Coaxial

Low Pass Filter

ZLPF-40W-222-S+

50Ω DC to 2200 MHz

Generic photo used for illustration purposes only

CASE STYLE: SS2806

The Big Deal

- High power handling, 40W
- Low Insertion loss
- High rejection
- Good VSWR
- Connectorized package

Product Overview

ZLPF-40W-222-S+ is a 50Ω low pass filter built in connectorized package which can handle high power. Covering DC-2200 MHz bandwidth, these units offer good matching within the passband and high rejection in stopband. In addition, it offers consistent performance across temperature and production lots.

Key Features

Feature	Advantages
High power handling	Handles high power. Suitable for high performance application
High rejection	Provides high adjacent band rejection
Connectorized package	The connectorized package is easy to interface with other devices and well suited for test setups
Good VSWR	Provides good matching when used with other devices.

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Connectors	Model
SMA-M/F	ZLPF-40W-222-S+

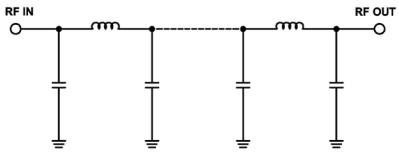
Features

- High power handling, 40W
- Low insertion loss
- High rejection
- Good VSWR
- Connectorized package

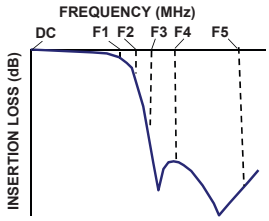
Applications

- Wireless communication
- Harmonic rejection
- Transmitters / Receivers

Functional Schematic



Typical Frequency Response



+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications at 25°C

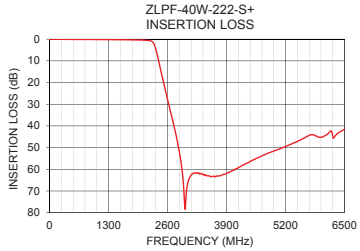
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC-2200	—	0.7	1.0	dB
	VSWR	DC-F1	DC-2200	—	1.29	1.5	:1
Stop Band	Insertion Loss	F2-F3	2650-3200	20	29	—	dB
		F3-F4	3200-4500	45	55	—	dB
		F4-F5	4500-6300	30	39	—	dB

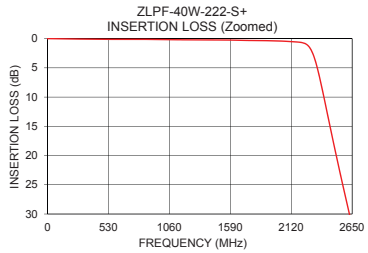
Maximum Ratings	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input*	40W max.

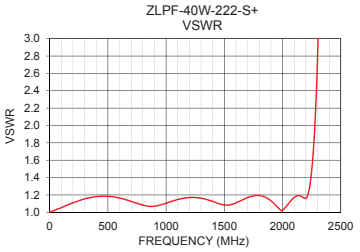
*Passband rating, derate linearly to 20W at 85°C ambient.
Permanent damage may occur if any of these limits are exceeded.

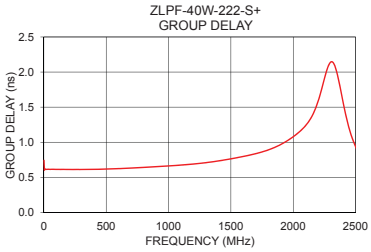
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1	0.00	1.00	1	0.74
10	0.01	1.01	110	0.61
100	0.03	1.05	220	0.61
420	0.11	1.18	330	0.61
740	0.13	1.11	440	0.61
1060	0.17	1.13	550	0.62
1380	0.22	1.13	660	0.63
2200	0.64	1.16	770	0.64
2250	0.95	1.48	880	0.65
2320	3.20	3.86	990	0.66
2520	20.71	46.24	1100	0.67
2650	32.04	64.99	1210	0.69
3000	74.77	76.48	1500	0.76
3150	62.11	77.76	1600	0.80
3200	61.76	77.28	1900	0.97
4000	60.97	76.40	2000	1.08
4100	59.84	76.26	2110	1.26
4500	55.54	72.22	2150	1.37
6300	44.39	54.08	2160	1.40
6500	41.60	68.19	2200	1.59









