产品目录 contents

Ka 波段圆极化互易四位数字式铁氧体移相器

Ka-Band Circular Polarization Reciprocal 4-bit digital Ferrite Phase Shifter

◆特点 *Features*

互易；尺寸小，可用于二维相相扫天线阵；低损耗；提供配套的激励器、波控机和馈电网络。

Reciprocal, small-size, can be used in 2-dimensional phase-scanning antenna array. Low insertion Loss. Provide the hardware support kit，such as driving circuit, beam steering system and microwave feed line.

◆指标 *Electrical Specifications*

工作频率： *Frequency Range*

Ka 波段 10%带宽 *Ka-Band 10% bandwidth*

插入损耗：*Insertion Loss*

≤1.4dB

驻波：*Standing wave*

≤1.5

承受功率：*Maximum input power*

峰值功率 1.5KW *Peak power 1.5KW*

平均功率 20W *Average power 20W*

移相范围：*Phase Shift range*

0～360º（相位步进量 22.5º）

360° Coverage, LSB = 22.5°

移相精度：*Phase error*

均方根5.5º *RMS Phase Error 5.5°*

波束调转时间：*Beam steering time*

≤46μs

◆功耗：*Power dissipation*

0.5W@波束调转频率 1KHz *0.5W@ Beam steering frequency is 1KHz*

0.1W@波束调转频率 1Hz *0.1W@ Beam steering frequency is 1Hz*

◆工作温度：*Operating Temperature*

-40℃～＋50℃

◆微波接口 *Microwave interface*

标准圆波导接口（可根据用户需求定制）

Standard circular waveguide (Can be customized by customer)

◆外形尺寸： *Overall dimension*

厚度小于半波长 *The thickness is less than half wavelength*

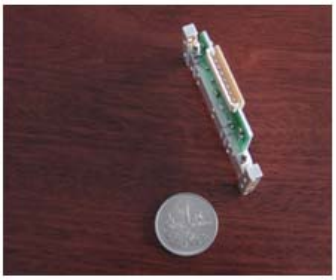
Ka 波段四位数字式铁氧体移相器

Ka-Band 4-bit digital Ferrite Phase Shifter

◆特点 *Features*

低损耗；移相执行时间短；提供配套的激励器、波控机和馈电网络。

Low insertion Loss. Change the phase very fast .Provide the hardware support kit，such as driving circuit, beam steering system and microwave feed line.



◆指标 *Electrical Specifications*

工作频率： *Frequency Range*

Ka 波段 10%带宽 *Ka-Band 10% bandwidth*

插入损耗：*Insertion Loss* ≤1.2dB

驻波：*Standing wave* ≤1.4

承受功率：*Maximum input power*

峰值功率 1.5KW *Peak power 1.5KW*

平均功率 20W *Average power 20W*

移相范围：*Phase Shift range*

0～360º（相位步进量 22.5º）

360° Coverage, LSB = 22.5°

移相精度：*Phase error*

均方根7º *RMS Phase Error7°*

移相执行时间：*The time of shift phase* ≤2μs

◆工作温度：*Operating Temperature*

-40℃～＋55℃

◆重量：*Weight* ≤35g

◆功耗：*Power dissipation*

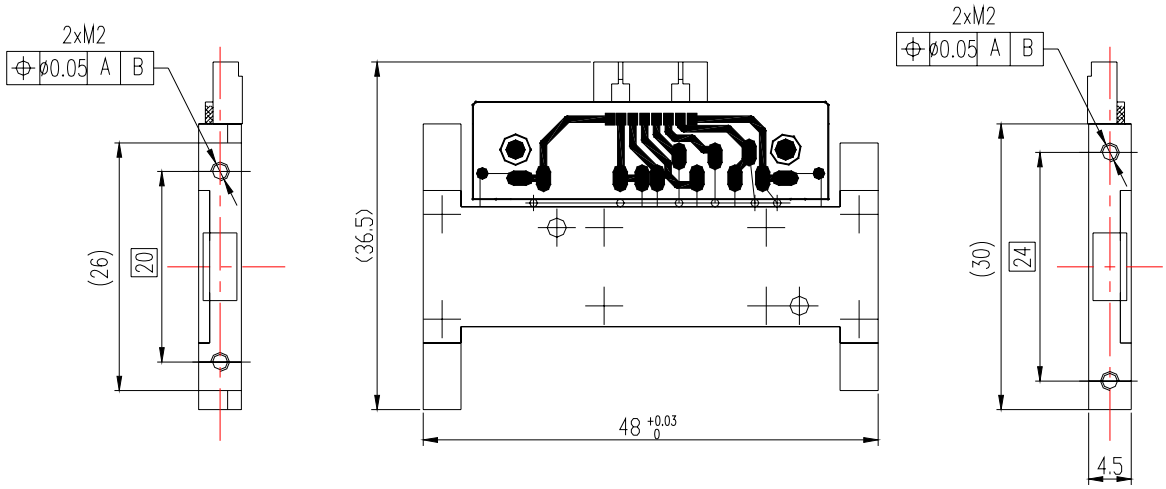
1W@发射脉冲重复频率 10KHz *1W@ Pulse recurrence frequency is 10KHz*

