Coaxial

Frequency Mixer WIDE BAND

ZX05-43MH+

Level 13 (LO Power +13 dBm) 824 to 4200 MHz

CASE STYLE: FL905

Connectors	Model
SMA	ZX05-43MH-S+

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW

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

Coaxial Connections

LO	2
RF	3
IF	1

Features

- wide bandwidth, 824 to 4200 MHz
- low conversion loss, 6.1 dB typ.
- excellent L-R isolation, 35 dB typ.
- rugged construction
- small size
- useable as up and down converter
- protected by US patents, 6,790,049 and 7,027,795

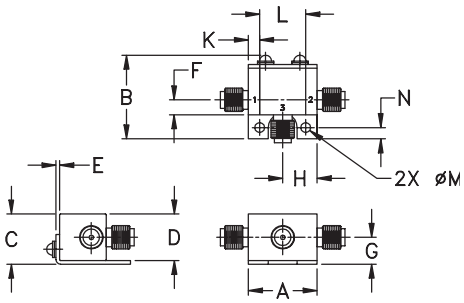
+RoHS Compliant

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

Applications

- cellular
- defense and weather radar
- defense communications
- PCN
- WCDMA
- WIFI
- blue tooth
- VSAT
- ISM

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

Electrical Specifications

FREQUENCY (MHz)		CONVERSION LOSS* (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
LO/RF f_L-f_U	IF	Typ.	σ	Max.	Typ.	Min.	Typ.	Min.	Typ.
824-4200	**DC-1500**								
824-2500		6.3	0.1	8.6	37	28	24	7	20
2500-4200		5.7	0.1	9.8	30	22	20	11	22

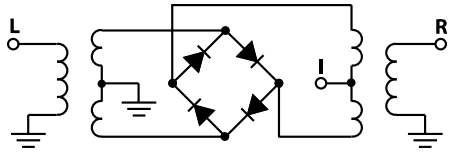
1 dB COMPR.: +9 dBm typ.

* Conversion loss at 30 MHz IF. σ is a measure of repeatability from unit to unit.

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 +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
810.00	840.00	7.06	38.11	22.81	2.08	8.55
1010.00	1040.00	6.43	43.16	26.73	2.83	2.44
1210.00	1240.00	5.83	41.09	30.74	3.45	1.27
1410.00	1440.00	5.82	34.44	34.76	3.53	1.16
1610.00	1640.00	5.70	33.13	29.18	3.12	1.61
1810.00	1840.00	6.00	35.10	19.67	3.21	1.77
2010.00	2040.00	5.93	33.76	11.58	3.28	1.62
2210.00	2240.00	5.94	34.33	11.64	3.33	1.85
2410.00	2440.00	5.12	31.89	14.42	2.18	2.27
2610.00	2640.00	5.44	31.05	17.41	2.43	2.37
2810.00	2840.00	5.15	29.56	19.09	1.88	1.72
3010.00	3040.00	4.63	27.17	21.48	1.70	1.64
3210.00	3240.00	4.96	25.87	25.21	1.92	1.37
3410.00	3440.00	5.46	25.97	24.10	2.11	1.34
3610.00	3640.00	6.47	24.80	20.53	3.34	1.88
3810.00	3840.00	6.88	25.65	18.07	3.76	2.58
4010.00	4040.00	7.75	26.66	17.01	5.03	3.83
4110.00	4140.00	7.74	26.80	15.46	5.14	4.62
4150.00	4180.00	7.92	26.85	15.58	5.44	4.84
4210.00	4240.00	7.83	26.88	15.04	5.07	5.28

Electrical Schematic



Notes

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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.
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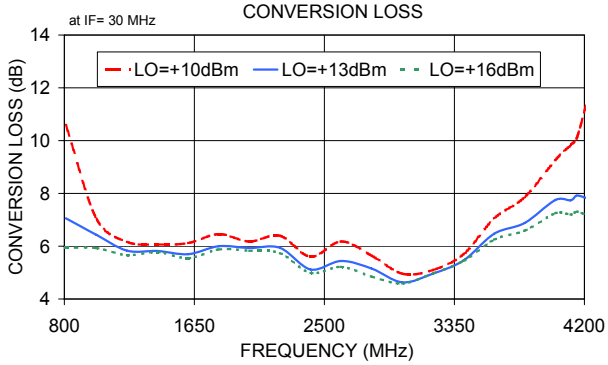
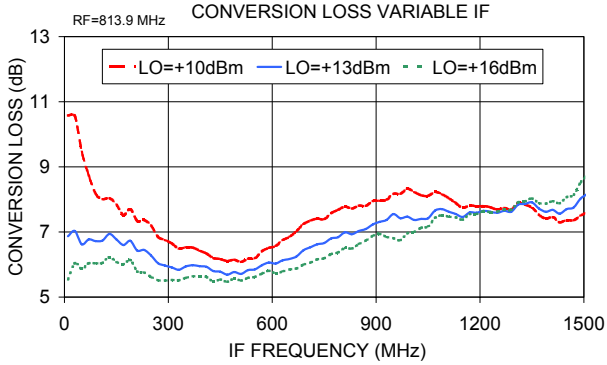
REV. A
M151109
ZX05-43MH+
ED-12902/14
DJ/TD/QL/AM
151009

