

TS09 Series

ATTENUATOR CHIP 200 MILLIWATTS



TS09 Series Chip Attenuators offer proven performance and significant high reliability heritage in a commercial grade product.

Smiths Interconnect is the world leader in chip attenuators offering the widest selection of products from DC through Q band. Chip components are offered on Alumina, Aluminum Nitride, Beryllium Oxide, and CVD Diamond for a wide range of applications. Backed by proven performance and significant heritage, Smiths Interconnect is the leader in high reliability components.

The TS09 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 TS09 series of products has a wide range of applications. It is constructed on an Alumina substrate with rugged thick film terminations and thick film resistive elements. The product also includes a protective coating for added protection from various environmental conditions. Multiple attenuation values and mounting configurations 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
- Tight Attenuation Tolerance
- High Reliability Options Available

Applications

- Amplifier Circuits
- Transmit/Receive Modules
- Up/Down Converters
- Instrumentation
- 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	1-10 in 1 dB Increments		
Attenuation Accuracy	ATTENUATION ACCURACY		
	Attenuation Value (dB)	DC-15 GHz	15-20 GHz
	0-4	± 0.5	± 0.5
	5-10	± 0.5	± 0.75
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	1.40:1 Typical DC-20 GHz	1.25:1 Max DC-10 GHz	
	1.70:1 Max 10-20 GHz	1.45:1 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 ₂ O ₃) 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	Solder Plated (Sn60/Pb40)
	-F	Silver Plated (RoHS Compliant)
		N/A

Marking

Unit Marking	None
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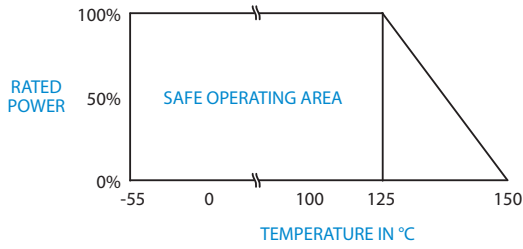
Quality Assurance

	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

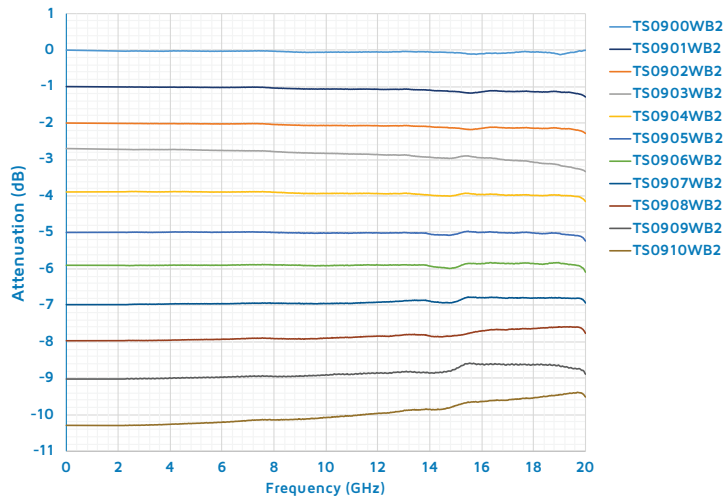
Standard Packaging	Tape and Reel or Waffle Pack
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Power Derating Curve