0.1W@发射脉冲重复频率 1Hz *0.1W@ Pulse recurrence frequency is 1KHz*

◆微波接口 *Microwave interface* BJ320

◆外形尺寸： *Overall dimension*

激励器尺寸 Driving Circuit Size：34cm^2 波控机尺寸 Beam Controller Size：250 cm^2



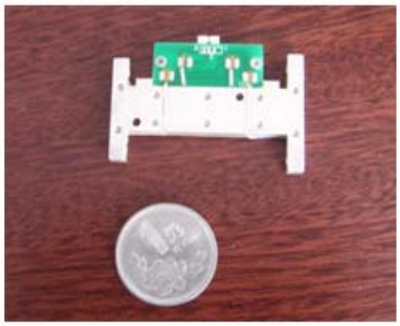
Ka 波段五位数字式铁氧体移相器

Ka-Band 5-bit digital Ferrite Phase Shifter

◆特点 *Features*

低损耗；移相执行时间短；提供配套的激励器、波控机和馈电网络。

Low insertion Loss. Change the phase very fast .Provide the hardware support kit，such as driving circuit, beam steering system and microwave feed line.



◆指标 *Electrical Specifications*

工作频率：*Frequency Range*

Ka 波段 10%带宽 *Ka-Band 10% bandwidth*

插入损耗：*Insertion Loss* ≤1.2dB

驻波：*Standing wave* ≤1.3

移相精度：*Phase error*

均方根5.5° *RMS Phase Error 5.5°*

激励方式：*Driving mode*

磁通反馈式 *Magnetic flow feedback*

移相范围：*Phase Shift range*

0～360°（相位步进量 11.25°）

360° Coverage, LSB = 11.25°

移相执行时间：*The time of shift phase* ≤5.5μs

◆工作温度：*Operating Temperature*

-40℃～+50℃

◆重量：*Weight* ≤35g

◆功耗：*Power dissipation*

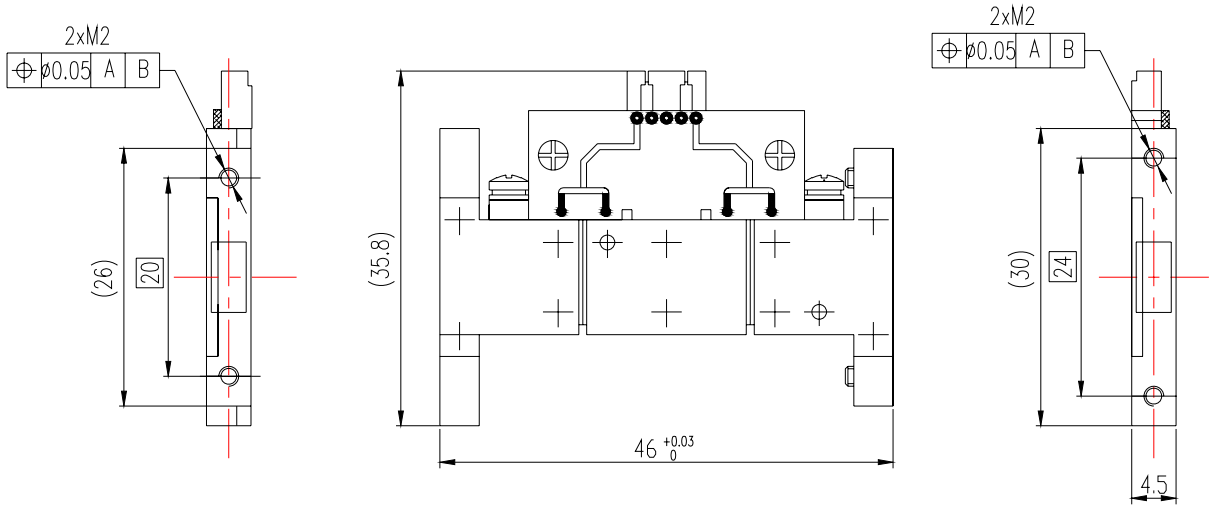
0.8W@发射脉冲重复频率 10KHz *0.8W@ Pulse recurrence frequency is 10KHz*

0.1W@发射脉冲重复频率 1Hz *0.1W@ Pulse recurrence frequency is 1Hz*

◆微波接口 *Microwave interface* BJ320

◆外形尺寸： *Overall dimension*

激励器尺寸 Driving Circuit Size：34cm^2 波控机尺寸 Beam Controller Size：250 cm^2



K 波段高精度铁氧体移相器

K-Band Very Low Phase Error Ferrite Phase Shifter

◆特点 *Features*

可实现高精度小步进移相；低损耗；移相执行时间短；提供配套的激励器、波控机和馈电网络。

Can shift little phase with very low phase error. Low insertion Loss. Change the phase very fast . Provide the hardware support kit，such as driving circuit, beam steering system and microwave feed line.

