

Frequency Mixer

Level 13 (LO Power +13 dBm) 5 to 4200 MHz

ZX05-42MH-S+

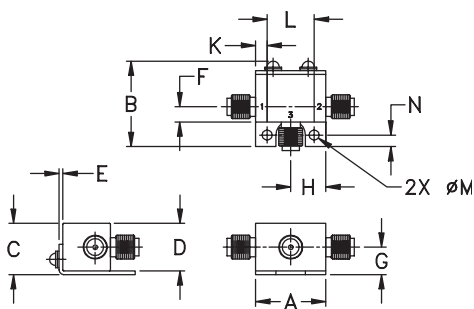
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
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

Applications

- cellular
- PCS
- instrumentation
- satellite communication



Generic photo used for illustration purposes only

CASE STYLE: FL905

Connectors	Model
SMA	ZX05-42MH-S+

+RoHS Compliant

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

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 f_L - f_U	IF	Mid-Band m			Total Range Max.	L		M		U		L		M		U		
		$\overline{X}$	σ	Max.		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	
5-4200	5-3500	7.5	0.2	9.8	11.8	47	28	29	20	30	15	34	23	26	17	23	17	19

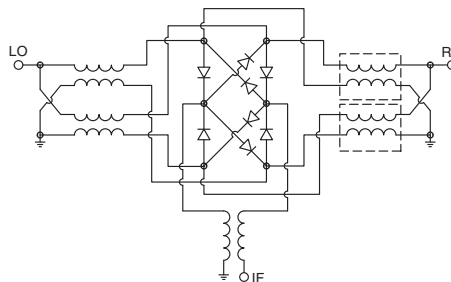
1 dB COMP.: +9 dBm typ.

L = low range [f_L to 10 f_L]
m= mid band [2 f_L to f_U /2]
M = mid range [10 f_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 +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
5.10	35.10	7.31	45.95	33.54	1.31	2.39
20.10	50.10	7.13	55.97	35.83	1.21	2.33
100.10	70.10	7.16	55.79	35.64	1.18	2.30
305.66	275.66	7.25	42.66	33.81	1.09	2.24
516.77	486.77	7.39	38.77	31.55	1.18	2.11
727.88	697.88	7.37	37.99	28.97	1.43	1.91
938.99	908.99	7.48	39.66	27.24	1.79	1.79
1150.10	1120.10	7.63	46.71	25.76	2.01	1.65
1361.21	1331.21	7.98	46.26	24.65	2.17	1.53
1572.32	1542.32	8.18	40.21	24.25	2.31	1.45
1783.43	1753.43	8.20	36.57	24.45	2.07	1.35
1994.54	1964.54	8.27	34.51	24.79	1.97	1.34
2200.10	2170.10	8.25	32.76	24.92	1.88	1.36
2485.81	2455.81	8.28	31.48	24.30	1.95	1.35
2771.53	2741.53	8.66	30.19	23.95	1.86	1.35
3057.24	3027.24	8.99	28.98	24.12	1.96	1.27
3342.96	3312.96	9.21	28.90	24.58	1.80	1.11
3628.67	3598.67	9.11	29.94	25.59	1.81	1.14
3914.39	3884.39	9.25	31.33	26.21	1.38	1.25
4200.10	4170.10	9.88	31.78	27.67	1.21	1.39

