

Frequency Mixer

ZX05-10L-S+

Level 4 (LO Power +4 dBm) 10 to 1000 MHz

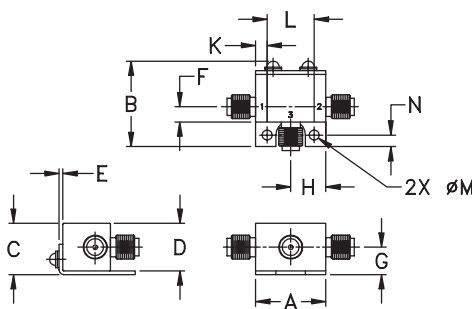
Maximum Ratings

Operating Temperature	-40°C to 85°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	1
RF	2
IF	3

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.74	.90	.54	.50	.04	.16	.29
18.80	22.86	13.72	12.70	1.02	4.06	7.37
H	J	K	L	M	N	wt
.37	--	.122	.496	.106	.122	grams
9.40	--	3.10	12.60	2.69	3.10	20.0

Features

- rugged construction
- small size
- low conversion loss
- high L-R isolation
- protected by US Patents, 6,133,525; 6,790,049 & 6,947,717

Applications

- cellular
- PCS
- instrumentation
- satellite communication

Electrical Specifications (T_{AMB}=25°C)

FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)						LO-IF ISOLATION (dB)						IP3 at center band (dBm)
LO/RF	IF	Mid-Band		Total		L		M		U		L		M		U		
		$\overline{X}$	σ	Max.	Range	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.		
		f_L-f_U			Max.													
10-1000	DC-800	7.2	0.1	8.2	8.8	70	55	60	40	47	37	40	26	37	20	24	13	16

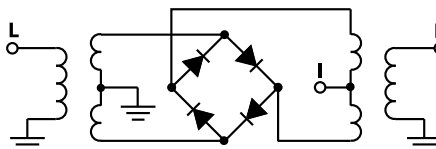
1 dB COMP: +1 dBm typ.
Conversion Loss increases when IF is above 150 MHz.

L = low range [f_L to 10 f_U]
m = mid band [$2f_L$ to $f_U/2$]
M = mid range [$10f_L$ to $f_U/2$]
U = upper range [$f_U/2$ to f_U]

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 +4dBm	LO +4dBm	LO +4dBm	LO +4dBm	LO +4dBm
10.10	40.10	7.11	73.60	61.44	1.50	1.25
50.10	80.10	6.95	64.82	48.24	1.48	1.20
100.10	70.10	7.02	60.58	42.69	1.47	1.19
143.85	113.85	6.98	58.32	40.57	1.45	1.19
191.35	161.35	6.97	56.93	39.20	1.44	1.18
262.60	232.60	6.82	55.91	37.54	1.41	1.20
310.10	280.10	6.80	55.22	36.17	1.39	1.24
357.60	327.60	6.75	54.50	34.01	1.39	1.25
405.10	375.10	6.78	53.05	31.84	1.38	1.27
452.60	422.60	6.74	51.42	30.10	1.37	1.32
500.10	470.10	6.82	49.97	27.89	1.38	1.37
552.10	522.10	6.72	51.89	26.26	1.34	1.36
616.10	586.10	6.76	66.73	24.80	1.30	1.44
648.10	618.10	6.72	57.27	24.21	1.29	1.48
712.10	682.10	6.89	47.16	23.25	1.33	1.52
776.10	746.10	7.00	47.22	22.14	1.38	1.57
840.10	810.10	7.13	50.02	20.82	1.42	1.57
904.10	874.10	7.10	58.49	19.62	1.46	1.49
968.10	938.10	6.57	57.19	18.18	1.42	1.51
1000.10	970.10	6.41	49.70	17.55	1.41	1.54

