-6000        | 200          | 4              | 1.40    | 0.70                | 4                             | 0.20                          | -              | N-F;N-M         |
| HLCB-F043045   | 5000-6000        | 300          | 4              | 1.30    | 0.50                | 3                             | 0.30                          | -              | F 0.9pin        |
| HLCB-N023036   | 5100-5900        | 200          | 2              | 1.50    | 0.50                | 4                             | 0.20                          | 18             | N-F             |
| HLCN-F0282     | 5200-5800        | 300          | 2              | 1.40    | 0.40                | 5                             | 0.20                          | -              | F 1.5pin        |
| HLCB-B0877     | 6000-10000       | 150          | 8              | 1.80    | 1.00                | 10                            | 0.50                          | -              | N-F;SMA-F       |
| HLCB-Z083207   | 6000-12000       | 30           | 8              | 1.6/1.5 | 1.30                | 5.0/6.0                       | 0.40                          | 16             | SMA-F;SMP-M     |
| HLCN-N043022   | 9000-10000       | 200          | 4              | 1.40    | 0.90                | 4                             | 0.20                          | -              | N-F;N-M         |
| HLCB-F023033   | 9200-9400        | 100          | 2              | 1.40    | 0.50                | 3                             | 0.30                          | 18             | F 1.5;F 0.5     |
| HLCB-F0469     | 9300-9500        | 300          | 4              | 1.40    | 1.00                | 5                             | 0.30                          | 18             | F 1.5;F 0.9     |
| HLCB-F043024   | 9500-10500       | 100          | 4              | 1.40    | 0.75                | 4                             | 0.30                          | 18             | F 1.5;F 0.5     |
| HLCB-A036019   | 12000-13000      | 60           | 3              | 1.40    | 0.80                | 4                             | 0.30                          | 20             | SMA-F           |
| HLCB-F046009   | 14300-14800      | 50           | 4              | 1.50    | 1.00                | 5                             | 0.30                          | 18             | F 0.5           |
| HLCZ-HA036025  | 17300-18100      | 200          | 3              | 1.50    | 0.50                | 6                             | 0.30                          | -              | BJ180;SMA-F     |



Model:HLCB-H146044

Graph:



Features:

- Low loss, ultra - broadband, high power
- Route selection flexible: arbitrary choice
- Acceptance of customization

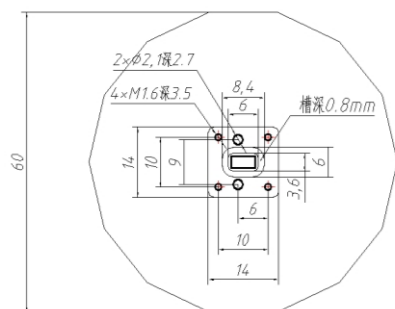
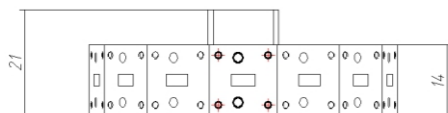
Typical applications:

It is mainly used for the final power distribution or synthesis of multichannel high power amplifier circuit unit. It can be widely used in radar, communication, test and measurement and other application platforms.

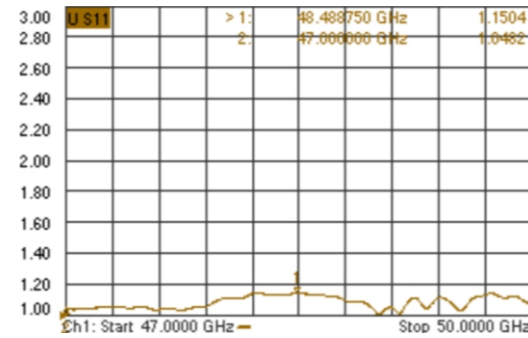
Performance index:

- Frequency range: 47-52GHz
- Insertion loss:  $\leq 0.5\text{dB}$
- VSWR(output):  $\leq 1.5$
- Phase balance:  $\leq \pm 10^\circ$
- Amplitude balance:  $\leq \pm 0.3\text{dB}$
- Power: 300W(CW)

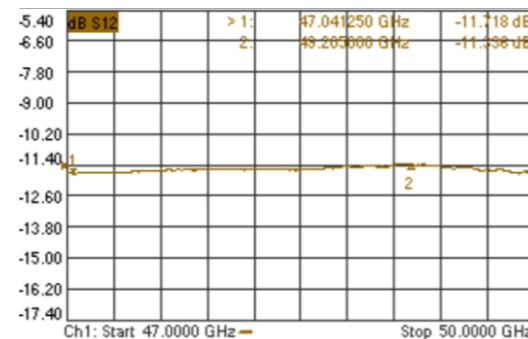
Outline:



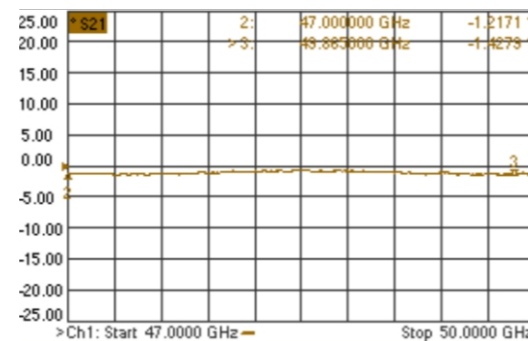
VSWR:



Loss :



Phase:

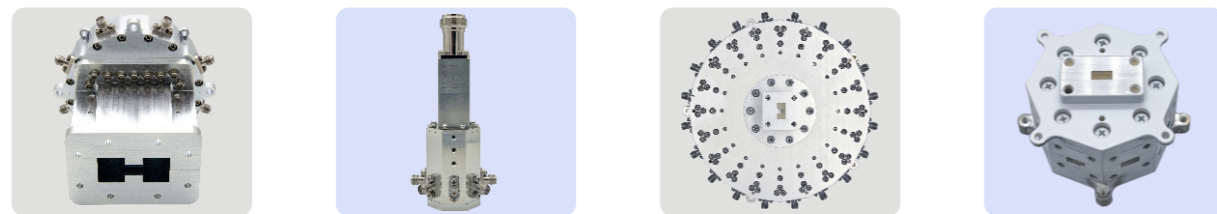


Typical product parameters:

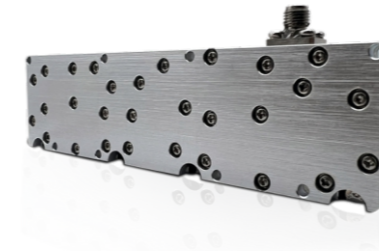
| Part number      | Freq Range (MHz) | Power (W/CW) | Number of ways | VSWR    | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balanc ( $\pm\text{dB}$ ) | Connector        |
|------------------|------------------|--------------|----------------|---------|---------------------|-------------------------------|-------------------------------------|------------------|
| HLCB-D0110212    | 100-225          | 5000         | 11             | 1.40    | 0.40                | 4.0                           | 0.20                                | 7/16-F;TNC-F     |
| HLCB-B040315     | 200-600          | 200          | 4              | 1.35    | 0.40                | 4.0                           | 0.20                                | N-F              |
| HLCB-B1299       | 400-6000         | 300          | 12             | 1.60    | 1.00                | 8.0                           | 0.50                                | N-F;SMA-F        |
| HLCB-N0299       | 400-6000         | 400          | 2              | 1.60    | 1.00                | 5.0                           | 0.30                                | N-F              |
| HLCB-B1007       | 500-2500         | 500          | 10             | 1.50    | 0.60                | 6.0                           | 0.40                                | N-F;SMA-F        |
| HLCB-N080605     | 700-4200         | 500          | 8              | 1.60    | 0.80                | 8.0                           | 0.50                                | N-F              |
| HLCB-Z040010     | 850-1150         | 8000         | 4              | 1.50    | 0.60                | 10.0                          | 0.40                                | EIA 1-5/8;7/16-F |
| HLCB-D0831       | 1000-2000        | 500          | 8              | 1.60    | 0.60                | 5.0                           | 0.40                                | 7/16-F;N-F       |
| HLCB-N1231       | 1000-2000        | 500          | 12             | 1.60    | 0.60                | 5.0                           | 0.40                                | N-F              |
| HLCB-Z0631       | 1000-2000        | 600          | 6              | 1.60    | 0.40                | 8.0                           | 0.50                                | 7/16-F;N-F       |
| HLCB-DN0831      | 1000-2000        | 1500         | 8              | 1.40    | 0.40                | 6.0                           | 0.20                                | 7/16-F;N-F       |
| HLCB-D1231       | 1000-2000        | 2500         | 12             | 1.40    | 0.50                | 5.0                           | 0.30                                | 7/16-F;N-F       |
| HLCB-Z1638       | 1000-2500        | 500          | 16             | 1.6/1.8 | 0.5/0.8             | 8.0                           | 0.50                                | 7/16-F;N-F       |
| HLCB-E0838       | 1000-2500        | 1000         | 8              | 1.80    | 0.80                | 8.0                           | 0.50                                | 7/16-F;N-F       |
| HLCB-B1087       | 1000-6000        | 400          | 10             | 1.60    | 1.00                | 8.0                           | 0.50                                | N-F;SMA-F        |
| HLCB-B0887       | 1000-6000        | 500          | 8              | 1.60    | 1.00                | 8.0                           | 0.60                                | N-F;SMA-F        |
| HLCB-D0487       | 1000-6000        | 800          | 4              | 1.40    | 0.60                | 5.0                           | 0.30                                | 7/16-F;N-F       |
| HLCB-DA1087-1500 | 1000-6000        | 1500         | 10             | 1.60    | 1.00                | 8.0                           | 0.50                                | 7/16-F;SMA-F     |
| HLCB-D0831-1214  | 1200-1400        | 1500         | 8              | 1.50    | 0.40                | 5.0                           | 0.20                                | 7/16-F;N-F       |
| HLCB-D1231-1214  | 1200-1400        | 2500         | 12             | 1.40    | 0.50                | 5.0                           | 0.30                                | 7/16-F;N-F       |
| HLCB-D0644       | 1805-2170        | 1200         | 6              | 1.50    | 0.30                | 10.0                          | 0.40                                | N-F;7/16-F       |
| HLCB-D0832       | 2000-4000        | 1000         | 8              | 1.50    | 0.50                | 5.0                           | 0.50                                | 7/16-M;N-F       |
| HLCB-E1632       | 2000-4000        | 1000         | 16             | 1.60    | 0.50                | 8.0                           | 0.50                                | 7/16-F;N-F       |
| HLCB-N0332       | 2000-4000        | 400          | 3              | 1.60    | 0.50                | 8.0                           | 0.50                                | N-M;N-F          |
| HLCB-N1632       | 2000-4000        | 450          | 16             | 1.60    | 0.50                | 8.0                           | 0.50                                | N-F              |
| HLCB-Z1232       | 2000-4000        | 800          | 12             | 1.60    | 0.50                | 8.0                           | 0.50                                | 7/16-F;N-F       |
| HLCB-B0446       | 2000-6000        | 300          | 4              | 1.40    | 0.60                | 5.0                           | 0.30                                | N-F;SMA-F        |
| HLCB-B0846       | 2000-6000        | 300          | 8              | 1.40    | 0.50                | 5.0                           | 0.30                                | N-F;SMA-F        |
| HLCB-N0246       | 2000-6000        | 400          | 2              | 1.40    | 0.40                | 4.0                           | 0.30                                | N-F              |
| HLCB-A0348       | 2000-18000       | 50           | 3              | 1.60    | 1.00                | 8.0                           | 0.40                                | SMA-F            |
| HLCB-B0448       | 2000-18000       | 200          | 4              | 1.60    | 1.00                | 8                             | 0.80                                | N-F;SMA-F        |
| HLCB-B0848       | 2000-18000       | 200          | 8              | 1.60    | 1.00                | 8.0                           | 0.80                                | N-F;SMA-F        |
| HLCB-A083038     | 2018-2120        | 100          | 8              | 1.50    | 0.60                | 5.0                           | 0.30                                | SMA-F            |
| HLCB-Z083038     | 2018-2120        | 1000         | 8              | 1.50    | 0.50                | 5.0                           | 0.30                                | 7/16-F;SMA-F     |
| HLCB-HD163055    | 2420-2480        | 10000        | 16             | 1.30    | 0.50                | 5.0                           | 0.30                                | BJ26;7/16-F      |
| HLCB-Z0832-2732  | 2700-3200        | 1000         | 8              | 1.50    | 0.50                | 5.0                           | 0.50                                | 7/16-F;N-F       |
| HLCB-Z1232-2732  | 2700-3200        | 1500         | 12             | 1.60    | 0.50                | 8.0                           | 0.50                                | 7/16-F;N-F       |
| HLCB-B203602     | 3000-18000       | 200          | 20             | 1.80    | 1.50                | 12.0                          | 1.20                                | N-F;SMA-F        |

Typical product parameters:

| Part number   | Freq Range (MHz) | Power (W/CW) | Number of ways | VSWR    | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balance ( $\pm$ dB) | Connector        |
|---------------|------------------|--------------|----------------|---------|---------------------|-------------------------------|-------------------------------|------------------|
| HLCB-B0433    | 4000-8000        | 200          | 4              | 1.50    | 0.60                | 5.0                           | 0.30                          | N-F;SMA-F        |
| HLCB-B0833    | 4000-8000        | 200          | 8              | 1.50    | 0.60                | 8.0                           | 0.50                          | N-F;SMA-F        |
| HLCB-G0333    | 4000-8000        | 250          | 3              | 1.50    | 0.70                | 6.0                           | 0.60                          | WRD350;N-F       |
| HLCB-N0833    | 4000-8000        | 300          | 8              | 1.60    | 0.80                | 8.0                           | 0.50                          | N-F              |
| HLCB-H0833    | 4000-8000        | 400          | 8              | 1.60    | 0.70                | 8.0                           | 0.50                          | 24JS3500;SMA-F   |
| HLCB-H043011  | 4400-5000        | 2000         | 4              | 1.25    | 0.60                | 5.0                           | 0.40                          | WR187            |
| HLCB-HN023104 | 5300-5700        | 200          | 2              | 1.40    | 0.40                | 4.0                           | 0.20                          | FDP48;N-F        |
| HLCB-HN053014 | 5300-5700        | 3000         | 5              | 1.50    | 0.50                | 6.0                           | 0.40                          | BJ48;N-F         |
| HLCB-HN083104 | 5300-5700        | 1600         | 8              | 1.30    | 0.35                | 2.0                           | 0.25                          | FDP48            |
| HLCB-H043104  | 5300-5700        | 12000        | 4              | 1.25    | 0.30                | 2.0                           | 0.15                          | BJ48             |
| HLCB-B103043  | 5850-6425        | 200          | 10             | 1.50    | 0.40                | 8.0                           | 0.50                          | N-F;SMA-F        |
| HLCB-HN043067 | 5850-6650        | 500          | 4              | 1.40    | 0.40                | 5.0                           | 0.30                          | BJ70;N-M         |
| HLCB-H163067  | 5850-6650        | 2000         | 16             | 1.60    | 0.50                | 8.0                           | 0.50                          | BJ70;SMA-F       |
| HLCB-HA163113 | 5850-6650        | 1000         | 16             | 1.60    | 0.50                | 8.0                           | 0.50                          | BJ70;SMA-F       |
| HLCB-HN043113 | 5850-6650        | 2000         | 4              | 1.40    | 0.40                | 5.0                           | 0.30                          | BJ70;N-F         |
| HLCB-Z103043  | 5850-6425        | 800          | 10             | 1.50    | 0.40                | 8.0                           | 0.50                          | BJ70;SMA-F       |
| HLCB-Z083002  | 6000-6500        | 1500         | 8              | 1.40    | 0.75                | 5.0                           | 0.30                          | BJ70;N-F         |
| HLCB-B0457    | 6000-18000       | 200          | 4              | 1.50    | 0.90                | 8.0                           | 0.60                          | N-F;SMA-F        |
| HLCB-B0857    | 6000-18000       | 200          | 8              | 1.60    | 1.00                | 8.0                           | 0.80                          | N-F;SMA-F        |
| HLCB-B0463    | 8000-12000       | 200          | 4              | 1.50    | 0.50                | 5.0                           | 0.30                          | N-F;SMA-F        |
| HLCB-B016063  | 8000-12000       | 200          | 16             | 1.60    | 0.80                | 8.0                           | 0.40                          | N-F;SMA-F        |
| HLCB-H023044  | 8200-12500       | 1000         | 2              | 1.20    | 0.20                | -                             | -                             | FBP100           |
| HLCB-H043024  | 9500-10500       | 160          | 4              | 1.5/1.8 | 0.80                | 5.0                           | 0.40                          | BJ100;F 0.5pin   |
| HLCB-H026040  | 13500-15000      | 2000         | 2              | 1.25    | 0.20                | 2.0                           | 0.10                          | BJ140            |
| HLCB-HW086040 | 13500-15000      | 1000         | 8              | 1.50    | 0.60                | 5.0                           | 0.30                          | BJ140;Microstrip |
| HLCB-H206025  | 17300-18100      | 3000         | 20             | 1.60    | 0.90                | 8.0                           | 0.50                          | BJ180;SMA-F      |
| HLCB-H086050  | 18000-20000      | 500          | 8              | 1.60    | 0.80                | 8.0                           | 0.60                          | BJ220            |
| HLCB-H0210    | 18000-26500      | 100          | 2              | 1.30    | 0.35                | 5.0                           | 0.10                          | BJ220            |
| HLCB-H0211    | 26500-40000      | 200          | 2              | 1.30    | 0.20                | -                             | -                             | FBP320           |
| HLCB-Z086034  | 27500-30000      | 200          | 10             | 1.60    | 0.40                | 6.0                           | 0.30                          | BJ320            |
| HLCB-H086035  | 27500-31000      | 200          | 8              | 1.60    | 0.40                | 6.0                           | 0.30                          | BJ320            |
| HLCB-H146044  | 47000-52000      | 300          | 14             | 1.50    | 0.50                | 10.0                          | 0.30                          | BJ500            |
| HLCB-H166044  | 47000-52000      | 400          | 16             | 1.50    | 0.60                | 10.0                          | 0.30                          | BJ500            |



Model:HLCD-T0487E



Features:

- Low loss, ultra - broadband, high power
- Product serialization
- Acceptance of customization

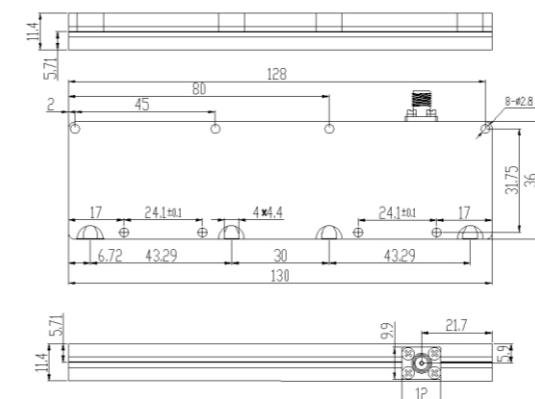
Typical applications:

It is mainly used for orthogonal distribution or synthesis of power of multi-channel high power amplifier circuit unit. It can be widely used in ground, vehicle, ship, airborne and missile platforms.

Performance index:

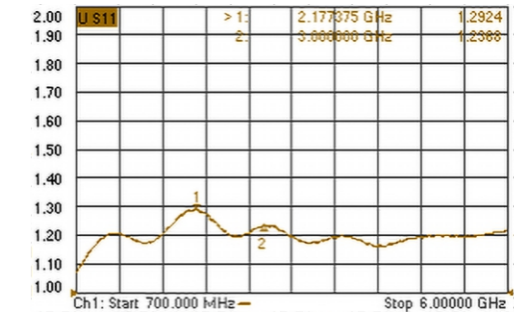
- Frequency range: 700-6000MHz
- Insertion loss:  $\leq 1.5$ dB
- VSWR:  $\leq 1.6$
- Isolation:  $\leq 14$ dB
- Phase balance:  $\leq \pm 8^\circ$
- Amplitude balance:  $\leq \pm 1.8$ dB@0.7-1GHz  
 $\leq \pm 1.5$ dB@1-6GHz
- Power: 200W(CW)

Outline:

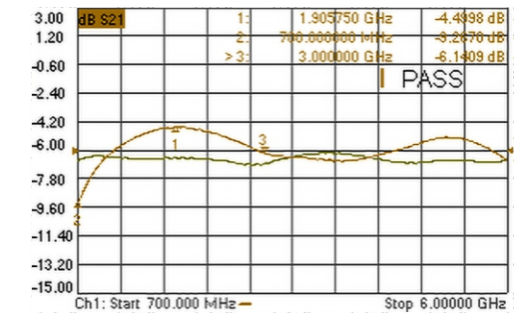


Graph:

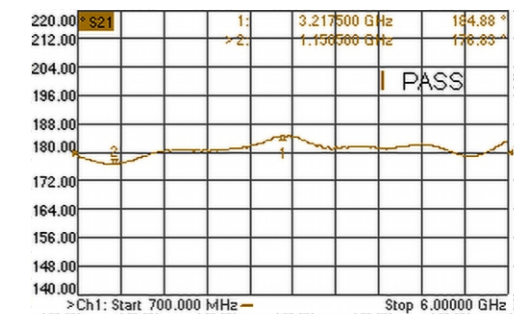
VSWR:



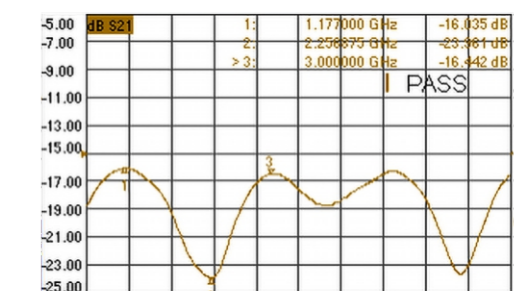
Loss & amplitude :



Phase:



Isolation:



## Typical product parameters:

| Part number    | Freq Range (MHz) | Power (W/CW) | Number of ways | VSWR     | Insertion Loss (dB) | Phase Balance (±°) | Amplitude Balance (±dB) | Isolation (dB) | Connector             |
|----------------|------------------|--------------|----------------|----------|---------------------|--------------------|-------------------------|----------------|-----------------------|
| HLCD-A020403   | 100-400          | 50           | 2              | 1.40     | 0.90                | 9                  | 0.60                    | 17             | SMA-F                 |
| HLCD-D040032   | 380-650          | 300          | 4              | 1.35     | 0.50                | 8                  | 0.80                    | 18             | IF70;7/16-F           |
| HLCD-B040702   | 400-3000         | 300          | 4              | 1.50     | 1.30                | 6                  | 1.50                    | 12             | N-F;SMA-F             |
| HLCD-T0407     | 500-2500         | 300          | 4              | 1.50     | 0.80                | 6                  | 1.00                    | 15             | Microstrip port       |
| HLCD-D040804   | 500-4000         | 800          | 4              | 1.6/1.65 | 0.80                | 10                 | 1.20                    | 14             | 7/16-F;N-F            |
| HLCK-B0343-500 | 698-960          | 500          | 3              | 1.3      | 0.40                | 20                 | 0.25                    | 20             | N-F                   |
| HLCK-B0443N    | 698-960          | 250          | 4              | 1.3      | 0.60                | 10                 | 0.40                    | 20             | N-F;SMA-F             |
| HLCK-B0543N    | 698-960          | 300          | 5              | 1.3      | 0.80                | 20                 | 0.40                    | 20             | N-F;SMA-F             |
| HLCK-T0443     | 698-960          | 350          | 4              | 1.4      | 0.70                | 10                 | 0.50                    | 16             | Microstrip port       |
| HLCK-B0343     | 698-960          | 200          | 3              | 1.3      | 0.45                | 10                 | 0.35                    | 20             | N-F;SMA-F             |
| HLCD-A0441     | 698-2700         | 200          | 4              | 1.30     | 0.60                | 5                  | 0.50                    | 16             | SMA-F                 |
| HLCK-T030018   | 700-910          | 300          | 3              | 1.35     | 0.50                | 8                  | 0.30                    | 15             | Microstrip port       |
| HLCD-B040405   | 700-3000         | 400          | 4              | 1.50     | 0.70                | 8                  | 0.80                    | 16             | N-F;SMA-F             |
| HLCD-A0487E    | 700-6000         | 200          | 4              | 1.60     | 1.50                | 8                  | 1.8/1.5                 | 14             | SMA-F                 |
| HLCD-F040802   | 700-6000         | 200          | 4              | 1.60     | 1.00                | 8                  | 1.80                    | 15             | F 0.5pin              |
| HLCD-T0487T    | 700-6000         | 200          | 4              | 1.60     | 1.50                | 8                  | 1.8/1.5                 | 14             | Microstrip port       |
| HLCD-A040802   | 700-6000         | 300          | 4              | 1.60     | 1.00                | 8                  | 1.80                    | 15             | SMA-F                 |
| HLCD-N0493     | 800-2000         | 250          | 4              | 1.40     | 0.70                | 5                  | 0.50                    | 16             | N-F                   |
| HLCD-T0493     | 800-2000         | 300          | 4              | 1.50     | 0.70                | 5                  | 0.50                    | 15             | Microstrip port       |
| HLCD-D0493     | 800-2000         | 800          | 4              | 1.50     | 0.50                | 6                  | 0.50                    | 16             | 7/16-F;N-F            |
| HLCD-A040319   | 800-3050         | 100          | 4              | 1.50     | 0.80                | 5                  | 0.80                    | 15             | SMA-F                 |
| HLCD-B040319   | 800-3050         | 250          | 4              | 1.50     | 0.80                | 5                  | 0.80                    | 15             | N-F;SMA-F             |
| HLCK-B040023   | 900-930          | 1000         | 4              | 1.3      | 0.40                | 8                  | 0.30                    | 20             | N-F;SMA-F             |
| HLCK-D040023   | 900-930          | 3000         | 4              | 1.3      | 0.40                | 8                  | 0.30                    | 20             | 7/16-F;N-F            |
| HLCK-T0329     | 900-1250         | 50           | 3              | 1.4      | 0.70                | 6                  | 0.30                    | 15             | Microstrip port       |
| HLCD-T0438     | 900-2700         | 300          | 4              | 1.50     | 0.70                | 5                  | 0.50                    | 15             | Microstrip port       |
| HLCD-B040316   | 950-3050         | 250          | 4              | 1.50     | 0.80                | 5                  | 0.80                    | 15             | N-F;SMA-F             |
| HLCK-T030019   | 960-1224         | 300          | 3              | 1.4      | 0.50                | 8                  | 0.30                    | 15             | Microstrip port       |
| HLCD-F040034   | 990-1400         | 150          | 4              | 1.3/1.4  | 0.60                | 5                  | 0.40                    | 18             | F 0.5pin              |
| HLCD-B0460     | 1000-3200        | 250          | 4              | 1.50     | 0.80                | 10                 | 0.50                    | 15             | N-F;SMA-F             |
| HLCD-T0402     | 1000-4000        | 200          | 4              | 1.50     | 0.90                | 5                  | 0.70                    | 15             | Microstrip port       |
| HLCD-B0475     | 1000-4200        | 300          | 4              | 1.50     | 0.80                | 10                 | 0.80                    | 15             | N-F;SMA-F             |
| HLCD-A0487     | 1000-6000        | 200          | 4              | 1.60     | 1.50                | 8                  | 1.50                    | 14             | SMA-F                 |
| HLCD-B0487     | 1000-6000        | 300          | 4              | 1.60     | 0.70                | 10                 | 0.90                    | 14             | N-F;SMA-F             |
| HLCD-T0487     | 1000-6000        | 100          | 4              | 1.60     | 1.50                | 8                  | 1.2/0.7                 | 15             | Microstrip port       |
| HLCD-T0487C    | 1000-6000        | 200          | 4              | 1.60     | 1.00                | 8                  | 1.2/0.7                 | 15/10.0        | SMA-F;Microstrip port |
| HLCD-D0461     | 1100-1800        | 800          | 4              | 1.30     | 0.50                | 5                  | 0.50                    | 16             | DIN-F;N-F             |
| HLCD-N0461     | 1100-1800        | 500          | 4              | 1.30     | 0.50                | 5                  | 0.50                    | 16             | N-F                   |

