AMPHARS

RF&
Microwave

Devices
Components

Isolators
Circulators

Attenuators
Adapters
Terminations

Company Introduction

Amphars operations were initiated in October 2000 through the establishment of a former Aeroflex representative office to oversee local third party manufacturing logistics and subcontract activities. In 2001, the formation of Aeroflex(Nanjing) Co., Ltd. as a subsidiary organized under Chinese Law, facilitated the expansion of our operation to include Aeroflex research and development, manufacturing, test, quality assurance, sales and related RF devices, components and subsystems.

Aeroflex(Nanjing) operations in China are concentrated in three areas that include product development and manufacturing for our North American and European customers with operations in China; Product manufacturing for a growing list of domestic China-based OEMs; and to provide low-cost manufacturing of Aeroflex-produced designs for customers throughout the world. Aeroflex Nanjing supplies high power cable terminations, SMA terminations and Ferrite Circulators and Isolators.

Aeroflex Nanjing occupies over 2000 square meters facility located in Nanjing China's Jiangning new economic and technology development zone and is certified to ISO9001:2000 standards.

In 2004, Aeroflex acquired by Cobham plc, a UK-listed company that designs and manufactures a wide range of equipment, specialized systems and components for the aerospace, defense, energy, and electronics industries. Aeroflex/Nanjing was as its only subsidiary in China with all-business.

Company Capatilities

Amphars Microelectronics (Nanjing) Co., Ltd concentrates on research and development, manufacturing, test, quality assurance, related RF devices, components and subsystems. Aeroflex Nanjing stresses innovative solution-minded products. Our customer-focused approach brings flexibility, creativity and cost-effectiveness to our diverse markets.

Amphars offers advanced technologies, broad capabilities, engineering expertise, manufacturing facilities, and proven product experience. We will happily consult on your high-power requirements and can develop and manufacture for your cost-effective products that are delivered right and on time. That's the Amphars Nanjing guarantee.

HERE'S WHAT WE CAN DO FOR YOU

- Design to specification
- Build to print
- Build to print with some redesign
- Standard designs covering multiple frequencies

OUR PRODUCTS FEATURE

- Low VSWR
- Low Insertion Loss
- Low Passive Intermodulation
- High Isolation
- Compact Size

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Coaxial Fixed Attenuators, Adapters & Terminations

FAQ …

Fixed coaxial attenuator

As the name implies RF attenuators reduce the level of the signal, i.e. they attenuate the signal. An attenuator is effectively the opposite of an amplifier, though the two work by different methods. While an amplifier provides gain, an attenuator provides loss, or gain less than 1. This attenuation may be required to protect a circuit stage from receiving a signal level that is too high. Also an attenuator may be used to provide an accurate impedance match as most fixed attenuators offer well-defined impedance, or attenuators may be used in a variety of areas where signal levels need to be controlled.

There are many used for these RF attenuators and although these may not seem obvious initially when asking what is an attenuator, they are widely used in RF applications.

- **Type of attenuators**

  Attenuators can be categorized in a number of ways according to their capabilities and the technologies they use – Fixed RF attenuator, Switched RF attenuators and Variable RF attenuators; there are a number of ways in which attenuators can be designed and made - Resistor RF attenuators, PIN diode RF attenuators, and FET RF attenuators.

  Fixed RF attenuator, as the name implies fixed attenuators have a specific value and this cannot be changed. They may come in a variety of formats from small in-line items in a similar format to connector adaptors to those in small boxes with connectors on the ends to those incorporated within equipment.

- **Attenuator specifications**

  When designing, purchasing or using an RF attenuator it is necessary to be able to specify it to ensure that an attenuator with the correct performance is obtained. While some of the major specifications are detailed below, for some applications other parameters may need to be specified.

  1. ***Attenuation:*** This is the primary specification for an RF attenuator. It is the ratio between the output and the input power levels and is typically quoted in decibels (dB).
  2. ***Attenuation accuracy:*** It is often necessary to know the accuracy of the level of the attenuation of the attenuator. Particularly in applications where equipment is being tested, the attenuation accuracy is likely to be important. In these cases a tolerance on the nominal level of attenuation will be given.
  3. ***Frequency response:*** The level of attenuation of an attenuator will vary with frequency. This can result from the frequency dependence of the resistors or other components used in the RF attenuator, or where coupling between the input and output may exist as this will be frequency dependent. Some RF attenuators where the absolute level of attenuation is important may be provided with calibration charts measuring the absolute attenuation at different spot frequencies over a frequency band.
  4. ***Impedance:*** RF attenuators will be designed for use in systems with a given characteristic impedance. 50 ohms is the most common, although 75 ohms is also used, and it may be possible to obtain RF attenuators with other impedance values should the need arise.
  5. ***Power dissipation:*** In order to reduce the signal level, RF attenuators dissipate or absorb the unwanted power. For many small signal applications, power dissipation is not an issue, but for other applications where signal levels are higher, it is necessary to ensure that the RF attenuator will satisfactorily be able to handle the power levels anticipated. Power capabilities for RF attenuators may be quoted in Watts (or mill watts) or as dBW - decibels relative one Watt (or dBm - decibels relative to a mill watt).
  6. ***Mechanical details of the attenuator:*** The mechanical details may include aspects such as the size and weight. The connectors may be included in this area of the attenuator specification.
  7. ***Environmental details:*** Many applications for attenuators are for use within benign conditions such as a laboratory environment. Environmental conditions would not be an issue. However for some applications it is possible that an environmental is required to detail factors such as vibration, temperature, humidity and the like.