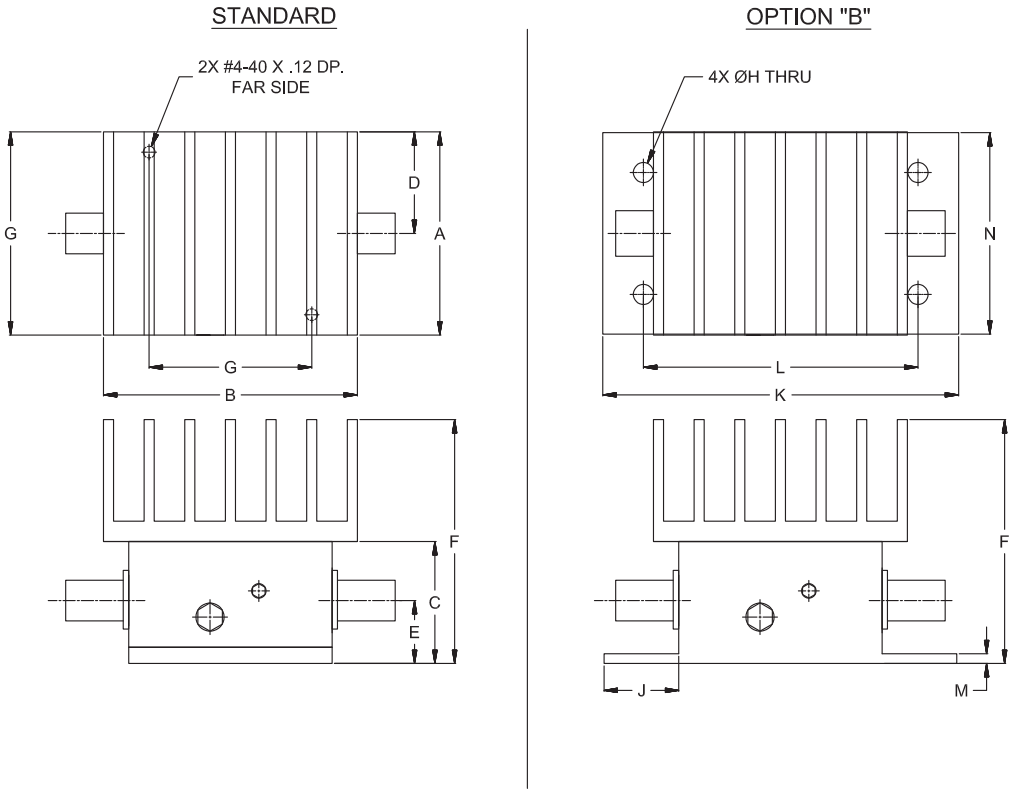
Notes

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/MCLStore/terms.jsp

Coaxial Connections

PORT - 1	SMA-MALE
PORT - 2	SMA-FEMALE

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
1.25	**1.56**	**.75**	**.63**	**.39**	**1.50**	**1.000**
31.75	36.62	19.05	16.00	9.91	38.10	25.40

H	J	K	L	M	N	Wt.
1.25	**.46**	**2.19**	**1.688**	**.06**	**.750**	grams
3.18	11.68	55.63	42.88	1.52	19.05	70

