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天亚通科技
TYT TECHNOLOGY

天亚通科技--专业的射频无源产品生产厂家

TYT Technology – A Professional Manufacturer of RF Passive Components

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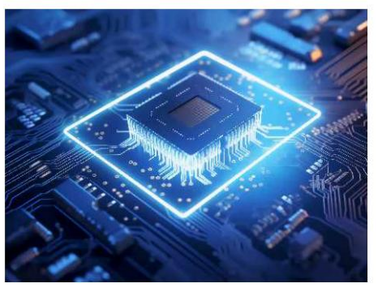


01 企业简介 COMPANY PROFILE

四川省天亚通科技有限公司是一家专业从事微波无源器件：射频隔离器、环行器，滤波器，双工器，射频终端负载电阻、衰减片，同轴负载、衰减器、功分器及耦合器等微波无源器件及组件研究、生产、销售、服务为一体的现代化高科技企业。其产品广泛应用于雷达、仪器、导航、微波多路通信、空间技术、移动通信、图像传输等系统及微波集成电路中。

公司具有多年从事微波铁氧体器件、无源组件及功率器件开发设计的工程技术人员、先进的仪器设备、完善的生产工艺等，还具备现代化的设计仿真软件，更好的解决了器件设计中的技术指标、结构尺寸小型化、可靠性、及温度稳定性等的合理统一问题。公司科技研发能力与时俱进，不断创新。

公司成立以来，为了更好的服务客户、回报社会，公司以技术为核心，研发出目前与国际同等水平的微带隔离器/环行器。产品其突出特点是平面化、小尺寸、轻重量。并具有一致性好、成本较低等优点，使其在微波集成电路中得到了普遍应用。随着相控阵雷达等微波系统的飞速发展，其应用前景将更加看好。

公司将不懈致力于客户之需要，力求在产品品质、品种、服务三个方面，创立特色，不断提高。用我们的心载起客户，用我们的情牵动客户，用我们的真诚享誉客户。

ABOUT US

SICHUAN TYT TECHNOLOGY CO., LTD is headquartered in a modern plant in economic and development zone, Mianyang, China. We have two domestic manufacturing sites covering 5200 square meters. Our manufacturing history started from 2006 in Shenzhen. As a national high-tech and modernized manufacturer specialized in research and development, manufacturing, selling RF and microwave products, and providing RF solution service for clients all over the world. Our products are widely applied in 5G system, radar, instrumentation, navigation, microwave multichannel communications, space technology, mobile communications, image transmission systems and microwave integrated circuits.

We have a 26 staffs professional technology research and development team for different kinds of RF and microwave products. Today, we already have different kinds of technical patents and ISO 9001 certificate. In order to provide a full RF solutions for clients at home and abroad, company introduce a large amount of advanced equipment, the latest technology and RF product design software all over the world for R&D and manufacturing teams.We have developed a wide range of RF isolator, circulator, termination, resister, attenuator, filter, power divider, combiner, etc.

With the aim of offering a better service and excellent RF solutions and Microwave components for global customers, we keep independent innovation and using the latest manufacturing technology on our products. With features of high precision planarization, good stability, small size structure, light weight and good price, our products are well known at home and abroad, some of which are widely used in microwave integrated circuit.

As an important manufacturer and supplier of RF solutions and Microwave components in China, we devote to meeting the demands of customers, providing high standard varieties of products, improving product quality and offering the better service.

02 发展历程 Our History

四川省天亚通科技有限公司成立于2006年，是一家国家级高新技术企业。公司主要从事射频隔离器、射频环行器、射频电阻、射频衰减器、射频终端负载、射频滤波器、射频功率分配器、射频耦合器、射频双工器等无源器件的研发与生产。公司的发展历程如下：

▸ 2006年
公司在广东省深圳市成立。

▸ 2007年
公司研发出了一系列隔离器和环行器产品。

▸ 2008年
公司增设了双工器和滤波器设计团队。

▸ 2009年至2016年
公司逐步增加了射频电阻、衰减器、同轴负载、同轴衰减器、功率分配器、耦合器等产品的生产线。

▸ 2017年
公司将总部从广东省深圳市迁至四川省绵阳市。

▸ 2018年
公司通过了ISO9001质量管理体系认证。

▸ 2021年
公司获得了国家高新技术企业证书。

Our History

Sichuan TYT Technology Co., Ltd. established in 2006 is a national high-tech enterprise. Company is primarily engaged in a passive components such as RF isolator, RF circulator, RF resistor, RF attenuator, RF termination, RF filter, RF power divider, RF coupler and RF duplexer.

▸ 2006
Company was founded in Shenzhen, Guangdong Province.

▸ 2007
Developed a series of isolators and circulator.

▸ 2008
Established the duplexer and filter team.

▸ 2009~2016
Built the new production lines of RF resistors, attenuators, coaxial loads, coaxial attenuators, power splitters, couplers.

▸ 2017
Company moved from Shenzhen Guangdong to Mianyang.

▸ 2018
Obtained ISO9001 quality system certificate.

▸ 2021
Obtained a national high-tech certificate.

03 生产设备
Production Equipment

▲ 充磁机
Magnetizer

▲ 电阻测试机
Resistance Tester

▲ 高温试验箱
High Temperature Test Chamber

▲ 自动旋盖机
Automatic Capping Machine

▲ 焊接台
High Temperature Test Chamber


▲ 激光打字机
Laser Typewriter


▲ 互调测试仪
Intermodulation Test Equipment

▲ 自动摆料机
Automatic Feeder


▲ 全自动引线切割机
Fully Automatic Lead Cutting Machine

▲ 烧结炉
Sintering Furnace


▲ 印刷台
Printing Station

▲ 激光修阻机
Laser Resistor Trimming Machine

▲ 网络分析仪
Network Analyzer

04 产品说明 Product Description

射频隔离器 RF Isolator

- 同轴隔离器 Coaxial Isolator
- 嵌入式隔离器 Drop In Isolator
- 宽带隔离器 Broadband Isolator
- SMT/SMD 隔离器 SMT/SMD Isolator
- 双结隔离器 Dual Junction Isolator
- 微带隔离器 Microstrip Isolator
- 波导隔离器 Waveguide Isolator

同轴隔离器 ↘ Coaxial Isolator

- ◎ 可以是双结甚至三结以实现高隔离。
  Component can be dual or multi junction to realize high isolation.
- ◎ 军事、太空和商业应用。
  Military, space and commercial applications.
- ◎ 可根据要求提供定制设计。
  Custom design service is available.
- ◎ 标准保修一年。
  One year warranty.

射频同轴隔离器是一种用于隔离射频系统中信号的无源器件。它的主要作用是有效传输信号，防止反射和干扰。射频同轴隔离器的主要作用是在射频系统中提供隔离和保护功能。在射频系统中，可能会产生一些反向信号，这可能会对射频系统产生负面影响。射频同轴隔离器可以有效隔离这些反向信号，防止其干扰主信号的传输和接收。射频同轴隔离器的工作原理是基于磁场的不可逆行为。基本结构同轴环行器由同轴连接器、腔体、内导体、铁氧体旋转磁体和磁性材料组成。

RF coaxial isolator is a passive component used to isolate signals in RF systems. Its main function is to effectively transmit signals and prevent reflection and interference.The main function of RF coaxial isolators is to provide isolation and protection in RF systems. Some reverse signals may be generated in RF system , which may have a negative impact on the operation of the system. RF coaxial isolators can effectively isolate these reverse signals and prevent them from interfering with the transmission and reception of the main signal.The working principle of RF coaxial isolators is based on the irreversible behavior of magnetic fields. Coaxial circulator consists of a coaxial connector , cavity, inner ,conductor, ferrite rotating magnet and magnetic materials.

嵌入式隔离器 ↘
Drop In Isolator

◎ 频率范围10MHZ到40Ghz,高达2000瓦功率。
Frequency range is from 10Mhz to 40GHz, power can be 2000W.

◎ 军事、空间和商业应用。
Military, space and commercial applications.

◎ 低插入损耗,高隔离,高功率处理。
Low insertion loss, high isolation and high power handling.

◎ 根据要求提供定制设计。
Custom design service is available.

