

# Coaxial Low Pass Filter

## VLFG-2850+

50Ω DC to 2850 MHz



Generic photo used for illustration purposes only  
CASE STYLE: FF704

### The Big Deal

- Excellent power handling, 4.5W
- Temperature stable
- Rugged unibody construction
- Good rejection, 40 dB typical

### Product Overview

VLFG-2850+ is a 50Ω low pass filter built in rugged unibody construction. Covering DC-2850 MHz bandwidth, these units offer good matching within the passband and good rejection in stopband. VLFG-2850+ offer low insertion loss, and excellent power handling capability. It handles up to 4.5W RF input power and provides a wide operating temperature range from -55°C to 125°C.

### Key Features

Feature	Advantages
Low passband insertion loss	Suitable for high performance application.
4.5W Power handling	Supports a range of system power requirements.
Connectorized package	The connectorized package is easy to interface with other devices and well suited for test setups.

#### 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](http://www.minicircuits.com/MCLStore/terms.jsp)



# Low Pass Filter

## VLFG-2850+

50Ω DC to 2850 MHz



Generic photo used for illustration purposes only  
CASE STYLE: FF704

**+RoHS Compliant**

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

### Features

- Low loss, 1.3 dB typical
- Good rejection 40 dB typical
- Excellent power handling, 4.5W
- Temperature stable
- Connectorized package
- Rugged unibody construction

### Applications

- Military radar applications
- Test and measurement
- Telecommunication and broadband wireless applications

### Electrical Specifications at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	DC-F1	DC - 2850	—	1.3	1.8	dB
	Freq. Cut-Off	F2*	3240	—	3.0	—	dB
	Return Loss	DC-F1	DC - 2850	—	18	—	dB
Stop Band	Rejection Loss	F3-F4	3800 - 4400	20	30	—	dB
		F4-F5	4400 - 8000	30	40	—	dB
		F5-F6	8000 - 12000	—	30	—	dB
		F6-F7	12000 - 14000	—	28	—	dB

In Application where DC voltage is present at either input or output port, DC blocks are required.

\* Typically, a ±5% frequency deviation from the stated value may occur on a unit-to-unit basis.

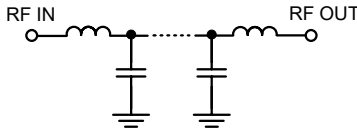
#### Maximum Ratings

Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input*	4.5W max. @25°C

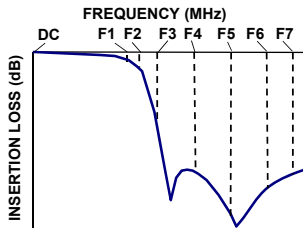
\*Passband rating, derate linearly to 1W at 125°C ambient

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

### Functional Schematic

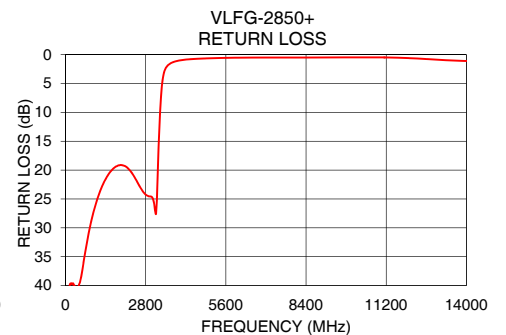
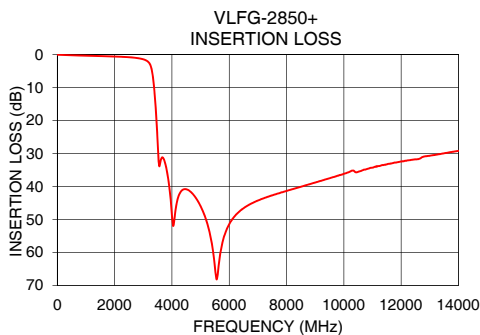
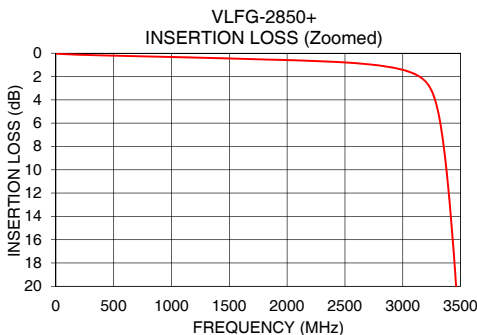


