



LUMPED LC COAXIAL

Bandpass Filter

ZX75BP-188-S+

Mini-Circuits

50Ω 138 to 238 MHz SMA-Male to SMA-Female

KEY FEATURES

- Insertion Loss, 1.8dB Typ.
- Pass Band Return Loss, 16dB Typ.
- Stop Band Rejection, 30dB Typ.

APPLICATIONS

- Auxiliary Broadcasting
- Biomedical Telemetry Devices
- Private and Public Land Mobile
- Digital Television

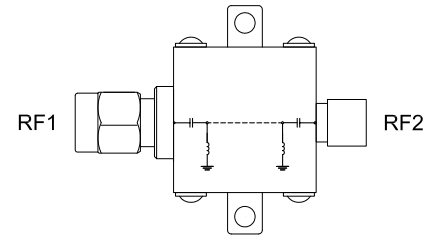
PRODUCT OVERVIEW

ZX75BP-188-S+ is a 50Ω bandpass filter in a connectorized package covering 138 to 238MHz. This offers good matching within the passband and high rejection in stopband.



Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM



ELECTRICAL SPECIFICATIONS¹ AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	Fc	188	—	—	—	MHz
	Insertion Loss	F1-F2	138 - 238	—	1.8	3	dB
	Return Loss	F1-F2	138 - 238	10	16	—	dB
Stop Band, Lower	Rejection	DC-F3	DC - 60	35	—	—	dB
		F3-F4	60 - 96	20	—	—	
Stop Band, Upper	Rejection	F5-F6	315 - 400	20	—	—	dB
		F6-F7	400 - 1500	35	—	—	
		F7-F8	1500 - 3600	—	30	—	

1. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.

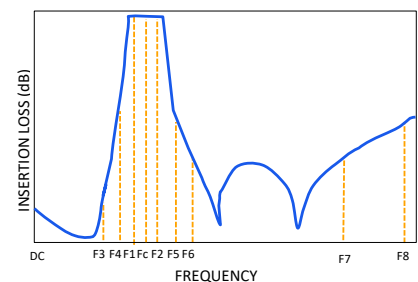
ABSOLUTE MAXIMUM RATINGS²

Parameter	Ratings
Operating Temperature	-40°C to + 85°C
Storage Temperature	-55°C to + 100°C
Input Power ³	0.25W

