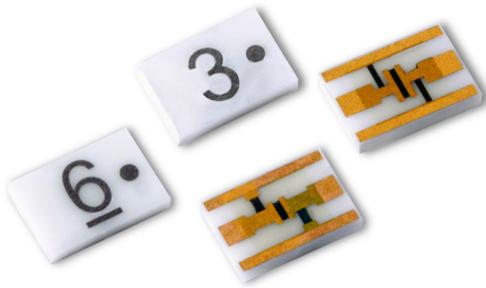


# TSX Series

## Fixed Chip Attenuators



Smiths Interconnect is a leading provider of chip attenuators offering the widest selection of products from DC to Q-band, backed by proven performance and significant heritage. Chip components are offered on Alumina, Aluminum Nitride, Beryllium Oxide, and CVD Diamond for a wide range of applications.

The TSX Series of chip attenuators pushes the boundaries of Size, Weight and Power in a cost effective, easy to implement surface mount solution, suitable for a wide array of applications.

The TSX Series offers excellent broadband RF performance to 50 GHz while delivering increased power handling in a small surface mount format factor.

The chip attenuator design offers 1 to 3 watts of power handling performance and multiple attenuation values are available for surface mounting. The use of a robust, proven all thin film process technology on an alumina substrate provides a product suitable for harsh environments, such as those of Space and Defense applications.



TSX Chip Attenuators offers excellent performance and power from DC-50 GHz in a small 0604 package size.

## Features and Benefits

- Small form factor - Reduces overall footprint
- Surface mountable - Ideal for pick and place applications
- Broad frequency range - Reduces BOM count
- Low VSWR - Increases transmitted power
- Wide range of attenuation values - 1-10, 15 and 20dB
- Tight attenuation tolerance - For optimal performance

## Applications

- Amplifier Circuits
- Transmit/Receive Modules
- Up/Down Converters
- Instrumentation
- Satellite Communications
- Radar
- 5G

# Technical Characteristics

Mounting Configuration Options	Planar
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## Electrical

Nominal Impedance	50 ohms					
Frequency Range	DC -50 GHz					
Attenuation Values	0-10, 15 & 20 dB in 1 dB Increments					
Attenuation Accuracy	<b>ATTENUATION ACCURACY (dB)</b>					
	Attenuation Value (dB)	DC-40 GHz		40-50 GHz		
	0	Continuity Only				
	1-10	± 0.50		± 0.5		
	15 & 20	± 0.50		± 3.0		
Input Power CW	<b>INPUT POWER (CW)</b>					
	dB	Watts	dB	Watts	dB	Watts
	0-1	3.0	2-3	2.0	4-20	1.0
Peak Power	10X CW power based on 1 µs pulse width @ 1% Duty Cycle					
VSWR	<b>VSWR</b>					
	dB	DC-40 GHz		40-50 GHz		
	0	Continuity Only				
	1-10	1.20:1 Max		1.25:1 Max		
	15-20	1.20:1 Max		1.25:1 Max		

## Environmental

Operating Temperature	-55°C to +150°C
Storage Temperature	-65°C to +150°C
Temperature Coefficient	±200 PPM/°C Max
Moisture Sensitivity Level	MSL 1 - Unlimited

## Mechanical

Substrate Material	Alumina (Al <sub>2</sub> O <sub>3</sub> ) 96%
Resistive Film	Thin Film, Tantalum Nitride
Terminal Material	Thin Film, Solderable Gold over Nickel
Protective Coating	Silicon Nitride

## Marking

Unit Marking	Orientation dot and dB Value
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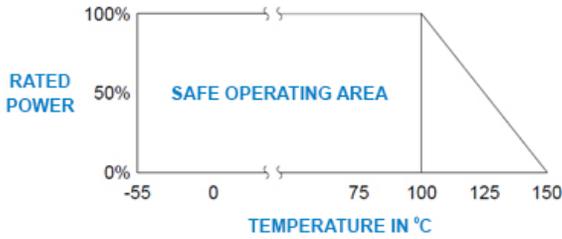
## Quality Assurance

	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.
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## Packaging

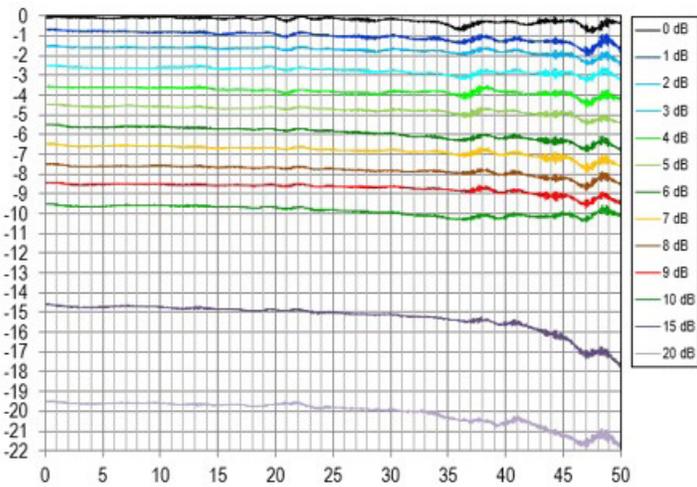
Standard Packaging	Tape and Reel or Waffle Pack
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# Power Derating Curve