◆指标 *Electrical Specifications*

工作频率：*Frequency Range*

K 波段 10%带宽 *K-Band 10% bandwidth*

插入损耗：*Insertion Loss*

≤1.3dB

驻波：*Standing wave*

≤1.3

承受功率：*Maximum input power*

峰值功率 2.5KW *Peak power 2.5KW*

平均功率 30W *Average power 30W*

移相范围：*Phase Shift range*

0～360º（相位步进量 2º）

360° Coverage, LSB = 2°

移相执行时间：*The time of shift phase*

≤2μs

◆功耗：*Power dissipation*

1W@发射脉冲重复频率 10KHz

0.1W@发射脉冲重复频率 1Hz

1W@ Pulse recurrence frequency is 10KHz

0.1W@ Pulse recurrence frequency is 1Hz

◆工作温度：*Operating Temperature*

-40℃～+55℃

◆重量：*Weight*

≤55g

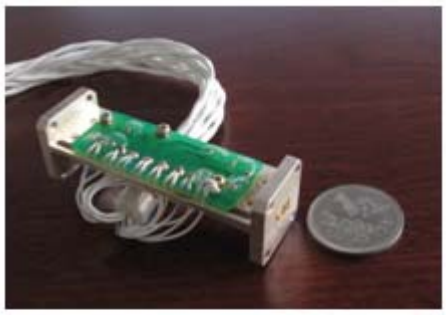
◆微波接口 *Microwave interface*

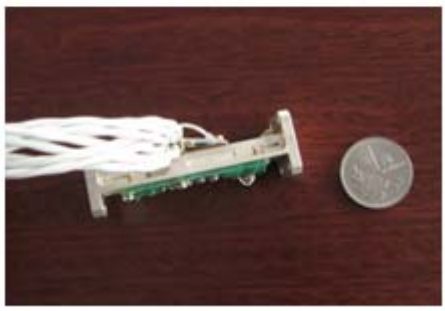
标准波导接口（可根据用户需求定制）

Standard waveguide (Can be customized by customer)

◆外形尺寸： *Overall dimension*

根据用户需求定制 *Customized by customer*



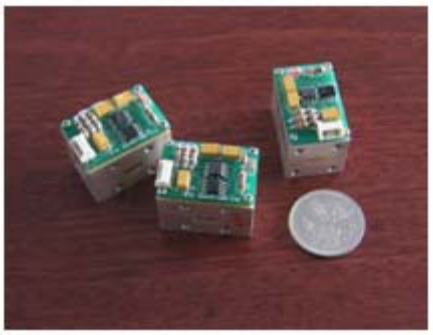


Ka 波段铁氧体开关
Ka-Band Ferrite Switch

◆特点 *Features*

低损耗、开关时间短、自带小型化的激励器。

Low insertion Loss. Fast switching. Provide pocket driving circuit.



◆指标 *Electrical Specifications*

工作频率：*Frequency Range*

Ka 波段 10%带宽 *Ka-Band 10% bandwidth*

插入损耗：*Insertion Loss*

≤0.5dB

隔离度：*Isolation*

≥20dB

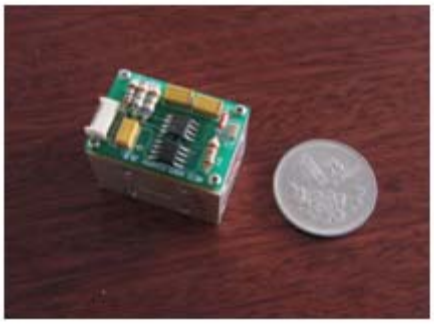
驻波：*Standing wave*

≤1.2

承受功率：*Maximum input power*

峰值功率 1.5KW *Peak power 1.5KW*

平均功率 15W *Average power 15W*



开关时间：*Switching time*

≤2μs

◆工作温度：*Operating Temperature*

-40℃～+55℃

◆重量：*Weight*

≤25g

◆功耗：*Power dissipation*

0.4W@发射脉冲重复频率 10KHz *0.4W@ Pulse recurrence frequency is 10KHz*

0.08W@发射脉冲重复频率 1Hz *0.08W@ Pulse recurrence frequency is 1Hz*

◆微波接口 *Microwave interface* *BJ320*

◆外形尺寸： *Overall dimension*

根据用户需求定制 *Customized by customer*

Ku 波段四位线极化铁氧体移相器

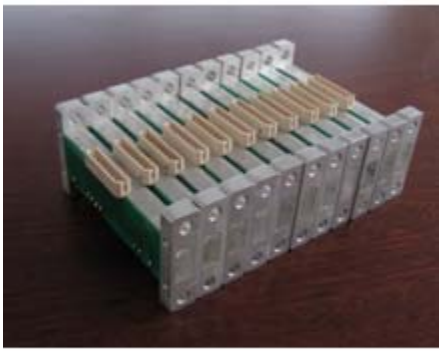
Ku-Band 4-bit Linear Polarization Ferrite Phase Shifter

◆特点 *Features*

低损耗；功率容量大；移相执行时间短；提供配套的激励器、波控机和馈电网络。

Low insertion Loss. High power handing capacity. Change the phase very fast . Provide the hardware support kit，such as driving circuit, beam steering system and microwave feed line.