Electrical Schematic



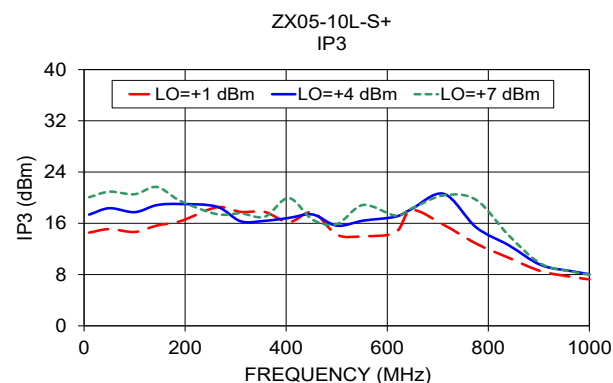
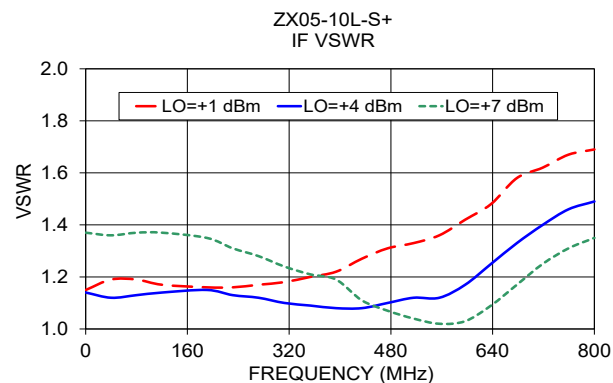
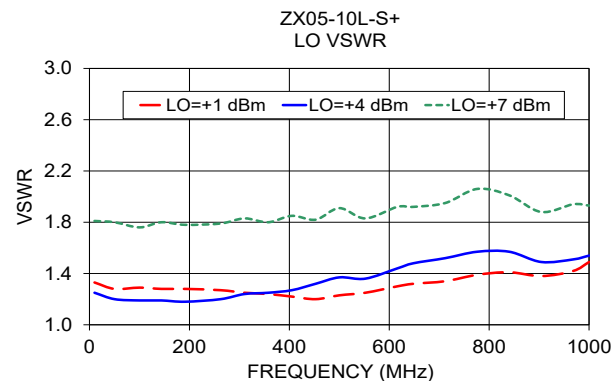
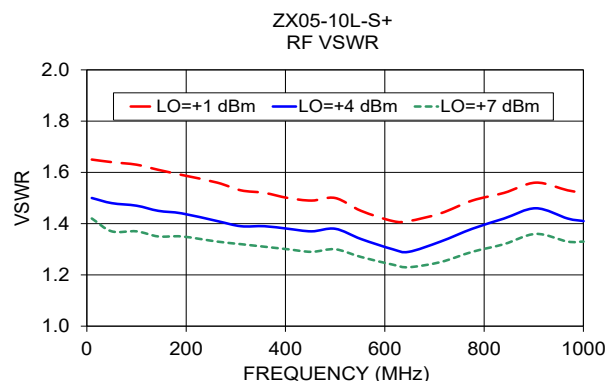
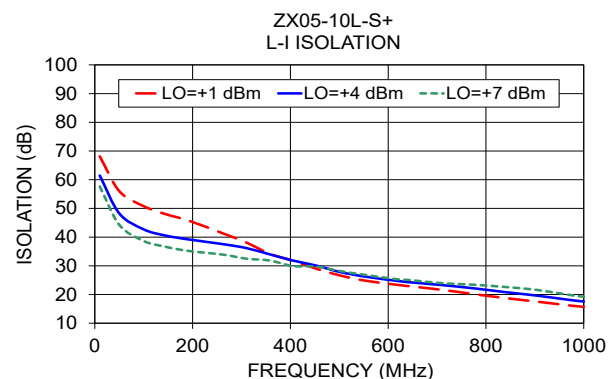
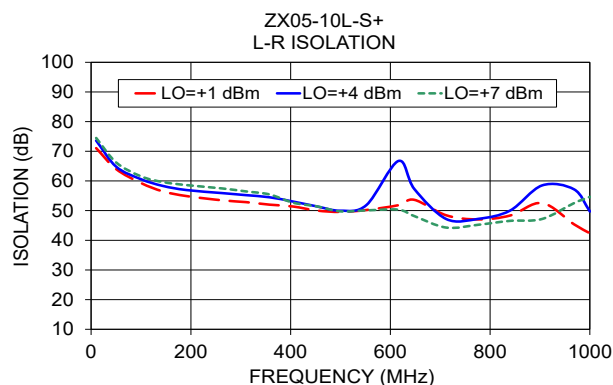
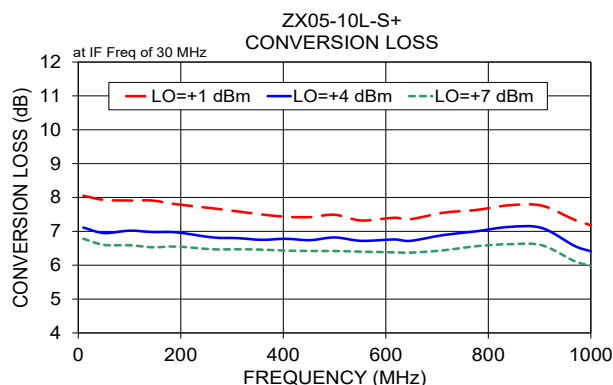
Notes

- 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.
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Performance Charts