- **Attenuator Applications**

  RF attenuators are used in a wide variety of applications in RF circuits. They are a key building block used in many areas of RF design:

  1. *Reduce signal level:* The basic concept behind an attenuator is to reduce the signal level. This can be required to control levels within a circuit to keep them within the required range.
  2. *Improve impedance match:* By its very nature an impedance matched RF attenuator will improve the impedance match. This can be very useful when driving RF mixers that are match sensitive and their performance will be degraded if a poor match is seen.
  3. *Variable level control:* RF attenuators can be used for level control on the output of items such as signal generators. It is far better to be able to generate an accurate fixed level from the basic generator and then used switch attenuators to reduce the signal to the required level.

  RF attenuators are used widely within RF circuits for a variety of reasons.

RF termination

Also, known as RF loads and dummy loads

An RF Coaxial Termination is a passive 1-port interconnect device, which provides a resistive power termination to properly terminate the output port of a device under test (DUT) or to terminate one end of an RF test cable. These devices can be used in the field, to possibly terminate the unused port of a multiport RF coaxial switch or of a directional coupler. Mainly, however, these impedance termination devices are used in various factory or laboratory Test & Measurement applications.

RF Coaxial Terminations are available in various power ratings and in a wide variety of standard coaxial connector types (e.g., N, SMA, BNC). They can also provide a variety of impedances, such as a short-circuit termination. More typically, however, these terminations provide a "matching impedance" – either 50 Ω or 75 Ω – to match the characteristic impedance of a particular coaxial cable or transmission system. Some RF Coaxial Terminations include a heat sink to dissipate substantial RF power (up to its rated power value). Specific attributes which are important in selecting the right RF Coaxial Termination for your application include the Series for the coaxial connector type (N, SMA, BNC, etc.), its Gender (Male or Female), and its nominal Impedance value, in Ohms (50 or 75Ω).

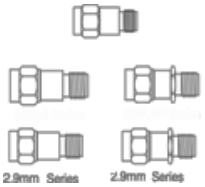
RF adapter

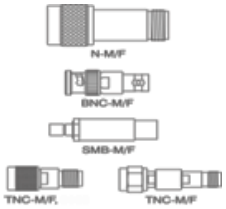
We offer a full gender family of straight and right-angle adapters in different connector options, to cover applications ranging from DC–65 GHz. These adapters come standard in a passivated stainless steel body with a captivated Beryllium Copper center conductor to ensure mating repeatability. In addition, options such as gold-plated housing or no captivated center conductor are also available to fit the desired application. All of our adapters are 100% tested to ensure optimum performance over their respective frequency range.

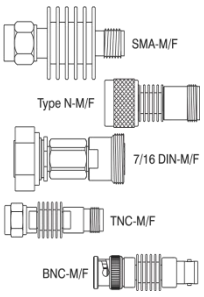
In addition to our standard offering, Aeroflex/Nanjing has also built a vast library of modified designs from the myriad of custom solutions we have delivered to our customers. We offer a variety of customized options for adapters, which include non-standard lengths, different connector options, additional testing, etc. Our team of dedicated Engineers can help develop the right solution for your application needs.