◆指标 *Electrical Specifications*



工作频率：*Frequency Range*

Ku 波段 10%带宽 *Ku-Band 10% bandwidth*

插入损耗：*Insertion Loss*

≤1dB

驻波：*Standing wave*

≤1.3

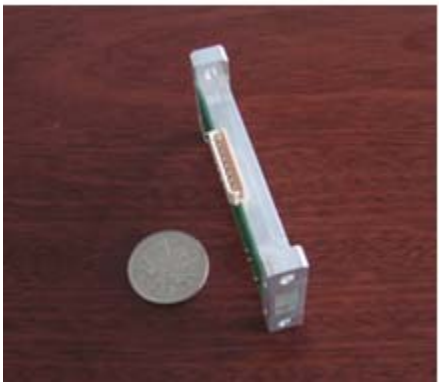
移相范围：*Phase Shift range*

0～360º（相位步进量 22.5º）

360° Coverage, LSB = 22.5°

移相精度：*Phase error*

均方根5.5º *RMS Phase Error 5.5°*



承受功率：*Maximum input power*

峰值功率 4KW *Peak power 4KW*

平均功率 35W *Average power 35W*

移相执行时间：*The time of shift phase*

≤4μs

◆工作温度：*Operating Temperature*

-40℃～+55℃

◆重量：*Weight*

≤40g

◆功耗：*Power dissipation*

1.3W@发射脉冲重复频率 8KHz *1.3W@ Pulse recurrence frequency is 8KHz*

0.1W@发射脉冲重复频率 1Hz *0.1W@ Pulse recurrence frequency is 1Hz*

◆微波接口 *Microwave interface*

标准波导接口（可根据用户需求定制）

Standard waveguide (Can be customized by customer)

◆外形尺寸： *Overall dimension*

厚度小于半波长 *The thickness is less than half wavelength*

X 波段四位线极化铁氧体移相器

X-Band 4-bit Linear Polarization Ferrite Phase Shifter

◆特点 *Features*

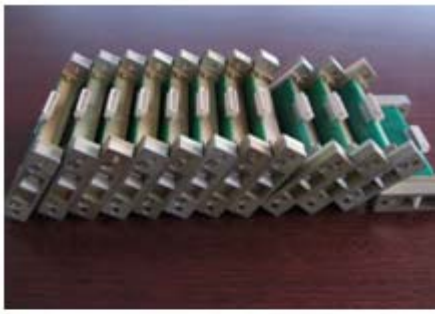
低损耗；功率容量大；移相执行时间短；提供配套的激励器、波控机和馈电网络。

Low insertion Loss. High power handing capacity. Change the phase very fast . Provide the hardware support kit，such as driving circuit, beam steering system and microwave feed line.

◆指标 *Electrical Specifications*

工作频率：*Frequency Range*

X 波段 10%带宽 *X-Band 10% bandwidth*



插入损耗：*Insertion Loss*

≤1dB

驻波：*Standing wave*

≤1.3

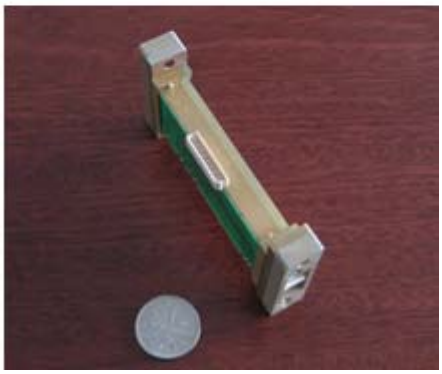
移相范围：*Phase Shift range*

0～360º（相位步进量 22.5º）

360° Coverage, LSB = 22.5°

移相精度：*Phase error*

均方根5.5º *RMS Phase Error 5.5°*



承受功率：*Maximum input power*

峰值功率 4.5KW *Peak power 4.5KW*

平均功率 40W *Average power 40W*

移相执行时间：*The time of shift phase*

≤4μs

◆工作温度：*Operating Temperature*

-40℃～+55℃

◆重量：*Weight*

≤120g

◆功耗：*Power dissipation*

2.2 W@发射脉冲重复频率 10KHz *2.2W@ Pulse recurrence frequency is 10KHz*

0.1W@发射脉冲重复频率 1Hz *0.1W@ Pulse recurrence frequency is 8KHz*

◆微波接口 *Microwave interface*

标准波导接口（可根据用户需求定制）

Standard waveguide (Can be customized by customer)

◆外形尺寸： *Overall dimension*

厚度小于半波长 *The thickness is less than half wavelength*

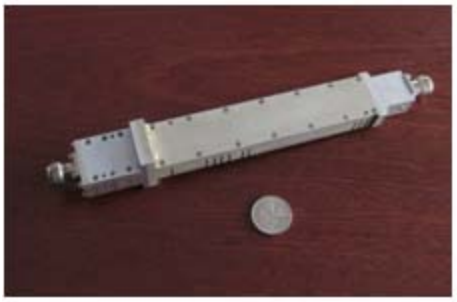
S 波段五位铁氧体移相器
S-Band 5-bit Ferrite Phase Shifter

◆特点 *Features*

采用压缩介质波导，大幅度减小尺寸；低损耗；功率容量大；移相执行时间短；同轴接口馈电；提供配套的小型化专用激励器驱动电路、波控机和馈电网络。

Use compression dielectric waveguide to realize very small size. Low insertion Loss. High power handing capacity. Change the phase very fast. The interface is coaxial. Provide the hardware support kit，such as driving circuit, beam steering system and microwave feed line.