Note: Please refer to case style drawing for details

Coaxial Low Pass Filter ZLPF-40W-222-S+

Typical Performance Data

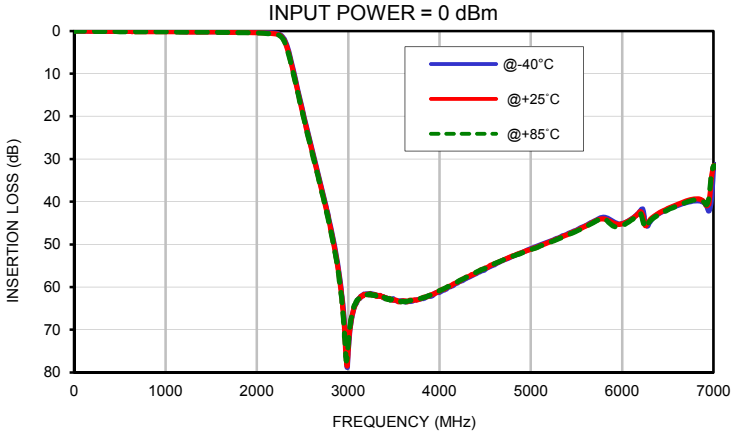
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
10	0.00	0.01	0.00	46.84	50.53	52.65	46.98	49.55	50.60
100	0.02	0.03	0.02	30.86	31.64	32.72	30.60	31.58	32.93
200	0.03	0.05	0.05	28.61	25.79	24.82	28.78	25.84	24.93
300	0.05	0.08	0.09	24.40	22.92	21.65	24.73	23.14	21.82
400	0.08	0.11	0.12	21.51	21.61	20.81	21.80	21.94	21.10
500	0.09	0.12	0.13	21.12	21.46	21.23	21.47	21.83	21.62
600	0.09	0.13	0.14	22.04	22.41	22.65	22.36	22.75	23.02
700	0.08	0.13	0.14	24.33	24.58	25.44	24.43	24.76	25.66
800	0.08	0.13	0.15	28.36	28.00	29.58	27.71	27.54	29.12
900	0.09	0.14	0.16	29.73	29.44	29.97	28.14	28.22	29.02
1000	0.10	0.16	0.19	26.18	26.07	25.83	25.23	25.45	25.51
1100	0.12	0.18	0.21	23.80	23.27	23.14	23.37	23.08	23.11
1200	0.14	0.20	0.23	22.43	22.13	22.23	22.20	22.07	22.22
1300	0.15	0.22	0.25	22.65	22.51	22.78	22.48	22.48	22.71
1400	0.15	0.22	0.26	24.56	24.64	24.86	24.61	24.60	24.61
1500	0.15	0.23	0.27	27.84	27.85	27.28	28.37	27.91	26.96
1600	0.17	0.26	0.30	26.45	25.80	25.16	27.27	26.30	25.49
1700	0.20	0.30	0.34	22.30	22.13	22.13	22.81	22.64	22.66
1800	0.24	0.33	0.38	21.27	21.09	21.50	21.69	21.58	22.04
1900	0.25	0.35	0.40	24.16	24.20	25.21	24.54	24.70	25.71
2000	0.28	0.39	0.45	40.19	38.84	36.52	53.33	44.68	37.86
2200	0.49	0.64	0.72	23.24	22.56	22.73	30.33	29.43	30.28
2250	0.77	0.95	1.07	14.64	14.25	13.91	15.61	15.29	14.82
2320	2.88	3.20	3.46	4.68	4.60	4.48	4.86	4.80	4.67
2520	20.33	20.71	21.02	0.27	0.38	0.44	0.35	0.46	0.50
2500	18.52	18.91	19.21	0.31	0.42	0.48	0.39	0.50	0.54
2650	31.67	32.04	32.34	0.17	0.27	0.34	0.23	0.33	0.36