该嵌入式隔离器通过带线与仪器设备连接。通常设计为小尺寸的隔离器,容易集成到各种设备中,节省空间。这种小型化设计使隔断器适合于空间有限的应用,通过焊接可以很容易地固定在电路板上,使其使用非常方便。降落隔离器的第三个端口将配备一个芯片衰减器,以减弱信号能量或芯片终止到吸收信号能量。降落隔离器是射频系统中使用的一种保护装置,其主要功能是单向传输信号,以防止天线端口信号流回输入(TX)端口。

The drop–in isolator is connected to the instrument equipment through strip line. Drop in isolator usually designed with small dimensions, it is easy to integrate into various devices. This miniaturized design makes drop in isolators suitable for applications with limited space.Drop in isolator could easy fixed on the PCB board by soldering which make it very convenient to use. The third port of the drop in isolator will be equipped with a chip attenuator to attenuate signal energy or chip termination to absorption signal energy. Drop in isolator is a protective device used in RF systems, main function is to transmit signals in a unidirectional manner to prevent antenna port signals from flowing back to the input (TX) port.

宽带隔离器 ↘
Broadband Isolator

◎ 频率范围 56MHz 至 40GHz，带宽高达 13.5GHz。
Frequency range is from 56Mhz to 40GHz, with a bandwidth of up to 13.5GHz.

◎ 军事、太空和商业应用。
Military, space and commercial applications.

◎ 低插入损耗、高隔离度、高功率处理能力。
Low insertion loss, high isolation and high power handling.

◎ 可根据要求提供定制设计。
Custom design service is available.

宽带隔离器是射频通信系统中的重要组件，具有一系列优势，使其非常适合各种应用。这些隔离器提供宽带覆盖范围，确保在宽频率范围内发挥有效性能。凭借其隔离信号的能力，它们可以防止带外信号的干扰并保持带内信号的完整性。宽带隔离器的主要优点之一是其出色的高隔离性能。它们有效隔离天线端的信号，确保天线端的信号不会反射到系统中。同时，这些隔离器具有良好的端口驻波特性，减少反射信号，保持信号传输稳定。

Broadband isolator is an important component in RF communication system, providing a range of advantages that make them highly suitable for various applications. These isolators provide broadband coverage to ensure effective performance over a wide frequency range. With ability to isolate signals, they can prevent interference from out of band signals and maintain the integrity of in band signals. Broadband isolator has an excellent high isolation performance. They effectively isolate the signal at the antenna end, ensuring that the signal at the antenna end is not reflected into the system. At the same time, these isolators have good port standing wave characteristics, reducing reflected signals and maintaining stable signal transmission.

SMT/SMD 隔离器 ↘
SMT / SMD Isolator

◎ 频率范围 200MHz 至 15GHz。
Frequency range is from 200Mhz to 15GHz.

◎ 军事、太空和商业应用。
Military, space and commercial applications.

◎ 低插入损耗、高隔离度、高功率处理能力。
Low insertion loss, high isolation and high power handling.

◎ 可根据要求提供定制设计。
Custom design service is available.

SMD隔离器是一种用于封装安装在PCB（印刷电路板）上的隔离器件。广泛应用于通信系统、微波设备、无线电设备等领域。 SMD 隔离器体积小、重量轻且易于安装，适合高密度集成电路应用。SMD隔离器具有较宽的频段覆盖能力。它们通常覆盖较宽的频率范围，例如400MHz–18GHz，以满足不同应用的频率要求。这种广泛的频段覆盖能力使SMD隔离器能够在多种应用场景中表现出色。

SMD isolator is an isolation device installed on a PCB or printed circuit board. widely used in communication systems, microwave equipment, radio equipment, other fields. SMD isolator is small, lightweight, easy to install, making them suitable for high–density integrated circuit applications. SMD isolators have a wide range of frequency band coverage capabilities. They cover a wide frequency range, such as 400MHz–18GHz, to meet the frequency requirements of different applications. This extensive frequency band coverage capability enables SMD isolators to perform excellently in multiple applications.

双结隔离器 ↘
Dual Junction Isolator

◎ 频率范围10MHz至40GHz，功率高达500W。
Frequency range is from 10Mhz to 40GHz, power is up to 500W.

◎ 军事、太空和商业应用。
Military, space and commercial applications.

◎ 低插入损耗、高隔离度、高功率处理能力。
Low insertion loss, high isolation and high power handling.

◎ 可根据要求提供定制设计。
Custom design service is available.

双结隔离器是一种常用于微波、毫米波频段的无源器件，用于隔离天线端的反向信号。它由两个隔离器组成的结构。其插入损耗和隔离度通常是单个隔离器的两倍。如果单个隔离器的隔离度为20dB，那么双结隔离器的隔离度往往可以达到40dB。端口驻波比变化不大。系统中，当射频信号从输入端口传输到第一环结点时，由于第一环结点一端装有射频电阻，其信号只能是传输到第二环路口的输入端。第二个环路结点与第一个环路结点相同，安装了射频电阻，信号将传递到输出端口，其隔离度将是两个环路结点的隔离度之和。从输出端口返回的反向信号将被第二环结处的射频电阻吸收。这样，输入输出端口之间实现了很大程度的隔离，有效减少了系统中的反射和干扰。

Dual junction isolator is a passive component commonly used in microwave and millimeter–wave frequency bands to isolate reverse signals from the antenna end. It has of two isolators. Its insertion loss and isolation are twice than a single isolator. If the isolation of a single isolator is 20dB, the isolation Dual junction isolator can be 40dB. The port VSWR does not change much.In the system, when the radio frequency signal is transmitted from the input port to the first ring junction, because one end of the first ring junction is equipped with a radio frequency resistor, its signal can only be transmitted to the input end of the second ring junction. The second loop junction is the same as the first one, with RF resistors , signal will be passed to the output port, its isolation will be the sum of the isolation of the two loop junctions. The reverse signal returning from the output port will be absorbed by the RF resistor in the second ring junction. In this way, a large degree of isolation between the input and output ports is achieved, which effectively reducing reflections and interference in the system.

微带隔离器 ↘
Microstrip Isolator

◎ 频率范围 2.7 至 43GHz
Frequency range is from 2.7GHz to 43GHz.

◎ 军事、太空和商业应用。
Military, space and commercial applications.

◎ 低插入损耗、高隔离度、高功率处理能力。
Low insertion loss, high isolation and high power handling.

◎ 可根据要求提供定制设计。
Custom design service is available.

微带隔离器是一种常用的射频和微波器件，用于电路中的信号传输和隔离。它使用薄膜技术在旋转磁性铁氧体顶部创建电路，然后添加磁场来实现。微带隔离器的安装一般采用手工焊接铜带或金线键合的方法。与同轴和嵌入式隔离器相比，微带隔离器的结构非常简单。最明显的区别是没有空腔，微带隔离器的导体是通过使用薄膜工艺（真空溅射）在旋转铁氧体上创建设计图案而制成的。电镀后，将生产的导体附着到旋转铁氧体基板上。在图形顶部贴上一层绝缘介质，并在介质上固定磁场。

Microstrip isolators are a commonly used RF and microwave device used for signal transmission and isolation in circuits. It uses thin film technology to create a circuit on top of a rotating magnetic ferrite, adds a magnetic field to achieve it. The installation of microstrip isolators generally adopts the method of manual soldering of copper strips or gold wire bonding. The structure of microstrip isolators is very simple, compared to coaxial and embedded isolators. The most obvious difference is that there is no cavity, the conductor of the microstrip isolator is made by using a thin film process (vacuum sputtering) to create the designed pattern on the rotary ferrite. After electroplating, the produced conductor is attached to the rotary ferrite substrate. Attach a layer of insulating medium on top of the graph, fix a magnetic field on the medium.

波导隔离器 ↘
Waveguide Isolator

◎ 频率范围 5.4 至 110GHz。
Frequency range is from 5.4GHz to 110GHz.

◎ 军事、太空和商业应用。
Military, space and commercial applications.

◎ 低插入损耗、高隔离度、高功率处理能力。
Low insertion loss, high isolation and high power handling.

◎ 可根据要求提供定制设计。
Custom design service is available.

波导隔离器是一种应用于射频和微波频段，实现信号单向传输和隔离的无源器件。它具有低插入损耗、高隔离度、宽带等特点，广泛应用于通信、雷达、天线等系统中。波导隔离器的基本结构包括波导传输线和磁性材料。波导传输线是一种中空的金属管道，通过它来传输信号。磁性材料通常是铁氧体材料，放置在波导传输线的特定位置以实现信号隔离。波导隔离器还包括负载吸收辅助组件，以优化性能并减少反射。

A waveguide isolator is a passive component used in the RF and microwave frequency bands to achieve unidirectional transmission and isolation of signals. It has the characteristics of low insertion loss, high isolation and broadband, widely used in communication, radar, antenna and other systems.The basic structure of waveguide isolators includes waveguide transmission lines and magnetic materials. Waveguide transmission line is a hollow metal pipeline through which signals are transmitted. Magnetic materials are usually ferrite materials placed at specific locations in waveguide transmission lines to achieve signal isolation. Waveguide isolator also includes load absorbing auxiliary components to optimize performance and reduce reflection.