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

3. Power rating applies only to signals within the passband.

TYPICAL FREQUENCY RESPONSE AT +25°C



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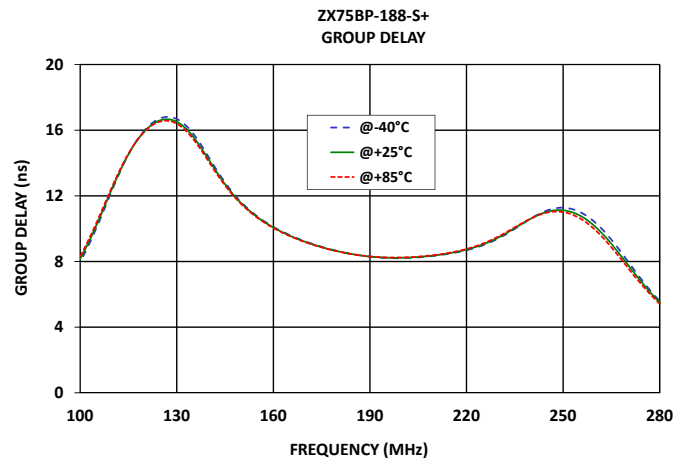
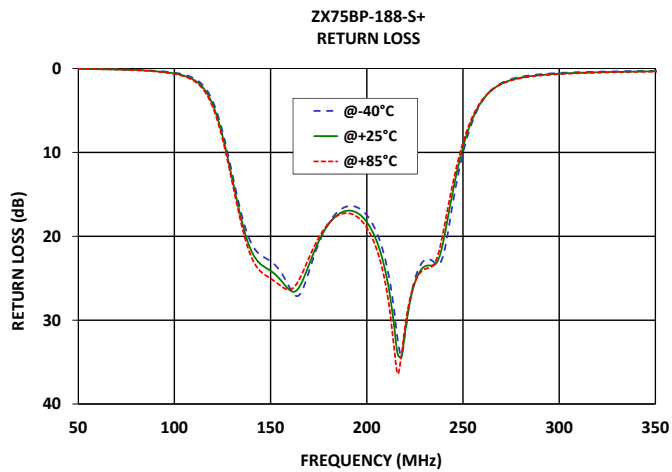
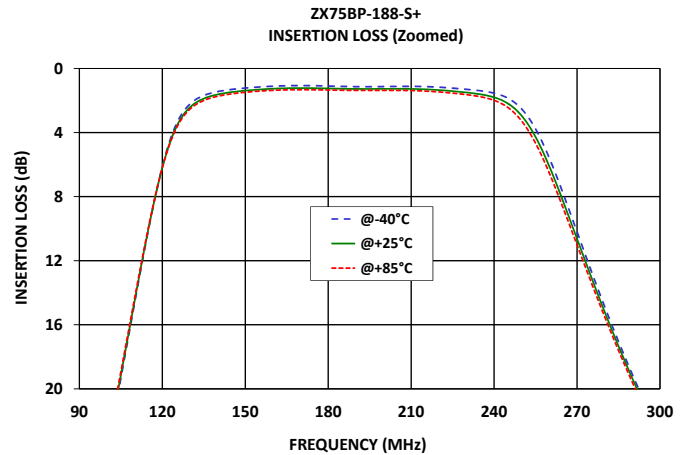