### Typical Frequency Response



### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	0.05	45.73
100	0.09	40.98
1000	0.32	26.87
1800	0.53	19.31
2000	0.59	19.19
2850	1.13	24.41
3000	1.42	24.61
3240	3.03	17.69
3400	12.23	4.08
3480	22.86	2.53
3600	32.42	1.74
3800	34.21	1.22
4000	48.55	0.98
4400	40.88	0.77
5000	45.91	0.63
8000	41.33	0.50
10000	36.11	0.47
12000	32.40	0.60
13000	30.65	0.87
14000	29.17	1.10



#### Notes

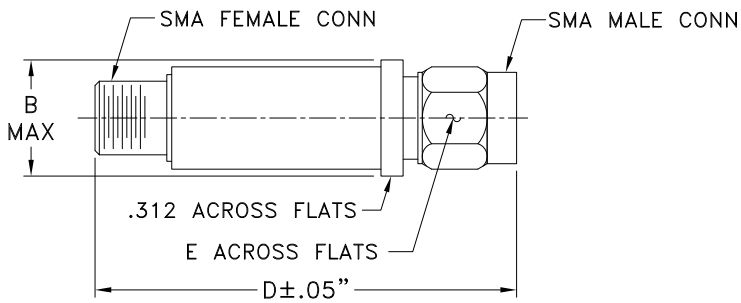
- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- 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](http://www.minicircuits.com/MCLStore/terms.jsp)