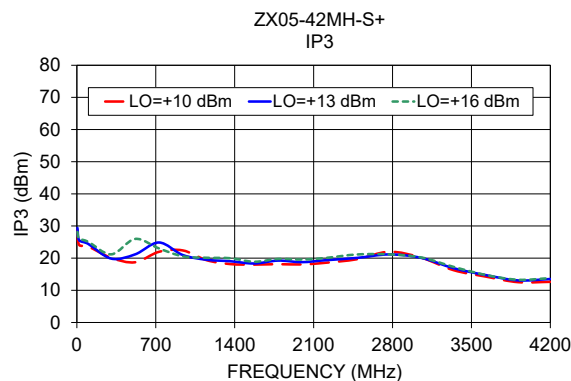
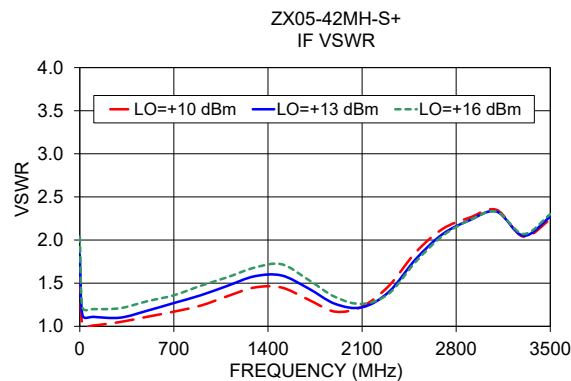
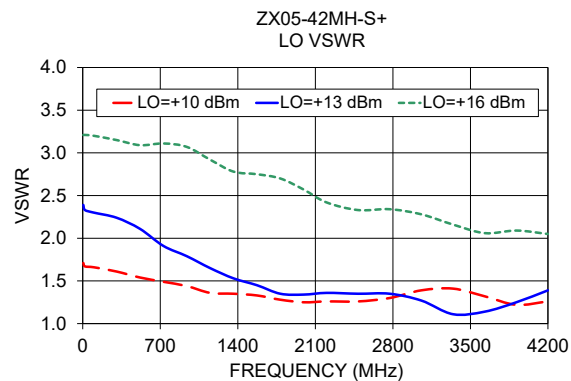
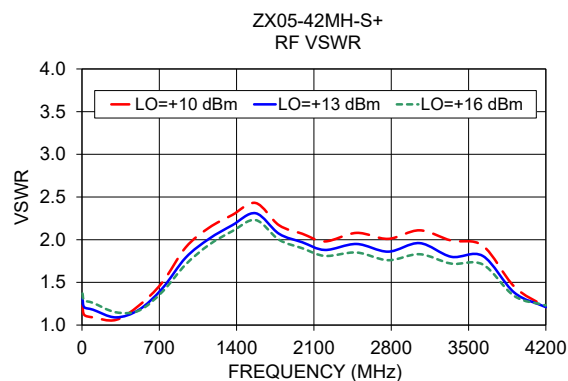
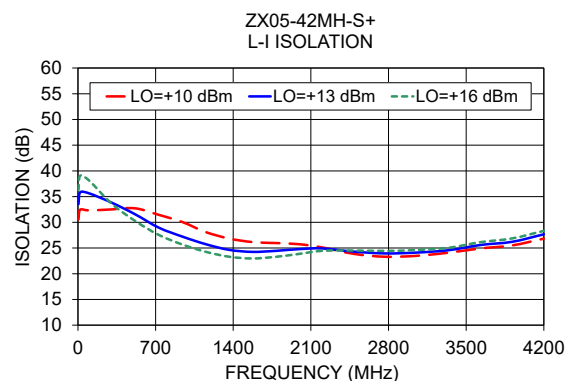
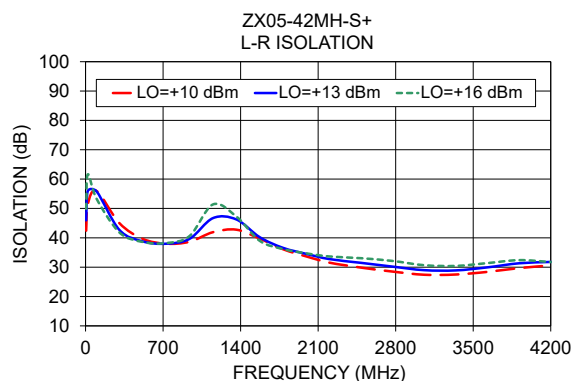
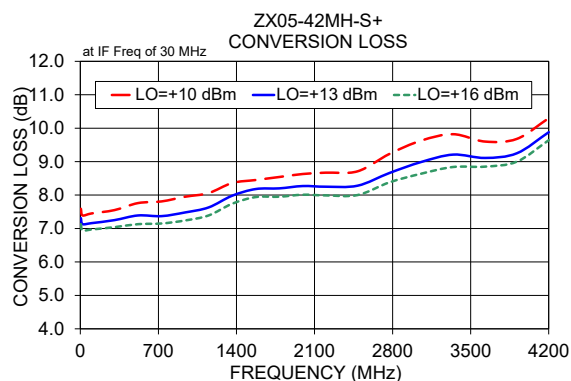
Electrical Schematic



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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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





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Frequency Mixer

ZX05-42MH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+10	+13	+16
5.0	35.0	7.05	7.36	6.71
10.1	40.1	6.96	6.68	6.51
109.9	139.9	7.28	7.02	6.86
209.6	239.6	7.35	7.10	6.95
309.4	339.4	7.49	7.21	7.04
409.1	439.1	7.61	7.26	7.06
508.9	538.9	7.76	7.35	7.11
608.7	638.7	7.81	7.37	7.12
708.4	738.4	7.88	7.40	7.13
808.2	838.2	8.03	7.55	7.27
908.0	938.0	7.94	7.46	7.21
1027.7	1057.7	7.81	7.39	7.16
1127.4	1157.4	7.89	7.51	7.29
1247.1	1277.1	8.22	7.86	7.64
1466.6	1496.6	8.70	8.42	8.22
1566.4	1596.4	8.69	8.38	8.21
1686.1	1716.1	8.81	8.44	8.22
1785.9	1815.9	8.97	8.54	8.32
1905.6	1935.6	9.08	8.63	8.36
2005.3	2035.3	9.08	8.59	8.36
2125.1	2155.1	9.13	8.66	8.45
2224.8	2254.8	9.11	8.66	8.46
2344.5	2374.5	8.96	8.53	8.34
2444.3	2474.3	8.90	8.46	8.25
2564.0	2594.0	8.92	8.48	8.28
2663.8	2693.8	8.93	8.49	8.30
2783.5	2813.5	8.85	8.40	8.22
2883.2	2913.2	8.87	8.42	8.23
3003.0	3033.0	8.93	8.49	8.29
3102.7	3132.7	8.96	8.53	8.34
3222.4	3252.4	9.01	8.58	8.38
3322.2	3352.2	9.14	8.75	8.54
3441.9	3471.9	9.28	8.90	8.73
3541.7	3571.7	9.38	8.98	8.84
3661.4	3691.4	9.49	9.11	8.91
3761.1	3791.1	9.67	9.30	9.06
3880.9	3910.9	9.88	9.50	9.28
3980.6	4010.6	10.05	9.64	9.40
4100.3	4130.3	10.37	9.93	9.66
4200.1	4230.1	10.76	10.33	10.04

