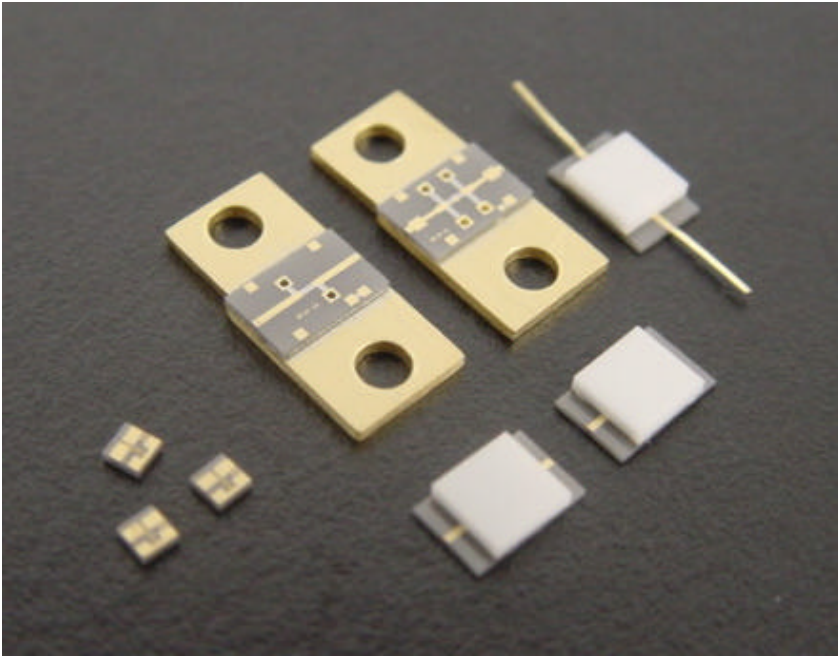


Broadband Medium Power Thin Film Attenuator and Termination



Nanowave Overview

Nanowave Technologies Inc. has introduced a family of thin film attenuators and termination for broadband and medium power applications up to 8 watts CW. Our thin film attenuators perform superior characteristics at frequencies up to 20GHz. These pads are constructed using AlN substrate material for high power handling. They are available in flange mount, surface mount, flip chip, and connectorized configurations.

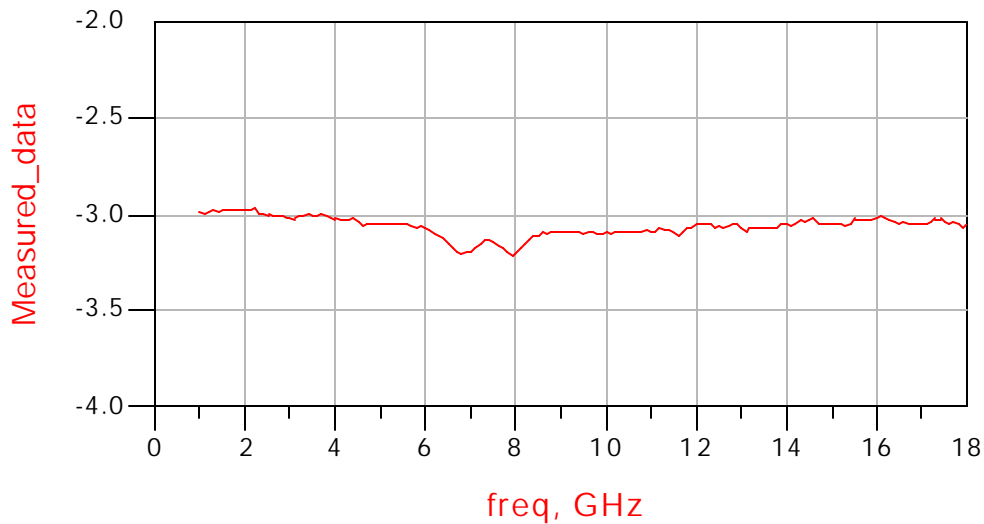
Key Features

- DC to 20GHz
- Low VSWR
- Temperature stable +/- 120ppm/°C
- High bond pull strength for ribbon and wire bonds (Exceeds Mil-Std-883)
- Surface Mountable
- Flange Mountable using Copper or Copper Tungsten Flange with gold plated copper leads.
- High power handling capability.
- Standard values available from 1 to 20 dB

