



COAXIAL

# Wideband Bias-Tee

## ZBT-V543-FT+

50Ω 10 MHz to 54 GHz 2.4mm Male to 2.4mm Female

### THE BIG DEAL

- Wideband millimeter wave , 10 MHz to 54 GHz
- Low insertion loss, 1.8 dB typ. for the full band
- Excellent return loss, 15 dB typ.
- Excellent isolation, > 30 dB



Generic photo used for illustration purposes only

### APPLICATIONS

- Broadband Communication
- Test & Measurement
- 5G RF & Millimeter Wave
- Aerospace and Defense

<b>Model No.</b>	ZBT-V543-FT+
<b>Case Style</b>	Y3206-1
<b>Connectors</b>	2.4mm Male to 2.4mm Female

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

### PRODUCT OVERVIEW

This wideband Bias-Tee is ideal for applications such as biasing amplifiers, laser diodes, active antennas and more. Mini-Circuits' ZBT-V543-FT+ is an ultra-wideband coaxial bias-tee covering frequencies from 10 MHz to 54 GHz with low insertion loss, excellent return loss, and high DC to RF isolation over its entire frequency range. This model is capable of handling up to +30 dBm (1W) RF input power and DC input current up to 250mA.

### KEY FEATURES

Features	Advantages
Ultra-wideband, 10 MHz to 54 GHz	Supports a wide range of applications with a single device, such as broadband communication systems, instrumentation, biasing broadband amplifiers, laser diodes, active antennas, and more.
Low insertion loss, typically <2 dB in full band	Preserves signal strength from input to output and minimizes overall system loss.
Excellent return loss, 15 dB typ.	Provides excellent matching for 50Ω systems with minimal signal reflection.
RF power handling up to 1W	Supports applications with a variety of power requirements.
Excellent DC-RF isolation > 30 dB typ. in full band	Minimizes RF leakage and interference with other elements in the system.

REV. OR  
 ECO-013918  
 ZBT-V543-FT  
 MCL NY  
 220805





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50Ω 10 MHz to 54 GHz 2.4mm Male to 2.4mm Female

### ELECTRICAL SPECIFICATIONS AT 25°C

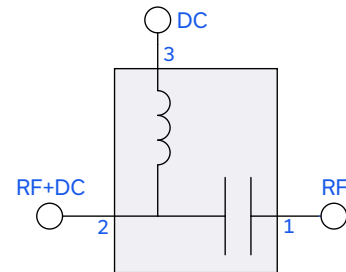
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		10		54000	MHz
Insertion Loss	10-30000	-	0.8	1.7	dB
	30000-54000	-	1.8	2.8	
Input VSWR	10-30000	-	1.2	2.0	:1
	30000-54000	-	1.4	2.0	
Output VSWR	10-30000	-	1.2	2.0	:1
	30000-54000	-	1.4	2.0	
DC Resistance, DC to RF and DC port		-	2.5	-	Ohm

### MAXIMUM RATINGS

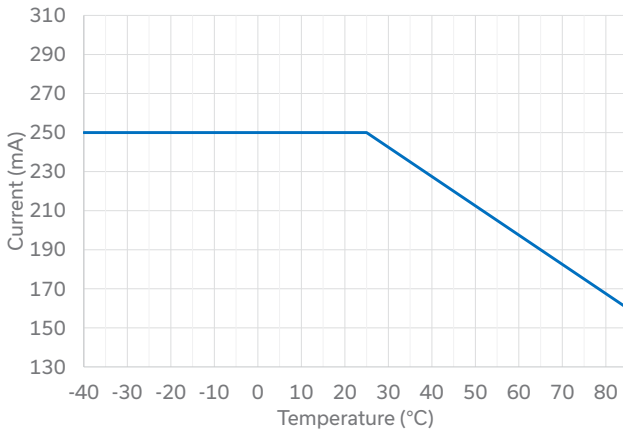
Parameter	Ratings
Operating Case Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +100 °C
RF Power	30 dBm max.
Input Current	SEE CHART BELOW
Voltage at DC Port	25V max.