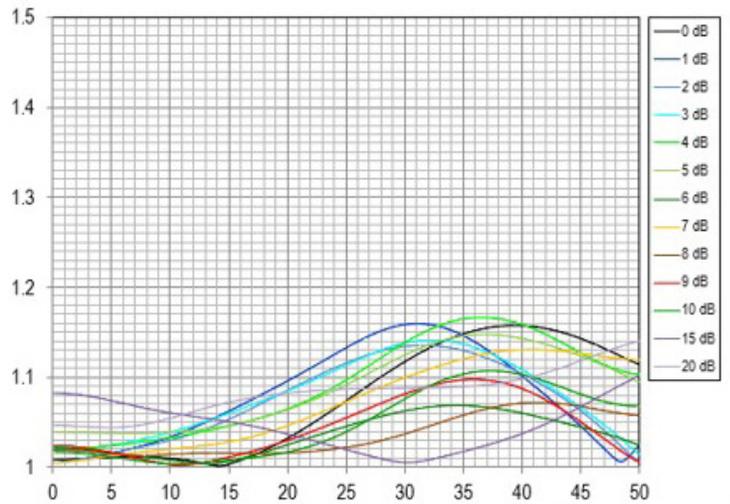


# Typical Data

TSX Series Attenuation

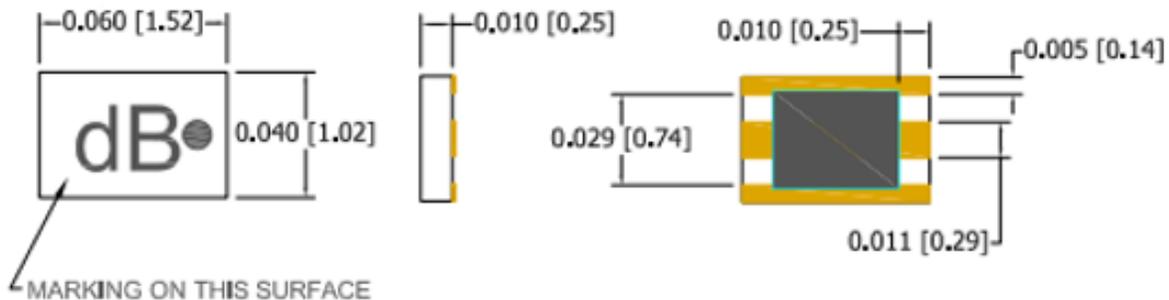


TSX Series VSWR



# Mechanical

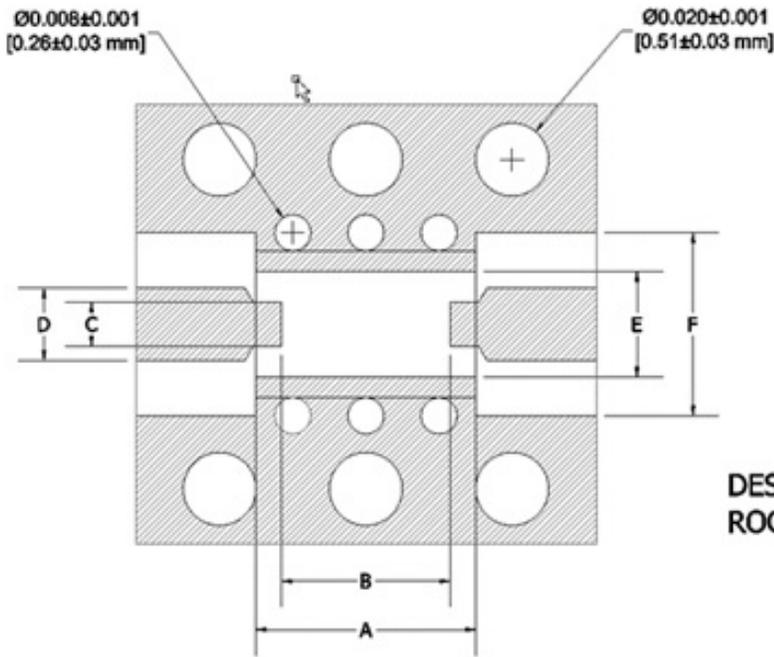
TSX Series



Unless otherwise specified, tolerance: X.XXX = ±0.002"

# Suggested Mounting Footprint

Part Number	Inches						Millimeters					
	A	B	C	D	E	F	A	B	C	D	E	F
TSXdB.00	0.060	0.046	0.012	0.020	0.029	0.050	1.52	1.17	0.30	0.51	0.74	1.27



DESIGN BASED ON MICROSTRIP, ROGERS 6035HTC, 0.010" SUBSTRATE

## How To Order

Specify Model Number: **TSXdB.00**

	T S X		. 0 0
	1	2	3
1 Series Name	T S X Series		
2 Attenuation Value	0 0 00 dB through 10 dB	1 5 15 dB	2 0 20 dB
3 SINT Code	. 0 0		

more > [smithsinterconnect.com](http://smithsinterconnect.com)   