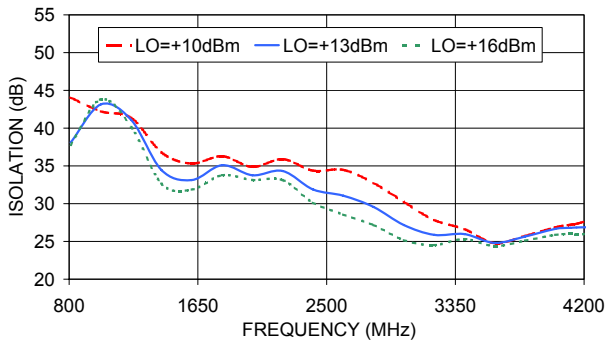
ZX05-43MH+
CONVERSION LOSS



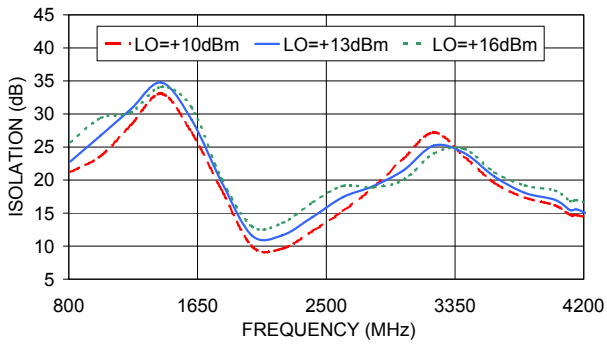
ZX05-43MH+
CONVERSION LOSS VARIABLE IF



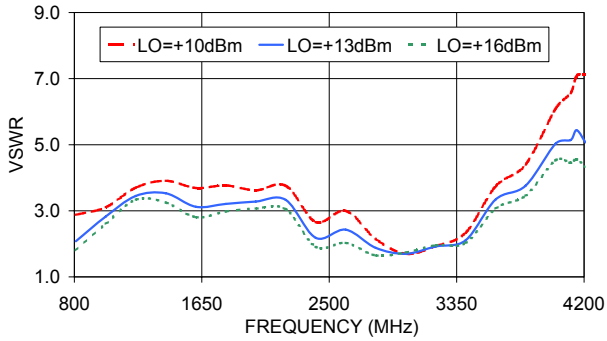
ZX05-43MH+
L-R ISOLATION



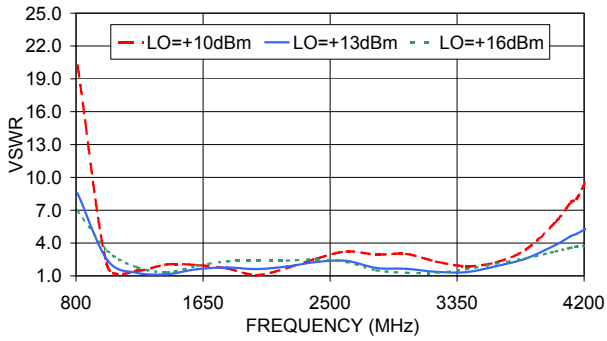
ZX05-43MH+
L-I ISOLATION



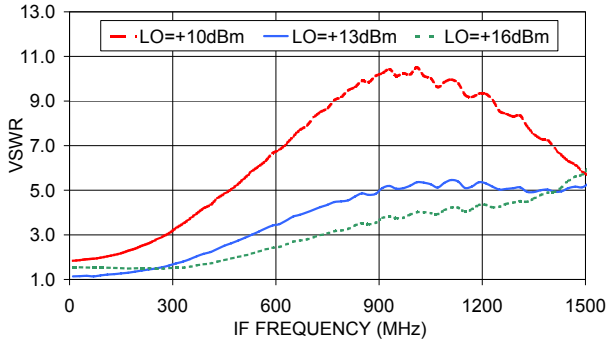
ZX05-43MH+
RF VSWR



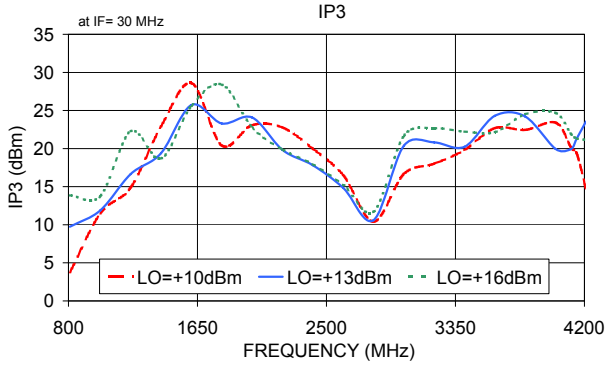
ZX05-43MH+
LO VSWR



ZX05-43MH+
IF VSWR



ZX05-43MH+
IP3



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Frequency Mixer ZX05-43MH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+10	+13	+16
670.0	700.0	25.39	14.44	8.64
770.0	800.0	11.87	7.93	6.43
870.0	900.0	8.88	7.12	6.33
970.0	1000.0	7.81	7.01	6.49
1070.0	1100.0	6.92	6.41	6.02
1170.0	1200.0	6.44	6.23	6.12
1270.0	1300.0	6.53	6.30	6.16
1370.0	1400.0	6.43	6.17	6.08
1470.0	1500.0	6.34	5.95	5.88
1570.0	1600.0	6.31	5.97	5.85
1670.0	1700.0	6.41	6.00	5.86
1770.0	1800.0	6.71	6.23	6.07
1870.0	1900.0	6.58	6.24	6.15
1970.0	2000.0	6.54	6.29	6.18
2070.0	2100.0	6.45	6.17	6.06
2170.0	2200.0	6.65	6.24	6.06
2270.0	2300.0	6.61	6.08	5.86
2370.0	2400.0	6.08	5.63	5.45
2470.0	2500.0	6.41	5.81	5.60
2570.0	2600.0	6.86	6.15	5.79
2650.0	2680.0	6.36	5.58	5.18
2750.0	2780.0	6.03	5.45	5.09
2830.0	2860.0	5.81	5.37	5.04
2930.0	2960.0	5.64	4.92	4.80
3010.0	3040.0	5.24	4.91	4.88
3110.0	3140.0	5.18	5.02	5.06
3190.0	3220.0	5.38	5.20	5.21
3290.0	3320.0	5.49	5.38	5.44
3370.0	3400.0	5.83	5.64	5.63
3470.0	3500.0	6.41	6.06	5.98
3550.0	3580.0	6.84	6.34	6.16
3650.0	3680.0	7.20	6.69	6.54
3730.0	3760.0	7.53	6.68	6.49
3830.0	3860.0	8.05	7.07	6.84
3910.0	3940.0	9.06	7.68	7.28
4010.0	4040.0	9.55	7.98	7.53
4090.0	4120.0	10.40	8.15	7.64
4190.0	4220.0	11.67	8.25	7.61
4270.0	4300.0	14.06	8.38	7.63
4370.0	4400.0	18.83	9.39	7.92