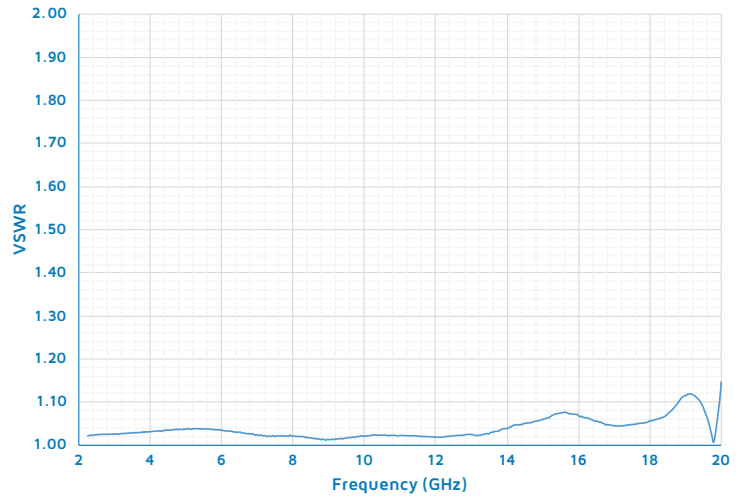


Typical Data

TS09XX Series Attenuation

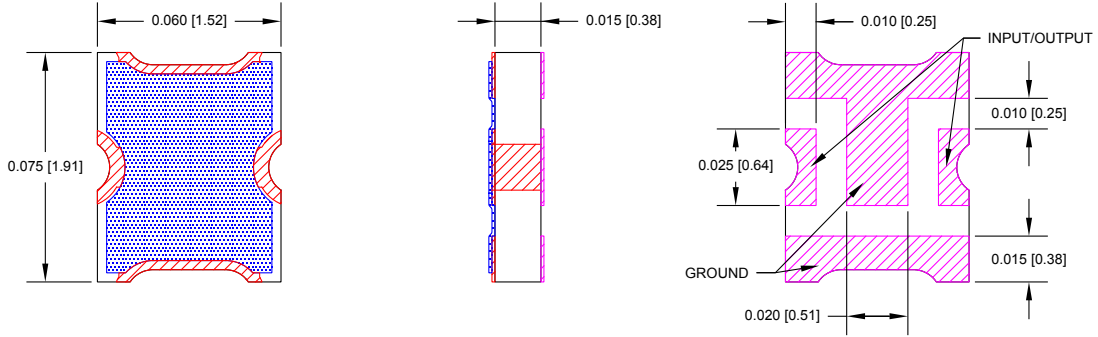


TS09XX Series VSWR

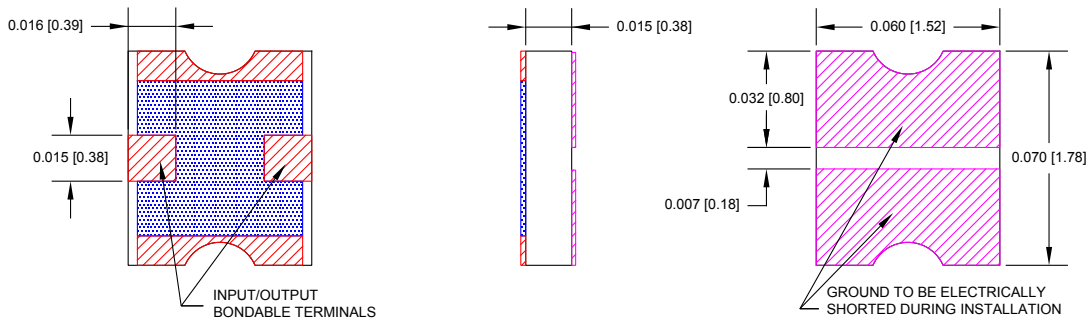


Mechanical

TS09XX - Surface Mount



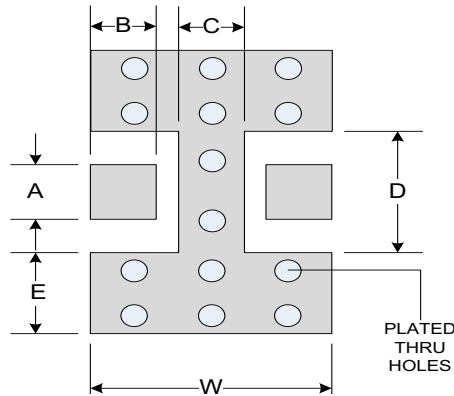
TS09XX - Wire Bondable Option



*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						MM					
	A	B	C	D	S	W	A	B	C	D	S	W
TS09XXSMT	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: **TS09XXXXXX**

<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> T S 0 9 1 </div> <div style="text-align: center;"> 2 </div> <div style="text-align: center;"> 3 </div> <div style="text-align: center;"> 4 </div> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> T S 0 9 Series </div>
<div style="display: flex; justify-content: space-between; align-items: center;"> 0 0 00 dB through 1 0 10 dB </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> S M T Surface Mount W B 2 Wire Bondable Gold </div>
<div style="display: flex; justify-content: space-between; align-items: center;"> Standard F RoHS </div>	

Global Support

UK Headquarters

- London, UK
+44 20 7004 1600
info.uk@smithsinterconnect.com

US Headquarters

- Stuart, FL
+1 772 286 9300
info.us@smithsinterconnect.com

Americas

- Costa Mesa, CA
+1 714 371 1100
info.us@smithsinterconnect.com
- Milpitas, CA
+1 408 957 9607 x-1125
info.us@smithsinterconnect.com
- Stuart, FL
+1 772 286 9300
info.us@smithsinterconnect.com
- Hudson, MA
+1 978 568 0451
info.us@smithsinterconnect.com
- Northampton, MA
+1 413 582 9620
info.northampton@smithsinterconnectinc.com
- Tampa, FL
+ 1 813 901 7200
info.tampa@smithsinterconnectinc.com
- Kansas City, KS
+1 913 342 5544
info.us@smithsinterconnect.com
- Salisbury, MD
+1 800 780 2169
info.us@smithsinterconnect.com
- Thousand Oaks, CA
+1 805 267 0100
info.thousandoaks@smithsinterconnectinc.com

Europe

- Deggendorf, Germany
+49 991 250 120
info.de@smithsinterconnect.com
- Genova, Italy
+39 0 10 60361
info.it@smithsinterconnect.com
- Dundee, UK
+44 1382 427 200
info.dundee@smithsinterconnect.com
- Rouen, France
+33 2 32 96 91 76
info.fr@smithsinterconnect.com
- Elstree, UK
+44 20 8236 2400
info.uk@smithsinterconnect.com

Asia

- Shanghai, China
+86 21 3318 4650
info.asia@smithsinterconnect.com
- Suzhou, China
+86 512 6273 1188
info.asia@smithsinterconnect.com
- Singapore
+65 6846 1655
info.asia@smithsinterconnect.com

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