射频环行器
RF Circulator

- 同轴环形器
  Coaxial Circulator
- 嵌入式环形器
  Drop In Circulator
- 宽带环形器
  Broadband Circulator
- SMT/SMD 环形器
  SMT/SMD Circulator
- 双节环形器
  Dual Junction Circulator
- 微带环形器
  Microstrip Circulator
- 波导环形器
  Waveguide Circulator

同轴环行器 ↘
Waveguide Circulator

◎ 频率范围10MHz至50GHz，功率高达30KW。
Frequency range is from 5.4GHz to 110GHz, power is up to 30KW.

◎ 军事、太空和商业应用。
Military, space and commercial applications.

◎ 低插入损耗、高隔离度、高功率处理能力。
Low insertion loss, high isolation and high power handling.

◎ 可根据要求提供定制设计。
Custom design service is available.

同轴环行器是一种用于射频和微波频段的无源器件，常用于隔离、方向控制和信号传输应用。具有低插入损耗、高隔离度、宽频带等特点，广泛应用于通信、雷达、天线等系统。同轴环行器的基本结构由同轴连接器、腔体、内导体组成、铁氧体旋转磁体和磁性材料。

Coaxial circulator is a passive component used in the RF and microwave frequency bands, often used in isolation, directional control and signal transmission applications. It has characteristics of low insertion loss, high isolation and wide frequency band, and is widely used in communication, radar, antenna and other systems. Coaxial circulator consists coaxial connector, cavity, inner conductor, ferrite rotating magnet and magnetic materials.

嵌入式环行器 ↘
Drop In Circulator

嵌入式环行器中的RF降是一种能够单向传输电磁波的射频器件,主要用于雷达和微波多通道通信系统。环行器中的滴通过色带电路连接到仪表设备上。

嵌入式环行器中的射频降属于一种用于控制射频电路中信号的方向和传输的3端口微波装置。 嵌入式环行器中的射频下降是单向的,允许能量从每个端口顺时针传递到下一个端口。这些射频循环器的隔离度约为20db。

RF drop in circulator is a type of RF component that enables unidirectional transmission of electromagnetic waves, mainly used in radar and microwave multi–channel communication systems. Drop in isolator is connected to the instrument equipment through a ribbon circuit.

RF drop in circulator belongs to a 3–port microwave device used to control the direction and transmission of signals in RF circuits. RF drop in circulator is unidirectional, allowing energy to be transmitted clockwise from each port to the next port. These RF circulators have an isolation degree of about 20dB.

宽带环行器 ↘
Broadband Circulator

- ◎ 频率范围 200MHz 至 15GHz。
  Frequency range is from 200MHz to 15GHz.
- ◎ 军事、太空和商业应用。
  Military, space and commercial applications.
- ◎ 低插入损耗、高隔离度、高功率处理能力。
  Low insertion loss, high isolation and high power handling.
- ◎ 可根据要求提供定制设计。
  Custom design service is available.

宽带环行器是射频通信系统中的重要组件，具有一系列优点，非常适合各种应用。这些环行器提供宽带覆盖，确保在宽频率范围内发挥有效性能。凭借其隔离信号的能力，它们可以防止带外信号的干扰并保持带内信号的完整性。宽带环行器的主要优点之一是其出色的高隔离性能。同时，这些环形器件具有良好的端口驻波特性，减少反射信号，保持信号传输稳定。

Broadband Circulator is an important component in RF communication system, providing a series of advantages that make it very suitable for various applications. Circulator provide broadband coverage, ensuring effective performance over a wide frequency range. With their ability to isolate signals, they can prevent interference from out of band signals and maintain the integrity of in band signals.One of the main advantages of broadband circulators is their excellent high isolation performance. At the same time, these ring–shaped devices have good port standing wave characteristics, reducing reflected signals and maintaining stable stability of transmission.

SMT/SMD环行器 ↘
SMT/SMD Circulator

◎ 频率范围 200MHz 至 15GHz。
Frequency range is from 200MHz to 15GHz.

◎ 军事、太空和商业应用。
Military, space and commercial applications.

◎ 低插入损耗、高隔离度、高功率处理能力。
Low insertion loss, high isolation and high power handling.

◎ 可根据要求提供定制设计。
Custom design service is available.

SMT/SMD 表面贴装环行器是一种用于封装和安装在PCB（印刷电路板）上的环形器件。广泛应用于通信系统、微波设备、无线电设备等领域。 SMT/SMD 表面贴装环行器具有结构紧凑、重量轻、易于安装等特点，适合高密度集成电路应用。SMT/SMD 表贴环行器具有较宽的频段覆盖能力。它们通常覆盖较宽的频率范围，例如400MHz–18GHz，以满足不同应用的频率要求。这种广泛的频段覆盖能力使 SMT/SMD 表面贴装环行器能够在多种应用场景中表现出色。

SMT/SMD circulator is a type of ring–shaped component installed on a PCB (printed circuit board). They are widely used in communication systems, microwave equipment, radio equipment and other fields. SMT/SMD surface mount circulator has the characteristics of being compact, lightweight, easy to install, making it suitable for high–density integrated circuit applications. The following will provide a detailed circulators. Firstly, the SMT/SMD surface mount circulator has a wide range of frequency band coverage capabilities. They typically cover a wide frequency range, such as 400MHz–18GHz, to meet the frequency requirements of different applications. This extensive frequency band coverage capability enables SMT/SMD surface mount Circulators to perform excellently in multiple application.

双结环行器 ↘
Dual Junction Circulator

◎ 频率范围10MHZ至40GHZ,高达500W功率。
Frequency range is from 10MHz to 40GHz, power is up to 500W.

◎ 军事、空间和商业应用。
Military, space and commercial applications.

◎ 低插入损耗,高隔离,高功率处理。
Low insertion loss, high isolation and high power handling.

◎ 根据要求提供定制设计。
Custom design service is available.

双结环行器是一种常用于微波和毫米波频段的无源器件。可分为双结同轴环行器和双结嵌入式环行器。根据端口数量还可分为四端口双结环行器和三端口双结环行器。它由两个环形结构组合而成。其插入损耗和隔离度通常是单个环行器的两倍。如果单个环行器的隔离度为20dB，那么双结环行器的隔离度往往可以达到40dB。但端口驻波没有太大变化。同轴产品连接器一般为SMA、N、2.92、L29或DIN类型。嵌入式产品使用带状电缆连接。

Dual junction circulator is a passive component commonly used in microwave and millimeter wave frequency bands. It can be divided into dual junction coaxial circulators and dual junction embedded circulators. It can also be divided into four port dual junction circulators and three port dual junction circulator based on the number of ports. It is composed of a combination of two annular structures. Its insertion loss and isolation are usually twice of a single circulator. If the isolation degree of a single circulator is 20dB, the isolation degree of a dual junction circulator can reach 40dB. However, there is not much change in the port standing wave.Coaxial product connectors are generally SMA, N, 2.92, L29 or DIN types. Drop in style is connected using ribbon cables.

环形器 ↘
Circulator

◎ 频率在2.7到40兆赫之间。
Frequency range 2.7 to 40GHz.

◎ 军事、空间和商业应用。
Military, space and commercial applications.

◎ 低插入损耗,高隔离,高功率处理。
Low insertion loss, high isolation, high power handling.

◎ 根据要求提供定制设计。
Custom design available upon request.

微带环形器是一种常用的射频微波器件,用于电路中的信号传输和隔离。它利用薄膜技术在旋转磁铁氧体上建立一个电路,然后添加磁场来实现它。微带环形装置的安装一般采用手动焊接或用铜条连接金丝的方法。与同轴和嵌入式循环装置相比,微带环形装置的结构非常简单。最明显的区别是没有腔,微带环形器的导体是利用薄膜工艺(真空溅射)在旋转铁氧体上形成设计的图案。电镀后,生成的导体连接到旋转铁氧体衬底上。在图上附加一层绝缘介质,把磁场固定在介质上。利用这种简单的结构,研制出了微带环形器。

Microstrip Circulator is a commonly used RF microwave device used for signal transmission and isolation in circuits. It uses thin film technology to create a circuit on top of a rotating magnetic ferrite, and then adds a magnetic field to achieve it. The installation of microstrip annular devices generally adopts the method of manual soldering or gold wire bonding with copper strips.The structure of microstrip circulators is very simple, compared to coaxial and embedded circulators. The most obvious difference is that there is no cavity, and the conductor of the microstrip Circulator is made by using a thin film process (vacuum sputtering) to create the designed pattern on the rotary ferrite. After electroplating, the produced conductor is attached to the rotary ferrite substrate. Attach a layer of insulating medium on top of the graph, and fix a magnetic field on the medium. With such a simple structure, a microstrip circulator has been fabricated.

