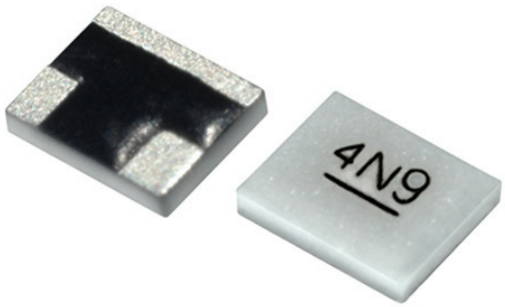
AN5 Thermopad® Series

ATTENUATOR TEMPERATURE VARIABLE CHIP 200 MILLIWATTS



AN5 Thermopad® Series offer a passive solution for gain compensation over temperature with proven high reliability.

Smiths Interconnect is the world leader in temperature variable chip attenuators offering the widest selection of products from DC through Ka band. Thermopad® products have been a highly reliable passive solution for over temperature gain compensation for more than 20 years. Backed by proven performance and significant heritage, Smiths Interconnect is the leader in high reliability components.

The AN5 platform offers proven performance in a cost effective commercial grade product for high volume applications. Offered in tape and reel for easy pick and place mounting. Rated for DC-6 GHz with excellent response, the AN5 series of products has a wide range of applications. It is constructed on an Alumina substrate with rugged thick film terminations and thick film thermistor technology. The product also includes a protective coating for added protection from various environmental conditions. Multiple attenuation values, temperature shift options all in a surface mount applications. This product comes in a RoHS compliant finish.

Features and Benefits

- Small Footprint
- Multiple Mounting Configurations
- DC-6 GHz Frequency Range
- Low VSWR
- Wide Range of Attenuation Values
- Multiple Temperature Shift Options
- Tape and Reel Package
- RoHS Compliant

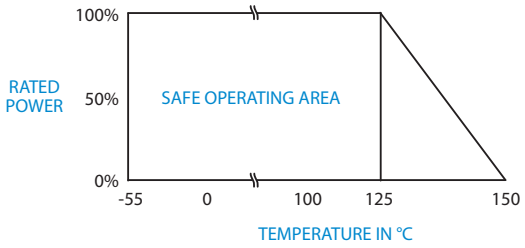
Applications

- Amplifier Circuits
- Transmit/Receive Modules
- Up/Down Converters
- Instrumentation
- Satellite Communications
- Radar
- Broadcast

Technical Characteristics

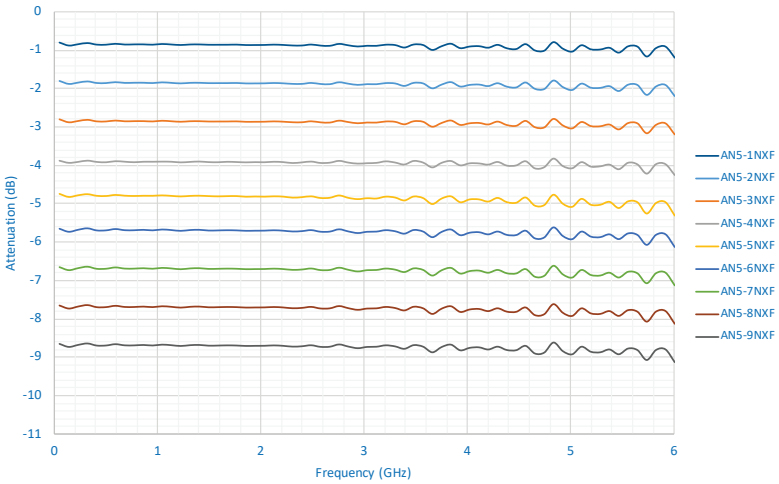
Mounting Configuration Options	Planar
Electrical	
Nominal Impedance	50 ohms
Frequency Range	DC-6 GHz
Attenuation Values Available	0-9 in 1 dB Increments
Attenuation Accuracy	± 0.75 dB @ 1 GHz @ 25°C
Temperature Coefficient of Attenuation (TCA)	-0.001 through -0.009 dB/dB/°C in 0.001dB/dB/°C increments
Temperature Coefficient Tolerance	± 0.001 dB/dB/°C
Input Power CW	200 Milliwatts Max up to 125°C (See derating curve)
Peak Power	2 Watts based on 10 µS pulse width @ 1% Duty Cycle
VSWR	1.30:1 Max @ 1 GHz
Environmental	
Operating Temperature	-55°C to +150°C
Storage Temperature	-65°C to +150°C
Moisture Sensitivity Level	MSL 1 - Unlimited
Mechanical	
Substrate Material	Alumina (Al_2O_3) 96%
Resistive Film	Thin Film, Thermistor
Terminal Material	Thick Film
Protective Coating	Polymer
Finish Options -F	Silver Plated (RoHS Compliant)
Marking	
Unit Marking	dB Value (X), Direction of shift (N), & TCA value (X)
Quality Assurance	
	Sample visual and mechanical Inspection - 1.0 AQL per mechanical drawing requirements. **TCA Calculation Method** - Measure Attenuation @ DC every 20°C over the temperature range of -55°C to +125°C Calculate the slope of the curve using linear regression. Calculate TCA using the following formula: $TCA = \frac{Slope}{Attenuation\ @\ 25^{\circ}C}$
Packaging	
Standard Packaging	Tape and Reel