◆指标 *Electrical Specification*



工作频率：*Frequency Range*

S 波段 10%带宽 *S-Band 10% bandwidth*

插入损耗：*Insertion Loss*

≤1.3dB

驻波：*Standing wave*

≤1.35

移相范围：*Phase Shift range*

0～360º（相位步进量 11.25º）

360° Coverage, LSB = 11.25°

移相精度：*Phase error*

均方根5.5º *RMS Phase Error 5.5°*

承受功率：*Maximum input power*

峰值功率 1KW *Peak power 1KW*

平均功率 20W *Average power 20W*

激励方式：*Driving mode*

磁通反馈式 *Magnetic flow feedback*

移相执行时间：*The time of shift phase*

≤15μs

◆工作温度：*Operating Temperature*

-20℃～+55℃

◆重量：*Weight*

500g

◆功耗：*Power dissipation*

3W@发射脉冲重复频率 2KHz *3W@ Pulse recurrence frequency is 2KHz*

0.3W@发射脉冲重复频率 1Hz 0.*3W@ Pulse recurrence frequency is 1Hz*

◆微波接口 *Microwave interface*

N 型同轴接口（可根据用户需求定制）

N *coaxial interface (Can be customized by customer)*

◆外形尺寸： *Overall dimension*

长度 255mm *Length 225mm*

Ku 波段多路有源移相组件

Ku-band Multiway Active Phase Shifter Module

◆特点 *Features*

采用多 MMIC 芯片混合多层板集成技术，具有尺寸小、成本低和批量生产一致性强的特点。

内置控制电路，控制方式为 TTL 电平串行数据控制。

Use multi-chip hybrid multilayer integrate technic. The characteristics of this module is advanced, small size, low cost and nice consistency.

Including drive circuit, TTL compatible serial interfaces.