波导环行器 ↘
Waveguide Circulator

◎ 频率范围 5.4 至 110GHz。
Frequency range 5.4 to 110GHz.

◎ 军事、太空和商业应用。
Military, space and commercial applications.

◎ 低插入损耗、高隔离度、高功率处理能力。
Low insertion loss, high isolation, high power handling.

◎ 可根据要求提供定制设计。
Custom design available upon request.

波导环行器是一种应用于射频和微波频段，实现信号单向传输和隔离的无源器件。它具有低插入损耗、高隔离度、宽带等特点，广泛应用于通信、雷达、天线等系统中。波导环行器的基本结构包括波导传输线和磁性材料。波导传输线是一种中空的金属管道，通过它来传输信号。磁性材料通常是铁氧体材料，放置在波导传输线的特定位置以实现信号隔离。

Waveguide Circulator is a passive device used in the RF and microwave frequency bands to achieve unidirectional transmission and isolation of signals. It has the characteristics of low insertion loss, high isolation, and broadband, and is widely used in communication, radar, antenna and other systems.The basic structure of a waveguide Circulator includes waveguide transmission lines and magnetic materials. A waveguide transmission line is a hollow metal pipeline through which signals are transmitted. Magnetic materials are usually ferrite materials placed at specific locations in waveguide transmission lines to achieve signal isolation.

射频终端
RF Termination

- 贴片终端
  Leaded Termination
- 引线终端/无法兰终端
  Flangeless termination
- 法兰终端
  Flanged termination
- 同轴固定负载/假负载
  Coaxial Fixed Load/Dummy Load
- 失配负载
  Mismatch Load
- 低互调负载
  Low Intermodulation Load

贴片终端 ↘
Chip Termination

- ◎ 额定功率：10-500W
  Rated Power：10-500W
- ◎ 标称电阻值：50Ω
  Nominal resistance value：50Ω
- ◎ 温度系数：＜150ppm/℃
  Emperature coefficient：＜150ppm/℃
- ◎ ROHS标准：符合
  ROHS standard: Compliant with
- ◎ 基板材料：BeO、AIN、Al2O3
  Substrate materials：BeO、AIN、Al2O3
- ◎ 电阻误差：±5%、±2%、±1%
  Resistance tolerance：±5%、±2%、±1%
- ◎ 工作温度：-55～+150℃
  Operation temperature：-55～+150℃
- ◎ 可根据要求提供定制设计。
  Custom design available upon request.

贴片终端是电子元件封装的常见形式，通常用于电路板的表面安装。贴片电阻是用来限制电流、调节电路阻抗、局部电压的电阻器的一种。与传统的插座电阻不同，贴片端子电阻不需要通过插座连接到电路板上，而是直接焊接在电路板的表面。电路板。这种封装形式有助于提高电路板的紧凑性、性能和可靠性。

Chip Termination is a common form of electronic component packaging, commonly used for surface mount of circuit boards. Chip resistors are one type of resistor used to limit current, regulate circuit impedance, and local voltage.Unlike traditional socket resistors, patch terminal resistors do not need to be connected to the circuit board through sockets, but are directly soldered to the surface of the circuit board. This packaging form helps to improve the compactness, performance, and reliability of circuit boards.

引线端接/无法兰终端
Leaded Termination

- ◎ 额定功率：5–800W
  Rated power：5–800W
- ◎ 标称电阻值：50Ω
  Nominal resistance value：50Ω
- ◎ 温度系数：<150ppm/℃
  Emperature coefficient：<150ppm/℃
- ◎ ROHS标准：符合
  ROHS standard: Compliant with
- ◎ 可根据要求提供定制设计。
  Custom design available upon request.
- ◎ 基板材料：BeO、AIN、AI2O3
  Substrate materials：BeO、AIN、AI2O3
- ◎ 电阻误差：±5%、±2%、±1%
  Resistance tolerance：±5%、±2%、±1%
- ◎ 工作温度：–55～+150℃
  Operation temperature：–55～+150℃
- ◎ 引线长度：L 如数据表中指定
  Lead length: L as specified in the data sheet

引线端接/无法兰终端是安装在电路末端的电阻，它可以吸收电路中传输的信号并防止信号反射，从而影响电路系统的传输质量。Leaded Termination也称为SMD单引线终端电阻。它通过焊接安装在电路末端。主要目的是吸收传输到电路末端的信号波，防止信号反射影响电路，保证电路系统的传输质量。

Leaded Termination is a resistor installed at the end of a circuit, which absorbs signals transmitted in the circuit and prevents signal reflection, thereby affecting the transmission quality of the circuit system.Leaded Terminations are also known as SMD single lead terminal resistors. It is installed at the end of the circuit by welding. The main purpose is to absorb signal waves transmitted to the end of the circuit, prevent signal reflection from affecting the circuit, and ensure the transmission quality of the circuit system.

法兰终端
Flanged Termination

- ◎ 额定功率：5–1500W
  Rated power：5–1500W
- ◎ 标称电阻值：50Ω
  Nominal resistance value：50Ω
- ◎ 温度系数：<150ppm/℃
  Temperature coefficient：<150ppm/℃
- ◎ 法兰涂层：可选镀镍或镀银
  Flange coating: optional nickel or silver plating
- ◎ 引线长度：L 如数据表中指定
  Lead length: L as specified in the data sheet
- ◎ 基板材料：BeO、AIN、AI2O3
  Substrate materials：BeO、AIN、AI2O3
- ◎ 电阻误差：±5%、±2%、±1%
  Resistance tolerance：±5%、±2%、±1%
- ◎ 工作温度：–55～+150℃
  Operation temperature：–55～+150℃
- ◎ ROHS标准：符合
  ROHS standard: Compliant with
- ◎ 可根据要求提供定制设计。
  Custom design available upon request.

法兰终端安装在电路的末端，吸收电路中传输的信号，防止信号反射，从而影响电路系统的传输质量。法兰端子是由单引线终端电阻与法兰和贴片焊接而成。法兰尺寸通常根据安装孔和终端电阻尺寸组合来设计。还可根据客户的使用要求进行定制。

Flanged terminations are installed at the end of a circuit, which absorb signals transmitted in the circuit and prevent signal reflection, thereby affecting the transmission quality of the circuit system.The flanged terminal is assembled by welding a single lead terminal resistor with flanges and patches. The flange size is usually designed based on the combination of installation holes and terminal resistance dimensions. Customization can also be made according to the customer's usage requirements.

同轴固定端接（假负载）↘
Coaxial Fixed Termination (Dummy Load)

◎ 军事、太空和商业应用。
Military, space and commercial applications.

◎ 可根据要求提供定制设计。
Custom design available upon request.

同轴负载是广泛应用于微波电路和微波设备中的微波无源单端口器件。同轴负载由连接器、散热器和内置电阻芯片组装而成。根据不同的频率和功率，连接器通常采用2.92、SMA、N、DIN、4.3–10等类型，散热器根据不同功率大小的散热要求设计相应的散热尺寸。内置芯片根据不同的频率和功率要求采用单芯片或多芯片组。

Coaxial loads are microwave passive single port devices widely used in microwave circuits and microwave equipment.The coaxial load is assembled by connectors, heat sinks, and built–in resistor chips. According to different frequencies and powers, connectors typically use types such as 2.92, SMA, N, DIN, 4.3–10, etc. The heat sink is designed with corresponding heat dissipation dimensions according to the heat dissipation requirements of different power sizes. The built–in chip adopts a single chip or multiple chipsets according to different frequency and power requirements.

失配负载 ↘
Coaxial Mismatch Termination

◎ 频率范围F0±5%（F0为中心频率）
Frequency Range F0±5%
(F0 is the center frequency)

◎ 驻波比容差 ±5%
VSWR Tolerance ±5%

◎ 阻抗50Ω
Impedance 50 Ω

◎ 可根据要求提供定制设计。
Custom design available upon request.

◎ 驻波比1.5、2.0、2.5、3.0、3.5、4.0
VSWR 1.5、2.0、2.5、3.0、3.5、4.0

◎ 额定功率 10W – 200W
Rated Power 10 W – 200 W

◎ 符合 ROHS 标准 是
ROHS Compliant Yes

失配负载，是同轴负载的一种。它是一种标准失配负载，可以吸收一部分微波功率并反射另一部分，并产生一定大小的驻波，主要用于微波测量。

Mismatch Termination also called mismatch load which is a type of coaxial load.It is a standard mismatch load that can absorb a portion of microwave power and reflect another portion, and create a standing wave of a certain size, mainly used for microwave measurement.