ZX05-10L-S+



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Frequency Mixer

ZX05-10L+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
+1	+4	+7	+1	+4	+7	+1	+4	+7						
10.1	40.1	7.97	6.71	6.19	10.1	40.1	11.04	15.22	19.06	10.1	40.1	0.61	0.32	0.19
49.9	79.9	8.60	7.41	6.89	49.9	79.9	11.28	15.99	17.34	49.9	79.9	0.69	0.44	0.28
89.7	119.7	8.51	7.39	6.89	89.7	119.7	11.39	16.78	17.01	89.7	119.7	0.72	0.42	0.31
129.5	159.5	8.53	7.39	6.88	129.5	159.5	12.60	14.90	14.89	129.5	159.5	0.72	0.48	0.35
169.3	199.3	8.40	7.30	6.83	169.3	199.3	13.50	14.75	14.93	169.3	199.3	0.73	0.50	0.33
209.0	239.0	8.38	7.26	6.85	209.0	239.0	13.54	13.33	16.92	209.0	239.0	0.73	0.48	0.32
248.8	278.8	8.33	7.23	6.85	248.8	278.8	11.98	13.53	18.83	248.8	278.8	0.76	0.52	0.34
308.5	338.5	8.18	7.24	6.88	308.5	338.5	11.04	15.45	20.54	308.5	338.5	0.77	0.44	0.30
348.3	378.3	8.13	7.24	6.87	348.3	378.3	10.92	14.91	22.37	348.3	378.3	0.82	0.46	0.35
408.0	438.0	8.09	7.26	6.89	408.0	438.0	11.24	15.96	21.82	408.0	438.0	0.80	0.47	0.36
447.8	477.8	8.14	7.31	6.95	447.8	477.8	11.14	16.02	19.45	447.8	477.8	0.79	0.46	0.32
507.5	537.5	8.12	7.29	6.91	507.5	537.5	12.47	16.58	18.34	507.5	537.5	0.80	0.49	0.35
547.3	577.3	8.18	7.35	6.93	547.3	577.3	12.31	18.51	21.89	547.3	577.3	0.81	0.51	0.41
606.9	636.9	8.21	7.40	6.97	606.9	636.9	11.97	15.49	18.92	606.9	636.9	0.85	0.56	0.49
646.7	676.7	8.25	7.50	7.07	646.7	676.7	11.96	14.84	20.53	646.7	676.7	1.06	0.72	0.59
706.4	736.4	8.35	7.58	7.17	706.4	736.4	11.17	13.88	19.87	706.4	736.4	1.11	0.75	0.66
746.2	776.2	8.41	7.58	7.13	746.2	776.2	11.81	14.34	19.27	746.2	776.2	1.18	0.91	0.75
805.9	835.9	8.52	7.50	7.00	805.9	835.9	11.56	18.47	14.80	805.9	835.9	1.25	1.07	0.95
845.7	875.7	8.55	7.49	6.93	845.7	875.7	12.38	13.76	13.65	845.7	875.7	1.34	1.25	1.12
905.4	935.4	8.70	7.57	6.89	905.4	935.4	10.09	11.87	10.34	905.4	935.4	1.39	1.40	1.30
945.2	975.2	8.69	7.58	6.87	945.2	975.2	9.47	10.42	8.82	945.2	975.2	1.40	1.44	1.37
1004.8	1034.8	8.67	7.66	6.95	1004.8	1034.8	8.52	9.25	7.39	1004.8	1034.8	1.52	1.46	1.42
1044.6	1074.6	8.65	7.77	7.08	1044.6	1074.6	7.76	8.47	7.30	1044.6	1074.6	1.52	1.40	1.34
1104.3	1134.3	8.53	7.79	7.23	1104.3	1134.3	7.73	9.29	10.53	1104.3	1134.3	1.70	1.44	1.30
1144.1	1174.1	8.45	7.75	7.23	1144.1	1174.1	7.53	9.70	13.09	1144.1	1174.1	1.84	1.58	1.38
1203.8	1233.8	8.22	7.59	7.16	1203.8	1233.8	8.23	11.48	15.91	1203.8	1233.8	2.02	1.66	1.45
1243.6	1273.6	8.14	7.52	7.13	1243.6	1273.6	8.45	11.95	14.38	1243.6	1273.6	2.08	1.76	1.46
1303.3	1333.3	7.97	7.40	7.07	1303.3	1333.3	9.01	12.38	13.24	1303.3	1333.3	2.17	1.76	1.48
1343.0	1373.0	7.90	7.38	7.09	1343.0	1373.0	9.44	12.70	12.94	1343.0	1373.0	2.16	1.67	1.39
1402.7	1432.7	7.85	7.40	7.22	1402.7	1432.7	9.51	12.53	13.49	1402.7	1432.7	2.14	1.55	1.22
1442.5	1472.5	7.84	7.43	7.27	1442.5	1472.5	9.39	12.45	14.46	1442.5	1472.5	2.11	1.49	1.18
1502.2	1532.2	7.95	7.55	7.38	1502.2	1532.2	9.59	11.96	14.38	1502.2	1532.2	2.12	1.46	1.16
1542.0	1572.0	8.06	7.65	7.49	1542.0	1572.0	9.74	11.69	14.98	1542.0	1572.0	2.03	1.38	1.15
1601.7	1631.7	8.35	7.90	7.73	1601.7	1631.7	9.41	11.67	13.54	1601.7	1631.7	1.98	1.36	1.12
1641.5	1671.5	8.57	8.11	7.92	1641.5	1671.5	9.18	12.07	13.92	1641.5	1671.5	1.94	1.31	1.06
1701.2	1731.2	8.92	8.42	8.22	1701.2	1731.2	8.91	10.96	13.34	1701.2	1731.2	1.90	1.26	1.04
1740.9	1770.9	9.23	8.69	8.47	1740.9	1770.9	8.20	10.70	12.79	1740.9	1770.9	1.84	1.22	0.99
1800.6	1830.6	9.63	9.04	8.80	1800.6	1830.6	8.35	10.24	11.84	1800.6	1830.6	1.67	1.13	0.94
1840.4	1870.4	9.97	9.33	9.06	1840.4	1870.4	8.07	10.71	12.58	1840.4	1870.4	1.65	1.16	0.96
1900.1	1930.1	10.49	9.77	9.46	1900.1	1930.1	8.00	9.11	10.63	1900.1	1930.1	1.57	1.12	0.95