◆指标 *Electrical Specification*

工作频率：*Frequency Range*

Ku 波段 10%带宽

Ku-Band 10% bandwidth

噪声系数：*noise figure*

≤3.5dB

增益：*Gain*

＞9dB

移相范围：*Phase Shift range*

0～360°（相位步进量 22.5°）

360° Coverage, LSB = 22.5°

移相精度：*Phase error*

均方根6°　*RMS Phase Error 6°*

群延迟误差：*Group delay error*

≤±100ps

幅度控制范围：*Attenuation range*

0～31.5dB（最小步进量 0.5dB）

31.5dB,step 0.5dB

◆工作温度：*Operating Temperature*

-40℃～+55℃

◆重量：*Weight*

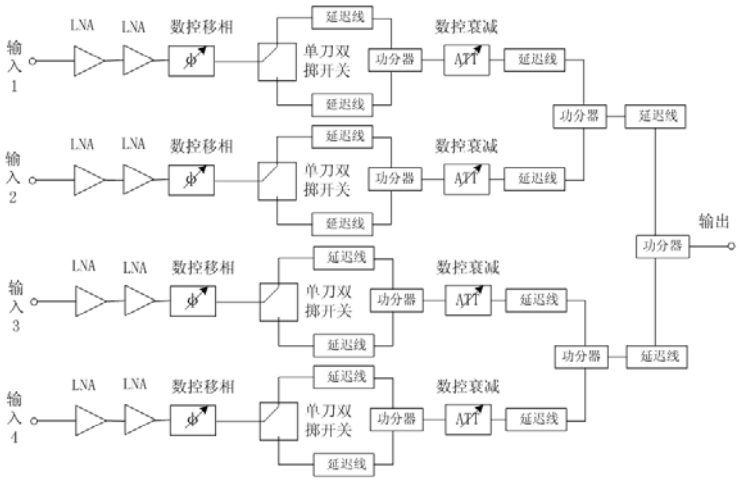
≤260g

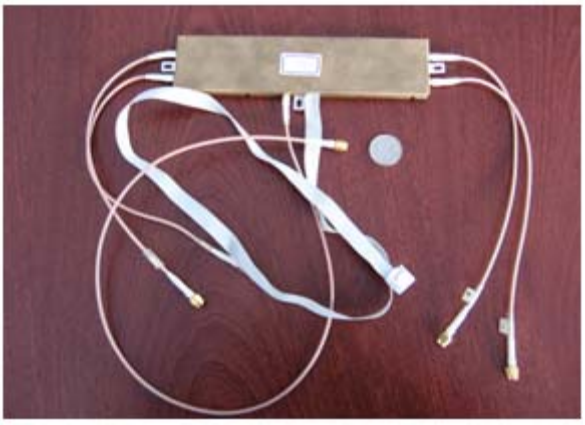
◆功耗：*Power dissipation*

≤3W

◆外形尺寸：　*Overall dimension*

230×12×49mm^3





Ku 波段四位二极管移相器

Ku-Band 4-bit diode Phase Shifter

◆特点 *Features*

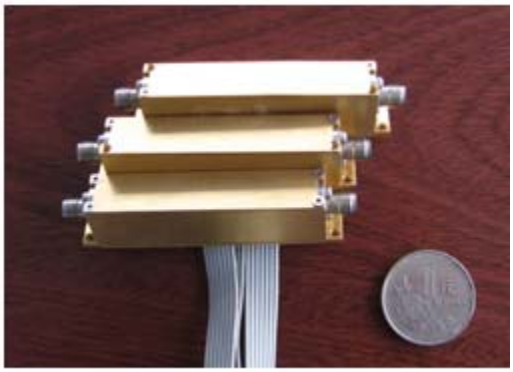
低损耗；移相执行时间短；提供配套的波控机和馈电网络。

器件盒体内自带激励器，控制方式为 TTL 电平并行控制。

Low insertion Loss. Change the phase very fast. Provide the hardware support kit，such as driving circuit, beam steering system and microwave feed line.

Including drive circuit, TTL compatible parallel interfaces.

◆指标 *Electrical Specification*



工作频率：*Frequency Range*

Ku 波段 10%带宽 *Ku-Band 10% bandwidth*

插入损耗：*Insertion Loss*

≤4dB

驻波：*Standing wave*

≤1.5

移相范围：*Phase Shift range*

0～360º（相位步进量 22.5º）

360° Coverage, LSB = 22.5°

移相精度：*Phase error*

均方根5.5º *RMS Phase Error 5.5°*

移相执行时间：*The time of shift phase*

≤100ns

◆工作温度：*Operating Temperature*

-40℃～+55℃

◆重量：*Weight*

≤24g

◆功耗：*Power dissipation*

0.35W

◆微波接口 *Microwave interface*

SMA（可根据用户需求定制）

SMA (Can be customized by customer)

◆外形尺寸： *Overall dimension*

厚度小于半波长 *The thickness is less than half wavelength*

L 波段大功率三位二极管移相器

L-Band high-power 3-bit diode Phase Shifter

◆特点 *Features*

低损耗；高功率容量；提供配套的波控机和馈电网络。

器件盒体内自带激励器，控制方式为 TTL 电平并行控制。

Low insertion Loss. High power handing capacity. Provide the hardware support kit，such as driving circuit, beam steering system and microwave feed line.

Including drive circuit, TTL compatible parallel interfaces.

◆指标 *Electrical Specification*

工作频率：*Frequency Range*

L 波段 10%带宽 *L-Band 10% bandwidth*

插入损耗：*Insertion Loss*

≤1dB

驻波：*Standing wave*

≤1.3

移相范围：*Phase Shift range*

0～360º（相位步进量 45º）

360° Coverage, LSB = 45°

移相精度：*Phase error*

≤±3º

移相执行时间：*The time of shift phase*

≤3μS

◆工作温度：*Operating Temperature*

-40℃～+55℃

◆功耗：*Power dissipation*

+5V@2.5W

◆承受功率：*Maximum input power*

峰值功率 1100W *Peak power 1100W*

平均功率 110W *Average power 110W*

◆微波接口 *Microwave interface*

N（可根据用户需求定制）

N (Can be customized by customer)

◆外形尺寸： *Overall dimension*

95×55×25mm^3

L 波段大功率功分移相器

L-Band high-power power divider & Phase Shifter

◆特点 *Features*

低损耗；高功率容量；包含微波馈电网络；包含激励器和波控机，控制方式为 TTL 电平并行控制；包含一分六泰勒分布功分器和 6 个三位二极管移相器.

Low insertion Loss. High power handing capacity. Including microwave feed line. Including the drive circuit & beam steering system. TTL compatible parallel interfaces. Including 6-way Taylor distribution power divider & six 3-bit diode phase shifter.