## Typical product parameters:

| Part number      | Freq Range (MHz) | Power (W/CW) | Number of ways | VSWR    | Insertion Loss (dB) | Phase Balance (±°) | Amplitude Balance (±dB) | Isolation (dB) | Connector       |
|------------------|------------------|--------------|----------------|---------|---------------------|--------------------|-------------------------|----------------|-----------------|
| HLCK-A063110     | 1163-1255        | 200          | 6              | 1.3     | 0.50                | 10                 | 0.30                    | 16             | SMA-F           |
| HLCK-B063110     | 1163-1255        | 700          | 6              | 1.3     | 0.50                | 10                 | 0.30                    | 16             | N-F;SMA-F       |
| HLCK-B0352-500   | 1200-1400        | 500          | 3              | 1.3     | 0.60                | 15                 | 0.40                    | 20             | N-F             |
| HLCK-N0352       | 1200-1400        | 300          | 3              | 1.3     | 0.60                | 15                 | 0.35                    | 20             | N-F             |
| HLCK-N0352-500   | 1200-1400        | 500          | 3              | 1.3     | 0.60                | 15                 | 0.40                    | 20             | N-F             |
| HLCK-T0352A      | 1200-1410        | 450          | 3              | 1.3     | 0.35                | 10                 | 0.50                    | 20             | Microstrip port |
| HLCK-T0452AB     | 1200-1410        | 400          | 4              | 1.2     | 0.40                | 10                 | 0.25                    | 20             | Microstrip port |
| HLCK-T0552-500   | 1200-1410        | 500          | 5              | 1.35    | 0.70                | 10                 | 0.50                    | 20             | Microstrip port |
| HLCD-T0478-1416A | 1477-1525        | 600          | 4              | 1.30    | 0.50                | 8                  | 0.50                    | 18             | Microstrip port |
| HLCK-A063109     | 1557-1620        | 200          | 6              | 1.3     | 0.50                | 10                 | 0.30                    | 16             | SMA-F           |
| HLCK-B063109     | 1557-1620        | 700          | 6              | 1.3     | 0.50                | 10                 | 0.30                    | 16             | N-F;SMA-F       |
| HLCK-F043018     | 1558-1571        | 800          | 4              | 1.25    | 0.50                | 8                  | 0.20                    | 20             | N-F;F 1.5       |
| HLCK-B0444N      | 1700-2200        | 250          | 4              | 1.3     | 0.50                | 14                 | 0.30                    | 20             | N-F;SMA-F       |
| HLCK-B0344-500   | 1805-2170        | 500          | 3              | 1.4     | 0.50                | 14                 | 0.50                    | 20             | N-F             |
| HLCK-B0444-500   | 1805-2170        | 500          | 4              | 1.4     | 0.60                | 8                  | 0.50                    | 18             | N-F             |
| HLCK-N0444       | 1805-2170        | 500          | 4              | 1.4     | 0.60                | 8                  | 0.50                    | 18             | N-F             |
| HLCK-T0644       | 1805-2170        | 200          | 6              | 1.4     | 0.70                | 8                  | 0.40                    | 16             | Microstrip port |
| HLCD-N043038     | 2000-3000        | 600          | 4              | 1.40    | 0.50                | 5                  | 0.50                    | 18             | N-F             |
| HLCD-N043038-100 | 2000-3000        | 100          | 4              | 1.4/1.5 | 0.70                | 4                  | 0.50                    | 18             | N-F             |
| HLCD-T0432       | 2000-4000        | 300          | 4              | 1.50    | 0.70                | 5                  | 0.50                    | 15             | Microstrip port |
| HLCD-N043209     | 2000-4200        | 250          | 4              | 1.50    | 0.60                | 6                  | 1.10                    | 15             | N-F             |
| HLCD-B0446       | 2000-6000        | 200          | 4              | 1.60    | 0.80                | 6                  | 0.50                    | 15             | N-F;SMA-F       |
| HLCD-D0446       | 2000-6000        | 400          | 4              | 1.60    | 0.80                | 10                 | 0.50                    | 15             | N-F;mini din    |
| HLCD-N0446-500   | 2000-6000        | 500          | 4              | 1.60    | 0.80                | 10                 | 0.50                    | 15             | N-F             |
| HLCK-B0345-500   | 2300-2700        | 500          | 3              | 1.4     | 0.50                | 14                 | 0.50                    | 20             | N-F             |
| HLCK-B0345N      | 2300-2700        | 200          | 3              | 1.3     | 0.50                | 14                 | 0.30                    | 20             | N-F;SMA-F       |
| HLCK-B0445-500   | 2300-2700        | 500          | 4              | 1.4     | 0.60                | 8                  | 0.50                    | 16             | N-F             |
| HLCK-B0645       | 2300-2700        | 350          | 6              | 1.4     | 0.70                | 8                  | 0.40                    | 16             | N-F;SMA-F       |
| HLCK-T0645       | 2300-2700        | 200          | 6              | 1.4     | 0.70                | 8                  | 0.40                    | 16             | Microstrip port |
| HLCK-A043055     | 2420-2480        | 100          | 4              | 1.2     | 0.45                | 8                  | 0.20                    | 18             | SMA-F           |
| HLCK-B053037     | 2420-2480        | 300          | 5              | 1.2     | 0.5/0.35            | 8                  | -                       | 18             | N-F;pin         |
| HLCK-QA043055    | 2420-2480        | 1200         | 4              | 1.2     | 0.45                | 8                  | 0.20                    | 18             | N-F;7/8         |
| HLCK-C0453       | 2700-3100        | 120          | 4              | 1.3     | 0.60                | 14                 | 0.30                    | 20             | Microstrip port |
| HLCK-T0453       | 2700-3100        | 200          | 4              | 1.3     | 0.60                | 7                  | 0.30                    | 20             | Microstrip port |
| HLCK-T0453A      | 2700-3100        | 200          | 4              | 1.3     | 0.40                | 12                 | 0.50                    | 20             | Microstrip port |
| HLCK-T0653       | 2700-3100        | 150          | 6              | 1.35    | 0.70                | 12                 | 0.50                    | 20             | Microstrip port |
| HLCK-T0653-300   | 2700-3100        | 300          | 6              | 1.3     | 0.40                | 10                 | 0.50                    | 20             | Microstrip port |
| HLCK-B043094     | 2700-3200        | 300          | 4              | 1.4     | 0.50                | 10                 | 0.30                    | 16             | N-F;SMA-F       |
| HLCK-D043094     | 2700-3200        | 1000         | 4              | 1.4     | 0.50                | 10                 | 0.30                    | 16             | 7/16-F;N-F      |

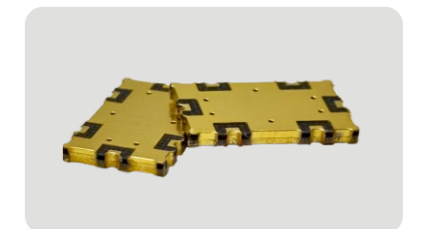
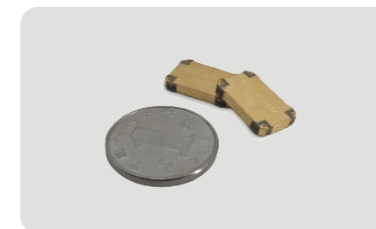
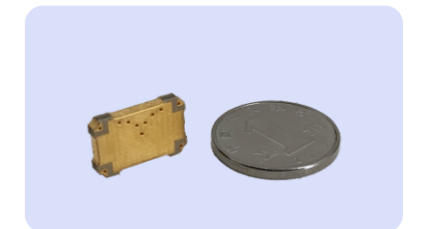
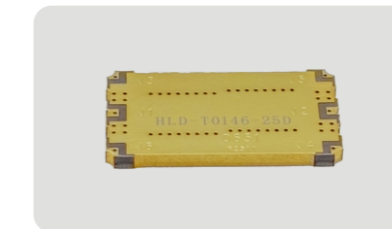


## Typical product parameters:

| Part number         | Freq Range (MHz) | Power (W/CW) | VSWR     | Insertion Loss (dB) | Coupling (dB) | Flatness (±dB) | Directivity (dB) | Dimensions (mm) |
|---------------------|------------------|--------------|----------|---------------------|---------------|----------------|------------------|-----------------|
| HLDL-T010T43-20.5   | 1-30             | 50           | 1.2      | 0.25                | 20.5          | 0.5            | 22               | 15.75*12.7*10   |
| HLDL-T010T45-20D    | 1-30             | 50           | 1.2      | 0.25                | 20            | 0.5            | 22               | 15.75*12.7*10   |
| HLD-T010T09-50      | 1.5-30           | 50           | 1.2      | 0.15                | 50            | 0.5            | 20               | 21*18*8         |
| HLD-T010T96-20D     | 1.5-200          | 60           | 1.35/1.5 | 1.5                 | 20            | 1              | 18               | 15.75*12.7*12   |
| HLDL-T010T37-26     | 10-500           | 5            | 1.5      | 0.5                 | 26            | 1              | 11               | 8.3*6.35*4.6    |
| HLD-T010T11-50      | 20-520           | 300          | 1.25     | 0.25                | 50            | 0.8            | 17.00            | 38.1*25.4*3.7   |
| HLD-T0126-50        | 20-1000          | 150          | 1.2/1.45 | 0.35                | 50            | 1.5            | 20.00            | 31.75*19.05*2.5 |
| HLD-T0126-50-300    | 20-1000          | 300          | 1.25     | 0.35                | 50            | 1              | 18.00            | 38.1*25.4*3.7   |
| HLD-T010T18-50      | 30-700           | 300          | 1.25     | 0.35                | 50            | 0.7            | 17.00            | 38.1*25.4*3.7   |
| HLD-T010T22-50D     | 30-800           | 200          | 1.2/1.5  | 0.30                | 50            | 0.6            | 18.00            | 32*19.1*2.8     |
| HLD-T010T38-50D     | 100-1000         | 100          | 1.20     | 0.20                | 50            | 0.8            | 18.00            | 31.8*19.1*2.4   |
| HLD-T010T30-50D-100 | 100-2000         | 100          | 1.30     | 0.30                | 50            | 1.5            | 16.00            | 31.75*19.05*2.6 |
| HLD-T0188-40A       | 100-400          | 400          | 1.25     | 0.25                | 40            | 1              | 16.00            | 38.1*25.4*3.7   |
| HLD-T0188-40        | 100-520          | 300          | 1.25     | 0.25                | 40            | 1              | 18.00            | 38.1*25.4*3.7   |
| HLD-T010704-50D     | 108-800          | 100          | 1.20     | 0.25                | 50            | 0.8            | 18.00            | 31.75*19.05*2.4 |
| HLD-T011T03-45D     | 100-6000         | 100          | 1.3/1.5  | 0.35/0.5            | 20.2 to 45    | 0.6            | 18.00            | 14.22*8.89*1.5  |
| HLD-T010T30-50D     | 108-2000         | 200          | 1.30     | 0.30                | 50            | 1.5            | 16.00            | 38.1*25.4*2.4   |
| HLD-T010501-47      | 200-1000         | 150          | 1.20     | 0.20                | 47            | 0.5            | 22.00            | 38.1*25.4*3.7   |
| HLD-T0127-45        | 200-2000         | 150          | 1.30     | 0.30                | 45            | 1.5            | 16.00            | 31.75*19.05*2.7 |
| HLD-T0127-45D       | 200-2000         | 150          | 1.30     | 0.30                | 45            | 1.5            | 16.00            | 31.75*19.05*2.7 |
| HLD-T010T03-45      | 225-2500         | 300          | 1.30     | 0.35                | 43            | 1.5            | 16.00            | 38.1*25.4*3.7   |
| HLD-T010T03-45A     | 240-550          | 300          | 1.30     | 0.30                | 43            | 1              | 20.00            | 38.1*25.4*3.7   |
| HLD-T010221-21      | 350-800          | 150          | 1.25     | 0.35                | 21            | 4              | 16.00            | 14.22*8.89*1.8  |
| HLD-T010507-20      | 350-2000         | 10           | 1.25     | 0.50                | 14 to 23      | 1              | 14.00            | 14.22*8.89*1.5  |
| HLD-T010304-45      | 300-900          | 300          | 1.30     | 0.35                | 43            | 0.5            | 16.00            | 38.1*25.4*3.7   |
| HLD-T010601-35D     | 500-2700         | 300          | 1.25     | 0.25                | 35            | 1              | 14.00            | 38.1*25.4*3.6   |
| HLD-T010601-35DR    | 500-3000         | 300          | 1.25/1.4 | 0.40                | 35            | 1.1            | 15.00            | 38.1*25.4*3.6   |
| HLD-T010017-40D     | 700-1224         | 300          | 1.30     | 0.15                | 30            | 0.8            | 20.00            | 65*35*10        |
| HLD-T010305-20      | 700-2600         | 100          | 1.30     | 0.30                | 20            | 1              | 18.00            | 25.4*12.7*1.8   |
| HLD-T010309-35      | 700-2700         | 150          | 1.30     | 0.30                | 35            | 1.1            | 15.00            | 25.4*12.7*1.3   |
| HLD-T0193-18        | 800-2000         | 150          | 1.25     | 0.40                | 18            | 0.6            | 16.00            | 25.4*12.7*1.8   |
| HLD-T010210-45      | 900-1800         | 300          | 1.30     | 0.35                | 43            | 0.5            | 16.00            | 38.1*25.4*3.7   |
| HLD-T0129-40D       | 960-1250         | 60           | 1.20     | 0.20                | 40            | 0.4            | 20.00            | 38.1*25.4*3.6   |
| HLDB-T0102-30       | 1000-4000        | 200          | 1.30     | 0.40                | 30            | 0.5            | 18.00            | 80*24*10        |
| HLD-T0131-20        | 1000-2000        | 160          | 1.28     | 0.25                | 20            | 0.7            | 16.00            | 14.2*8.9*2.4    |
| HLD-T0131-30        | 1000-2000        | 120          | 1.25     | 0.16                | 30            | 1              | 12.00            | 14.2*8.9*2.6    |
| HLD-T0131-30D       | 1000-2000        | 300          | 1.3/1.4  | 0.35                | 30            | 1              | 15.00            | 50*40*9         |
| HLD-T0131-30D-150   | 1000-2000        | 150          | 1.40     | 0.30                | 30            | 1              | 15.00            | 25.4*14.2*2.5   |
| HLD-T0138-30D       | 1000-2500        | 300          | 1.3/1.4  | 0.35                | 30            | 1.2            | 15.00            | 50*40*9         |
| HLD-T0102-23D       | 1000-4000        | 100          | 1.3/1.4  | 0.30                | 23            | 3              | 12.00            | 20*12*5.2       |
| HLD-T0187-25D       | 1000-6000        | 100          | 1.40     | 0.38                | 25            | 1.8            | 15.00            | 28*10*2.5       |
| HLD-T013057-35D     | 1087-1093        | 50           | 1.30     | 0.12                | 35            | 0.5            | 30.00            | 46.4*22*10      |

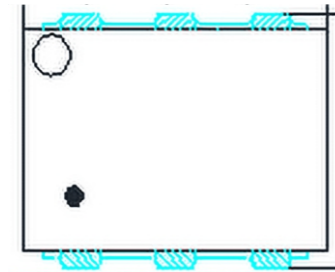
## Typical product parameters:

| Part number     | Freq Range (MHz) | Power (W/CW) | VSWR    | Insertion Loss (dB) | Coupling (dB) | Directivity (dB) | Flatness (±dB) | Dimensions (mm) |
|-----------------|------------------|--------------|---------|---------------------|---------------|------------------|----------------|-----------------|
| HLD-T0161-30    | 1100-1700        | 300          | 1.30    | 0.35                | 30            | 1                | 15.00          | 50*40*9         |
| HLD-T0144-35D   | 1700-2200        | 300          | 1.25    | 0.30                | 35            | 0.8              | 16.00          | 38.1*25.4*3.6   |
| HLD-T013079-25D | 1850-3000        | 150          | 1.3/1.4 | 0.30                | 25            | 0.6              | 15.00          | 28*16*10        |
| HLD-T0132-20    | 2000-4000        | 100          | 1.30    | 0.25                | 20            | 0.9              | 18             | 14.22*8.9*1.9   |
| HLD-T0132-25    | 2000-4000        | 300          | 1.30    | 0.30                | 25            | 0.9              | 18.00          | 45*17*9         |
| HLD-T013206-20  | 2000-6000        | 100          | 1.30    | 0.25                | 20            | 1.5              | 15.00          | 14.22*8.9*1.5   |
| HLD-T0146-25D   | 2000-6000        | 150          | 1.40    | 0.30                | 25            | 0.8              | 15.00          | 25.40*14.20*2.5 |
| HLD-T013066-30D | 2000-2500        | 300          | 1.20    | 0.20                | 30            | 0.5              | 16.00          | 40*40*9         |
| HLD-T0145-10    | 2300-2700        | 20           | 1.22    | 0.25                | 10            | 0.75             | 18.00          | 6.35*5.08*1.9   |
| HLD-T013075-30D | 2700-3700        | 200          | 1.3/1.4 | 0.30                | 30            | 0.3              | 12.00          | 22*16*6.03      |
| HLD-T013208-9   | 2700-6200        | 100          | 1.30    | 1.00                | 9             | 1                | 15.00          | 14.22*5.08      |
| HLD-T013011-40D | 4400-5000        | 60           | 1.3/1.5 | 0.30                | 40            | 0.4              | 15.00          | 20*18*9         |
| HLD-T013056-40  | 5000-8000        | 200          | 1.40    | 0.40                | 40            | 0.8              | 15.00          | 30*25*11        |
| HLD-T016009-40D | 14300-14800      | 50           | 1.4     | 0.3                 | 40            | 0.5              | 16             | 30*20*10        |

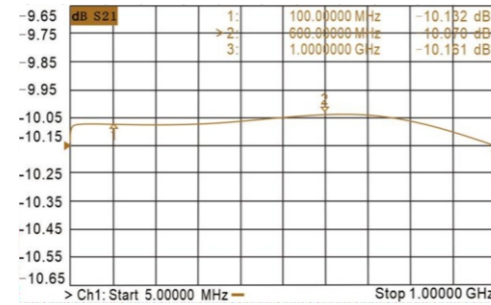


Model:HLDL-T010T33-10

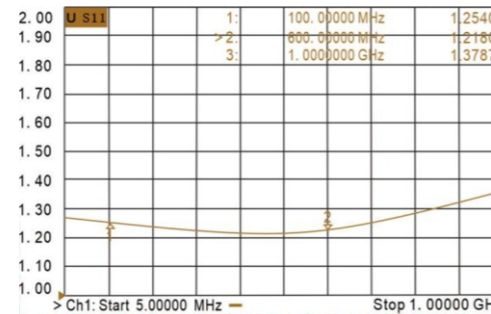
Graph:



S21:



S11:



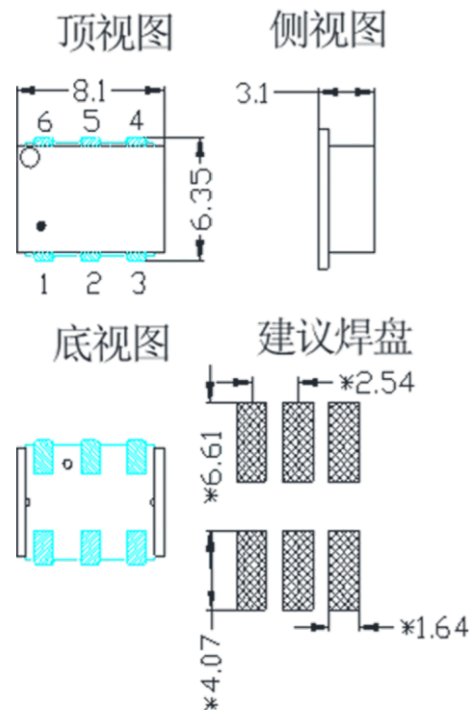
**Features:**

- Low loss, miniaturization, serialization

**Performance index:**

- Frequency range: 5-1000MHz
- VSWR: ≤1.5
- Insertion Loss: ≤1.4dB
- Coupling: 10±0.5dB
- Isolation: 25dB
- Power: 2W

**Outline:**

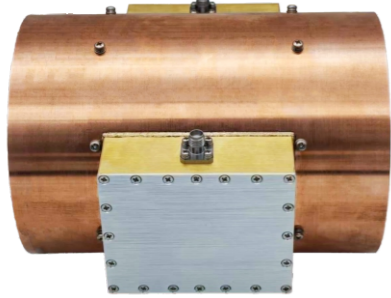


**Typical product parameters:**

| Part Number       | Freq Range (MHz) | VSWR | Insertion Loss(dB) | Coupling (dB) | Directivity dB | Power (W) | Connector | Dimensions     |
|-------------------|------------------|------|--------------------|---------------|----------------|-----------|-----------|----------------|
| HLDL-T010T33-10   | 5-1000           | 1.50 | 1.40               | 10.00         | 16             | 2         | SMD       | 3.8*3.8*3.0    |
| HLDL-T010T41-18   | 5-1200           | 1.15 | 0.90               | 18.00         | 6              | 2         | SMD       | 5.3*4.2*3.9    |
| HLDL-T010T33-16   | 5-1000           | 1.10 | 0.90               | 16.00         | 14             | 2         | SMD       | 4.2*3.7*3.6    |
| HLDL-T010T41-20   | 5-1250           | 1.20 | 0.80               | 20.00         | 7              | 2         | SMD       | 7.1*6.4*11.0   |
| HLDL-T010214-22   | 900-2500         | 1.20 | 0.60               | 22.00         | 18             | 2         | SMD       | 8.3*6.3*2.3    |
| HLDL-T0126-20.4   | 20-1000          | 1.20 | 0.70               | 20.40         | 21             | 1         | SMD       | 4.2*4.2*2.8    |
| HLDL-T010T77-7    | 10-1500          | 2.00 | 3.20               | 7.00          | 9              | 2         | SMD       | 4.3*4.3*4      |
| HLDL-T010T37-26   | 10-500           | 1.25 | 0.50               | 26.00         | 11             | 150       | SMD       | 8.3*6.4*4.6    |
| HLDL-T010601-15   | 500-3000         | 1.20 | 0.50               | 15.00         | 16             | 100       | SMD       | 25.4*12.7*2.0  |
| HLDL-T010D02-20   | DC-6000          | 1.50 | 1.60               | 20.00         | -              | 2         | SMD       | 8.3*7.4*3.5    |
| HLDL-T010T43-10   | 1-30             | 1.20 | 0.40               | 10.00         | 20             | 5         | SMD       | 7.1*6.3*5.5    |
| HLDL-T010T43-20.5 | 1-30             | 1.30 | 0.25               | 20.50         | 22             | 50        | SMD       | 15.7*12.7*10.0 |
| HLDL-T010T78-20   | 1-800            | 1.50 | 0.50               | 20.00         | 15             | 1         | SMD       | 8.3*6.3*4.1    |
| HLDL-T0102-31     | 1000-4000        | 1.40 | 0.40               | 31.00         | 19             | 150       | SMD       | 34.0*12.7*1.7  |
| HLDL-T0103073-8   | 1500-2500        | 1.25 | 1.30               | 8.00          | 15             | 50        | SMD       | 6.4*5.1*1.7    |
| HLDL-T0103073-10  | 1500-2500        | 1.20 | 0.70               | 10.00         | 18             | 50        | SMD       | 6.4*5.1*1.7    |
| HLDL-T0103073-14  | 1500-2500        | 1.20 | 0.20               | 14.00         | 15             | 50        | SMD       | 6.4*5.1*1.7    |
| HLDL-T0103073-30  | 1500-2500        | 1.20 | 0.15               | 30.00         | 13             | 50        | SMD       | 6.4*5.1*1.7    |
| HLDL-T013074-10   | 2500-3500        | 1.25 | 0.90               | 10.00         | 13             | 50        | SMD       | 6.4*5.1*1.7    |
| HLDL-T013074-15   | 2500-3500        | 1.25 | 0.50               | 15.00         | 13             | 50        | SMD       | 6.4*5.1*1.7    |



Model: HLDJ-ZA010T45-70D



### Features:

- Low loss, ultra - broadband, high directivity
- Product serialization
- Acceptance of customization

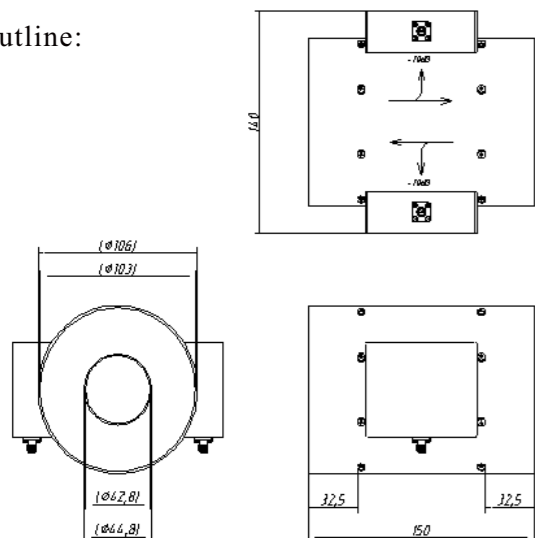
### Typical applications:

It is mainly used for signal sampling, monitoring, unequal power distribution and synthesis, and can be widely used in electronic countermeasures, radar, communication, test and measurement and other application platforms.

