

Engineering Development Model

Voltage Controlled Oscillator

JCOS-ED10356/1

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.



Please click "Back", and then click "Contact Us" for Applications support.

CASE STYLE : BG419

ELECTRICAL SPECIFICATIONS 50Ω				
Parameter	Min.	Typ.	Max.	Units
Frequency	138		159	MHz
Tuning Voltage	1		14	V
Power Output		+6		dBm
Phase Noise				
at 1 kHz offset		-99		dBc/Hz
at 10 KHz offset		-123		dBc/Hz
at 100 KHz offset		-143		dBc/Hz
at 1000 kHz offset		-163		dBc/Hz
Pulling at 12 dBr PK-PK all phases		0.1		MHz
Pushing at Vcc=5V±0.25V		0.05		MHz/V
Tuning Sensitivity		4 - 5		MHz/V
Harmonic Suppression		-30		dBc
3 dB Modulation Bandwidth		2500		kHz
Supply Voltage		12		V
Supply Current			20	mA

MAXIMUM RATINGS	
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Supply Voltage (Vcc)	+14V
Absolute Tuning Voltage (Vtune)	+16V

PIN CONNECTIONS	
RF OUT	10
VCC	14
V-TUNE	1
GROUND	2,3,4,5,6,9,10,11,12,13,14

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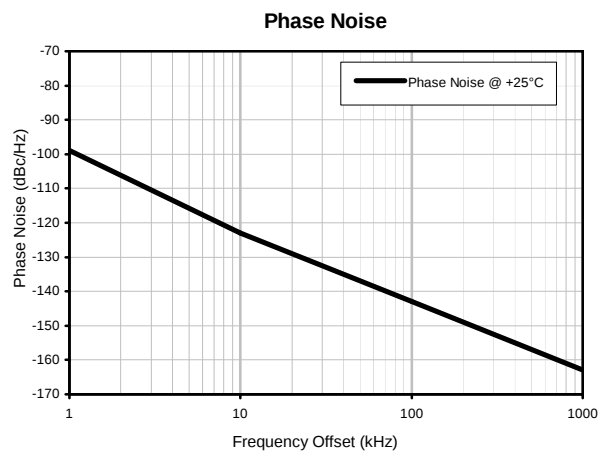
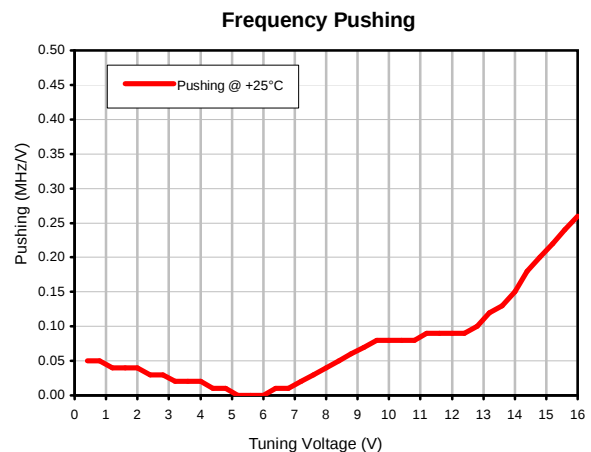
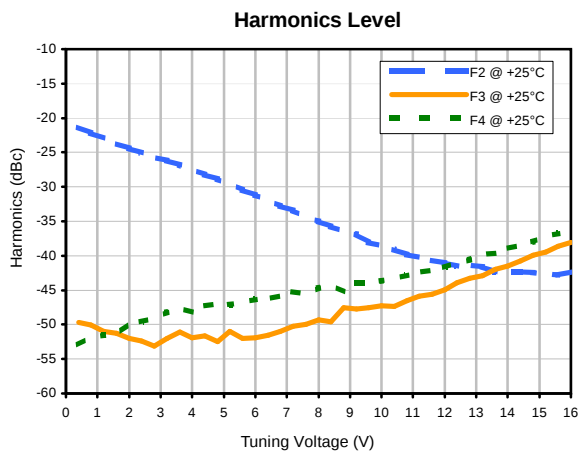
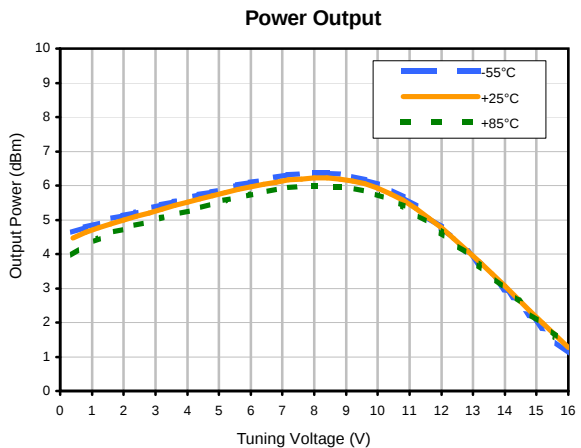
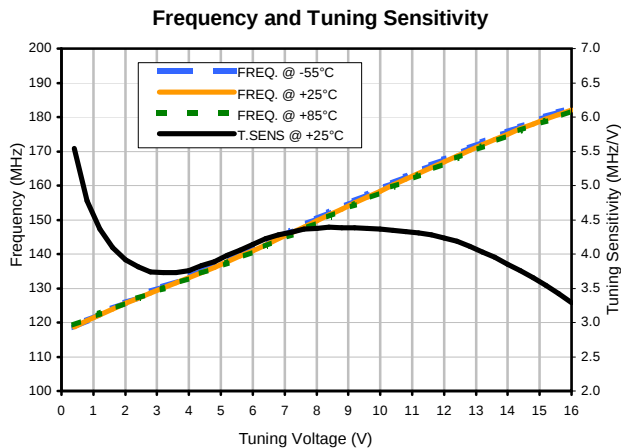
Typical Performance Data