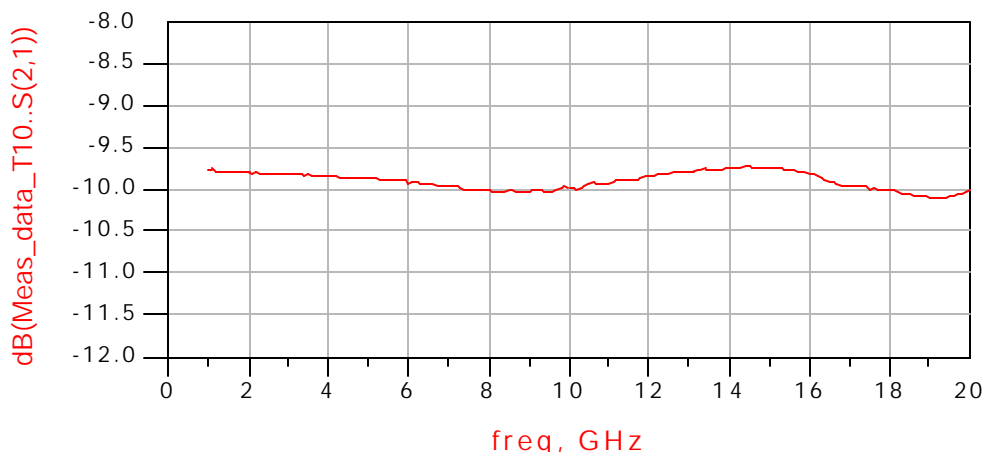
Specification

Attenuation (dB)	Return Loss (dB) DC-12 GHz	Return Loss (dB) 12-18 GHz	Tolerance (dB)
1	<-15	<-10	+/-0.1
3	<-15	<-10	+/-0.25
6	<-15	<-10	+/-0.25
10	<-15	<-10	+/-0.25
15	<-15	<-10	+/-0.25
20	<-15	<-10	+/-0.25