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	26.15	25.71	26.67
109.9	139.9	21.72	22.47	22.02
209.6	239.6	19.87	19.31	20.04
309.4	339.4	17.92	18.47	21.00
409.1	439.1	17.27	19.45	24.08
508.9	538.9	17.52	20.82	27.88
608.7	638.7	18.73	24.34	24.87
708.4	738.4	19.37	24.64	22.85
808.2	838.2	20.09	22.49	22.02
908.0	938.0	20.43	20.49	20.57
1027.7	1057.7	20.23	19.80	20.64
1127.4	1157.4	18.65	19.12	19.88
1247.1	1277.1	18.01	18.90	20.11
1346.9	1376.9	17.99	18.77	20.07
1466.6	1496.6	18.12	18.76	19.93
1566.4	1596.4	18.71	19.68	20.58
1686.1	1716.1	18.41	19.98	20.36
1785.9	1815.9	18.32	19.54	20.37
1905.6	1935.6	17.61	18.94	20.03
2005.3	2035.3	16.82	18.31	19.36
2125.1	2155.1	17.44	18.70	19.21
2224.8	2254.8	17.75	18.88	19.52
2344.5	2374.5	17.98	18.67	19.57
2444.3	2474.3	18.39	18.88	19.95
2564.0	2594.0	18.89	19.33	19.89
2663.8	2693.8	19.60	19.64	20.07
2783.5	2813.5	19.23	19.32	19.76
2883.2	2913.2	19.21	19.11	19.51
3003.0	3033.0	18.82	18.72	19.20
3102.7	3132.7	18.07	18.45	18.87
3222.4	3252.4	17.27	17.92	18.58
3322.2	3352.2	16.52	17.35	18.36
3441.9	3471.9	15.55	16.51	17.80
3541.7	3571.7	15.15	15.65	16.66
3661.4	3691.4	14.39	14.93	15.97
3761.1	3791.1	14.04	14.70	15.64
3880.9	3910.9	13.68	14.49	15.13
3980.6	4010.6	13.58	14.47	15.07
4100.3	4130.3	13.52	14.58	15.31
4200.1	4230.1	13.89	15.17	15.78

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+9dBm (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	1.41	0.97	0.67
109.9	139.9	1.36	0.94	0.64
209.6	239.6	1.43	0.99	0.71
309.4	339.4	1.45	1.07	0.80
409.1	439.1	1.56	1.20	0.94
508.9	538.9	1.61	1.26	1.01
608.7	638.7	1.71	1.39	1.11
708.4	738.4	1.83	1.52	1.23
808.2	838.2	1.77	1.45	1.14
908.0	938.0	1.97	1.65	1.33
1027.7	1057.7	2.04	1.68	1.38
1127.4	1157.4	1.99	1.65	1.38
1247.1	1277.1	1.75	1.42	1.20
1346.9	1376.9	1.48	1.15	0.96
1466.6	1496.6	1.37	1.01	0.81
1566.4	1596.4	1.28	0.96	0.74
1686.1	1716.1	1.18	0.90	0.70
1785.9	1815.9	0.99	0.76	0.60
1905.6	1935.6	0.80	0.60	0.50
2005.3	2035.3	0.76	0.58	0.47
2125.1	2155.1	0.62	0.43	0.35
2224.8	2254.8	0.57	0.40	0.33
2344.5	2374.5	0.60	0.41	0.35
2444.3	2474.3	0.63	0.41	0.35
2564.0	2594.0	0.63	0.38	0.31
2663.8	2693.8	0.59	0.37	0.28
2783.5	2813.5	0.71	0.38	0.30
2883.2	2913.2	0.77	0.45	0.34
3003.0	3033.0	0.82	0.47	0.35
3102.7	3132.7	0.89	0.52	0.37
3222.4	3252.4	1.02	0.62	0.49
3322.2	3352.2	1.06	0.67	0.49
3441.9	3471.9	1.23	0.78	0.55
3541.7	3571.7	1.38	0.92	0.63
3661.4	3691.4	1.56	1.09	0.81
3761.1	3791.1	1.64	1.17	0.92
3880.9	3910.9	1.76	1.26	1.03
3980.6	4010.6	1.93	1.39	1.20
4100.3	4130.3	1.88	1.37	1.15
4200.1	4230.1	1.94	1.33	1.11