**Coaxial Connections**

PORT - 1	SMA-Male
PORT - 2	SMA-Female

**Outline Drawing**



**Outline Dimensions ( inch )**

B	D	E	wt.
.410	1.43	.312	grams
10.41	36.32	7.92	10

Note: Please refer to case style drawing for details

**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](http://www.minicircuits.com/MCLStore/terms.jsp)



*Typical Performance Data*

FREQ. (MHz)	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
	(dB)			(dB)			(dB)		
	@-55°C	@+25°C	@+100°C	@-55°C	@+25°C	@+100°C	@-55°C	@+25°C	@+100°C
10	0.08	0.09	0.09	48.29	44.22	37.53	38.19	36.38	46.02
60	0.08	0.10	0.10	41.83	42.79	38.55	45.06	43.36	38.16
100	0.08	0.10	0.11	41.71	42.03	38.06	41.20	40.36	36.99
140	0.08	0.11	0.12	41.17	40.55	39.36	40.55	38.86	36.71
180	0.09	0.12	0.12	38.54	40.74	40.13	37.32	38.11	36.70
200	0.09	0.12	0.13	37.75	40.77	39.77	35.40	37.15	35.55
240	0.09	0.13	0.14	36.06	39.94	36.40	33.78	36.09	33.78
300	0.09	0.13	0.15	38.29	39.81	33.04	33.76	34.20	31.38
400	0.10	0.15	0.17	43.11	39.59	31.64	34.96	32.06	29.22
500	0.10	0.16	0.18	38.51	38.14	31.94	31.69	30.11	27.90
800	0.13	0.20	0.24	31.01	30.39	28.20	26.24	25.50	24.31
1000	0.15	0.24	0.28	27.30	26.53	26.04	24.20	23.30	22.74
1500	0.23	0.34	0.40	20.91	20.79	21.25	20.44	19.90	20.09
2000	0.33	0.47	0.55	18.72	19.27	19.55	19.20	19.49	19.61
2500	0.47	0.66	0.77	21.52	21.96	21.68	22.50	23.29	23.23
2850	0.75	1.00	1.16	23.99	23.01	22.76	24.26	23.68	23.66
3000	1.00	1.30	1.52	23.66	23.15	23.41	24.14	23.91	24.75
3240	2.37	3.24	4.07	15.27	13.02	11.41	17.88	14.44	12.32
3380	8.43	11.28	13.71	4.68	4.14	3.88	4.53	3.92	3.60
3450	15.71	19.71	23.02	2.77	2.74	2.75	2.45	2.40	2.37
3515	25.49	30.38	32.45	2.01	2.14	2.24	1.67	1.78	1.83
3600	32.48	31.18	30.69	1.51	1.72	1.84	1.22	1.36	1.43
3750	31.00	32.12	33.11	1.05	1.28	1.41	0.83	0.97	1.03
3800	32.62	34.12	35.38	0.94	1.17	1.31	0.74	0.89	0.94
3900	37.69	40.07	42.14	0.79	1.01	1.14	0.60	0.75	0.80
4000	46.64	49.98	50.56	0.69	0.91	1.03	0.50	0.65	0.70
4200	43.07	42.23	41.68	0.53	0.74	0.85	0.35	0.51	0.56
4400	39.99	40.00	40.05	0.44	0.64	0.72	0.24	0.40	0.46
4600	40.20	40.56	40.83	0.38	0.57	0.64	0.15	0.33	0.39
4800	41.87	42.36	42.69	0.31	0.50	0.57	0.08	0.27	0.34
5000	44.28	44.90	45.37	0.26	0.45	0.52	0.03	0.22	0.31
5200	47.44	48.17	48.73	0.21	0.42	0.49	0.02	0.19	0.29
5400	51.23	52.55	53.40	0.16	0.37	0.44	0.05	0.16	0.27
5600	56.53	58.37	59.90	0.12	0.34	0.42	0.08	0.14	0.26
5800	66.68	69.48	76.87	0.08	0.31	0.42	0.10	0.14	0.26
6000	67.23	64.64	62.15	0.03	0.28	0.39	0.10	0.13	0.27
6200	54.71	54.40	55.46	0.00	0.26	0.39	0.10	0.14	0.28
6400	54.67	54.33	55.64	0.04	0.24	0.38	0.10	0.15	0.29
6600	51.95	53.03	52.51	0.08	0.21	0.37	0.07	0.16	0.32
6800	53.16	52.92	52.88	0.09	0.20	0.38	0.05	0.18	0.34
7000	50.58	50.52	50.46	0.12	0.19	0.38	0.03	0.20	0.35
7200	49.43	49.77	49.91	0.15	0.17	0.40	0.01	0.23	0.38
7400	47.91	48.18	48.34	0.15	0.17	0.40	0.04	0.27	0.40
7600	45.87	46.69	46.36	0.16	0.18	0.42	0.08	0.31	0.42
7800	46.01	46.56	46.86	0.17	0.16	0.42	0.11	0.32	0.42
8000	45.36	44.25	44.83	0.16	0.17	0.44	0.13	0.35	0.44
8500	43.12	43.69	43.46	0.12	0.19	0.46	0.21	0.40	0.43
9000	42.98	42.52	41.94	0.05	0.23	0.49	0.18	0.39	0.39
9500	40.18	40.09	38.96	0.04	0.30	0.49	0.13	0.37	0.36
10000	36.81	37.31	37.79	0.15	0.38	0.48	0.07	0.36	0.36
10500	35.36	35.67	36.18	0.15	0.40	0.49	0.11	0.33	0.33
11000	35.03	34.94	35.32	0.18	0.45	0.51	0.11	0.22	0.28
11500	34.33	32.94	32.83	0.13	0.43	0.50	0.16	0.18	0.28
12000	32.26	32.01	31.60	0.10	0.42	0.52	0.16	0.22	0.35
12500	31.50	31.51	30.98	0.06	0.42	0.55	0.06	0.36	0.50
13000	30.50	30.95	30.99	0.04	0.41	0.55	0.15	0.62	0.74
13500	29.43	30.36	30.58	0.04	0.40	0.55	0.49	0.98	1.05
13800	29.19	30.10	30.69	0.07	0.36	0.54	0.71	1.24	1.28
13900	29.20	30.06	30.59	0.08	0.37	0.53	0.77	1.32	1.37
14000	29.14	29.97	30.50	0.10	0.37	0.55	0.85	1.41	1.45

\*Temperature test data was based on the underlying chip.