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Frequency Mixer

ZX05-10L+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+4			+4			+4
480.0	20.1	6.82	10.0	20.1	7.12	990.0	10.1	8.30
467.9	32.2	6.85	30.0	40.1	6.98	970.0	30.1	8.20
455.9	44.2	6.83	50.0	60.1	7.03	950.0	50.1	8.13
443.8	56.3	6.79	70.0	80.1	7.01	930.0	70.1	8.06
431.8	68.3	6.80	90.0	100.1	6.99	910.0	90.1	7.97
419.7	80.4	6.79	110.0	120.1	6.99	890.0	110.1	7.86
407.7	92.4	6.76	130.0	140.1	6.96	870.0	130.1	7.80
395.6	104.5	6.73	150.0	160.1	6.97	850.0	150.1	7.79
383.6	116.5	6.69	170.0	180.1	6.97	830.0	170.1	7.73
371.5	128.6	6.64	190.0	200.1	6.95	810.0	190.1	7.68
359.5	140.6	6.63	210.0	220.1	6.95	790.0	210.1	7.64
347.4	152.7	6.64	230.0	240.1	6.92	770.0	230.1	7.62
335.4	164.7	6.64	250.0	260.1	6.96	750.0	250.1	7.56
323.3	176.8	6.63	270.0	280.1	7.02	730.0	270.1	7.55
311.3	188.8	6.63	290.0	300.1	6.97	710.0	290.1	7.52
299.2	200.9	6.62	310.0	320.1	6.99	690.0	310.1	7.49
287.2	212.9	6.62	330.0	340.1	7.05	670.0	330.1	7.45
275.1	225.0	6.59	350.0	360.1	6.99	650.0	350.1	7.44
263.1	237.0	6.58	370.0	380.1	7.11	630.0	370.1	7.41
251.0	249.1	6.57	390.0	400.1	7.11	610.0	390.1	7.38
239.0	261.1	6.61	430.0	440.1	7.51	570.0	430.1	7.36
226.9	273.2	6.61	450.0	460.1	7.26	550.0	450.1	7.36
214.9	285.2	6.61	490.0	500.1	7.29	510.0	490.1	7.36
202.8	297.3	6.59	510.0	520.1	7.30	490.0	510.1	7.38
190.8	309.3	6.60	550.0	560.1	7.40	450.0	550.1	7.36
178.7	321.4	6.59	570.0	580.1	7.47	430.0	570.1	7.44
166.7	333.4	6.59	610.0	620.1	7.63	390.0	610.1	7.40
154.6	345.5	6.58	630.0	640.1	7.68	370.0	630.1	7.42
142.6	357.5	6.59	670.0	680.1	7.90	330.0	670.1	7.51
130.5	369.6	6.62	690.0	700.1	7.94	310.0	690.1	7.48
118.5	381.6	6.65	730.0	740.1	8.02	270.0	730.1	7.45
106.4	393.7	6.64	750.0	760.1	8.04	250.0	750.1	7.43
94.4	405.7	6.61	790.0	800.1	8.00	210.0	790.1	7.33
82.3	417.8	6.61	810.0	820.1	7.96	190.0	810.1	7.28
70.3	429.8	6.64	850.0	860.1	8.03	150.0	850.1	7.24
58.2	441.9	6.66	870.0	880.1	8.03	130.0	870.1	7.19
46.2	453.9	6.62	910.0	920.1	8.08	90.0	910.1	7.18
34.1	466.0	6.65	930.0	940.1	8.15	70.0	930.1	7.30
22.1	478.0	6.68	970.0	980.1	8.27	30.0	970.1	7.41
10.0	490.1	7.07	990.0	1000.1	8.29	10.0	990.1	7.79

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+1	+4	+7	+1	+4	+7
10.1	59.26	62.18	68.13	47.88	51.52	57.47
49.9	75.20	75.77	71.22	52.10	48.36	46.09
89.7	75.72	68.33	64.67	47.56	43.17	40.51
129.5	73.10	64.29	60.59	43.94	39.78	37.12
169.3	69.77	61.49	58.24	41.16	37.14	34.76
209.0	66.33	59.51	56.38	38.89	35.15	33.28
248.8	64.41	57.59	54.17	37.08	33.68	32.05
308.5	62.61	55.13	51.49	34.86	32.23	30.66
348.3	63.70	54.98	51.02	33.81	31.59	29.90
408.0	65.60	53.80	49.37	32.92	30.73	28.95
447.8	69.51	54.25	49.21	32.41	30.22	28.23
507.5	62.36	57.00	50.09	32.31	30.00	28.01
547.3	57.03	57.60	49.94	32.10	29.51	27.28
606.9	53.38	56.29	48.20	31.76	28.89	26.36
646.7	51.93	55.77	48.27	31.23	28.50	26.13
706.4	51.09	58.57	50.78	30.13	27.77	25.95
746.2	49.59	61.15	54.44	29.28	26.94	25.26
805.9	47.38	55.48	59.66	27.82	25.34	23.64
845.7	45.24	50.15	55.99	26.96	24.40	22.67
905.4	42.38	45.47	49.44	25.79	23.30	21.45
945.2	40.53	43.07	46.79	25.23	22.96	21.00
1004.8	39.00	41.38	45.31	23.97	22.15	20.30
1044.6	37.49	39.51	42.61	23.09	21.63	20.07
1104.3	35.94	38.02	40.77	21.73	20.50	19.27
1144.1	35.00	37.17	39.70	20.94	19.76	18.61
1203.8	33.90	36.31	38.66	19.86	18.74	17.59
1243.6	33.13	35.71	37.79	19.19	18.07	16.89
1303.3	32.08	34.67	36.16	18.15	17.06	15.83
1343.0	31.59	34.12	35.20	17.37	16.28	15.07
1402.7	30.42	32.26	32.32	16.28	15.28	14.22
1442.5	29.58	30.89	30.61	15.61	14.73	13.79
1502.2	28.23	28.92	28.34	14.74	14.00	13.24
1542.0	26.83	27.47	26.94	14.36	13.74	13.05
1601.7	25.28	25.84	25.38	13.87	13.35	12.73
1641.5	24.27	24.92	24.53	13.56	13.12	12.52
1701.2	22.95	23.74	23.51	13.31	12.97	12.41
1740.9	22.15	23.03	22.89	13.20	12.93	12.39
1800.6	20.97	22.05	22.11	12.98	12.93	12.45
1840.4	20.71	21.93	22.10	12.98	13.03	12.58
1900.1	19.46	20.95	21.37	12.79	13.12	12.79