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+10	+13	+16
670.0	700.0	-5.16	1.78	8.44
770.0	800.0	3.86	7.57	15.92
870.0	900.0	7.14	10.80	13.84
970.0	1000.0	10.78	11.58	12.38
1070.0	1100.0	13.57	16.04	18.28
1170.0	1200.0	15.71	17.37	17.69
1270.0	1300.0	23.12	16.40	19.81
1370.0	1400.0	22.42	25.69	18.69
1470.0	1500.0	28.90	18.76	18.56
1570.0	1600.0	22.62	23.55	23.20
1670.0	1700.0	26.39	22.11	20.52
1770.0	1800.0	17.64	20.09	24.80
1870.0	1900.0	18.52	25.60	28.62
1970.0	2000.0	23.41	24.14	22.67
2070.0	2100.0	22.17	22.08	22.94
2170.0	2200.0	26.62	21.36	20.96
2270.0	2300.0	17.65	18.22	19.79
2370.0	2400.0	16.69	16.92	17.60
2470.0	2500.0	16.91	28.12	26.61
2570.0	2600.0	16.53	14.34	15.20
2650.0	2680.0	13.82	14.99	14.82
2750.0	2780.0	11.36	12.21	13.04
2830.0	2860.0	10.65	10.81	13.64
2930.0	2960.0	10.94	18.97	20.21
3010.0	3040.0	16.74	20.46	21.81
3110.0	3140.0	18.32	19.70	22.49
3190.0	3220.0	18.59	21.39	22.64
3290.0	3320.0	20.20	23.51	21.80
3370.0	3400.0	20.95	22.83	23.60
3470.0	3500.0	18.06	22.09	20.86
3550.0	3580.0	19.11	22.35	20.83
3650.0	3680.0	23.87	23.55	22.71
3730.0	3760.0	24.36	22.25	22.74
3830.0	3860.0	20.51	24.06	25.13
3910.0	3940.0	22.04	22.76	25.62
4010.0	4040.0	23.51	20.07	24.95
4090.0	4120.0	20.41	19.47	22.58
4190.0	4220.0	15.37	23.62	20.95
4270.0	4300.0	8.20	23.28	23.13
4370.0	4400.0	3.94	23.87	26.05

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+9dBm (dB) @LO (dBm)		
		+10	+13	+16
670.0	700.0	-10.24	-1.99	1.07
770.0	800.0	1.57	2.49	2.30
870.0	900.0	1.95	2.45	2.48
970.0	1000.0	2.00	2.02	1.97
1070.0	1100.0	1.90	1.82	1.66
1170.0	1200.0	1.44	1.21	1.09
1270.0	1300.0	0.93	0.69	0.67
1370.0	1400.0	0.78	0.55	0.42
1470.0	1500.0	0.72	0.57	0.46
1570.0	1600.0	0.75	0.55	0.46
1670.0	1700.0	0.82	0.56	0.44
1770.0	1800.0	0.78	0.60	0.36
1870.0	1900.0	0.85	0.51	0.35
1970.0	2000.0	0.80	0.47	0.34
2070.0	2100.0	0.88	0.58	0.44
2170.0	2200.0	0.90	0.70	0.58
2270.0	2300.0	0.88	0.74	0.66
2370.0	2400.0	1.22	0.91	0.78
2470.0	2500.0	1.15	0.98	0.79
2570.0	2600.0	1.30	1.24	1.19
2650.0	2680.0	1.19	1.32	1.33
2750.0	2780.0	1.51	1.38	1.38
2830.0	2860.0	1.50	1.30	1.22
2930.0	2960.0	1.41	1.18	0.95
3010.0	3040.0	1.53	0.75	0.66
3110.0	3140.0	1.26	0.47	0.38
3190.0	3220.0	1.17	0.41	0.29
3290.0	3320.0	1.22	0.57	0.32
3370.0	3400.0	1.29	0.75	0.56
3470.0	3500.0	1.28	0.85	0.62
3550.0	3580.0	1.08	0.78	0.60
3650.0	3680.0	0.60	0.43	0.37
3730.0	3760.0	0.58	0.48	0.40
3830.0	3860.0	0.61	0.43	0.35
3910.0	3940.0	0.35	0.38	0.43
4010.0	4040.0	0.13	0.22	0.28
4090.0	4120.0	-0.19	0.13	0.19
4190.0	4220.0	-0.96	0.17	0.20
4270.0	4300.0	-2.81	0.23	0.25
4370.0	4400.0	-6.24	0.07	0.25

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2512MHz (dB) @LO (dBm) +13
1412.0	1100.0	10.84
1337.2	1174.8	9.39
1262.5	1249.5	7.25
1187.7	1324.3	6.75
1112.9	1399.1	7.50
1038.1	1473.9	7.64
963.4	1548.6	8.02
888.6	1623.4	9.31
813.8	1698.2	9.27
739.0	1773.0	8.10
664.3	1847.7	7.09
589.5	1922.5	6.50
514.7	1997.3	6.34
439.9	2072.1	5.88
365.2	2146.8	5.58
290.4	2221.6	5.34
215.6	2296.4	5.17
140.9	2371.1	5.19
66.1	2445.9	5.87
10.0	2522.0	6.39
95.2	2607.2	6.55
180.5	2692.5	6.88
265.7	2777.7	7.24
350.9	2862.9	7.10
436.1	2948.1	6.25
521.4	3033.4	6.34
606.6	3118.6	6.29
691.8	3203.8	6.23
777.0	3289.0	6.18
862.3	3374.3	6.20
947.5	3459.5	6.13
1011.4	3523.4	6.21
1096.6	3608.6	6.40
1160.6	3672.6	6.59
1245.8	3757.8	6.85
1309.7	3821.7	7.15
1394.9	3906.9	7.80
1458.9	3970.9	8.27
1544.1	4056.1	9.47
1608.0	4120.0	10.47

