Coaxial

Frequency Mixer

ZAM-42

Level 7 (LO Power +7 dBm) 1500 to 4200 MHz

Generic photo used for illustration purposes only

CASE STYLE: F14

Connectors	Model
SMA	ZAM-42

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

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

Coaxial Connections

LO	2
RF	1
IF	3

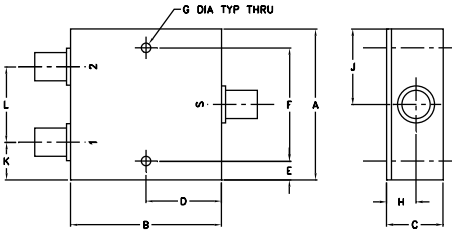
Features

- low conversion loss, 5.67 dB typ.
- wideband, 1500 to 4200 MHz
- rugged shielded case

Applications

- PCS
- MMDS
- instrumentation

Outline Drawing



Outline Dimensions (inch)

A	B	C	D	E	F	G
2.00	2.00	0.75	1.00	0.25	1.500	0.125
50.80	50.80	19.05	25.40	6.35	38.10	3.18

H	J	K	L	wt
0.39	1.00	0.50	1.00	grams
9.91	25.40	12.70	25.40	170.0

Electrical Specifications

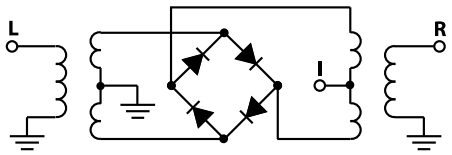
FREQUENCY (MHz)		CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)	
LO/RF	IF	Mid-Band		Total Range				
f_L-f_U		$\overline{X}$	σ	Max.	Typ.	Min.	Typ.	Min.
1500-4200	DC-500	5.67	0.11	8.5	25	14	18	10

1 dB COMP.: +1 dBm typ.

Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm
1500.00	1450.00	5.47	27.2	22.8	2.52	6.05
1555.26	1505.26	5.66	27.0	22.9	2.55	6.05
1731.58	1681.58	5.63	26.0	23.5	2.80	7.60
1907.89	1857.89	5.74	26.2	22.9	2.88	7.28
2000.00	1950.00	6.02	26.9	21.7	2.76	7.00
2084.21	2034.21	6.33	26.9	21.0	2.76	7.00
2260.53	2210.53	6.59	26.3	20.1	2.80	7.60
2436.84	2386.84	7.00	25.8	19.2	3.06	8.31
2613.16	2563.16	6.59	25.6	18.6	2.80	5.85
2789.47	2739.47	5.91	23.8	19.3	2.80	5.03
2965.79	2915.79	5.58	21.7	17.7	2.52	5.49
3000.00	2950.00	5.59	21.4	17.0	2.40	6.05
3142.11	3092.11	5.40	20.7	15.3	2.01	4.12
3318.42	3268.42	5.79	21.3	14.3	1.65	2.84
3494.74	3444.74	5.92	20.8	14.0	2.30	2.96
3671.05	3621.05	5.51	21.1	15.0	1.94	4.12
3847.37	3797.37	5.78	22.2	15.5	1.97	4.89
4000.00	3950.00	5.81	23.2	16.1	1.91	5.33
4023.68	3973.68	5.91	23.4	16.3	1.92	5.03
4129.00	4079.00	5.93	24.0	16.5	1.97	4.89
4200.00	4150.00	5.99	24.9	16.0	2.14	4.89

Electrical Schematic



Notes
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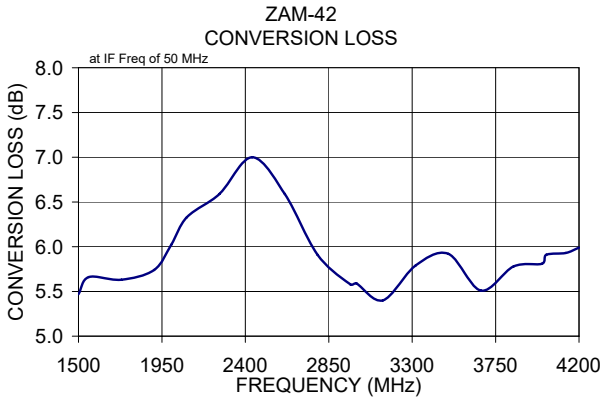