Permanent damage may occur if any of these limits are exceeded.

### FUNCTIONAL SCHEMATIC



### CURRENT DERATING





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# Wideband Bias-Tee

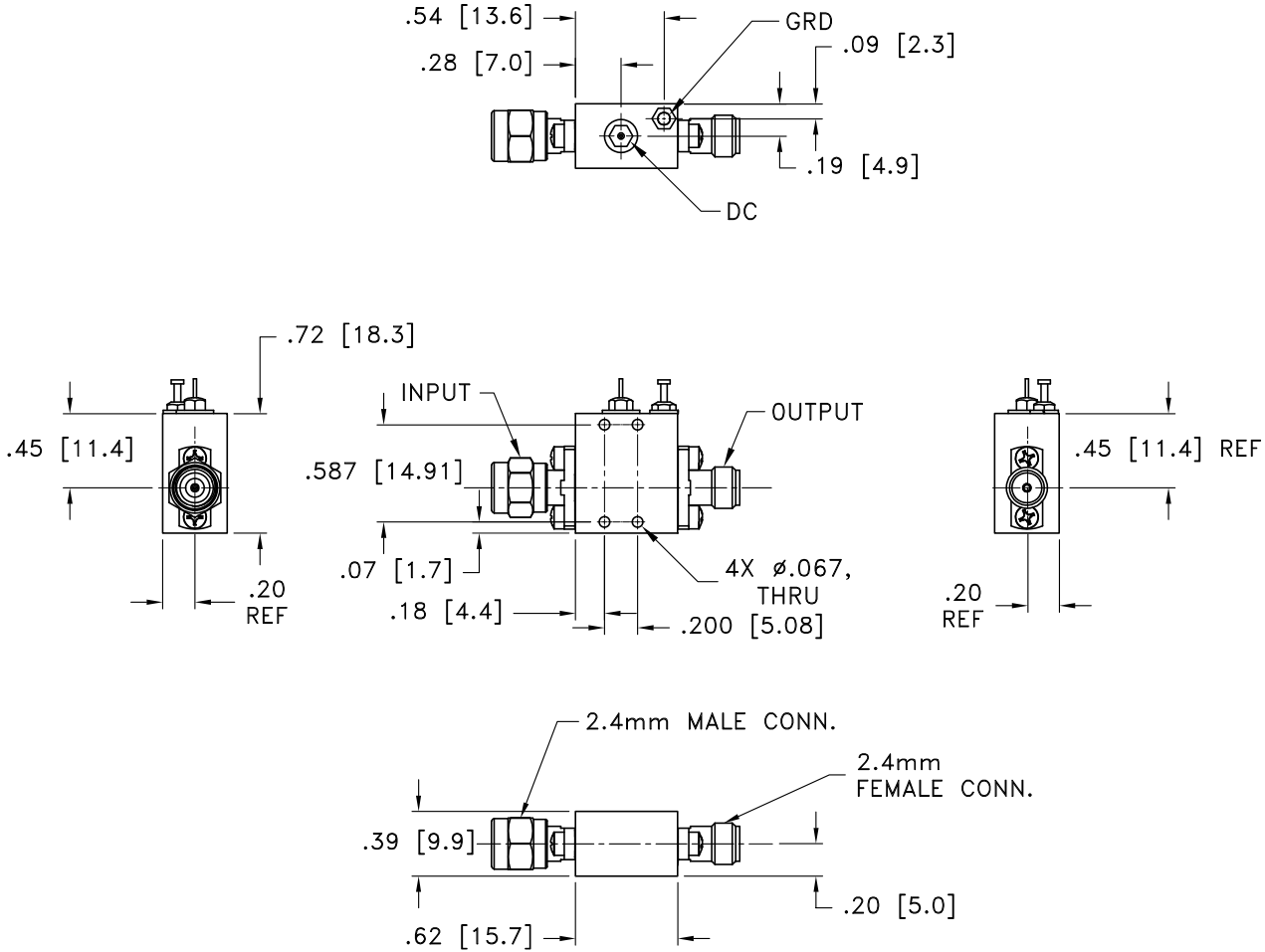
## ZBT-V543-FT+

50Ω 10 MHz to 54 GHz 2.4mm Male to 2.4mm Female

### COAXIAL CONNECTIONS

Input	2.4mm Male
Output	2.4mm Female

### OUTLINE DRAWING



Weight: 35 Grams

Dimensions are in inches [mm]. Tolerances: 2 Pl. ±.03; 3 Pl. ±.015



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# Wideband Bias-Tee

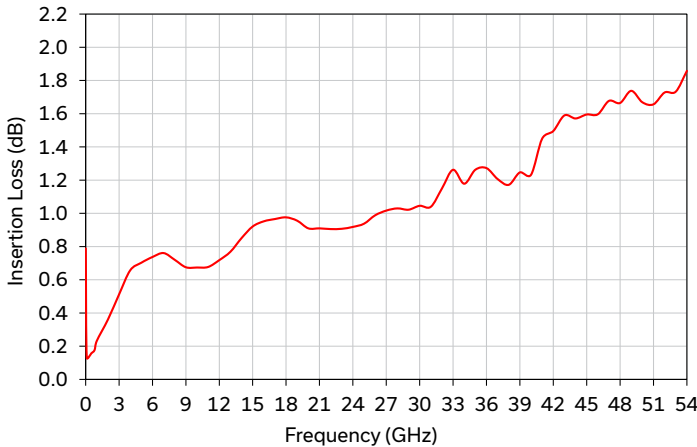
## ZBT-V543-FT+

50Ω 10 MHz to 54 GHz 2.4mm Male to 2.4mm Female

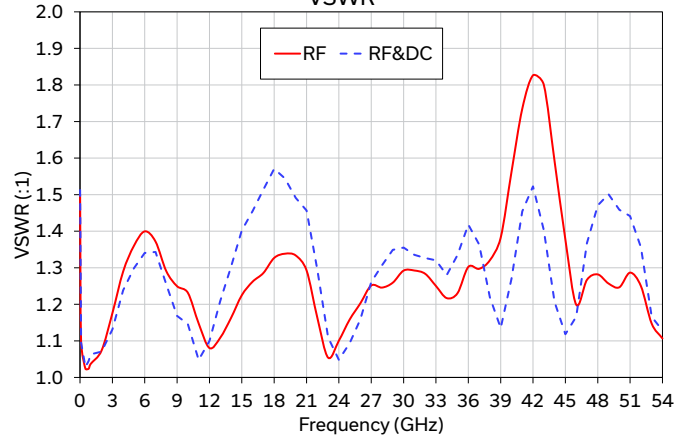
### TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (GHz)	Insertion Loss (dB)	VSWR (:1)	
		Input (DC+RF)	Output (RF)
0.01	0.79	1.51	1.50
0.1	0.13	1.09	1.10
1	0.23	1.06	1.04
2	0.36	1.07	1.07
4	0.66	1.24	1.29
6	0.74	1.34	1.40
8	0.72	1.25	1.29
10	0.67	1.15	1.23
12	0.72	1.10	1.08
14	0.85	1.30	1.16
16	0.95	1.46	1.26
18	0.98	1.57	1.33
20	0.91	1.49	1.33
22	0.91	1.30	1.16
24	0.92	1.05	1.10
26	0.99	1.16	1.20
28	1.03	1.31	1.25
30	1.05	1.36	1.29
32	1.15	1.33	1.28
34	1.18	1.28	1.22
36	1.27	1.42	1.30
38	1.17	1.22	1.32
40	1.23	1.27	1.56
42	1.50	1.52	1.83
44	1.57	1.21	1.59
46	1.60	1.17	1.20
48	1.66	1.47	1.28
50	1.67	1.46	1.25
52	1.73	1.36	1.25
54	1.86	1.13	1.11