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=813.9MHz (dB) @LO (dBm) +13
10.1	824.0	7.61
50.1	864.0	6.91
90.1	904.0	6.78
130.1	944.0	6.96
170.1	984.0	6.72
210.1	1024.0	6.55
250.1	1064.0	6.36
290.1	1104.0	6.06
330.1	1144.0	5.94
370.1	1184.0	6.05
410.1	1224.0	6.02
450.1	1264.0	5.92
490.1	1304.0	5.93
530.1	1344.0	5.96
570.1	1384.0	6.06
610.1	1424.0	6.20
650.1	1464.0	6.28
690.1	1504.0	6.61
730.1	1544.0	6.76
770.1	1584.0	6.90
810.1	1624.0	7.05
850.1	1664.0	7.13
890.1	1704.0	7.46
930.1	1744.0	7.62
970.1	1784.0	7.60
1010.1	1824.0	7.50
1050.1	1864.0	7.58
1090.1	1904.0	7.82
1130.1	1944.0	7.67
1190.1	2004.0	7.76
1230.1	2044.0	7.74
1290.1	2104.0	7.81
1330.1	2144.0	8.05
1390.1	2204.0	7.82
1430.1	2244.0	7.75
1490.1	2304.0	8.15
1530.1	2344.0	8.32
1590.1	2404.0	9.09
1630.1	2444.0	9.65
1690.1	2504.0	10.49

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=4210.1001MHz (dB) @LO (dBm) +13
1350.1	2860.0	11.40
1310.1	2900.0	10.92
1270.1	2940.0	10.06
1230.1	2980.0	9.71
1190.1	3020.0	10.16
1150.1	3060.0	9.80
1110.1	3100.0	9.46
1070.1	3140.0	9.13
1030.1	3180.0	8.97
990.1	3220.0	9.03
950.1	3260.0	9.08
910.1	3300.0	9.25
870.1	3340.0	9.29
830.1	3380.0	9.19
790.1	3420.0	9.30
750.1	3460.0	9.33
710.1	3500.0	9.58
670.1	3540.0	9.85
630.1	3580.0	10.04
610.1	3600.0	10.03
570.1	3640.0	10.21
550.1	3660.0	10.09
510.1	3700.0	9.89
490.1	3720.0	10.01
450.1	3760.0	9.67
430.1	3780.0	9.57
390.1	3820.0	9.34
370.1	3840.0	9.09
330.1	3880.0	8.84
310.1	3900.0	8.64
270.1	3940.0	8.46
250.1	3960.0	8.30
210.1	4000.0	8.17
190.1	4020.0	8.13
150.1	4060.0	7.93
130.1	4080.0	7.88
90.1	4120.0	8.01
70.1	4140.0	8.03
30.1	4180.0	8.03
10.1	4200.0	8.27

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+10	+13	+16	+10	+13	+16
700.0	54.16	56.69	53.69	25.16	25.17	25.31
800.0	50.97	41.61	39.88	22.47	23.02	25.42
900.0	36.84	36.38	36.96	21.39	24.14	27.05
1000.0	39.89	40.18	40.81	23.08	26.14	28.82
1100.0	43.12	43.91	44.08	24.92	27.86	30.18
1200.0	41.59	41.26	40.65	27.29	29.94	30.52
1300.0	40.38	38.24	36.99	30.08	31.98	30.70
1400.0	37.69	35.46	33.77	32.87	34.26	32.94
1500.0	35.78	33.25	31.54	33.25	37.19	38.58
1600.0	34.75	32.49	31.29	28.54	31.15	34.19
1700.0	36.60	34.51	33.19	26.09	27.70	28.35
1800.0	36.51	35.68	34.15	20.64	22.08	22.40
1900.0	35.61	34.13	33.16	15.32	16.68	17.52
2000.0	34.94	33.98	33.19	11.06	12.60	13.80
2100.0	35.35	34.13	33.10	9.29	11.07	12.55
2200.0	36.00	34.49	33.44	9.60	11.43	13.16
2300.0	35.10	33.47	32.25	10.70	12.63	14.56
2400.0	34.45	32.22	30.56	12.08	14.06	16.10
2500.0	35.34	33.15	31.57	13.48	15.55	17.60
2600.0	34.45	31.21	29.66	14.93	16.94	18.71
2680.0	34.00	30.98	28.83	16.37	18.17	19.68
2780.0	32.64	29.78	27.59	17.99	18.88	19.09
2860.0	33.06	30.39	27.60	19.39	19.39	18.79
2960.0	32.51	29.74	26.74	20.89	20.13	19.23
3040.0	30.56	27.59	25.44	23.61	21.83	20.26
3140.0	29.05	26.65	24.99	26.74	23.72	21.99
3220.0	28.14	25.96	24.27	27.47	24.96	23.36
3320.0	27.74	26.34	24.84	25.25	24.52	23.63
3400.0	27.31	26.63	25.57	24.09	24.58	24.58
3500.0	25.73	25.43	24.71	23.34	23.74	23.97
3580.0	25.22	25.11	24.58	21.54	22.43	22.69
3680.0	24.97	24.99	24.54	18.87	19.82	20.59
3760.0	25.46	25.04	24.80	17.41	18.11	19.20
3860.0	26.24	25.82	25.46	17.59	17.98	19.25
3940.0	26.62	26.17	25.87	19.01	19.28	20.62
4040.0	26.98	26.59	26.01	16.20	16.91	18.44
4120.0	27.32	26.80	26.18	15.13	15.69	17.18
4220.0	27.66	26.88	26.16	14.57	15.15	16.74
4300.0	28.37	27.87	26.81	14.42	15.20	16.75
4400.0	29.17	29.22	27.60	14.13	15.02	16.20

