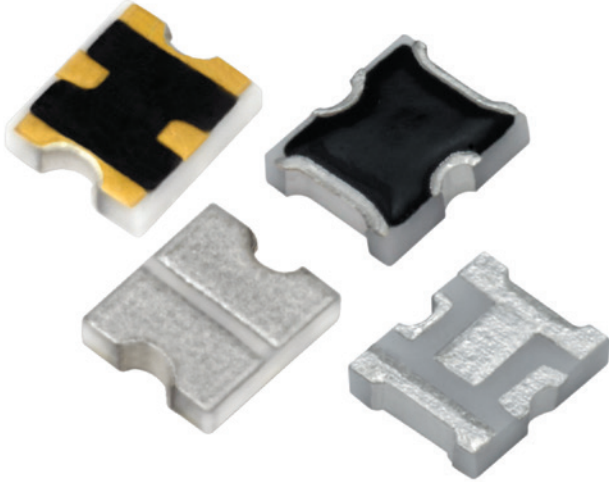


# WTVA Thermopad® Series

ATTENUATOR TEMPERATURE VARIABLE CHIP 200 MILLIWATTS



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

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 WTVA platform offers significant heritage and proven performance in a cost effective commercial grade product. High reliability tested options are also available to ensure mission success in demanding high reliability applications. Rated for DC-20 GHz with excellent broadband response, the WTVA 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 elements. The product also includes a protective coating for added protection from various environmental conditions. Multiple attenuation values, temperature shift options and mounting configuration are available to support both surface mount and wire bond applications. Various finish options are also available including RoHS compliance.

## Features and Benefits

- Small Footprint
- Multiple Mounting Configurations
- Broad Frequency Range
- Low VSWR
- Wide Range of Attenuation Values
- Multiple Temperature Shift Options
- Tight Attenuation Tolerance
- High Reliability Options Available

## Applications

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

# Technical Characteristics

Mounting Configuration Options	Surface Mount (SMT)	Wire Bondable (WB2)
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## Electrical

Nominal Impedance	50 ohms		
Frequency Range	DC-20 GHz		
Attenuation Values Available	2-7 in 1 dB Increments	2-7 in 1 dB Increments	
Attenuation Accuracy	<b>ATTENUATION ACCURACY</b>		
	<b>Attenuation Value (dB)</b>	<b>DC-15 GHz</b>	<b>15-20 GHz</b>
	0-4	± 0.5	± 0.5
	5-10	± 0.5	± 0.75
Temperature Coefficient of Attenuation (TCA)	-0.003, -0.005 & -0.007 B/dB/°C	-0.003 through -0.007 & -0.009 B/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 and 1% Duty Cycle		
VSWR	1.40:1 Typical DC-20 GHz 1.70:1 Max DC-20 GHz	1.25:1 Max DC-10 GHz	1.70:1 Max 10-20 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 <sub>2</sub> O <sub>3</sub> ) 96%		
Resistive Film	Thick Film		
Terminal Material	Thick Film	Thick Film Bondable Gold Input/Output Pads, Solderable Platinum Silver Ground	
Protective Coating	Polymer		
Finish Options	Blank -F	Solder Plated (Sn60/Pb40) Silver Plated (RoHS Compliant)	N/A

## Marking

Unit Marking	None
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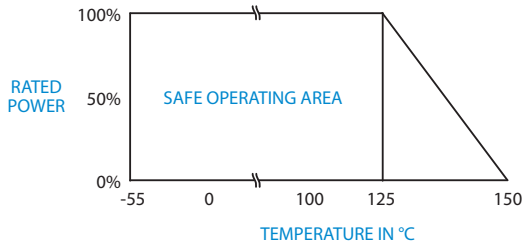
## Quality Assurance

	<p>Sample visual and mechanical inspection - 1.0 AQL per mechanical drawing requirements.                  Periodic electrical inspection performed for commercial grade products.                  High reliability tested products are available per MIL-PRF-55342.  <b>TCA Calculation Method</b> - 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: <math>TCA = \frac{Slope}{Attenuation @ 25^\circ C}</math></p>
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## Packaging

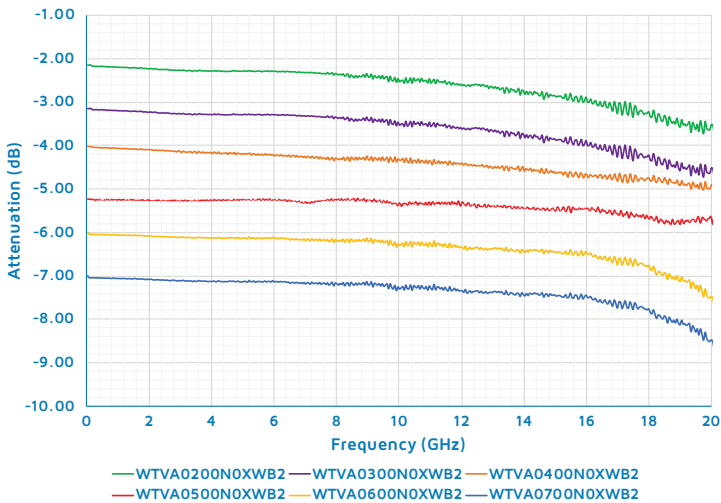
Standard Packaging	Tape and Reel or Waffle Pack
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# Power Derating Curve