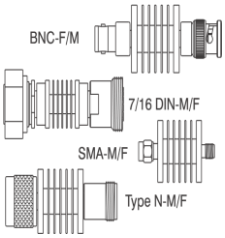
Attenuator Reference Guide

MODEL NO.	FREQ. (GHz)	CONNECTOR	VSWR	ATTN (dB)
0.5 Watt, 1 Watt and 2 Watt Attenuators				
ATT03SMA	3	SMA-M/F	1.20:1	1-10,12,15,20,30
ATT06SMA	6	SMA-M/F	1.20:1	1-10,12,15,20,30
ATT18SMA	18	SMA-M/F	1.60:1	0-10,12,15,20,30
ATT23SMA	23	SMA-M/F, M/M, F/F	1.40:1	0-10,12,15,20,30,40
ATT26K	26.5	2.9mm-M/F	1.40:1	0,3,6,10,20,30
ATT40K	40	2.9mm-M/F	1.40:1	0,3,6,10,20,30
ATT40V	40	2.4mm-M/F	1.60:1	0,3,6,10,20,30
ATT50V	50	2.4mm-M/F	1.75:1	0,3,6,10,20,30
2 Watt Attenuators, N, BNC, SMB, TNC, GPO™, SMP, SMPM				
ATT06N	6	N-M/F	1.25:1	1-10,12,15,20,30,40
ATTO3N	2.5	N-M/F, M/M, F/F	1.15:1	0-10,12,15,20,30,40,50,60
ATT18N	18	N-M/F, M/M, F/F	1.35:1	0-10,12,15,20,30,40,50,60
ATT04BNC	4	BNC-M/F	1.25:1	0-10,12,15,20,30
ATT04SMB	4	SMB-M/F, M/M, F/F	1.25:1	0-12,15,20,30
ATT03TNC	2.5	TNC-M/F	1.25:1	0-10,12,15,20,30,40
ATT12TNC	12.4	TNC-M/F	1.25:1	0-10,12,15,20,30,40
ATT18TNC	18	TNC-M/F, M/M, F/F	1.35:1	0-10,12,15,20,30,40,50,60
5 Watt Attenuators, Convection Cooled				
ATT06SMA5W	6	SMA-M/F, M/M, F/F	1.20:1	0-12,15,20,30,40
ATT18SMA5W	18	SMA-M/F, M/M, F/F	1.35:1	0-10,12,15,20,30,40
ATT06N5W	6	N-M/F, M/M, F/F	1.20:1	0-12,15,20,30,40
ATT18N5W	18	N-M/F, M/M, F/F	1.35:1	0-10,12,15,20,30,40
ATT05DIN5W	2.5	7/16 DIN-M/F, M/M, F/F	1.25:1	0-12,15,20,30,40
ATT07DIN5W	7.5	7/16 DIN-M/F, M/M, F/F	1.45:1	0-12,15,20,30,40
ATTO4BNC5W	4	BNC-M/F, M/M, F/F	1.25:1	0-12,15,20,30,40
ATT06TNC5W	6	TNC-M/F, M/M, F/F	1.20:1	0-12,15,20,30,40
ATT18TNC5W	18	TNC-M/F, M/M, F/F	1.35:1	0-10,12,15,20,30,40
10 Watt Attenuators, Convection Cooled				
ATT06SMA10W	6	SMA-M/F, M/M, F/F	1.20:1	0-10,12,20,30,40
ATT18SMA10W	18	SMA-M/F, M/M, F/F	1.40:1	0-10,12,20,30,40
ATT06N10W	6	N-M/F, M/M, F/F	1.20:1	0-10,12,20,30,40
ATT18N10W	18	N-M/F, M/M, F/F	1.40:1	0-10,12,20,30,40
ATT03DIN10W	2.5	7/16 DIN, M/F, M/M, F/F	1.25:1	0-10,12,20,30,40
ATT07DIN10W	7.5	7/16 DIN-M/F, M/M, F/F	1.45:1	0-10,12,20,30,40
ATT04BNC10W	4	BNC-M/F, M/M, F/F	1.25:1	0-10,12,15,20,30
ATT06TNC10W	6	TNC-M/F, M/M, F/F	1.20:1	0-10,12,20,30,40
ATT18TNC10W	18	TNC-M/F, M/M, F/F	1.40:1	0-10,12,20,30,40
20 Watt Attenuators, Convection Cooled				
ATT06SMA20W	6	SMA-M/F, M/M, F/F	1.20:1	0,3,6,10,20,30,40





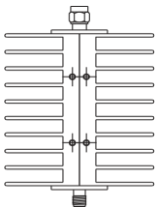




ATT18SMA20W	18	SMA-M/F, M/M, F/F	1.40:1	0,3,6,10,20,30,40
ATT06N20W	6	N-M/F, M/M, F/F	1.20:1	0,3,6,10,20,30,40
ATT18N20W	18	N-M/F, M/M, F/F	1.40:1	0,3,6,10,20,30,40
ATT03DIN20W	2.5	7/16 DIN-M/F, M/M, F/F	1.25:1	0,3,6,10,20,30,40
ATT07DIN20W	7.5	7/16 DIN-M/F, M/M, F/F	1.45:1	0,3,6,10,20,30,40
ATT04BNC20W	4	BNC-M/F, M/M, F/F	1.25:1	0,3,6,10,20,30,40
ATT06TNC20W	6	TNC-M/F, M/M, F/F	1.20:1	0,3,6,10,20,30,40
ATT18TNC20W	18	TNC-M/F, M/M, F/F	1.40:1	0,3,6,10,20,30,40

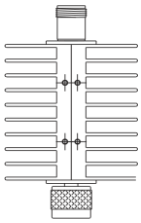
25 Watt Attenuators, Convection Cooled

ATT06SMA25W	6	SMA-M/F, M/M, F/F	1.20:1	0,3,6,10,20,30,40
ATT18SMA25W	18	SMA-M/F, M/M, F/F	1.40:1	0,3,6,10,20,30,40
ATT06N25W	6	N-M/F, M/M, F/F	1.20:1	0,3,6,10,20,30,40
ATT18N25W	18	N-M/F, M/M, F/F	1.40:1	0,3,6,10,20,30,40
ATT03DIN25W	2.5	7/16 DIN-M/F, M/M, F/F	1.25:1	0,3,6,10,20,30,40
ATT07DIN25W	7.5	7/16 DIN-M/F, M/M, F/F	1.45:1	0,3,6,10,20,30,40
ATT03BNC25W	2.5	BNC-M/F, M/M, F/F	1.25:1	0,3,6,10,20,30,40
ATT04BNC25W	4	BNC-M/F, M/M, F/F	1.25:1	0,3,6,10,20,30,40
ATT06TNC25W	6	TNC-M/F, M/M, F/F	1.20:1	0,3,6,10,20,30,40
ATT18TNC25W	18	TNC-M/F, M/M, F/F	1.40:1	0,3,6,10,20,30,40