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+10	+13	+16
670.0	700.0	24.76	24.52	20.49
770.0	800.0	21.48	15.54	13.65
870.0	900.0	13.58	12.26	11.74
970.0	1000.0	14.26	13.41	12.85
1070.0	1100.0	17.10	16.23	15.74
1170.0	1200.0	19.69	19.37	19.26
1270.0	1300.0	22.52	22.46	22.18
1370.0	1400.0	24.13	24.38	24.96
1470.0	1500.0	24.79	25.08	25.60
1570.0	1600.0	24.51	25.49	26.06
1670.0	1700.0	23.74	24.28	24.65
1770.0	1800.0	25.19	25.90	25.98
1870.0	1900.0	28.59	28.45	28.38
1970.0	2000.0	33.88	33.84	33.67
2070.0	2100.0	41.36	40.26	39.52
2170.0	2200.0	37.33	36.92	36.88
2270.0	2300.0	38.08	38.30	39.09
2370.0	2400.0	39.34	39.03	39.09
2470.0	2500.0	41.85	41.65	41.37
2570.0	2600.0	38.22	38.74	39.20
2650.0	2680.0	34.89	34.19	33.66
2750.0	2780.0	31.31	30.90	30.80
2830.0	2860.0	28.82	28.28	28.84
2930.0	2960.0	28.53	27.13	27.54
3010.0	3040.0	26.95	26.62	26.88
3110.0	3140.0	26.19	25.74	25.76
3190.0	3220.0	26.14	25.71	25.62
3290.0	3320.0	32.60	33.38	34.21
3370.0	3400.0	21.94	21.20	20.85
3470.0	3500.0	20.86	20.43	20.25
3550.0	3580.0	21.64	20.96	21.05
3650.0	3680.0	24.58	23.64	23.39
3730.0	3760.0	25.55	23.73	23.09
3830.0	3860.0	25.80	24.11	23.59
3910.0	3940.0	31.78	29.91	29.48
4010.0	4040.0	38.48	42.35	42.42
4090.0	4120.0	33.16	34.12	33.65
4190.0	4220.0	28.40	26.36	25.24
4270.0	4300.0	26.76	25.09	24.05
4370.0	4400.0	27.13	28.40	27.66

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+10	+13	+16
670.0	700.0	10.19	5.33	3.47
770.0	800.0	3.07	2.46	2.12
870.0	900.0	2.36	1.90	1.68
970.0	1000.0	2.82	2.52	2.34
1070.0	1100.0	3.26	3.04	2.87
1170.0	1200.0	3.52	3.40	3.34
1270.0	1300.0	3.79	3.54	3.47
1370.0	1400.0	3.90	3.57	3.33
1470.0	1500.0	3.80	3.34	3.05
1570.0	1600.0	3.66	3.15	2.86
1670.0	1700.0	3.65	3.15	2.84
1770.0	1800.0	3.86	3.19	2.85
1870.0	1900.0	3.63	3.24	3.04
1970.0	2000.0	3.65	3.33	3.13
2070.0	2100.0	3.59	3.25	3.03
2170.0	2200.0	3.71	3.36	3.14
2270.0	2300.0	3.62	3.20	2.94
2370.0	2400.0	2.98	2.53	2.27
2470.0	2500.0	2.81	2.45	2.23
2570.0	2600.0	3.10	2.60	2.32
2650.0	2680.0	2.83	2.41	2.00
2750.0	2780.0	2.32	2.07	1.85
2830.0	2860.0	1.98	1.72	1.51
2930.0	2960.0	1.75	1.54	1.54
3010.0	3040.0	1.67	1.69	1.73
3110.0	3140.0	1.82	1.87	1.94
3190.0	3220.0	1.90	1.91	1.96
3290.0	3320.0	1.90	1.84	1.84
3370.0	3400.0	2.13	1.98	1.91
3470.0	3500.0	2.66	2.38	2.24
3550.0	3580.0	3.22	2.87	2.63
3650.0	3680.0	3.86	3.47	3.21
3730.0	3760.0	4.30	3.68	3.40
3830.0	3860.0	4.53	3.87	3.58
3910.0	3940.0	5.54	4.61	4.23
4010.0	4040.0	6.30	5.14	4.66
4090.0	4120.0	6.68	5.17	4.54
4190.0	4220.0	7.20	5.13	4.35
4270.0	4300.0	7.97	5.03	4.21
4370.0	4400.0	9.53	5.59	4.45

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+10	+13	+16
700.0	31.60	31.03	24.14
800.0	22.58	13.39	8.43
900.0	5.77	4.62	5.13
1000.0	2.34	2.84	3.70
1100.0	1.33	1.92	2.68
1200.0	1.26	1.40	1.99
1300.0	1.75	1.24	1.54
1400.0	1.99	1.16	1.32
1500.0	2.04	1.26	1.45
1600.0	2.00	1.53	1.81
1700.0	1.93	1.76	2.19
1800.0	1.74	1.86	2.34
1900.0	1.43	1.70	2.35
2000.0	1.08	1.64	2.34
2100.0	1.23	1.67	2.33
2200.0	1.55	1.79	2.35
2300.0	1.95	1.96	2.39
2400.0	2.37	2.16	2.43
2500.0	2.68	2.24	2.39
2600.0	2.97	2.18	2.14
2680.0	3.02	2.24	2.18
2780.0	2.92	1.88	1.77
2860.0	2.70	1.59	1.37
2960.0	2.70	1.57	1.27
3040.0	2.84	1.58	1.27
3140.0	2.55	1.48	1.27
3220.0	2.29	1.37	1.31
3320.0	1.99	1.32	1.44
3400.0	1.88	1.31	1.55
3500.0	1.89	1.51	1.75
3580.0	2.02	1.68	1.94
3680.0	2.30	1.94	2.18
3760.0	2.68	2.19	2.37
3860.0	3.32	2.56	2.58
3940.0	4.11	2.97	2.78
4040.0	5.42	3.59	3.09
4120.0	6.76	4.22	3.31
4220.0	8.35	4.89	3.58
4300.0	9.63	5.52	3.62
4400.0	10.96	7.08	3.96