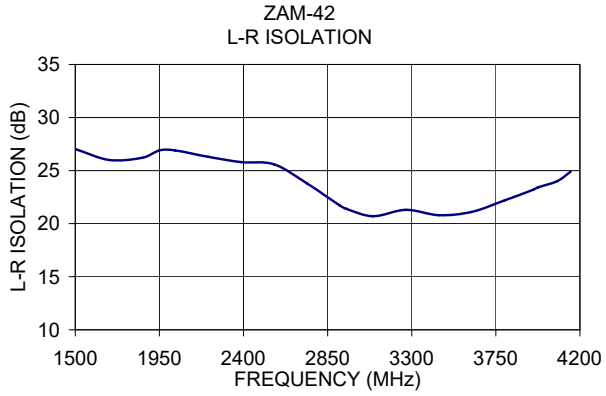

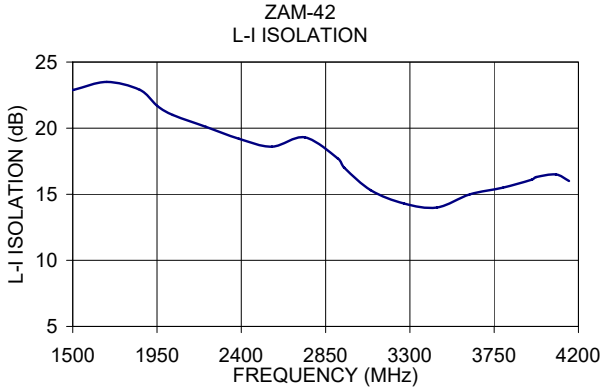

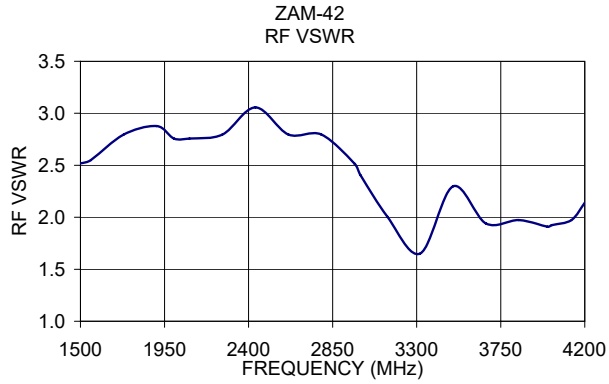

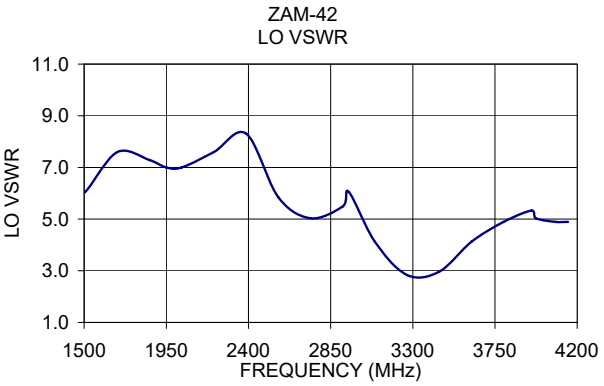

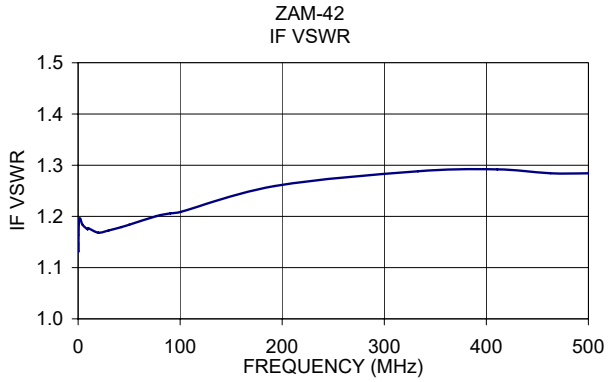

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+4	+7	+10
1490.0	1520.0	5.72	5.40	5.17
1530.0	1560.0	5.61	5.29	5.11
1570.0	1600.0	5.89	5.61	5.38
1610.0	1640.0	5.62	5.39	5.23
1650.0	1680.0	5.81	5.53	5.33
1690.0	1720.0	5.69	5.40	5.20
1730.0	1760.0	5.86	5.60	5.42
1770.0	1800.0	5.76	5.53	5.38
1810.0	1840.0	5.73	5.50	5.37
1850.0	1880.0	5.87	5.57	5.41
1890.0	1920.0	5.76	5.48	5.33
1930.0	1960.0	6.12	5.80	5.60
1970.0	2000.0	5.95	5.66	5.50
2010.0	2040.0	6.13	5.83	5.64
2050.0	2080.0	6.23	5.92	5.72
2090.0	2120.0	6.03	5.79	5.68
2130.0	2160.0	6.47	6.20	6.05
2170.0	2200.0	6.21	5.94	5.84
2210.0	2240.0	6.72	6.34	6.07
2250.0	2280.0	6.99	6.54	6.25
2290.0	2320.0	7.21	6.62	6.26
2330.0	2360.0	7.83	7.28	6.86
2370.0	2400.0	7.24	6.75	6.39
2410.0	2440.0	7.42	6.88	6.53
2450.0	2480.0	7.33	6.69	6.30
2490.0	2520.0	7.10	6.60	6.19
2530.0	2560.0	7.18	6.65	6.28
2570.0	2600.0	6.76	6.28	5.99
2610.0	2640.0	6.71	6.22	5.96
2770.0	2800.0	5.83	5.39	5.21
2930.0	2960.0	6.20	5.54	5.23
3090.0	3120.0	5.52	5.14	4.96
3250.0	3280.0	5.80	5.43	5.20
3410.0	3440.0	5.60	5.24	5.02
3570.0	3600.0	6.07	5.67	5.31
3730.0	3760.0	5.98	5.53	5.21
3890.0	3920.0	6.15	5.68	5.38
4050.0	4080.0	6.14	5.68	5.41
4210.0	4240.0	5.94	5.35	5.10