V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			HARMONICS (dBc)			FREQ. PUSH (MHz/V)	FREQ OFFSET (KHz)	PHASE NOISE (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C	F2	F3	F4			
0.4	5.54	118.5	118.7	119.3	4.64	4.46	3.98	-21.4	-49.7	-52.9	0.05	1	-99
0.8	4.78	120.6	120.6	121.0	4.78	4.63	4.27	-22.2	-50.0	-51.8	0.05	10	-123
1.2	4.36	122.4	122.3	122.6	4.90	4.77	4.45	-22.9	-51.0	-51.5	0.04	100	-143
1.6	4.09	124.1	124.0	124.1	5.02	4.88	4.61	-23.7	-51.3	-51.5	0.04	1000	-163
2.0	3.92	125.8	125.5	125.6	5.12	5.00	4.73	-24.4	-52.0	-49.8	0.04		
2.4	3.81	127.4	127.1	127.0	5.22	5.10	4.85	-25.1	-52.4	-49.6	0.03		
2.8	3.74	128.9	128.6	128.5	5.32	5.20	4.96	-25.7	-53.1	-49.1	0.03		
3.2	3.73	130.4	130.0	129.9	5.44	5.30	5.06	-26.2	-52.0	-48.2	0.02		
3.6	3.73	132.0	131.5	131.4	5.54	5.42	5.16	-26.8	-51.1	-47.6	0.02		
4.0	3.76	133.5	133.0	132.8	5.63	5.52	5.26	-27.4	-52.0	-48.2	0.02		
4.4	3.83	135.1	134.6	134.3	5.73	5.61	5.35	-28.2	-51.6	-47.3	0.01		
4.8	3.89	136.7	136.1	135.8	5.82	5.70	5.48	-28.9	-52.5	-47.0	0.01		
5.2	3.98	138.3	137.7	137.4	5.91	5.79	5.57	-29.6	-51.0	-47.1	0.00		
5.6	4.06	140.0	139.4	139.0	6.01	5.88	5.64	-30.4	-52.0	-46.8	0.00		
6.0	4.14	141.7	141.0	140.6	6.10	5.96	5.74	-31.2	-51.9	-46.4	0.00		
6.4	4.22	143.4	142.7	142.3	6.17	6.03	5.81	-31.9	-51.5	-46.4	0.01		
6.8	4.28	145.1	144.4	144.0	6.24	6.10	5.88	-32.8	-51.0	-45.8	0.01		
7.2	4.32	146.8	146.1	145.7	6.31	6.16	5.94	-33.4	-50.3	-45.2	0.02		
7.6	4.36	148.6	147.9	147.4	6.34	6.19	5.98	-34.3	-50.0	-45.6	0.03		
8.0	4.37	150.3	149.6	149.2	6.36	6.22	6.00	-35.0	-49.3	-44.7	0.04		
8.4	4.39	152.1	151.4	150.9	6.36	6.22	5.99	-35.7	-49.6	-44.3	0.05		
8.8	4.38	153.8	153.1	152.7	6.33	6.19	5.97	-36.4	-47.5	-45.2	0.06		
9.2	4.38	155.6	154.9	154.4	6.27	6.14	5.92	-36.9	-47.7	-43.9	0.07		
9.6	4.37	157.3	156.6	156.2	6.17	6.05	5.83	-38.1	-47.6	-43.9	0.08		
10.0	4.36	159.1	158.4	157.9	6.04	5.93	5.73	-38.5	-47.3	-43.6	0.08		
10.4	4.35	160.8	160.1	159.6	5.88	5.76	5.58	-39.1	-47.4	-43.3	0.08		
10.8	4.33	162.6	161.9	161.3	5.66	5.57	5.40	-39.8	-46.5	-42.8	0.08		
11.2	4.31	164.3	163.6	163.1	5.41	5.32	5.16	-40.3	-45.9	-42.4	0.09		
11.6	4.28	166.0	165.3	164.8	5.09	5.05	4.91	-40.7	-45.6	-42.1	0.09		
12.0	4.23	167.7	167.0	166.4	4.78	4.76	4.64	-41.1	-45.0	-41.7	0.09		
12.4	4.19	169.4	168.7	168.1	4.44	4.45	4.35	-41.5	-43.9	-41.1	0.09		
12.8	4.11	171.1	170.3	169.8	4.08	4.12	4.02	-41.4	-43.2	-40.6	0.10		
13.2	4.03	172.7	171.9	171.4	3.71	3.77	3.69	-41.6	-42.9	-39.8	0.12		
13.6	3.95	174.2	173.5	173.0	3.33	3.42	3.35	-42.4	-42.0	-39.7	0.13		
14.0	3.85	175.8	175.0	174.5	2.95	3.06	2.99	-42.3	-41.5	-39.0	0.15		
14.4	3.76	177.3	176.5	176.0	2.57	2.69	2.63	-42.4	-40.8	-38.4	0.18		
14.8	3.65	178.7	178.0	177.5	2.20	2.34	2.28	-42.4	-39.9	-38.0	0.20		
15.2	3.54	180.1	179.4	178.9	1.83	1.98	1.94	-42.6	-39.5	-37.2	0.22		
15.6	3.42	181.5	180.8	180.3	1.46	1.63	1.60	-42.8	-38.7	-36.7	0.24		
16.0	3.29	182.8	182.1	181.6	1.11	1.28	1.27	-42.4	-38.1	-36.4	0.26		