IF (OUT) (MHz)	IF VSWR @LO=4200MHz (:1) @LO (dBm)		
	+10	+13	+16
10.0	1.82	1.11	1.53
50.0	1.76	1.17	1.55
90.0	1.85	1.20	1.54
130.0	1.98	1.24	1.53
170.0	2.16	1.30	1.51
210.0	2.38	1.38	1.50
250.0	2.62	1.47	1.50
290.0	2.95	1.59	1.50
330.0	3.35	1.75	1.53
370.0	3.76	1.97	1.62
410.0	4.13	2.17	1.72
450.0	4.60	2.41	1.85
490.0	5.00	2.63	1.99
530.0	5.49	2.84	2.13
570.0	5.97	3.11	2.31
610.0	6.35	3.26	2.41
650.0	6.94	3.59	2.65
710.0	7.41	3.83	2.80
750.0	7.94	4.12	3.05
810.0	8.39	4.24	3.17
850.0	8.99	4.59	3.49
910.0	8.99	4.64	3.58
950.0	9.38	4.91	3.79
1010.0	9.13	4.88	3.83
1050.0	9.28	5.14	4.08
1110.0	8.81	5.04	4.09
1150.0	8.90	5.09	4.15
1210.0	8.35	4.99	4.25
1250.0	8.23	4.96	4.28
1310.0	7.66	4.96	4.55
1350.0	7.25	4.73	4.41
1410.0	6.51	4.87	4.89
1450.0	5.93	4.83	5.13
1510.0	5.42	5.23	5.87
1550.0	5.02	5.54	6.44
1610.0	4.70	6.26	7.38
1650.0	4.84	7.08	8.31
1710.0	5.20	7.70	8.90
1750.0	5.58	7.97	9.04
1810.0	5.91	7.63	8.35

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	+9	9	13	21	38	47	41	43	34	---
1	-	36	+0	40	19	30	36	61	39	66	52	61
2	73	53	51	54	48	66	53	62	75	70	74	73
3	>90	63	60	>78	61	>78	66	73	69	>78	71	>78
4	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
5	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
6	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
7	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
8	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
9	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
10	---	---	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 2512 MHz; -6.00 dBm.
LO IN: 2542 MHz; +13.00 dBm
IF OUT: 30 MHz; -12.41 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	1	20	25	34	49	53	53	57	48	---
1	-	35	+0	43	19	34	38	68	44	72	59	63
2	53	45	43	57	39	60	45	52	65	65	69	68
3	86	41	37	58	37	58	46	46	50	75	53	76
4	>90	68	67	59	57	54	56	64	57	71	78	71
5	>90	74	60	63	56	74	54	81	63	65	65	>88
6	>90	>88	>88	80	76	73	74	65	71	75	69	79
7	>90	>88	>88	>88	80	83	71	84	63	>88	74	75
8	>90	>88	>88	>88	>88	88	>88	84	>88	74	76	>88
9	>90	>88	>88	>88	>88	>88	>88	>88	86	>88	80	>88
10	---	---	>88	>88	>88	>88	>88	>88	>88	>88	>88	82
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

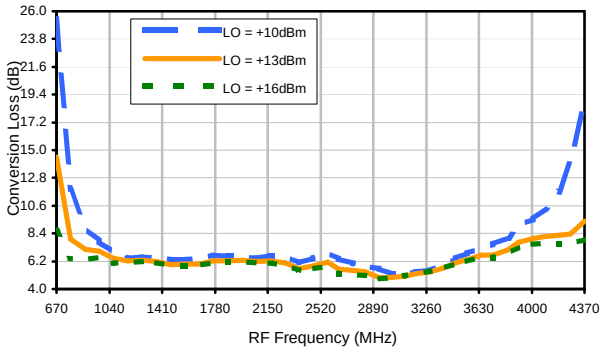
LO HARMONICS ORDER

Test conditions: RF IN: 2512 MHz; 4.00 dBm.
LO IN: 2542 MHz; +13.00 dBm
IF OUT: 30 MHz; -2.39 dBm

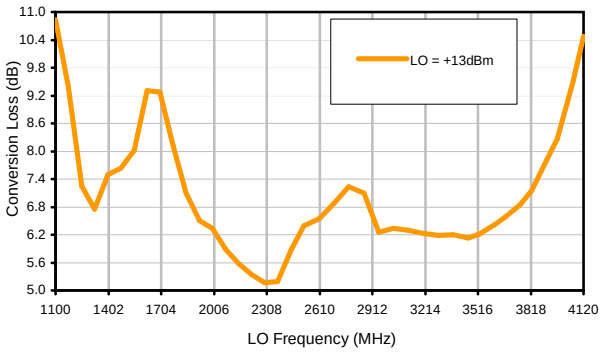
Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Typical Performance Curves