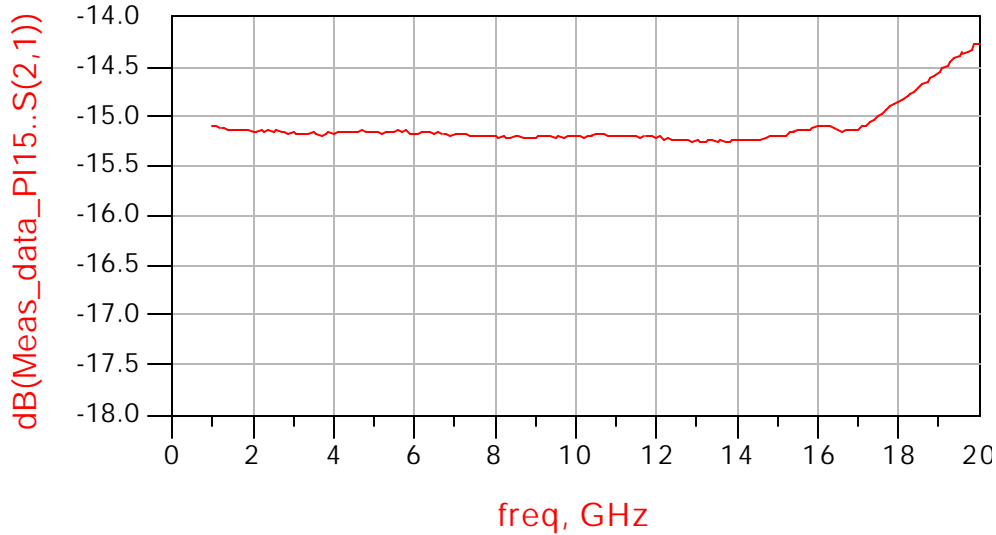
3 dB pad measured data



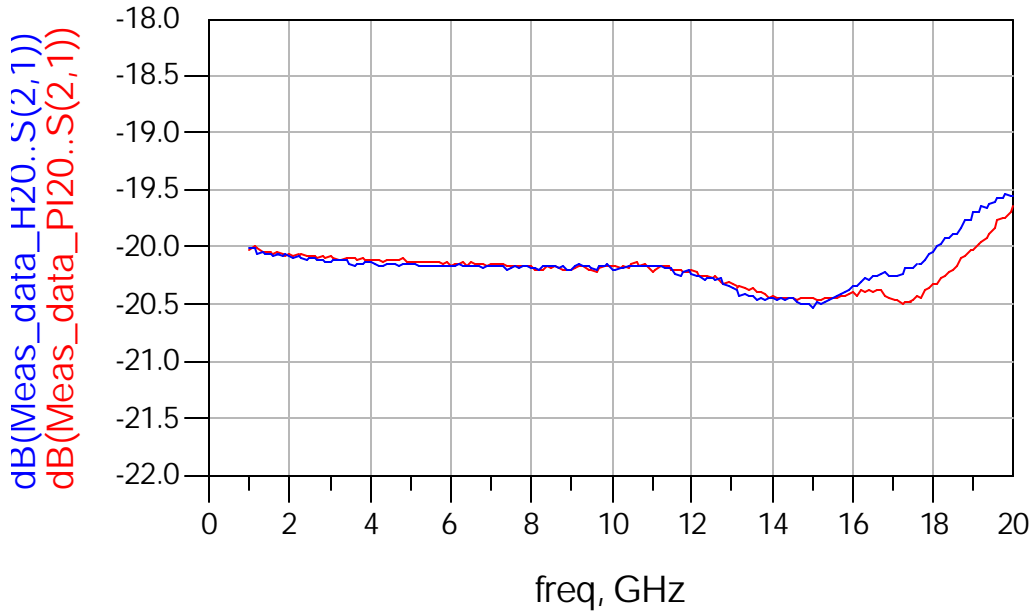
Pad 10 dB, Meas data



Pad 15 dB, Meas data

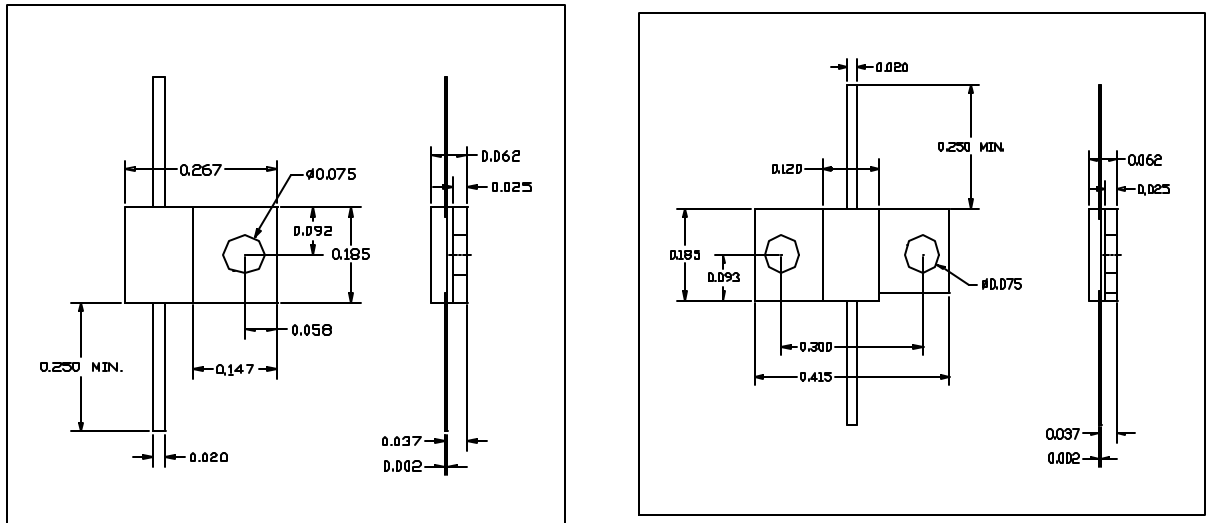


Pad 20 dB, Meas data



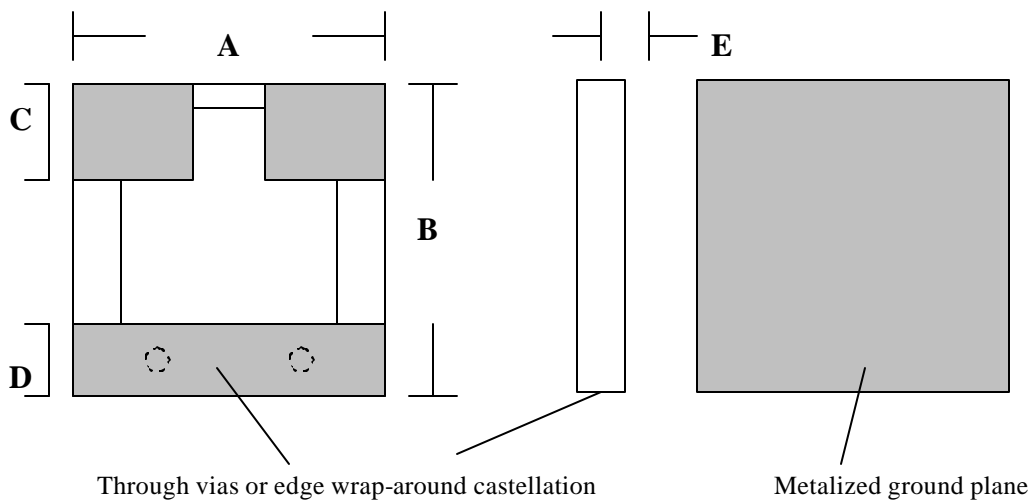
Chip sizes for flip chip surface mount and hybrid assemblies are 1.4mmx1.4mm (0.055 in. x 0.055 in.) for 1 W rated pads and 4.7mm x 3.0mm (.185 in. x .12 in.) for 5 W rated power. Flange mounted pads could handle 8 W minimum power.

Flange mount attenuators, DC-20GHz, 1-20dB



Dimensions in inches

Chip attenuators, DC-20GHz, 1-20dB



Attenuation (dB)	Dimension , mm (in.)					Size code	Package style
	A	B	C	D	E		
1-10	1.4 (0.055)	1.4 (0.055)	0.38 (.015)	0.25 (.010)	0.38 (.015)	01	Chip
12-20	2.7 (.105)	1.9 (0.075)	0.38 (.015)	0.25 (.010)	0.38 (.015)	02	Chip
1-20	4.7 (.185)	3.0 (.120)				03	Leaded
1-20	4.7 (.185)	10.5 (.415)				04	Flanged
1-20						05	Connectorized

How to Order

Attenuators : AT

AT-dB-XX-YY

XX – Package style : FL – Flange mount leaded
 LL – Leaded only
 WB – Wire bondable chips
 SF – Surface mount, flip chip
 SG – Surface mount on ground plane
 CN – Connectorized

DB - attenuation in dB

YY – Size code

Example : AT-03-SF-01 3dB pad, surface mount flip chip, .055”x.055”

Terminations : TM

TM-50-XX-YY