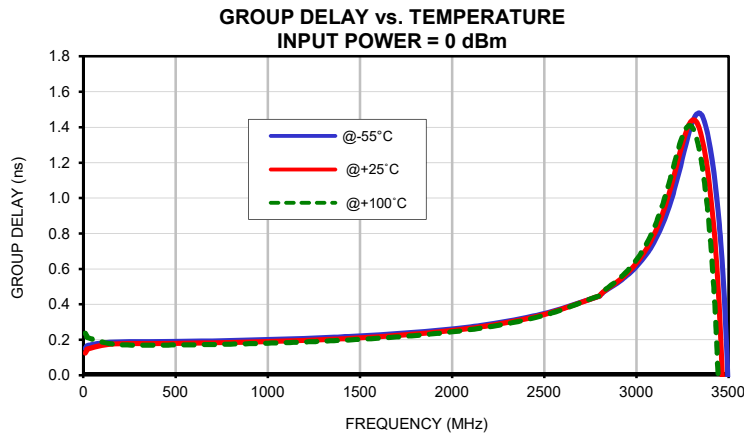
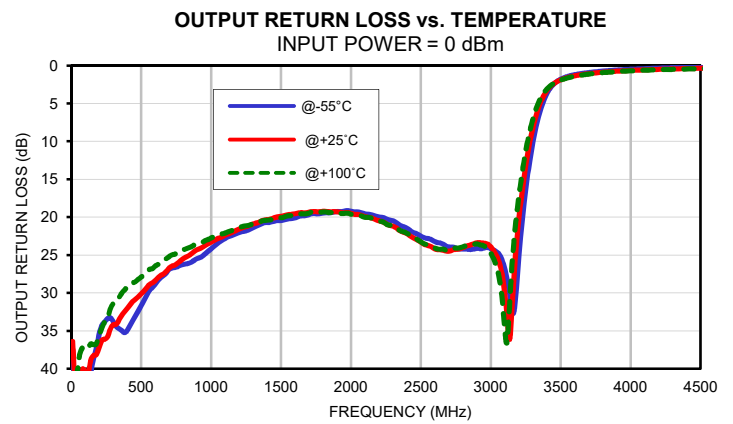
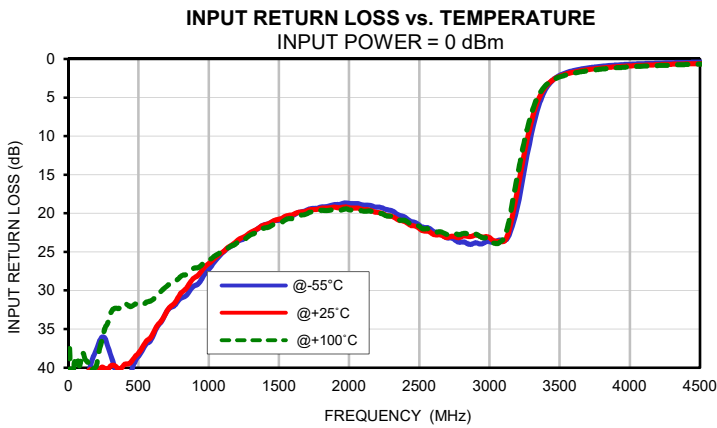
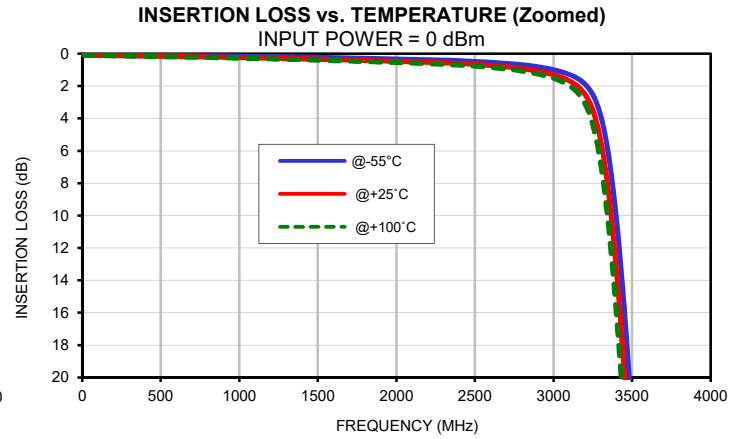
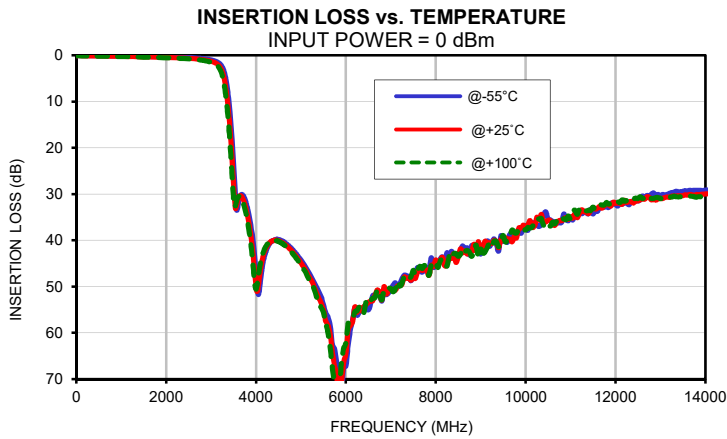