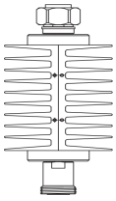
50 Watt Attenuators, Convection Cooled

ATT06SMA50W	6	SMA-M/F, M/M, F/F	1.25:1	0,3,6,10,20,30,40
ATT18SMA50W	18	SMA-M/F, M/M, F/F	1.45:1	0,3,6,10,20,30,40
ATT06SMA50W	6	N-M/F, M/M, F/F	1.25:1	0,3,6,10,20,30,40
ATT18N50W	18	N-M/F, M/M, F/F	1.45:1	0,3,6,10,20,30,40
ATT03DIN50W	2.5	7/16 DIN-M/F, M/M, F/F	1.25:1	0,3,6,10,20,30,40
ATT07DIN50W	7.5	7/16 DIN-M/F, M/M, F/F	1.45:1	0,3,6,10,20,30,40
ATT04BNC50W	4	BNC-M/F, M/M, F/F	1.25:1	0,3,6,10,20,30,40
ATT06TNC50W	6	TNC-M/F, M/M, F/F	1.25:1	0,3,6,10,20,30,40
ATT18TNC50W	18	TNC-M/F, M/M, F/F	1.45:1	0,3,6,10,20,30,40



100Watt Attenuators, Conduction Cooled

ATT03SMA100W	2.5	SMA-M/F, M/M, F/F	1.35:1	3,6,10,20,30,40
ATT06SMA100W	6	SMA-M/F, M/M, F/F	1.45:1	3,6,10,20,30,40
ATT03N100W	2.5	N-M/F, M/M, F/F	1.35:1	3,6,10,20,30,40
ATT06N100W	6	N-M/F, M/M, F/F	1.45:1	3,6,10,20,30,40
ATT03DIN100W	2.5	7/16 DIN-M/F, M/M, F/F	1.35:1	3,6,10,20,30,40
ATT06DIN100W	6	7/16 DIN-M/F, M/M, F/F	1.45:1	3,6,10,20,30,40
ATT03BNC100W	2.5	BNC-M/F, M/M, F/F	1.35:1	3,6,10,20,30,40
ATT04BNC100W	4	BNC-M/F, M/M, F/F	1.45:1	3,6,10,20,30,40
ATT03TNC100W	2.5	TNC-M/F, M/M, F/F	1.35:1	3,6,10,20,30,40
ATT06TNC100W	6	TNC-M/F, M/M, F/F	1.45:1	3,6,10,20,30,40



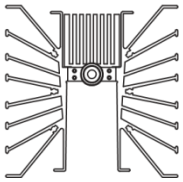
150 Watt Attenuators, Convection Cooled

ATT03SMA150W	2.5	SMA-M/F, M/M, F/F	1.25:1	3,6,10,20,30,40
ATT04SMA150W	4	SMA-M/F, M/M, F/F	1.35:1	3,6,10,20,30,40
ATT03N150W	2.5	N-M/F, M/M, F/F	1.25:1	3,6,10,20,30,40

ATT04N150W	4	N-M/F, M/M, F/F	1.35:1	3,6,10,20,30,40
ATT03DIN150W	2.5	7/16 DIN-M/F, M/M, F/F	1.30:1	3,6,10,20,30,40
ATT04DIN150W	4	7/16 DIN-M/F, M/M, F/F	1.40:1	3,6,10,20,30,40
ATT03TNC150W	2.5	TNC-M/F, M/M, F/F	1.25:1	3,6,10,20,30,40
ATT04TNC150W	4	TNC-M/F, M/M, F/F	1.35:1	3,6,10,20,30,40

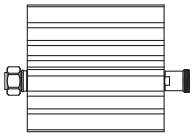
200 Watt Attenuators, Convection Cooled

ATT03SMA200W	2.5	SMA-M/F, M/M, F/F	1.25:1	3,6,10,20,30,40
ATT04SMA200W	4	SMA-M/F, M/M, F/F	1.50:1	3,6,10,20,30,40
ATT03N200W	2.5	N-M/F, M/M, F/F	1.25:1	3,6,10,20,30,40
ATT04N200W	4	N-M/F, M/M, F/F	1.50:1	3,6,10,20,30,40
ATT03DIN200W	2.5	7/16 DIN-M/F, M/M, F/F	1.25:1	3,6,10,20,30,40
ATT04DIN200W	4	7/16 DIN-M/F, M/M, F/F	1.50:1	3,6,10,20,30,40
ATT03TNC200W	2.5	TNC-M/F, M/M, F/F	1.25:1	3,6,10,20,30,40
ATT04TNC200W	4	TNC-M/F, M/M, F/F	1.50:1	3,6,10,20,30,40



300 Watt Attenuators, Convection Cooled

ATT03SMA300W	2.5	SMA-M/F, M/M, F/F	1.25:1	3,6,10,20,30,40
ATT04SMA300W	4	SMA-M/F, M/M, F/F	1.50:1	3,6,10,20,30,40
ATT03N300W	2.5	N-M/F, M/M, F/F	1.25:1	3,6,10,20,30,40
ATT04N300W	4	N-M/F, M/M, F/F	1.50:1	3,6,10,20,30,40
ATT03DIN300W	2.5	7/16 DIN-M/F, M/M, F/F	1.25:1	3,6,10,20,30,40
ATT04DIN300W	4	7/16 DIN-M/F, M/M, F/F	1.50:1	3,6,10,20,30,40
ATT03TNC300W	2.5	TNC-M/F, M/M, F/F	1.25:1	3,6,10,20,30,40
ATT04TNC300W	4	TNC-M/F, M/M, F/F	1.50:1	3,6,10,20,30,40