低互调负载 ↘
Coaxial Low PIM Termination

◎ 军事、太空和商业应用。
Military, space and commercial applications.

◎ 可根据要求提供定制设计。
Custom design available upon request.

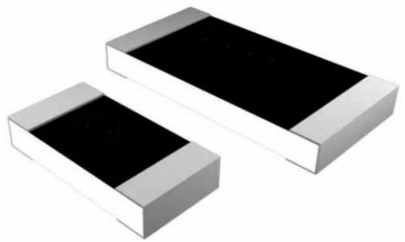
低互调负载是同轴负载的一种。低互调负载旨在解决无源互调问题，提高通信质量和效率。目前，多通道信号传输在通信设备中得到广泛应用。但现有的测试负载容易受到外界条件的干扰，导致测试结果不佳。而低互调负载可以用来解决这个问题。此外，它还具有同轴负载的以下特点。 同轴负载是微波无源单端口器件，广泛应用于微波电路和微波设备中。

Low intermodulation load is a type of coaxial load. The low intermodulation load is designed to solve the problem of passive intermodulation and improve communication quality and efficiency. At present, multi-channel signal transmission is widely used in communication equipment. However, the existing testing load is prone to interference from external conditions, resulting in poor test results. And low intermodulation loads can be used to solve this problem. In addition, it also has the following characteristics of coaxial loads.Coaxial loads are microwave passive single port devices widely used in microwave circuits and microwave equipment.

射频电阻 »»
RF resistor

- 贴片电阻
  Chip Resistor
- 引线/无法兰电阻
  Leaded Resistor
- 法兰电阻
  Flanged Resistor

贴片电阻 ↘
Chip Resistor



◎ 额定功率：2–30W
Rated power: 2–30W

◎ 基材材料：BeO、AIN、Al2O3
Substrate materials: BeO, AIN, Al2O3

◎ 标称电阻值：100Ω（10–3000Ω可选）
Nominal resistance value: 100 Ω (10–3000 Ω optional)

◎ 电阻容差：±5%、±2%、±1%
Resistance tolerance: ± 5%, ± 2%, ± 1%

◎ 温度系数：<150ppm/℃
Temperature coefficient: < 150ppm/℃

◎ 工作温度：–55~+150℃
Operation temperature: –55~+150 ℃

◎ ROHS标准：符合
ROHS standard: Compliant with

◎ 可根据要求提供定制设计。
Custom design available upon request.

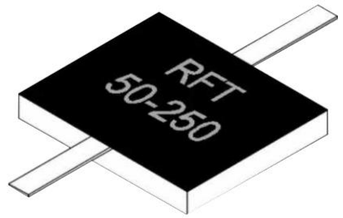
贴片电阻器广泛应用于电子设备和电路板中。其主要特点是

通过表面贴装技术（SMT）直接安装在电路板上，无需穿过穿孔或焊接引脚。与传统的插入式电阻器相比，片式电阻器的尺寸更小，从而使电路板设计更加紧凑。

Chip resistors are widely used in electronic devices and circuit boards. Its main feature is that it is mounted

directly on the board by surface mount technology (SMT), without the need to pass through perforation or solder pins.Compared to traditional plug–in resistors, chip resistors have a smaller size, resulting in a morecompact board design.

引线/无法兰电阻 ↘
Leaded Resistor



◎ 额定功率：10–400W
Rated power: 10–400W

◎ 基板材料：BeO、AIN
Substrate materials: BeO, AIN

◎ 标称电阻值：100Ω（10–3000Ω可选）
Nominal resistance value:
100 Ω (10–3000 Ω optional)

◎ 电阻容差：±5%、±2%、±1%
Resistance tolerance: ± 5%, ± 2%, ± 1%

◎ 温度系数：<150ppm/℃
Temperature coefficient: < 150ppm/℃

◎ 工作温度：–55~+150℃
Working temperature: –55~+150 ℃

◎ ROHS标准：符合
ROHS standard: Compliant with

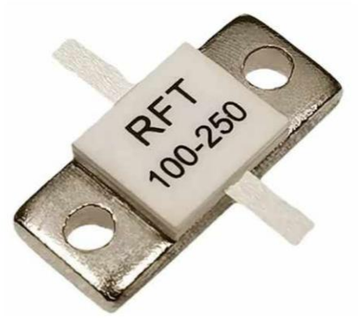
◎ 引线长度：L 如规格表中指定
Lead length: L as specified in the specification sheet

◎ 可根据要求提供定制设计。
Custom design available upon request.

引线电阻又称SMD二引线电阻，是电子电路中常用的无源元件之一，具有平衡电路的功能。它通过调节电路中的电阻值，达到电流或电压的平衡状态，从而实现电路的稳定工作。它在电子设备和通信系统中发挥着重要作用。引线电阻器是一种无需额外法兰的电阻器，通常通过焊接或贴装直接安装在电路板上。与法兰电阻相比，不需要特殊的固定和散热结构。

Leaded Resistors, also known as SMD two lead resistors, are one of the commonly used passive components in electronic circuits, which have the function of balancing circuits. It achieves stable operation of the circuit by adjusting the resistance value in the circuit to achieve a balanced state of current or voltage. It plays an important role in electronic devices and communication systems.The leaded resistor is a type of resistor without additional flanges, which is usually installed directly on a circuit board through welding or mounting. Compared to resistors with flanges, it does not require special fixing and heat dissipation structures.

法兰电阻 ↘
Flanged Resistor



- ◎ 额定功率：10–800W
  Rated power: 10–800W
- ◎ 基材材料：BeO、AIN、Al2O3
  Substrate materials: BeO, AIN, Al2O3
- ◎ 标称电阻值：100Ω（10–3000Ω可选）
  Nominal resistance value:
  100 Ω (10–3000 Ω optional)
- ◎ 电阻容差：±5%、±2%、±1%
  Resistance tolerance: ± 5%, ± 2%, ± 1%
- ◎ 温度系数：<150ppm/℃
  Temperature coefficient: < 150ppm/℃
- ◎ 工作温度：–55~+150℃
  Operation temperature: –55~+150 ℃
- ◎ 法兰涂层：可选镀镍或镀银
  Flange coating: optional nickel or silver plating
- ◎ ROHS标准：符合
  ROHS standard: Compliant with
- ◎ 引线长度：L 如规格表中指定
  Lead length: L as specified in the specification sheet
- ◎ 可根据要求提供定制设计。
  Custom design available upon request.

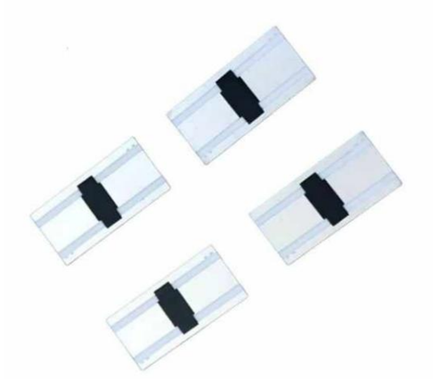
法兰电阻是电子电路中常用的无源元件之一，具有平衡电路的作用，通过调节电路中的电阻值，达到电流或电压的平衡状态，从而达到电路的稳定工作。它在电子设备和通讯系统中起着重要的作用。在电路中，当电阻值不平衡时，就会出现电流或电压分布不均匀，导致电路不稳定。法兰电阻可以通过调节电路中的阻值来平衡电流或电压的分布。法兰平衡电阻调节电路中的电阻值，使各支路的电流或电压均匀分配，从而实现电路的平衡运行。

Flanged resistor is one of the commonly used passive components in electronic circuits, which has the function of balancing the circuit.It achieves stable operation of the circuit by adjusting the resistance value in the circuit to achieve a balanced state of current or voltage. It plays an important role in electronic devices and communication systems.In a circuit, when the resistance value is imbalanced, there will be uneven distribution of current or voltage, leading to instability of the circuit. Flanged resistor can balance the distribution of current or voltage by adjusting the resistance in the circuit. The flange balance resistor adjusts the resistance value in the circuit to evenly distribute current or voltage in each branch, thus achieving balanced operation of the circuit.