◆指标 *Electrical Specification*

工作频率：*Frequency Range*

L 波段 10%带宽 *L-Band 10% bandwidth*

功分器类型：*Power divider style*

一分六泰勒分布 6-way Taylor distribution

插入损耗：*Insertion Loss*

≤1.5dB

驻波：*Standing wave*

≤1.4

移相范围：*Phase Shift range*

0～360°（相位步进量 45°）

360° Coverage, LSB = 45°

移相精度：*Phase error*

≤±3°

波束调转时间：*Beam steering time*

≤10μs

◆工作温度：*Operating Temperature*

-40℃～+55℃

◆功耗：*Power dissipation*

+24V@0.95A

◆承受功率：*Maximum input power*

峰值功率 4000W *Peak power 4000W*

平均功率 400W *Average power 400W*

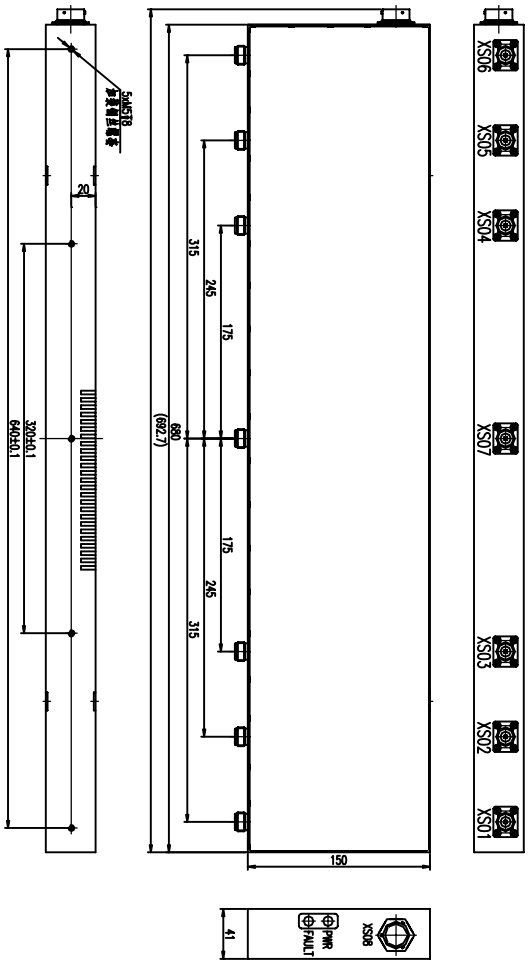
◆微波接口 *Microwave interface*

N（可根据用户需求定制）

N (Can be customized by customer)

◆外形尺寸： *Overall dimension*

680mm ×150mm ×41mm



X 波段四端口环行器

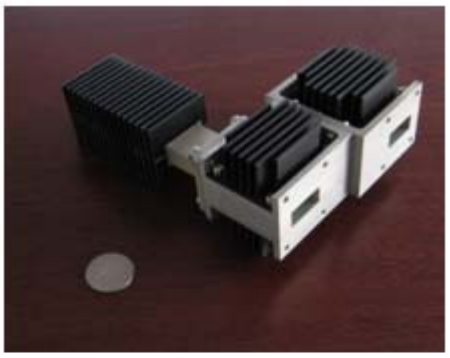
X-Band 4-port circulator

◆特点 *Features*

大带宽、低损耗、高功率。

Wide band, low insertion Loss, very high power handing capacity.

◆指标 *Electrical Specification*



工作频率：*Frequency Rang*

X 波段 10％～20％带宽

X-Band 10%-20% bandwidth

插入损耗：*Insertion Loss*

≤0.2dB

隔离度：*Isolation*

≥23dB

驻波：*Standing wave*

≤1.2

承受功率：*Maximum input power*

峰值功率 50KW *Peak power 50KW*

平均功率 500W *Average power 500W*

◆工作温度：*Operating Temperature*

－40～＋60℃

◆重量：*Weight*

450g

◆外形尺寸： *Overall dimension*

54×120×130 mm^3

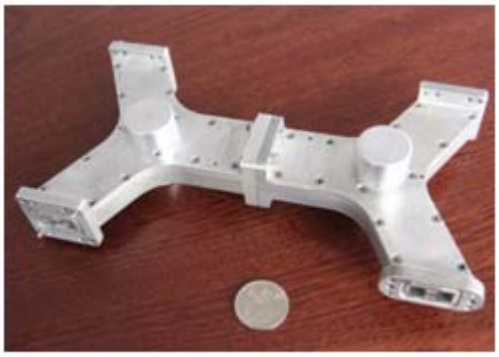
X+Ku 波段超宽带四端口环行器

X-Ku Band Ultra-wide Band 4-port circulator

◆特点 *Features*

超宽带、低损耗。

Ultra-wide band, low insertion Loss.



◆指标 *Electrical Specification*

工作频率：*Frequency Rang*

8～18GHz

插入损耗：*Insertion Loss*

≤0.5dB

隔离度：*Isolation*

≥18dB

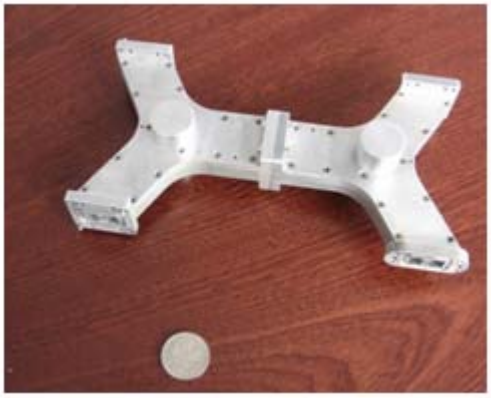
驻波：*Standing wave*

≤1.3

承受功率：*Maximum input power*

峰值功率 20KW *Peak power 20KW*

平均功率 200W *Average power 200W*



◆工作温度：*Operating Temperature*

－20～＋60℃

◆重量：*Weight*

350g

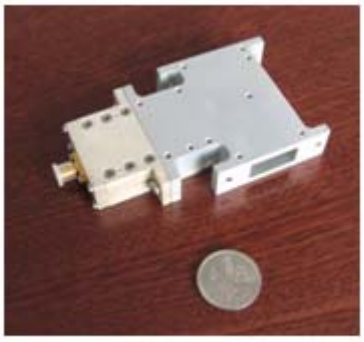
X 波段超薄环行器

X-Band Ultra- thin circulator

◆特点 Features

超薄尺寸、低损耗、高隔离。

Ultra- thin, low insertion Loss, high Isolation.