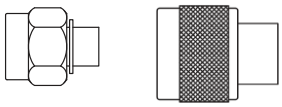


Termination Reference Guide

MODEL NO.	FREQ. (GHz)	CONNECTOR	VSWR

1 and 2 Watt Ultra Low Cost Terminations

TER06SMAM	6	SMA-M	1.20:1
TER03NM	2.5	N-M	1.10:1
TER06NM	6	N-M	1.10:1
TER04BNCM	4	BNC-M	1.35:1
TER06TNCM	6	TNC-M	1.30:1

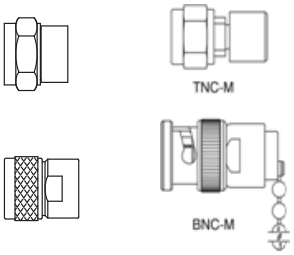


0.5 Watt and 1 Watt Terminations

TER18SMA*0.5W	18	SMA-M	1.20:1
TER26SMA*0.5W	26.5	SMA-M, SMA-F	1.25:1
TER06SMARP0.5W	6	SMA-M Reverse Polarity	1.20:1
TER01TNCRP0.5W	1	TNC-M, Reverse Polarity	1.25:1

2Watt Terminations

TER04BNCF2W	4	BNC-F	1.15:1
TER04BNCM2W*	4	BNC-M	1.20:1
TER06SMA*2W	6	SMA-M, SMA-F	1.10:1
TER18SMA*2W	18	SMA-M, SMA-F	1.20:1
TER06N*2W	6	N-M, N-F Brass	1.10:1
TER18N*2W	18	N-M, N-F	1.25:1



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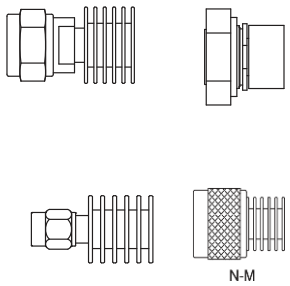
TER06TNC*2W	6	TNC-M, TNC-F	1.15:1
TER12TNC*2W	12.4	TNC-M, TNC-F Brass	1.15:1
TER18TNC*2W	18	TNC-M, TNC-F	1.25:1

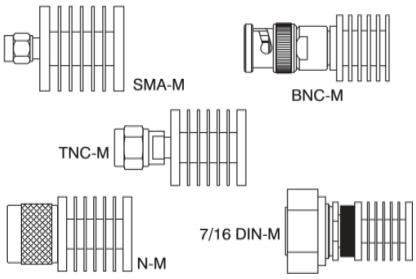
5 Watt Terminations, Convection Cooled

TER06SMA*5W	6	SMA-M, SMA-F	1.15:1
TER12SMA*5W	12.4	SMA-M, SMA-F	1.20:1
TER18SMA*5W	18	SMA-M, SMA-F	1.25:1
TER06N*5W	6	N-M, N-F	1.25:1
TER12N*5W	12.4	N-M, N-F	1.20:1
TER18N*5W	18	N-M, N-F	1.25:1
TER03DIN*5W	2.5	7/16 DIN-M, 7/16 DIN-F	1.25:1
TER07DIN*5W	7.5	7/16 DIN-M, 7/16 DIN-F	1.45:1
TER06TNC*5W	6	TNC-M, TNC-F	1.15:1
TER12TNC*5W	12.4	TNC-M, TNC-F	1.20:1
TER18TNC*5W	18	TNC-M, TNC-F	1.25:1



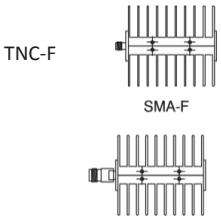
10 Watt Terminations, Convection Cooled

TER04BNC*10W	4	BNC-M, BNC-F	1.25:1
TER06SMA*10W	6	SMA-M, SMA-F	1.20:1
TER18SMA*10W	18	SMA-M, SMA-F	1.40:1
TER12SMA*10W	12.4	SMA-M, SMA-F	1.20:1
TER12N*10W	12.4	N-M, N-F	1.25:1
TER06N*10W	6	N-M, N-F	1.25:1
TER18N*10W	18	N-M, N-F	1.35:1
TER03DIN*10W	2.5	7/16 DIN-M, 7/16 DIN	1.20:1
TER07DIN*10W	7.5	7/16 DIN-M, 7/16	1.30:1
TER06TNC*10W	6	TNC-M, TNC-F	1.20:1
TER18TNC*10W	18	TNC-M, TNC-F	1.40:1



25 Watt Terminations, Convection Cooled

TER06SMA*25W	6	SMA-M, SMA-F	1.20:1
TER18SMA*25W	18	SMA-M, SMA-F	1.40:1
TER06N*25W	6	N-M, N-F	1.20:1
TER18N*25W	18	N-M, N-F	1.40:1
TER03DIN*25W	2.5	7/16 DIN-M, 7/16 DIN-F	1.20:1
TER07DIN*25W	7.5	7/16 DIN-M, 7/16 DIN-F	1.30:1
TER06TNC*25W	6	TNC-M, TNC-F	1.20:1
TER18TNC*25W	18	TNC-M, TNC-F	1.40:1