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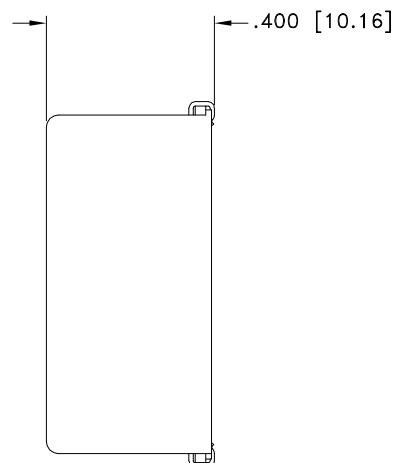
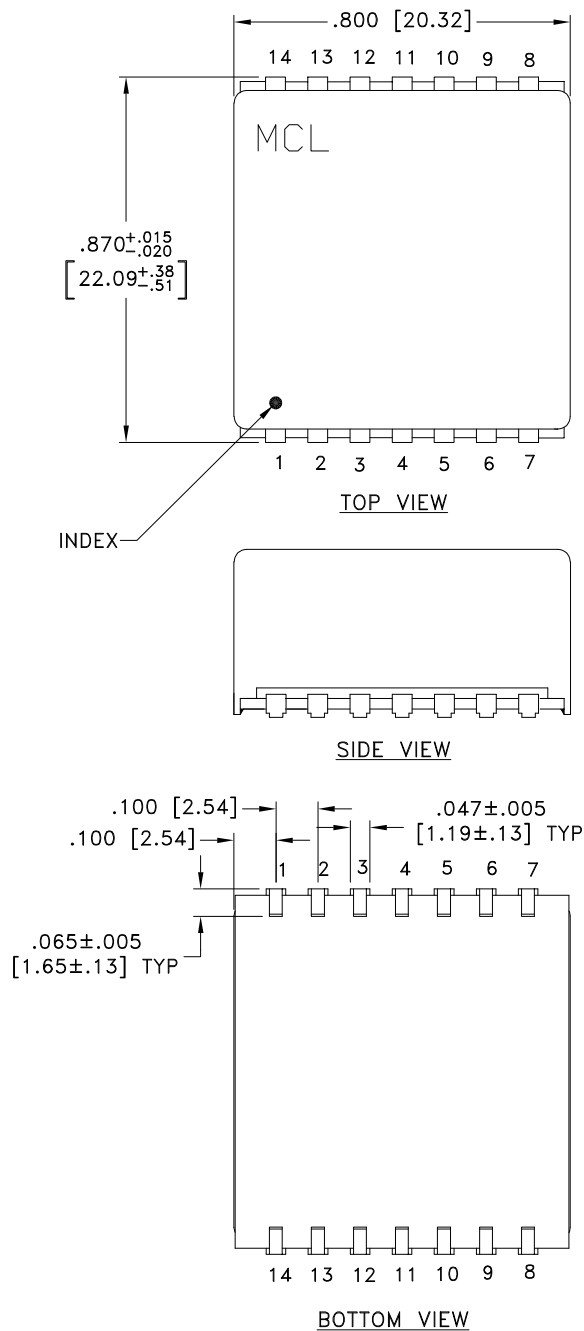
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Typical Performance Data

