



Mini-Circuits®

MINIATURE CERAMIC

Fixed Attenuator

PAT-4+

50Ω 1 W 4 dB DC to 7 GHz

FEATURES

- Wideband, DC to 7 GHz
- Excellent VSWR Through Entire Band
- Miniature Size
- Aqueous Washable

APPLICATIONS

- Power Leveling
- Impedance Match Improvement



Generic photo used for illustration purposes only

CASE STYLE: AF320

+RoHS Compliant

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

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Condition (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC		7	GHz
Attenuation, Nominal			4±0.3		dB
Attenuation, Flatness ¹	DC - 1			0.3	dB
	DC - 2.5			0.5	
	DC - 7			0.9	
VSWR	DC - 1			1.2	:1
	DC - 2.5			1.3	
	DC - 7			1.4	
Input Power ²				1.0	W

1. Flatness = variation over band divided by 2.

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

ABSOLUTE MAXIMUM RATINGS

Parameter	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.

REV. J
ECO-024219
PAT-4+
MCL NY
250114





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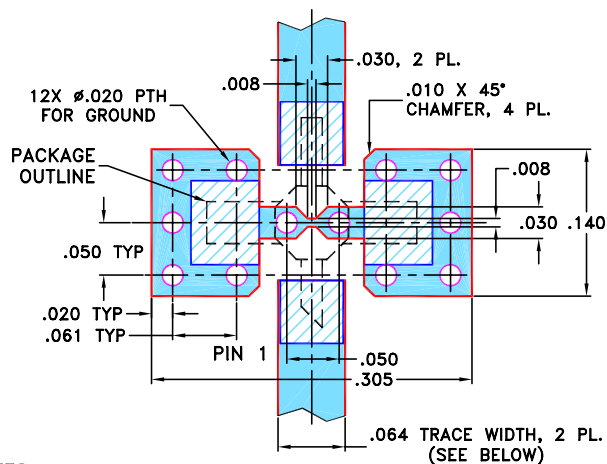
PAT-4+

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PIN CONNECTIONS

INPUT	1
OUTPUT	3
GROUND	2,4

DEMO BOARD MCL P/N: TB-319
SUGGESTED PCB LAYOUT (PL-208)

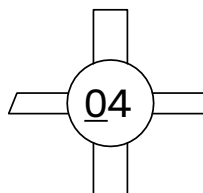


NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" $\pm$.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

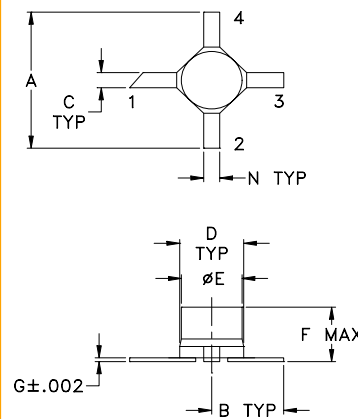
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

PRODUCT MARKING

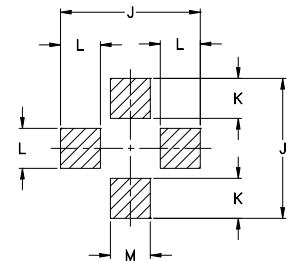


Marking may contain other features or characters for internal lot control

OUTLINE DRAWING



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm$.002

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

TAPE & REEL INFORMATION: F26

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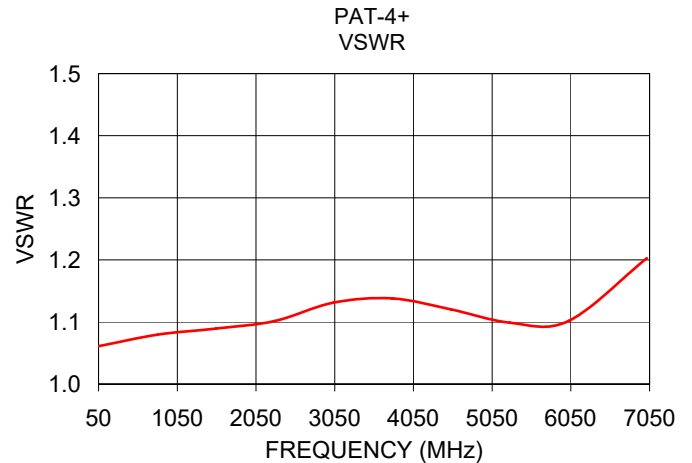
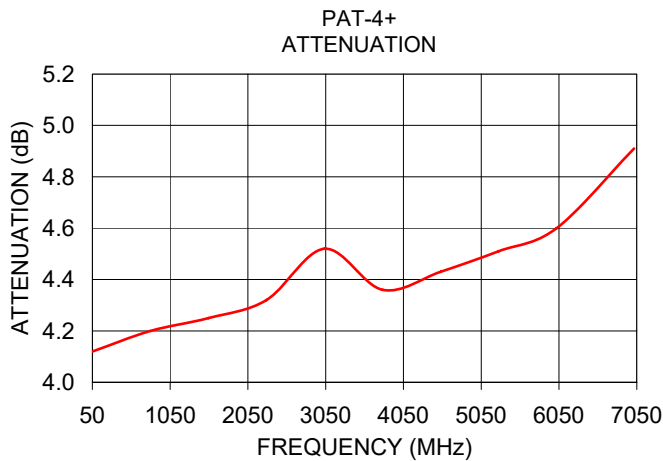


Fixed Attenuator

50Ω 1 W 4 dB DC to 2.5 GHz

TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Attenuation (dB)	VSWR (:1)
50.00	4.12	1.06
796.25	4.20	1.08
1542.50	4.25	1.09
2288.75	4.32	1.10
3035.00	4.52	1.13
3781.25	4.36	1.14
4527.50	4.43	1.12
5273.75	4.51	1.10
6020.00	4.60	1.10
7015.00	4.91	1.20



NOTES

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- 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/terms/viewterm.html