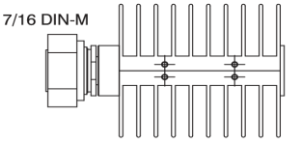


Termination Reference Guide

MODEL NO.	FREQ. (GHz)	CONNECTOR	VSWR

50 Watt Terminations, Convection Cooled

TER05SMA*50W	6	SMA-M, SMA-F	1.25:1
TER18SMA*50W	18	SMA-M, SMA-F	1.45:1
TER06N*50W	6	N-M, N-F	1.25:1
TER12N*50W	12.4	N-M, N-F	1.35:1



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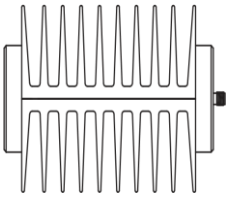
TER18N*50W	18	N-M, N-F	1.45:1
TER04BNC*50W	4	BNC-M, BNC-F	1.25:1
TER03DIN*50W	2.5	7/16 DIN-M, 7/16 DIN-F	1.25:1
TER07DIN*50W	7.5	7/16 DIN-M, 7/16 DIN-F	1.45:1
TER06TNC*50W	6	TNC-M, TNC-F	1.25:1
TER18TNC*50W	18	TNC-M, TNC-F	1.45:1
TER12TNC*50W	12.4	TNC-M, TNC-F	1.35:1

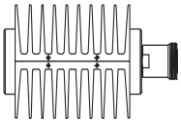
100 Watt Terminations, Convection Cooled

TER03SMA*100W	2.5	SMA-M, SMA-F	1.30:1
TER06SMA*100W	6	SMA-M, SMA-F	1.40:1
TER03N*100W	2.5	N-M, N-F	1.30:1
TER06N*100W	6	N-M, N-F	1.40:1
TER04BNC*100W	4	BNC-M, BNC-F	1.45:1
TER03TNC*100W	2.5	TNC-M, TNC-F	1.30:1
TER06TNC*100W	6	TNC-M, TNC-F	1.40:1
ER03DIN*100W	2.5	7/16 DIN-M, 7/16 DIN-F	1.35:1
TER06DIN*100W	6	7/16 DIN-M, 7/16 DIN-F	1.45:1



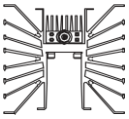
150 Watt Terminations, Convection Cooled

TER03SMA*150W	2.5	SMA-M, SMA-F	1.25:1
TER03N*150W	2.5	N-M, N-F	1.25:1
TER03TNC*150W	2.5	TNC-M, TNC-F	1.25:1
TER03DIN*150W	2.5	7/16 DIN-M, 7/16 DIN-F	1.30:1



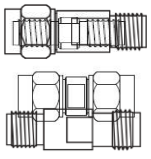
300 Watt Terminations, Convection Cooled

TER03SMA*300W	2.5	SMA-M, SMA-F	1.30:1
TER03N*300W	2.5	N-M, N-F	1.30:1
TER03TNC*300W	2.5	TNC-M, TNC-F	1.25:1
TER03DIN*300W	2.5	7/16 DIN-M, 7/16 DIN-F	1.35:1



Adapter Reference Guide

Connectors		Freq.(GHz)	VSWR	Description
SMA In Series Adapters				
F/F with O-Ring Seal		3	1.10:1	Bulkhead Feedthru
F/F		18	1.20:1	
M/M		18	1.20:1	
M/F		18	1.20:1	



SMA Between Series Adapters				
SMA-M	N-M	6	1.30:1	Ultra Low Cost Brass

SMA-M	N-F	6	1.30:1	Ultra Low Cost Brass
SMA-F	N-M	6	1.30:1	Ultra Low Cost Brass
SMA-F	N-F	6	1.30:1	Ultra Low Cost Brass
SMA-F	N-F	18	1.25:1	Short Profile
SMA-F	N-M	18	1.25:1	Short Profile
SMA-M	N-F	18	1.25:1	Short Profile
SMA-M	N-M	18	1.25:1	Short Profile
SMA-M	N-M	18	1.15:1	Precision
SMA-M	N-F	18	1.15:1	Precision
SMA-F	N-M	18	1.15:1	Precision
SMA-F	N-F	18	1.15:1	Precision
SMA-M	N-M	18	1.15:1	Flange Mount1" Sq.
SMA-M	N-F	18	1.15:1	Flange Mount1" Sq.
SMA-F	N-M	18	1.15:1	Flange Mount1" Sq.
SMA-F	N-F	18	1.15:1	Flange Mount1" Sq.
SMA-F	N-F	18	1.20:1	Bulkhead Feedthru
SMA-M	N-F	18	1.20:1	Bulkhead Feedthru
SMA-F	N-F w/ O-Ring Seal	18	1.20:1	Bulkhead Feedthru
SMA-M	N-F w/ O-Ring Seal	18	1.20:1	Bulkhead Feedthru
SMA-M	BNC-M	8	1.25:1	
SMA-M	BNC-F	8	1.25:1	
SMA-F	BNC-M	8	1.25:1	
SMA-F	BNC-F	8	1.25:1	
SMA-M	TNC-M	18	1.25:1	
SMA-M	TNC-F	18	1.25:1	
SMA-F	TNC-M	18	1.25:1	
SMA-F	TNC-F	18	1.25:1	
SMA-M	SMP-M	18	1.20:1	Full Detent
SMA-M	SMP-M	18	1.20:1	Limited Detent
SMA-F	SMP-M	18	1.20:1	Full Detent
SMA-F	SMP-M	18	1.20:1	Limited Detent
SMA-M	SMP-F	18	1.20:1	
SMA-F	SMP-F	18	1.20:1	
SMA-M	3.5mm-M	18	1.25:1	
SMA-M	3.5mm-F	18	1.25:1	
SMA-F	3.5mm-M	18	1.25:1	
SMA-F	3.5mm-F	18	1.25:1	
SMA-F	1.85mm-M	18	1.30:1	
SMA-M	1.85mm-M	18	1.30:1	
SMA-M	1.85mm-F	18	1.30:1	
SMA-F	1.85mm-F	18	1.30:1	