射频衰减器
RF Attenuator

- ◎ 旋置微带衰减片
  Microstrip Attenuator
- ◎ 贴片衰减片
  Chip Attenuator
- ◎ 引线/无法兰衰减片
  leaded attenuator
- ◎ 法兰衰减片
  Flanged Attenuator
- ◎ 套筒衰减器
  Sleeve Attenuator
- ◎ 同轴衰减器
  Coaxial Attenuator
- ◎ 射频可调衰减器
  RF Variable Attenuator

旋置微带衰减片 ↘
Microstrip Attenuator



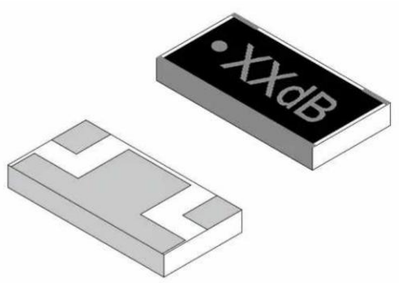
旋置微带衰减片是一种在微波频段内起到信号衰减作用的器件。将其制作成固定衰减器广泛应用于微波通信、雷达系统、卫星通信等领域，为电路提供可控的信号衰减功能。旋置微带衰减片与常用的贴片衰减芯片不同，需要组装成特定尺寸的风罩采用同轴连接实现信号从输入到输出的衰减。

可根据要求提供定制设计。

Microstrip Attenuator is a device that plays a role in signal attenuation within the microwave frequency band. Making it into a fixed attenuator is widely used in fields such as microwave communication, radar systems, satellite communication, etc., providing controllable signal attenuation function for circuits.Microstrip Attenuator chips, unlike the commonly used patch attenuation chips, need to be assembled into a specific size air hood using coaxial connection to achieve signal attenuation from input to output.

Custom design available upon request.

贴片衰减器 ↘
Chip Attenuator



片式衰减器是一种广泛应用于无线通信系统和射频电路中的微型电子器件。主要用于削弱电路中的信号强度，控制信号传输的功率，实现信号调节和匹配功能。

贴片衰减器具有小型化、高性能、宽带范围、可调性、可靠性等特点。

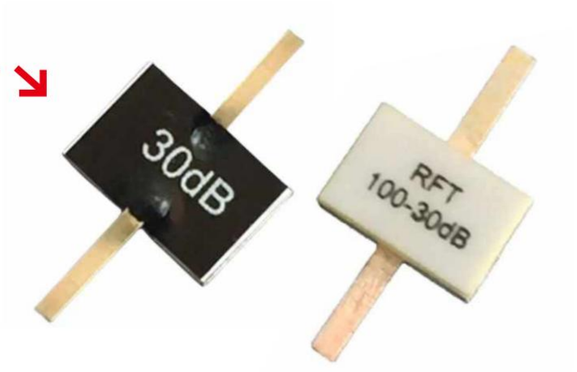
可根据要求提供定制设计。

Chip Attenuator is a micro electronic device widely used in wireless communication systems and RF circuits. It is mainly used to weaken the signal strength in the circuit, control the power of signal transmission, and achieve signal regulation and matching functions.

Chip attenuator has the characteristics of miniaturization, high performance, broadband range, adjustability, and reliability.

Custom design available upon request.

引线/无法兰衰减片 ↘
Leaded Attenuator



有引线/无法兰衰减片是一种广泛应用于电子领域的集成电路，主要用于调节和降低电信号的强度。它在无线通信、射频电路和其他需要信号强度控制的应用中发挥着重要作用。

引线/无法兰衰减片通常根据不同的功率和频率选择合适的基板材料{通常为氧化铝(Al2O3)、氮化铝(AlN)、氧化铍(BeO)等}，并采用电阻工艺(厚膜或薄膜)制成过程）。

可根据要求提供定制设计。

Leaded Attenuator is an integrated circuit widely used in the electronic field, mainly used to regulate and reduce the strength of electrical signals. It plays an important role in wireless communication, RF circuits, and other applications that require signal strength control.

Leaded Attenuators are typically made by selecting appropriate substrate materials {typically aluminum oxide(Al2O3), aluminum nitride(AlN), beryllium oxide(BeO), etc.} based on different power and frequency, and using resistance processes (thick film or thin film processes).

Custom design available upon request.

法兰衰减片 ↘
Flanged Attenuator

法兰衰减片是指带有安装法兰的射频引线衰减器。它是通过将射频引线衰减器焊接到法兰上而制成的。它具有与含铅衰减器相同的特性，并且具有更好的散热能力。法兰常用的材料是铜镀镍或镀银。衰减芯片是根据不同的功率要求和频率选择合适的尺寸和基板{通常是氧化铍(BeO)、氮化铝(AlN)、氧化铝(Al2O3)或其他更好的基板材料}，然后通过电阻烧结而成和电路印刷。法兰式衰减器是电子领域广泛应用的一种集成电路，主要用于调节和降低电信号的强度。它在无线通讯、射频电路、以及其他需要信号强度控制的应用。

可根据要求提供定制设计。

Flanged attenuator refers to an RF leaded attenuator with mounting flanges. It is made by welding the RF leaded attenuator onto the flange. It has the same characteristics as leaded attenuators and with better ability to dissipate heat. The material commonly used for flange is made of copper plated with nickel or silver. Attenuation chips are made by selecting appropriate sizes and substrates {usually beryllium oxide(BeO), aluminum nitride(AlN), aluminum oxide(Al2O3), or other better substrate materials} based on different power requirements and frequencies, and then sintering them through resistance and circuit printing. Flanged attenuator is an integrated circuit widely used in the electronic field, mainly used to regulate and reduce the strength of electrical signals. It plays an important role in wireless communication, RF circuits, and other applications that require signal strength control.

Custom design available upon request.

套筒衰减器 ↘
Microstrip Attenuator With Sleeve

套筒衰减器是指将具有特定衰减值的螺旋微带衰减芯片插入特定尺寸的金属圆管中（该管一般为铝材料，需要导电氧化，也可以镀金或镀银作为需要）。

可根据要求提供定制设计。

Microstrip attenuator with sleeve refers to a spiral microstrip attenuation chip with a specific attenuation value inserted into a metal circular tube of a specific size (the tube is generally made of aluminum material and requires conductive oxidation, and can also be plated with gold or silver as needed).

Custom design available upon request.

同轴衰减器 ↘
Coaxial Attenuator

同轴衰减器是用于降低同轴传输线路中信号功率的器件。它通常用于电子和通信系统中，以控制信号强度、防止信号失真并保护敏感组件免受功率过大的影响。

同轴衰减器一般由连接器（一般采用SMA、N、4.30–10、DIN等）、衰减芯片或芯片组（可分为法兰式：通常选择在较低频段使用，旋转式可以实现更高的衰减）组成。散热片（由于采用不同功率衰减的芯片组，发出的热量无法自行散发，所以需要给芯片组增加更大的散热面积。使用更好的散热材料可以使衰减器工作更加稳定。）

可根据要求提供定制设计。

Coaxial attenuator is a device used to reduce the signal power in a coaxial transmission line. It is commonly used in electronic and communication systems to control signal strength, prevent signal distortion, and protect sensitive components from excessive power.

Coaxial attenuators are generally composed of connectors (usually using SMA, N, 4.30–10, DIN, etc.), attenuation chips or chipsets (can be divided into flange type: usually selected for use in lower frequency bands, rotary type can achieve higher frequencies) Heat sink (Due to the use of different power attenuation chipsets, the heat emitted cannot be dissipated by itself, so we need to add a larger heat dissipation area to the chipset.Using better heat dissipation materials can make the attenuator work more stably.)

Custom design available upon request.

射频可调衰减器 ↘
RF Variable Attenuator

射频可调衰减器是一种用于控制信号强度的电子装置，可以根据需要降低或增加信号的功率电平。它通常广泛应用于无线通信系统、实验室测量、音频设备和其他电子领域。

射频可调衰减器的主要功能是通过调节信号通过的衰减量来改变信号的功率。它可以将输入信号的功率降低到所需值，以适应不同的应用场景。同时，射频可调衰减器还可以提供良好的信号匹配性能，保证输出信号准确稳定的频率响应和波形。

可根据要求提供定制设计。

Adjustable attenuator is an electronic device used to control signal strength, which can reduce or increase the power level of the signal as needed. It is usually widely used in wireless communication systems, laboratory measurements, audio equipment, and other electronic fields.