Frequency Mixer

ZX05-42MH+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2100.1MHz (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)=4200.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+13			+13			+13
2090.0	10.1	9.70	10.0	20.1	6.94	3500.0	700.1	10.45
2029.4	70.7	9.72	90.7	100.8	6.95	3420.2	779.9	10.37
1968.8	131.3	9.62	171.4	181.5	6.96	3340.5	859.6	10.33
1908.3	191.8	9.62	252.1	262.2	6.95	3240.7	959.4	10.35
1847.7	252.4	9.51	332.8	342.9	6.93	3161.0	1039.1	10.45
1787.1	313.0	9.49	413.5	423.6	6.92	3061.3	1138.8	10.41
1726.5	373.6	9.46	494.2	504.3	6.91	2981.5	1218.6	10.44
1665.9	434.2	9.38	595.0	605.1	6.87	2881.8	1318.3	10.29
1605.3	494.8	9.36	675.7	685.8	6.84	2802.0	1398.1	10.10
1544.8	555.3	9.29	776.6	786.7	6.86	2702.3	1497.8	9.85
1484.2	615.9	9.25	857.3	867.4	6.86	2622.5	1577.6	9.64
1423.6	676.5	9.24	958.2	968.3	6.87	2522.8	1677.3	9.51
1383.2	716.9	9.26	1038.8	1048.9	6.87	2443.0	1757.1	9.41
1322.6	777.5	9.26	1139.7	1149.8	6.94	2343.3	1856.8	9.38
1282.2	817.9	9.27	1220.4	1230.5	7.03	2263.5	1936.6	9.29
1221.7	878.4	9.24	1321.3	1331.4	7.19	2163.8	2036.3	9.10
1181.3	918.8	9.22	1402.0	1412.1	7.36	2084.1	2116.0	9.00
1120.7	979.4	9.14	1502.8	1512.9	7.56	1984.3	2215.8	8.95
1080.3	1019.8	9.07	1583.5	1593.6	7.68	1904.6	2295.5	8.93
1019.7	1080.4	9.00	1684.4	1694.5	7.87	1804.9	2395.2	8.96
979.3	1120.8	8.93	1765.1	1775.2	7.94	1725.1	2475.0	9.00
918.7	1181.4	8.85	1866.0	1876.1	7.98	1625.4	2574.7	9.05
878.3	1221.8	8.79	1946.6	1956.7	7.98	1545.6	2654.5	9.09
817.8	1282.3	8.73	2047.5	2057.6	8.01	1445.9	2754.2	9.15
777.4	1322.7	8.66	2128.2	2138.3	8.08	1366.1	2834.0	9.18
716.8	1383.3	8.69	2229.1	2239.2	8.22	1266.4	2933.7	9.23
676.4	1423.7	8.59	2309.8	2319.9	8.38	1186.6	3013.5	9.26
615.8	1484.3	8.58	2410.6	2420.7	8.56	1086.9	3113.2	9.29
575.4	1524.7	8.57	2491.3	2501.4	8.74	1007.1	3193.0	9.29
514.9	1585.2	8.58	2592.2	2602.3	8.93	907.4	3292.7	9.25
474.5	1625.6	8.58	2672.9	2683.0	9.10	827.7	3372.4	9.23
413.9	1686.2	8.61	2773.8	2783.9	9.30	727.9	3472.2	9.22
373.5	1726.6	8.58	2854.5	2864.6	9.40	648.2	3551.9	9.18
312.9	1787.2	8.58	2955.3	2965.4	9.60	548.5	3651.6	9.17
272.5	1827.6	8.55	3036.0	3046.1	9.73	468.7	3731.4	9.17
211.9	1888.2	8.52	3136.9	3147.0	9.90	369.0	3831.1	9.25
171.6	1928.5	8.48	3217.6	3227.7	10.16	289.2	3910.9	9.41
111.0	1989.1	8.46	3318.4	3328.5	10.32	189.5	4010.6	9.66
70.6	2029.5	8.44	3399.1	3409.2	10.54	109.7	4090.4	9.92
10.0	2090.1	8.43	3500.0	3510.1	10.68	10.0	4190.1	10.21

REV. X2
ZX05-42MH+
100818
Page 2 of 5



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED • RoHS compliant
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Frequency Mixer

ZX05-42MH+

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+10	+13	+16	+10	+13	+16
5.0	45.30	49.90	54.70	30.80	34.20	37.50
10.1	45.55	49.31	52.95	32.97	36.56	39.91
110.3	45.54	45.14	44.54	33.43	36.43	38.56
210.6	39.51	38.87	38.47	33.35	35.27	35.57
310.8	36.06	35.60	35.35	33.47	33.80	32.98
411.0	33.68	33.34	33.21	33.50	32.44	31.20
511.3	32.17	31.99	31.98	33.00	31.11	29.71
611.5	31.04	30.99	31.05	32.23	29.91	28.47
711.8	30.17	30.27	30.47	31.35	28.86	27.38
812.0	29.65	29.98	30.33	30.49	27.97	26.51
912.2	29.61	30.15	30.73	29.05	26.81	25.48
1012.5	29.71	30.54	31.29	27.85	25.93	24.73
1112.7	29.86	30.94	31.87	26.60	24.95	23.87
1233.0	30.15	31.45	32.65	25.67	24.20	23.20
1453.5	31.29	33.42	35.74	24.66	23.40	22.44
1553.7	31.74	34.28	37.51	24.50	23.28	22.35
1674.0	32.36	35.19	39.07	24.18	23.04	22.12
1774.3	32.77	35.96	40.60	24.01	22.90	21.98
1894.6	33.13	36.61	41.92	23.69	22.85	22.01
1994.8	33.08	36.75	42.31	23.24	22.71	22.03
2115.1	32.61	36.43	42.01	22.40	22.26	21.83
2215.3	32.16	35.89	41.40	21.73	21.86	21.68
2335.6	31.35	34.79	39.56	21.02	21.42	21.50
2435.8	30.92	33.96	37.77	20.53	20.98	21.22
2556.1	30.28	32.74	35.46	20.26	20.76	21.12
2656.4	29.70	31.56	33.26	20.25	20.76	21.20
2776.6	29.12	30.35	31.18	20.26	20.78	21.23
2876.9	28.68	29.38	29.69	20.36	20.87	21.31
2997.2	28.24	28.42	28.23	20.44	20.97	21.43
3097.4	27.89	27.68	27.28	20.54	21.06	21.50
3217.7	27.24	26.75	26.22	20.68	21.20	21.61
3317.9	26.70	26.03	25.49	20.85	21.42	21.86
3438.2	26.08	25.39	24.88	21.03	21.68	22.16
3538.4	25.51	24.93	24.62	21.03	21.68	22.17
3658.7	25.08	24.61	24.48	21.21	21.83	22.28
3759.0	24.86	24.53	24.41	21.31	21.89	22.31
3879.2	24.68	24.58	24.62	21.70	22.24	22.59
3979.5	24.51	24.58	24.72	22.18	22.67	23.01
4099.8	24.00	24.29	24.48	22.81	23.26	23.57
4200.0	23.70	24.15	24.37	23.51	23.92	24.22