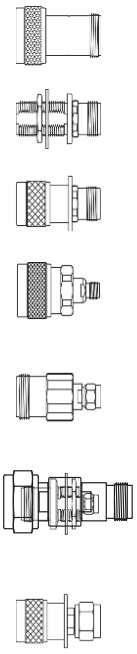
TYPE N In Series

F/F	6	1.20:1	Ultra Low Cost Brass

M/F	6	1.20:1	Ultra Low Cost Brass
M/M	6	1.20:1	Ultra Low Cost Brass
F/F	18	1.25:1	Ultra Low Cost Brass
M/F	18	1.25:1	Ultra Low Cost Brass
M/M	18	1.25:1	Ultra Low Cost Brass
F/F	18	1.15:1	Precision
M/F	18	1.15:1	Precision
M/M	18	1.15:1	Precision
F/F	18	1.15:1	Bulkhead Feedthru
F/F with O-Ring Seal	18	1.15:1	Bulkhead Feedthru
F/F M/M	18	1.15:1	Flange Mount1" sq.

TypeN Between Series

N-M	TNC-M	18	1.12:1	Flange Mount1" sq.
N-M	TNC-F	18	1.12:1	Flange Mount1" sq.
N-F	TNC-M	18	1.12:1	Flange Mount1" sq.
N-F	TNC-F	18	1.12:1	Flange Mount1" sq.
N-M	BNC-M	8	1.20:1	Flange Mount1" sq.
N-M	BNC-F	8	1.20:1	Flange Mount1" sq.
N-F	BNC-M	8	1.20:1	Flange Mount1" sq.
N-F	BNC-F	8	1.20:1	Flange Mount1" sq.
N-F	2.4mm-M	18	1.15:1	
N-F	2.4mm-F	18	1.15:1	
N-M	2.4mm-M	18	1.15:1	
N-M	2.4mm-F	18	1.15:1	
N-M	2.9mm-M	18	1.15:1	
N-F	2.9mm-F	18	1.15:1	
N-M	2.9mm-F	18	1.15:1	
N-F	2.9mm-M	18	1.15:1	
N-M	3.5mm-M	18	1.12:1	
N-M	3.5mm-F	18	1.12:1	
N-F	3.5mm-M	18	1.12:1	
N-F	3.5mm-F	18	1.12:1	
N-M	1.85mm-M	18	1.25:1	
N-F	1.85mm-M	18	1.25:1	
N-M	1.85mm-F	18	1.25:1	
N-F	1.85mm-F	18	1.25:1	
N-F	SMA-F	12.4	1.20:1	Bulkhead Feedthru
N-F	SMA-F w/O-Ring	12.4	1.20:1	Bulkhead Feedthru
N-M	SMA-F	18	1.30:1	Bulkhead Feedthru
N-F	SMA-F	18	1.12:1	Bulkhead Feedthru
N-F	SMA-M	18	1.12:1	Bulkhead Feedthru
N-F	SMA-M w/ O-Ring	18	1.12:1	Bulkhead Feedthru
N-F	SMA-F w/ O-Ring	18	1.12:1	Bulkhead Feedthru



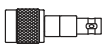
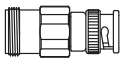
TNC In Series

F/F	6	1.20:1	Ultra Low Cost Brass
M/F	6	1.20:1	Ultra Low Cost Brass
M/M	6	1.20:1	Ultra Low Cost Brass
F/F	18	1.20:1	
M/F	18	1.20:1	
M/M	18	1.20:1	

Adapter Reference Guide

Connectors	Freq.(GHz)	VSWR	Desription
TNC Between Series			
SMA-F	18.5	1.30:1	Flange Mount
SMA-F	12	1.30:1	Rt. Angle, Flange Mount
BNC-M	8	1.30:1	
BNC-M	8	1.30:1	
BNC-F	8	1.30:1	
BNC-F	8	1.30:1	
N-F	18	1.25:1	
N-F	18	1.25:1	
N-M	18	1.25:1	
N-M	18	1.25:1	
N-M	18	1.15:1	Precision
N-M	18	1.15:1	Precision
N-F	18	1.15:1	Precision
N-F	18	1.15:1	Precision
F/F	8	1.25:1	
M/F	8	1.25:1	
M/M	8	1.25:1	