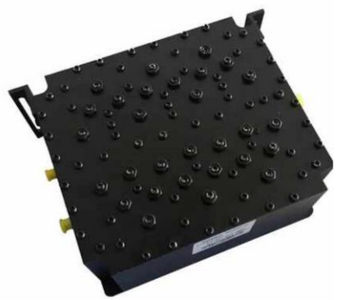
The main function of an adjustable attenuator is to change the power of the signal by adjusting the amount of attenuation it passes through. It can reduce the power of the input signal to the desired value to adapt to different application scenarios. At the same time, adjustable attenuators can also provide good signal matching performance, ensuring accurate and stable frequency response and waveform of the output signal.

Custom design available upon request.

射频滤波器
RF Filter

- ◎ 带通滤波器 Band Pass Filter
- ◎ 低通滤波器 Low Pass Filter
- ◎ 高通滤波器 High Pass Filter
- ◎ 带阻滤波器 Band Stop Filter

带通滤波器 ↘
Band Pass Filter



空腔双工器是一种特殊类型的双工器，用于无线通信系统中，用于在频域中分离发送和接收的信号。腔体双工器由一对谐振腔组成，每个谐振腔专门负责一个方向的通信。

腔体双工器的工作原理基于频率选择性，利用特定的谐振腔选择性地传输频率范围内的信号。具体来说，当信号被发送到腔体双工器时，它被传输到特定的谐振腔并以该腔体的谐振频率放大和传输。同时，接收到的信号保留在另一个谐振腔中，不会被传输或干扰。

可根据要求提供定制设计。

A cavity duplexer is a special type of duplexer used in wireless communication systems to separate transmitted and received signals in the frequency domain. The cavity duplexer consists of a pair of resonant cavities, each specifically responsible for communication in one direction.

The working principle of a cavity duplexer is based on frequency selectivity, which uses a specific resonant cavity to selectively transmit signals within the frequency range. Specifically, when a signal is sent into a cavity duplexer, it is transmitted to a specific resonant cavity and amplified and transmitted at the resonant frequency of that cavity. At the same time, the received signal remains in another resonant cavity and will not be transmitted or interfered with.

Custom design available upon request.

低通滤波器 ↘
Low Pass Filter

低通滤波器用于透明地通过高频信号，同时阻止或衰减高于特定截止频率的频率分量。

低通滤波器在截止频率以下具有高磁导率，也就是说，低于该频率通过的信号几乎不受影响。高于截止频率的信号会被滤波器衰减或阻挡。

可根据要求提供定制设计。

Low-pass filters are used to transparently pass high frequency signals while blocking or attenuating frequency components above a specific cutoff frequency.

The low-pass filter has high permeability below the cut-off frequency, that is, signals passing below that frequency will be virtually unaffected. Signals above the cut-off frequency are attenuated or blocked by the filter.

Custom design available upon request.

高通滤波器 ↘
High Pass Filter

高通滤波器用于透明地传递低频信号，同时阻止或衰减低于特定截止频率的频率分量。

高通滤波器有一个截止频率，也称为截止阈值。这是指滤波器开始衰减低频信号的频率。例如，10MHz 高通滤波器将阻止低于 10MHz 的频率分量。

可根据要求提供定制设计。

High–pass filters are used to pass low–frequency signals transparently while blocking or attenuating frequency components below a specific cutoff frequency.

High–pass filter has a cutoff frequency, also known as a cutoff threshold. This refers to the frequency at which the filter begins to attenuate the low–frequency signal. For example, a 10MHz high–pass filter will block frequency components below 10MHz.

Custom design available upon request.

带阻滤波器 ↘
Band Stop Filter

带阻滤波器能够阻止或衰减特定频率范围内的信号，而该范围之外的信号则保持透明。

带阻滤波器有两个截止频率，一个低截止频率和一个高截止频率，形成一个称为“通带”的频率范围。通带范围内的信号很大程度上不受滤波器的影响。带阻滤波器在通带范围之外形成一个或多个称为“阻带”的频率范围。阻带范围内的信号被滤波器衰减或完全阻挡。

Band–stop filters have the ability to block or attenuate signals in a specific frequency range, while signals outside that range remain transparent through.

Band–stop filters have two cutoff frequencies, a low cutoff frequency and a high cutoff frequency, forming a frequency range called the “passband”. Signals in the passband range will be largely unaffected by the filter. Band–stop filters form one or more frequency ranges called “stopbands” outside the passband range. The signal in the stopband range is attenuated or completely blocked by the filter.

射频功率分配器
RF Power Divider

多路功率分配器是无线通信系统和射频电路中使用的重要元件。它由1个输入端口和多个输出端口组成，用于将输入信号分配给多个输出端口。它通过实现均匀功率分配和恒定相位分配来实现信号分离和功率分配。一般要求驻波性能好、隔离度高、带内平坦度好。

可根据要求提供定制设计。

The multi-path power divider is an important component utilized in wireless communication systems and radio frequency (RF) circuits. It comprises one input port and multiple output ports, designed to distribute the input signal among multiple output ports. It accomplishes signal splitting and power distribution by achieving uniform power distribution and constant phase allocation. Generally, it is required to have excellent standing wave performance, high isolation, and good in-band flatness.

Custom design available upon request.

射频定向耦合器
RF Directional Coupler

- 低 PIM 耦合器组合或开路
  Low PIM Couplers Combined Or Open Circuit
- 射频耦合器（3dB、10dB、20dB、30dB）
  RF Coupler (3dB, 10dB, 20dB, 30dB)

低 PIM耦合器组合或开路 ↘
Low PIM Couplers Combined Or Open Circuit

低互调耦合器是无线通信系统中广泛使用的一种器件，用于降低无线设备中的互调失真。互调失真是指多个信号同时通过非线性系统，导致出现不存在的频率分量，干扰其他频率分量，导致无线系统性能下降的现象。

在无线通信系统中，通常使用低互调耦合器将输入高功率信号与输出信号分离，以减少互调失真。

Low intermodulation coupler is a device widely used in wireless communication systems to reduce intermodulation distortion in wireless devices. Intermodulation distortion refers to the phenomenon where multiple signals pass through a nonlinear system at the same time, resulting in the appearance of non existing frequency components that interfere with other frequency components, leading to a decrease in wireless system performance.

In wireless communication systems, low intermodulation couplers are usually used to separate the input high-power signal from the output signal to reduce intermodulation distortion.

射频耦合器 ↘
（3dB、10dB、20dB、30dB）
RF Coupler (3dB, 10dB, 20dB, 30dB)

耦合器是一种常用的射频微波器件，用于将输入信号按比例分配到多个输出端口，每个端口的输出信号具有不同的幅度和相位。广泛应用于无线通信系统、雷达系统、微波测量设备等领域。

耦合器按结构可分为微带耦合器和腔耦合器两种。微带耦合器内部主要由两条微带线组成的耦合网络组成，而腔体耦合器内部仅由两条金属条组成。

A coupler is a commonly used RF microwave device used to proportionally distribute input signals to multiple output ports, with output signals from each port having different amplitudes and phases. It is widely used in wireless communication systems, radar systems, microwave measurement equipment, and other fields.

Couplers can be divided into two types according to their structure: microstrip and cavity. The interior of the microstrip coupler is mainly composed of a coupling network composed of two microstrip lines, while the interior of the cavity coupler is just composed of two metal strips.

射频混合合路器
RF Power Divider

射频混合组合信号组合和扩增 ↘
RF Hybrid Combiner Signal Combination And Amplification

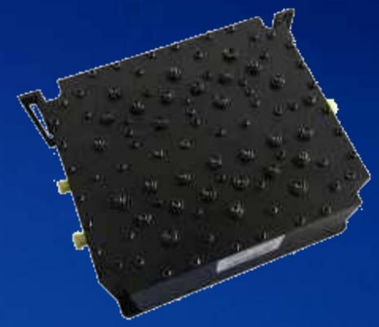
射频混合合路器作为无线通信系统和雷达等射频电子器件的关键部件，得到了广泛的应用。其主要功能是将输入的射频信号进行混频，输出新的混频信号。射频混合合路器具有损耗低、驻波小、隔离度高、幅相平衡好、多路输入输出等特点。

射频混合合路器的特点是能够实现输入信号之间的隔离。这意味着两个输入信号不会互相干扰。这种隔离对于无线通信系统和射频功率放大器非常重要，因为它可以有效防止信号交叉干扰和功率损耗。

RF hybrid combiner, as a key component of wireless communication systems and radar and other RF electronic devices, has been widely used. Its main function is to mix input RF signals and output new mixed signals.RF Hybrid Combiner has the characteristics of low loss, small standing wave, high isolation, good amplitude and phase balance, and multiple inputs and outputs.

