Coaxial

Bandpass Filter

ZX75BP-B70-S+

50Ω 52 to 88 MHz

CASE STYLE: HY1239

The Big Deal

- Low insertion loss of typical 1dB
- Good Matching and good out of band rejection
- Connectorized package

Product Overview

ZX75BP-B70-S+ is a low loss bandpass filter in a rugged connectorized package covering 52 to 88 MHz. This offers lower pass band insertion loss and good rejection. It has repeatable performance across lots and consistent performance across temperature.

Key Features

Feature	Advantages
Low insertion loss	Lower insertion loss result in better SNR in receiver front end and better power delivery to antenna in transmitter.
Good matching and good out of band rejection	This filter has good matching, which enables maximum power transform and better out of band rejection results in wide spur free band.
Connectorized package	Connectorized package is easy to interface with other devices and well suited for test setups.

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CASE STYLE: HY1239

Connectors	Model
SMA-F	ZX75BP-B70-S+

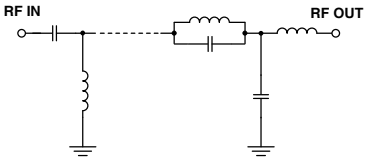
Features

- Low insertion loss of 1 dB typical
- Good matching and good out of band rejection.
- Connectorized package

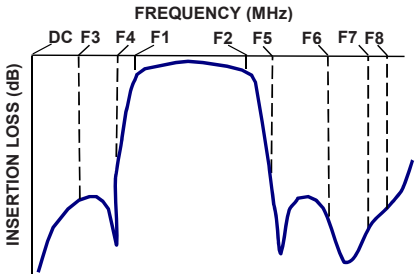
Applications

- Wire-line broad band access
- IF signal processing
- Fixed satellite
- VHF Television

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

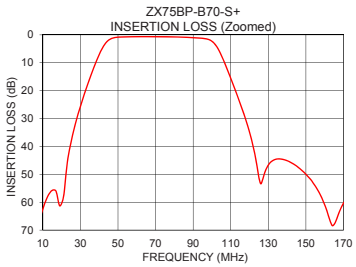
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	-	-	-	70	-	MHz
	Insertion Loss	F1-F2	52-88	-	1.0	1.6	dB
	VSWR	F1-F2	52-88	-	1.24	1.5	:1
Stop Band, Lower	Insertion Loss	DC-F3	1-11	50	60	-	dB
		F3-F4	11-29	25	27	-	dB
	VSWR	DC-F4	1 - 29	-	20	-	:1
Stop Band, Upper	Insertion Loss	F5-F6	118-200	20	29	-	dB
		F6-F7	200-2500	40	50	-	dB
		F7-F8	2500-4000	25	37	-	dB
	VSWR	F5-F8	118-4000	-	20	-	:1

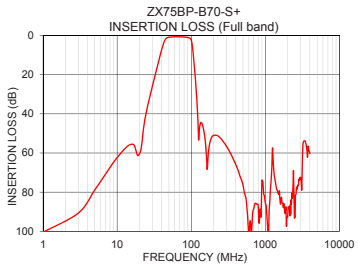
Maximum Ratings	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	1 W Max.

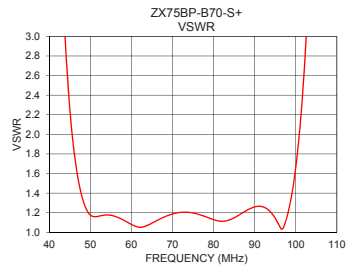
Permanent damage may occur if any of these limits are exceeded.

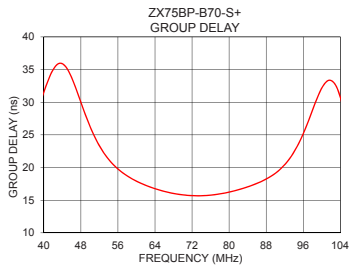
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1	100.51	98591.26	52.0	23.32
11	60.48	2753.10	54.0	21.25
27	32.73	167.96	56.0	19.78
29	27.84	126.10	58.0	18.72
31	23.46	88.40	60.0	17.91
33	19.41	60.24	62.0	17.28
38	10.23	17.33	64.0	16.76
43	3.32	3.77	66.0	16.35
52	0.76	1.16	68.0	16.03
70	0.67	1.19	70.0	15.82
88	0.93	1.22	72.0	15.70
102	3.68	2.62	74.0	15.69
105	7.33	5.47	76.0	15.78
110	15.57	13.02	78.0	15.97
113	20.87	17.14	80.0	16.25
118	30.42	22.05	82.0	16.61
200	50.95	37.08	84.0	17.04
1500	80.79	47.35	86.0	17.57
2500	92.52	20.01	87.0	17.87
4000	60.26	16.31	88.0	18.24







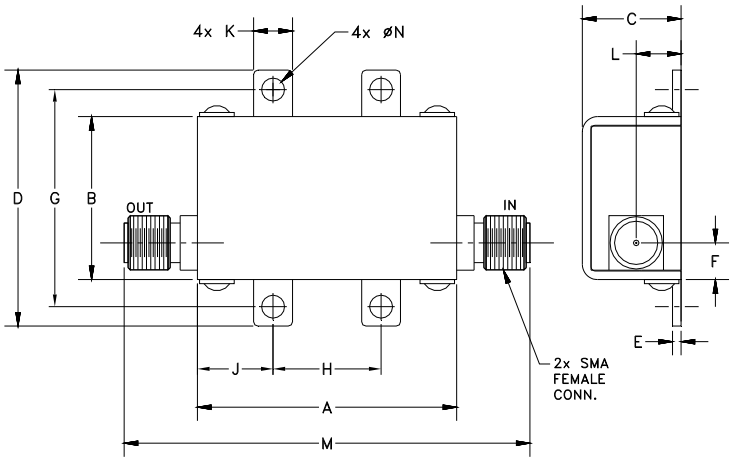


Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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

INPUT	SMA-FEMALE
OUTPUT	SMA-FEMALE

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
1.20	**.75**	**.46**	**1.18**	**.04**	**.17**	**1.00**
30.48	19.05	11.68	29.97	1.02	4.32	25.40

H	J	K	L	M	N	Wt.
.50	**.35**	**.18**	**.21**	**1.88**	**.106**	grams
12.70	8.89	4.57	5.28	47.75	2.69	35.0

Coaxial Band Pass Filter ZX75BP-B70-S+

Typical Performance Data

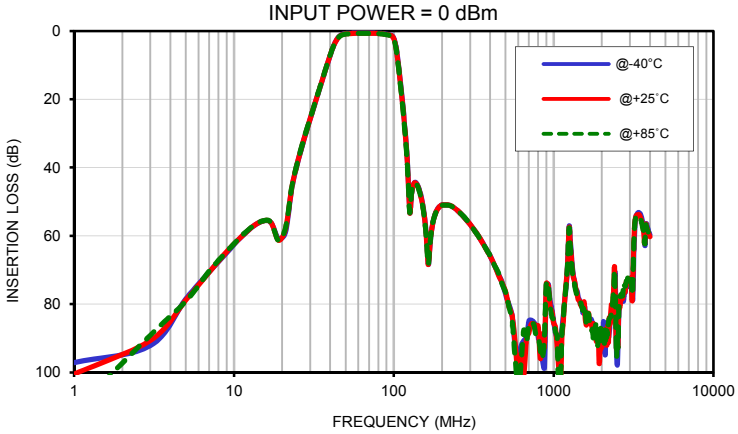
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
1	97.16	100.51	111.44	0.00	0.00	0.00	0.00	0.00	0.00
5	78.45	78.84	79.16	0.00	0.00	0.00	0.02	0.02	0.03
7	70.68	70.69	70.33	0.00	0.00	0.00	0.03	0.04	0.05
9	64.92	64.59	64.62	0.01	0.01	0.01	0.06	0.07	0.08
11	60.52	60.48	60.33	0.01	0.01	0.01	0.09	0.11	0.13
15	55.73	55.73	55.69	0.02	0.02	0.02	0.19	0.22	0.25
21	58.99	58.13	57.75	0.04	0.04	0.05	0.37	0.44	0.48
23	46.07	45.85	45.67	0.05	0.06	0.06	0.44	0.50	0.56
25	38.63	38.47	38.33	0.06	0.08	0.08	0.49	0.57	0.62
27	32.85	32.73	32.62	0.09	0.10	0.11	0.54	0.62	0.68
29	27.95	27.84	27.74	0.12	0.14	0.15	0.59	0.67	0.73
31	23.55	23.46	23.37	0.17	0.20	0.21	0.63	0.71	0.77
33	19.50	19.41	19.33	0.25	0.29	0.31	0.70	0.78	0.85
35	15.67	15.59	15.51	0.39	0.45	0.49	0.81	0.91	0.98
40	7.06	7.03	6.98	1.70	1.85	1.96	2.03	2.21	2.35
43	3.29	3.32	3.33	4.45	4.72	4.93	4.77	5.09	5.34
45	1.82	1.89	1.93	7.94	8.28	8.56	8.36	8.81	9.19
50	0.72	0.83	0.90	22.33	21.83	21.61	29.70	30.31	30.78
52	0.66	0.76	0.83	22.94	22.39	22.04	25.14	24.37	23.84
60	0.57	0.65	0.71	27.72	28.22	28.40	22.79	22.22	21.84
70	0.59	0.67	0.72	21.67	21.33	20.97	21.66	21.25	20.85
80	0.66	0.73	0.78	23.23	24.34	25.03	22.92	23.87	24.53
88	0.84	0.93	0.99	19.90	19.96	19.94	20.79	20.94	20.95
90	0.92	1.01	1.08	18.83	18.79	18.73	19.74	19.80	19.76
95	1.14	1.24	1.32	23.28	23.48	23.71	23.33	23.66	23.99
100	2.11	2.28	2.44	12.36	12.07	11.74	11.57	11.24	10.95
102	3.42	3.68	3.91	7.14	6.99	6.82	6.86	6.68	6.51
105	6.97	7.33	7.66	3.20	3.21	3.19	3.17	3.15	3.12
108	11.73	12.14	12.50	1.69	1.76	1.80	1.75	1.79	1.82
110	15.16	15.57	15.95	1.25	1.34	1.39	1.33	1.39	1.43
115	24.09	24.52	24.92	0.81	0.90	0.95	0.89	0.96	1.00
118	29.95	30.42	30.85	0.70	0.79	0.84	0.77	0.84	0.88
120	34.36	34.87	35.36	0.65	0.74	0.79	0.72	0.78	0.82
150	49.67	49.97	50.23	0.49	0.56	0.60	0.38	0.43	0.46
175	56.42	56.35	56.31	0.46	0.52	0.55	0.27	0.32	0.34
180	54.07	54.12	54.20	0.45	0.51	0.54	0.26	0.30	0.33
185	52.70	52.71	52.79	0.44	0.50	0.53	0.25	0.29	0.31
190	51.82	51.85	51.93	0.43	0.49	0.52	0.23	0.28	0.30
200	50.95	50.95	51.05	0.41	0.47	0.50	0.21	0.25	0.27
250	52.57	52.56	52.58	0.30	0.36	0.39	0.14	0.18	0.20
500	77.08	76.39	76.51	0.12	0.19	0.22	0.05	0.09	0.11
750	85.25	85.82	85.84	0.11	0.21	0.25	0.03	0.08	0.10
800	89.85	86.41	89.42	0.12	0.22	0.26	0.04	0.09	0.12
1000	85.12	85.59	84.64	0.14	0.25	0.31	0.03	0.10	0.13
1200	74.02	73.43	73.41	0.18	0.31	0.37	0.04	0.12	0.16
1400	76.17	77.08	77.41	0.21	0.34	0.40	0.03	0.13	0.17
1600	83.14	86.14	85.90	0.24	0.38	0.45	0.04	0.15	0.19
1800	89.70	87.90	89.66	0.26	0.40	0.47	0.05	0.16	0.21
2000	92.45	92.70	89.35	0.27	0.41	0.47	0.06	0.19	0.24
2200	89.69	91.23	85.22	0.28	0.41	0.47	0.06	0.19	0.26
2400	72.19	69.02	70.07	0.61	1.24	1.05	0.08	0.22	0.28
2500	97.80	92.52	89.65	0.75	0.87	0.80	0.08	0.22	0.29
2800	76.58	76.40	74.80	0.33	0.48	0.55	0.10	0.25	0.33
3000	72.74	72.40	71.37	0.47	0.66	0.74	0.11	0.27	0.34
3200	60.29	57.69	58.27	4.11	5.36	5.80	0.12	0.29	0.36
3400	53.15	53.75	54.17	0.80	0.91	1.03	0.14	0.31	0.38
3600	55.80	56.90	57.55	0.51	0.70	0.80	0.15	0.32	0.39
3750	60.35	56.73	57.17	7.33	5.53	5.84	0.17	0.36	0.43
3800	56.41	57.03	57.25	1.78	1.42	1.61	0.21	0.36	0.43
4000	59.65	60.26	59.76	0.73	1.07	1.23	0.18	0.35	0.43

Typical Performance Data

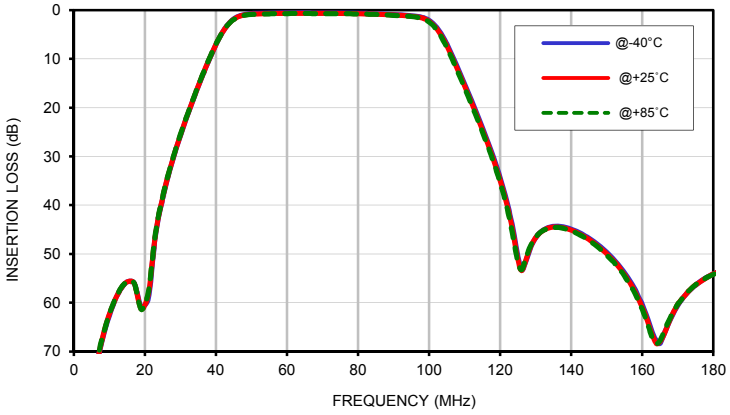
FREQ. (MHz)	GROUP DELAY (nsec)		
	@-40°C	@+25°C	@+85°C
52	23.46	23.32	23.22
53	22.31	22.20	22.11
54	21.33	21.25	21.18
55	20.51	20.45	20.40
56	19.82	19.78	19.75
57	19.25	19.21	19.18
58	18.75	18.72	18.69
59	18.32	18.29	18.28
60	17.94	17.91	17.90
61	17.59	17.58	17.56
62	17.30	17.28	17.26
63	17.03	17.01	17.00
64	16.78	16.76	16.76
65	16.56	16.54	16.53
66	16.37	16.35	16.35
67	16.19	16.18	16.18
68	16.04	16.03	16.03
69	15.92	15.91	15.91
70	15.82	15.82	15.83
71	15.74	15.74	15.76
72	15.69	15.70	15.72
73	15.66	15.68	15.70
74	15.65	15.69	15.71
75	15.68	15.71	15.75
76	15.73	15.78	15.81
77	15.82	15.86	15.90
78	15.92	15.97	16.02
79	16.04	16.08	16.14
80	16.19	16.25	16.30
81	16.36	16.41	16.47
82	16.54	16.61	16.66
83	16.75	16.81	16.88
84	16.98	17.04	17.10
85	17.23	17.29	17.36
86	17.51	17.57	17.64
87	17.80	17.87	17.95
88	18.17	18.24	18.32

Typical Performance Curves

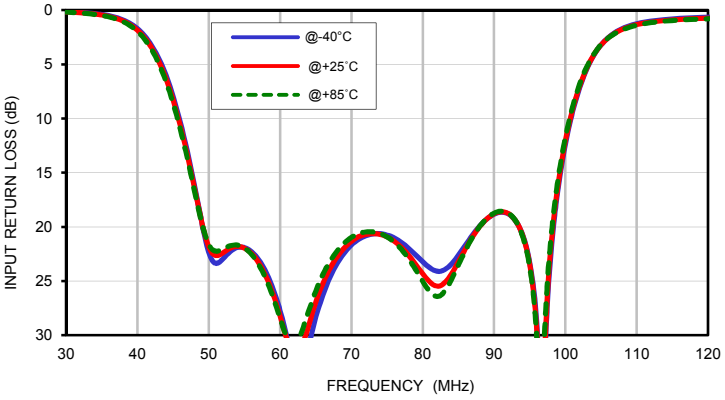
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



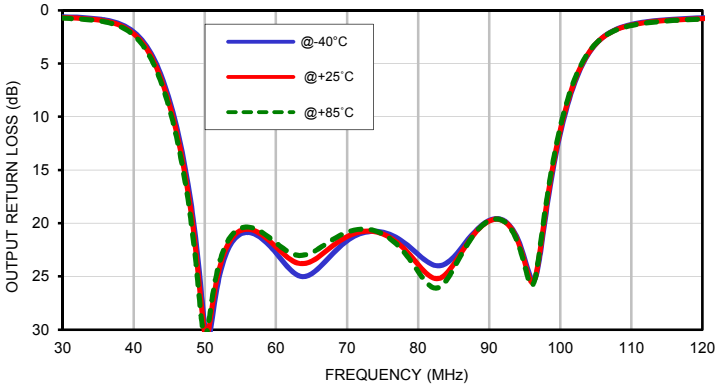
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



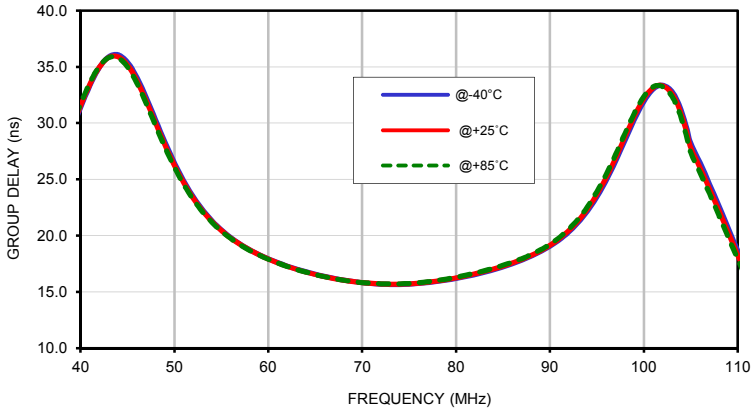
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



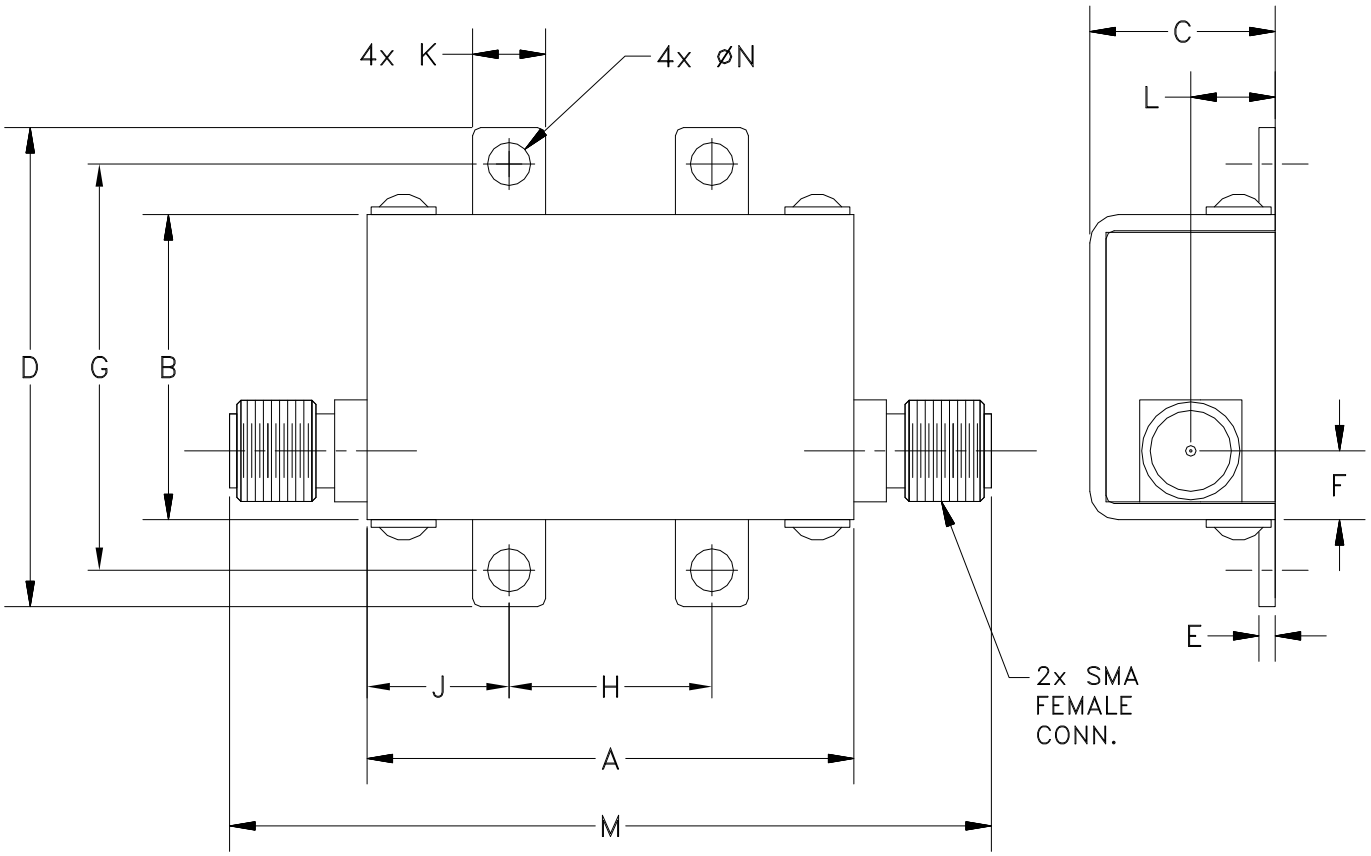
GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



Case Style HY

Outline Dimensions

HY1239



CASE #.	A	B	C	D	E	F	G	H	J	K	L	M	N	WT GRAMS
HY1239	1.20 (30.48)	.75 (19.05)	.46 (11.68)	1.18 (29.97)	.04 (1.02)	.17 (4.32)	1.00 (25.40)	.50 (12.70)	.35 (8.89)	.18 (4.57)	.21 (5.28)	1.88 (47.75)	.106 (2.69)	35.0

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015
Tolerance on hole size and interaxes dimensions to be ± .005.

Note:

1. Case material: Brass
2. Case finish: Nickel plate

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Environmental Specifications ENV46

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, Condintion 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