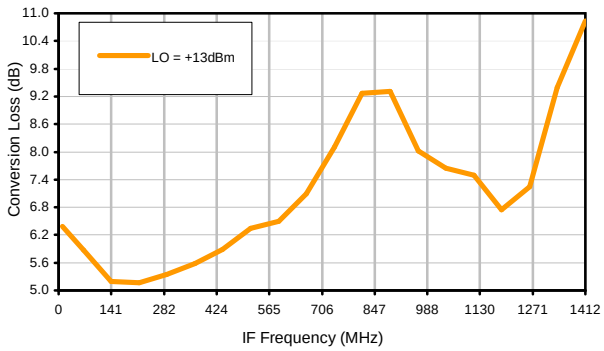
Conversion Loss @ IF=30MHz



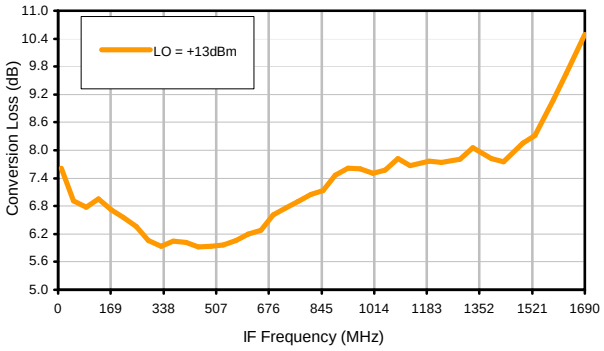
Conversion Loss vs. LO @ RF=2512MHz



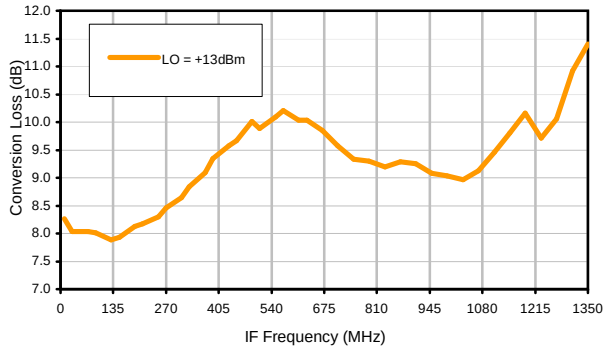
Conversion Loss vs. IF @ RF=2512MHz



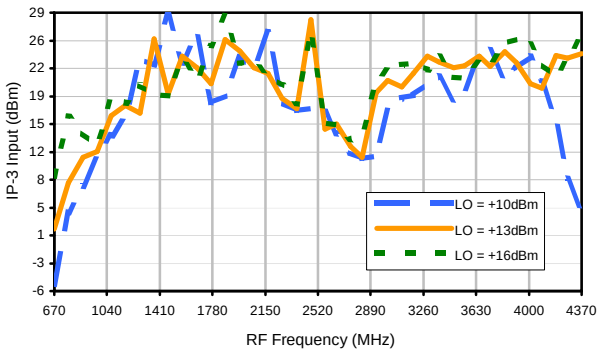
Conversion Loss vs. IF @ RF=813.9MHz



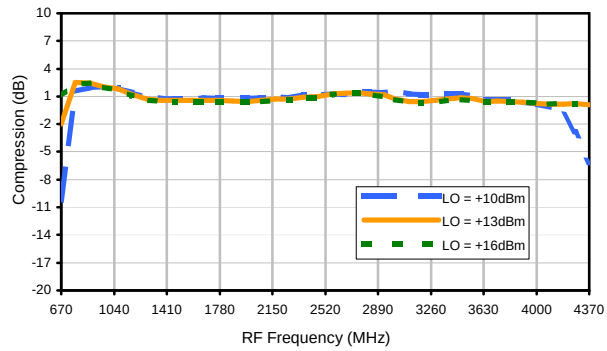
Conversion Loss vs. IF @ RF=4210.1001MHz