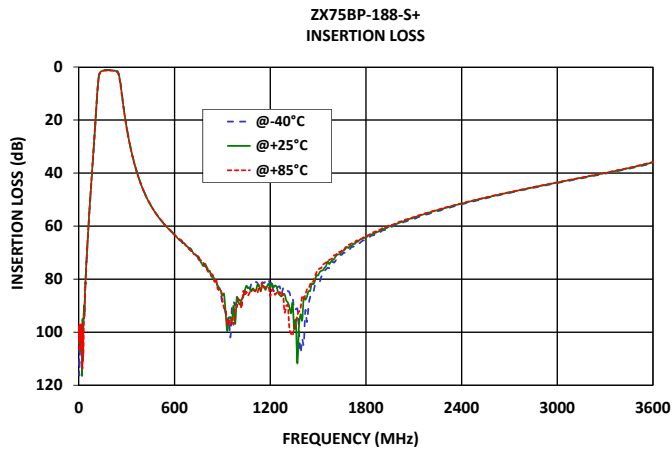
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TYPICAL PERFORMANCE GRAPHS





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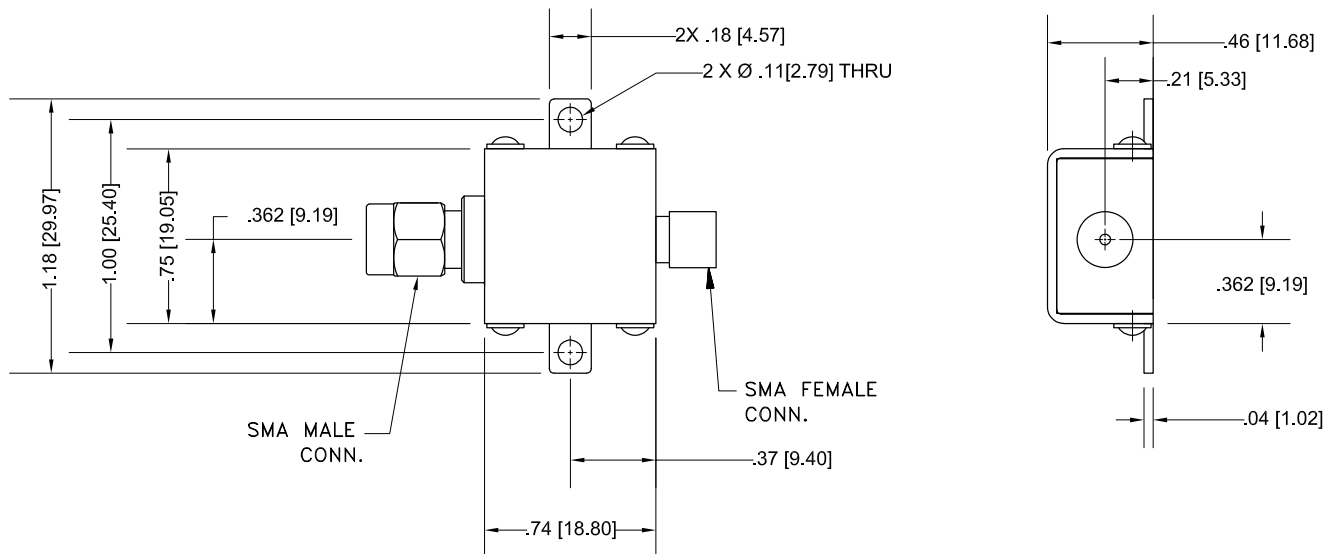
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50Ω 138 to 238 MHz SMA-Male to SMA-Female