2700	35.97	36.35	36.67	0.15	0.25	0.32	0.21	0.31	0.34
2800	45.09	45.51	45.86	0.14	0.24	0.31	0.19	0.28	0.31
2900	56.62	57.22	57.78	0.13	0.23	0.31	0.17	0.26	0.29
3000	75.25	74.77	73.39	0.12	0.23	0.30	0.15	0.25	0.27
3100	63.32	63.28	63.21	0.11	0.22	0.30	0.14	0.23	0.26
3200	61.59	61.76	61.84	0.12	0.22	0.30	0.12	0.22	0.25
3300	61.85	61.94	61.90	0.11	0.23	0.29	0.11	0.22	0.24
3400	62.59	62.47	62.47	0.11	0.22	0.29	0.10	0.21	0.24
3500	63.00	63.05	63.08	0.12	0.23	0.29	0.09	0.20	0.23
3600	63.25	63.22	63.38	0.12	0.23	0.29	0.08	0.19	0.23
3700	63.32	63.16	63.13	0.11	0.22	0.28	0.07	0.19	0.22
3800	62.72	62.69	62.65	0.12	0.23	0.29	0.06	0.18	0.22
3900	62.18	61.89	61.90	0.12	0.23	0.29	0.05	0.17	0.22
4000	61.26	60.97	60.84	0.11	0.23	0.29	0.05	0.18	0.22
4100	60.00	59.84	59.85	0.10	0.23	0.30	0.04	0.17	0.22
4200	59.01	58.79	58.73	0.10	0.23	0.31	0.04	0.17	0.22
4300	57.92	57.63	57.65	0.09	0.23	0.32	0.03	0.17	0.22
4400	56.90	56.62	56.55	0.08	0.23	0.33	0.03	0.17	0.23
4500	55.90	55.54	55.64	0.08	0.24	0.35	0.04	0.18	0.24
4600	54.82	54.61	54.55	0.07	0.24	0.37	0.04	0.18	0.25
4700	53.70	53.62	53.63	0.06	0.24	0.38	0.04	0.18	0.25
4800	52.80	52.69	52.78	0.06	0.24	0.40	0.04	0.19	0.26
4900	51.91	51.92	52.00	0.05	0.25	0.41	0.05	0.20	0.28
5000	51.02	51.16	51.25	0.05	0.25	0.42	0.06	0.20	0.28
5100	50.15	50.38	50.42	0.05	0.25	0.43	0.06	0.21	0.29
5200	49.31	49.46	49.56	0.04	0.25	0.44	0.06	0.22	0.30
5300	48.49	48.60	48.71	0.05	0.25	0.44	0.07	0.22	0.31
5400	47.58	47.72	47.79	0.05	0.25	0.44	0.08	0.23	0.32
5500	46.66	46.73	46.89	0.05	0.25	0.44	0.09	0.25	0.33
5600	45.60	45.73	45.88	0.06	0.26	0.44	0.10	0.25	0.33
6000	45.14	45.20	45.60	0.12	0.28	0.42	0.14	0.30	0.38
6300	44.84	44.39	44.66	0.20	0.32	0.41	0.15	0.32	0.40
6500	41.77	41.60	41.92	0.13	0.25	0.32	0.15	0.33	0.40

Typical Performance Data

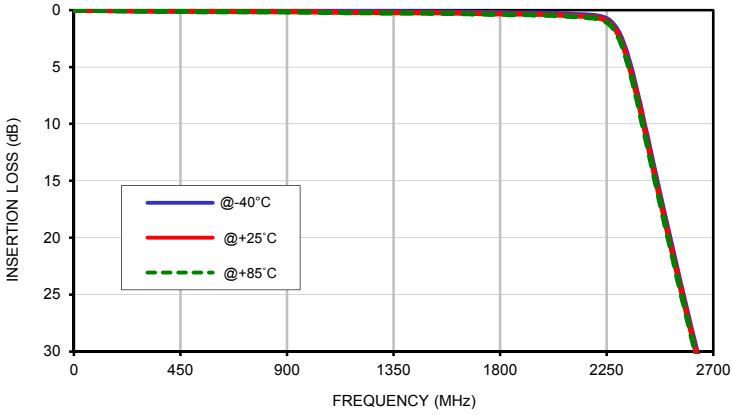
FREQ. (MHz)	GROUP DELAY (nsec)		
	@-40°C	@+25°C	@+85°C
1	0.79	0.74	0.77
100	0.62	0.61	0.61
140	0.62	0.61	0.61
180	0.62	0.61	0.61
220	0.62	0.61	0.61
260	0.62	0.61	0.61
300	0.62	0.61	0.61
340	0.62	0.61	0.61
380	0.62	0.61	0.61
420	0.62	0.61	0.61
460	0.63	0.62	0.61
500	0.63	0.62	0.61
540	0.63	0.62	0.62
580	0.63	0.62	0.62
620	0.63	0.62	0.62
660	0.64	0.63	0.62
700	0.64	0.63	0.63
740	0.65	0.64	0.63
780	0.65	0.64	0.64
820	0.65	0.64	0.64
860	0.66	0.65	0.64
900	0.66	0.65	0.65
940	0.67	0.66	0.65
980	0.67	0.66	0.66
1020	0.67	0.66	0.66
1060	0.68	0.67	0.66
1100	0.68	0.67	0.67
1140	0.69	0.68	0.68
1180	0.70	0.69	0.68
1220	0.70	0.69	0.69
1260	0.71	0.70	0.70
1300	0.72	0.71	0.70
1340	0.73	0.72	0.71
1380	0.74	0.73	0.72
1500	0.77	0.76	0.76
1900	0.98	0.97	0.97
1800	0.90	0.89	0.89
1900	0.98	0.97	0.97
2000	1.09	1.08	1.08
2100	1.24	1.24	1.24
2200	1.58	1.59	1.60

Typical Performance Curves

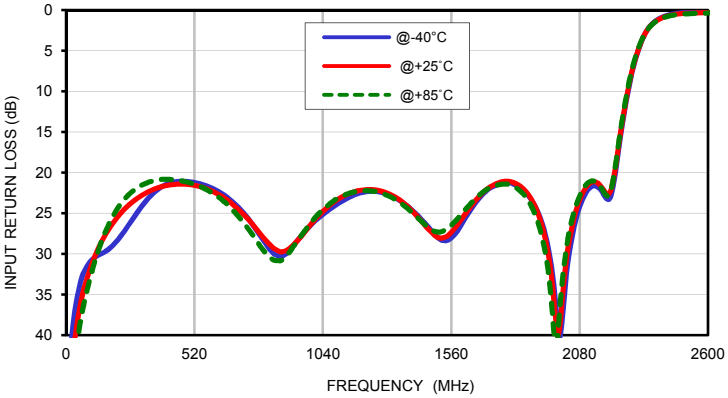
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



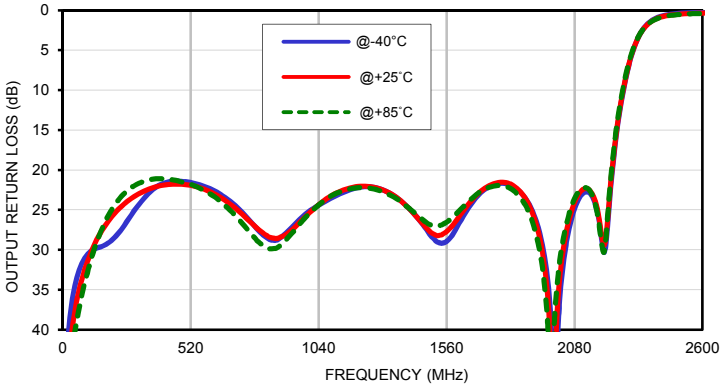
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