IP3 Input

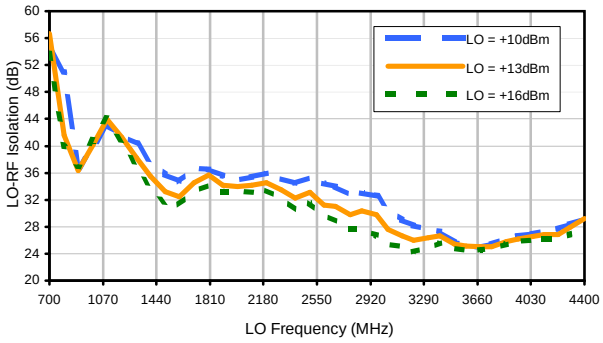


Compression @ RF IN=+9dBm

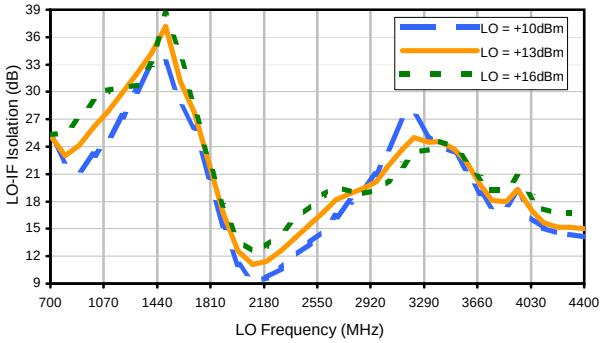


Typical Performance Curves

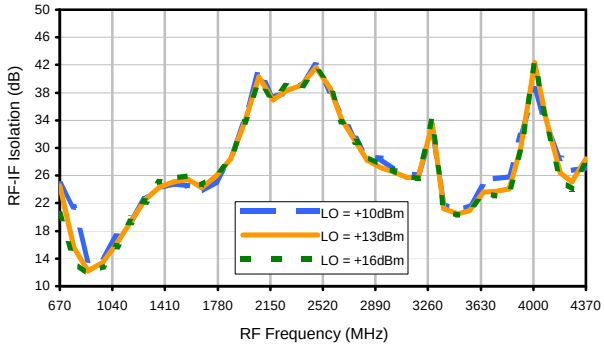
LO-RF Isolation



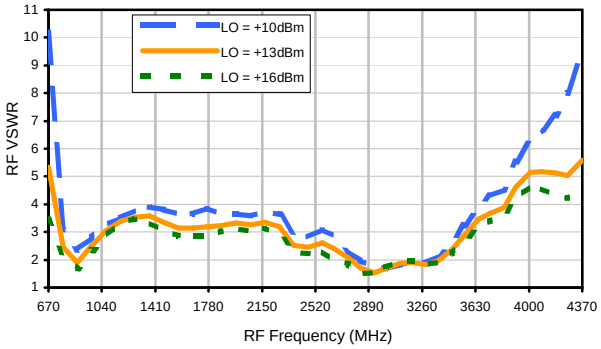
LO-IF Isolation



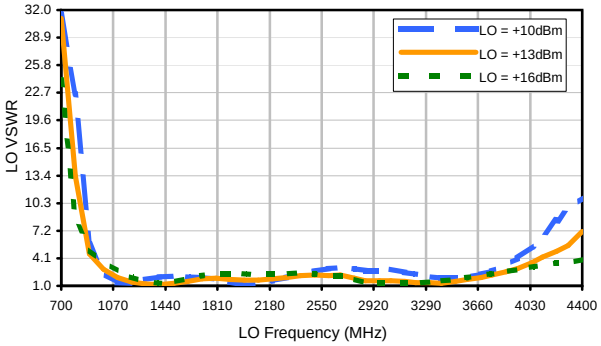
RF-IF Isolation



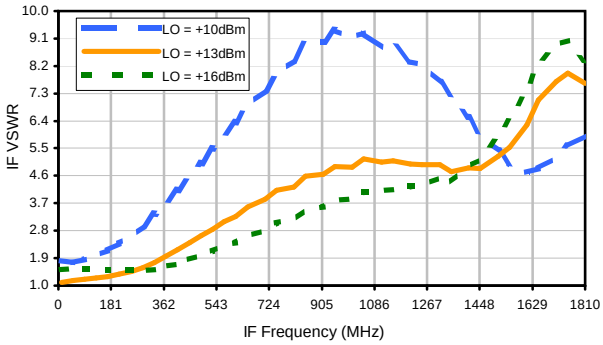
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	+9	9	13	21	38	47	41	43	34	---
1	-	36	+0	40	19	30	36	61	39	66	52	61
2	73	53	51	54	48	66	53	62	75	70	74	73
3	>90	63	60	>78	61	>78	66	73	69	>78	71	>78
4	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
5	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
6	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
7	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
8	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
9	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
10	---	---	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 2512 MHz; -6.00 dBm.
LO IN: 2542 MHz; +13.00 dBm
IF OUT: 30 MHz; -12.41 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	1	20	25	34	49	53	53	57	48	---
1	-	35	+0	43	19	34	38	68	44	72	59	63
2	53	45	43	57	39	60	45	52	65	65	69	68
3	86	41	37	58	37	58	46	46	50	75	53	76
4	>90	68	67	59	57	54	56	64	57	71	78	71
5	>90	74	60	63	56	74	54	81	63	65	65	>88
6	>90	>88	>88	80	76	73	74	65	71	75	69	79
7	>90	>88	>88	>88	80	83	71	84	63	>88	74	75
8	>90	>88	>88	>88	>88	88	>88	84	>88	74	76	>88
9	>90	>88	>88	>88	>88	>88	>88	>88	86	>88	80	>88
10	---	---	>88	>88	>88	>88	>88	>88	>88	>88	>88	82
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

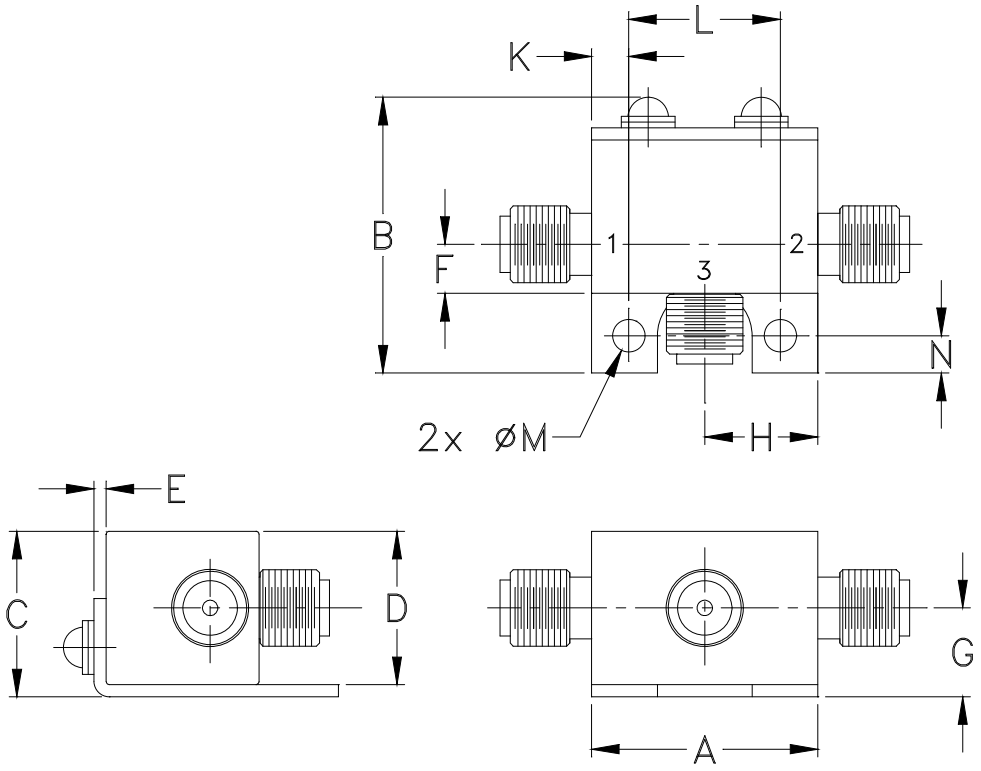
Test conditions: RF IN: 2512 MHz; 4.00 dBm.
LO IN: 2542 MHz; +13.00 dBm
IF OUT: 30 MHz; -2.39 dBm

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.

Case Style FL

FL905

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. ± .03; 3Pl. ± .015.
Tolerance on hole size and interaxes dimensions to be ±.005.

Notes:

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

Mini-Circuits®
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Environmental Specifications **ENV28T5**

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