Power Derating Curve



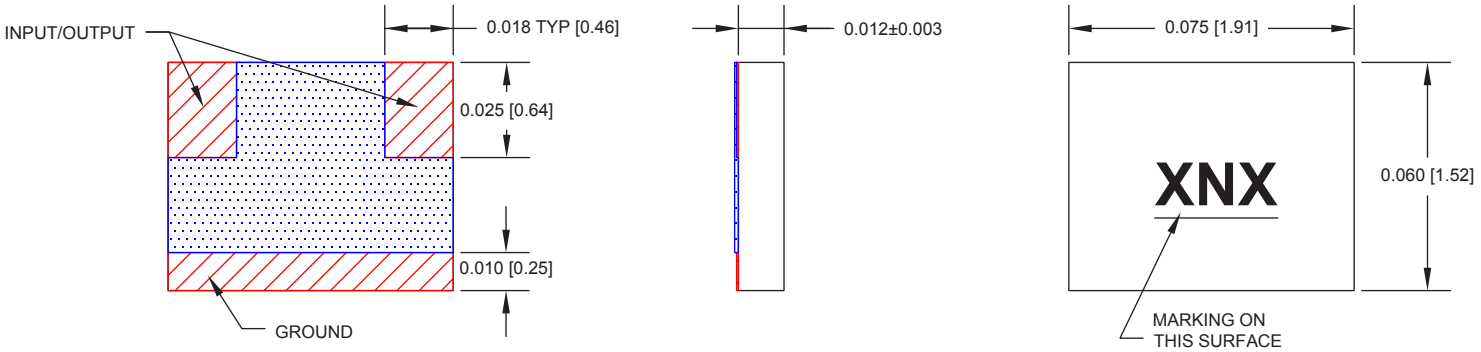
Typical Data

AN5 Series Attenuation



Mechanical

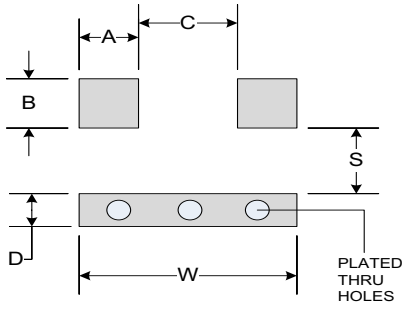
AN5 - Planar Option



Unless otherwise specified, tolerance: X.XXX = ±0.005"

Suggested Mounting Footprint

	Inches						MM					
Part Number	A	B	C	D	S	W	A	B	C	D	S	W
AN5-XNXF (Planar)	0.022	0.028	0.041	0.013	0.026	0.075	0.56	0.71	1.04	0.33	0.66	1.91



How To Order

Specify Model Number: **AN5-XNXF**

A N 5		N		F
1	2	3	4	5

1 Series Name	A N 5 Series
2 Attenuation Value	0 0 dB through 9 dB
3 TCA Slope	N Negative
4 TCA Shift Option (dB/dB/°C)	3 3=0.003 4 4=0.004 5 5=0.005 6 06=0.006 7 07=0.007 9 9=0.009
5 Terminal Finish	F RoHS

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