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+1	+4	+7
10.1	40.1	37.75	32.75	38.23
49.9	79.9	34.84	34.94	35.44
89.7	119.7	29.63	30.04	31.22
129.5	159.5	27.35	27.98	27.79
169.3	199.3	25.38	25.93	26.13
209.0	239.0	23.87	24.58	24.67
248.8	278.8	22.76	23.35	23.78
308.5	338.5	21.60	22.34	22.72
348.3	378.3	20.97	21.77	22.25
408.0	438.0	20.31	21.23	21.83
447.8	477.8	19.82	20.74	21.31
507.5	537.5	18.99	19.92	20.60
547.3	577.3	18.58	19.62	20.42
606.9	636.9	18.27	19.45	20.42
646.7	676.7	18.14	19.26	20.10
706.4	736.4	17.65	18.45	18.91
746.2	776.2	17.04	17.49	17.71
805.9	835.9	16.01	16.15	16.22
845.7	875.7	15.54	15.60	15.61
905.4	935.4	15.04	15.12	15.12
945.2	975.2	14.87	15.01	15.11
1004.8	1034.8	14.86	15.07	15.35
1044.6	1074.6	14.95	15.21	15.65
1104.3	1134.3	15.23	15.51	15.93
1144.1	1174.1	15.46	15.66	15.87
1203.8	1233.8	15.76	15.70	15.44
1243.6	1273.6	15.78	15.47	14.92
1303.3	1333.3	15.36	14.65	13.87
1343.0	1373.0	14.79	13.93	13.16
1402.7	1432.7	13.57	12.65	11.99
1442.5	1472.5	12.70	11.81	11.19
1502.2	1532.2	11.57	10.72	10.13
1542.0	1572.0	10.78	9.97	9.40
1601.7	1631.7	9.82	9.07	8.53
1641.5	1671.5	9.22	8.53	8.01
1701.2	1731.2	8.39	7.79	7.32
1740.9	1770.9	7.90	7.37	6.94
1800.6	1830.6	7.17	6.73	6.36
1840.4	1870.4	6.79	6.40	6.07
1900.1	1930.1	6.19	5.88	5.58

Frequency Mixer

ZX05-10L+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1000.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+1	+4	+7		+1	+4	+7		+1	+4	+7
10.1	40.1	1.93	1.81	1.63	10.1	1.39	1.06	1.54	10.0	1.86	1.61	1.16
49.9	79.9	1.59	1.43	1.32	49.9	1.45	1.14	1.65	29.8	1.84	1.36	1.09
89.7	119.7	1.67	1.50	1.39	89.7	1.40	1.14	1.65	49.5	1.74	1.29	1.06
129.5	159.5	1.61	1.44	1.34	129.5	1.43	1.18	1.66	69.3	1.62	1.23	1.02
169.3	199.3	1.67	1.49	1.39	169.3	1.41	1.23	1.69	89.0	1.72	1.29	1.02
209.0	239.0	1.63	1.46	1.38	209.0	1.42	1.25	1.68	108.8	1.73	1.32	1.06
248.8	278.8	1.61	1.44	1.36	248.8	1.43	1.29	1.73	128.5	1.75	1.32	1.06
308.5	338.5	1.61	1.46	1.39	308.5	1.44	1.33	1.77	148.3	1.70	1.30	1.05
348.3	378.3	1.60	1.46	1.39	348.3	1.41	1.36	1.84	168.0	1.72	1.31	1.05
408.0	438.0	1.57	1.45	1.38	408.0	1.39	1.39	1.90	187.8	1.77	1.35	1.08
447.8	477.8	1.59	1.47	1.41	447.8	1.37	1.44	1.96	207.5	1.79	1.38	1.11
507.5	537.5	1.60	1.49	1.43	507.5	1.34	1.47	2.02	227.3	1.78	1.37	1.12
547.3	577.3	1.57	1.46	1.40	547.3	1.32	1.52	2.09	247.0	1.75	1.36	1.11
606.9	636.9	1.59	1.49	1.43	606.9	1.29	1.56	2.13	266.8	1.74	1.35	1.10
646.7	676.7	1.55	1.46	1.41	646.7	1.28	1.62	2.22	286.5	1.76	1.37	1.11
706.4	736.4	1.57	1.49	1.44	706.4	1.29	1.68	2.28	306.3	1.78	1.39	1.14
746.2	776.2	1.54	1.45	1.39	746.2	1.29	1.73	2.35	326.0	1.75	1.38	1.13
805.9	835.9	1.53	1.42	1.35	805.9	1.32	1.79	2.40	345.8	1.74	1.37	1.12
845.7	875.7	1.54	1.42	1.34	845.7	1.34	1.83	2.45	365.5	1.74	1.37	1.12
905.4	935.4	1.49	1.37	1.28	905.4	1.43	1.95	2.58	385.3	1.75	1.39	1.13
945.2	975.2	1.55	1.42	1.32	945.2	1.47	2.00	2.64	405.0	1.77	1.40	1.14
1004.8	1034.8	1.49	1.36	1.25	1004.8	1.56	2.14	2.80	424.8	1.76	1.39	1.14
1044.6	1074.6	1.53	1.41	1.29	1044.6	1.61	2.19	2.84	444.5	1.75	1.39	1.14
1104.3	1134.3	1.52	1.41	1.29	1104.3	1.69	2.28	2.95	464.3	1.77	1.41	1.16
1144.1	1174.1	1.49	1.39	1.28	1144.1	1.75	2.35	3.02	484.0	1.77	1.42	1.16
1203.8	1233.8	1.49	1.40	1.32	1203.8	1.81	2.38	3.02	503.8	1.75	1.40	1.15
1243.6	1273.6	1.46	1.40	1.34	1243.6	1.87	2.44	3.08	523.5	1.74	1.40	1.15
1303.3	1333.3	1.52	1.48	1.45	1303.3	1.91	2.44	3.03	543.3	1.74	1.39	1.15
1343.0	1373.0	1.57	1.56	1.55	1343.0	1.96	2.47	3.05	563.0	1.74	1.40	1.16
1402.7	1432.7	1.64	1.65	1.65	1402.7	2.01	2.48	3.04	582.8	1.75	1.41	1.17
1442.5	1472.5	1.69	1.70	1.71	1442.5	2.07	2.54	3.09	602.5	1.72	1.39	1.15
1502.2	1532.2	1.76	1.77	1.78	1502.2	2.20	2.64	3.17	622.3	1.71	1.38	1.16
1542.0	1572.0	1.73	1.73	1.74	1542.0	2.31	2.72	3.24	642.0	1.73	1.40	1.18
1601.7	1631.7	1.83	1.83	1.84	1601.7	2.48	2.85	3.33	661.8	1.74	1.41	1.19
1641.5	1671.5	1.77	1.77	1.78	1641.5	2.59	2.94	3.39	681.5	1.74	1.41	1.19
1701.2	1731.2	1.92	1.90	1.90	1701.2	2.75	3.06	3.45	701.3	1.71	1.39	1.17
1740.9	1770.9	1.85	1.84	1.85	1740.9	2.84	3.13	3.52	721.0	1.69	1.38	1.17
1800.6	1830.6	1.93	1.91	1.91	1800.6	2.96	3.21	3.56	740.8	1.69	1.39	1.19
1840.4	1870.4	1.97	1.96	1.97	1840.4	3.04	3.27	3.60	780.3	1.70	1.39	1.19
1900.1	1930.1	1.92	1.90	1.91	1900.1	3.08	3.28	3.58	800.0	1.67	1.37	1.17