CONNECTOR DESCRIPTION

Function	Marking on Unit	Connector
RF1 ¹	1	SMA Male
RF2 ¹	2	SMA Female

CASE STYLE DRAWING



Weight: 24.4 gram

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015

Tolerance on hole size and interaxes dimensions to be ± .005.

PRODUCT MARKING*: ZX75BP-188-S+

*Marking may contain other features or characters for internal lot control.





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ZX75BP-188-S+

Mini-Circuits

50Ω 138 to 238 MHz SMA-Male to SMA-Female

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

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Performance Data & Graphs	Data
	Graphs
	S-Parameter (S2P Files) Data Set (.zip file)
Case Style	KE1467
RoHS Status	Compliant
Environmental Ratings	ENV46

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-Circuits' 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



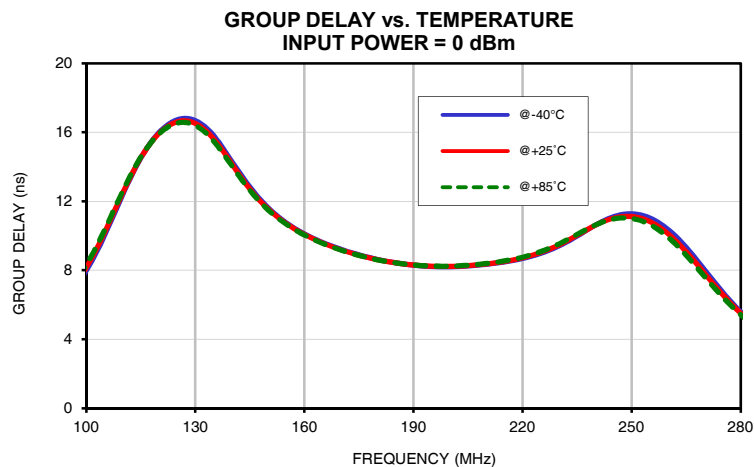
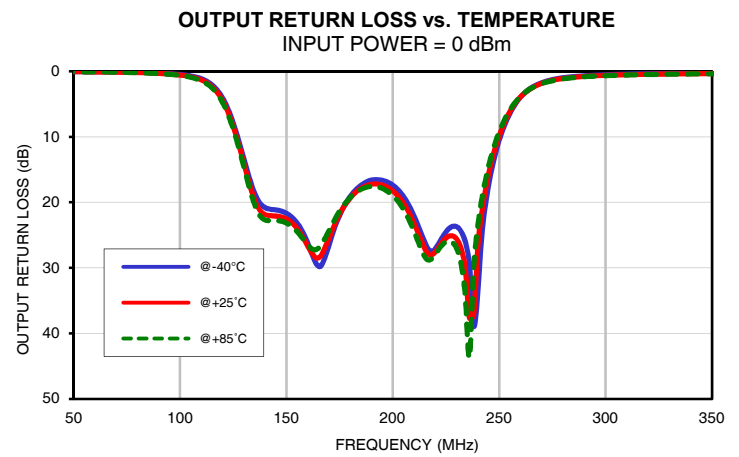
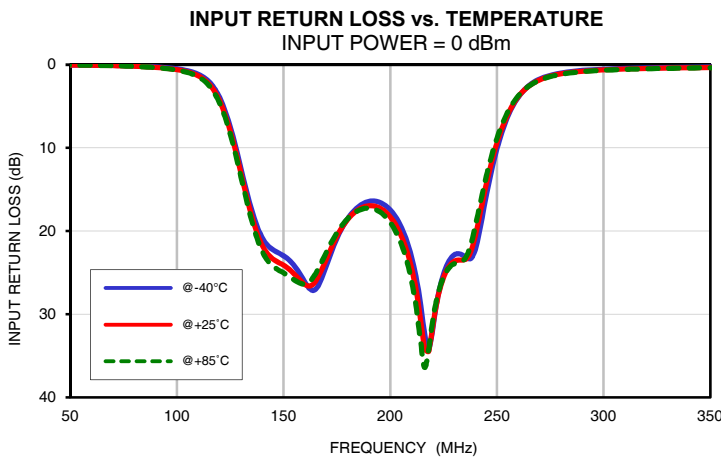
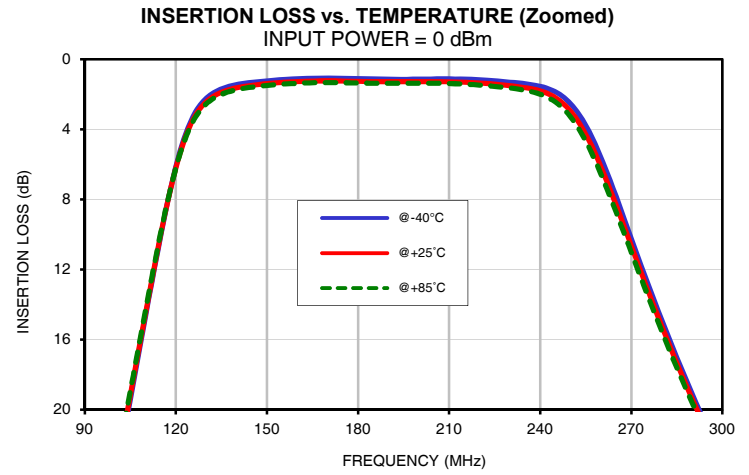
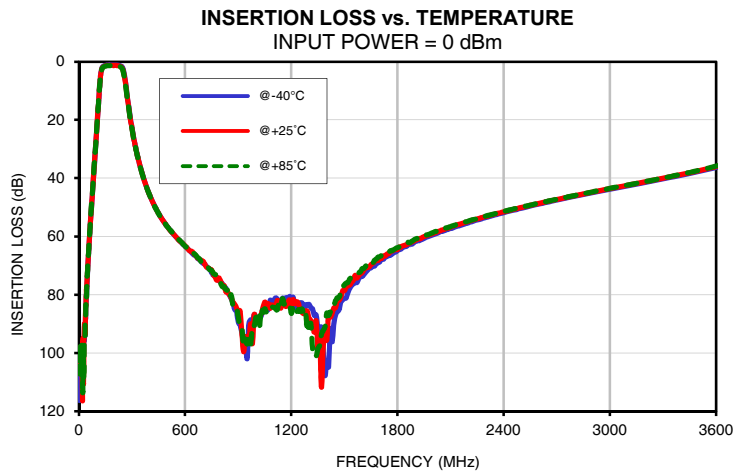
Typical Performance Data

FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
10	103.13	106.66	97.14	0.00	0.00	0.00	0.00	0.00	0.00
12	99.18	106.14	101.89	0.00	0.00	0.00	0.00	0.00	0.00
14	97.93	105.88	98.68	0.00	0.00	0.00	0.00	0.00	0.00
16	100.95	104.02	99.49	0.00	0.00	0.00	0.00	0.00	0.00
18	109.89	98.71	97.53	0.00	0.00	0.00	0.00	0.00	0.00
20	101.48	116.45	104.61	0.00	0.00	0.00	0.00	0.00	0.00
22	98.69	95.11	113.57	0.00	0.00	0.00	0.00	0.00	0.01
24	103.05	95.37	99.19	0.00	0.01	0.01	0.00	0.00	0.00
26	100.59	110.68	107.93	0.00	0.01	0.01	0.00	0.01	0.01
28	94.97	95.75	108.81	0.01	0.01	0.01	0.01	0.01	0.01
30	95.65	93.68	97.72	0.01	0.01	0.01	0.01	0.01	0.01
32	90.91	89.90	94.04	0.01	0.01	0.01	0.01	0.01	0.01
34	94.12	93.70	94.04	0.01	0.01	0.01	0.01	0.01	0.01
36	89.97	90.83	88.46	0.01	0.02	0.02	0.01	0.01	0.02
38	87.51	84.47	88.11	0.01	0.02	0.02	0.01	0.02	0.02
40	82.66	83.47	81.43	0.01	0.02	0.02	0.02	0.02	0.02
44	79.49	77.69	78.32	0.02	0.03	0.03	0.02	0.02	0.03
50	70.76	70.85	70.06	0.03	0.04	0.04	0.03	0.03	0.04
60	60.11	59.88	59.80	0.05	0.06	0.07	0.05	0.06	0.06
70	50.64	50.46	50.30	0.09	0.11	0.12	0.08	0.10	0.11
80	41.78	41.56	41.36	0.15	0.18	0.20	0.13	0.16	0.18
90	32.99	32.75	32.54	0.26	0.31	0.34	0.23	0.28	0.32
96	27.63	27.40	27.18	0.38	0.45	0.49	0.34	0.41	0.46
104	20.27	20.07	19.86	0.66	0.78	0.85	0.63	0.74	0.82
114	10.93	10.85	10.74	1.79	2.04	2.22	1.79	2.04	2.23
126	3.15	3.33	3.43	8.41	8.92	9.32	8.86	9.42	9.84
138	1.52	1.71	1.82	19.74	20.57	21.21	20.28	21.39	22.22
160	1.11	1.27	1.37	26.16	26.44	26.36	26.19	26.62	26.49
170	1.07	1.23	1.33	24.17	23.36	22.54	26.48	25.45	24.29
180	1.10	1.25	1.35	18.50	18.61	18.49	19.07	19.31	19.24
188	1.13	1.27	1.37	16.59	17.04	17.27	16.82	17.37	17.65
200	1.13	1.28	1.37	17.48	18.30	18.98	17.38	18.25	18.96
210	1.12	1.28	1.38	23.15	24.50	26.03	22.06	23.20	24.43
220	1.17	1.35	1.47	31.48	31.19	30.52	27.08	27.53	27.93
238	1.47	1.71	1.88	23.23	22.27	21.35	38.88	37.22	29.93
250	2.54	2.96	3.29	10.05	9.36	8.82	10.54	9.81	9.22
270	10.20	10.64	11.02	1.72	1.81	1.84	1.72	1.81	1.85
290	19.11	19.36	19.59	0.68	0.77	0.82	0.66	0.75	0.81
315	27.79	27.94	28.08	0.40	0.47	0.52	0.38	0.46	0.51
350	36.80	36.89	36.96	0.27	0.33	0.36	0.25	0.32	0.35
400	45.82	45.88	45.89	0.19	0.24	0.27	0.18	0.24	0.27
500	56.73	56.67	56.66	0.13	0.18	0.21	0.12	0.18	0.21
600	63.32	63.27	63.26	0.10	0.16	0.19	0.10	0.16	0.20
700	69.17	68.40	69.11	0.10	0.16	0.19	0.09	0.16	0.20
800	75.65	75.18	75.98	0.09	0.17	0.20	0.09	0.16	0.20
900	89.40	86.20	87.69	0.09	0.18	0.22	0.09	0.17	0.21
1000	87.74	88.67	87.81	0.10	0.19	0.24	0.09	0.18	0.23
1100	82.14	84.03	84.37	0.11	0.20	0.26	0.10	0.19	0.24
1200	81.91	83.25	86.39	0.12	0.21	0.28	0.11	0.21	0.26
1300	83.30	87.99	89.96	0.13	0.23	0.29	0.11	0.22	0.27
1400	102.57	95.46	86.32	0.14	0.24	0.31	0.12	0.23	0.29
1500	81.31	78.56	76.56	0.15	0.26	0.33	0.12	0.24	0.31
1600	73.74	72.41	71.04	0.16	0.27	0.34	0.14	0.26	0.32
1700	68.64	67.46	66.87	0.17	0.28	0.36	0.14	0.27	0.34
1800	64.83	64.45	63.77	0.18	0.30	0.37	0.16	0.29	0.35
2000	59.43	58.96	58.62	0.20	0.32	0.40	0.17	0.31	0.38
2200	55.30	54.84	54.70	0.22	0.34	0.42	0.19	0.33	0.40
2500	50.28	50.02	49.90	0.24	0.37	0.45	0.21	0.35	0.42
3000	43.76	43.55	43.46	0.27	0.40	0.48	0.22	0.37	0.45
3600	36.28	35.98	35.80	0.32	0.47	0.56	0.23	0.39	0.47

