

# Miniature Ceramic Fixed Attenuator

## PAT-20+

50Ω 1W 20dB DC to 7000 MHz



Generic photo used for illustration purposes only

CASE STYLE: AF320

**+RoHS Compliant**

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications



Available Tape and Reel  
at no extra cost

Reel Size Devices/Reel  
7" 1000

### Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C

Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

INPUT	1
OUTPUT	3
GROUND	2,4

### Features

- wideband, DC to 7000 MHz
- excellent VSWR, through entire band
- miniature size
- aqueous washable

### Applications

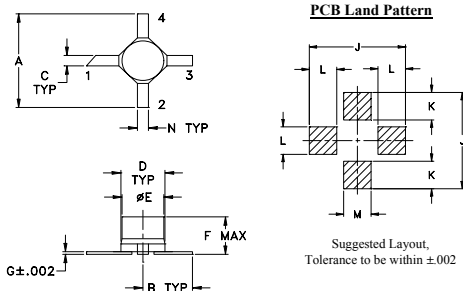
- power leveling
- impedance match improvement

### Electrical Specifications at 25°C

FREQ. RANGE (MHz)	ATTENUATION (dB) Flatness, Max.	VSWR (:1) Max.			MAX. INPUT POWER (W)
		DC-1 GHz	DC-2.5 GHz	DC-f <sub>u</sub> GHz	
f <sub>L</sub> -f <sub>u</sub>	Norm.	DC-1 GHz	DC-2.5 GHz	DC-f <sub>u</sub> GHz	
DC-7000	20±1.3	0.5	0.7	2.6	1.4
					1.4
					1.5
					1

1. RF power at 25°C case temperature: 1 Watt. Derate linearly to 0.1 Watt at 100°C.

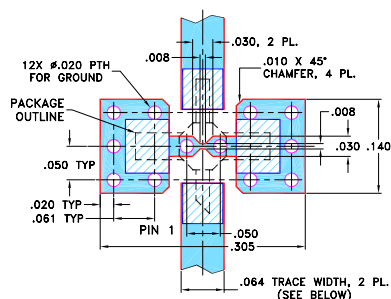
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.200	.100	.020	.070	.068	.057	.005
5.08	2.54	0.51	1.78	1.73	1.45	0.13
H	J	K	L	M	N	wt
--	.230	.065	.060	.080	.040	grams
--	5.84	1.65	1.52	2.03	1.02	0.04

### Demo Board MCL P/N: TB-319 Suggested PCB Layout (PL-208)



#### NOTES:

1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
  2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

#### Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
 B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.  
 C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

### Typical Performance Data

Frequency (MHz)	Attenuation (dB)	VSWR (:1)
50.00	19.05	1.12
796.25	19.07	1.15
1542.50	19.16	1.19
2288.75	19.33	1.21
3035.00	19.58	1.20
3781.25	19.63	1.19
4527.50	19.83	1.16
5273.75	20.10	1.15
6020.00	20.53	1.18
7015.00	21.06	1.25