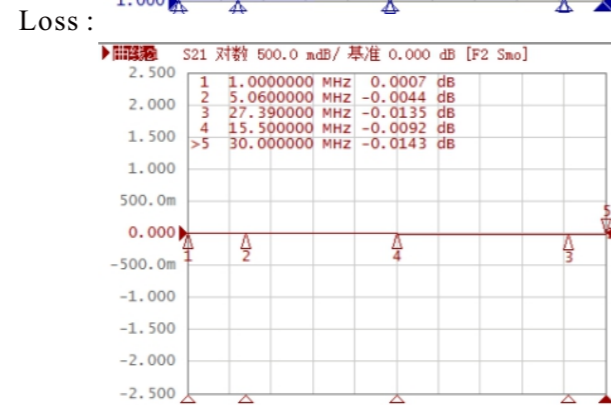
### Performance index:

- Frequency range: 1MHz-30MHz
- Coupling: 70±1dB
- Flatness: ≤±0.5dB
- Insertion loss: ≤0.05dB
- VSWR(ML): ≤1.1
- Directivity: ≥20dB
- Power: 120KW(CW)

### Outline:



### Graph:



### Typical product parameters:

| Part number            | Freq Range (MHz) | Power (W/CW) | VSWR      | Insertion Loss (dB) | Coupling (dB) | Flatness (±dB) | Directivity (dB) | Connector           |
|------------------------|------------------|--------------|-----------|---------------------|---------------|----------------|------------------|---------------------|
| HLD-A010T57-40D        | 0.004-100        | 200          | 1.20      | 0.25                | 40            | 0.50           | 20               | SMA-F               |
| HLD-A010T31-40D        | 0.004-400        | 300          | 1.25/1.50 | 0.40                | 40            | 0.50           | 20               | SMA-F               |
| HLD-A010T47-40D        | 0.004-700        | 250/100      | 1.35/1.6  | 0.45                | 40            | 0.50           | 20               | SMA-F               |
| HLD-D010T19-50D        | 0.009-10         | 3500         | 1.20      | 0.20                | 50            | 0.50           | 15.0/20.0        | 7/16-F;SMA-F        |
| HLD-D010T25-50D        | 0.009-100        | 2000         | 1.2/1.3   | 0.25                | 50            | 0.50           | 18               | 7/16-F;SMA-F        |
| HLD-D010T25-50D-4000   | 0.009-100        | 4000         | 1.2/1.3   | 0.25                | 50            | 0.50           | 18               | 7/16-F;SMA-F        |
| HLD-D010T46-60D        | 0.009-100        | 10000        | 1.30      | 0.20                | 60            | 1.00           | 20               | 7/16-F;N-F          |
| HLD-D010T53-50D        | 0.009-100        | 6000         | 1.30      | 0.20                | 50            | 1.00           | 20               | 7/16-F;N-F          |
| HLD-D010T53-60D        | 0.009-150        | 10000        | 1.30      | 0.20                | 60            | 1.00           | 20               | 7/16-F;N-F          |
| HLDL-D010T25-50D       | 0.009-100        | 4000         | 1.2/1.3   | 0.25                | 50            | 0.50           | 18               | 7/16-F;7/16-M;SMA-F |
| HLDL-DA010T25-60D      | 0.009-100        | 3500         | 1.20      | 0.20                | 60            | 0.50           | 18               | 7/16-F;SMA-F        |
| HLDL-GN010T25-60D      | 0.009-100        | 10000        | 1.3       | 0.20                | 60            | 1.00           | 20               | IF70-M/K;N-F        |
| HLD-B010T25-50D        | 0.009-100        | 500          | 1.20      | 0.30                | 50            | 0.50           | 16               | N-F;SMA-F           |
| HLD-B010T25-50D-2000   | 0.009-100        | 2000         | 1.15/1.3  | 0.15                | 50            | 0.50           | 20               | N-F;SMA-F           |
| HLD-N010T25-50D        | 0.009-100        | 1000         | 1.15/1.35 | 0.25                | 50            | 0.50           | 20               | N-F                 |
| HLD-Z010T21-60D        | 0.009-250        | 10000        | 1.3       | 0.20                | 60            | 1.00           | 20/15            | 1-5/8;N-F           |
| HLD-N010T21-50D-G      | 0.009-250        | 1000         | 1.20      | 0.20                | 50            | 2.00           | 20               | N-F                 |
| HLD-B010T21-50D        | 0.009-250        | 1000         | 1.2/1.3   | 0.25                | 50            | 0.50           | 14.0/18.0        | N-F;SMA-F           |
| HLD-D010T21-50D        | 0.009-260        | 3000         | 1.2/1.3   | 0.25                | 50            | 0.50           | 18.0/20.0        | 7/16-F;SMA-F        |
| HLD-D010T21-50DKJ-4000 | 0.009-260        | 4000         | 1.2/1.3   | 0.25                | 50            | 0.50           | 18.0/20.0        | 7/16-F;7/16-M;SMA-F |
| HLD-N010T21-50D        | 0.009-260        | 1000         | 1.15/1.35 | 0.25                | 50            | 0.50           | 20               | N-F                 |
| HLD-B010T17-40D        | 0.009-400        | 200          | 1.30      | 0.50                | 40            | 0.50           | 20               | N-F;SMA-F           |
| HLD-B010T17-40D-300    | 0.009-400        | 300          | 1.30      | 0.50                | 40            | 0.50           | 20               | N-F;SMA-F           |
| HLD-B010T32-40D        | 0.009-500        | 200          | 1.30      | 0.50                | 40            | 0.50           | 20               | N-F;SMA-F           |
| HLD-B010T10-50         | 0.01-100         | 500          | 1.30      | 0.50                | 50            | 1.20           | 16               | N-F;SMA-F           |
| HLDL-B010T08-50D       | 0.01-100         | 1200         | 1.2/1.3   | 0.25                | 50            | 0.50           | 14/18            | N-F;SMA-F           |
| HLDL-LN010T08-60D      | 0.01-100         | 10000        | 1.2       | 0.10                | 60            | 1.00           | 20               | LC-F;N-F            |
| HLD-Z010T69-60D        | 0.01-150         | 18000        | 1.3       | 0.20                | 60            | 2.00           | 18               | IF110;N-F           |
| HLD-Z010T69-60D-10KW   | 0.01-150         | 10000        | 1.30      | 0.20                | 60            | 1.00           | 18               | IF110;SMA-F         |
| HLD-D010T61-50D        | 0.01-250         | 3500         | 1.3       | 0.30                | 50            | 1.50           | 15               | 7/16-F;7/16-M;SMA-F |
| HLD-N010T54-40DJ       | 0.01-400         | 400          | 1.3       | 0.50                | 40            | 0.50           | 20               | N-M;N-F             |
| HLDL-DA010T51-50D      | 0.03-30          | 5250         | 1.1       | 0.08                | 50            | 0.50           | 20               | 7/16-F;SMA-F        |
| HLD-D010T64-60D        | 0.1-30           | 5000         | 1.2       | 0.10                | 60            | 0.10           | 20               | 7/16-F;SMA-F        |
| HLD-A010T62-40D        | 0.13-300         | 200          | 1.2/1.3   | 0.30                | 40            | 0.50           | 20               | SMA-F               |
| HLD-Z010T60-60D        | 0.3-200          | 10000        | 1.30      | 0.20                | 60            | 1.00           | 20/16            | LC-F;N-F            |
| HLD-B010T26-40D        | 1-500            | 200          | 1.30      | 0.60                | 40            | 0.80           | 18               | N-F;SMA-F           |
| HLD-B010T26-50D        | 1-500            | 1000         | 1.3       | 0.20                | 50            | 1.00           | 20               | N-F;SMA-F           |
| HLD-B010T45-60D        | 1-30             | 3000         | 1.1/1.4   | 0.10                | 60            | 0.50           | 20               | N-F;SMA-F           |
| HLDJ-ZA010T45-70D      | 1-30             | 120000       | 1.1       | 0.05                | 70            | 0.5            | 20               | 4-1/2";SMA-F        |

## Typical product parameters:

| Part number          | Freq Range (MHz) | Power (W/CW) | VSWR      | Insertion Loss (dB) | Coupling (dB) | Flatness ( $\pm$ dB) | Directivity (dB) | Connector         |
|----------------------|------------------|--------------|-----------|---------------------|---------------|----------------------|------------------|-------------------|
| HLD-D010T45-66D-10K  | 1-30             | 10000        | 1.1/1.5   | 0.10                | 66            | 0.60                 | 20               | 7/16-F;SMA-F      |
| HLD-Z010T26-70D      | 1-50             | 20000        | 1.10      | 0.05                | 70            | 0.50                 | 25               | LC-F;N-F          |
| HLD-D010T46-70D      | 1-100            | 5000         | 1.10      | 0.10                | 70            | 0.75                 | 20               | 7/16-F;SMA-F      |
| HLDL-B010T97-50D     | 1-530            | 1000         | 1.30      | 0.30                | 50            | 1.00                 | 20/15            | N-F;SMA-F         |
| HLD-B010T13-50D-1800 | 1.5-30           | 1800         | 1.1/1.2   | 0.15                | 50            | 0.30                 | 20               | N-F;SMA-F         |
| HLD-B010T65-60D-3000 | 1.6-30           | 3000         | 1.5/1.1   | 0.10                | 60            | 0.30                 | 20               | N-F;SMA-F         |
| HLDQ-B010T65-60D     | 1.6-30           | 2000         | 1.1/1.5   | 0.05                | 60            | 0.50                 | 20               | N-F;SMA-F         |
| HLD-B010T09-60       | 2-30             | 1000         | 1.1/1.3   | 0.10                | 60            | 0.50                 | 20               | N-F;SMA-F         |
| HLD-D010T23-63D      | 2-30             | 10000        | 1.1/1.3   | 0.10                | 63            | 0.50                 | 22               | 7/16-F;SMA-F      |
| HLDJ-RN010T23-60D    | 2-30             | 25000        | 1.10      | 0.05                | 60            | 0.50                 | 20               | IF110;N-F         |
| HLDJ-XA010T56-70D    | 2-30             | 28000        | 1.1/1.25  | 0.05                | 70            | 0.30                 | 20               | L52-F;SMA-M       |
| HLDL-QR010T23-68D    | 2-30             | 30000        | 1.15/1.25 | 0.05                | 68            | 0.30                 | 20               | L52-F;IF110;SMA-F |
| HLD-Z010T23-70D      | 2-30             | 30000        | 1.1/1.2   | 0.05                | 70            | 0.30                 | 20               | IF70;SMA-F        |
| HLD-Z010T56-70D-28K  | 2-30             | 28000        | 1.1/1.25  | 0.05                | 70            | 0.30                 | 20               | IF110,IF70;SMA-F  |
| HLD-Z0T23-63D        | 2-30             | 10000        | 1.1/1.25  | 0.05                | 63            | 0.30                 | 25               | IF110,L52-F;SMA-F |
| HLDL-A010T86-20D     | 2-1000           | 30           | 1.4/1.6   | 2.50                | 20            | 1.50                 | 14               | SMA-F             |
| HLD-Z010T56-70D-60K  | 2.5-30           | 60000        | 1.1/1.25  | 0.05                | 70            | 0.30                 | 20               | IF110;SMA-F       |
| HLD-B010T45-60DJ     | 3-30             | 3000         | 1.1/1.4   | 0.10                | 60            | 0.50                 | 20               | N-F,N-M;SMA-F     |
| HLDL-QR010T45-63D    | 3-30             | 10000        | 1.1/1.25  | 0.10                | 63            | 0.30                 | 25               | L52-F;IF110;SMA-F |
| HLD-B010T01-50D      | 10-100           | 3500         | 1.2       | 0.20                | 50            | 0.50                 | 18               | N-F;SMA-F         |
| HLDJ-DA010T93-60D    | 10-200           | 3500         | 1.10      | 0.10                | 60            | 0.50                 | 25               | 7/16-F;SMA-F      |
| HLDJ-GN010T92-60D    | 10-250           | 30000        | 1.10      | 0.20                | 60            | 0.80                 | 20               | IF45;N-F          |
| HLDJ-LA010T80-70D    | 10-220           | 10000        | 1.15      | 0.10                | 70            | 0.50                 | 20               | LC-F;SMA-F        |
| HLD-B010031-55       | 12-14            | 2000         | 1.2/1.4   | 0.15                | 55            | 0.10                 | 20               | N-M;SMA-F         |
| HLDJ-GA010036-60D    | 12.5-14.5        | 30000        | 1.1       | 0.05                | 60            | 0.10                 | 25               | IF70;SMA-F        |
| HLD-B010T79-60D      | 13-250           | 5000         | 1.1       | 0.05                | 60            | 0.50                 | 20               | N-F;SMA-F         |
| HLDQ-B010503         | 20-100           | 600          | 1.15      | 0.20                | 50            | 0.80                 | 18               | N-F;SMA-F         |
| HLD-D010503-50D      | 20-100           | 4000         | 1.1/1.4   | 0.10                | 50            | 0.40                 | 20               | 7/16-F;SMA-F      |
| HLD-B010T04-55J      | 20-200           | 600          | 1.2       | 0.15                | 55            | 1.00                 | 19               | N-F,N-M;SMA-F     |
| HLD-D010T04-55       | 20-200           | 2500         | 1.2       | 0.15                | 55            | 1.00                 | 19               | 7/16-F;SMA-F      |
| HLDJ-DA0126-50D      | 20-400           | 4000         | 1.20      | 0.10                | 50            | 0.80                 | 20               | 7/16-F;SMA-F      |
| HLD-B010T04-50D      | 20-500           | 500          | 1.20      | 0.20                | 50            | 1.20                 | 18               | N-F;SMA-F         |
| HLDJ-B010T90-50D     | 20-520           | 500          | 1.2       | 0.20                | 50            | 1.00                 | 20               | N-F;SMA-F         |
| HLD-B0126-50D        | 20-1000          | 500          | 1.2       | 0.30                | 50            | 1.50                 | 18               | N-F;SMA-F         |
| HLDL-GR010226-70D    | 22-50            | 25000        | 1.1/1.25  | 0.05                | 70            | 0.30                 | 20               | IF110;IF70;SMA-F  |
| HLD-D010T83-60D      | 25-500           | 5250         | 1.15      | 0.05                | 60            | 0.35                 | 30               | 7/16-F;SMA-F      |
| HLD-B010T02-50D      | 30-520           | 500          | 1.20      | 0.20                | 50            | 0.80                 | 20               | N-F;SMA-F         |
| HLDJ-DA010T50-50D    | 30-512           | 2000         | 1.2       | 0.20                | 50            | 0.80                 | 20               | 7/16-F;SMA-F      |

## Typical product parameters:

| Part number         | Freq Range (MHz) | Power (W/CW) | VSWR      | Insertion Loss (dB) | Coupling (dB) | Flatness ( $\pm$ dB) | Directivity (dB) | Connector           |
|---------------------|------------------|--------------|-----------|---------------------|---------------|----------------------|------------------|---------------------|
| HLD-Z010T02-70D     | 30-520           | 10000        | 1.3       | 0.15                | 70            | 0.80                 | 18               | IF110/N-F           |
| HLD-B010T22-50D     | 30-800           | 500          | 1.20      | 0.25                | 50            | 1.00                 | 18               | N-F;SMA-F           |
| HLD-D010T84-50D     | 50-500           | 5000         | 1.15      | 0.15                | 50            | 0.50                 | 22               | 7/16-F;N-F          |
| HLD-B0142-50B       | 50-1000          | 800          | 1.3       | 0.30                | 50            | 2.00                 | 20               | N-F;SMA-F           |
| HLD-D0188-50D       | 80-520           | 2000         | 1.3       | 0.30                | 50            | 1.00                 | 18               | 7/16-F,7/16-F;SMA-F |
| HLD-A0142-40        | 80-1000          | 100          | 1.30      | 0.50                | 45            | 0.60                 | 18               | SMA-F               |
| HLD-N0142-60DKJ     | 80-1000          | 300          | 1.25      | 0.30                | 60            | 1.00                 | 18               | N-M;N-F             |
| HLD-B0142-50DA      | 80-1000          | 500          | 1.20      | 0.30                | 50            | 1.00                 | 20               | N-F;SMA-F           |
| HLDJ-B0142-50D      | 80-1000          | 600          | 1.20      | 0.30                | 50            | 1.00                 | 20               | N-F;SMA-F           |
| HLD-Z0142-50D       | 80-1000          | 800          | 1.30      | 0.30                | 50            | 1.00                 | 18               | 7/16-F,7/16-F;SMA-F |
| HLD-B0142-50D       | 80-1000          | 1000         | 1.20      | 0.30                | 50            | 1.00                 | 20               | N-F;SMA-F           |
| HLD-N0142-50D-G     | 80-1000          | 1000         | 1.20      | 0.25                | 50            | 1.00                 | 20               | N-F                 |
| HLD-E0142-50        | 80-1000          | 1200         | 1.3       | 0.30                | 50            | 1.00                 | 18               | 7/16-F;SMA-F        |
| HLD-D0142-50        | 80-1000          | 2000         | 1.3       | 0.30                | 50            | 1.00                 | 18               | 7/16-F;N-F          |
| HLD-G0142-50        | 80-1000          | 3500         | 1.3       | 0.35                | 50            | 1.50                 | 15               | IF70-F;N-F          |
| HLDJ-DA010314-60D   | 100-300          | 4000         | 1.20      | 0.20                | 60            | 0.50                 | 20               | 7/16-F;SMA-F        |
| HLDJ-D010403-50D    | 100-400          | 2500         | 1.15      | 0.20                | 50            | 0.50                 | 20               | 7/16-F;7/16-M;SMA-F |
| HLDQ-XN0188-50      | 100-500          | 6000         | 1.15      | 0.20                | 50            | 0.40                 | 20               | L52-F;N-F           |
| HLD-B010505-50D     | 100-520          | 600          | 1.2/1.6   | 0.20                | 50            | 0.80                 | 20               | N-F;SMA-F           |
| HLD-N010602-40      | 100-600          | 200          | 1.30      | 0.30                | 40            | 1.00                 | 18               | N-F                 |
| HLDQ-GA010042-55D   | 157.5-167.5      | 12000        | 1.06/1.5  | 0.10                | 55            | 1.00                 | 35               | IF70;SMA-F          |
| HLD-B01003-40       | 180-220          | 400          | 1.3/1.5   | 0.20                | 40            | 0.30                 | 20               | N-F;SMA-F           |
| HLD-A010306-30D     | 200-700          | 200          | 1.20      | 0.30                | 30            | 1.00                 | 20               | SMA-F               |
| HLD-N010404-40D     | 225-1000         | 400          | 1.40      | 0.50                | 40            | 2.00                 | 13               | N-F                 |
| HLD-T010801-19      | 225-2000         | 10           | 1.25      | 0.50                | 14-24         | 10.00                | -                | SMD                 |
| HLDJ-XN010041-60D   | 300-500          | 10000        | 1.1       | 0.20                | 60            | 0.30                 | 22               | L52-M;L52-F;N-F     |
| HLD-B0142-50A       | 300-700          | 500          | 1.30      | 0.30                | 50            | 1.00                 | 20               | N-F;SMA-F           |
| HLD-A010603-34      | 300-2000         | 30           | 1.3/1.5   | 0.30                | 34            | 1.50                 | 20               | SMA-F               |
| HLD-A010603-40D     | 300-2000         | 100          | 1.35      | 0.30                | 40            | 1.20                 | 18               | SMA-F               |
| HLDJ-A010603-55D    | 300-2000         | 30           | 1.30/1.50 | 0.35                | 55            | 1.20                 | 18               | SMA-F               |
| HLD-B010T58-45D     | 300-3800         | 100          | 1.40      | 0.30                | 45            | 1.00                 | 15               | N-F;SMA-F           |
| HLD-A010T63-40D     | 300-4000         | 10           | 1.25/2.0  | 0.50                | 40            | 2.00                 | 20               | SMA-F               |
| HLDQ-RA010043-55D   | 320-330          | 25000        | 1.06      | 0.10                | 55            | 1.00                 | 40               | 3-1/8 IF110;SMA-F   |
| HLD-E0142-50-3570   | 350-700          | 320          | 1.3       | 0.30                | 50            | 1.00                 | 18               | 7/16-F;SMA-F        |
| HLD-A010507-40D     | 350-2000         | 30           | 1.3/1.5   | 0.35                | 40            | 1.00                 | 20               | SMA-F               |
| HLD-A010507-40D-300 | 350-2000         | 300          | 1.25      | 0.30                | 40            | 0.80                 | 18               | N-F;SMA-F           |
| HLD-B010502-50D     | 380-2000         | 300          | 1.35      | 0.30                | 50            | 1.20                 | 18               | N-F;SMA-F           |
| HLD-B0141-50-0406   | 400-600          | 800          | 1.30      | 0.30                | 50            | 1.20                 | 20               | N-F;SMA-F           |

## Typical product parameters:

| Part number         | Freq Range (MHz) | Power (W/CW) | VSWR      | Insertion Loss (dB) | Coupling (dB) | Flatness ( $\pm$ dB) | Directivity (dB) | Connector     |
|---------------------|------------------|--------------|-----------|---------------------|---------------|----------------------|------------------|---------------|
| HLD-B0184-40        | 400-800          | 800          | 1.30      | 0.30                | 40            | 1.00                 | 12               | N-F;SMA-F     |
| HLDJ-G0174-50D      | 400-1000         | 2500         | 1.20      | 0.20                | 50            | 0.50                 | 18               | IF70-F;N-F    |
| HLD-B0141-50-0425   | 400-2500         | 500          | 1.30      | 0.30                | 50            | 1.20                 | 18               | N-F;SMA-F     |
| HLD-N010401-40A     | 400-2700         | 200          | 1.50      | 0.50                | 40            | 1.20                 | 20               | N-F           |
| HLDJ-B010702-50D    | 400-3000         | 500          | 1.25/1.6  | 0.30                | 50            | 1.00                 | 18               | N-F;SMA-F     |
| HLD-B0140-13D       | 400-3900         | 150          | 1.25      | 0.50                | 13            | 1.50                 | -                | N-F;SMA-F     |
| HLD-N0140-40        | 400-3900         | 200          | 1.25      | 0.30                | 39            | 1.50                 | 18               | N-F           |
| HLD-A0199-30        | 400-6000         | 30           | 1.30      | 0.60                | 30            | 1.50                 | 10               | SMA-F         |
| HLD-B010T81-30D     | 400-8000         | 250          | 1.4/1.5   | 0.80                | 30            | 1.50                 | 12               | N-F;SMA-F     |
| HLDQ-B010T24-40D    | 400-12000        | 200          | 1.4/1.5   | 0.5/0.8             | 40            | 1.30                 | 14.0/12.0        | N-F;SMA-F     |
| HLD-B0142-50-4149   | 410-490          | 100          | 1.30      | 0.30                | 50            | 1.00                 | 20               | N-F;SMA-F     |
| HLD-E010217-50      | 500-1100         | 2000         | 1.2/1.5   | 0.30                | 50            | 1.00                 | 18               | 7/16-F;SMA-F  |
| HLD-A0151-10        | 500-2000         | 50           | 1.20      | 0.40                | 10            | 0.70                 | 20               | SMA-F         |
| HLDJ-B0151-40       | 500-2000         | 500          | 1.25      | 0.35                | 40            | 0.80                 | 18               | N-M;N-F;SMA-F |
| HLD-B0141-50-0520   | 500-2000         | 800          | 1.35      | 0.30                | 50            | 0.80                 | 18               | N-F;SMA-F     |
| HLDJ-DA0151-50D     | 500-2000         | 1500         | 1.30      | 0.35                | 50            | 0.80                 | 18               | 7/16-F;SMA-F  |
| HLDQ-XN0151-50      | 500-2000         | 2000         | 1.25      | 0.35                | 50            | 0.80                 | 18               | L52-F;N-F     |
| HLD-B0107-40        | 500-2500         | 500          | 1.35      | 0.30                | 40            | 0.50                 | 18               | N-F;SMA-F     |
| HLD-A010601-50D     | 500-3000         | 100          | 1.30      | 0.50                | 50            | 1.50                 | 16               | SMA-F         |
| HLD-B010601-40D     | 500-3000         | 200          | 1.25      | 0.35                | 40            | 0.50                 | 18               | N-F;SMA-F     |
| HLD-A0149-20        | 500-6000         | 30           | 1.3       | 0.50                | 20            | 1.00                 | 18/15            | SMA-F         |
| HLD-A0179-10        | 500-8000         | 20           | 1.30      | 1.20                | 10            | 0.70                 | 15               | SMA-F         |
| HLDQ-B013203-30D    | 500-18000        | 400          | 1.5/1.4   | 0.7/1.0             | 30            | 1.50                 | 12/10.0          | N-F;N-M;SMA-F |
| HLD-A010T03-10      | 500-18500        | 20           | 1.60      | 1.60                | 10            | 1.00                 | 10               | SMA-F         |
| HLD-B0141-50        | 600-2700         | 800          | 1.3       | 0.30                | 50            | 1.20                 | 20               | N-F;SMA-F     |
| HLD-E0141-50        | 600-2700         | 3000         | 1.35      | 0.45                | 50            | 1.50                 | 16               | 7/16-F;SMA-F  |
| HLD-A0155-10        | 600-3900         | 50           | 1.20      | 0.50                | 10            | 0.80                 | 18               | SMA-F         |
| HLDQ-A010T91-40D    | 600-8000         | 30           | 1.35/1.50 | 0.40                | 40            | 1.20                 | 12               | SMA-F         |
| HLD-B0143-50        | 698-960          | 250          | 1.30      | 0.30                | 49            | 2.00                 | 23               | N-F;SMA-F     |
| HLD-B0143-50-500    | 698-960          | 500          | 1.3       | 0.30                | 50            | 2.00                 | 18               | N-F;SMA-F     |
| HLD-B0165-40        | 698-3000         | 500          | 1.30      | 0.30                | 40            | 1.50                 | 18               | N-F;SMA-F     |
| HLDQ-N010309-30D    | 700-2700         | 500          | 1.3       | 0.30                | 30            | 0.50                 | 18               | N-F           |
| HLD-B010802-40D     | 700-6000         | 300          | 1.40      | 0.20                | 40            | 1.00                 | 15               | N-F;SMA-F     |
| HLD-B010802-40D-500 | 700-6000         | 500          | 1.25/1.4  | 0.30                | 40            | 0.75                 | 16               | N-F;SMA-F     |
| HLD-B010302-50      | 800-3000         | 800          | 1.3       | 0.30                | 50            | 1.20                 | 20               | N-F;SMA-F     |
| HLD-N010401-40      | 800-3500         | 200          | 1.40      | 0.35                | 40            | 1.20                 | 18               | N-F           |
| HLDJ-DA0183-40D     | 800-4000         | 600          | 1.30      | 0.40                | 40            | 1.00                 | 17               | 7/16-F;SMA-F  |
| HLDJ-D010501-50D    | 800-4200         | 700          | 1.30      | 0.40                | 50            | 1.20                 | 16               | 7/16-F;N-F    |

## Typical product parameters:

| Part number       | Freq Range (MHz) | Power (W/CW) | VSWR    | Insertion Loss (dB) | Coupling (dB) | Flatness ( $\pm$ dB) | Directivity (dB) | Connector      |
|-------------------|------------------|--------------|---------|---------------------|---------------|----------------------|------------------|----------------|
| HLD-A010T14-10    | 800-12750        | 100          | 1.5     | 1.50                | 10            | 1.00                 | 13               | SMA-F          |
| HLD-Z010010-50D   | 850-1150         | 8000         | 1.30    | 0.50                | 50            | 0.50                 | 17               | EIA 1-5/8;N-F  |
| HLD-F010008-25    | 950-1250         | 400          | 1.3     | 0.30                | 25            | 0.30                 | 20               | pin            |
| HLDJ-B010316-50D  | 950-3050         | 500          | 1.45    | 0.40                | 50            | 1.20                 | 18               | N-F;SMA-F      |
| HLD-B0131-50      | 1000-2000        | 800          | 1.3     | 0.20                | 50            | 1.00                 | 20               | N-F;SMA-F      |
| HLDJ-DA0131-40D   | 1000-2000        | 1300         | 1.20    | 0.30                | 40            | 0.50                 | 18               | 7/16-F;SMA-F   |
| HLD-E0141-50-1020 | 1000-2000        | 1500         | 1.3     | 0.30                | 50            | 1.00                 | 18               | 7/16-F;SMA-F   |
| HLDJ-GN0131-50D   | 1000-2000        | 2500         | 1.20    | 0.20                | 50            | 0.50                 | 18               | IF70-F;N-F     |
| HLD-B0170-50      | 1000-3000        | 500          | 1.30    | 0.35                | 50            | 1.20                 | 18               | N-F;SMA-F      |
| HLDZ-QA0102-40D   | 1000-3200        | 2000         | 1.3/1.4 | 0.30                | 40            | 0.80                 | 15               | IF45;SMA-F     |
| HLD-A0102-30D     | 1000-4000        | 50           | 1.2     | 0.35                | 30            | 0.50                 | 20               | SMA-F          |
| HLD-D0102-40D     | 1000-4000        | 800          | 1.3/1.4 | 0.30                | 40            | 0.80                 | 15               | 7/16-F;SMA-F   |
| HLDZ-DA0102-40D   | 1000-4000        | 1000         | 1.3/1.4 | 0.30                | 40            | 0.80                 | 15               | 7/16-F;SMA-F   |
| HLD-B0187-40D     | 1000-6000        | 500          | 1.4/1.7 | 0.50                | 40            | 1.00                 | 12               | N-F;SMA-F      |
| HLDB-DA0187-40D   | 1000-6000        | 1000         | 1.4/1.7 | 0.50                | 40            | 1.20                 | 12               | 7/16-F;SMA-F   |
| HLDB-A0113-20D    | 1000-18000       | 20           | 1.60    | 1.50                | 20            | 1.00                 | 12               | SMA-F          |
| HLD-A0113-20      | 1000-18000       | 50           | 1.60    | 1.20                | 20            | 1.00                 | 12               | SMA-F          |
| HLDQ-A0113-30D    | 1000-18000       | 60           | 1.4/1.6 | 1.00                | 30            | 1.30                 | 12/9.0           | SMA-F          |
| HLDQ-N013T01-20   | 1000-12000       | 100          | 1.4/1.5 | 0.80                | 20            | 0.60                 | 12               | N-F            |
| HLD-E0141-50-1117 | 1100-1700        | 1500         | 1.20    | 0.30                | 50            | 0.50                 | 18               | 7/16-F;SMA-F   |
| HLD-Z0152-50D     | 1200-1400        | 200          | 1.3/1.4 | 0.20                | 50            | 0.30                 | 18               | N-F;Microstrip |
| HLD-Z0152-50      | 1200-1400        | 1000         | 1.30    | 0.30                | 50            | 0.50                 | 25               | 7/16-F;SMA-F   |
| HLD-B0159-50      | 1400-1900        | 500          | 1.30    | 0.30                | 50            | 2.00                 | 23               | N-F;SMA-F      |
| HLD-B0144-50      | 1700-2200        | 250          | 1.3     | 0.30                | 50            | 2.00                 | 20               | N-F;SMA-F      |
| HLD-B0144-50-500  | 1800-2200        | 500          | 1.3     | 0.30                | 50            | 2.00                 | 18               | N-F;SMA-F      |
| HLD-B013050-40D   | 2000-2800        | 300          | 1.30    | 0.25                | 40            | 1.00                 | 20               | N-F;SMA-F      |
| HLD-B013076-30D   | 2000-2300        | 500          | 1.3/1.5 | 0.30                | 30            | 0.40                 | 16               | N-F;SMA-F      |
| HLD-B0146-40-2040 | 2000-4000        | 400          | 1.3     | 0.50                | 40            | 1.50                 | 10               | N-F;SMA-F      |
| HLDQ-DA0132-50    | 2000-4000        | 500          | 1.3/1.5 | 0.40                | 50            | 0.80                 | 15               | 7/16-F;SMA-F   |
| HLD-E03209-40     | 2000-4200        | 1000         | 1.4/1.6 | 0.30                | 40            | 0.80                 | 15               | 7/16-F;SMA-F   |
| HLD-B0146-45      | 2000-5000        | 400          | 1.5     | 0.50                | 45            | 1.50                 | 10               | N-F;SMA-F      |
| HLD-E013202-50    | 2000-5000        | 1000         | 1.50    | 0.30                | 50            | 1.50                 | 10               | 7/16;SMA-F     |
| HLD-A0146-55D     | 2000-6000        | 80           | 1.5     | 0.30                | 55            | 1.00                 | 15               | SMA-F          |
| HLD-A0146-40D     | 2000-6000        | 200          | 1.3/1.5 | 0.30                | 40            | 0.50                 | 15               | N-F;SMA-F      |
| HLD-B0146-30D     | 2000-6000        | 250          | 1.3/1.5 | 0.60                | 30            | 0.60                 | 15               | N-F;SMA-F      |
| HLD-A0146-40      | 2000-6000        | 300          | 1.30    | 0.30                | 40            | 0.50                 | 16               | N-F;SMA-F      |
| HLD-D0146-40D     | 2000-6000        | 400          | 1.3/1.5 | 0.30                | 40            | 0.60                 | 15               | MIN-DIN;SMA-F  |
| HLD-A0146-40D-500 | 2000-6000        | 500          | 1.3/1.5 | 0.30                | 40            | 0.50                 | 15               | N-F;SMA-F      |