RF Hybrid Combiner is its ability to achieve isolation between input signals. This means that the two input signals will not interfere with ea

射频双工器
Products



射频双工器 ↘
RF Duplexer

空腔双工器是一种特殊类型的双工器，用于无线通信系统中，用于在频域中分离发送和接收的信号。腔体双工器由一对谐振腔组成，每个谐振腔专门负责一个方向的通信。

腔体双工器的工作原理基于频率选择性，利用特定的谐振腔选择性地传输频率范围内的信号。具体来说，当信号被发送到腔双工器时，它被传输到特定的谐振腔并以该腔的谐振频率放大和传输。同时，接收到的信号保留在另一个谐振腔中，不会被传输或干扰。

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05 技术能力 technical capability

06 质量保证 Quality Assurance

BTCC-QMS

北京天一正认证中心有限公司

（本中心位于北京市西城区北礼士路 98 号、甲 98 号 1 幢五层 506 室）

质量管理体系认证证书

注　册　号：02622Q30173R1S
统一社会信用代码：91510704MA63TLYB2W

兹证明

四川省天亚通科技有限公司

注册地址：四川省绵阳市经开区塘汛镇塘坊大道 677 号积家工业园 4 栋 6 楼 A 区
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质量管理体系符合

GB/T 19001-2016 / ISO 9001:2015 标准

质量管理体系认证所覆盖的范围

微波元器件的研发、生产。

总经理：

初次颁证日期：2018年 12月21日
上周期截止日期：2021年12月20日
再认证审核日期：2021年01月18日
至 2021年01月19日
证书生效日期：2022年02月21日
证书有效期至：2024年12月20日

中国认可
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北京天一正认证中心有限公司

（本中心位于北京市西城区北礼士路 98 号、甲 98 号 1 幢五层 506 室）

武器装备质量管理体系认证证书

注　册　号：02622J30332R1S
统一社会信用代码：91510704MA63TLYB2W

兹证明

四川省天亚通科技有限公司

注册地址：四川省绵阳市经开区塘汛镇塘坊大道 677 号积家工业园 4 栋 6 楼 A 区
审核地址：四川省绵阳市经开区塘汛镇塘坊大道 677 号积家工业园 4 栋 6 楼 A 区

质量管理体系符合

GJB 9001C-2017 标准

质量管理体系认证所覆盖的范围

微波元器件的研发、生产。

（注：获证组织必须定期接受监督，审核合格后此证书继续有效）

总经理：

初次颁证日期：2018年 12月21日
上周期截止日期：2021年12月20日
再认证审核日期：2021年01月18日
至 2021年01月19日
证书生效日期：2022年02月21日
证书有效期至：2024年12月20日

中国航天

注：本认证证书的有效性请登陆公司网站（www.btcc.com.cn）查询。

CTI 华测检测

ilac-MRA CNAS 中国认可 国际互认 检测 TESTING CNAS L4429

Test Report

Report No. A22400451961010001 Page 1 of 7

Company Name shown on Report: SICHUAN TYT TECHNOLOGY CO.,LTD.

Address: 218# WENWU MIDDLE ROAD, JINKAI DISTRICT, MIANYANG, SICHUAN PROVINCE CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name	RF Attenuator
Sample Received Date	Jan. 22, 2024
Testing Period	Jan. 22, 2024 to Jan. 26, 2024
Test Requested	As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP) in the submitted sample(s).
Test Method	Please refer to the following page(s).
Test Result(s)	Please refer to the following page(s).

Conclusion

Tested Sample	According to standard/directive	Result
Submitted Sample	RoHS Directive 2011/65/EU with amendment (EU) 2015/863	PASS

PASS means that the results shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.

Approved by: Song Yan
Song Yan
Technical Manager

Date: Jan. 26, 2024

No. R449759718

Certification Testing International(Suzhou) Co.,Ltd
No.3286Chengyang Road, Xiangcheng District, Suzhou,Jiangsu

Hotline:400-6788-333 www.cti-cert.com E-mail:info@cti-cert.com Complaint call:0755-33681700 Complaint E-mail:complaint@cti-cert.com

07 应用领域 Application Fields

产品广泛应用于雷达、仪器仪表、导航、微波多路通信、空间技术、移动通信、图像传输、微波集成电路等系统。

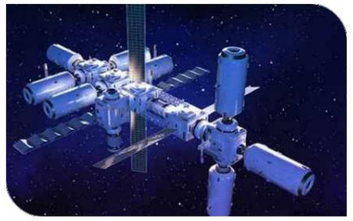
The products are widely used in systems such as radar, instrumentation, navigation, microwave multi-channel communication, space technology, mobile communication, image transmission, microwave integrated circuits, and more.

射频无源产品专业供应商
Professional Supplier of
RF Passive Products

射频器件在空间技术中的应用
Application of RF Devices in spaceTechnology

射频器件在空间技术中发挥着至关重要的作用，广泛应用于通信、导航、遥感等领域。

RF devices play a crucial role in space technology and are widely used in fields such as communication, navigation, remote sensing, and more.



射频器件在微波多通道中的应用
The Application Of Rf Devices In Microwave Multichannels

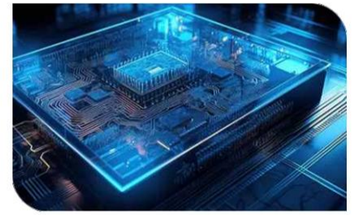
射频器件在微波多通道系统中有着广泛的应用，涉及到信号的传输、接收和处理。

RF devices have a wide range of applications in microwave multi-channel systems, involving signal transmission, reception, and processing.

射频器件在微波集成电路中的应用
Application of RF Devices inMicrowave Integrated Circuits

射频器件在微波集成电路(RFIC)中有着广泛的应用。RFIC是指集成射频功能的集成电路，通常用于无线通信、雷达系统、卫星通信和其他微波应用。

RF devices have a wide range of applications in microwave integrated circuits (RFICs). RFICs refer to integrated circuits that integrate RF functionalities, and are commonly used in wireless communication, radar systems, satellite communication, and other microwave applications.



08 出口能力 export capacity

我们的服务不仅仅是销售单一产品，更重要的是我们能够为客户提供全面的技术服务

Our services go beyond the mere sale of a single product; more importantly, we are able to provide comprehensive technical services to our customers.

09 服务能力 service capability

售前服务

我们拥有专业的销售人员，可以为客户提供全面的产品信息，并及时回答客户问题，支持选择最合适的产品解决方案。

售中服务

我们不仅提供产品销售，还提供安装规范和咨询服务，以确保客户熟练使用产品。同时，我们还会及时跟进项目进展，并及时解决客户遇到的任何问题。

售后服务

四川省天亚通科技有限公司提供全面的售后服务。如果客户在使用我们的产品时遇到问题，他们随时可以联系我们的技术人员解决。

为客户创造价值

总之，我们的服务不仅仅是销售单一产品，更重要的是，我们能够为客户提供全面的技术服务，为他们的需求和问题提供专业的答案和帮助。我们始终坚持“为客户创造价值”的服务理念，确保客户获得高质量的服务。

Pre-sales Service

We have professional sale personnels who can provide customers with comprehensive product information and answer customer questions in time to support to choose the most suitable product solution

In sales service

We not only provide product sales, but also provide installation specifications and consulting services to ensure that customers are proficient in using the product. At the same time, we will also keep up with the progress of the project and promptly solve any problems encountered by customers.

After-sale service

RFTYT Technology provides comprehensive after-sales service. If customers encounter problems while using our products, they can contact our technical personnel at any time to solve them.

Creating value for customers

In short, our service is not only about selling a single product, but more importantly, we are able to provide comprehensive technical services to customers, providing professional answers and assistance to their needs and problems. We always adhere to the service concept of ”creating value for customers”, ensuring that customers receive high-quality service.

10 销售网络 sales network

目前，公司已建立强大的销售网络，完整的服务体系，产品不仅销售本国各地，还出口到世界10多个国家和地区。以高标准的产品质量和专业的售前售后服务赢得了国内外客户的好评。

At present, the company has established a strong sales network and a complete service system. The prod.ucts are not only sold all over the country, but also exported to more than 10 countries and regions in theworld. With high standard product quality and professional pre-sales and after-sales service, it has won praisefrom domestic and foreian customers.

联系方式 contact

四川省天亚通科技有限公司
Sichuan TYT Technology Co., Ltd.

International Sales Department/国际销售部

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Email：sales@rftyt.com

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Landline：+86-0816-2846565
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Domestic Sales Department/国内销售部

联系人:文女士
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Add: 4th Floor, Gate 3, Building 9, Jingkai Electronic Manufacturing Industrial Park, Wenwu Middle Road, Tangxun Town, Fucheng District, Mianyang City, Sichuan Province