ZBT-V543-FT+  
Insertion Loss



ZBT-V543-FT+  
VSWR



#### NOTES

- A. 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.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. 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](http://www.minicircuits.com/terms/viewterm.html)



# Bias-Tee, Coaxial ZBT-V543-FT+

## Typical Performance Data

FREQUENCY (GHz)	INSERTION LOSS (dB)	VSWR (:1)	
		RF	RF&DC
0.01	0.79	1.50	1.51
0.1	0.13	1.10	1.09
0.5	0.16	1.02	1.03
0.8	0.18	1.02	1.04
1.0	0.23	1.04	1.06
2.0	0.36	1.07	1.07
3.0	0.51	1.18	1.13
4.0	0.66	1.29	1.24
5.0	0.70	1.36	1.30
6.0	0.74	1.40	1.34
7.0	0.76	1.37	1.34
8.0	0.72	1.29	1.25
9.0	0.68	1.25	1.17
10.0	0.67	1.23	1.15
11.0	0.68	1.15	1.05
12.0	0.72	1.08	1.10
13.0	0.77	1.11	1.21
14.0	0.85	1.16	1.30
15.0	0.92	1.22	1.40
16.0	0.95	1.26	1.46
17.0	0.97	1.29	1.51
18.0	0.98	1.33	1.57
19.0	0.96	1.34	1.54
20.0	0.91	1.33	1.49
21.0	0.91	1.29	1.46
22.0	0.91	1.16	1.30
23.0	0.91	1.05	1.11
24.0	0.92	1.10	1.05
25.0	0.94	1.16	1.09
26.0	0.99	1.20	1.16
27.0	1.02	1.25	1.26
28.0	1.03	1.25	1.31
29.0	1.02	1.26	1.35
30.0	1.05	1.29	1.36
31.0	1.04	1.29	1.34
32.0	1.15	1.28	1.33
33.0	1.26	1.25	1.32
34.0	1.18	1.22	1.28
35.0	1.26	1.23	1.33
36.0	1.27	1.30	1.42
37.0	1.21	1.30	1.36
38.0	1.17	1.32	1.22
39.0	1.25	1.38	1.14
40.0	1.23	1.56	1.27
41.0	1.45	1.73	1.45
42.0	1.50	1.83	1.52
43.0	1.59	1.80	1.40
44.0	1.57	1.59	1.21
45.0	1.60	1.38	1.12
46.0	1.60	1.20	1.17
47.0	1.68	1.27	1.37
48.0	1.66	1.28	1.47
49.0	1.74	1.26	1.50
50.0	1.67	1.25	1.46
51.0	1.66	1.29	1.44
52.0	1.73	1.25	1.36
53.0	1.73	1.15	1.17
54.0	1.86	1.11	1.13