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	4	19	9	30	21	45	37	58	56	61
1	-	13	0	32	16	33	29	40	46	48	46	61
2	110	64	43	59	43	56	45	59	56	70	64	72
3	117	64	67	67	59	72	57	84	68	85	73	85
4	116	94	87	90	95	88	86	87	82	103	95	93
5	120	103	103	98	91	89	83	99	95	96	104	97
6	114	106	111	110	107	102	101	84	101	107	102	104
7	115	107	118	114	102	109	105	90	83	108	95	103
8	110	102	107	99	104	103	103	98	94	104	96	98
9	114	100	105	109	106	100	103	107	104	95	91	96
10	116	101	98	110	103	105	102	109	100	102	98	95
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -14.00 dBm.
LO IN: 530.01 MHz; +4.00 dBm
IF OUT: 29.91 MHz; -21 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	13	28	21	44	34	58	50	66	66	78
1	-	13	0	31	16	37	30	45	49	54	55	71
2	95	57	36	64	35	54	38	57	51	68	68	78
3	111	43	49	47	50	58	44	53	66	58	58	66
4	110	91	59	65	56	63	60	62	56	70	67	75
5	114	70	76	66	53	69	53	65	56	69	65	80
6	114	95	84	82	80	79	69	79	66	89	69	89
7	118	98	87	90	78	83	78	77	77	81	94	79
8	114	100	102	99	93	105	86	100	82	101	82	94
9	123	109	112	109	101	100	104	90	88	91	87	90
10	112	109	125	109	109	103	101	105	102	103	100	100
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -4.00 dBm.
LO IN: 530.01 MHz; +4.00 dBm
IF OUT: 29.91 MHz; -10.96 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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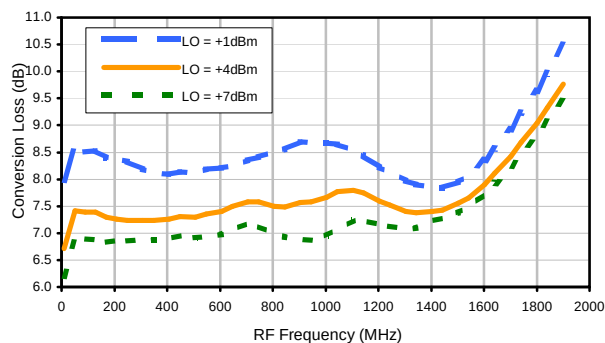
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Frequency Mixer

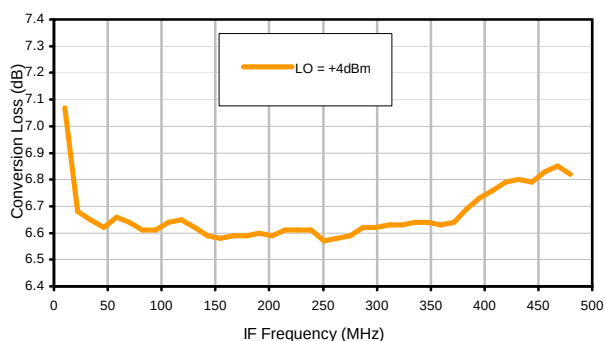
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Typical Performance Curves