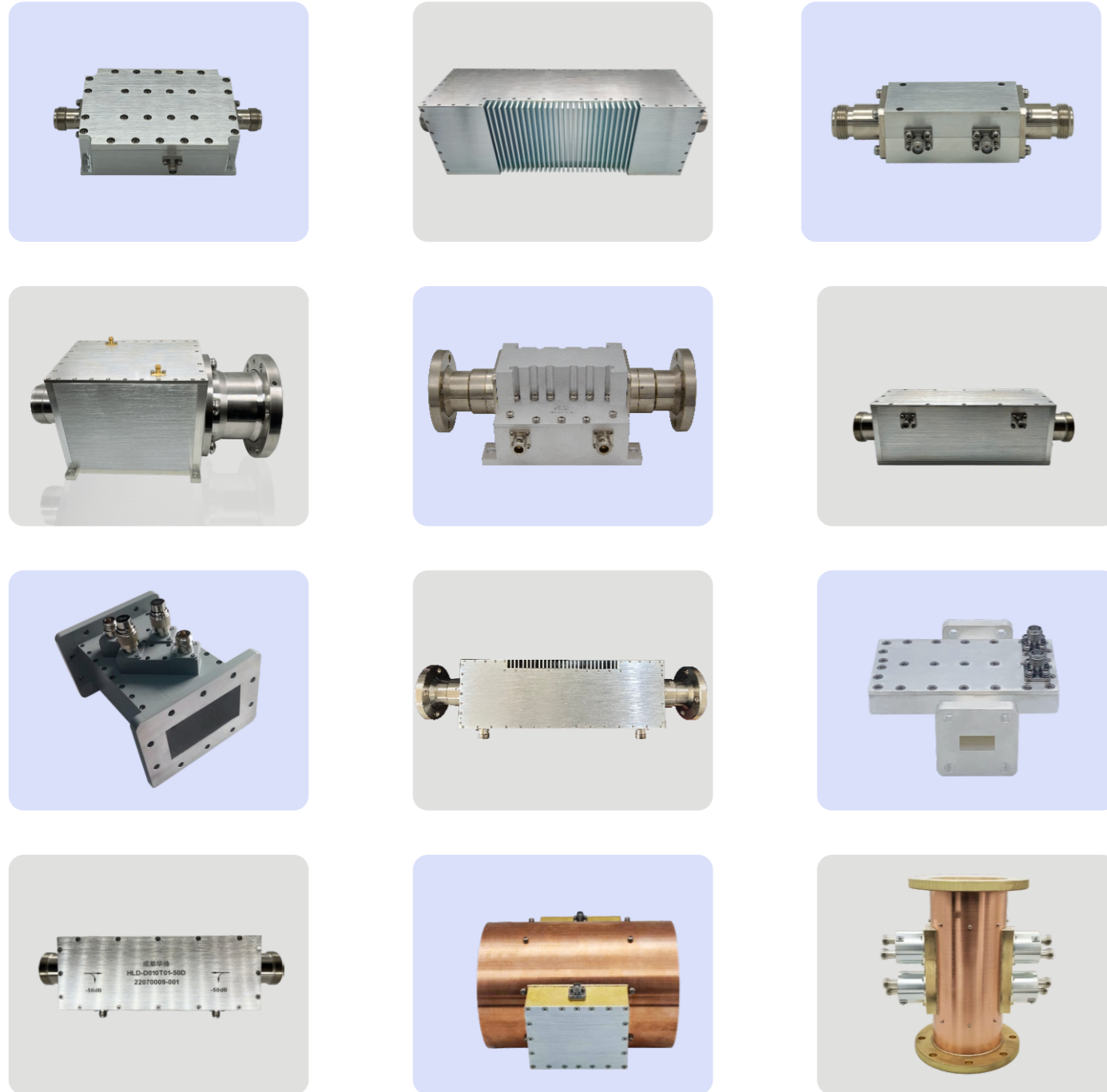
## Typical product parameters:

| Part number       | Freq Range (MHz) | Power (W/CW) | VSWR      | Insertion Loss (dB) | Coupling (dB) | Flatness ( $\pm$ dB) | Directivity (dB) | Connector       |
|-------------------|------------------|--------------|-----------|---------------------|---------------|----------------------|------------------|-----------------|
| HLD-Z0146-45D     | 2000-6000        | 650/1000     | 1.50      | 0.30                | 45            | 1.50                 | 12               | 7/16 SMA-F      |
| HLD-B0171-20      | 2000-6500        | 300          | 1.50      | 0.50                | 20            | 1.50                 |                  | N-F;SMA-F       |
| HLD-A0123-40      | 2000-8000        | 50           | 1.4/1.6   | 0.30                | 40            | 0.60                 | 12               | SMA-F           |
| HLD-A0123-45D     | 2000-8000        | 80           | 1.40      | 0.30                | 45            | 0.60                 | 12               | SMA-F           |
| HLD-B0123-40D     | 2000-8000        | 150          | 1.4/1.7   | 0.30                | 40            | 0.70                 | 12               | N-F;SMA-F       |
| HLD-D0123-40D     | 2000-8000        | 600          | 1.30      | 0.50                | 40            | 0.60                 | 14               | 7/16-F;SMA-F    |
| HLDQ-DA0123-40D   | 2000-8000        | 800          | 1.4/1.6   | 0.50                | 40            | 0.60                 | 14               | 7/16-M;SMA-F    |
| HLD-A0148-20      | 2000-18000       | 50           | 1.5       | 0.70                | 20            | 1.00                 | 12               | SMA-F           |
| HLD-A0148-30D     | 2000-18000       | 50           | 1.5/1.7   | 0.60                | 30            | 1.20                 | 12.0/10          | SMA-F           |
| HLD-B013004-43    | 2200-2300        | 500          | 1.30      | 0.30                | 43            | 1.00                 | 16               | N-F,N-M;SMA-F   |
| HLD-B0145-50      | 2300-2700        | 250          | 1.3       | 0.30                | 48            | 2.00                 | 23               | N-F;SMA-F       |
| HLD-B0145-50-500  | 2300-2700        | 500          | 1.3       | 0.30                | 50            | 2.00                 | 18               | N-F;SMA-F       |
| HLDB-B013213-40D  | 2400-6200        | 150          | 1.40/1.60 | 0.30                | 40            | 0.70                 | 12               | N-F;SMA-F       |
| HLDH-HN013092-40D | 2600-3950        | 3000         | 1.05/1.40 | 0.05                | 40            | 1.00                 | 18               | WR284           |
| HLD-F013034-50D   | 2700-3500        | 600          | 1.3/1.4   | 0.20                | 50            | 0.30                 | 18               | F 1.5pin        |
| HLD-D103034-50    | 2700-3500        | 1500         | 1.3       | 0.35                | 50            | 0.80                 | 16               | 7/16-F;SMA-F    |
| HLDB-B013306-30   | 3000-10000       | 400          | 1.4/1.6   | 0.60                | 30            | 0.70                 | 10               | N-F;SMA-F       |
| HLD-A013602-40D   | 3000-18000       | 50           | 1.45/1.7  | 0.55                | 40            | 1.00                 | 10               | SMA-F           |
| HLD-N0154-30      | 3300-3800        | 200          | 1.30      | 0.30                | 30            | 2.00                 | 10               | N-F             |
| HLD-B0154-50-500  | 3300-3800        | 500          | 1.30      | 0.30                | 50            | 2.00                 | 15               | N-F;SMA-F       |
| HLD-B013031-40D   | 4000-5100        | 250          | 1.3/1.5   | 0.30                | 40            | 0.50                 | 15               | N-F;SMA-F       |
| HLD-B0146-40-4060 | 4000-6000        | 400          | 1.3       | 0.60                | 40            | 1.50                 | 10               | N-F;SMA-F       |
| HLD-A0133-40      | 4000-8000        | 20           | 1.3       | 0.30                | 40            | 0.50                 | 16               | SMA-F           |
| HLD-A0133-20      | 4000-8000        | 30           | 1.25      | 0.30                | 20            | 0.75                 | 20               | SMA-F           |
| HLD-B0133-50D1    | 4000-8000        | 250          | 1.3/1.5   | 0.20                | 50            | 0.90                 | 17               | N-F;SMA-F       |
| HLDS-B0133-40D    | 4000-8000        | 300          | 1.35/1.50 | 0.35                | 40            | 0.50                 | 12               | N-F;SMA-F       |
| HLD-A013501-20    | 4000-20000       | 20           | 1.6       | 0.60                | 20            | 1.00                 | 10               | SMA-F           |
| HLDH-HA013011-40D | 4400-5000        | 2000         | 1.05/1.35 | 0.20                | 40            | 0.50                 | 20               | WR187;N-F       |
| HLD-B013045-50D   | 5000-6000        | 100          | 1.3/1.4   | 0.30                | 50            | 0.50                 | 15               | N-F;SMA-F       |
| HLDH-HN013104-50D | 5300-5700        | 12000        | 1.1/1.30  | 0.20                | 50            | 0.30                 | 15               | BJ48;N-F        |
| HLD-H013067-60D   | 5850-6650        | 2000         | 1.2/1.4   | 0.20                | 60            | 0.80                 | 18               | BJ70;SMA-F      |
| HLDH-H013067-50D  | 5850-6650        | 2000         | 1.2/1.4   | 0.20                | 50            | 0.80                 | 18               | BJ70;SMA-F      |
| HLDH-HA03113-50D  | 5850-6650        | 2000         | 1.2/1.4   | 0.20                | 50            | 0.80                 | 18               | BJ70;SMA-F      |
| HLD-H013067-60    | 5850-6650        | 3000         | 1.20/1.40 | 0.20                | 60            | 0.80                 | 18               | FDP70;SMA-F     |
| HLD-B013017-40    | 5900-7500        | 150          | 1.50      | 0.60                | 40            | 1.50                 | 12               | N-F;SMA-F       |
| HLD-B013030-37D   | 6000-8000        | 150          | 1.3/1.5   | 0.30                | 37            | 0.50                 | 15               | N-F;SMA-F       |
| HLD-A0177-40D     | 6000-10000       | 120          | 1.4       | 0.30                | 40            | 0.50                 | 15               | N-F;SMA-F       |
| HLDH-HA013207-40D | 6000-12000       | 400          | 1.2/1.5   | 0.20                | 40            | 1.00                 | 12               | WRD500D36;SMA-F |

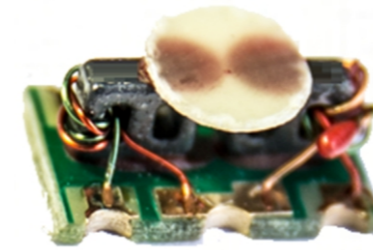
## Typical product parameters:

| Part number         | Freq Range (MHz) | Power (W/CW) | VSWR      | Insertion Loss (dB) | Coupling (dB) | Flatness ( $\pm$ dB) | Directivity (dB) | Connector         |
|---------------------|------------------|--------------|-----------|---------------------|---------------|----------------------|------------------|-------------------|
| HLD-A0157-30        | 6000-18000       | 30           | 1.6       | 0.60                | 30            | 1.00                 | 10               | SMA-F             |
| HLD-A0157-20D       | 6000-18000       | 50           | 1.5       | 1.00                | 20            | 1.00                 | 12               | SMA-F             |
| HLD-A0157-35D       | 6000-18000       | 80           | 1.5/1.7   | 0.50                | 35            | 0.75                 | 10               | SMA-F             |
| HLDQ-B0157-40D-100  | 6000-18000       | 100          | 1.5       | 0.50                | 40            | 1.00                 | 12               | N-M;N-F;SMA-F     |
| HLDS-B0157-30D      | 6000-18000       | 200          | 1.5/1.8   | 0.50                | 30            | 0.80                 | 10               | N-F;SMA-F         |
| HLDQ-B0157-40D      | 6000-18000       | 250          | 1.4/1.6   | 0.50                | 40            | 1.00                 | 13               | N-M;SMA-F         |
| HLDH-HA0157-40D     | 6000-18000       | 300          | 1.3       | 0.30                | 40            | 1.50                 | 12/10.0          | WRD500D36;SMA-F   |
| HLD-Z0157-40D       | 6000-18000       | 350          | 1.25/1.5  | 0.30                | 41            | 0.75                 | 12               | WRD650;SMA-F      |
| HLD-A0123-10-6170   | 6100-7000        | 50           | 1.2       | 0.50                | 10            | 0.15                 | 20               | SMA-F             |
| HLD-H013203-50D     | 7500-18000       | -            | 1.1/1.5   | 0.30                | 50            | 0.75                 | 20               | FPWR750;N-F       |
| HLD-A0158-6         | 8000-18000       | -            | 1.8       | 2.00                | 6             | 0.80                 | 5                | SMA-F             |
| HLD-B0163-50D       | 8000-12000       | 60           | 1.4/1.5   | 0.30                | 50            | 1.00                 | 14               | N-F;SMA-F         |
| HLD-B0163-40        | 8000-12000       | 200          | 1.3/1.5   | 0.70                | 40            | 0.80                 | 13               | N-F;SMA-F         |
| HLDQ-FP0163-50D     | 8000-12000       | 250          | 1.4/1.5   | 0.30                | 50            | 1.00                 | 14               | F 1.5;SMP-M       |
| HLDH-HN013117-50D   | 8200-12400       | 2000         | 1.1/1.4   | 0.10                | 50            | 1.20                 | 14               | WR90;N-F          |
| HLDH-N013119-30D    | 9000-9600        | 100          | 1.5       | 0.40                | 30            | 0.50                 | 15               | N-M;N-F;N-F       |
| HLD-B013046-50D     | 9000-10500       | 100          | 1.4/1.6   | 0.40                | 50            | 0.50                 | 12               | N-F;SMA-F         |
| HLDH-HN013119-20D   | 9100-9600        | 500          | 1.20/1.50 | 0.20                | 20            | 0.30                 | 25               | WR90;N-F          |
| HLDH-HA013095-40    | 9840-15000       | 1000         | 1.1/1.4   | 0.10                | 40            | 1.20                 | 14               | BJ120;SMA-F       |
| HLDH-HA016008-50D   | 11900-18000      | 200          | 1.05/1.40 | 0.10                | 50            | 1.20                 | 14               | BJ140;SMA-F       |
| HLD-A016014-35D     | 12000-18000      | 80           | 1.5/1.7   | 0.50                | 35            | 1.00                 | 10               | SMA-F             |
| HLDH-HN016046-50D   | 12400-18000      | 2000         | 1.1/1.4   | 0.10                | 50            | 1.20                 | 14               | WR62;N-F          |
| HLDH-HA016040-40D   | 13500-15000      | 2000         | 1.2/1.4   | 0.10                | 40            | 0.50                 | 16               | BJ140;SMA-F       |
| HLDH-HA016039-40D   | 13750-14800      | 600          | 1.2       | 0.10                | 40            | 0.50                 | 18               | BJ180;SMA-F       |
| HLD-HA016025-60D    | 17300-18100      | 3000         | 1.2/1.4   | 0.20                | 60            | 0.50                 | 18               | BJ180;SMA-F       |
| HLD-H016023-40D     | 17600-26700      | 300          | 1.1/1.3   | 0.25                | 40            | 1.00                 | 15               | FBP220            |
| HLDH-HA0110-40D     | 18000-26500      | 100          | 1.3/1.5   | 0.50                | 40            | 1.00                 | 18               | BJ220;2.92-F      |
| HLDB-A0109-30D      | 18000-40000      | 20           | 1.6/1.8   | 1.2/1.5             | 30            | 1.20                 | 10               | 2.92-F            |
| HLDH-HA016042-40D   | 21700-33000      | 300          | 1.2/1.5   | 0.30                | 40            | 0.80                 | 20               | BJ260;2.92-F      |
| HLDB-H011-40D       | 26000-40000      | 100          | 1.2/1.6   | 0.50                | 40            | 1.00                 | 18               | BJ320;2.92-F      |
| HLD-H016022-40D-320 | 26300-40000      | 200          | 1.1/1.25  | -                   | 40            | 1.50                 | 15               | FBP320;2.92-F     |
| HLD-HA016036-40D    | 32000-40000      | 10           | 1.25/1.50 | 0.50                | 40            | 1.00                 | 15               | BJ320;2.92-F      |
| HLD-H016020-40D     | 32900-50100      | -            | 1.1/1.4   | -                   | 40            | 1.50                 | 15               | FUGP400;2.4-F     |
| HLDH-HA016020-40D   | 32900-50100      | 100          | 1.1/1.4   | 0.20                | 40            | 1.50                 | 15               | BJ400;2.4-F       |
| HLD-H016029-30D     | 33000-37000      | 1000         | 1.1/1.35  | -                   | 30            | 0.75                 | 16               | FBP320;SMA-F      |
| HLDH-HA016033-40D   | 40000-50000      | 100          | 1.1/1.5   | 0.20                | 40            | 1.00                 | 15               | BJ500;BJ400;2.4-F |
| HLDH-HZ016044-40D   | 47000-50000      | 1            | 1.2/1.5   | 0.20                | 40            | 1.00                 | 15               | BJ500;2.4-F       |

Product display:



Model: HLPL-T030T40



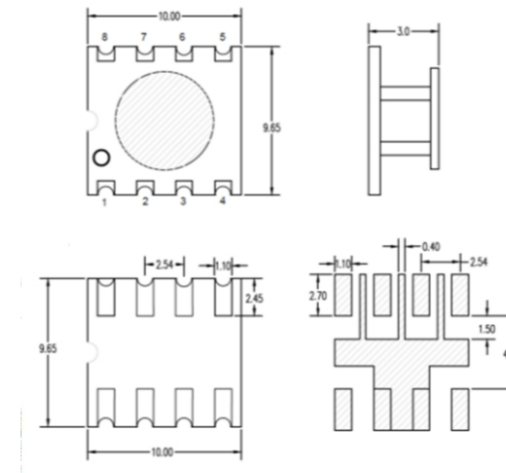
Features:

- Miniaturization, low loss, serialization

Performance index:

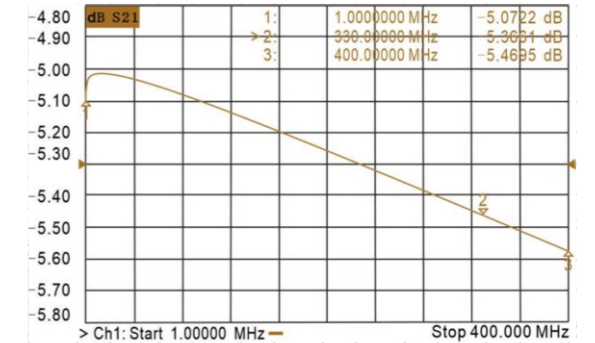
- Frequency range: 1MHz-400MHz
- VSWE:  $\leq 1.4$
- Insertion Loss:  $\leq 1.2\text{dB}$
- Isolation:  $\geq 18\text{dB}$
- Amplitude balance:  $\pm 0.4\text{dB}$
- Phase balance:  $\pm 3^\circ$
- Power: 2W(CW)

Outline:

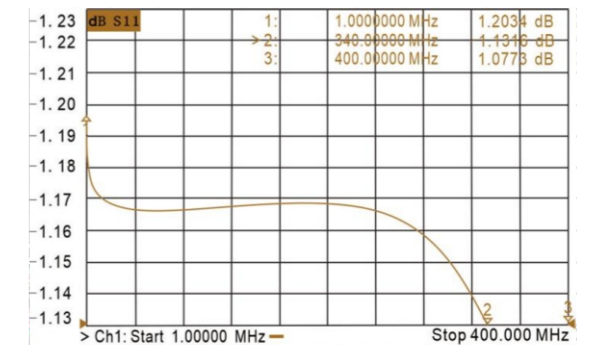


Graph:

S21



S11





Typical product parameters:

| Part Number     | Freq Range (MHz) | Number Of Ways | VSWR      | Insertion Loss (dB) | Phase Balanced ±° | Amplitude Balance ±dB | Isolation (dB) | Power (W) | Connector    |
|-----------------|------------------|----------------|-----------|---------------------|-------------------|-----------------------|----------------|-----------|--------------|
| HLP-A040T21     | 0.009-250        | 4              | 1.3/1.4   | 0.50                | 4.0               | 0.15                  | 18             | 50        | SMA-F        |
| HLPL-N040T10    | 0.01-40          | 4              | 1.5/2     | 0.40                | 3.0               | 0.15                  | 20             | 500       | N-F          |
| HLCL-A040T55-10 | 2.2-27           | 4              | 1.15      | 0.30                | 3.0               | 0.10                  | 20             | 10        | SMA-F        |
| HLP-A080T01     | 10-100           | 8              | 1.3/1.4   | 0.80                | 5.0               | 0.30                  | 16             | 1         | SMA-F        |
| HLP-A020503     | 20-1000          | 2              | 1.30      | 0.40                | 3.0               | 0.20                  | 18             | 1         | SMA-F        |
| HLP-A040503     | 20-1000          | 4              | 1.4/1.3   | 0.60                | 6.0               | 0.20                  | 18             | 2         | SMA-F        |
| HLP-A0826       | 20-1300          | 8              | 1.8/1.6   | 4.00                | 5.0               | 0.50                  | 12             | 1         | SMA-F        |
| HLP-A1626       | 20-1300          | 16             | 1.8/1.6   | 3.50                | 8.0               | 0.50                  | 12             | 1         | SMA-F        |
| HLP-A320T11     | 20-500           | 32             | 1.70      | 3.00                | 8.0               | 0.50                  | 15             | 1         | SMA-F;SBMA-M |
| HLPL-F0426      | 20-400           | 4              | 1.35      | 0.70                | 5.0               | 0.20                  | 12             | 200       | φ 0.9pin     |
| HLP-A040T82     | 30-560           | 4              | 1.35/1.40 | 0.70                | 4.0               | 0.20                  | 18             | 60        | SMA-F        |
| HLP-A0805       | 70-500           | 8              | 1.7/1.5   | 1.00                | 3.0               | 0.20                  | 12             | 150       | SMA-F        |
| HLP-N040028     | 76-108           | 4              | 1.18      | 0.25                | 3.0               | 0.10                  | 20             | 50        | N-F          |
| HLP-A0242       | 80-1000          | 2              | 1.80      | 0.60                | 8.0               | 0.60                  | 14             | 1         | SMA-F        |
| HLP-A080T38     | 100-1000         | 8              | 1.35/1.50 | 1.30                | 5.0               | 0.20                  | 15             | 80        | SMA-F        |
| HLP-Z060402     | 108-512          | 6              | 1.7/1.5   | 3.00                | 6.0               | 0.80                  | 16             | 20        | SMA-F;SMP-M  |
| HLP-A020501     | 200-1000         | 2              | 1.45      | 0.70                | 3.0               | 0.30                  | 14             | 250       | SMA-F        |
| HLP-A040306     | 200-700          | 4              | 1.40      | 0.50                | 3.0               | 0.20                  | -              | 50        | SMA-F        |
| HLP-N0227       | 200-2000         | 2              | 1.40      | 1.20                | 4.0               | 0.30                  | 16             | 50        | N-F          |
| HLP-A160803     | 240-1950         | 16             | 1.50      | 4.00                | 5.0               | 0.30                  | 18             | 10        | SMA-F        |
| HLP-A1627A      | 240-1950         | 16             | 1.5/1.3   | 1.5/3.7             | 2.0               | 0.20                  | 20/25          | 10        | M.YMA-FFD26N |
| HLP-A020603     | 300-2000         | 2              | 1.30      | 1.00                | 5.0               | 0.30                  | 20             | 30        | SMA-F        |
| HLP-A080603     | 300-2000         | 8              | 1.5/1.3   | 2.30                | 5.0               | 0.50                  | 20             | 30        | SMA-F        |
| HLP-A080001     | 380-480          | 8              | 1.35/1.30 | 0.70                | 5.0               | 0.30                  | 18             | 20        | SMA-F        |
| HLPD-A40032     | 380-650          | 4              | 1.30      | 0.60                | 5.0               | 0.80                  | 18             | 200       | SMA-F        |
| HLP-A0240       | 400-3900         | 2              | 1.4/1.3   | 1.20                | 3.0               | 0.30                  | 16             | 40        | SMA-F        |
| HLP-A0274-200   | 400-1000         | 2              | 1.25      | 0.50                | 5.0               | 0.20                  | 15             | 200       | SMA-F        |
| HLP-A0474       | 400-1000         | 4              | 1.30      | 0.60                | 5.0               | 0.20                  | 10             | 100       | SMA-F        |
| HLP-A080202     | 400-800          | 8              | 1.40      | 0.80                | 3.0               | 0.50                  | 18             | 30        | SMA-F        |
| HLP-E0474       | 400-1000         | 4              | 1.50      | 0.70                | 5.0               | 0.20                  | 5              | 1500      | SC;N-F       |
| HLP-A0207       | 500-2500         | 2              | 1.30/1.15 | 0.45                | 2.0               | 0.20                  | 20             | 30        | SMA-F        |
| HLP-A0230       | 500-1000         | 2              | 1.2/1.15  | 0.30                | 2.0               | 0.20                  | 22             | 30        | SMA-F        |
| HLP-A0249       | 500-6000         | 2              | 1.4/1.3   | 0.90                | 3.0               | 0.20                  | 18             | 30        | SMA-F        |
| HLP-A0251       | 500-2000         | 2              | 1.25/1.20 | 0.50                | 2.0               | 0.20                  | 20             | -         | SMA-F        |
| HLP-A0256       | 500-6000         | 2              | 1.4/1.3   | 0.80                | 3.0               | 0.20                  | 18             | 30        | SMA-F        |
| HLP-A0279       | 500-8000         | 2              | 1.45      | 1.50                | 3.0               | 0.20                  | 18             | 30        | SMA-F        |
| HLP-A0430       | 500-1000         | 4              | 1.25/1.20 | 0.60                | 2.0               | 0.30                  | 22             | 30        | SMA-F        |
| HLP-A0449       | 500-6000         | 4              | 1.6/1.5   | 1.80                | 4.0               | 0.30                  | 16             | 30        | SMA-F        |
| HLP-A0451       | 500-2000         | 4              | 1.3/1.2   | 1.00                | 3.0               | 0.30                  | 20             | 10        | SMA-F        |
| HLP-A0451-100   | 500-2000         | 4              | 1.30      | 0.75                | 4.0               | 0.30                  | 18             | 100       | SMA-F        |
| HLP-A0451-80    | 500-2000         | 4              | 1.50      | 0.90                | 5.0               | 0.60                  | 14             | 80        | SMA-F        |
| HLP-A0456-0530  | 500-3000         | 4              | 1.5/1.4   | 1.00                | 4.0               | 0.30                  | 13/16          | 50        | SMA-F        |
| HLP-A0851       | 500-2000         | 8              | 1.4/1.3   | 1.50                | 4.0               | 0.40                  | 20             | 30        | SMA-F        |
| HLP-A0856       | 500-6000         | 8              | 1.6/1.5   | 2.80                | 8.0               | 0.30                  | 16             | 30        | SMA-F        |
| HLP-A160901     | 500-4500         | 16             | 1.6/1.5   | 3.20                | 5.0               | 0.50                  | 18             | 30        | SMA-F        |
| HLP-A3251       | 500-2000         | 32             | 1.70      | 2.00                | 8.0               | 0.50                  | 16             | 1         | SMA-F;BMA-M  |
| HLP-A1007       | 500-2500         | 10             | 1.60      | 1.80                | 8.0               | 0.60                  | 15             | 60        | SMA-F        |
| HLP-A0255       | 600-3900         | 2              | 1.30      | 0.60                | 4.0               | 0.20                  | 18             | 50        | SMA-F        |
| HLP-A0456       | 600-6000         | 4              | 1.40      | 1.20                | 4.0               | 0.30                  | 16             | 30        | SMA-F        |
| HLP-A0456A      | 600-6000         | 4              | 1.30      | 1.20                | 4.0               | 0.30                  | 16             | 30        | SMA-F;SMA-M  |
| HLP-A0855       | 600-3900         | 8              | 1.40      | 2.50                | 8.0               | 0.30                  | 16             | 50        | SMA-F        |
| HLP-A0855A      | 600-3900         | 8              | 1.40      | 2.50                | -                 | 0.30                  | -              | 80        | SMA-F        |
| HLP-A0856A      | 600-6000         | 8              | 1.60      | 2.80                | 8.0               | 0.30                  | 16             | 30        | SMA-F        |