◆指标 *Electrical Specification*

工作频率：*Frequency Rang*

X 波段 ≥10%带宽

X-Band ≥10% bandwidth

插入损耗：*Insertion Loss*

≤0.2dB

隔离度：*Isolation*

≥22dB

驻波：*Standing wave*

≤1.2

承受功率：*Maximum input power*

峰值功率 150W *Peak power 150W*

平均功率 15W *Average power 15W*

◆工作温度：*Operating Temperature*

－40～＋60℃

◆重量：*Weight*

160g

◆外形尺寸： *Overall dimension*

63×65×17mm^3

X 波段高平均功率环行器

X-Band High Average Power Capacity circulator

◆特点 *Features*

高平均功率、低损耗。

High Average Power capacity, low insertion Loss.

◆指标 *Electrical Specification*

工作频率：*Frequency Rang*

X 波段 ≥10%带宽

X-Band ≥10% bandwidth

插入损耗：*Insertion Loss*

≤0.3dB

隔离度：*Isolation*

≥22dB

驻波：*Standing wave*

≤1.2

承受功率：*Maximum input power*

峰值功率 50KW *Peak power 50KW*

平均功率 1000W *Average power 1000W*

◆工作温度：*Operating Temperature*

－40～＋60℃

◆重量：*Weight*

1Kg

◆外形尺寸： *Overall dimension*

247×120×104 mm^3

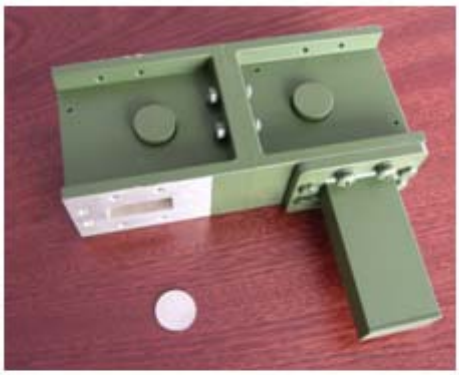
5 厘米高功率四端口环行器

5 cm Band High Power Capacity 4-port circulator

◆特点 *Features*

低损耗、高功率。

High Power capacity, low insertion Loss.



◆指标 *Electrical Specification*

工作频率：*Frequency Rang*

C 波段 ≥10%带宽

C-Band ≥10% bandwidth

插入损耗：*Insertion Loss*

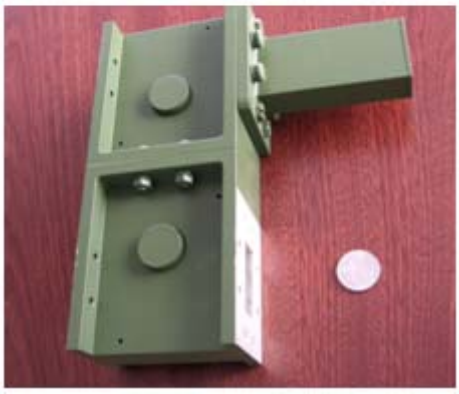
≤0.3dB

隔离度：*Isolation*

≥23dB

驻波：*Standing wave*

≤1.2



承受功率：*Maximum input power*

峰值功率 1MW *Peak power 1MW*

平均功率 1KW *Average power 1KW*

◆工作温度：*Operating Temperature*

－40～＋60℃

◆重量：*Weight*

≤2.5Kg

◆外形尺寸： *Overall dimension*

215×193×62mm^3

四厘米高功率四端口环行器

4 cm Band High Power Capacity 4-port circulator

◆特点 *Features*

低损耗、高功率。

High Average Power capacity, low insertion Loss.

◆指标 *Electrical Specification*

工作频率：*Frequency Rang*

C 波段 ≥10%带宽

C-Band ≥10% bandwidth

插入损耗：I*nsertion Loss*

≤0.18dB

隔离度：*Isolation*

≥23dB

驻波：*Standing wave*

≤1.2

承受功率：*Maximum input power*

峰值功率 600KW *Peak power 600KW*

平均功率 500W *Average power 500W*

◆工作温度：*Operating Temperature*

－40～＋60℃

◆重量：*Weight*

1.2Kg

◆外形尺寸： *Overall dimension*

140×65×62 mm^3

X 波段双结隔离器
X-Band Isolator

◆特点 Features

高隔离度。 *High Isolation.*

◆指标 *Electrical Specification*

工作频率：*Frequency Rang*

X 波段 ≥10%带宽

X-Band ≥10% bandwidth

插入损耗：*Insertion Loss*

≤0.4 dB

隔离度：*Isolation*

≥45dB

驻波：*Standing wave*

≤1.2

承受功率：*Maximum input power*

峰值功率 40KW *Peak power 40KW*

平均功率 400W *Average power 400W*

◆工作温度：*Operating Temperature*

－40～＋60℃

◆重量：*Weight*

0.8Kg

◆外形尺寸： *Overall dimension*

122×62×96 mm^3

激励器和波控机

Driving Circuit & Beam Controller

◆特点 *Features*

激励器和波控机是专用于相控阵雷达的波束控制系统，包括波束控制计算机、修正码存储设备、波控信号的传输分配总线、子天线阵波控计算机、波控数码寄存器与驱动器、相应的控制软件及电源设备等。