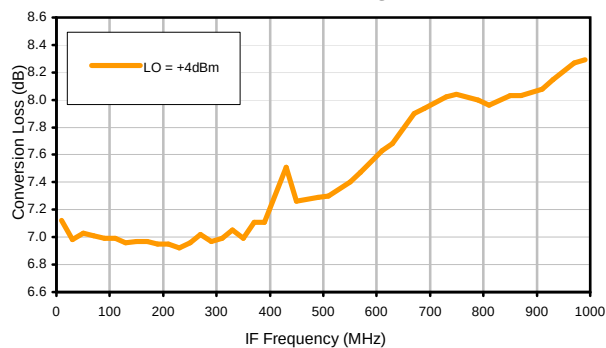
Conversion Loss @ IF=30MHz



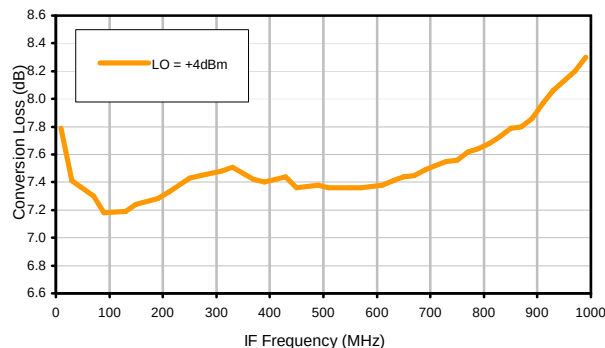
Conversion Loss vs. IF @ RF=500.1MHz



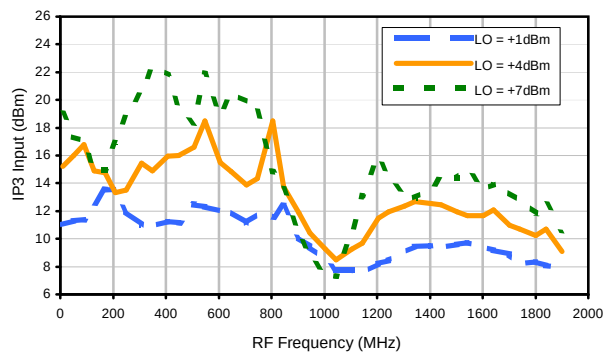
Conversion Loss vs. IF @ RF=10.1MHz



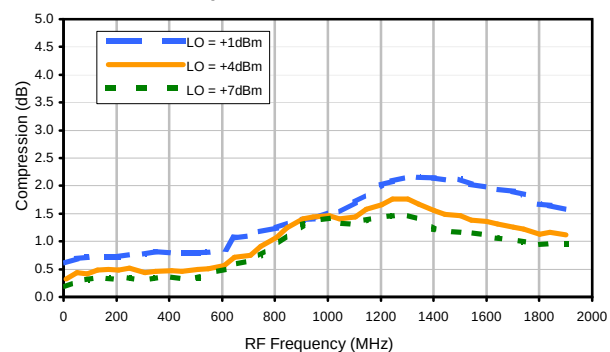
Conversion Loss vs. IF @ RF=1000.1MHz



IP3 Input



Compression @ RF IN=+1dBm



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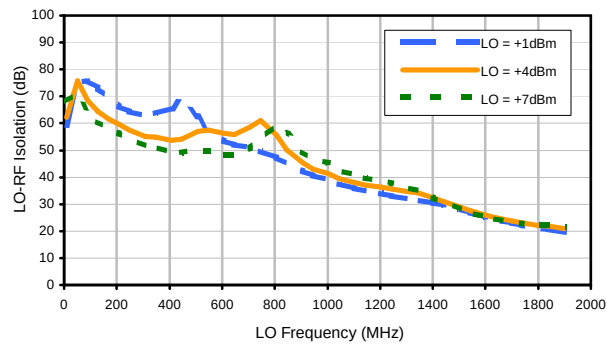
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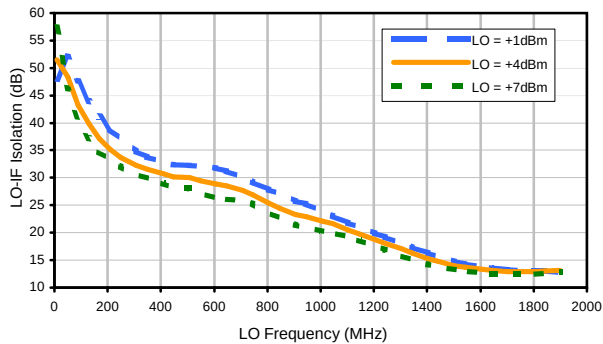
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Typical Performance Curves