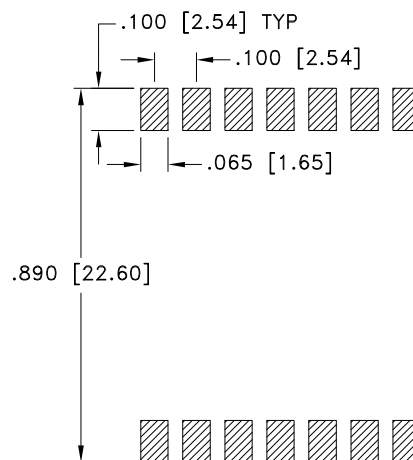


Outline Dimensions

BG419



SIDE VIEW



SUGGESTED LAYOUT
FOR PCB LAND PATTERN
(TOL $\pm$.002)

DENOTES METALLIZATION

Weight: 4 gram

Dimensions are in inches[mm]. Tolerances: 2PL $\pm$ 0.03[0.76]; 3 PL $\pm$ 0.015 [0.381] inches[mm], unless otherwise specified

Notes:

1. Case material: Copper-Nickel alloy.
2. Base material: Printed wiring laminate.
3. Termination finish:

For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.

For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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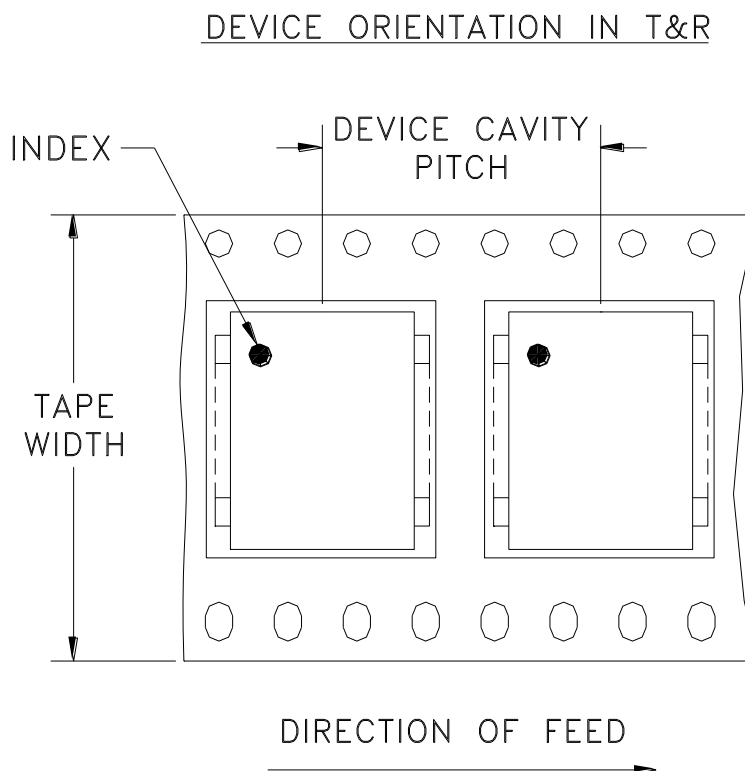
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



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RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F25



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
44	32	13	Small quantity standards (see note)	20
				50
				100
			Standard	125

Note: Please consult individual model data sheet to determine device per reel availability.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