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	22.62	22.98	22.88
110.1	140.1	22.73	22.64	22.72
210.1	240.1	22.99	22.97	23.11
310.1	340.1	23.73	23.86	24.20
410.1	440.1	24.86	25.15	25.64
510.1	540.1	26.52	26.97	27.59
610.1	640.1	28.64	29.15	29.69
710.1	740.1	31.37	31.32	31.29
810.1	840.1	33.88	32.81	31.92
910.1	940.1	34.72	32.47	31.02
1010.1	1040.1	33.00	31.27	29.77
1110.1	1140.1	30.63	29.69	28.49
1210.1	1240.1	29.02	28.47	27.40
1310.1	1340.1	27.65	27.10	26.38
1430.1	1460.1	26.51	26.11	25.38
1530.1	1560.1	25.54	25.21	24.64
1650.1	1680.1	24.75	24.49	24.07
1750.1	1780.1	24.27	24.20	23.89
1870.1	1900.1	23.66	23.70	23.51
1970.1	2000.1	23.26	23.37	23.26
2090.1	2120.1	22.76	23.01	23.06
2190.0	2220.0	22.32	22.61	22.78
2310.0	2340.0	22.21	22.53	22.71
2410.0	2440.0	21.95	22.36	22.57
2530.0	2560.0	21.86	22.37	22.70
2630.0	2660.0	21.86	22.39	22.76
2750.0	2780.0	22.01	22.48	22.96
2850.0	2880.0	22.27	22.69	23.15
2970.0	3000.0	22.64	23.06	23.42
3070.0	3100.0	22.89	23.36	23.73
3190.0	3220.0	23.20	23.71	24.12
3290.0	3320.0	23.57	24.11	24.55
3410.0	3440.0	23.62	24.02	24.48
3510.0	3540.0	23.82	24.13	24.51
3630.0	3660.0	24.26	24.29	24.39
3730.0	3760.0	24.76	24.54	24.32
3850.0	3880.0	25.73	25.21	24.88
3950.0	3980.0	26.80	25.94	25.36
4070.0	4100.0	27.80	26.68	25.85
4170.0	4200.0	28.09	27.11	26.33

REV. X2
ZX05-42MH+
100818
Page 3 of 5

Frequency Mixer

ZX05-42MH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=4200MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+10	+13	+16		+10	+13	+16		+10	+13	+16
5.0	35.0	1.28	1.35	1.42	5.0	1.63	2.37	3.26	5.0	1.33	1.50	1.61
10.1	40.1	1.11	1.20	1.27	10.1	1.71	2.42	3.31	10.1	1.53	1.39	1.31
110.1	140.1	1.07	1.16	1.24	110.3	1.64	2.29	3.12	90.3	1.59	1.46	1.38
210.1	240.1	1.05	1.12	1.18	210.6	1.63	2.26	3.07	170.6	1.61	1.48	1.40
310.1	340.1	1.05	1.08	1.12	310.8	1.65	2.27	3.05	250.8	1.58	1.46	1.39
410.1	440.1	1.12	1.09	1.11	411.0	1.66	2.26	3.00	331.0	1.56	1.44	1.37
510.1	540.1	1.21	1.16	1.15	511.3	1.64	2.21	2.91	431.3	1.57	1.46	1.40
610.1	640.1	1.32	1.27	1.25	611.5	1.65	2.18	2.84	511.5	1.56	1.46	1.41
710.1	740.1	1.47	1.41	1.37	711.8	1.65	2.15	2.77	611.8	1.55	1.47	1.44
810.1	840.1	1.64	1.56	1.51	812.0	1.64	2.11	2.69	692.1	1.51	1.45	1.45
910.1	940.1	1.80	1.71	1.66	912.2	1.62	2.07	2.64	792.3	1.49	1.44	1.45
1010.1	1040.1	1.94	1.86	1.80	1012.5	1.60	2.03	2.57	872.6	1.46	1.42	1.44
1110.1	1140.1	2.09	2.00	1.93	1112.7	1.61	1.99	2.49	972.9	1.45	1.43	1.45
1210.1	1240.1	2.25	2.15	2.08	1233.0	1.64	1.94	2.39	1053.1	1.47	1.47	1.51
1310.1	1340.1	2.40	2.31	2.23	1333.2	1.68	1.92	2.32	1153.4	1.46	1.48	1.54
1430.1	1460.1	2.57	2.48	2.42	1453.5	1.72	1.87	2.21	1233.6	1.45	1.50	1.58
1530.1	1560.1	2.67	2.58	2.51	1553.7	1.75	1.84	2.14	1333.9	1.46	1.53	1.62
1650.1	1680.1	2.69	2.60	2.53	1674.0	1.77	1.79	2.04	1414.1	1.46	1.53	1.62
1750.1	1780.1	2.73	2.63	2.55	1774.3	1.79	1.74	1.95	1514.4	1.49	1.56	1.65
1870.1	1900.1	2.81	2.69	2.61	1894.6	1.79	1.69	1.86	1594.6	1.54	1.62	1.71
1970.1	2000.1	2.82	2.70	2.61	1994.8	1.79	1.63	1.76	1694.9	1.59	1.67	1.76
2090.1	2120.1	2.75	2.62	2.54	2115.1	1.77	1.54	1.64	1775.2	1.58	1.67	1.76
2190.0	2220.0	2.72	2.58	2.49	2215.3	1.73	1.47	1.54	1875.4	1.58	1.66	1.75
2310.0	2340.0	2.71	2.56	2.45	2335.6	1.69	1.36	1.41	1955.7	1.52	1.59	1.67
2410.0	2440.0	2.64	2.48	2.37	2435.8	1.65	1.29	1.31	2056.0	1.52	1.58	1.64
2530.0	2560.0	2.52	2.36	2.24	2556.1	1.61	1.20	1.21	2136.2	1.60	1.65	1.71
2630.0	2660.0	2.49	2.32	2.19	2656.4	1.57	1.15	1.16	2236.5	1.61	1.66	1.73
2750.0	2780.0	2.48	2.30	2.16	2776.6	1.55	1.14	1.17	2316.7	1.61	1.67	1.74
2850.0	2880.0	2.42	2.24	2.11	2876.9	1.54	1.19	1.25	2417.0	1.59	1.66	1.73
2970.0	3000.0	2.34	2.16	2.04	2997.2	1.53	1.28	1.37	2497.2	1.59	1.65	1.70
3070.0	3100.0	2.33	2.14	2.02	3097.4	1.53	1.36	1.48	2597.5	1.66	1.71	1.77
3190.0	3220.0	2.30	2.12	1.99	3217.7	1.51	1.45	1.61	2677.7	1.88	1.94	1.99
3290.0	3320.0	2.22	2.06	1.94	3317.9	1.53	1.54	1.72	2778.0	2.03	2.08	2.13
3410.0	3440.0	2.14	2.01	1.90	3438.2	1.56	1.65	1.85	2858.3	2.10	2.16	2.22
3510.0	3540.0	2.12	1.99	1.88	3538.4	1.63	1.76	1.97	2958.5	2.27	2.32	2.38
3630.0	3660.0	2.04	1.94	1.85	3658.7	1.71	1.90	2.12	3038.8	2.37	2.42	2.47
3730.0	3760.0	1.90	1.84	1.80	3759.0	1.81	2.04	2.26	3139.1	2.73	2.77	2.82
3850.0	3880.0	1.76	1.74	1.73	3879.2	1.92	2.18	2.41	3219.3	3.15	3.19	3.24
3950.0	3980.0	1.67	1.68	1.69	3979.5	2.02	2.31	2.55	3319.6	3.45	3.48	3.53
4070.0	4100.0	1.56	1.60	1.64	4099.8	2.13	2.43	2.67	3399.8	3.26	3.29	3.33
4170.0	4200.0	1.52	1.59	1.64	4200.0	2.24	2.55	2.79	3500.1	3.45	3.47	3.50