Typical Performance Data

FREQ.	GROUP DELAY		
(MHz)	(nsec)		
	@-40°C	@+25°C	@+85°C
138	14.96	14.79	14.66
140	14.33	14.18	14.06
142	13.70	13.57	13.46
144	13.09	12.98	12.89
146	12.55	12.45	12.38
148	12.05	11.97	11.91
150	11.62	11.55	11.50
152	11.24	11.18	11.14
154	10.90	10.85	10.81
156	10.61	10.56	10.53
158	10.35	10.30	10.27
160	10.11	10.07	10.04
162	9.90	9.86	9.83
164	9.70	9.67	9.64
166	9.53	9.50	9.47
168	9.37	9.34	9.31
170	9.22	9.19	9.17
172	9.08	9.06	9.04
174	8.95	8.93	8.92
176	8.84	8.82	8.80
178	8.73	8.71	8.70
180	8.63	8.62	8.61
182	8.54	8.54	8.53
184	8.47	8.46	8.46
186	8.40	8.40	8.40
188	8.34	8.34	8.35
190	8.29	8.30	8.31
192	8.25	8.26	8.28
194	8.23	8.24	8.25
196	8.21	8.23	8.24
198	8.20	8.22	8.24
200	8.20	8.22	8.24
202	8.22	8.24	8.26
204	8.24	8.26	8.28
206	8.27	8.29	8.31
208	8.30	8.32	8.35
210	8.34	8.37	8.39
214	8.45	8.48	8.51
220	8.69	8.72	8.76
230	9.42	9.47	9.53
238	10.37	10.39	10.42

Typical Performance Curves



Outline Dimensions



CASE #.	A	B	C	D	E	F	G	H	J	K	L	M
KE1467	.74 (18.80)	.75 (19.05)	.46 (11.68)	1.18 (29.97)	.04 (1.02)	.362 (9.19)	.21 (5.33)	.362 (9.19)	1.00 (25.40)	.37 (9.40)	.18 (4.57)	.11 (2.79)

CASE #.	WT. GRAM
KE1467	24.4

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

Tolerance on hole size and interaxes dimensions to be $\pm .005$.

Note:

1. Case material: Brass
2. Case finish: Gold
3. Cover: Nickel plated.



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Mini-Circuits ISO 9001 & ISO 14001 Certified



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	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 40°C, 96 hours; Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103, Condition B
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11ms half-sine, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition A