

Coaxial-Ceramic Resonator Filters and Multiplexers

50Ω

DC to 6 GHz

The Big Deal

- Low insertion loss with excellent power handling
- Passbands up to 6 GHz
- Fractional bandwidth from <1 to 25%
- Excellent temperature stability
- Rugged construction to handle demanding environmental conditions



Product Overview

Mini-Circuits' Coaxial-Ceramic Resonator filters offer low insertion loss in very small form factors, using ceramic material with high dielectric constant and superior Q factor. Bandpass and bandstop filters, diplexer and multiplexer designs can be constructed using this technology. Low insertion loss combined with excellent power handling makes these filters well suited for transmitter and receiver signal chains. Advanced filter design and construction can achieve stopband width greater than 3x the center frequency

All our coaxial-ceramic resonator filters are built with rugged construction, qualified to withstand multiple demanding reflow cycles. Custom integrated assembly with LNA in greatly simplifying system integration. They can be realized in small form factors with high-quality, precise machining for applications where size is critical. Excellent repeatability across units is achieved through precise tuning and process control.

Key Features

Feature	Advantages
Low insertion loss	Low signal loss results in better SNR in signal chain
Fast roll-off	Higher selectivity results in better adjacent channel rejection and dynamic range
Wide stop band	Wide spur-free stopband results in better receiver sensitivity
Excellent power handling	Well suited for transmitter applications
Rugged Construction	These filter assemblies have been qualified over a wide range of thermal, mechanical and environmental conditions including withstanding the stress of extensive solder reflow cycles
Small Size	Very well suited for high performance applications where size is a constraint.
Temperature stability	Very minimal change in electrical performance across temperature makes these filters suitable for a wide range of operating conditions.

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



Bandpass Filter

ZX75BP-1842-S+

50Ω 1725 to 1960 MHz

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	6W max. at 25°C

* Derate linearly to 3W at 100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

Features

- Low Insertion loss, 1.4 dB typ.
- Minimal Insertion loss variation over temperature, ± 0.35 dB
- Sharp stop band rejection
- Protected by US Patent 6,790,049

Applications

- Harmonic & Sub-harmonic filtering
- Image rejection
- PCS/DCS



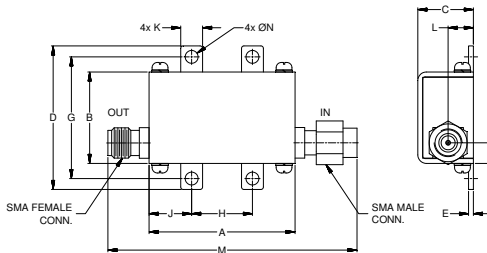
Generic photo used for illustration purposes only
CASE STYLE: HY1238

SMA Connectors Model
IN MALE OUT FEM ZX75BP-1842-S+

+RoHS Compliant

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

Outline Drawing



Outline Dimensions (inch/mm)

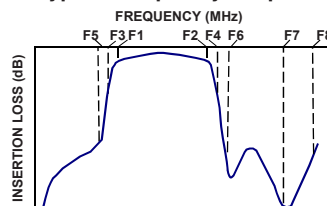
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30.48	19.05	11.68	29.97	1.02	4.32	25.40
H	J	K	L	M	N	Wt.
.50	.35	.18	.21	2.05	.106	grams
12.70	8.89	4.57	5.28	52.07	2.69	35.0

Note: Please refer to case style drawing for details

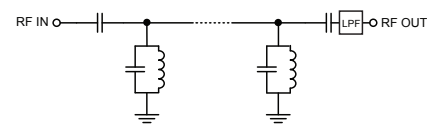
Electrical Specifications at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency		—	1842	—	MHz
	Insertion Loss	F1-F2	—	1.4	3.0	dB
	VSWR	F1-F2	—	—	2.0	:1
Stop Band, Lower	Insertion Loss	DC-F3	40	—	—	dB
		F5-F3	20	—	—	dB
	VSWR	DC-F3	—	30	—	:1
Stop Band, Upper	Insertion Loss	F4-F6	20	—	—	dB
		F6-F7	40	—	—	dB
		F7-F8	—	20	—	dB
	VSWR	F4-F8	—	10	—	:1

Typical Frequency Response

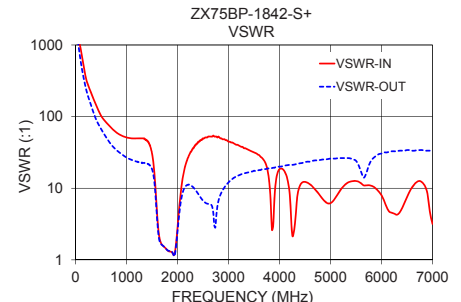
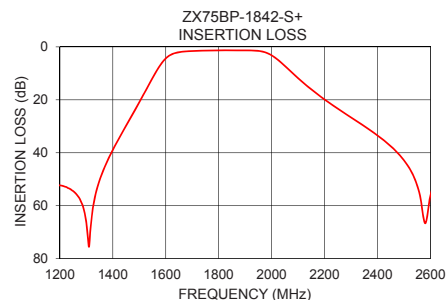
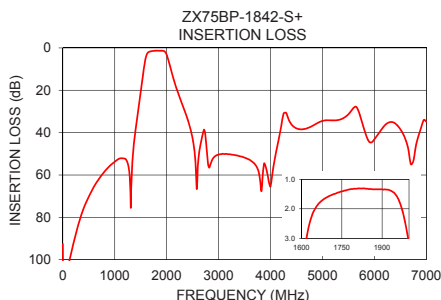


Functional Schematic



Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR-IN (:1)	VSWR-OUT (:1)
0.3	92.61	1737.18	1737.18
500.0	70.30	102.19	66.82
1000.0	53.74	51.10	26.74
1350.0	50.38	48.26	22.58
1415.0	36.07	44.55	21.73
1450.0	29.80	40.41	20.95
1600.0	4.36	4.09	3.49
1725.0	1.49	1.54	1.55
1730.0	1.47	1.53	1.54
1842.0	1.32	1.31	1.34
1842.5	1.32	1.31	1.34
1960.0	1.67	1.49	1.37
1975.0	2.05	1.86	1.70
2015.0	4.24	3.94	3.34
2350.0	29.96	40.41	9.48
2480.0	40.52	48.26	6.94
2560.0	56.04	51.10	6.17
2600.0	55.89	52.65	6.05
4000.0	65.32	18.50	19.98
7000.0	34.84	3.18	33.42



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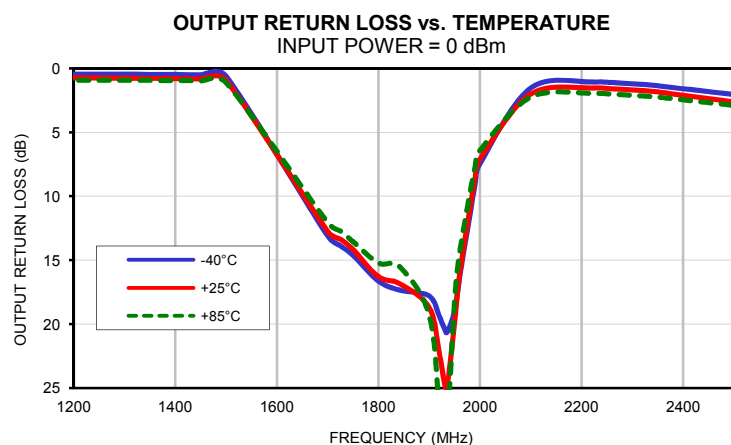
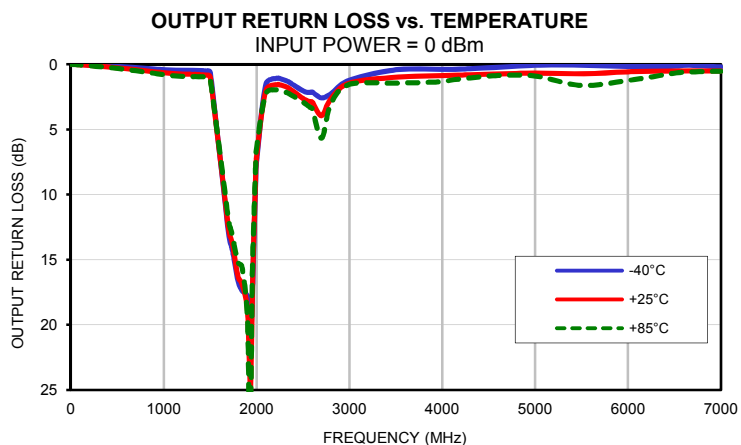
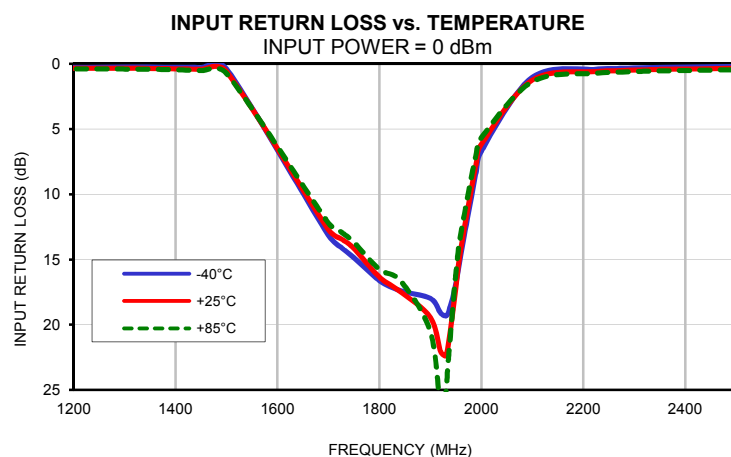
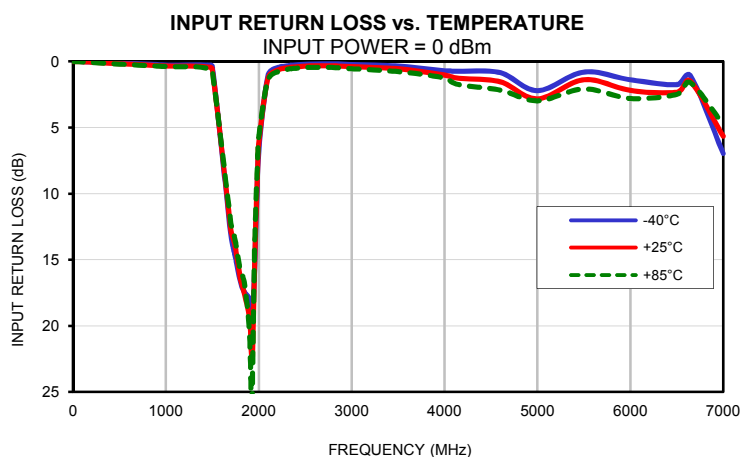
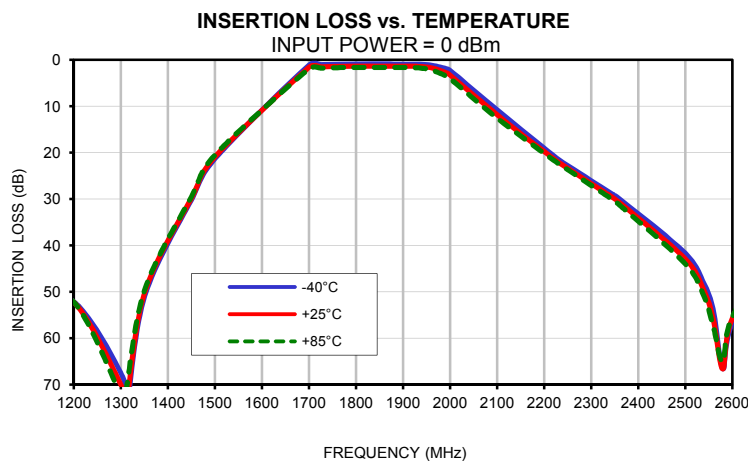
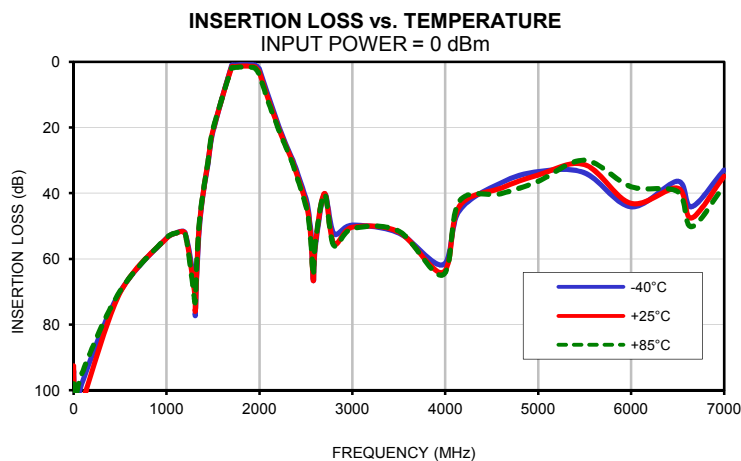
Typical Performance Data

FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C
0.3	94.60	92.61	98.00	0.00	0.01	0.00	0.00	0.00	0.00
1	94.04	94.90	108.36	0.00	0.00	0.00	0.00	0.00	0.01
5	103.95	103.08	108.77	0.00	0.00	0.00	0.00	0.00	0.00
10	108.07	109.97	104.79	0.00	0.00	0.00	0.00	0.00	0.00
100	96.99	103.07	94.12	0.01	0.02	0.03	0.01	0.03	0.05
500	70.02	70.30	69.74	0.11	0.17	0.20	0.15	0.26	0.31
1000	53.65	53.74	53.56	0.27	0.34	0.38	0.42	0.65	0.79
1100	52.14	52.17	52.14	0.27	0.35	0.39	0.44	0.70	0.88
1200	52.15	52.31	52.24	0.27	0.35	0.39	0.46	0.74	0.93
1305	68.63	71.14	73.26	0.26	0.35	0.41	0.46	0.77	0.94
1310	76.64	75.49	72.10	0.26	0.35	0.41	0.46	0.77	0.94
1350	51.14	50.38	49.73	0.26	0.36	0.42	0.47	0.77	0.94
1450	30.14	29.80	29.45	0.29	0.43	0.53	0.51	0.83	0.98
1500	21.28	20.91	20.50	0.38	0.58	0.74	0.61	0.95	1.12
1700	1.11	1.58	1.89	13.15	12.72	12.21	13.11	12.75	12.07
1725	1.02	1.49	1.78	14.08	13.41	12.89	13.87	13.36	12.72
1730	1.01	1.47	1.76	14.25	13.54	13.04	14.02	13.50	12.87
1750	0.96	1.41	1.69	14.86	14.15	13.68	14.62	14.17	13.56
1800	0.89	1.32	1.61	16.61	16.35	15.76	16.64	16.30	15.23
1842	0.88	1.32	1.62	17.40	17.49	16.66	17.35	16.85	15.53
1900	0.91	1.34	1.63	17.98	19.44	20.54	17.81	18.71	19.34
1920	0.92	1.35	1.65	19.10	22.05	26.34	19.42	22.30	27.07
1930	0.92	1.38	1.68	19.33	22.39	25.35	20.36	24.66	35.29
1935	0.93	1.40	1.72	19.11	21.63	22.82	20.65	25.01	29.14
1950	1.00	1.52	1.91	16.87	17.15	16.08	18.99	19.92	18.22
1960	1.10	1.67	2.12	14.59	14.12	12.96	16.33	16.08	14.38
1990	1.83	2.67	3.37	8.23	7.60	6.87	9.15	8.63	7.73
2000	2.27	3.22	4.01	6.70	6.17	5.67	7.47	7.09	6.42
2100	10.78	11.85	12.56	1.04	1.25	1.37	1.53	2.00	2.25
2225	21.04	21.66	21.97	0.42	0.60	0.73	1.07	1.55	1.96
2250	22.76	23.36	23.66	0.38	0.55	0.67	1.09	1.57	1.99
2325	27.65	28.30	28.72	0.31	0.46	0.57	1.27	1.75	2.17
2345	28.92	29.62	30.12	0.28	0.44	0.54	1.34	1.82	2.23
2350	29.24	29.96	30.47	0.28	0.43	0.54	1.36	1.84	2.25
2355	29.55	30.30	30.82	0.28	0.43	0.54	1.39	1.87	2.27
2500	41.66	42.89	43.94	0.21	0.35	0.46	2.04	2.62	2.90
2540	48.31	49.75	50.98	0.20	0.34	0.45	2.14	2.78	3.11
2560	54.05	56.04	57.56	0.20	0.34	0.45	2.16	2.84	3.21
2580	66.58	66.63	65.11	0.20	0.34	0.46	2.16	2.88	3.32
2600	56.77	55.89	55.51	0.19	0.33	0.44	2.13	2.90	3.41
2700	40.26	40.08	40.25	0.18	0.32	0.44	2.58	3.94	5.67
2800	52.26	55.28	55.89	0.18	0.33	0.46	2.26	2.65	3.04
3000	49.73	50.35	50.76	0.23	0.39	0.55	1.22	1.44	1.54
3500	52.14	51.81	51.56	0.35	0.55	0.77	0.42	0.99	1.45
3975	61.78	64.09	64.87	0.69	1.00	1.22	0.38	0.87	1.34
4150	45.36	44.00	42.49	0.74	1.27	1.75	0.38	0.83	1.16
4600	36.85	38.45	40.12	0.85	1.54	2.17	0.23	0.74	0.86
5000	33.45	34.46	36.37	2.21	2.83	2.98	0.07	0.67	0.90
5500	33.82	31.29	29.97	0.80	1.38	2.08	0.06	0.72	1.62
6000	44.16	43.10	38.03	1.39	2.19	2.80	0.17	0.57	1.24
6500	36.36	38.46	39.52	1.76	2.33	2.49	0.15	0.51	0.68
6650	44.12	47.54	50.20	1.11	1.52	1.62	0.07	0.52	0.59
7000	32.97	34.84	37.82	6.96	5.66	4.76	0.20	0.52	0.53

Coaxial Band Pass Filter

ZX75BP-1842-S+

Typical Performance Curves



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The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com



IF/RF MICROWAVE COMPONENTS



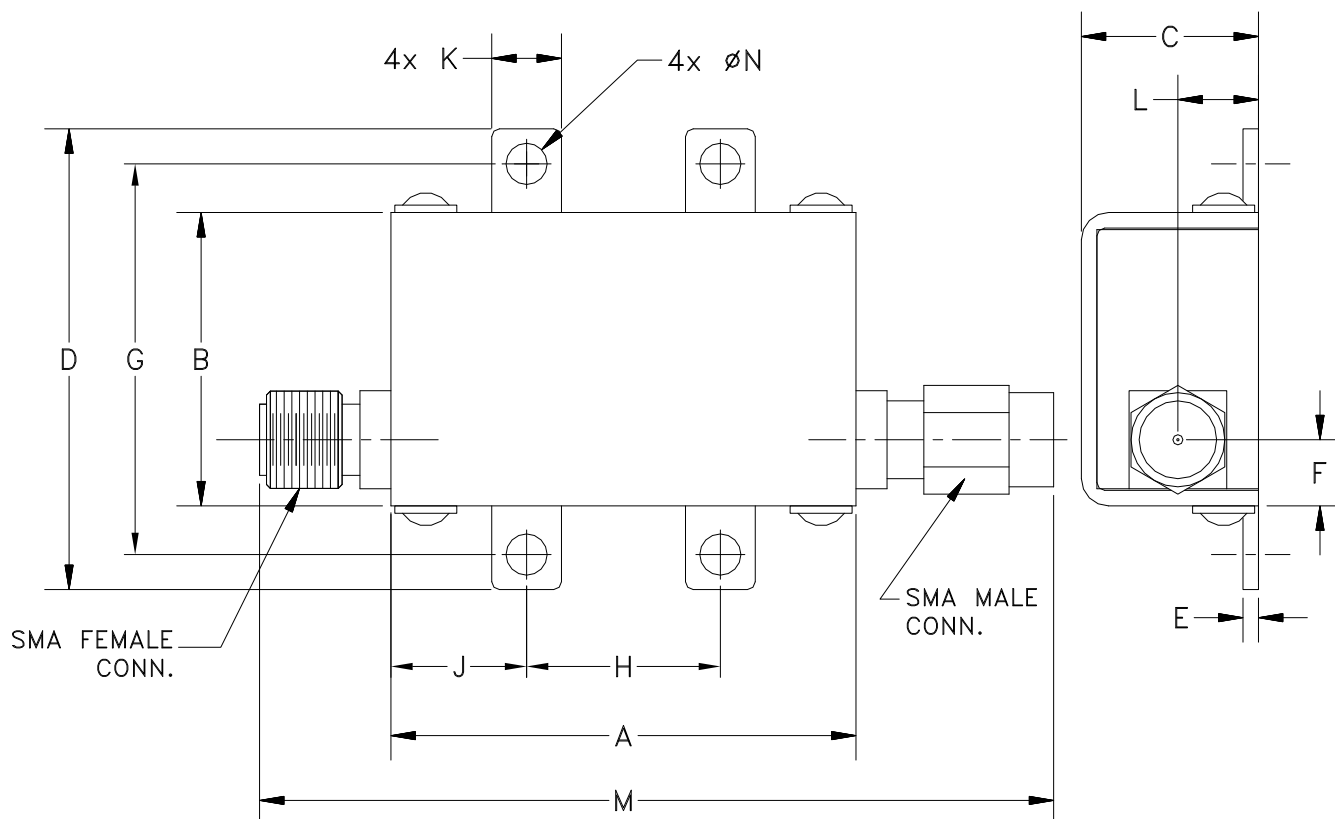
REV. OR
ZX75BP-1842-S+
181229
Page 1 of 1

Case Style

HY

Outline Dimensions

HY1238



CASE #.	A	B	C	D	E	F	G	H	J	K	L	M	N	WT GRAMS
HY1238	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)	2.05 (52.07)	.106 (2.69)	35.0

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: Nickel plate



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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