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+4	+7	+10
1490.0	1520.0	8.73	7.83	7.85
1530.0	1560.0	9.21	9.30	9.10
1570.0	1600.0	10.10	8.64	8.09
1610.0	1640.0	9.74	9.50	8.91
1650.0	1680.0	9.59	9.98	10.35
1690.0	1720.0	10.40	10.25	10.33
1730.0	1760.0	10.51	10.07	10.02
1770.0	1800.0	10.52	11.20	10.56
1810.0	1840.0	10.45	11.70	11.94
1850.0	1880.0	10.04	11.24	11.73
1890.0	1920.0	9.93	10.64	11.23
1930.0	1960.0	10.06	10.64	11.48
1970.0	2000.0	9.56	10.09	11.14
2010.0	2040.0	10.09	10.37	10.60
2050.0	2080.0	9.80	11.06	11.20
2090.0	2120.0	8.89	10.02	10.57
2130.0	2160.0	9.18	10.71	11.41
2170.0	2200.0	8.44	9.75	11.21
2210.0	2240.0	9.21	11.19	11.39
2250.0	2280.0	9.37	11.40	11.51
2290.0	2320.0	9.81	13.50	13.87
2330.0	2360.0	6.98	7.93	9.05
2370.0	2400.0	6.51	7.82	9.00
2410.0	2440.0	6.11	6.34	7.88
2450.0	2480.0	6.86	5.93	7.97
2490.0	2520.0	8.76	7.70	7.08
2530.0	2560.0	7.14	7.52	7.59
2570.0	2600.0	6.49	6.99	7.36
2610.0	2640.0	5.78	6.24	6.77
2770.0	2800.0	6.25	7.44	8.23
2930.0	2960.0	10.17	9.96	11.82
3090.0	3120.0	7.59	10.25	13.25
3250.0	3280.0	7.46	8.59	10.17
3410.0	3440.0	10.80	9.84	10.53
3570.0	3600.0	10.30	10.76	9.58
3730.0	3760.0	9.40	11.64	12.78
3890.0	3920.0	7.75	9.20	9.97
4050.0	4080.0	5.98	7.69	8.26
4210.0	4240.0	5.58	9.39	12.65

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB) @LO (dBm)		
		+4	+7	+10
1490.0	1520.0	2.69	2.38	2.14
1530.0	1560.0	2.74	2.38	2.10
1570.0	1600.0	2.49	2.20	1.97
1610.0	1640.0	2.46	2.18	1.94
1650.0	1680.0	2.20	1.95	1.79
1690.0	1720.0	2.16	1.91	1.75
1730.0	1760.0	2.08	1.81	1.61
1770.0	1800.0	1.97	1.71	1.54
1810.0	1840.0	1.95	1.68	1.51
1850.0	1880.0	1.85	1.61	1.45
1890.0	1920.0	1.91	1.65	1.49
1930.0	1960.0	1.79	1.52	1.36
1970.0	2000.0	1.89	1.62	1.45
2010.0	2040.0	1.94	1.63	1.48
2050.0	2080.0	2.09	1.73	1.56
2090.0	2120.0	2.25	1.78	1.58
2130.0	2160.0	2.01	1.55	1.35
2170.0	2200.0	2.13	1.68	1.45
2210.0	2240.0	2.07	1.61	1.41
2250.0	2280.0	1.80	1.43	1.26
2290.0	2320.0	1.63	1.31	1.19
2330.0	2360.0	1.23	0.82	0.69
2370.0	2400.0	1.46	1.00	0.83
2410.0	2440.0	1.65	1.06	0.83
2450.0	2480.0	1.53	1.07	0.91
2490.0	2520.0	1.65	1.09	0.92
2530.0	2560.0	1.59	1.09	0.87
2570.0	2600.0	1.73	1.22	1.00
2610.0	2640.0	1.95	1.28	1.09
2770.0	2800.0	1.72	1.12	0.85
2930.0	2960.0	1.36	1.06	0.86
3090.0	3120.0	1.37	1.03	0.90
3250.0	3280.0	1.33	1.19	1.11
3410.0	3440.0	1.11	0.96	0.96
3570.0	3600.0	1.34	1.14	1.15
3730.0	3760.0	1.32	1.22	1.27
3890.0	3920.0	1.32	1.03	1.04
4050.0	4080.0	1.65	1.17	1.11
4210.0	4240.0	1.53	1.00	1.01

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2850.1001MHz (dB) @LO (dBm) +7
1880.0	970.1	11.05
1792.0	1058.1	8.67
1704.0	1146.1	7.89
1616.0	1234.1	7.75
1528.0	1322.1	7.60
1440.0	1410.1	7.53
1352.0	1498.1	7.55
1264.0	1586.1	7.68
1176.0	1674.1	7.33
1088.0	1762.1	6.80
1000.0	1850.1	6.56
890.0	1960.1	6.78
802.0	2048.1	6.90
692.0	2158.1	6.45
604.0	2246.1	6.34
494.0	2356.1	5.96
406.0	2444.1	5.59
296.0	2554.1	5.11
208.0	2642.1	5.02
98.0	2752.1	5.13
10.0	2840.1	5.28
82.0	2932.1	5.07
154.0	3004.1	5.47
244.0	3094.1	5.61
316.0	3166.1	5.66
406.0	3256.1	5.50
478.0	3328.1	5.26
568.0	3418.1	5.33
640.0	3490.1	6.38
730.0	3580.1	6.71
802.0	3652.1	7.01
892.0	3742.1	6.79
964.0	3814.1	6.82
1054.0	3904.1	7.12
1126.0	3976.1	7.13
1216.0	4066.1	7.06
1288.0	4138.1	6.93
1378.0	4228.1	7.20
1450.0	4300.1	7.61
1540.0	4390.1	7.67