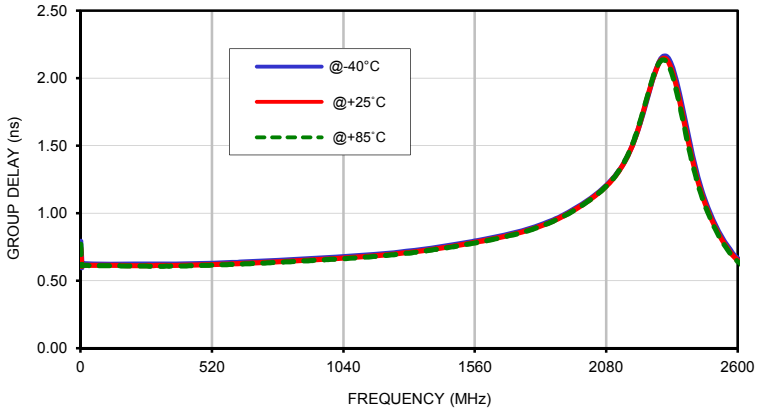
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm

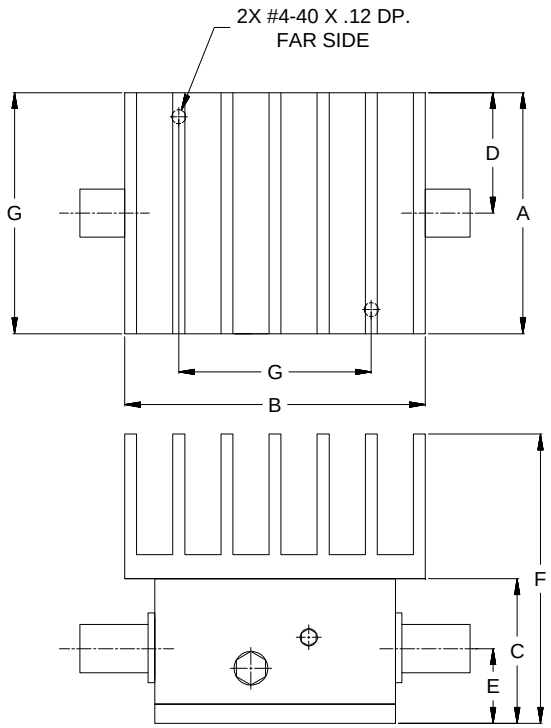


Case Style SS

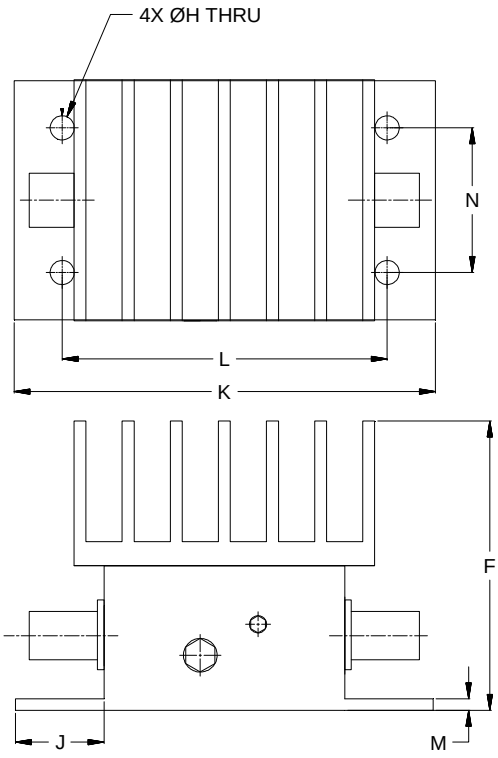
SS2806

Outline Dimensions

STANDARD



OPTION "B"



CASE#	A	B	C	D	E	F	G	H	J	K	L	M
SS2806	1.25 (31.75)	1.56 (39.62)	.75 (19.05)	.63 (16.00)	.39 (9.91)	1.50 (38.10)	1.000 (25.40)	.125 (3.18)	.46 (11.68)	2.19 (55.63)	1.688 (42.88)	.06 (1.52)

CASE#	N	WT. GRAMS
SS2806	.750 (19.05)	70

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

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
   For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Heat sink finish: Black anodize.
4. Refer to the individual model data sheet for the type of connector available.

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Environmental Specifications **ENV28T5**

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	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
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	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I