Typical product parameters:

| Part Number       | Freq Range (MHz) | Number Of Ways | VSWR      | Insertion Loss (dB) | Phase Balanced ±° | Amplitude Balance ±dB | Isolation (dB) | Power (W) | Connector   |
|-------------------|------------------|----------------|-----------|---------------------|-------------------|-----------------------|----------------|-----------|-------------|
| HLP-A0286         | 698-6000         | 2              | 1.40      | 0.80                | 5.0               | 0.20                  | 18             | 20        | SMA-F       |
| HLP-N0441-500     | 698-2700         | 4              | 1.45      | 0.60                | 5.0               | 0.25                  | -              | 500       | N-F         |
| HLP-A02163        | 700-12000        | 2              | 1.60      | 1.50                | 5.0               | 0.40                  | 15             | 10        | SMA-F       |
| HLP-A1613         | 700-12000        | 16             | 2.00      | 4.00                | 8.0               | 0.80                  | 14             | 10        | SMA-F       |
| HLP-A16163        | 700-12000        | 16             | 2.00      | 4.00                | 8.0               | 0.80                  | 14             | 10        | SMA-F       |
| HLP-A020312       | 750-2700         | 2              | 1.4/1.3   | 0.40                | 3.5               | 0.15                  | 18             | 50        | N-F;SMA-F   |
| HLP-A020T52       | 800-18000        | 2              | 1.8/1.6   | 1.00                | 4.0               | 0.30                  | 14             | 20        | SMA-F       |
| HLP-A0247         | 800-2500         | 2              | 1.4/1.3   | 0.50                | 4.0               | 0.30                  | 20             | 20        | SMA-F       |
| HLP-A0297         | 800-4200         | 2              | 1.5/1.4   | 0.90                | 5.0               | 0.30                  | 18             | 50        | SMA-F       |
| HLP-A0347         | 800-2500         | 3              | 1.6/1.5   | 0.80                | 8.0               | 0.50                  | 15             | 30        | SMA-F       |
| HLP-A040501J      | 800-4000         | 4              | 1.40      | 0.80                | 5.0               | 0.40                  | 18             | 100       | SMA-F;SMA-M |
| HLP-A0447         | 800-2500         | 4              | 1.3/1.2   | 0.70                | 4.0               | 0.30                  | 20             | 30        | SMA-F       |
| HLP-A0456B        | 800-4200         | 4              | 1.40      | 1.20                | 4.0               | 0.30                  | 18             | 20        | SMA-F       |
| HLP-A0497         | 800-4200         | 4              | 1.5/1.4   | 1.20                | 5.0               | 0.30                  | 18             | 50        | SMA-F       |
| HLP-A0847         | 800-2500         | 8              | 1.4/1.25  | 1.20                | 4.0               | 0.50                  | 20             | 30        | SMA-F       |
| HLP-A090501       | 800-4000         | 9              | 1.60      | 1.50                | 5.0               | 0.50                  | 15             | 30        | SMA-F       |
| HLP-A1293         | 800-2000         | 12             | 1.5/1.4   | 1.50                | 5.0               | 0.50                  | 18             | 100       | SMA-F       |
| HLP-N0147         | 800-2500         | 2              | 1.30      | 0.20                | -                 | -                     | -              | 300       | N-F         |
| HLP-N0890         | 870-1005         | 8              | 1.30      | 0.60                | 3.0               | 0.20                  | 18             | 300       | N-50F       |
| HLP-F040030       | 885-945          | 4              | 1.30      | 0.50                | 4.0               | 0.30                  | 18             | 200       | φ 0.9pin    |
| HLP-A0286-0952150 | 950-2450         | 2              | 1.35/1.30 | 0.40                | 2.0               | 0.20                  | 19.5           | 20        | SMA-F       |
| HLP-A080024       | 950-1800         | 8              | 1.3/1.2   | 0.70                | 3.0               | 0.20                  | 20             | 30        | SMA-F       |
| HLP-A0856B        | 950-4000         | 8              | 1.60      | 2.00                | 3.0               | 0.30                  | 18             | 30        | SMA-F       |
| HLP-F0429         | 950-1250         | 4              | 1.20      | 0.50                | 3.0               | 0.30                  | 20             | 40        | φ 0.5pin    |
| HLP-A0213         | 1000-18000       | 2              | 1.60      | 2.00                | 6.0               | 0.30                  | -              | 10        | SMA-F       |
| HLP-A0231         | 1000-2000        | 2              | 1.20/1.15 | 0.35                | 2.0               | 0.20                  | 20             | -         | SMA-F       |
| HLP-A023T01       | 1000-12000       | 2              | 2.8/1.5   | 1.00                | 5.0               | 0.40                  | 8.0/15.0       | 10        | SMA-F       |
| HLP-A0331         | 1000-2000        | 3              | 1.30      | 0.70                | -                 | -                     | 18             | 50        | SMA-F       |
| HLP-A0402         | 1000-4000        | 4              | 1.3/1.25  | 0.80                | 4.0               | 0.30                  | 20             | 30        | SMA-F       |
| HLP-A0413         | 1000-18000       | 4              | 1.7/1.6   | 2.90                | 8.0               | 0.50                  | -              | 2         | SMA-F       |
| HLP-A0431         | 1000-2000        | 4              | 1.3/1.2   | 0.60                | 3.0               | 0.30                  | 20             | 30        | SMA-F       |
| HLP-A0450         | 1000-8000        | 4              | 1.5/1.4   | 1.20                | 8.0               | 0.40                  | 18             | 30        | SMA-F       |
| HLP-A0631         | 1000-2000        | 6              | 1.35      | 1.00                | 7.0               | 0.40                  | 20             | 10        | SMA-F       |
| HLP-A0631-60W     | 1000-2000        | 6              | 1.6/1.5   | 0.80                | 5.0               | 0.30                  | 18             | 60        | SMA-F       |
| HLP-A0638         | 1000-2500        | 6              | 1.5/1.4   | 1.00                | 5.0               | 0.40                  | 16             | 200       | SMA-F       |
| HLP-A0802         | 1000-4000        | 8              | 1.40      | 1.00                | 3.0               | 0.50                  | 18             | 30        | SMA-F       |
| HLP-A0802-03      | 1000-4000        | 8              | 1.40      | 1.00                | 3.0               | 0.50                  | 18             | 1         | SMA-F       |
| HLP-A0802-05      | 1000-4000        | 8              | 1.40      | 1.00                | 3.0               | 0.50                  | 18             | 1         | SMA-F       |
| HLP-A0802A        | 1000-4000        | 8              | 1.50      | 1.50                | 3.0               | 0.50                  | 18             | 30        | SMA-F       |
| HLP-A0831         | 1000-2000        | 8              | 1.3/1.2   | 0.70                | 3.0               | 0.20                  | 20             | 30        | SMA-F       |
| HLP-A0838-200W    | 1000-2500        | 8              | 1.50      | 0.90                | 5.0               | 0.30                  | 16             | 200       | SMA-F       |
| HLP-A1231         | 1000-2000        | 12             | 1.50      | 0.80                | 3.0               | 0.30                  | 16             | 500       | SMA-50K     |
| HLP-A1602         | 1000-4000        | 16             | 1.5/1.3   | 1.70                | 5.0               | 0.50                  | 18             | 1         | SMA-F       |
| HLP-A1638-250W    | 1000-2500        | 16             | 1.60      | 1.20                | 5.0               | 0.30                  | 16             | 250       | SMA-F       |
| HLP-A163T01       | 1000-12000       | 16             | 2/1.7     | 2.20                | 8.0               | 0.80                  | 8.0/15.0       | 10        | SMA-F       |
| HLP-B0638         | 1000-2500        | 6              | 1.5/1.4   | 1.00                | 5.0               | 0.50                  | 16             | 200       | SMA-F       |
| HLP-N0670         | 1000-3000        | 6              | 1.50      | 1.30                | 5.0               | 0.30                  | 18             | 1         | N-F         |
| HLP-B083082       | 1000-1100        | 8              | 1.30      | 1.10                | -                 | 0.50                  | 15             | 100       | N-F;SMA-F   |
| HLP-N043023       | 1130-1250        | 4              | 1.35      | 0.50                | 5.0               | 0.30                  | 18             | 800       | N-F         |
| HLP-A1231-1214    | 1200-1400        | 12             | 1.4/1.3   | 0.70                | 4.0               | 0.20                  | 20             | 200       | SMA-F       |
| HLP-A0852         | 1200             | 8              | 1.30      | 1.00                | 5.0               | 0.30                  | 24             | 30        | SMA-F       |
| HLP-Z043052       | 1200-1600        | 4              | 2.00      | 3.00                | 3.0               | 0.20                  | 18             | 1         | SMA-F;SMP-M |
| HLP-A0878         | 1250-1600        | 8              | 1.40      | 1.00                | 3.0               | 0.50                  | 18             | 30        | SMA-F       |

Typical product parameters:

| Part Number       | Freq Range (MHz) | Number Of Ways | VSWR      | Insertion Loss (dB) | Phase Balanced ±° | Amplitude Balance ±dB | Isolation (dB) | Power (W) | Connector         |
|-------------------|------------------|----------------|-----------|---------------------|-------------------|-----------------------|----------------|-----------|-------------------|
| HLP-Z0852         | 1270-1460        | 8              | 1.50      | 0.50                | 3.0               | 0.20                  | 14             | 120       | N-F;SMA-F         |
| HLP-A243088       | 1650-1700        | 20             | 1.4/1.3   | 1.00                | 5.0               | 0.30                  | 18             | 10        | SMA-F             |
| HLP-A043201       | 1700-3600        | 4              | 1.30      | 0.60                | 3.0               | 0.30                  | -              | 70        | SMA-F             |
| HLP-A0483         | 1800-4000        | 4              | 1.30      | 1.50                | 2.0               | 0.20                  | 23             | -         | SMA-F             |
| HLP-A0644-120W    | 1800-2200        | 6              | 1.6/1.5   | 0.60                | 5.0               | 0.30                  | 15             | 120       | SMA-F             |
| HLP-D0244J        | 1800-2200        | 2              | 1.30      | 0.30                | 5.0               | 0.20                  | 18             | 800       | 7/16-F;7/16-M     |
| HLP-A0803         | 1805-1880        | 8              | 1.40      | 0.90                | 4.0               | 0.20                  | 18             | 200       | SMA-F             |
| HLP-N0403         | 1805-1880        | 4              | 1.30      | 0.60                | 3.0               | 0.15                  | 18             | 600       | N-F               |
| HLP-Z0244         | 1805-2170        | 2              | 1.30      | 0.30                | 5.0               | 0.20                  | 18             | 2000      | 1 5/8" EIA;7/16-F |
| HLP-F0446         | 2000-6000        | 4              | 1.50      | 0.70                | 5.0               | 0.30                  | 16             | 100       | φ 0.9pin          |
| HLP-A0223         | 2000-8000        | 2              | 1.3/1.2   | 0.60                | 4.0               | 0.30                  | 20             | 30        | SMA-F             |
| HLP-A0232         | 2000-4000        | 2              | 1.25/1.20 | 0.35                | 2.0               | 0.20                  | 20             | 30        | SMA-F             |
| HLP-A0232-2025    | 2000-2500        | 2              | 1.30      | 0.50                | 3.0               | 0.30                  | 20             | 30        | SMA-F             |
| HLP-A0248         | 2000-18000       | 2              | 1.50      | 1.20                | 5.0               | 0.30                  | 16             | 10        | SMA-F             |
| HLP-A0248G        | 2000-18000       | 2              | 1.40      | 1.00                | 3.0               | 0.20                  | 18             | 30        | SMA-F             |
| HLP-A0323         | 2000-8000        | 3              | 1.40/1.30 | 1.30                | 5.0               | 0.80                  | 18             | -         | SMA-F             |
| HLP-A0332         | 2000-4000        | 3              | 1.30      | 0.60                | -                 | 0.30                  | 18             | -         | SMA-F             |
| HLP-A0332-2025    | 2000-2500        | 3              | 1.30      | 0.60                | 5.0               | 0.40                  | 22             | 30        | SMA-F             |
| HLP-A0423         | 2000-8000        | 4              | 1.4/1.35  | 1.20                | 5.0               | 0.40                  | 17             | 30        | SMA-F             |
| HLP-A0432         | 2000-4000        | 4              | 1.3/1.2   | 0.60                | 3.0               | 0.30                  | 20             | 30        | SMA-F             |
| HLP-A0432-100     | 2000-4000        | 4              | 1.40      | 0.80                | 6.0               | 0.30                  | 16             | 100       | SMA-F             |
| HLP-A0448         | 2000-18000       | 4              | 1.70      | 2.40                | 8.0               | 0.60                  | 16             | 10        | SMA-F             |
| HLP-A0448G        | 2000-18000       | 4              | 1.50      | 1.80                | 10.0              | 0.80                  | 18             | 10        | 2.92-F            |
| HLP-A053038       | 2000-3000        | 5              | 1.50      | 1.50                | 5.0               | 0.30                  | 18             | 10        | SMA-F             |
| HLP-A0532-2025    | 2000-2500        | 5              | 1.35/1.30 | 1.20                | 5.0               | 0.50                  | 22             | 30        | SMA-F             |
| HLP-A0623         | 2000-8000        | 6              | 1.4/1.3   | 1.30                | 6.0               | 0.50                  | 17             | 30        | SMA-F             |
| HLP-A0823         | 2000-8000        | 8              | 1.5/1.35  | 1.50                | 5.0               | 0.50                  | 18             | 30        | SMA-F             |
| HLP-A0832         | 2000-4000        | 8              | 1.3/1.2   | 0.70                | 3.0               | 0.20                  | 20             | 30        | SMA-F             |
| HLP-A0832-160W    | 2000-4000        | 8              | 1.50      | 0.90                | 5.0               | 0.30                  | 18             | 160       | SMA-F             |
| HLP-A083601       | 2000-12000       | 8              | 1.6/1.5   | 2.50                | 5.0               | 0.30                  | 16             | 1         | SMA-F             |
| HLP-A0846         | 2000-6000        | 8              | 1.50      | 1.00                | 8.0               | 0.40                  | 18             | 50        | SMA-F             |
| HLP-A0848         | 2000-18000       | 8              | 1.8/1.5   | 3.40                | 9.0               | 0.70                  | 16             | 30        | SMA-F             |
| HLP-A0848G        | 2000-18000       | 8              | 1.60      | 3.00                | 5.0               | 0.30                  | 16             | 30        | SMA-F             |
| HLP-A1232-60w     | 2000-4000        | 12             | 1.6/1.5   | 1.20                | 5.0               | 0.30                  | 18             | 60        | SMA-F             |
| HLP-A1623         | 2000-8000        | 16             | 1.6/1.4   | 2.00                | 5.0               | 0.50                  | 17             | 1         | SMA-F             |
| HLP-A1632-160W    | 2000-4000        | 16             | 1.50      | 1.20                | 5.0               | 0.30                  | 18             | 160       | SMA-F             |
| HLP-A1648         | 2000-18000       | 16             | 1.8/1.7   | 3.00                | 10.0              | 1.20                  | 14             | 30        | SMA-F             |
| HLP-A2446         | 2000-6000        | 24             | 1.7/1.5   | 3.20                | 5.0               | 0.80                  | 18             | 30        | SMA-F             |
| HLP-A3232         | 2000-4000        | 32             | 1.70      | 2.00                | 8.0               | 0.50                  | 16             | 1         | SMA-F;BMA-M       |
| HLP-B1232         | 2000-4000        | 12             | 1.6/1.4   | 1.00                | 5.0               | 0.30                  | 17             | 200       | N-F;SMA-F         |
| HLP-Z0632         | 2000-4000        | 6              | 1.5/1.4   | 1.60                | 5.0               | 0.40                  | 18             | 5         | SMP-M             |
| HLP-A0332A        | 2200-2600        | 3              | 1.30      | 0.50                | -                 | 0.30                  | 18             | 20        | SMA-F             |
| HLP-A083062       | 2200-2700        | 8              | 1.30      | 0.60                | 3.0               | 0.30                  | 18             | 30        | SMA-F             |
| HLP-A0232A        | 2215-2675        | 2              | 1.25/1.20 | 0.30                | 2.0               | 0.20                  | 20             | -         | SMA-F             |
| HLP-A0395         | 2250-2400        | 3              | 1.5/1.4   | 0.45                | -                 | -                     | 18             | -         | SMA-F             |
| HLP-A0462         | 2300-3800        | 4              | 1.30      | 1.00                | 2.0               | 0.30                  | -              | -         | SMA-F             |
| HLP-A0462A        | 2300-3800        | 4              | 1.30      | 1.00                | 2.0               | 0.30                  | 18             | -         | SMA-F             |
| HLP-N043037       | 2430-2470        | 4              | 1.25      | 0.50                | 3.0               | 0.30                  | 20             | 100       | N-F               |
| HLP-A1232-60-2732 | 2700-3200        | 12             | 1.5/1.4   | 1.00                | 5.0               | 0.20                  | 18             | 200       | SMA-F             |
| HLP-A0223-3060    | 3000-6000        | 2              | 1.3/1.2   | 0.60                | 4.0               | 0.30                  | 20             | 30        | SMA-F             |
| HLP-A0232-0335    | 3000-3500        | 2              | 1.25/1.20 | 0.35                | 2.0               | 0.20                  | 20             | -         | SMA-F             |
| HLP-A0423-3060    | 3000-6000        | 4              | 1.4/1.35  | 1.20                | 5.0               | 0.40                  | 17             | 50        | SMA-F             |
| HLP-A0432-0335    | 3000-3500        | 4              | 1.30/1.20 | 0.60                | 2.0               | 0.20                  | 20             | 30        | SMA-F             |

Typical product parameters:

| Part Number     | Freq Range (MHz) | Number Of Ways | VSWR      | Insertion Loss (dB) | Phase Balanced ±° | Amplitude Balance ±dB | Isolation (dB) | Power (W) | Connector      |
|-----------------|------------------|----------------|-----------|---------------------|-------------------|-----------------------|----------------|-----------|----------------|
| HLP-A2236       | 3000-3500        | 22             | 1.6/1.5   | 1.50                | 5.0               | 0.30                  | 20             | 2         | SMA-F          |
| HLP-F043016     | 3000-3200        | 4              | 1.40      | 1.00                | 5.0               | 0.30                  | 18             | 25        | Microstrip pin |
| HLP-A023077     | 3300-5900        | 2              | 1.35      | 0.40                | 5.0               | 0.30                  | 18             | 50        | N-F;SMA-F      |
| HLP-A0894       | 3500-4500        | 8              | 1.50      | 1.20                | 5.0               | 0.30                  | 22             | 30        | SMA-F          |
| HLP-A0233       | 4000-8000        | 2              | 1.25/1.20 | 0.50                | 3.0               | 0.30                  | 20             | 50        | SMA-F          |
| HLP-A0333       | 4000-8000        | 3              | 1.4/1.3   | 0.90                | 5.0               | 0.40                  | 18             | 50        | SMA-F          |
| HLP-A0433       | 4000-8000        | 4              | 1.30/1.25 | 0.80                | 3.0               | 0.30                  | 20             | -         | SMA-F          |
| HLP-A0833       | 4000-8000        | 8              | 1.4/1.25  | 1.00                | 3.0               | 0.20                  | 20             | 30        | SMA-F          |
| HLP-A1633       | 4000-8000        | 18             | 1.5/1.3   | 2.00                | 6.0               | 0.40                  | 18             | 10        | SMA-F          |
| HLP-N0233       | 4000-8000        | 2              | 1.40      | 0.80                | 4.0               | 0.30                  | 18             | 30        | N-F            |
| HLP-Z063028     | 4000-6000        | 6              | 1.5/1.4   | 1.80                | 5.0               | 0.40                  | 16             | 5         | SMP-M          |
| HLP-A0633       | 4000-8000        | 6              | 1.50      | 0.90                | 5.0               | 0.30                  | 16             | 70        | SMA-F          |
| HLP-A0448-47107 | 4700-10700       | 4              | 1.55      | 1.50                | 5.0               | 0.50                  | 18             | 10        | SMA-F          |
| HLP-A0433-4850  | 4800-5000        | 4              | 1.30      | 0.80                | 3.0               | 0.30                  | -              | 70        | SMA-F          |
| HLP-A0272       | 5000-12000       | 2              | 1.35/1.3  | 0.50                | 3.0               | 0.20                  | 16             | 10        | 2.92-F         |
| HLP-A1634P      | 5000-10000       | 16             | 1.7/1.6   | 2.50                | 5.0               | -                     | 18             | 2         | SMA-F          |
| HLP-F043045     | 5000-6000        | 4              | 1.3/1.2   | 0.50                | 3.0               | 0.30                  | 20             | 60        | φ 0.5pin       |
| HLP-E0482       | 5200-5800        | 4              | 1.30      | 0.40                | 3.0               | 0.20                  | 20             | 30        | BMA-F;BMA-M    |
| HLP-A043085     | 5400-5800        | 4              | 1.3/1.4   | 0.40                | 5.0               | 0.40                  | 18             | 300       | SMA-F          |
| HLP-A0815       | 5800-6500        | 8              | 1.50      | 0.90                | 5.0               | 0.30                  | 18             | 100       | SMA-F          |
| HLP-B043067     | 5850-6650        | -              | 1.40      | 0.60                | 5.0               | 0.30                  | -              | 200       | N-J;SMA-F      |
| HLP-A043017     | 5900-8000        | 4              | 1.40      | 0.80                | 5.0               | 0.50                  | 18             | 150       | SMA-F          |
| HLP-A0257       | 6000-18000       | 2              | 1.50      | 0.70                | 5.0               | 0.20                  | 15             | 20        | SMA-F          |
| HLP-A0257A      | 6000-18000       | 2              | 1.45      | 0.80                | 7.0               | 0.30                  | 18             | 10        | SMA-F          |
| HLP-A0357       | 6000-18000       | 3              | 1.6/1.5   | 1.20                | -                 | 0.60                  | 18             | -         | SMA-F          |
| HLP-A0457       | 6000-18000       | 4              | 1.6/1.5   | 1.30                | 8.0               | 0.50                  | 18             | 30        | SMA-F          |
| HLP-A083002     | 6000-6500        | 8              | 1.5/1.4   | 1.00                | 5.0               | 0.50                  | 17             | 150       | SMA-F          |
| HLP-A0857       | 6000-18000       | 8              | 1.75/1.50 | 1.80                | 5.0               | 0.50                  | 17             | 30        | SMA-F          |
| HLP-A1657B      | 6000-18000       | 16             | 1.8/1.6   | 3.00                | 8.0               | 0.50                  | 18             | 30        | SMA-F          |
| HLP-A1657G      | 6000-18000       | 16             | 1.8/1.7   | 3.00                | 8.0               | 1.00                  | 14             | 30        | SMA-F          |
| HLP-A3257       | 6000-18000       | 32             | 2.00      | 3.50                | 5.0               | 0.80                  | 15             | 10        | SMA-F          |
| HLPN-A1257      | 6000-18000       | 12             | 1.8/1.6   | 2.80                | 8.0               | 0.40                  | 15             | 10        | SMA-F          |
| HLP-Z043207     | 6000-12000       | 4              | 1.5/1.4   | 1.10                | 5.0               | 0.30                  | 16             | 30        | SMA-F;SMP-M    |
| HLP-Z083207     | 6000-12000       | 8              | 1.6/1.5   | 1.30                | 5.0               | 0.40                  | 16             | 30        | SMA-F;SMP-M    |
| HLP-A0839       | 7130-7245        | 8              | 1.50      | 0.90                | 5.0               | 0.30                  | 18             | 100       | SMA-F          |
| HLP-A043025     | 7800-12200       | 4              | 1.40      | 1.20                | 6.0               | 0.40                  | -              | 30        | SMA-F          |
| HLP-A0457-0812  | 8000-12000       | 4              | 1.6/1.5   | 1.30                | 4.0               | 0.30                  | 18             | 30        | SMA-F          |
| HLP-A1658       | 8000-18000       | 16             | 1.8/1.5   | 2.40                | 8.0               | 0.50                  | 16             | 1         | SMA-F          |
| HLP-A1658A      | 8000-18000       | 16             | 1.6/1.5   | 3.50                | 6.0               | 0.40                  | 16             | 10        | SMA-F          |
| HLP-A4663       | 8000-12000       | 46             | 1.6/1.5   | 3.00                | 5.0               | 0.40                  | 18             | 2         | SMA-F          |
| HLP-F023061     | 8000-10500       | 2              | 1.40      | 0.60                | 5.0               | 0.20                  | 18             | 150       | pin            |
| HLP-A16063      | 8950-9650        | 16             | 1.25      | 1.50                | 4.0               | 0.30                  | 18             | 10        | SMA-F          |
| HLP-A053022     | 9000-10000       | 5              | 1.50      | 1.50                | 5.0               | 0.30                  | 18             | 10        | SMA-F          |
| HLP-A063022     | 9000-10000       | 6              | 1.40      | 1.20                | 10.0              | 1.00                  | 16             | 10        | SMA-F          |
| HLP-A0857-0910  | 9000-10000       | 8              | 1.50      | 1.80                | 5.0               | 0.30                  | 18             | 30        | SMA-F          |
| HLP-Z083022A    | 9000-10000       | 8              | 1.40/1.30 | 2.00                | 10.0              | 1.00                  | 16             | 10        | SMA-F;SMP-M    |
| HLP-Z083022B    | 9000-10000       | 8              | 1.40      | 2.00                | 10.0              | 1.00                  | 16             | 10        | SMA-F;SMP-M    |
| HLP-F033022     | 9000-10000       | 3              | 1.5/1.4   | 0.60                | -                 | 0.20                  | 20             | 15        | φ 0.5pin       |
| HLP-A6469C      | 9300-9500        | 64             | 1.5/1.8   | 4.50                | 6.0               | 0.60                  | 20             | -         | SMA-F          |
| HLP-F0469       | 9300-9500        | 4              | 1.40      | 1.00                | 5.0               | 0.30                  | 18             | 70        | φ 0.5pin       |
| HLP-A046002     | 10000-10500      | 4              | 1.35      | 0.80                | 3.0               | 0.20                  | -              | 2         | SMA-F          |
| HLP-A056015     | 11000-12500      | 5              | 1.50      | 1.50                | 5.0               | 0.30                  | 18             | 10        | SMA-F          |
| HLP-A0857-1113  | 11000-12500      | 8              | 1.50      | 1.80                | 5.0               | 0.30                  | 18             | 30        | SMA-F          |

Typical product parameters:

| Part Number    | Freq Range (MHz) | Number Of Ways | VSWR      | Insertion Loss (dB) | Phase Balanced ±° | Amplitude Balance ±dB | Isolation (dB) | Power (W) | Connector    |
|----------------|------------------|----------------|-----------|---------------------|-------------------|-----------------------|----------------|-----------|--------------|
| HLP-A0257B     | 12000-18000      | 2              | 1.50      | 0.80                | 5.0               | 0.40                  | 16             | 10        | SMA-F        |
| HLP-A0457-1218 | 12000-18000      | 4              | 1.5/1.4   | 1.30                | 4.0               | 0.30                  | 18             | 30        | SMA-F        |
| HLP-A1657A     | 12000-18000      | 16             | 2.00      | 3.00                | 8.0               | 0.80                  | 15             | 10        | SMA-F        |
| HLP-Z046014    | 12000-18000      | 4              | 1.6/1.5   | 1.30                | 5.0               | 0.30                  | 16             | 30        | 2.92-F;SMP-M |
| HLP-Z086014    | 12000-18000      | 4              | 2.00      | 3.00                | 3.0               | 0.20                  | 18             | 30        | SMA-F;SMP-M  |
| HLP-H026025E   | 17300-18100      | 2              | 1.20      | 0.10                | -                 | 0.20                  | -              | 2000      | BJ180        |
| HLP-A036025    | 17300-18100      | -              | 1.60      | 0.60                | 6.0               | 0.30                  | -              | 80        | SMA-F        |
| HLP-H026025    | 17300-18100      | 2              | 1.20      | 0.20                | -                 | -                     | -              | 3000      | BJ180        |
| HLP-A0210      | 18000-26500      | 2              | 1.50      | 0.80                | 8.0               | 0.40                  | 18             | 20        | 2.92-F       |
| HLP-A026201    | 18000-50000      | 2              | 2.0/1.8   | 2.50                | 10.0              | 1.00                  | 12             | 2         | 2.4-F        |
| HLP-A0409      | 18000-40000      | 4              | 2.2/2.0   | 2.50                | 12.0              | 0.50                  | 15             | 20        | 2.92-F       |
| HLP-A0409A     | 18000-40000      | 4              | 2.2/2.0   | 2.50                | 8.0               | 0.50                  | 15             | 20        | 2.92-F       |
| HLP-A0810      | 18000-26500      | 8              | 1.8/1.7   | 2.40                | 6.0               | 0.50                  | 14             | 30        | 2.92-F       |
| HLP-A1210      | 18000-26500      | 12             | 1.90/1.70 | 3.50                | 12.0              | 0.80                  | 12             | 30        | 2.92-F       |
| HLP-A0267      | 22000-27000      | 2              | 1.50      | 0.80                | 8.0               | 0.40                  | 18             | -         | 2.92-F       |
| HLP-A0281      | 22000-23000      | 2              | 1.60      | 0.80                | 5.0               | 0.20                  | 18             | 20        | SMA-F        |
| HLP-A126007    | 23000-27000      | 12             | 1.60      | 3.00                | 9.0               | 0.60                  | 20             | 20        | 2.92-F       |
| HLP-A0812      | 24000-30000      | 8              | 1.60      | 2.50                | 8.0               | 0.50                  | 20             | 20        | 2.92-F;SMA-F |
| HLP-A0211      | 26500-40000      | 2              | 2.00      | 1.50                | 10.0              | 0.50                  | 15             | -         | 2.92-F       |
| HLP-H086035    | 27500-31000      | 8              | 1.60      | 0.40                | 6.0               | 0.30                  | -              | 200       | BJ320        |
| HLP-A0206031   | 30000-40000      | 2              | 1.60      | 1.50                | 4.0               | 0.30                  | 16             | 20        | 2.92-F       |
| HLP-A0406031   | 30000-40000      | 4              | 1.8/1.7   | 2.20                | 6.0               | 0.40                  | 15             | 20        | 2.92-F       |
| HLP-A0806031   | 30000-40000      | 8              | 1.9/1.8   | 2.80                | 8.0               | 0.80                  | 14             | 20        | 2.92-F       |
| HLP-A026006    | 40000-470000     | 2              | 2.0/1.8   | 2.00                | 10.0              | 0.80                  | 14             | 10        | 2.4-F        |
| HLP-A026033    | 40000-50000      | 2              | 2.0/1.4   | 2.00                | 10.0              | 0.80                  | 14             | 10        | 2.4-F        |
| HLP-A026032    | 40000-44000      | 2              | 2.0/1.8   | 2.00                | 10.0              | 0.80                  | 14             | 10        | SMA-F        |
| HLP-A020D02    | DC-6000          | 2              | 1.25/1.30 | 6.50                | 5.0               | 0.50                  | -              | 2         | SMA-F        |

Performance characteristics:

- Frequency range: DC-18GHz
- Low standing wave, flat attenuation value
- ultra - broadband
- Product serialization
- Acceptance of customization

Typical applications:

Applicable to civil, military and other fields.