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1500.1MHz (dB) @LO (dBm) +7
10.0	1510.1	5.42
70.0	1570.1	5.00
130.0	1630.1	5.26
190.0	1690.1	5.21
250.0	1750.1	5.11
310.0	1810.1	5.05
370.0	1870.1	5.13
430.0	1930.1	5.16
490.0	1990.1	5.41
550.0	2050.1	5.59
610.0	2110.1	5.69
670.0	2170.1	5.82
730.0	2230.1	5.93
790.0	2290.1	6.07
850.0	2350.1	6.16
910.0	2410.1	6.21
970.0	2470.1	5.92
1030.0	2530.1	5.98
1090.0	2590.1	6.00
1150.0	2650.1	5.90
1210.0	2710.1	5.94
1270.0	2770.1	5.98
1330.0	2830.1	5.97
1390.0	2890.1	5.91
1450.0	2950.1	5.99
1510.0	3010.1	6.42
1570.0	3070.1	6.52
1630.0	3130.1	6.71
1690.0	3190.1	6.91
1750.0	3250.1	6.73
1810.0	3310.1	6.79
1870.0	3370.1	6.62
1930.0	3430.1	6.48
1990.0	3490.1	6.38
2050.0	3550.1	6.23
2110.0	3610.1	6.03
2190.0	3690.1	6.25
2250.0	3750.1	6.98
2330.0	3830.1	9.00
2390.0	3890.1	10.14

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=4200.1001MHz (dB) @LO (dBm) +7
2350.0	1850.1	10.33
2290.0	1910.1	8.88
2230.0	1970.1	7.69
2170.0	2030.1	6.64
2110.0	2090.1	5.96
2050.0	2150.1	6.13
1990.0	2210.1	5.83
1930.0	2270.1	5.79
1870.0	2330.1	6.05
1810.0	2390.1	6.43
1750.0	2450.1	6.84
1690.0	2510.1	7.16
1630.0	2570.1	7.14
1570.0	2630.1	6.79
1510.0	2690.1	6.55
1450.0	2750.1	6.26
1390.0	2810.1	6.12
1330.0	2870.1	6.31
1270.0	2930.1	6.37
1210.0	2990.1	6.30
1150.0	3050.1	6.07
1090.0	3110.1	5.88
1030.0	3170.1	5.65
970.0	3230.1	6.12
910.0	3290.1	6.27
850.0	3350.1	6.20
790.0	3410.1	5.95
730.0	3470.1	5.53
670.0	3530.1	5.25
610.0	3590.1	5.34
550.0	3650.1	5.41
490.0	3710.1	5.29
430.0	3770.1	5.20
370.0	3830.1	5.27
310.0	3890.1	5.28
250.0	3950.1	5.30
190.0	4010.1	5.39
130.0	4070.1	5.60
70.0	4130.1	5.51
10.0	4190.1	5.24

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+4	+7	+10	+4	+7	+10
1520.0	27.59	26.76	26.17	20.26	22.09	23.46
1560.0	27.51	26.77	26.13	20.57	22.42	23.84
1600.0	26.71	26.16	25.72	20.96	22.71	24.09
1640.0	26.25	25.83	25.47	21.61	23.35	24.74
1680.0	25.83	25.54	25.27	22.15	24.03	25.51
1720.0	25.92	25.46	25.14	22.37	24.32	25.94
1760.0	25.87	25.46	25.13	22.69	24.76	26.46
1800.0	25.75	25.37	25.06	22.85	24.80	26.54
1840.0	25.54	25.22	24.97	22.81	24.85	26.60
1880.0	25.46	24.99	24.59	22.19	23.98	25.48
1920.0	25.55	25.07	24.68	21.98	23.68	25.05
1960.0	25.80	25.24	24.78	21.26	22.74	23.86
2000.0	25.91	25.25	24.77	21.03	22.09	22.77
2040.0	26.23	25.55	25.00	20.40	21.20	21.67
2080.0	26.70	25.85	25.01	19.60	20.19	20.43
2120.0	27.40	26.33	25.55	19.58	20.03	20.21
2160.0	27.02	26.41	25.82	19.38	19.61	19.63
2200.0	27.30	26.63	26.02	18.90	19.03	19.00
2240.0	27.84	27.17	26.59	18.50	18.61	18.57
2280.0	28.24	27.65	27.00	18.38	18.43	18.32
2320.0	28.61	28.22	27.83	18.39	18.15	18.12
2360.0	27.47	27.74	27.72	18.50	18.26	17.88
2400.0	27.77	27.77	27.49	18.29	18.04	17.66
2440.0	27.77	28.08	27.85	18.45	18.07	17.60
2480.0	27.48	28.18	28.14	18.56	18.10	17.57
2520	27.29	27.66	27.69	18.81	18.28	17.77
2560	26.85	27.49	27.65	19.02	18.32	17.77
2600	26.46	27.28	27.51	18.95	18.23	17.65
2640	25.65	26.24	26.83	19.05	18.14	17.69
2800	23.40	23.78	24.26	18.52	17.49	16.78
2960	22.76	22.60	22.77	17.63	16.47	15.89
3120	21.02	20.55	20.27	16.42	15.34	14.39
3280	20.32	19.80	19.64	14.80	14.04	13.68
3440	19.96	19.59	19.52	14.37	13.90	13.73
3600	20.02	19.93	20.01	14.87	14.68	14.67
3760	20.29	20.38	20.56	15.70	15.75	15.90
3920	20.73	20.89	20.93	16.58	16.86	17.08
4080	21.31	21.83	21.77	17.22	17.74	18.04
4240	21.42	21.59	21.10	17.77	18.29	18.55