REV. X2
ZX05-42MH+
100818
Page 4 of 5

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	5	22	25	40	30	49	45	59	51	61
1	-	16	+0	31	17	40	28	37	41	64	58	59
2	74	60	40	41	60	48	49	51	42	58	64	69
3	>100	48	38	46	40	48	46	52	54	48	54	74
4	77	64	59	69	65	59	58	61	59	63	56	71
5	92	78	66	70	61	64	56	62	61	60	71	62
6	88	90	86	91	88	79	81	72	75	74	70	76
7	89	>95	92	>95	84	79	77	75	72	72	75	73
8	100	>95	>95	>95	93	>95	94	89	89	83	83	85
9	>100	>95	>95	>95	>95	>95	>95	94	91	86	86	82
10	>100	>95	>95	>95	>95	>95	>95	>95	>95	>95	>95	93
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 2100.1 MHz; 4.00 dBm.
LO IN: 2130.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -4.51 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+5	12	14	27	17	36	33	48	34	43
1	-	16	+0	31	17	38	27	33	36	61	56	48
2	84	60	49	51	69	57	73	59	47	65	66	69
3	>100	70	59	69	60	68	65	70	72	65	70	>85
4	91	>85	>85	>85	>85	>85	>85	>85	>85	>85	82	>85
5	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
6	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
7	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
8	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
9	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
10	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 2100.1 MHz; -6.00 dBm.
LO IN: 2130.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -14.55 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.