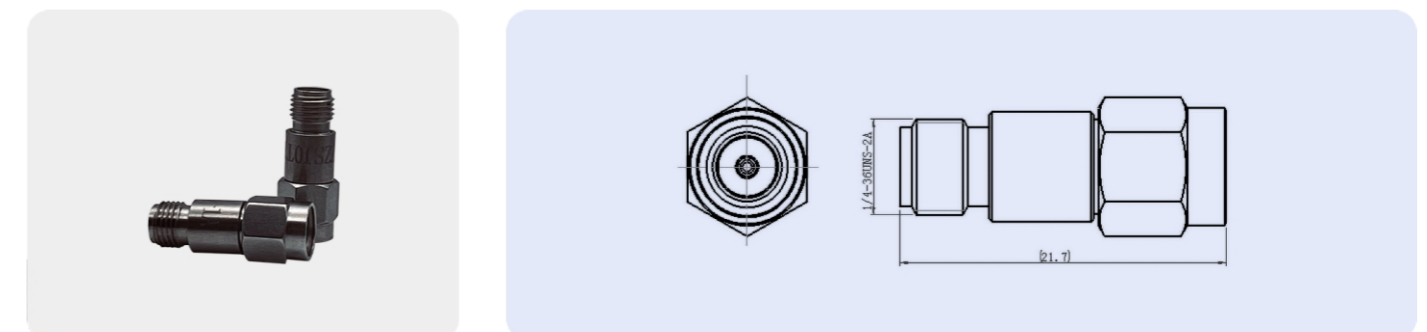
Typical product parameters:

| Part number  | Freq Range (MHz) | Attenuation dB | VSWR | Power (W/CW) |
|--------------|------------------|----------------|------|--------------|
| ZZSJ0T10-1A  | DC-18GHz         | 1±0.4          | 1.30 | 2            |
| ZZSJ0T10-2A  | DC-18GHz         | 2±0.4          | 1.30 | 2            |
| ZZSJ0T10-3A  | DC-18GHz         | 3±0.4          | 1.30 | 2            |
| ZZSJ0T10-4A  | DC-18GHz         | 4±0.4          | 1.30 | 2            |
| ZZSJ0T10-5A  | DC-18GHz         | 5±0.4          | 1.30 | 2            |
| ZZSJ0T10-6A  | DC-18GHz         | 6±0.4          | 1.30 | 2            |
| ZZSJ0T10-7A  | DC-18GHz         | 7±0.4          | 1.30 | 2            |
| ZZSJ0T10-8A  | DC-18GHz         | 8±0.4          | 1.30 | 2            |
| ZZSJ0T10-9A  | DC-18GHz         | 9±0.4          | 1.30 | 2            |
| ZZSJ0T10-10A | DC-18GHz         | 10±0.4         | 1.30 | 2            |

Product display:

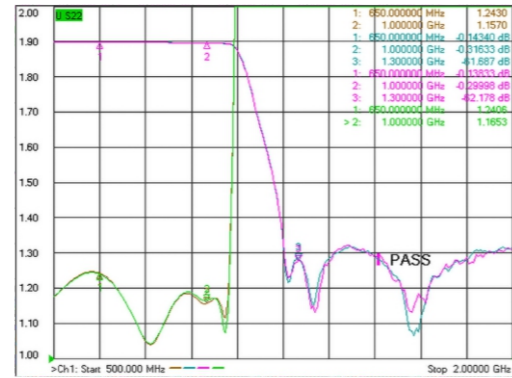
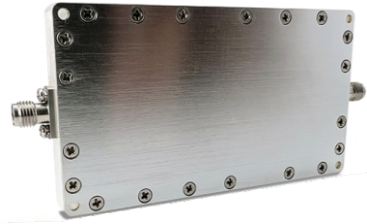


Product display:



Model:HLFW-A031R

Graph:



Features:

- Small, low loss, high power
- Good temperature performance
- Acceptance of customization

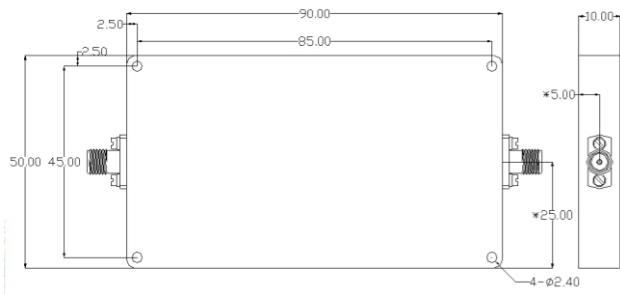
Typical applications:

It is often used in radar, communication, electr countermeasures, telemetry, identification friend or navigation and other systems.

Performance index:

- Passband range: 650-1000MHz
- Insertion loss:  $\leq 0.5\text{dB}@650-1000\text{MHz}$
- VSWR:  $\leq 1.5@650-1000\text{MHz}$
- Rejection:  $\geq 50\text{dB}@1300-2000\text{MHz}$
- Power: 30W
- Connector: SMA-F

Outline:



Product display:



Typical product parameters:

| Part number         | Freq Range (MHz) | Power (W/CW) | VSWR | Insertion Loss (dB) | Connector            | Rejection   |
|---------------------|------------------|--------------|------|---------------------|----------------------|---|
| HLFL-F010R023-0R044 | 1-45             | 1            | 1.50 | 2.00                | pin                  | $\geq 50\text{dB}$ ; 50KHz<br>$\geq 50\text{dB}$ ; 60MHz  |
| HLFL-A010R07-0R0B-1 | 30-110           | 1            | 1.50 | 2.00                | SMA-F                | $\geq 40\text{dB}$ ; DC-15MHz<br>$\geq 40\text{dB}$ ; 150-330MHz  |
| HLFL-A010R07-0R08   | 30-110           | 1            | 1.50 | 2.00                | SMA-F                | $\geq 40\text{dB}$ ; DC-15MHz<br>$\geq 40\text{dB}$ ; 150-330MHz  |
| HLFL-F03R06         | 60               | -            | 1.50 | 3.00                | $\Phi 0.5\text{pin}$ | $\geq 80\text{dB}$ ; 100-120MHz   |
| HLFL-A010R31-0R42   | 100-520          | 1            | 1.50 | 2.00                | SMA-F                | $\geq 40\text{dB}$ ; DC-50MHz<br>$\geq 40\text{dB}$ ; 650-1560MHz   |
| HLFL-A010R31-0R42-1 | 100-520          | 1            | 1.50 | 2.00                | SMA-F                | $\geq 40\text{dB}$ ; DC-50MHz<br>$\geq 40\text{dB}$ ; 650-1560MHz   |
| HLFL-A010R14-0R07   | 105-175          | 1            | 1.50 | 5.00                | SMA-F                | $\geq 45\text{dB}$ ; DC-80MHz<br>$\geq 45\text{dB}$ ; 200-500MHz  |
| HLFL-F01R160-R80    | 120-200          | 1            | 1.80 | 3.00                | $\Phi 0.5\text{pin}$ | $\geq 60\text{dB}$ ; 72MHz<br>$\geq 60\text{dB}$ ; 248MHz   |
| HLFL-F010R16-R05    | 135-185          | 1            | 1.80 | 3.00                | $\Phi 0.5\text{pin}$ | $\geq 60\text{dB}$ ; 105MHz<br>$\geq 60\text{dB}$ ; 215MHz  |
| HLFL-T010R16-R04    | 140-180          | 1            | 1.50 | 6.00                | $\Phi 0.9\text{pin}$ | $\geq 60\text{dB}$ ; 122MHz<br>$\geq 60\text{dB}$ ; 200MHz  |
| HLFL-F01R160-R02    | 150-170          | 1            | 1.50 | 6.00                | $\Phi 0.5\text{pin}$ | $\geq 60\text{dB}$ ; 138MHz<br>$\geq 60\text{dB}$ ; 182MHz  |
| HLFL-F010R16-R02    | 150-170          | 1            | 1.80 | 3.50                | $\Phi 0.5\text{pin}$ | $\geq 60\text{dB}$ ; 135MHz<br>$\geq 60\text{dB}$ ; 185MHz  |
| HLFL-F01R210-R7     | 175-245          | 1            | 1.50 | 3.00                | $\Phi 0.5\text{pin}$ | $\geq 50\text{dB}$ ; 10-105MHz<br>$\geq 50\text{dB}$ ; 315-600MHz   |
| HLFL-A010R6-0R8     | 200-1000         | 1            | 1.60 | 2.00                | SMA-F                | $\geq 40\text{dB}$ ; DC-100MHz<br>$\geq 40\text{dB}$ ; 1300-2000MHz   |
| HLFL-A030R65-200    | 450-650          | 100          | 1.40 | 0.60                | SMA-F                | $\geq 50\text{dB}$ ; 900-18000MHz   |
| HLFL-F030R75        | 550-750          | 20           | 1.50 | 0.50                | $\Phi 0.5\text{pin}$ | $\geq 50\text{dB}$ ; 1000-2000MHz   |
| HLFZ-F010R6-0R36    | 582-618          | -            | 1.50 | 2.50                | $\Phi 0.5\text{pin}$ | $\geq 15\text{dB}$ ; DC-530MHz<br>$\geq 5\text{dB}$ ; 530-566MHz<br>$\geq 45\text{dB}$ ; 670-1200MHz  |
| HLFZ-F010R6-0R54    | 573-627          | -            | 1.50 | 2.50                | pin                  | $\geq 30\text{dB}$ ; DC-530MHz<br>$\geq 38\text{dB}$ ; 670-1500MHz  |
| HLF-A0111R4-1R2     | 800-2000         | 1            | 1.70 | 2.5/1.2             | SMA-F                | $\geq 60\text{dB}$ ; DC-700MHz<br>$\geq 50\text{dB}$ ; 2400-4200MHz   |
| HLFL-F0111R4-1R2    | 800-2000         | -            | 1.60 | 2.0/1.0             | $\Phi 0.5\text{pin}$ | $\geq 60\text{dB}$ ; DC-700MHz<br>$\geq 50\text{dB}$ ; 2400-4200MHz   |
| HLFL-A0111R4-1R2    | 800-2000         | -            | 1.60 | 2.0/1.0             | SMA-F                | $\geq 60\text{dB}$ ; DC-700MHz<br>$\geq 50\text{dB}$ ; 2400-4200MHz   |
| HLF-F0111R4-1R2     | 800-2000         | -            | 1.70 | 2.5/1.2             | $\Phi 0.5\text{pin}$ | $\geq 60\text{dB}$ ; DC-700MHz<br>$\geq 50\text{dB}$ ; 2400-4200MHz   |
| HLFW-T011R-0R025    | 975-1025         | 1            | 1.50 | 2.50                | SMD                  | $\geq 40\text{dB}$ ; DC-700MHz<br>$\geq 30\text{dB}$ ; 800-900MHz<br>$\geq 20\text{dB}$ ; 850-925MHz<br>$\geq 20\text{dB}$ ; 1075-1150MHz<br>$\geq 30\text{dB}$ ; 1200-1300MHz<br>$\geq 40\text{dB}$ ; 1400-1700MHz |
| HLFL-T011R2-0R4     | 1000-1400        | 1            | 1.50 | 4.00                | pin                  | $\geq 35\text{dB}$ ; 800MHz<br>$\geq 35\text{dB}$ ; 1600MHz   |
| HLFX-A011R5-1R      | 1000-2000        | 1            | 1.60 | 2.00                | SMA-F                | $\geq 40\text{dB}$ ; DC-750MHz<br>$\geq 40\text{dB}$ ; 2500-3500MHz   |
| HLFL-T011R5-0R6     | 1200-1800        | 1            | 1.80 | 4.00                | SMD                  | $\geq 40\text{dB}$ ; DC-1000MHz<br>$\geq 38\text{dB}$ ; 2000-4500MHz  |

Typical product parameters:

| Part number           | Freq Range (MHz) | Power (W/CW) | VSWR  | Insertion Loss (dB) | Connector | Rejection  |
|-----------------------|------------------|--------------|-------|---------------------|-----------|--|
| HLF-N0152             | 1200-1400        | 120          | 1.50  | 0.70                | N-F       | ≥50dB; DC-1100MHz<br>≥50dB; 1600-4000MHz                                     |
| HLFQ-A010R75-0R1      | 1250-1350        | 10           | 1.43  | 0.90                | SMA-F     | ≥70dB; DC-960MHz<br>≥50dB; 960-1100MHz<br>≥50dB; 1600-2000MHz                |
| HLFQ-Q010R75-0R1      | 1250-1350        | 1200         | 1.29  | 0.50                | IF45-F    | ≥70dB; DC-960MHz<br>≥50dB; 960-1100MHz<br>≥50dB; 1600-2000MHz                |
| HLFL-F011R8-1R        | 1300-2300        | -            | 1.50  | 3.00                | Φ0.5pin   | ≥35dB; 50-1100MHz<br>≥40dB; 1100MHz<br>≥40dB; 2500MHz<br>≥35dB; 2500-4500MHz |
| HLFL-Z011R5-1R        | 1300-2300        | 1            | 1.80  | 2.00                | Φ0.5pin   | ≥50dB; 50-1100MHz<br>≥50dB; 2500-5000MHz                                     |
| HLFL-T011R8-0R5       | 1300-2300        | 1            | 1.50  | 2.00                | SMD       | ≥50dB; 50-1100MHz<br>≥25dB; 1100-1200MHz<br>≥50dB; 2500-5000MHz              |
| HLFL-F011R8-1         | 1300-2300        | 1            | 1.50  | 4.00                | pin       | ≥35dB; 1200MHz<br>≥35dB; 2400MHz   |
| HLFL-F011R53-0R18     | 1350-1710        | 20           | 1.50  | 1.00                | Φ0.5pin   | ≥42dB; 2300-2700MHz<br>≥40dB; Second harmonic                                |
| HLFL-T011R5-0R3       | 1350-1650        | 1            | 1.50  | 4.00                | SMD       | ≥40dB; DC-1000MHz<br>≥40dB; 2000-4500MHz                                     |
| HLFL-F011R8-0R8       | 1400-2200        | 1            | 1.50  | 4.00                | pin       | ≥40dB; 1200MHz<br>≥40dB; 2400MHz   |
| HLFL-F011R8-0R6       | 1500-2100        | 1            | -     | 3.00                | Φ0.5      | ≥45dB; DC-1200MHz<br>≥45dB; 2400-5000MHz                                     |
| HLFL-F011R8-R5        | 1550-2050        | 1            | 1.80  | 3.00                | Φ0.5pin   | ≥40dB; DC-1300MHz<br>≥40dB; 2300-4200MHz                                     |
| HLFL-F011R8-R2        | 1700-1900        | 1            | 1.80  | 3.00                | Φ0.5pin   | ≥40dB; DC-1600MHz<br>≥40dB; 2000-3000MHz                                     |
| HLF-A013027           | 1700-2300        | 30           | 1.40  | 0.70                | SMA-F     | ≥70dB; 4000-6000MHz  |
| HLFL-F011R8-R16       | 1720-1880        | 1            | 1.80  | 4.00                | Φ0.5pin   | ≥45dB; DC-1640MHz<br>≥45dB; 1960-2500MHz                                     |
| HLFL-F011R8-R08       | 1760-1840        | 1            | 1.80  | 3.00                | Φ0.5pin   | ≥40dB; DC-2500MHz<br>≥40dB; 1900-2500MHz                                     |
| HLFX-A013R-2R         | 2000-4000        | 1            | 1.60  | 2.00                | SMA-F     | ≥40dB; DC-1500MHz<br>≥40dB; 5000-7000MHz                                     |
| HLFL-F013R-2R         | 2000-4000        | 1            | 1.80  | 1.50                | Φ0.5pin   | ≥70dB; DC-1300MHz<br>≥70dB; 6000-8500MHz                                     |
| HLF-D0148             | 2000-18000       | 10           | 2.00  | 1.50                | SMA-F     | ≥25dB; 1000MHz<br>≥35dB; DDC-500MHz<br>≥15dB; 19000MHz<br>≥35dB; 20000MHz    |
| HLFQ-A012R69-0R12-50W | 2018-2120        | 50           | 18.00 | 0.40                | SMA-F     | ≥40dB; 2200-2300MHz  |
| HLFQ-A012R69-0R12     | 2018-2120        | 1            | 18.00 | 1.00                | SMA-F     | ≥40dB; 2200-2300MHz  |
| HLF-A012350-100       | 2300-2400        | 1            | 1.50  | 1.00                | SMA-F     | ≥40dB; 1500MHz<br>≥40dB; 2800MHz   |
| HLFL-F012R5-0R2       | 2300-2700        | 20           | 1.50  | 1.00                | Φ0.5pin   | ≥42dB; 1350-1710MHz<br>≥40dB; Second harmonic                                |

Typical product parameters:

| Part number         | Freq Range (MHz) | Power (W/CW) | VSWR | Insertion Loss (dB) | Connector | Rejection  |
|---------------------|------------------|--------------|------|---------------------|-----------|--|
| HLFZ-F0102R5-0R4    | 2480-2520        | 1            | 1.50 | 1.00                | Φ0.5pin   | ≥50dB; DC-1900MHz<br>≥20dB; DC-2000MHz<br>≥15dB; 2600MHz<br>≥40dB; 3100MHz                                       |
| HLFL-F013R3-1R4     | 2600-4000        | 50           | 1.40 | 0.60                | Φ0.8pin   | ≥60dB; DC-2200MHz<br>≥60dB; 4500-5100MHz<br>≥100dB; 5200-8000MHz   |
| HLFL-F013R6-1R8     | 2700-4500        | 1            | 1.50 | 4.00                | pin       | ≥40dB; 2400MHz<br>≥40dB; 4800MHz   |
| HLFZ-F013R0-0R4     | 2973-3027        | -            | 1.50 | 2.00                | pin       | ≥40dB; DC-2400MHz<br>≥70dB; 3600-8000MHz   |
| HLFQ-A014R-2R       | 3000-5000        | 30           | 1.40 | 0.90                | SMA-F     | ≥80dB; 7000-10000MHz   |
| HLFW-T014R25-0R55   | 3975-4525        | 1            | 1.50 | 2.50                | SMD       | ≥40dB; DC-3500MHz<br>≥30dB; 3600-3750MHz<br>≥30dB; 4725-4900MHz<br>≥35dB; 5000-7000MHz                           |
| HLFL-F015-2         | 4000-6000        | 50           | 1.50 | 0.60                | Φ0.8pin   | ≥60dB; DC-3600MHz<br>≥100dB; 6500-9000MHz  |
| HLF-A013028         | 4000-6000        | 30           | 1.40 | 0.90                | SMA-F     | ≥80dB; 8000-12000MHz   |
| HLFW-T014R75-0R55   | 4475-5025        | 1            | 1.50 | 2.50                | SMD       | ≥40dB; DC-4000MHz<br>≥30dB; 4100-4250MHz<br>≥30dB; 5275-5400MHz<br>≥35dB; 5500-7000MHz                           |
| HLF-A013029         | 5000-7000        | 30           | 1.40 | 0.90                | SMA-F     | ≥80dB; 8000-14000MHz   |
| HLFQ-A015R5-0R4     | 5300-5700        | -            | 1.40 | 0.50                | SMA-F     | ≥30dB; 3000-4800MHz<br>≥30dB; 6200-11400MHz  |
| HLFH-H015R5-0R4     | 5300-5700        | 12000        | 1.40 | 0.50                | BJ48      | ≥40dB; 10600-11400MHz  |
| HLFW-T015R75-0R55   | 5475-6025        | 1            | 1.50 | 2.50                | SMD       | ≥40dB; DC-500MHz<br>≥30dB; 5100-5250MHz<br>≥30dB; 6275-6400MHz<br>≥35dB; 6500-7000MHz                            |
| HLFQ-A016R-1R       | 5500-6500        | 30           | 1.30 | 1.00                | SMA-F     | ≥40dB; 6800-15000MHz   |
| HLFQ-H016R65        | 5850-6650        | 3000         | 1.50 | 0.20                | BJ70      | ≥25dB; 11700-13300MHz  |
| HLFZ-F0106R25-0R8   | 5850-6650        | -            | 1.50 | 1.00                | Φ0.38pin  | ≥50dB; 8350-20000MHz<br>≥35dB; DC-5000MHz<br>≥35dB; 7500MHz  |
| HLFQ-F016R8-1R2     | 6200-7400        | -            | 1.60 | 2.00                | pin       | ≥60dB; DC-5250MHz<br>≥40dB; 8350-20000MHz  |
| HLFQ-A017R-1R       | 6500-7500        | 30           | 1.32 | 1.00                | SMA-F     | ≥40dB; 7900-15000MHz   |
| HLFQ-A018R5-1R      | 8000-9000        | 1            | 1.40 | 0.50                | SMA-F     | ≥40dB; DC-7500MHz<br>≥40dB; 9500-16000MHz  |
| HLFQ-H0114R125-0R75 | 13750-14500      | 100          | 1.30 | 0.30                | BJ120     | ≥45dB; 12000-12750MHz<br>≥15dB; 13000-13600MHz   |
| HLFQ-F0117R7-0R8    | 17300-18100      | -            | 1.50 | 2.00                | pin       | ≥20dB; DC-16550MHz<br>≥85dB; DC-15100MHz<br>≥70dB; DC-11300MHz<br>≥35dB; 19600-40000MHz<br>≥50dB; 21000-40000MHz |

Typical product parameters:

| Part number     | Freq Range (MHz) | Power (W/CW) | VSWR | Insertion Loss (dB) | Connector     | Rejection                                  |
|-----------------|------------------|--------------|------|---------------------|---------------|--|
| HLFL-A03001R    | DC-1             | -            | 1.50 | 1.50                | SMA-F         | ≥40dB; 2-4MHz<br>≥50dB; 4-100MHz           |
| HLF-L002        | DC-2             | -            | 1.43 | 1.50                | SMA-F         | ≥40dB; 4-8MHz<br>≥50dB; 8-200MHz           |
| HLFL-N030R032   | DC-32            | 300          | 1.50 | 0.80                | N-F           | ≥40dB; 50-90MHz                            |
| HLFL-F030R045   | DC-45            | 1            | 1.50 | 1.50                | Φ0.5pin       | ≥50dB; 70MHz                               |
| HLFL-F03R50B0   | DC-50            | 80           | 1.40 | 0.60                | Φ0.9pin       | ≥20dB; 60-150MHz<br>≥18dB; 150-220MHz      |
| HLFL-F03R50     | DC-50            | 80           | 1.30 | 0.40                | Φ0.9pin       | ≥20dB; 60-150MHz<br>≥18dB; 150-220MHz      |
| HLFL-F03R88B0   | DC-88            | 80           | 1.40 | 0.60                | Φ0.9pin       | ≥20dB; 100-270MHz<br>≥18dB; 270-352MHz     |
| HLFL-F03R88     | DC-88            | 80           | 1.40 | 0.40                | Φ0.9pin       | ≥20dB; 100-270MHz<br>≥18dB; 270-352MHz     |
| HLF-L200        | DC-200           | -            | 1.50 | 0.80                | SMA-F         | ≥70dB; 400-1500MHz                         |
| HLFL-F03R380B0  | DC-380           | 80           | 1.40 | 0.40                | Φ0.9pin       | ≥28dB; 450-1100MHz<br>≥18dB; 1100-1520MHz  |
| HLFL-N030R512   | DC-512           | 400          | 1.40 | 0.40                | N-F           | ≥30dB; 700-1500MHz                         |
| HLFL-F03R512AB0 | DC-512           | 80           | 1.40 | 0.40                | Φ0.9pin       | ≥30dB; 760-1700MHz<br>≥18dB; 1700-2048MHz  |
| HLFL-F03R512A   | DC-512           | 80           | 1.40 | 0.40                | Φ0.9pin       | ≥30dB; 760-1700MHz<br>≥18dB; 1700-2048MHz  |
| HLF-L540        | DC-540           | -            | 1.50 | 0.80                | SMA-F         | ≥70dB; 1000-2000MHz                        |
| HLF-L600A       | DC-600           | -            | 1.43 | 1.50                | SMA-F         | ≥30dB; 800-1000MHz<br>≥50dB; 1000-2000MHz  |
| HLF-L600        | DC-600           | -            | 1.43 | 1.50                | SMA-F         | ≥30dB; 800-1000MHz<br>≥50dB; 1000-2000MHz  |
| HLF-L1000       | DC-1000          | 5            | 1.50 | 1.60                | SMA-F         | ≥20dB; 1200-1500MHz<br>≥50dB; 1500-2000MHz |
| HLFL-A031R      | DC-1000          | -            | 1.50 | 1.50                | SMA-F         | ≥30dB; 1500-2000MHz<br>≥55dB; 2000-4000MHz |
| HLFW-Z037R2     | DC-7200          | 1            | 2.30 | 1.50                | SSMP-F,SSMP-M | ≥20dB; 9500-12500MHz                       |
| HLFL-D030R11    | 30-110           | 1500         | 1.50 | 0.30                | 7/16-F        | ≥30dB; 150-600MHz                          |
| HLFW-D030R52    | 100-520          | 1500         | 1.50 | 0.40                | 7/16-F        | ≥30dB; 600-1000MHz                         |
| HLFL-A030R3     | 200-300          | 100          | 1.40 | 0.60                | SMA-F         | ≥50dB; 400-900MHz                          |
| HLFL-A030R45    | 300-450          | 100          | 1.40 | 0.60                | SMA-F         | ≥50dB; 600-1200MHz                         |
| HLFL-A030R65    | 350-650          | 100          | 1.35 | 0.60                | SMA-F         | ≥8dB; 700-1050MHz<br>≥35dB; 1050-1950MHz   |