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+4	+7	+10
1490.0	1520.0	25.66	24.46	23.30
1530.0	1560.0	26.49	25.07	24.04
1570.0	1600.0	28.01	26.60	25.10
1610.0	1640.0	25.19	24.23	23.32
1650.0	1680.0	23.78	22.62	21.75
1690.0	1720.0	22.38	21.31	20.26
1730.0	1760.0	19.95	19.29	18.66
1770.0	1800.0	18.50	17.94	17.34
1810.0	1840.0	17.29	16.51	15.86
1850.0	1880.0	16.32	15.75	15.11
1890.0	1920.0	14.97	14.46	13.96
1930.0	1960.0	14.01	13.44	12.93
1970.0	2000.0	13.12	12.49	11.95
2010.0	2040.0	12.55	11.87	11.36
2050.0	2080.0	12.30	11.67	11.18
2090.0	2120.0	11.63	11.10	10.68
2130.0	2160.0	11.17	10.76	10.46
2170.0	2200.0	10.71	10.46	10.23
2210.0	2240.0	10.50	10.40	10.34
2250.0	2280.0	10.28	10.26	10.26
2290.0	2320.0	9.76	9.85	9.89
2330.0	2360.0	10.20	10.06	9.97
2370.0	2400.0	11.81	11.80	11.81
2410.0	2440.0	12.20	12.29	12.33
2450.0	2480.0	12.71	12.92	12.96
2490.0	2520.0	13.15	13.36	13.46
2530.0	2560.0	13.80	13.95	14.06
2570.0	2600.0	14.32	14.51	14.63
2610.0	2640.0	15.08	15.14	15.22
2770.0	2800.0	17.64	17.75	17.77
2930.0	2960.0	19.79	20.08	20.34
3090.0	3120.0	21.14	21.38	21.59
3250.0	3280.0	22.82	23.04	23.17
3410.0	3440.0	25.03	25.26	25.49
3570.0	3600.0	26.94	27.22	27.60
3730.0	3760.0	28.01	28.25	28.55
3890.0	3920.0	29.20	29.50	29.70
4050.0	4080.0	30.29	30.92	31.26
4210.0	4240.0	30.98	31.89	32.40

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm) +4	+7	+10
1490.0	1520.0	2.79	2.67	2.57
1530.0	1560.0	2.80	2.66	2.56
1570.0	1600.0	3.05	2.95	2.86
1610.0	1640.0	2.93	2.84	2.77
1650.0	1680.0	2.99	2.86	2.77
1690.0	1720.0	3.07	2.92	2.82
1730.0	1760.0	3.08	2.95	2.86
1770.0	1800.0	3.06	2.95	2.86
1810.0	1840.0	3.02	2.88	2.79
1850.0	1880.0	3.13	2.95	2.82
1890.0	1920.0	3.05	2.88	2.76
1930.0	1960.0	3.09	2.89	2.75
1970.0	2000.0	2.99	2.79	2.66
2010.0	2040.0	2.95	2.75	2.60
2050.0	2080.0	3.01	2.80	2.63
2090.0	2120.0	2.63	2.47	2.36
2130.0	2160.0	2.66	2.50	2.38
2170.0	2200.0	2.60	2.44	2.31
2210.0	2240.0	2.58	2.46	2.36
2250.0	2280.0	2.67	2.53	2.42
2290.0	2320.0	2.72	2.55	2.42
2330.0	2360.0	3.19	3.03	2.88
2370.0	2400.0	3.09	2.95	2.84
2410.0	2440.0	2.96	2.75	2.63
2450.0	2480.0	3.01	2.71	2.51
2490.0	2520.0	3.08	2.82	2.56
2530.0	2560.0	3.03	2.76	2.54
2570.0	2600.0	3.00	2.72	2.51
2610.0	2640.0	2.90	2.56	2.33
2770.0	2800.0	2.37	2.03	1.82
2930.0	2960.0	2.49	2.09	1.84
3090.0	3120.0	2.08	1.80	1.63
3250.0	3280.0	2.34	2.10	1.94
3410.0	3440.0	2.09	1.82	1.65
3570.0	3600.0	2.36	2.18	1.96
3730.0	3760.0	2.31	2.14	1.96
3890.0	3920.0	2.20	2.06	1.95
4050.0	4080.0	2.03	1.93	1.86
4210.0	4240.0	1.86	1.83	1.85

LO (MHz)	LO VSWR (:1) @LO (dBm) +4	+7	+10
1520.0	4.80	6.11	7.94
1560.0	4.67	5.99	7.76
1600.0	4.57	5.93	7.73
1640.0	4.60	6.05	7.90
1680.0	4.54	6.01	7.87
1720.0	4.86	6.39	8.39
1760.0	4.73	6.28	8.23
1800.0	4.91	6.58	8.64
1840.0	4.98	6.66	8.72
1880.0	5.09	6.78	8.86
1920.0	5.46	7.31	9.53
1960.0	5.41	7.20	9.38
2000.0	5.85	7.76	10.13
2040.0	5.81	7.66	9.85
2080.0	5.89	7.73	9.96
2120.0	6.11	8.01	10.31
2160.0	6.05	7.83	9.96
2200.0	6.61	8.51	10.82
2240.0	6.56	8.27	10.37
2280.0	6.83	8.60	10.69
2320.0	7.08	8.77	10.89
2360.0	7.00	8.51	10.43
2400.0	7.38	8.90	10.89
2440.0	7.34	8.68	10.37
2480.0	7.56	8.90	10.56
2520.0	7.50	8.86	10.56
2560.0	7.50	8.64	10.25
2600.0	7.50	8.60	10.19
2640.0	7.34	8.16	9.53
2800.0	6.66	7.02	8.08
2960.0	5.68	5.74	6.39
3120.0	4.03	3.96	4.41
3280.0	3.05	3.17	3.61
3440.0	2.62	2.96	3.52
3600.0	3.09	3.56	4.31
3760.0	4.13	4.61	5.49
3920.0	5.52	5.77	6.66
4080.0	6.58	6.03	6.56
4240.0	8.31	6.76	6.81