REV. X2
ZX05-42MH+
100818
Page 5 of 5

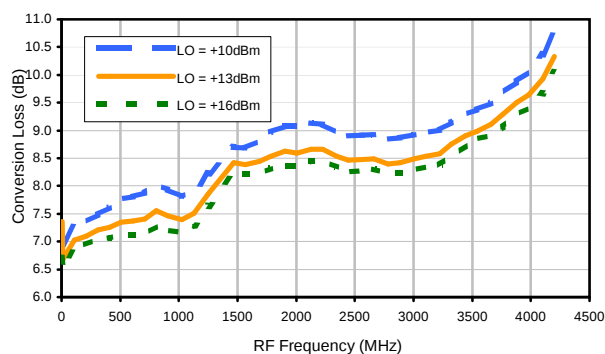


Frequency Mixer

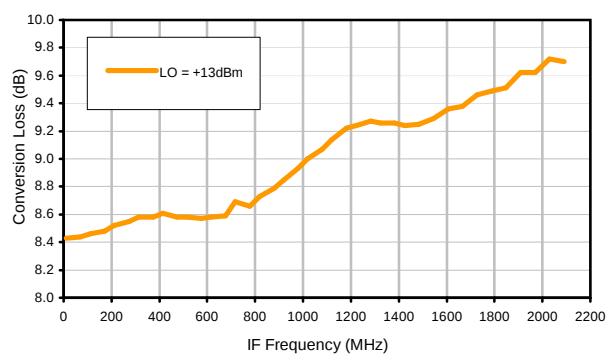
ZX05-42MH+

Typical Performance Curves

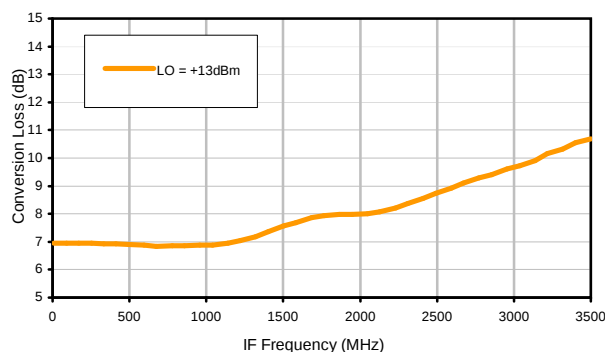
Conversion Loss @ IF=30MHz



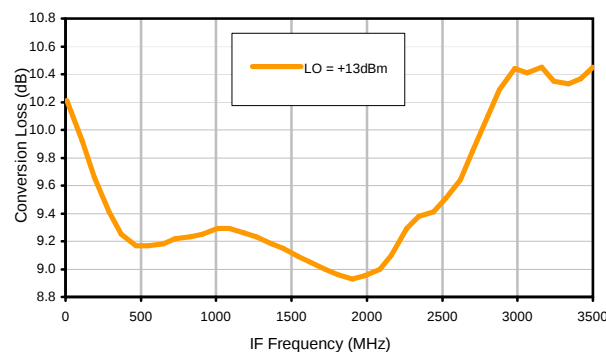
Conversion Loss vs. IF @ RF=2100.1MHz



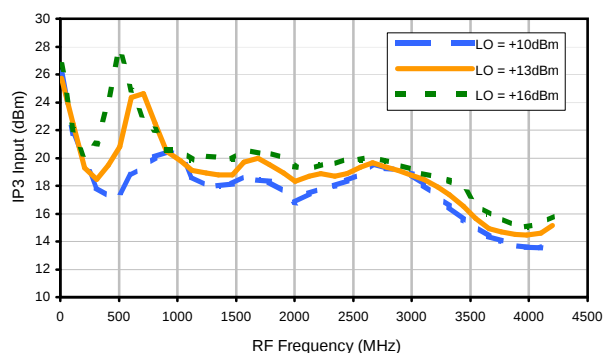
Conversion Loss vs. IF @ RF=10.1MHz



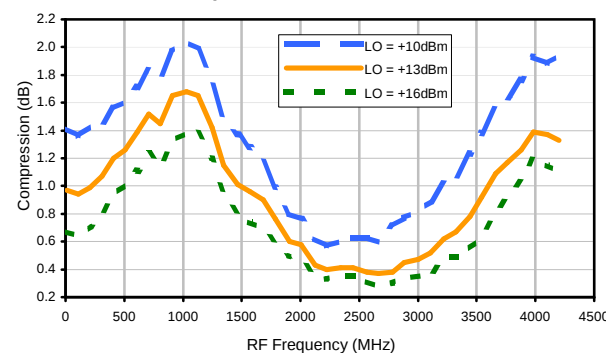
Conversion Loss vs. IF @ RF=4200.1MHz



IP3 Input



Compression @ RF IN=+9dBm



REV. X2
ZX05-42MH+
100818
Page 1 of 3

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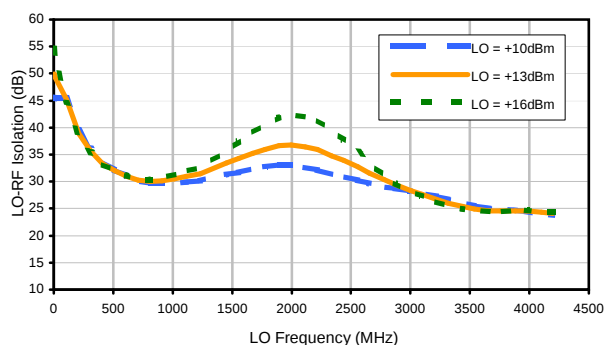


Frequency Mixer

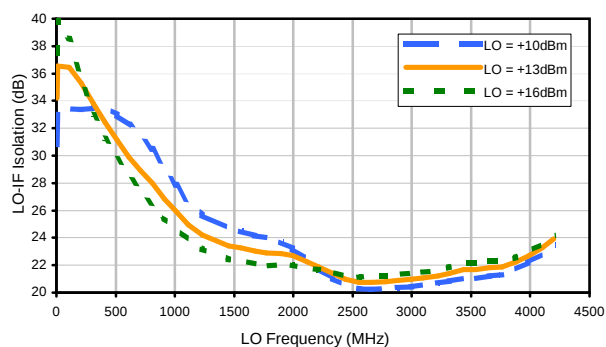
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Typical Performance Curves