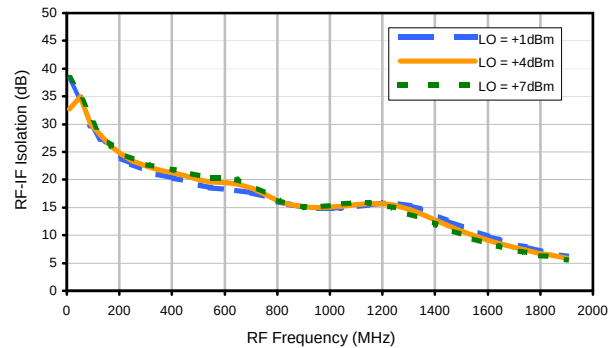
LO-RF Isolation



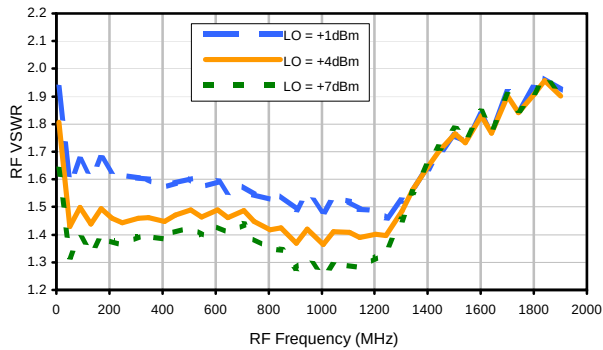
LO-IF Isolation



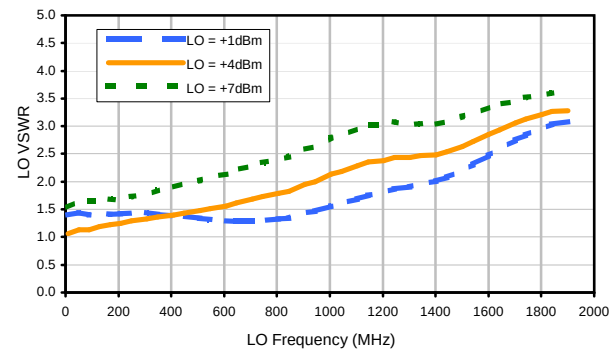
RF-IF Isolation



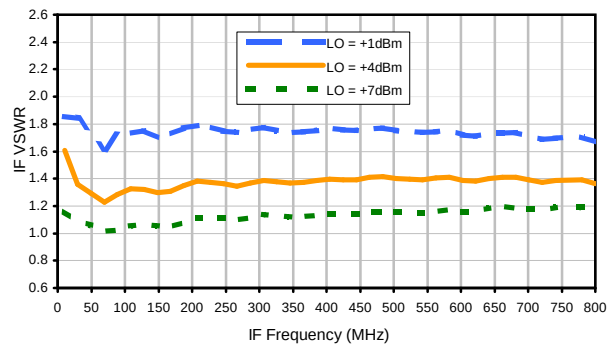
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	4	19	9	30	21	45	37	58	56	61
1	-	13	0	32	16	33	29	40	46	48	46	61
2	110	64	43	59	43	56	45	59	56	70	64	72
3	117	64	67	67	59	72	57	84	68	85	73	85
4	116	94	87	90	95	88	86	87	82	103	95	93
5	120	103	103	98	91	89	83	99	95	96	104	97
6	114	106	111	110	107	102	101	84	101	107	102	104
7	115	107	118	114	102	109	105	90	83	108	95	103
8	110	102	107	99	104	103	103	98	94	104	96	98
9	114	100	105	109	106	100	103	107	104	95	91	96
10	116	101	98	110	103	105	102	109	100	102	98	95
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -14.00 dBm.
LO IN: 530.01 MHz; +4.00 dBm
IF OUT: 29.91 MHz; -21 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	13	28	21	44	34	58	50	66	66	78
1	-	13	0	31	16	37	30	45	49	54	55	71
2	95	57	36	64	35	54	38	57	51	68	68	78
3	111	43	49	47	50	58	44	53	66	58	58	66
4	110	91	59	65	56	63	60	62	56	70	67	75
5	114	70	76	66	53	69	53	65	56	69	65	80
6	114	95	84	82	80	79	69	79	66	89	69	89
7	118	98	87	90	78	83	78	77	77	81	94	79
8	114	100	102	99	93	105	86	100	82	101	82	94
9	123	109	112	109	101	100	104	90	88	91	87	90
10	112	109	125	109	109	103	101	105	102	103	100	100
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -4.00 dBm.
LO IN: 530.01 MHz; +4.00 dBm
IF OUT: 29.91 MHz; -10.96 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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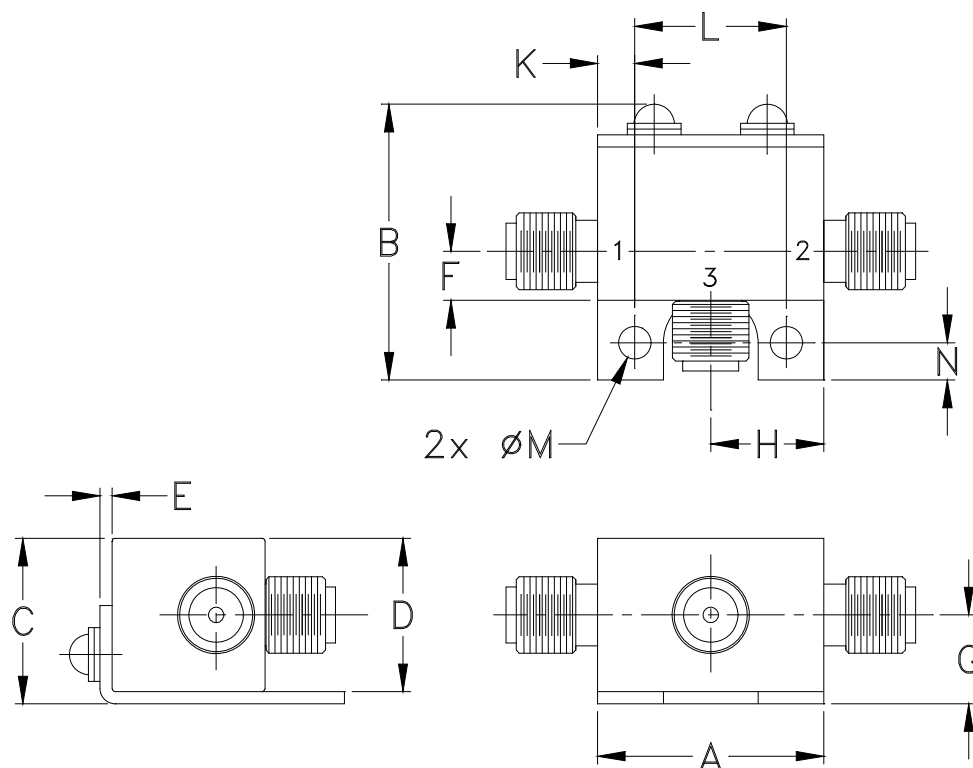


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Outline Dimensions



CASE #.	A	B	C	D	E	F	G	H	J	K	L	M	N	WT, GRAM
FL905	.74 (18.80)	.90 (22.86)	.54 (13.72)	.50 (12.70)	.04 (1.02)	.16 (4.06)	.29 (7.37)	.37 (9.40)	- -	.122 (3.10)	.496 (12.60)	.106 (2.69)	.122 (3.10)	20.0

Dimensions are in inches (mm). Tolerances: 2Pl. $\pm .03$; 3Pl. $\pm .015$.

Tolerance on hole size and interaxes dimensions to be $\pm .005$.

Notes:

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



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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	-40° to 85°C	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