IF (OUT) (MHz)	IF VSWR @LO=4200MHz (:1) @LO (dBm) +4	+7	+10
10.0	1.34	1.08	1.05
30.0	1.39	1.11	1.01
50.0	1.38	1.11	1.04
70.0	1.38	1.12	1.06
90.0	1.34	1.08	1.07
110.0	1.40	1.13	1.04
130.0	1.39	1.13	1.08
150.0	1.41	1.13	1.04
170.0	1.45	1.19	1.11
190.0	1.39	1.13	1.08
210.0	1.47	1.19	1.09
230.0	1.47	1.20	1.12
250.0	1.50	1.21	1.10
270.0	1.55	1.26	1.15
290.0	1.53	1.24	1.15
310.0	1.55	1.25	1.14
330.0	1.56	1.26	1.14
350.0	1.65	1.33	1.20
370.0	1.65	1.35	1.23
390.0	1.68	1.36	1.23
410.0	1.70	1.38	1.25
430.0	1.76	1.43	1.29
450.0	1.79	1.49	1.37
470.0	1.68	1.41	1.33
490.0	1.59	1.37	1.31
510.0	1.43	1.25	1.24
530.0	1.39	1.16	1.13
550.0	1.39	1.15	1.10
570.0	1.38	1.12	1.06
590.0	1.38	1.11	1.03
610.0	1.38	1.12	1.02
630.0	1.43	1.17	1.06
650.0	1.44	1.17	1.05
670.0	1.41	1.14	1.04
690.0	1.38	1.13	1.04
710.0	1.37	1.14	1.09
730.0	1.41	1.17	1.09
750.0	1.38	1.13	1.06
770.0	1.34	1.10	1.06

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Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	+9	21	34	15	29	49	45	42	---	---
1	-	14	+0	31	19	40	34	37	61	55	62	---
2	79	49	58	42	54	50	67	47	59	61	56	61
3	>90	>71	66	68	60	68	>71	>71	65	>71	>71	70
4	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
5	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
6	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
7	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
8	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
9	---	---	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
10	---	---	---	>71	>71	>71	>71	>71	>71	>71	>71	>71
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 2850.1 MHz; -14.00 dBm.
LO IN: 2880.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -19.4 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	1	32	46	29	43	57	56	67	---	---
1	-	14	+0	33	19	43	38	42	73	62	65	---
2	59	41	51	36	48	48	65	43	53	61	68	61
3	>90	52	46	49	39	51	43	64	49	57	72	70
4	>90	69	68	61	63	54	61	60	76	57	68	68
5	>90	>81	69	>81	78	66	59	68	66	74	64	79
6	>90	>81	78	>81	>81	73	75	67	73	67	>81	70
7	>90	>81	>81	>81	>81	>81	>81	>81	66	>81	68	>81
8	>90	>81	>81	>81	>81	>81	>81	>81	>81	77	>81	76
9	---	---	>81	>81	>81	>81	>81	>81	>81	>81	79	>81
10	---	---	---	>81	>81	>81	>81	>81	>81	>81	>81	>81
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 2850.1 MHz; -4.00 dBm.
LO IN: 2880.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -9.46 dBm

Notes: **1. All Harmonics are in (dBc) relative to IF OUTPUT.**
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

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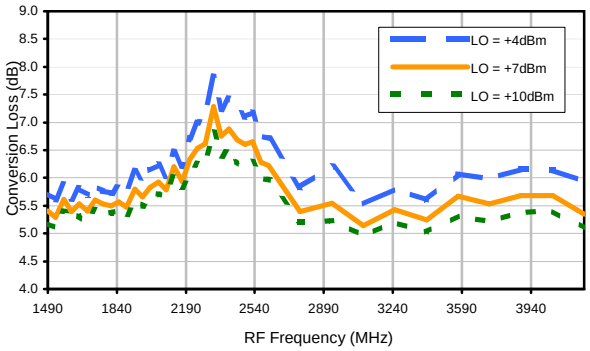
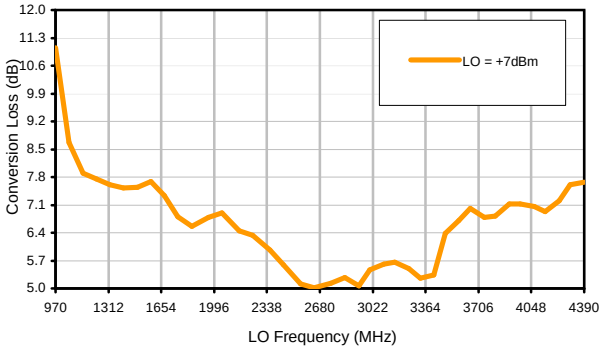
Typical Performance Curves

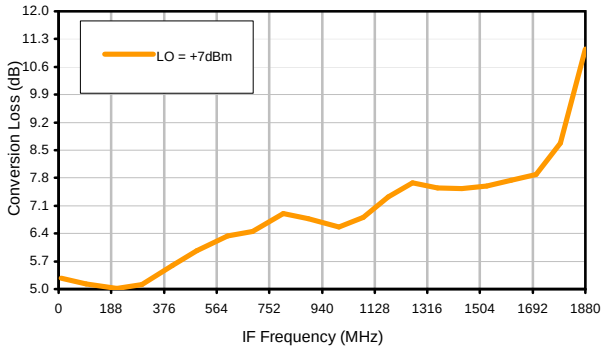
Conversion Loss @ IF=30MHz



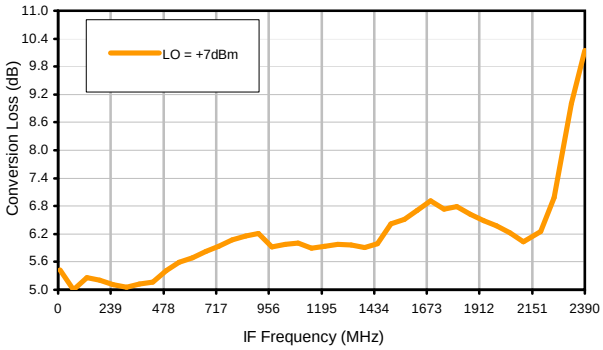
Conversion Loss vs. LO @ RF=2850.1001MHz