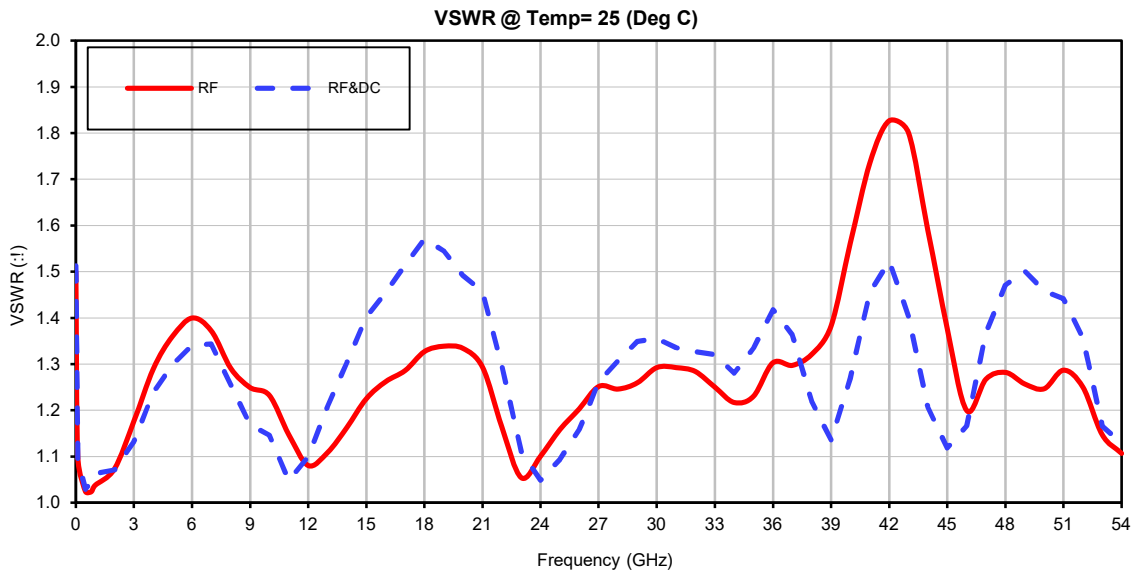
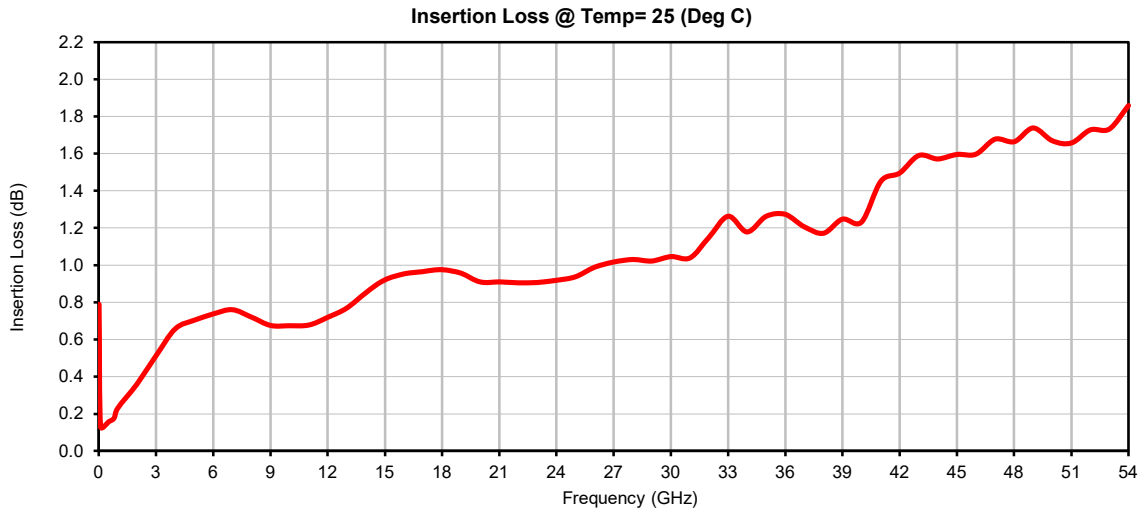