Typical product parameters:

| Part number         | Freq Range (MHz) | Power (W/CW) | VSWR | Insertion Loss (dB) | Connector | Rejection                                  |
|---------------------|------------------|--------------|------|---------------------|-----------|--|
| HLFL-A01T02412R     | 400-12000        | 1            | 1.80 | 2.50                | Φ0.5pin   | ≥40dB; 13500-24000MHz                      |
| HLFL-A030R8         | 450-800          | 100          | 1.35 | 0.60                | SMA-F     | ≥12dB; 900-1350MHz<br>≥35dB; 1350-2400MHz  |
| HLFQ-A033R          | 450-3000         | 50           | 1.50 | 0.50                | SMA-F     | ≥25dB; 3500-5000MHz                        |
| HLFW-A031R          | 650-1000         | 100          | 1.50 | 0.50                | SMA-F     | ≥50dB; 1300-2000MHz                        |
| HLF-L960            | 880-960          | 250          | 1.50 | 0.50                | N-F;N-M   | ≥40dB; 1760-1920MHz<br>≥30dB; 2640-2880MHz |
| HLFW-A031R6         | 1000-1600        | 100          | 1.50 | 0.50                | SMA-F     | ≥50dB; 2000-3200MHz                        |
| HLF-L2500           | 1000-2500        | 10           | 1.50 | 1.00                | SMA-F     | ≥20dB; 3000-3500MHz<br>≥40dB; 3600-6000MHz |
| HLFW-A032R          | 1600-2000        | 100          | 1.50 | 0.50                | SMA-F     | ≥50dB; 3200-4000MHz                        |
| HLFW-A032R7         | 2000-2700        | 100          | 1.50 | 0.50                | SMA-F     | ≥50dB; 4000-5400MHz                        |
| HLFW-A034R          | 2700-4000        | 100          | 1.50 | 0.60                | SMA-F     | ≥50dB; 5400-7200MHz                        |
| HLFQ-A013R95-1R1    | 3400-4500        | 30           | 1.30 | 1.00                | SMA-F     | ≥40dB; 4750-8000MHz                        |
| HLFQ-A014R5-1R      | 4000-5000        | 30           | 1.30 | 1.00                | SMA-F     | ≥40dB; 5300-9000MHz                        |
| HLFX-A0311R         | 4500-11000       | 15           | 1.80 | 1.00                | SMA-F     | ≥50dB; 13000-18000MHz                      |
| HLFQ-A015R-1R       | 4500-5500        | 30           | 1.30 | 1.00                | SMA-F     | ≥40dB; 5800-10000MHz                       |
| HLFQ-A015R5-1R      | 5000-6000        | 30           | 1.30 | 1.00                | SMA-F     | ≥40dB; 6350-12000MHz                       |
| HLFP-F038R5         | 7700-8500        | 20           | 1.30 | 0.40                | Φ0.5      | ≥40dB; 14000-17000MHz                      |
| HLFQ-H0318R1        | 17300-18100      | 1500         | 1.50 | 0.20                | BJ180     | ≥25dB; 34600-36200MHz                      |
| HLFL-F010R023-0R044 | 1-45             | 1            | 1.50 | 2.00                | pin       | ≥50dB; 50KHz<br>≥50dB; 60MHz               |
| HLFL-A010R07-0R0B-1 | 30-110           | 1            | 1.50 | 2.00                | SMA-F     | ≥40dB; DC-15MHz<br>≥40dB; 150-330MHz       |
| HLFL-A010R07-0R08   | 30-110           | 1            | 1.50 | 2.00                | SMA-F     | ≥40dB; DC-15MHz<br>≥40dB; 150-330MHz       |
| HLFL-F03R06         | 60               | -            | 1.50 | 3.00                | Φ0.5pin   | ≥80dB; 100-120MHz                          |
| HLFL-A010R31-0R42   | 100-520          | 1            | 1.50 | 2.00                | SMA-F     | ≥40dB; DC-50MHz<br>≥40dB; 650-1560MHz      |
| HLFL-A010R31-0R42-1 | 100-520          | 1            | 1.50 | 2.00                | SMA-F     | ≥40dB; DC-50MHz<br>≥40dB; 650-1560MHz      |
| HLFL-A010R14-0R07   | 105-175          | 1            | 1.50 | 5.00                | SMA-F     | ≥45dB; DC-80MHz<br>≥45dB; 200-500MHz       |

Typical product parameters:

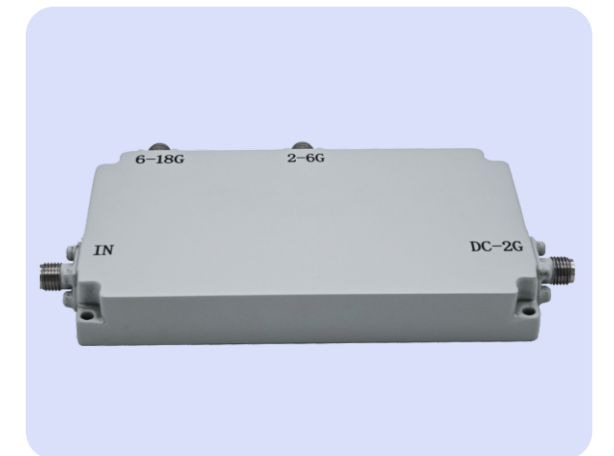
| Part number      | Freq Range (MHz) | Power (W/CW) | VSWR | Insertion Loss (dB) | Connector | Rejection   |
|------------------|------------------|--------------|------|---------------------|-----------|---|
| HLFL-F01R160-R80 | 120-200          | 1            | 1.80 | 3.00                | Φ0.5pin   | ≥60dB; 72MHz<br>≥60dB; 248MHz   |
| HLFL-F010R16-R05 | 135-185          | 1            | 1.80 | 3.00                | Φ0.5pin   | ≥60dB; 105MHz<br>≥60dB; 215MHz  |
| HLFL-T010R16-R04 | 140-180          | 1            | 1.50 | 6.00                | Φ0.9pin   | ≥60dB; 122MHz<br>≥60dB; 200MHz  |
| HLFL-F01R160-R02 | 150-170          | 1            | 1.50 | 6.00                | Φ0.5pin   | ≥60dB; 138MHz<br>≥60dB; 182MHz  |
| HLFL-F010R16-R02 | 150-170          | 1            | 1.80 | 3.50                | Φ0.5pin   | ≥60dB; 135MHz<br>≥60dB; 185MHz  |
| HLFL-F01R210-R7  | 175-245          | 1            | 1.50 | 3.00                | Φ0.5pin   | ≥50dB; 10-105MHz<br>≥50dB; 315-600MHz   |
| HLFL-A010R6-0R8  | 200-1000         | 1            | 1.60 | 2.00                | SMA-F     | ≥40dB; DC-100MHz<br>≥40dB; 1300-2000MHz   |
| HLFL-A030R65-200 | 450-650          | 100          | 1.40 | 0.60                | SMA-F     | ≥50dB; 900-18000MHz   |
| HLFL-F030R75     | 550-750          | 20           | 1.50 | 0.50                | Φ0.5pin   | ≥50dB; 1000-2000MHz   |
| HLFZ-F010R6-0R36 | 582-618          | -            | 1.50 | 2.50                | Φ0.5pin   | ≥15dB; DC-530MHz<br>≥5dB; 530-566MHz<br>≥45dB; 670-1200MHz  |
| HLFZ-F010R6-0R54 | 573-627          | -            | 1.50 | 2.50                | pin       | ≥30dB; DC-530MHz<br>≥38dB; 670-1500MHz  |
| HLF-A011R4-1R2   | 800-2000         | 1            | 1.70 | 2.5/1.2             | SMA-F     | ≥60dB; DC-700MHz<br>≥50dB; 2400-4200MHz   |
| HLFL-F011R4-1R2  | 800-2000         | -            | 1.60 | 2.0/1.0             | Φ0.5pin   | ≥60dB; DC-700MHz<br>≥50dB; 2400-4200MHz   |
| HLFL-A011R4-1R2  | 800-2000         | -            | 1.60 | 2.0/1.0             | SMA-F     | ≥60dB; DC-700MHz<br>≥50dB; 2400-4200MHz   |
| HLF-F011R4-1R2   | 800-2000         | -            | 1.70 | 2.5/1.2             | Φ0.5pin   | ≥60dB; DC-700MHz<br>≥50dB; 2400-4200MHz   |
| HLFW-T011R-0R025 | 975-1025         | 1            | 1.50 | 2.50                | SMD       | ≥40dB; DC-700MHz<br>≥30dB; 800-900MHz<br>≥20dB; 850-925MHz<br>≥20dB; 1075-1150MHz<br>≥30dB; 1200-1300MHz<br>≥40dB; 1400-1700MHz |
| HLFL-T011R2-0R4  | 1000-1400        | 1            | 1.50 | 4.00                | pin       | ≥35dB; 800MHz<br>≥35dB; 1600MHz   |
| HLFX-A011R5-1R   | 1000-2000        | 1            | 1.60 | 2.00                | SMA-F     | ≥40dB; DC-750MHz<br>≥40dB; 2500-3500MHz   |
| HLFL-T011R5-0R6  | 1200-1800        | 1            | 1.80 | 4.00                | SMD       | ≥40dB; DC-1000MHz<br>≥38dB; 2000-4500MHz  |
| HLF-N0152        | 1200-1400        | 120          | 1.50 | 0.70                | N-F       | ≥50dB; DC-1100MHz<br>≥50dB; 1600-4000MHz  |
| HLFQ-A010R75-0R1 | 1250-1350        | 10           | 1.43 | 0.90                | SMA-F     | ≥70dB; DC-960MHz<br>≥50dB; 960-1100MHz<br>≥50dB; 1600-2000MHz   |
| HLFQ-Q010R75-0R1 | 1250-1350        | 1200         | 1.29 | 0.50                | IF45-F    | ≥70dB; DC-960MHz<br>≥50dB; 960-1100MHz<br>≥50dB; 1600-2000MHz   |
| HLFL-F011R8-1R   | 1300-2300        | -            | 1.50 | 3.00                | Φ0.5pin   | ≥35dB; 50-1100MHz<br>≥40dB; 1100MHz<br>≥40dB; 2500MHz<br>≥35dB; 2500-4500MHz  |

Typical product parameters:

| Part number           | Freq Range (MHz) | Power (W/CW) | VSWR  | Insertion Loss (dB) | Connector | Rejection  |
|-----------------------|------------------|--------------|-------|---------------------|-----------|--|
| HLFL-Z011R5-1R        | 1300-2300        | 1            | 1.80  | 2.00                | Φ0.5pin   | ≥50dB; 50-1100MHz<br>≥50dB; 2500-5000MHz                                   |
| HLFL-T011R8-0R5       | 1300-2300        | 1            | 1.50  | 2.00                | SMD       | ≥50dB; 50-1100MHz<br>≥25dB; 1100-1200MHz<br>≥50dB; 2500-5000MHz            |
| HLFL-F011R8-1         | 1300-2300        | 1            | 1.50  | 4.00                | pin       | ≥35dB; 1200MHz<br>≥35dB; 2400MHz   |
| HLFL-F011R53-0R18     | 1350-1710        | 20           | 1.50  | 1.00                | Φ0.5pin   | ≥42dB; 2300-2700MHz<br>≥40dB; Second harmonic                              |
| HLFL-T011R5-0R3       | 1350-1650        | 1            | 1.50  | 4.00                | SMD       | ≥40dB; DC-1000MHz<br>≥40dB; 2000-4500MHz                                   |
| HLFL-F011R8-0R8       | 1400-2200        | 1            | 1.50  | 4.00                | pin       | ≥40dB; 1200MHz<br>≥40dB; 2400MHz   |
| HLFL-F011R8-0R6       | 1500-2100        | 1            | -     | 3.00                | Φ0.5      | ≥45dB; DC-1200MHz<br>≥45dB; 2400-5000MHz                                   |
| HLFL-F011R8-R5        | 1550-2050        | 1            | 1.80  | 3.00                | Φ0.5pin   | ≥40dB; DC-1300MHz<br>≥40dB; 2300-4200MHz                                   |
| HLFL-F011R8-R2        | 1700-1900        | 1            | 1.80  | 3.00                | Φ0.5pin   | ≥40dB; DC-1600MHz<br>≥40dB; 2000-3000MHz                                   |
| HLF-A013027           | 1700-2300        | 30           | 1.40  | 0.70                | SMA-F     | ≥70dB; 4000-6000MHz  |
| HLFL-F011R8-R16       | 1720-1880        | 1            | 1.80  | 4.00                | Φ0.5pin   | ≥45dB; DC-1640MHz<br>≥45dB; 1960-2500MHz                                   |
| HLFL-F011R8-R08       | 1760-1840        | 1            | 1.80  | 3.00                | Φ0.5pin   | ≥40dB; DC-2500MHz<br>≥40dB; 1900-2500MHz                                   |
| HLFX-A013R-2R         | 2000-4000        | 1            | 1.60  | 2.00                | SMA-F     | ≥40dB; DC-1500MHz<br>≥40dB; 5000-7000MHz                                   |
| HLFL-F013R-2R         | 2000-4000        | 1            | 1.80  | 1.50                | Φ0.5pin   | ≥70dB; DC-1300MHz<br>≥70dB; 6000-8500MHz                                   |
| HLF-D0148             | 2000-18000       | 10           | 2.00  | 1.50                | SMA-F     | ≥25dB; 1000MHz<br>≥35dB; DDC-500MHz<br>≥15dB; 19000MHz<br>≥35dB; 20000MHz  |
| HLFQ-A012R69-0R12-50W | 2018-2120        | 50           | 18.00 | 0.40                | SMA-F     | ≥40dB; 2200-2300MHz  |
| HLFQ-A012R69-0R12     | 2018-2120        | 1            | 18.00 | 1.00                | SMA-F     | ≥40dB; 2200-2300MHz  |
| HLF-A012350-100       | 2300-2400        | 1            | 1.50  | 1.00                | SMA-F     | ≥40dB; 1500MHz<br>≥40dB; 2800MHz   |
| HLFL-F012R5-0R2       | 2300-2700        | 20           | 1.50  | 1.00                | Φ0.5pin   | ≥42dB; 1350-1710MHz<br>≥40dB; Second harmonic                              |
| HLFZ-F0102R5-0R4      | 2480-2520        | 1            | 1.50  | 1.00                | Φ0.5pin   | ≥50dB; DC-1900MHz<br>≥20dB; DC-2000MHz<br>≥15dB; 2600MHz<br>≥40dB; 3100MHz |
| HLFL-F013R3-1R4       | 2600-4000        | 50           | 1.40  | 0.60                | Φ0.8pin   | ≥60dB; DC-2200MHz<br>≥60dB; 4500-5100MHz<br>≥100dB; 5200-8000MHz           |
| HLFL-F013R6-1R8       | 2700-4500        | 1            | 1.50  | 4.00                | pin       | ≥40dB; 2400MHz<br>≥40dB; 4800MHz   |

Typical product parameters:

| Part number         | Freq Range (MHz) | Power (W/C/W) | VSWR | Insertion Loss (dB) | Connector | Rejection  |
|---------------------|------------------|---------------|------|---------------------|-----------|--|
| HLFZ-F013R0-0R4     | 2973-3027        | -             | 1.50 | 2.00                | pin       | ≥40dB; DC-2400MHz<br>≥70dB; 3600-8000MHz   |
| HLFQ-A014R-2R       | 3000-5000        | 30            | 1.40 | 0.90                | SMA-F     | ≥80dB; 7000-10000MHz   |
| HLFW-T014R25-0R55   | 3975-4525        | 1             | 1.50 | 2.50                | SMD       | ≥40dB; DC-3500MHz<br>≥30dB; 3600-3750MHz<br>≥30dB; 4725-4900MHz<br>≥35dB; 5000-7000MHz                           |
| HLFL-F015-2         | 4000-6000        | 50            | 1.50 | 0.60                | Φ0.8pin   | ≥60dB; DC-3600MHz<br>≥100dB; 6500-9000MHz  |
| HLF-A013028         | 4000-6000        | 30            | 1.40 | 0.90                | SMA-F     | ≥80dB; 8000-12000MHz   |
| HLFW-T014R75-0R55   | 4475-5025        | 1             | 1.50 | 2.50                | SMD       | ≥40dB; DC-4000MHz<br>≥30dB; 4100-4250MHz<br>≥30dB; 5275-5400MHz<br>≥35dB; 5500-7000MHz                           |
| HLF-A013029         | 5000-7000        | 30            | 1.40 | 0.90                | SMA-F     | ≥80dB; 8000-14000MHz   |
| HLFQ-A015R5-0R4     | 5300-5700        | -             | 1.40 | 0.50                | SMA-F     | ≥30dB; 3000-4800MHz<br>≥30dB; 6200-11400MHz  |
| HLFH-H015R5-0R4     | 5300-5700        | 12000         | 1.40 | 0.50                | BJ48      | ≥40dB; 10600-11400MHz  |
| HLFW-T015R75-0R55   | 5475-6025        | 1             | 1.50 | 2.50                | SMD       | ≥40dB; DC-500MHz<br>≥30dB; 5100-5250MHz<br>≥30dB; 6275-6400MHz<br>≥35dB; 6500-7000MHz                            |
| HLFQ-A016R-1R       | 5500-6500        | 30            | 1.30 | 1.00                | SMA-F     | ≥40dB; 6800-15000MHz   |
| HLFQ-H016R65        | 5850-6650        | 3000          | 1.50 | 0.20                | BJ70      | ≥25dB; 11700-13300MHz  |
| HLFZ-F0106R25-0R8   | 5850-6650        | -             | 1.50 | 1.00                | Φ0.38pin  | ≥50dB; 8350-20000MHz<br>≥35dB; DC-5000MHz<br>≥35dB; 7500MHz  |
| HLFQ-F016R8-1R2     | 6200-7400        | -             | 1.60 | 2.00                | pin       | ≥60dB; DC-5250MHz<br>≥40dB; 8350-20000MHz  |
| HLFQ-A017R-1R       | 6500-7500        | 30            | 1.32 | 1.00                | SMA-F     | ≥40dB; 7900-15000MHz   |
| HLFQ-A018R5-1R      | 8000-9000        | 1             | 1.40 | 0.50                | SMA-F     | ≥40dB; DC-7500MHz<br>≥40dB; 9500-16000MHz  |
| HLFQ-H0114R125-0R75 | 13750-14500      | 100           | 1.30 | 0.30                | BJ120     | ≥45dB; 12000-12750MHz<br>≥15dB; 13000-13600MHz   |
| HLFQ-F0117R7-0R8    | 17300-18100      | -             | 1.50 | 2.00                | pin       | ≥20dB; DC-16550MHz<br>≥85dB; DC-15100MHz<br>≥70dB; DC-11300MHz<br>≥35dB; 19600-40000MHz<br>≥50dB; 21000-40000MHz |
| HLFQ-A010R868-R016  | 860-876          | -             | 1.30 | 2.50                | SMA-F     | ≥60dB; 840-850MHz<br>≥60dB; 886-896MHz   |
| HLFQ-A010R915-R03   | 900-930          | -             | 1.30 | 2.50                | SMA-F     | ≥60dB; 880-885MHz<br>≥60dB; 8945-950MHz  |
| HLFQ-A012R44-R08    | 2400-2480        | -             | 1.30 | 2.50                | SMA-F     | ≥60dB; 2350-2370MHz<br>≥60dB; 2510-2530MHz   |



Model:HLBL-T00400



Features:

- Miniaturization, low loss, serialization

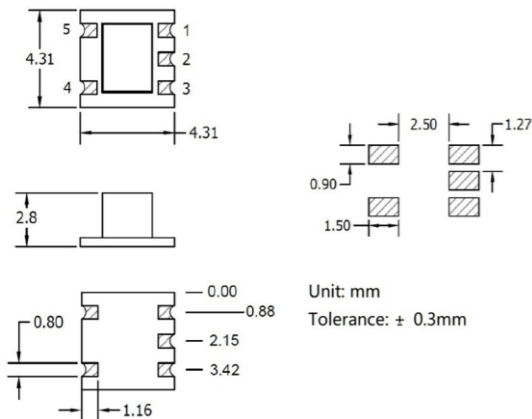
Typical applications:

Baluns and transformers as basic RF devices are used in a variety of frequency synthesis, amplifier circuit, antenna feed circuit, A/D conversion circuit and other locations requiring impedance conversion and differential conversion.

Performance index:

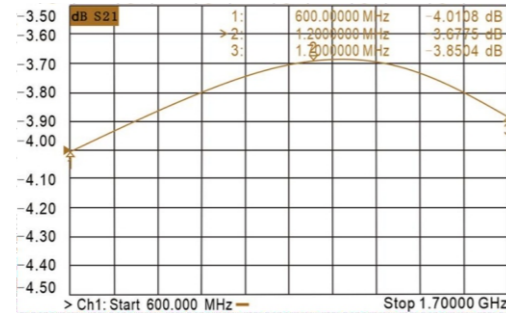
- Frequency range: 600MHz to 1700MHz
- Impedance ratio: 1:1
- VSWR:  $\leq 2.1$
- Insertion loss:  $\leq 1.3\text{dB}$
- Amplitude balance:  $\leq 1.2\text{dB}$
- Phase balance:  $\pm 5^\circ$
- Power: 1W(CW)

Outline:

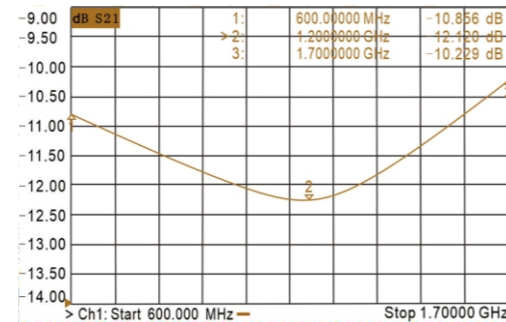


Graph:

S21



S11



Typical product parameters:

| Model       | Impedance Ratio | Start Frequency (MHz) | End Frequency (MHz) |
|-------------|-----------------|-----------------------|---------------------|
| HLBL-T00002 | 1               | 0.40                  | 800                 |
| HLBL-T00008 | 1.5             | 20.00                 | 1200                |
| HLBL-T00009 | 2               | 0.40                  | 450                 |
| HLBL-T00011 | 3               | 1.00                  | 500                 |
| HLBL-T00015 | 4               | 0.30                  | 500                 |
| HLBL-T00019 | 8               | 0.10                  | 130                 |
| HLBL-T00023 | 16              | 0.10                  | 70                  |
| HLBL-T00127 | 1               | 4.50                  | 3000                |
| HLBL-T00140 | 1               | 0.15                  | 350                 |
| HLBL-T00161 | 2               | 10.00                 | 700                 |
| HLBL-T00188 | 4               | 500.00                | 2500                |
| HLBL-T00211 | 1               | 10.00                 | 8000                |
| HLBL-T00213 | 2               | 10.00                 | 3000                |
| HLBL-T00233 | 2               | 0.05                  | 600                 |
| HLBL-T00251 | 1               | 4.00                  | 2500                |
| HLBL-T00252 | 1               | 0.00                  | 300                 |
| HLBL-T00300 | 1               | 4.50                  | 3000                |
| HLBL-T00360 | 0.5             | 1.00                  | 1600                |
| HLBL-T00374 | 1               | 5.00                  | 1218                |
| HLBL-T00397 | 0.5             | 5.00                  | 2000                |
| HLBL-T00400 | 1               | 600.00                | 1700                |
| HLBL-T00403 | 1               | 5.00                  | 1000                |
| HLBL-T00405 | 1               | 45.00                 | 1200                |

Product display:



## Typical product parameters:

| Model        | Frequency Range (Ghz) | Band Width (Mhz) | Insertion Loss (db.Max) | Isolation (db.Min) | VSWR (Max) | Operating Temperature (°C) | Reverse Power (W.Max) | Size L*W*H (mm) | Connector Type |
|--------------|-----------------------|------------------|-------------------------|--------------------|------------|----------------------------|-----------------------|-----------------|----------------|
| MTG0102B     | 0.13-0.17             | 4.00             | 0.40                    | 23                 | 1.20       | -10~+60                    | 20                    | 51*51*15        | TAB            |
|              | 0.17-0.25             | 10.00            | 0.30                    | 25                 | 1.20       |                            |                       |                 |                |
| MTG0102B-150 | 0.13-0.17             | 4.00             | 0.40                    | 23                 | 1.20       | -10~+60                    | 150                   | 51*59*15        | TAB            |
|              | 0.17-0.25             | 10.00            | 0.30                    | 25                 | 1.20       |                            |                       |                 |                |
| MTG0302      | 0.15-0.2              | 4.00             | 0.30                    | 23                 | 1.20       | -10~+60                    | 20                    | 50*52*19        | TAB            |
|              | 0.2-0.35              | 20.00            | 0.40                    | 20                 | 1.25       |                            |                       |                 |                |
|              | 0.35-0.6              | 70.00            | 0.30                    | 20                 | 1.20       | -30~+70                    |                       |                 |                |
| MTG0302-100  | 0.15-0.2              | 4.00             | 0.40                    | 20                 | 1.20       | -10~+60                    | 100                   | 50*60*19        | TAB            |
|              | 0.2-0.3               | 20.00            | 0.40                    | 20                 | 1.25       |                            |                       |                 |                |
|              | 0.3-0.6               | 70.00            | 0.30                    | 20                 | 1.20       | 30~+70                     |                       |                 |                |
| MTG0402F     | 0.16-0.22             | 4.00             | 0.40                    | 20                 | 1.25       | -10~+60                    | 50                    | 45*45*13        | TAB            |
|              | 0.22-0.35             | 20.00            | 0.30                    | 23                 | 1.20       |                            |                       |                 |                |
|              | 0.37-0.5              | Full             | 0.40                    | 20                 | 1.25       | -30~+70                    |                       |                 |                |
|              | 0.47-0.6              | Full             | 0.30                    | 21                 | 1.20       |                            |                       |                 |                |
| 0.5-0.8      | 100.00                | 0.30             | 23                      | 1.20               |            |                            |                       |                 |                |
| MTG0402G     | 0.2-0.3               | 6.00             | 0.40                    | 23                 | 1.20       | 10~+60                     | 50                    | 44*45.5*15.6    | TAB            |
|              | 0.3-0.4               | 20.00            | 0.30                    | 23                 | 1.20       | -30~+70                    |                       |                 |                |
|              | 0.37-0.5              | Full             | 0.40                    | 20                 | 1.25       |                            |                       |                 |                |
|              | 0.47-0.6              | Full             | 0.30                    | 21                 | 1.20       |                            |                       |                 |                |
| 0.5-0.8      | 100.00                | 0.30             | 23                      | 1.20               |            |                            |                       |                 |                |
| MTG0402E-200 | 0.3-0.5               | 5.00             | 0.30                    | 30                 | 1.15       | -10~+60                    | 200                   | 42*53.6*13      | TAB            |
|              | 0.4-0.5               | 20.00            | 0.30                    | 25                 | 1.15       | -30~+70                    |                       |                 |                |
| MTG0402G-150 | 0.3-0.4               | 10.00            | 0.30                    | 25                 | 1.20       | -15~+60                    | 150                   | 38.1*46.8*13    | TAB            |
|              | 0.4-0.8               | 20.00            | 0.30                    | 25                 | 1.20       | -30~+70                    |                       |                 |                |
|              | 0.6-0.8               | 100.00           | 0.30                    | 23                 | 1.20       |                            |                       |                 |                |
| MTG0402B     | 0.3-0.35              | 10.00            | 0.40                    | 20                 | 1.25       | -15~+60                    | 20                    | 35*38*13        | TAB            |
|              | 0.35-0.5              | 10.00            | 0.30                    | 25                 | 1.15       |                            |                       |                 |                |
|              | 0.4-0.47              | Full             | 0.35                    | 20                 | 1.20       | -30~+70                    |                       |                 |                |
|              | 0.4-0.6               | 100.00           | 0.40                    | 19                 | 1.25       |                            |                       |                 |                |
| 0.6-1.2      | 100.00                | 0.30             | 23                      | 1.20               |            |                            |                       |                 |                |
| 0.6-1.2      | 200.00                | 0.40             | 19                      | 1.25               |            |                            |                       |                 |                |
| MTG0402B-C   | 0.25-0.35             | 4.00             | 0.30                    | 23                 | 1.20       | -30~+70                    | 20                    | 35*38*13        | TAB            |