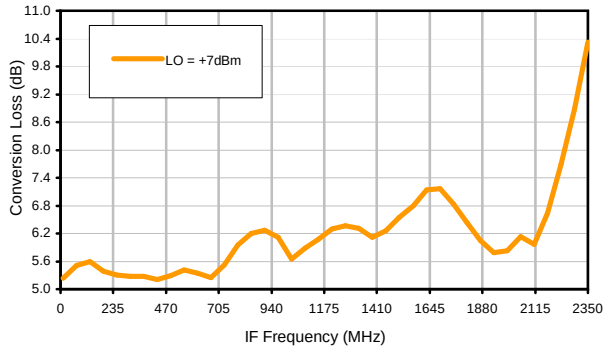
Conversion Loss vs. IF @ RF=2850.1001MHz



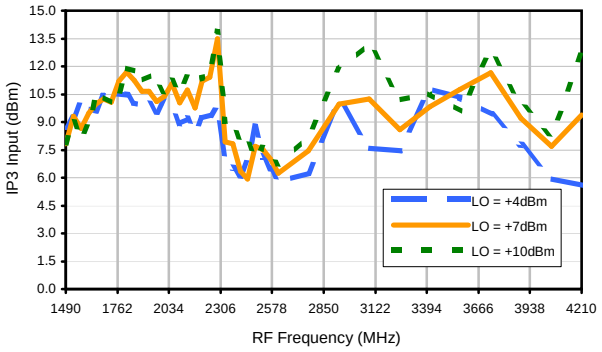
Conversion Loss vs. IF @ RF=1500.1MHz



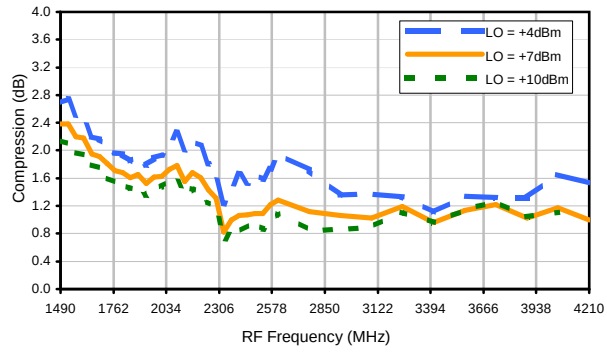
Conversion Loss vs. IF @ RF=4200.1001MHz



IP3 Input



Compression @ RF IN=+1dBm



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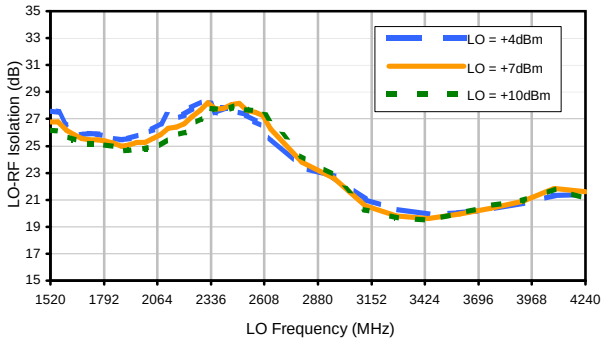
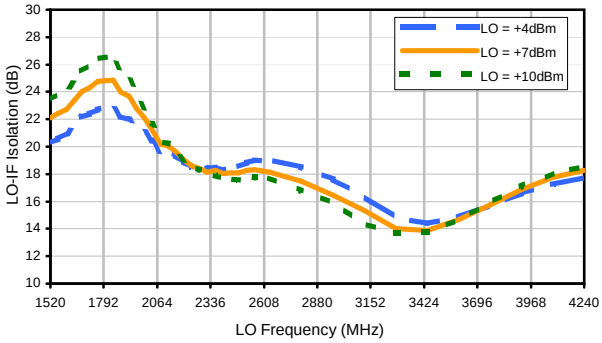
Typical Performance Curves