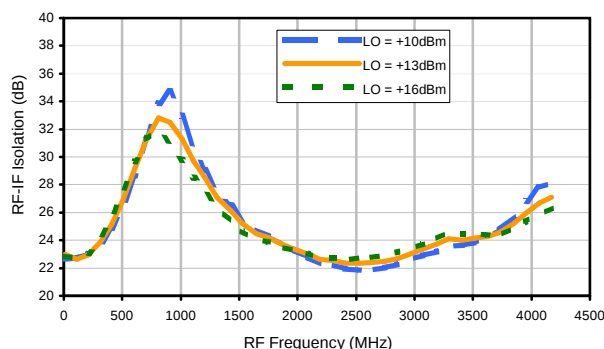
LO-RF Isolation



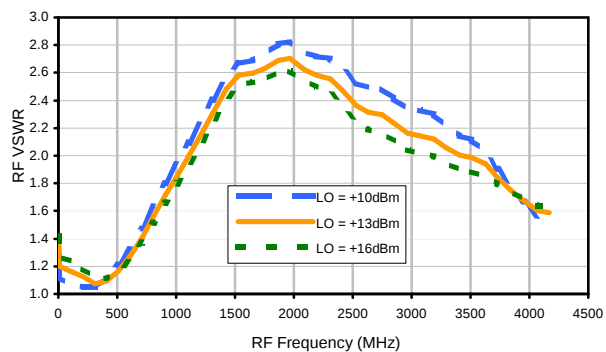
LO-IF Isolation



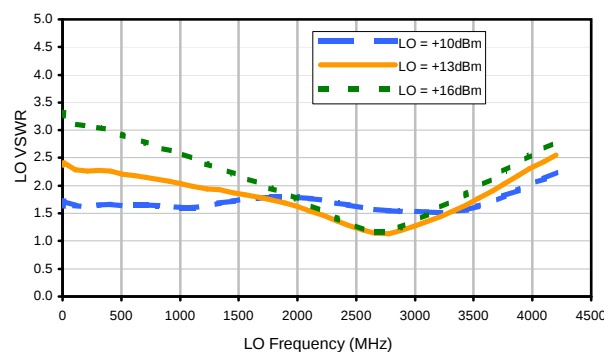
RF-IF Isolation



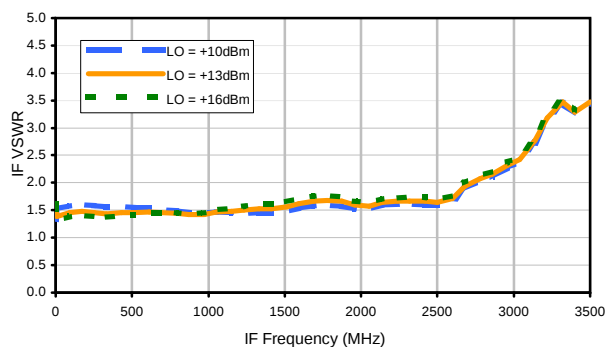
RF VSWR



LO VSWR



IF VSWR



REV. X2
ZX05-42MH+
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Page 2 of 3

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	5	22	25	40	30	49	45	59	51	61
1	-	16	+0	31	17	40	28	37	41	64	58	59
2	74	60	40	41	60	48	49	51	42	58	64	69
3	>100	48	38	46	40	48	46	52	54	48	54	74
4	77	64	59	69	65	59	58	61	59	63	56	71
5	92	78	66	70	61	64	56	62	61	60	71	62
6	88	90	86	91	88	79	81	72	75	74	70	76
7	89	>95	92	>95	84	79	77	75	72	72	75	73
8	100	>95	>95	>95	93	>95	94	89	89	83	83	85
9	>100	>95	>95	>95	>95	>95	>95	94	91	86	86	82
10	>100	>95	>95	>95	>95	>95	>95	>95	>95	>95	>95	93
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 2100.1 MHz; 4.00 dBm.
LO IN: 2130.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -4.51 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+5	12	14	27	17	36	33	48	34	43
1	-	16	+0	31	17	38	27	33	36	61	56	48
2	84	60	49	51	69	57	73	59	47	65	66	69
3	>100	70	59	69	60	68	65	70	72	65	70	>85
4	91	>85	>85	>85	>85	>85	>85	>85	>85	>85	82	>85
5	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
6	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
7	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
8	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
9	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
10	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

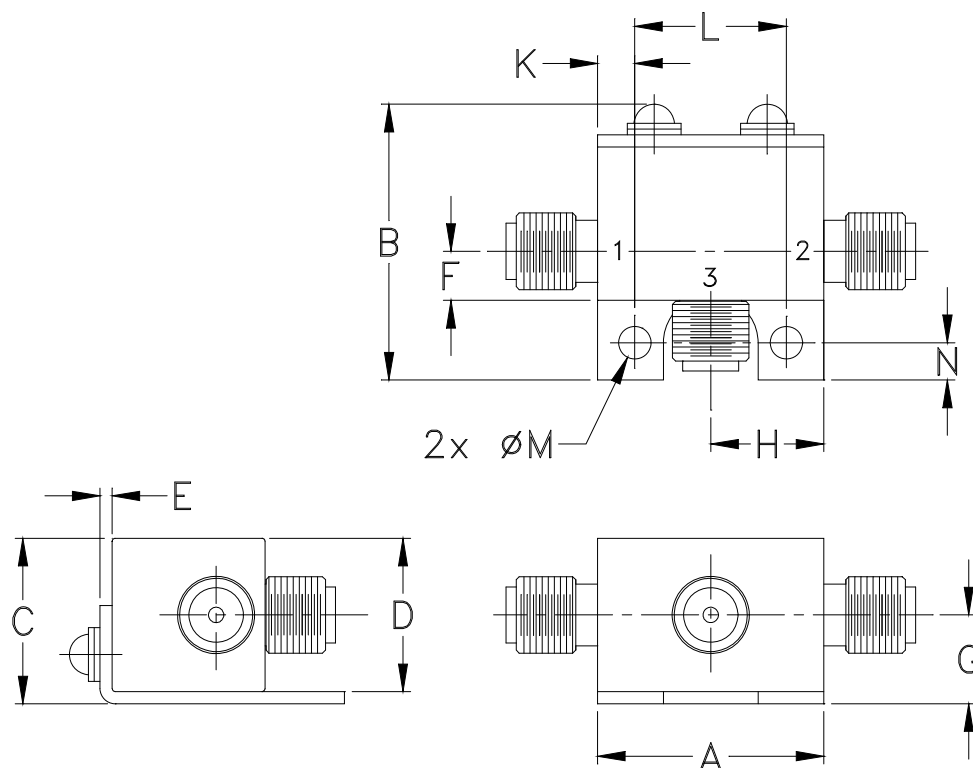
Test conditions: RF IN: 2100.1 MHz; -6.00 dBm.
LO IN: 2130.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -14.55 dBm

- 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.

REV. X2
ZX05-42MH+
100818
Page 3 of 3



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:

- Case material: Brass.
- 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