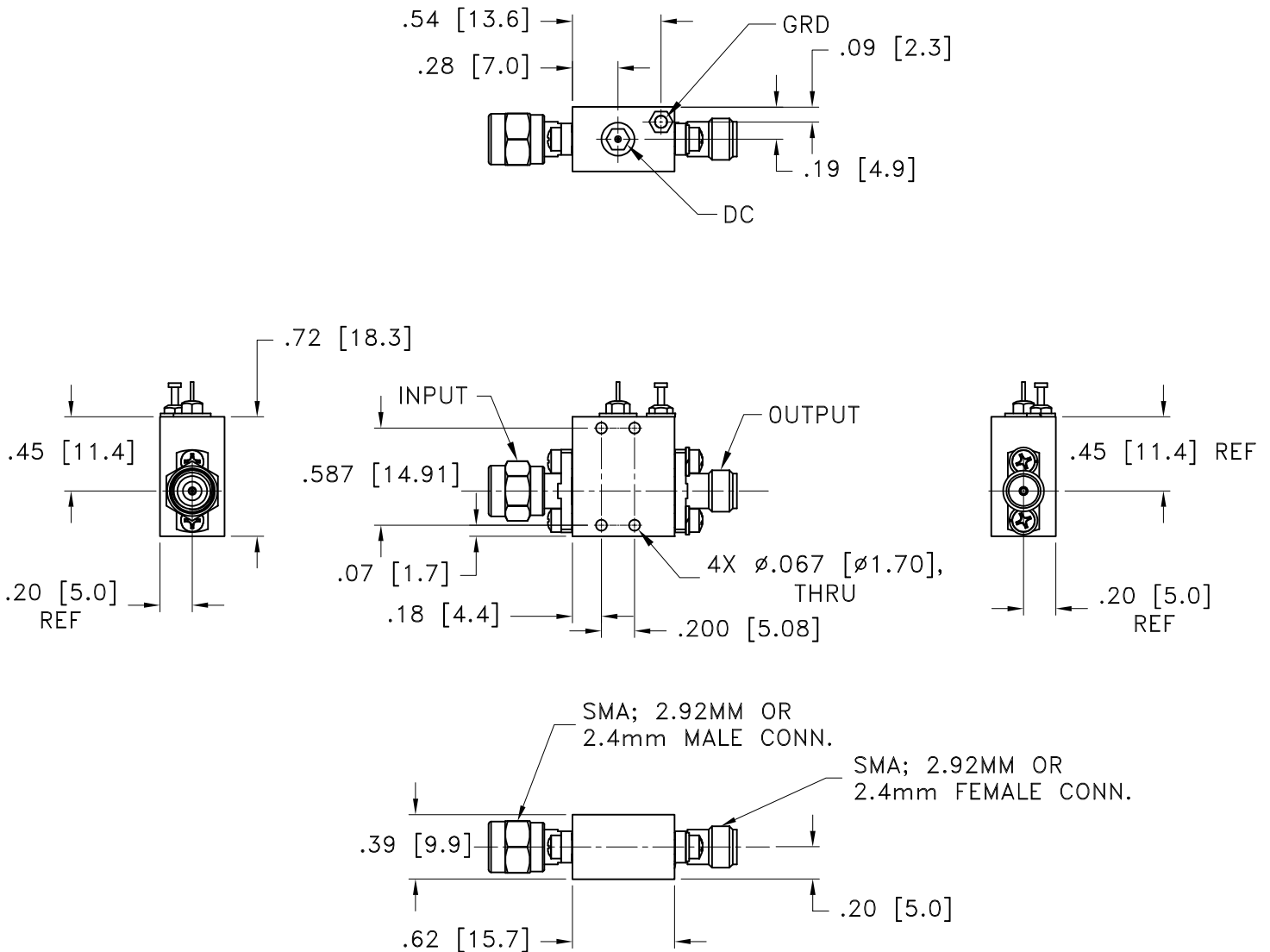
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site  
 The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)



IF/RF MICROWAVE COMPONENTS

## Typical Performance Curves





Weight: 35 grams

Dimensions are in inches [mm]. Tolerances: 2 Pl.  $\pm$ .03; 3 Pl.  $\pm$ .015 inches

Notes:

Case material: Brass alloy 360.  
 Case Finish:  
 For RoHS Case Styles: Gold Plating.



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RF/IF MICROWAVE COMPONENTS

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85°C	Individual Model Data Sheet
Storage Temperature	-40° to +85° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-40° C to +85°C, 100 cycles	Transition time = 5 mins, Dwell time = 30 mins
Vibration	Random Vibration (Non-operating)	MIL-STD-810F Method 514.5 Procedure I, Category 24, Figure 513C-17
Mechanical Shock	Non-operation	MIL-STD 810F Method 516.5 Procedure 1, Table 516.5-II