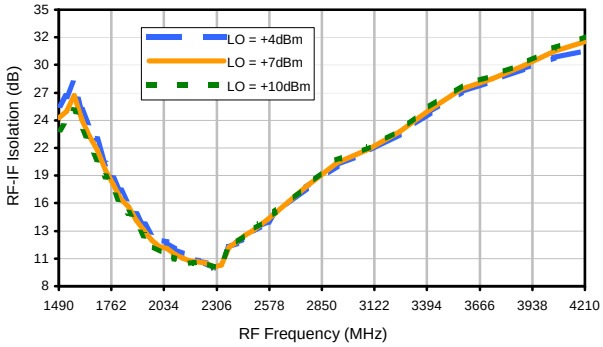
LO-RF Isolation



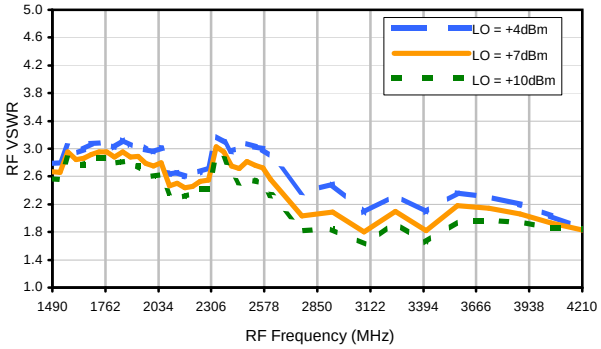
LO-IF Isolation



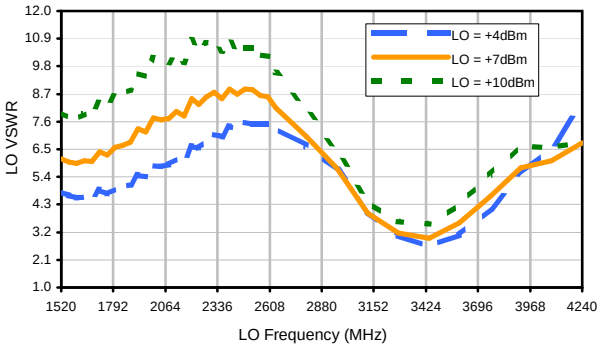
RF-IF Isolation



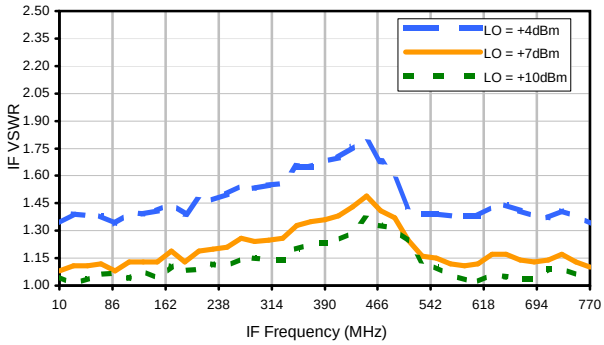
RF VSWR



LO VSWR



IF VSWR



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Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	+9	21	34	15	29	49	45	42	---	---
1	-	14	+0	31	19	40	34	37	61	55	62	---
2	79	49	58	42	54	50	67	47	59	61	56	61
3	>90	>71	66	68	60	68	>71	>71	65	>71	>71	70
4	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
5	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
6	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
7	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
8	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
9	---	---	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
10	---	---	---	>71	>71	>71	>71	>71	>71	>71	>71	>71
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 2850.1 MHz; -14.00 dBm.
LO IN: 2880.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -19.4 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	1	32	46	29	43	57	56	67	---	---
1	-	14	+0	33	19	43	38	42	73	62	65	---
2	59	41	51	36	48	48	65	43	53	61	68	61
3	>90	52	46	49	39	51	43	64	49	57	72	70
4	>90	69	68	61	63	54	61	60	76	57	68	68
5	>90	>81	69	>81	78	66	59	68	66	74	64	79
6	>90	>81	78	>81	>81	73	75	67	73	67	>81	70
7	>90	>81	>81	>81	>81	>81	>81	>81	66	>81	68	>81
8	>90	>81	>81	>81	>81	>81	>81	>81	>81	77	>81	76
9	---	---	>81	>81	>81	>81	>81	>81	>81	>81	79	>81
10	---	---	---	>81	>81	>81	>81	>81	>81	>81	>81	>81
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 2850.1 MHz; -4.00 dBm.
LO IN: 2880.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -9.46 dBm

Notes: **1. All Harmonics are in (dBc) relative to IF OUTPUT.**
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

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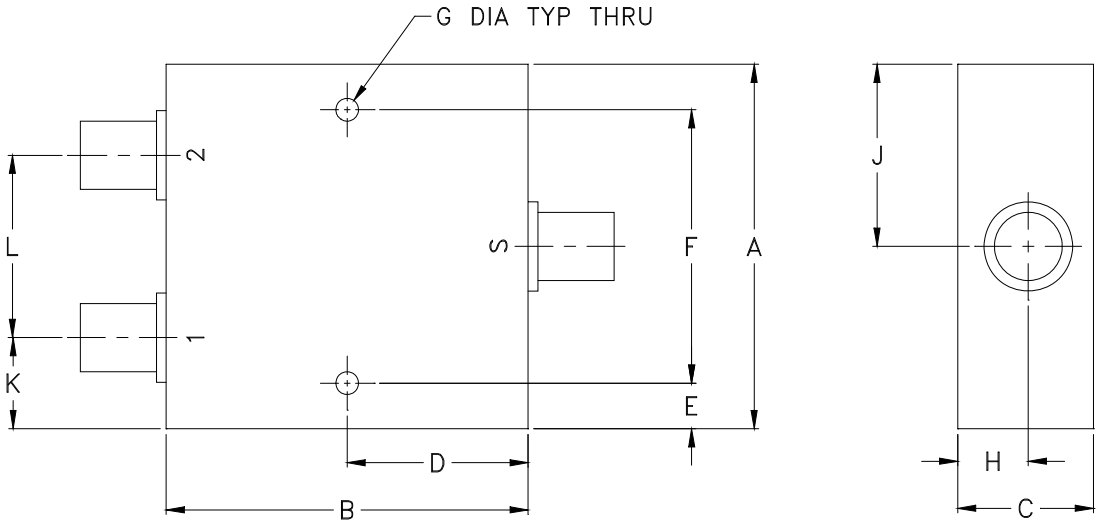
Case Style F

F14

Outline Dimensions



CASE #	A	B	C	D	E	F	G	H	J	K	L	WT. GRAM
F14	2.00 (50.80)	2.00 (50.80)	.75 (19.05)	1.00 (25.40)	.25 (6.35)	1.500 (38.10)	.125 (3.18)	.39 (9.91)	1.00 (25.40)	.50 (12.70)	1.00 (25.40)	170.0

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .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. Refer to the individual model data sheet for the type of connectors available.

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Environmental Specifications ENV28

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
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

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