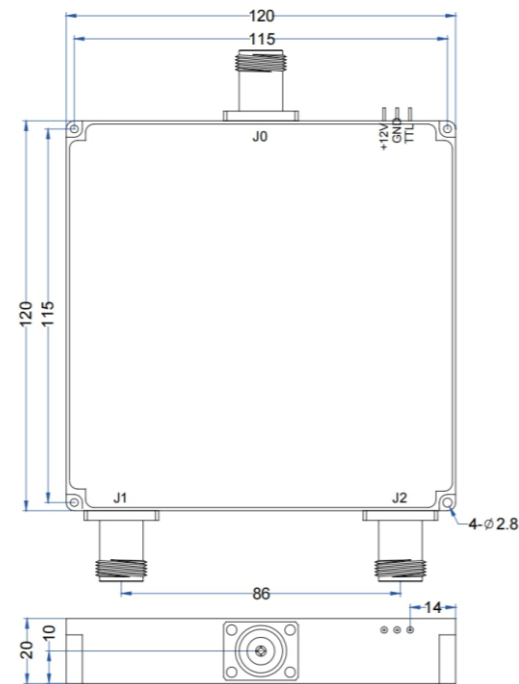
## Typical product parameters:

| Model       | Frequency Range (Ghz) | Band Width (Mhz) | Insertion Loss (db.Max) | Isolation (db.Min) | VSWR (Max) | Operating Temperature (°C) | Average Power (W.Max) | Peak Power (W) | Size L*W*H (mm) | Connector Type |
|-------------|-----------------------|------------------|-------------------------|--------------------|------------|----------------------------|-----------------------|----------------|-----------------|----------------|
| MTG0101PW-X | 0.1~0.4               | 20%              | 0.4                     | 23                 | 1.2        | -20~+85                    | 1000-1500             | 15000          | 116*149*36      | L27 Or L29     |
| MTG0101F-P  | 0.15~1.0              | 15%              | 0.4                     | 20                 | 1.25       | -20~+85                    | 800~1200              | 10000          | 80*120*35       | N Or L29       |
| MTG0601P1-X | 0.3~0.6               | 20%              | 0.4                     | 20                 | 1.25       | -30~+85                    | 600~1000              | 8000           | 60*100*35       | N Or L29       |
|             | 0.617-0.894           | Full             | 0.5                     | 17                 | 1.35       |                            |                       |                |                 |                |
|             | 0.698-0.96            | Full             | 0.4                     | 18                 | 1.3        |                            |                       |                |                 |                |
| MTG201GP-X  | 1.0~3.0               | 20%              | 0.4                     | 20                 | 1.25       | -10~+70                    | 500                   | 4000           | 52*88*28        | N              |
|             | 0.3-0.4               | Full             | 0.4                     | 18                 | 1.25       |                            |                       |                |                 |                |
|             | 0.4-0.52              | Full             | 0.4                     | 23                 | 1.25       |                            |                       |                |                 |                |
|             | 0.6-0.8               | Full             | 0.5                     | 20                 | 1.25       |                            |                       |                |                 |                |
| 0.698-0.96  | Full                  | 0.5              | 18                      | 1.3                | -20~+85    |                            |                       |                |                 |                |
| 1.0~3.0     | 15%                   | 0.4              | 20                      | 1.25               |            |                            |                       |                |                 |                |
| MTG201FP-X  | 1.5~4.0               | 40%              | 0.4                     | 21                 | 1.2        | -20~+75                    | 350                   | 3000           | 54*89*35        | N              |
| MTG301BP-X  | 2.0~6.0               | 200              | 0.3                     | 23                 | 1.2        | -20~+75                    | 250                   | 2000           | 34*37.5*42.4    | N              |
|             |                       | 30%              | 0.4                     | 20                 | 1.25       |                            |                       |                |                 |                |
| MTG102F-P   | 2.0-6.0               | 10%              | 0.4                     | 20                 | 1.25       | -30~+75                    | 100                   | 800            | 19*25.4*10      | TAB            |
| MTG702D1-P  | 4.5-9.0               | 10%              | 0.4                     | 20                 | 1.25       | -30~+75                    | 50                    | 500            | 12*20*9         | TAB            |
| MTG401FP    | 4.5-9.0               | 10%              | 0.4                     | 20                 | 1.2        | -30~+75                    | 50                    | 500            | 16*25.5*14      | SMA            |
| MTG801A-P   | 9.0~18.0              | 10%              | 0.4                     | 20                 | 1.25       | -40~+75                    | 30                    | 300            | 17*27*8.8       | SMA            |

## Product display:



- 1. Frequency range: 1 ~ 30MHz
- 2. Insertion loss: ≤0.5dB
- 3. VSWR: ≤1.5
- 4. Isolation: ≥60dB
- 5. Power: 1000W Duty cycle10%
- 6. On/off time: ≤10us
- 7. Input&output: N-F
- 8. power supply: +12V/1A
- 9. Connector: Φ0.8pin



Controls the truth table

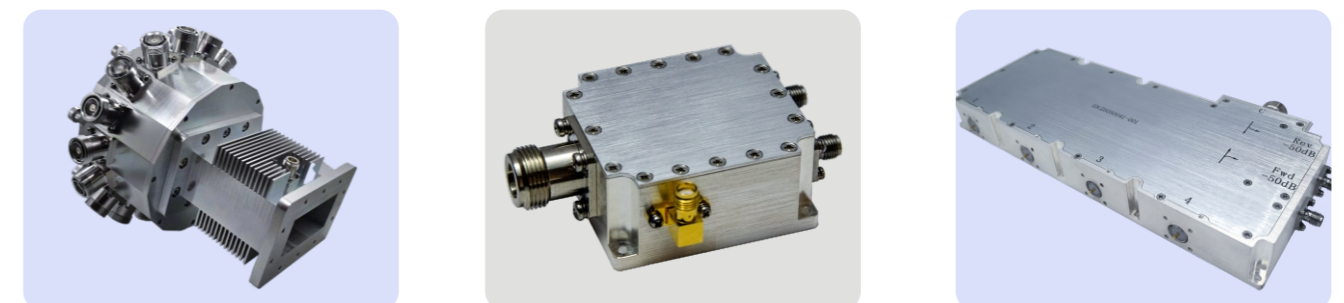
| TTL | JO-J1 | JO-J2 |
|-----|-------|-------|
| 0   | ON    | OFF   |
| 1   | OFF   | ON    |

Typical product parameters:

| Model        | Frequency Range | Insertion Loss                        | VSWR | Isolation                           | Power   | On/off time | Input&output | power supply                    | ways | Control connectors                        |
|--------------|-----------------|---------------------------------------|------|-------------------------------------|---|-------------|--------------|---------------------------------|------|---|
| HLZQ-A040T13 | 1.5 ~ 30MHz     | ≤0.5dB (launch)<br>≤0.6dB (reception) | ≤1.2 | ≥20dB (launch)<br>≥50dB (reception) | 200W  | ≤10us       | SMA-50K      | +5V/500mA                       | 4    | Φ0.8                                      |
| HLZQ-A020608 | 5 ~ 30MHz       | ≤0.6dB                                | ≤1.5 | ≥85dB                               | 100W CW   | ≤3us        | SMA-50K      | +12V/500mA                      | 2    | JL35-6ZIW                                 |
| HLZQ-A020T02 | 30 ~ 520MHz     | ≤0.5dB                                | ≤1.5 | ≥45dB                               | 150W  | ≤4us        | SMA-50K      | +12V/250mA                      | 2    | Φ0.8                                      |
| HLZQ-Z020020 | 400MHz~500M     | ≤0.5dB                                | ≤1.3 | ≥60dB                               | 1000W (Pulse width ≤700us<br>Duty cycle15%)<br>2500W (Pulse width≤700us<br>Duty cycle15%) | ≤5us        | /            | +12V@400mA                      | 2    | RF: N-50K; power supply: Glass insulators |
| HLZQ-A02015  | 606 ~ 1300MHz   | ≤0.5dB                                | ≤1.5 | ≥50dB                               | 2000W Pulse width6us Duty cycles20%   | ≤2us        | SMA-50K      | +5V/400mA<br>-100V/40mA         | 2    | Φ0.8                                      |
| HLZQ-F0200   | 960 ~ 1130MHz   | ≤0.5dB                                | ≤1.3 | ≥20dB                               | 1200W Pulse width1us Duty cycle1.5%   | ≤550ns      | /            | +5V/50mA -5V/200mA<br>+50V/50mA | 2    | Φ0.8                                      |

Typical product parameters:

| Part number       | Freq Range (MHz) | Power (W/CW) | Number of ways | VSWR      | Insertion Loss (dB) | Phase Balance (±°) | Amplitude Balance(±dB) | Isolation (dB) | Coupling (dB) | Flatness (±dB) | Directivity (dB) | Connector          |
|-------------------|------------------|--------------|----------------|-----------|---------------------|--------------------|------------------------|----------------|---------------|----------------|------------------|--------------------|
| HLZA-DA040T39-50D | 2-250            | 1500         | 4              | 1.45/1.3  | 0.80                | 4.0                | 0.20                   | -              | 50            | 0.80           | 15/18            | 7/16-F,N-F;SMA-F   |
| HLZQ-D020311-50   | 30-110           | 2000         | 2              | 1.35      | 0.60                | 5.0                | 0.20                   | 15             | 50            | 0.50           | 15/18            | 7/16-F,N-F;SMA-F   |
| HLZ-B040782-50D   | 30-560           | 600          | 4              | 1.30      | 1.00                | 4.0                | 0.80                   | -              | 50            | 0.80           | 18               | N-F;SMA-F          |
| HLZ-Z0205-55      | 70-500           | 2000         | 2              | 1.7/1.5   | 0.45                | 3.0                | 0.20                   | -              | 55            | 1.50           | 12.0/18.0        | SC-F;SMA-F         |
| HLZ-B0242-50D     | 80-1000          | 500          | 2              | 1.40      | 0.90                | 5.0                | 0.20                   | 10             | 50            | 1.00           | 18               | N-F;SMA-F          |
| HLZQ-B0442-50D    | 80-1000          | 350          | 4              | 1.4/2.0   | 4.20                | 5.0                | 0.20                   | 10             | 50            | 1.00           | 18/15            | N-F;SMA-F          |
| HLZQ-B0442-50D1   | 80-1000          | 350          | 4              | 1.4/2.0   | 1.20                | 5.0                | 0.20                   | 10.0/5.0       | 50            | 1.0/0.5        | 18/15            | N-F;SMA-F          |
| HLZA-DA0742-50D   | 80-1000          | 2000         | 7              | 1.50      | 1.00                | 5.0                | 0.40                   | -              | 50            | 1.20           | 12.0/14          | 7/16-F,N-F;SMA-F   |
| HLZA-DA0642-50D   | 80-1000          | 2000         | 6              | 1.50      | 1.00                | 5.0                | 0.40                   | -              | 50            | 1.20           | 12/14.0          | 7/16-F,N-F;SMA-F   |
| HLZA-GB0142-50D   | 80-1000          | 4000         | 10             | 1.60      | 1.20                | 5.0                | 0.40                   | -              | 50            | 1.20           | 12/15.0          | IF70-F,N-F;SMA-F   |
| HLZA-DA0542-50D   | 80-1000          | 2000         | 5              | 1.50      | 0.80                | 5.0                | 0.30                   | -              | 50            | 1.20           | 14.0/16.0        | 7/16-F,N-F;SMA-F   |
| HLZA-DA0842-50D   | 80-1000          | 2000         | 8              | 1.60      | 1.20                | 8.0                | 0.40                   | -              | 50            | 1.20           | 12/15.0          | 7/16-F,N-F;SMA-F   |
| HLZA-B0242-50D    | 80-1000          | 300          | 2              | 1.5/1.6   | 1.00                | 5.0                | 0.20                   | 12             | 50            | 1.00           | 15               | N-F;SMA-F          |
| HLZA-DA0442-50D   | 80-1000          | 1200         | 4              | 1.60      | 1.00                | 4.0                | 0.20                   | -              | 50            | 1.20           | 15               | 7/16-F,N-F;SMA-F   |
| HLZA-Z080T38-55D  | 100-1000         | 1500         | 8              | 1.50      | 1.50                | 5.0                | 0.30                   | -              | 55            | 0.80           | 18/15            | 7/16-F,N-F;SMA-F   |
| HLZ-Z040501-50D   | 225-1000         | 2500         | 4              | 1.40      | 1.10                | 5.0                | 0.30                   | 10/5.0         | 50            | 0.75           | 15               | 7/16-F,1.5;SMA-F   |
| HLDA-D040035-50D  | 250-350          | 1200         | 4              | 1.5/1.4   | 0.40                | 4.0                | 0.10                   | 15             | 50            | 0.25           | 15               | 7/16-F,N-F;SMA-F   |
| HLZA-D040041-50D  | 300-500          | 10000        | 4              | 1.25      | 6.40                | 4.0                | 0.20                   | -              | 50            | 0.30           | 15/18            | L52-F;7/16-F;N-F   |
| HLZA-D020041-50D  | 300-500          | 5000         | 2              | 1.25/1.3  | 3.40                | 4.0                | 0.20                   | -              | 50            | 0.30           | 15/18            | L52-F;7/16-F;N-F   |
| HLZA-D040224-50D  | 340-700          | 5000         | 4              | 1.25      | 6.40                | 4.0                | 0.30                   | -              | 50            | 0.30           | 15               | 7/16-F;N-F         |
| HLZQ-B0674-50D    | 400-1000         | 800          | 6              | 1.50      | 0.50                | 3.0                | 0.20                   | 12             | 50            | 0.80           | 12.0/15.0        | N-F;SMA-F          |
| HLZQ-D0374-50D    | 400-1000         | 2400         | 3              | 1.50      | 0.50                | 3.0                | 0.20                   | -              | 50            | 0.80           | 15/18            | 7/16-F,N-F;SMA-F   |
| HLZ-Z0274-50      | 400-1000         | 2400         | 2              | 1.50      | 0.80                | -                  | -                      | 16             | 50            | 1.00           | 16               | 7/16-F;SMA-F       |
| HLZA-D0451-50D    | 500-2000         | 1200         | 4              | 1.4/1.3   | 0.50                | 4.0                | 1.30                   | -              | 50            | 0.25           | 18               | 7/16-F;SMA-F       |
| HLZA-D0451-40D    | 500-2000         | 250          | 4              | 1.40      | 0.60                | 5.0                | 0.30                   | -              | 40            | 1.00           | 12/14.0          | N-F;SMA-F          |
| HLZA-DA030601-50D | 500-3000         | 1000         | 3              | 1.50      | 0.80                | 6.0                | 0.40                   | -              | 50            | 1.20           | 12/14.0          | 7/16-F,N-F;SMA-F   |
| HLZ-N040601       | 500-3000         | 250          | 4              | 1.60      | 1.00                | 5.0                | 1.20                   | 15             | 40            | 3.00           | -                | N-F;SMA-F          |
| HLZA-DA0541-50D   | 600-2700         | 800          | 5              | 1.60/1.30 | 0.70                | 5.0                | 0.30                   | -              | 50            | 1.20           | 12/14.0          | 7/16-F,N-F;SMA-F   |
| HLZQ-Z040025-40D  | 690-1230         | 500          | 4              | 1.3/1.5   | 0.70                | 5.0                | 0.80                   | 20             | 40            | 0.90           | 15               | Microstrip SMP-M   |
| HLZA-B020309-50D  | 700-2700         | 500          | 2              | 1.50      | 0.50                | 5.0                | 0.20                   | -              | 50            | 1.00           | 12/14.0          | N-F;SMA-F          |
| HLZA-D060026-50D  | 700-1000         | 1000         | 6              | 1.35      | 0.50                | 3.0                | 0.20                   | 12             | 50            | 0.50           | 15/20            | 7/16-F,N-F;SMA-F   |
| HLZA-B0393-50D    | 800-2000         | 500          | 3              | 1.30      | 0.50                | 5.0                | 0.20                   | 50             | 1             | 12.00          | -                | N-F;SMA-F          |
| HLZA-BP0493-50D   | 800-2000         | 100          | 4              | 1.40      | 0.50                | 5.0                | 0.20                   | -              | 50            | 1.00           | 12/14.0          | N-F;ASMP-M;SMA-F   |
| HLZA-Q040030-50D  | 885-745          | 3500         | 4              | 1.20      | 0.35                | 3.0                | 0.15                   | -              | 50            | 0.30           | 12/14.0          | IF45;F 1.7; SMA-F  |
| HLZA-DF060019-50D | 960-1224         | 1500         | 6              | 1.30      | 0.60                | 5.0                | 0.30                   | -              | 50            | 0.50           | 14/16            | 7/16-F;SMA-F;F 1.7 |
| HLDA-D0429-50D    | 960-1225         | 1300         | 4              | 1.30      | 0.50                | 3.0                | 0.20                   | -              | 50            | 0.25           | 15/18            | 7/16-F,N-F;SMA-F   |
| HLZA-GB1631-50D   | 1000-2000        | 2500         | 16             | 1.40      | 0.60                | 6.0                | 0.30                   | -              | 50            | 1.00           | 12/15.0          | IF70;N-F;SMA-F     |
| HLZA-Z0631-50D    | 1000-2000        | 700          | 6              | 1.45      | 0.60                | 5.0                | 0.30                   | -              | 50            | 0.60           | 18/15            | SC-F;SMA-F         |
| HLZA-DA0431-50D   | 1000-2000        | 600          | 4              | 1.40      | 0.50                | 4.0                | 0.30                   | -              | 50            | 0.80           | 14/17            | 7/16-F,N-F;SMA-F   |
| HLZA-QB0560-50D   | 1000-3200        | 2000         | 5              | 1.60      | 0.80                | 8.0                | 0.50                   | -              | 50            | 1.30           | 12.0/14          | IF45;N-F;SMA-F     |
| HLZA-DA0260-40D   | 1000-3200        | 1000         | 2              | 1.40      | 0.60                | 4.0                | 0.20                   | -              | 40            | 1.20           | 12/14.0          | 7/16-F,N-F;SMA-F   |
| HLZA-B1487-50D    | 1000-6000        | 700          | 14             | 1.60      | 1.00                | 8.0                | 0.50                   | -              | 50            | 1.00           | 15               | N-F;SMA-F          |
| HLZA-LN023111-60D | 1163-1620        | 1200         | 2              | 1.30      | 0.50                | 5.0                | 0.30                   | 16             | 60            | 1.00           | 18/15            | SC-F;N-F           |
| HLCK-B0452        | 1200-1400        | 300          | 4              | 1.30      | 0.50                | 14.0               | 0.30                   | 20             | 30            | -              | 10               | N-F;SMA-F          |
| HLCK-B0552        | 1200-1400        | 250          | 5              | 1.30      | 0.60                | 7.0                | 0.30                   | 20             | 30            | -              | 10               | N-F;SMA-F          |



## Typical product parameters:

| Part number        | Freq Range (MHz) | Power (W/CW) | Number of ways | VSWR    | Insertion Loss (dB) | Phase Balance ( $\pm^\circ$ ) | Amplitude Balance ( $\pm$ dB) | Isolation (dB) | Coupling (dB) | Flatness ( $\pm$ dB) | Directivity (dB) | Connector                   |
|--------------------|------------------|--------------|----------------|---------|---------------------|-------------------------------|-------------------------------|----------------|---------------|----------------------|------------------|-----------------------------|
| HLZA-B083052-50D   | 1200-1600        | 100          | 8              | 1.40    | 0.70                | 5.0                           | 0.40                          | 18             | 50            | 0.50                 | 15               | N-F;SMA-F                   |
| HLZ-Z043209-50     | 1300-2700        | 1600         | 4              | 1.6/1.5 | 0.80                | 5.0                           | 0.80                          | 15             | 50            | 1.50                 | 15               | 7/16-F;N-F;SMA-F            |
| HLCK-B0459         | 1400-1900        | 300          | 4              | 1.30    | 0.60                | 20.0                          | 0.40                          | 20             | 30            | -                    | 10               | N-F;SMA-F                   |
| HLCK-B0359         | 1400-1900        | 200          | 3              | 1.30    | 0.60                | 10.0                          | 0.35                          | 20             | 30            | -                    | 10               | N-F;SMA-F                   |
| HLCK-B0559         | 1400-1900        | 200          | 5              | 1.30    | 0.80                | 20.0                          | 0.40                          | 20             | 30            | -                    | 10               | N-F;SMA-F                   |
| HLZA-FB043108-50D  | 1558-1571        | 800          | 4              | 1.30    | 0.50                | 8.0                           | 0.20                          | 20             | 50            | 0.20                 | 15               | N-F;F 1.5;SMA-F             |
| HLZA-D043063-40D   | 1700-2700        | 800          | 4              | 1.35    | 0.50                | 5.0                           | 0.30                          | -              | 40            | 0.60                 | 12.0/16          | 7/16-F;N-F;SMA-F            |
| HLCK-B0544N        | 1800-2170        | 350          | 5              | 1.30    | 0.60                | 14.0                          | 0.30                          | 20             | 30            | -                    | 10               | N-F;SMA-F                   |
| HLCK-B0444         | 1800-2200        | 200          | 4              | 1.30    | 0.60                | 7.0                           | 0.30                          | 20             | 30            | -                    | 10               | N-F;SMA-F                   |
| HLZA-B063093-50D   | 1800-2200        | 80           | 6              | 1.40    | 0.60                | 5.0                           | 0.30                          | -              | 50            | 0.50                 | 12/15.0          | N-F;SMA-F                   |
| HLZA-D083065       | 1800-2700        | 800          | 8              | 1.4/1.3 | 0.60                | 5.0                           | 0.30                          | -              | 55            | 0.50                 | 15               | 7/16-F;N-F                  |
| HLCK-B0344         | 1805-2170        | 200          | 3              | 1.30    | 0.50                | 7.0                           | 0.30                          | 20             | 30            | -                    | 10               | N-F;SMA-F                   |
| HLCK-B0544         | 1805-2170        | 200          | 5              | 1.30    | 0.60                | 7.0                           | 0.30                          | 20             | 30            | -                    | 10               | N-F;SMA-F                   |
| HLCK-B0644         | 1805-2170        | 200          | 6              | 1.30    | 0.80                | 16.0                          | 0.40                          | 20             | 30            | -                    | 10               | N-F;SMA-F                   |
| HLZA-Z0446-40D     | 2000-6000        | 400          | 4              | 1.50    | 0.70                | 5.0                           | 0.30                          | -              | 40            | 0.60                 | 14               | N-F;SMA-F;F 0.9pin          |
| HLZA-TA0446-40D    | 2000-6000        | 400          | 4              | 1.50    | 0.70                | 5.0                           | 0.30                          | -              | 40            | 0.60                 | 12               | Microstrip port SMA-F       |
| HLZA-BF0446-40D    | 2000-6000        | 400          | 4              | 1.50    | 0.70                | 5.0                           | 0.30                          | -              | 40            | 0.60                 | 12               | Microstrip port SMA-F;F 0.9 |
| HLZA-B0446-40D     | 2000-6000        | 300          | 4              | 1.50    | 0.70                | 5.0                           | 0.30                          | -              | 40            | 0.60                 | 14               | N-F;SMA-F                   |
| HLZA-DA0846-60D    | 2000-6000        | 1000         | 8              | 1.60    | 0.80                | 6.0                           | 0.30                          | -              | 60            | 1.00                 | 15               | 7/16-F;N-F;SMA-F            |
| HLZ-B0346-45D      | 2000-6000        | 400          | 3              | 1.50    | 0.80                | 6.0                           | 0.40                          | -              | 45            | 1.00                 | 12               | N-F;SMA-F                   |
| HLZA-B0248-45D     | 2000-18000       | 75           | 2              | 1.50    | 1.20                | 6.0                           | 0.50                          | -              | 45            | 1.50                 | 10               | N-F;SMA-F                   |
| HLZA-B0248-45D-75W | 2000-18000       | 75           | 2              | 1.50    | 1.20                | 6.0                           | 0.50                          | -              | 45            | 1.50                 | 10               | N-F;SMA-F                   |
| HLZ-Z0292-40       | 2015-2130        | 1000         | 2              | 1.35    | 0.70                | -                             | -                             | -              | 40            | -                    | 30               | N-F                         |
| HLCK-B0345         | 2300-2700        | 200          | 3              | 1.30    | 0.50                | 7.0                           | 0.30                          | 20             | 30            | -                    | 10               | N-F;SMA-F                   |
| HLCK-B0445         | 2300-2700        | 200          | 4              | 1.30    | 0.60                | 7.0                           | 0.30                          | 20             | 30            | -                    | 10               | N-F;SMA-F                   |
| HLCK-B0545         | 2300-2700        | 250          | 5              | 1.30    | 0.60                | 14.0                          | 0.30                          | 20             | 20            | -                    | 10               | N-F;SMA-F                   |
| HLZK-Z043037-50    | 2420-2480        | 1200         | 4              | 1.20    | 0.45                | 8.0                           | 0.20                          | 18             | 50            | 0.20                 | 10               | Microstrippin;7/8,SMA-F     |
| HLZK-Z053037-50    | 2420-2480        | 1500         | 4              | 1.20    | 0.50                | 8.0                           | 0.20                          | 18             | 50            | 0.20                 | 10               | Microstrippin;7/8,SMA-F     |
| HLZA-Z043055-50D   | 2420-2480        | 3500         | 4              | 1.30    | 0.40                | 3.0                           | 0.20                          | -              | 50            | 1.00                 | 15               | BJ32;N-F;SMA-F              |
| HLCF-D043037-50    | 2430-2470        | 1000         | 4              | 1.25    | 0.70                | 3.0                           | 0.30                          | 20             | 50            | -                    | 12               | N-F;7/16-F                  |
| HLCF-Z043037-60    | 2430-2470        | 1000         | 4              | 1.25    | 0.70                | 3.0                           | 0.30                          | 20             | 50            | -                    | 15               | N-F;IF45                    |
| HLZA-DB023034-50D  | 2700-3500        | 1000         | 2              | 1.40    | 0.40                | 4.0                           | 0.30                          | 16             | 50            | 0.30                 | 16               | 7/16-F;N-F;SMA-F            |
| HLZA-B053034-40D   | 2700-3500        | 500          | 5              | 1.40    | 0.60                | 8.0                           | 0.30                          | 18             | 40            | 0.50                 | 15               | N-F;SMA-F                   |
| HLCB-B0836         | 3100-3400        | 400          | 8              | 1.40    | 0.50                | 5.0                           | 0.30                          | -              | 50            | 0.25                 | 12               | 7/16-F;SMA-F                |
| HLZA-BP043101-60D  | 4400-6500        | 500          | 4              | 1.40    | 0.40                | 5.0                           | 0.20                          | -              | 60            | 0.50                 | -                | N-F;SMA-F;SMP-M             |
| HLZA-Z033045-50    | 5000-6000        | 500          | 3              | 1.45    | 0.80                | 10.0                          | 0.50                          | 16             | 50            | 0.60                 | 12               | N-F;Microstrip port         |
| HLZ-B043080-40D    | 5300-5900        | 250          | 4              | 1.40    | 0.50                | 5.0                           | 0.30                          | 15             | 40            | 0.75                 | 15               | N-F;SMA-F                   |
| HLZ-Z0815-40       | 5800-6500        | 400          | 8              | 1.50    | 0.80                | 5.0                           | 0.30                          | -              | 40            | 1.00                 | 12               | BJ70;SMA-F                  |
| HLZA-DF083114-30D  | 6400-6700        | 400          | 8              | 1.60    | 0.70                | 5.0                           | 0.30                          | 10             | 30            | 0.50                 | 14/12.0          | 7/16-F;F 0.9 SMP-M          |
| HLZA-BF043114-40D  | 6400-6700        | 240          | 4              | 1.60    | 0.80                | 5.0                           | 0.30                          | 15             | 40            | 0.30                 | 12               | N-F;SMA-F;SMP-M             |
| HLZ-Z0839-40       | 7130-7245        | 250          | 8              | 1.50    | 0.80                | 5.0                           | 0.50                          | -              | 40            | 1.00                 | 12               | Microstrip port BJ70;F 0.5  |
| HLZ-B043025-45J    | 7800-12200       | 200          | 4              | 1.6/1.8 | 1.30                | 8.0                           | 0.40                          | -              | 45            | 0.60                 | 12               | SMA-F;N-M                   |
| HLZ-Z0417-40       | 8500-10500       | 150          | 4              | 1.50    | 0.70                | 5.0                           | 0.30                          | -              | 41            | 0.40                 | -                | Microstrippin               |
| HLZA-HZ043022-50D  | 9000-10000       | 250          | 4              | 1.60    | 0.90                | 6.0                           | 0.30                          | -              | 50            | 0.35                 | -                | BMA;BJ100;SMA;SMP-M         |
| HLZA-BT056045-30   | 14000-16000      | 60           | 5              | 1.70    | 1.60                | 10.0                          | 0.60                          | 15             | 30            | 0.60                 | -                | N-F;SMA-F;Microstrip port   |