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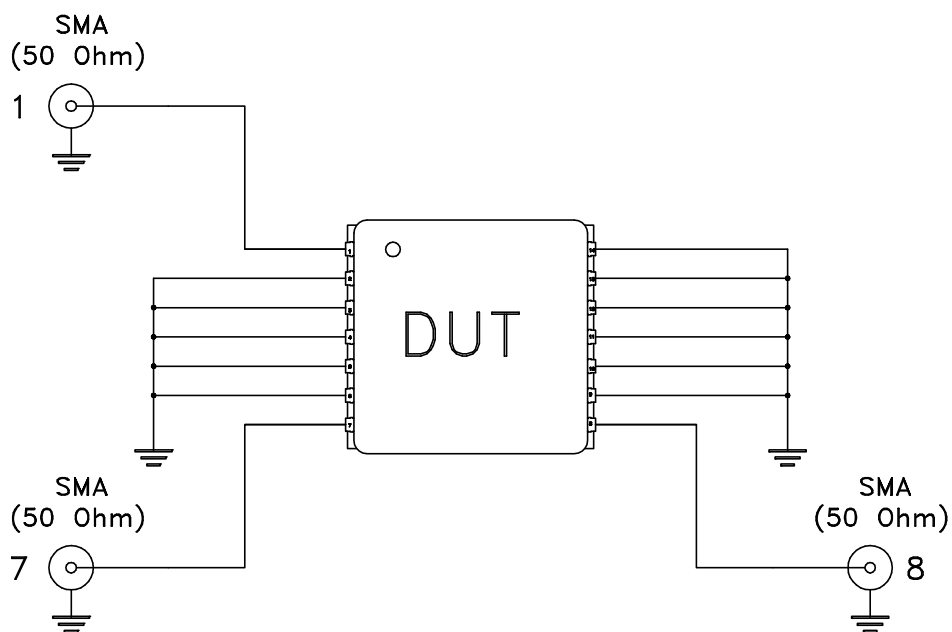
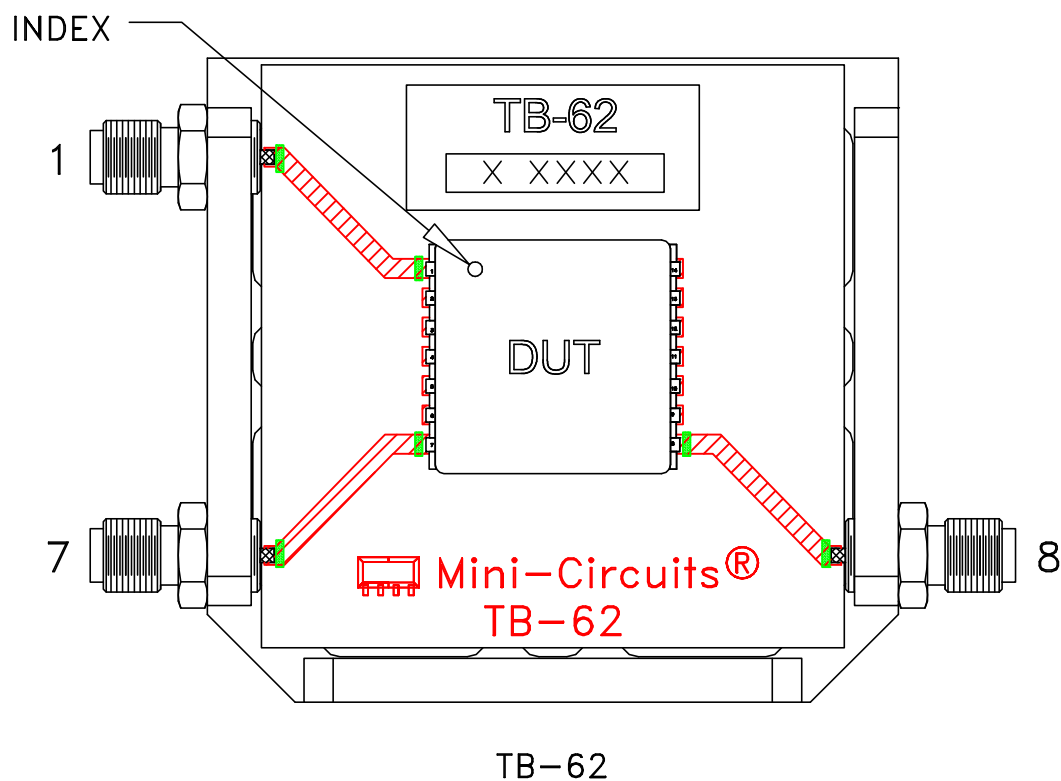
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Evaluation Board and Circuit

For Pin Connection Refer to
Data Sheet of the DUT



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

 Mini-Circuits®



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 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
HAST	130°C, 85% RH, 96 hours	JESD22-A110
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
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutectic Process: 225°C peak Pb-Free Process, 245°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
Vibration (High Frequency)	20g peak, 20-2000 Hz, 4 times in each of three axes (total 12)	MIL-STD-883, Method 2007.3, Condition A
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215