BNC Between Series

N-M	8	1.30:1	
N-M	8	1.30:1	
N-F	8	1.30:1	
N-F	8	1.30:1	
N-M	8	1.15:1	Precision
N-M	8	1.15:1	Precision
N-F	8	1.15:1	Precision
N-F	8	1.15:1	Precision
F/F	3	1.30:1	75
M/F	3	1.30:1	75
M/M	3	1.30:1	75



TYPE F Between Series

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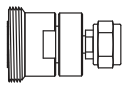
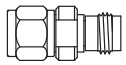
F-M	N-M	3	1.30:1	75	Both Sides
F-M	N-F	3	1.30:1	75	Both Sides
F-F	N-M	3	1.30:1	75	Both Sides
F-F	N-F	3	1.30:1	75	Both Sides
F-M	BNC-M	3	1.30:1	75	Both Sides
F-M	BNC-F	3	1.30:1	75	Both Sides
F-F	BNC-M	3	1.30:1	75	Both Sides
F-F	BNC-F	3	1.30:1	75	Both Sides





7/16 DIN In Series

F/F		7.5	1.35:1		
M/F		7.5	1.35:1		
M/M		7.5	1.35:1		

7/16 DIN Between Series

7/16 DIN-F	N-F	7.5	1.35:1		
7/16 DIN-F	N-M	7.5	1.35:1		
7/16 DIN-M	N-F	7.5	1.35:1		
7/16 DIN-M	N-M	7.5	1.35:1		
7/16 DIN-M	N-F	7.5	1.35:1	Quick Connect	
7/16 DIN-M	N-M	7.5	1.35:1	Quick Connect	
7/16 DIN-F	TNC-F	7.5	1.35:1		
7/16 DIN-F	TNC-M	7.5	1.35:1		
7/16 DIN-M	TNC-F	7.5	1.35:1		
7/16 DIN-M	TNC-M	7.5	1.35:1		

1.85mm In Series

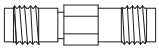
F/F		65	1.40:1		
M/F		65	1.40:1		
M/M		65	1.40:1		

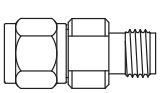
2.4mm In Series

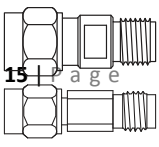
F/F		50	1.30:1		
M/F		50	1.30:1		
M/M		50	1.30:1		

2.4mm Between Series

2.4mm-M	SMA-M	26.5	1.20:1		
2.4mm-F	SMA-M	26.5	1.20:1		
2.4mm-M	SMA-F	26.5	1.20:1		
2.4mm-F	SMA-F	26.5	1.20:1		
2.4mm-M	3.5mm-M	34	1.25:1		
2.4mm-M	3.5mm-F	34	1.25:1		
2.4mm-F	3.5mm-M	34	1.25:1		







2.4mm-F	3.5mm-F	34	1.25:1
2.4mm-F	2.9mm-F	40	1.30:1
2.4mm-F	2.9mm-M	40	1.30:1
2.4mm-M	2.9mm-F	40	1.30:1
2.4mm-M	2.9mm-M	40	1.30:1
2.4mm-M	1.85mm-M	50	1.35:1
2.4mm-M	1.85mm-F	50	1.35:1
2.4mm-F	1.85mm-M	50	1.35:1
2.4mm-F	1.85mm-F	50	1.35:1

2.9mm In Series

F/F		40	1.30:1
M/F		40	1.30:1
M/M		40	1.30:1

2.9mm Between Series

2.9mm-M	SMA-M	26.5	1.25:1
2.9mm-M	SMA-F	26.5	1.25:1
2.9mm-F	SMA-M	26.5	1.25:1
2.9mm-F	SMA-F	26.5	1.25:1
2.9mm-F	3.5mm-F	34	1.25:1
2.9mm-F	3.5mm-M	34	1.25:1
2.9mm-M	3.5mm-F	34	1.25:1
2.9mm-M	3.5mm-M	34	
2.9mm-M	1.85mm-M	40	
2.9mm-M	1.85mm-F	40	
2.9mm-F	1.85mm-M	40	
2.9mm-F	1.85mm-F	40	
2.9mm-F	2.4mm-F w/ O-Ring	40	

3.5mm In Series

F/F		34	1.25:1
M/F		34	1.25:1
M/M		34	1.25:1

3.5mm Between Series

3.5mm-F	1.85mm-M	34	1.25:1
3.5mm-M	1.85mm-F	34	1.25:1
3.5mm-F	1.85mm-F	34	1.25:1
3.5mm-M	1.85mm-M	34	1.25:1
7mm	SMA-M	18	1.25:1
7mm	SMA-F	18	1.25:1
7mm	N-M	18	1.25:1
7mm	N-F	18	1.25:1

7mm	TNC-M	18	1.25:1
7mm	TNC-F	18	1.25:1
7mm	3.5mm-M	18	1.25:1
7mm	3.5mm-F	18	1.25:1
7mm	2.4mm-M	18	1.25:1
7mm	2.4mm-F	18	1.25:1
7mm	2.9mm-M	18	1.25:1
7mm	2.9mm-F	18	1.25:1
7mm	SMA-M	18	1.25:1
7mm	SMA-F	18	1.25:1

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