## Typical Performance Data

FREQ.  (MHz)	GROUP DELAY		
	(nsec)		
	@-55°C	@+25°C	@+100°C
10	0.15	0.13	0.24
80	0.18	0.16	0.19
140	0.19	0.17	0.18
200	0.19	0.18	0.17
260	0.19	0.18	0.17
320	0.19	0.18	0.17
380	0.19	0.18	0.17
440	0.19	0.18	0.17
500	0.19	0.18	0.17
560	0.19	0.18	0.17
620	0.19	0.18	0.17
680	0.19	0.18	0.17
740	0.19	0.18	0.17
800	0.20	0.18	0.18
860	0.20	0.19	0.18
920	0.20	0.19	0.18
980	0.20	0.19	0.18
1040	0.20	0.19	0.18
1100	0.20	0.19	0.18
1160	0.21	0.20	0.19
1220	0.21	0.20	0.19
1280	0.21	0.20	0.19
1340	0.21	0.20	0.19
1400	0.22	0.21	0.20
1460	0.22	0.21	0.20
1520	0.22	0.21	0.20
1580	0.23	0.22	0.21
1640	0.23	0.22	0.21
1700	0.23	0.22	0.22
1760	0.24	0.23	0.22
1820	0.24	0.23	0.23
1880	0.25	0.24	0.23
1940	0.26	0.25	0.24
2000	0.26	0.25	0.24
2060	0.27	0.26	0.25
2120	0.28	0.27	0.26
2500	0.35	0.34	0.34
2600	0.38	0.37	0.37
2700	0.41	0.41	0.41
2800	0.45	0.45	0.45
2850	0.49	0.49	0.50

\*Temperature test data was based on the underlying chip.

## Typical Performance Curves



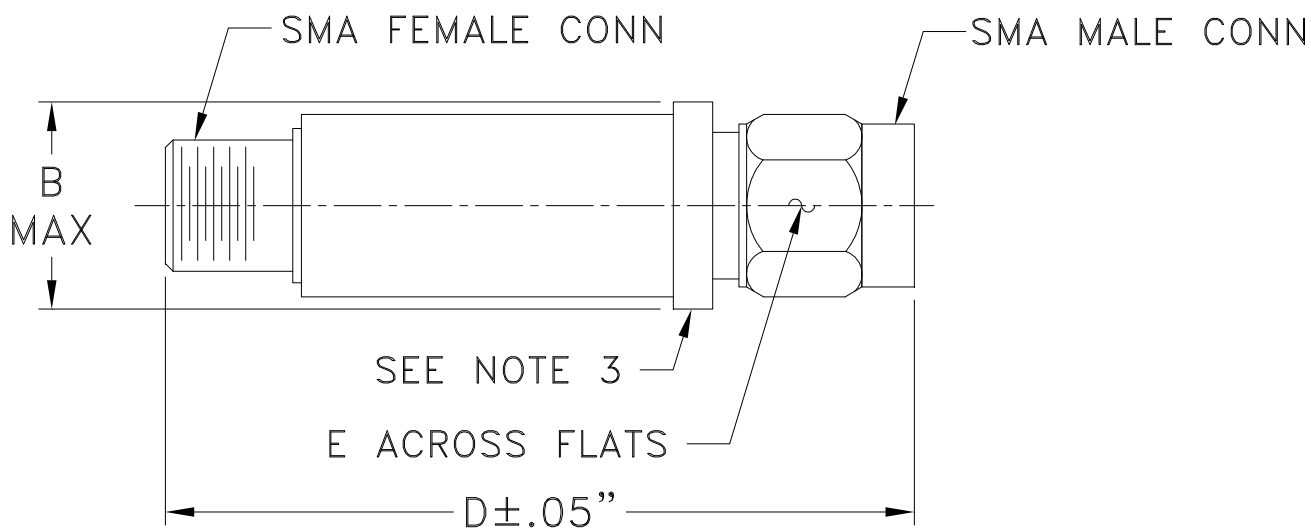
\*Temperature test data was based on the underlying chip.

# Case Style

# FF

## FF704

### Outline Dimensions



CASE #.	A	B	C	D	E	WT GRAMS
FF704	--	.410 (10.41)	--	1.43 (36.32)	.312 (7.92)	10.0

Dimensions are in inches (mm). Tolerances: 2Pl. ± .04; 3Pl. ± .030

#### Notes:

1. Case material: Stainless steel.
2. Case finish: Gold plated.
3. Round Flange may have .312 Across Flats in some models.

**Mini-Circuits®**  
ISO 9001 ISO 14001 CERTIFIED

ALL NEW  
minicircuits.com

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)

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	-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, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
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, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Thermal Shock	-55° to 100°C, 5 cycles	MIL-STD-202, Method 107, Condition A, Except +100°C