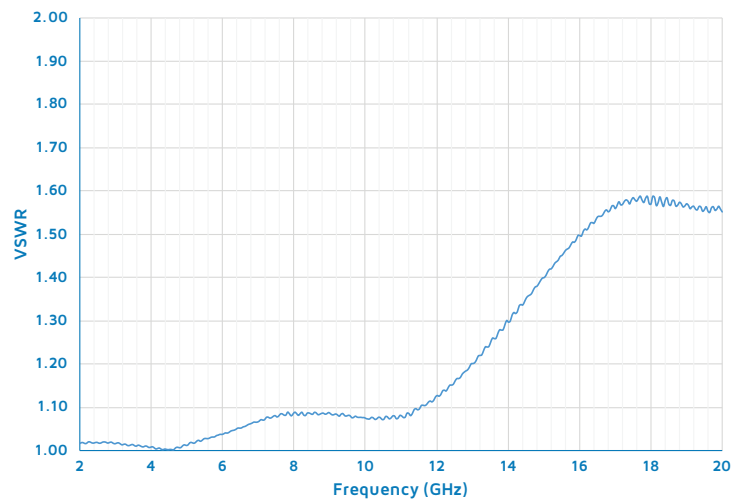


# Typical Data

WTVA0X00NXWB2 Series Attenuation

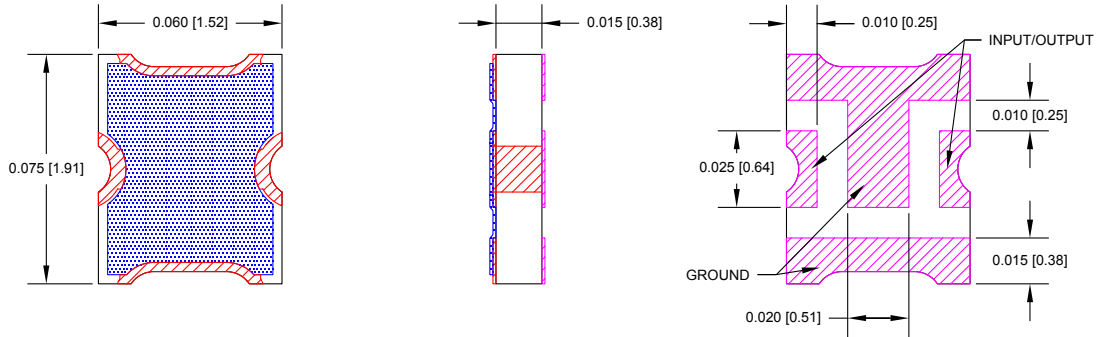


WTVA0X00NXWB2 Series VSWR

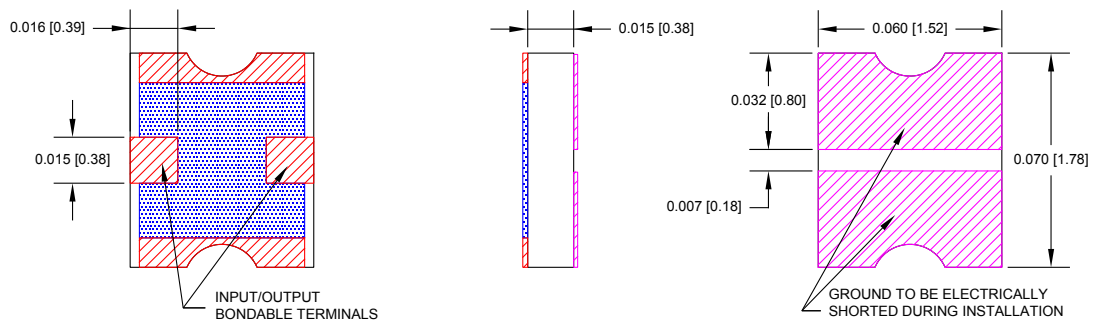


# Mechanical

## WTVAXX - Surface Mount (SMT) Option



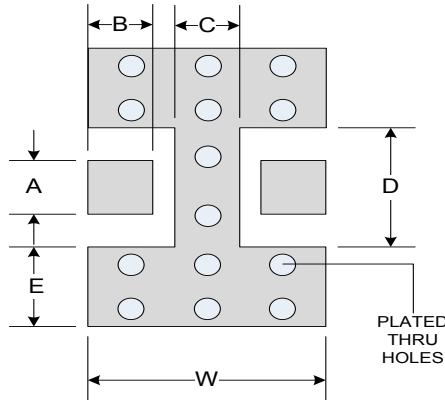
## WTVAXXWB2 - Wire Bondable Gold Option



\*Dimensions apply before solder, allow 0.015" max for all pretinned surfaces  
 Unless otherwise specified, tolerance: X.XXX = ±0.005"

# Suggested Mounting Footprint

Part Number	Inches						Millimeters					
	A	B	C	D	S	W	A	B	C	D	S	W
WTVAXX00N00SMT	0.025	0.015	0.016	0.049	0.018	0.070	0.64	0.38	0.41	1.24	0.46	1.78



## How To Order

Specify Model Number: **WTVA0X00NXXXXXX**

	1	2	3	4	5	6	7
<b>1 Series Name</b>	WTVA Series						
<b>2 Attenuation Value</b>	02 02 dB through 07 07 dB						
<b>3 EMC Code</b>	00 EMC Code						
<b>4 TCA Slope</b>	N Negative						
<b>5 TCA Shift Option</b> (dB/dB/°C)	03 03=0.003 04 04=0.004 05 05=0.005 06 06=0.006 07 07=0.007 09 09=0.009						
<b>6 Options</b>	SMT Surface Mount			WB2 Wire Bondable Gold			
<b>7 Terminal Finish</b>	Standard F RoHS						

# Global Support

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