

Frequency Mixer

Level 17 (LO Power +17 dBm) 100 to 1700 MHz

ZX05-17H-S+

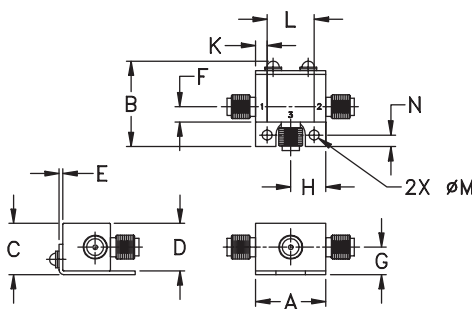
Maximum Ratings

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	ZX05-17H-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 σ		Total Range Max.	Max.	L		U	Typ.	L		U	Typ.					
		$\overline{X}$	σ			Typ.	Min.			Typ.	Min.				Typ.	Min.		
100-1700	50-1500	7.2	0.1	8.5	9.5	32	20			36	22	32	20			37	22	25

1 dB COMP.: +14 dBm typ.

L = 100 - 850 MHz

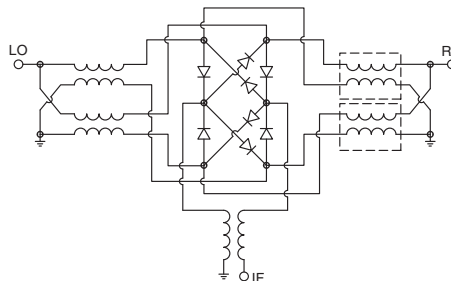
m= mid band [$2f_L$ to $f_U/2$]

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 +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
100.10	130.11	7.96	29.37	29.75	1.48	1.71
179.05	209.06	7.83	30.72	31.15	1.37	1.64
258.00	288.01	7.74	31.94	32.85	1.30	1.64
336.94	366.95	7.65	33.24	34.50	1.30	1.65
455.36	485.37	7.57	33.98	36.15	1.33	1.61
573.78	603.79	7.72	34.72	38.47	1.41	1.64
652.73	682.74	7.66	34.93	39.68	1.44	1.60
731.68	761.69	7.68	34.37	40.44	1.46	1.62
810.63	840.64	7.79	34.47	41.10	1.48	1.70
900.10	930.11	7.77	34.41	42.20	1.47	1.72
984.31	1014.32	7.68	34.35	43.77	1.45	1.82
1068.52	1098.53	7.75	32.18	39.71	1.46	1.91
1152.73	1182.74	7.90	30.24	38.47	1.46	2.06
1236.94	1266.95	7.89	30.45	39.51	1.46	2.11
1321.15	1351.16	7.82	30.76	41.10	1.49	2.13
1405.36	1435.37	7.78	31.39	43.13	1.52	2.16
1489.57	1519.58	7.78	30.65	46.17	1.53	2.12
1573.78	1603.79	7.95	29.38	54.03	1.55	2.08
1658.00	1688.01	8.00	29.37	53.22	1.55	2.09
1700.10	1670.09	8.08	29.74	47.47	1.37	2.21

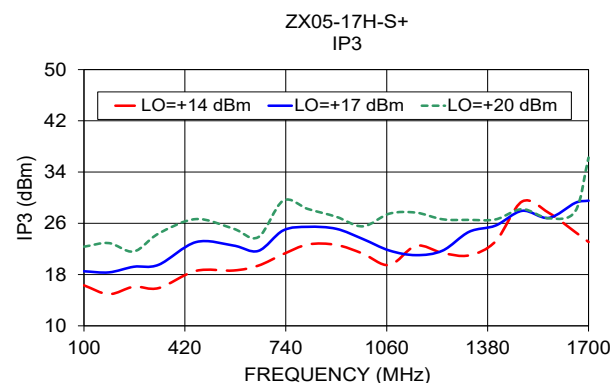
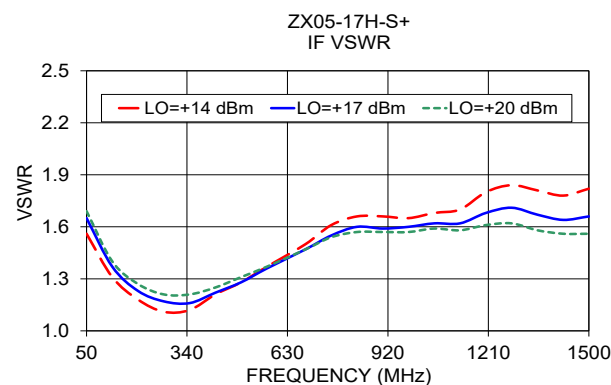
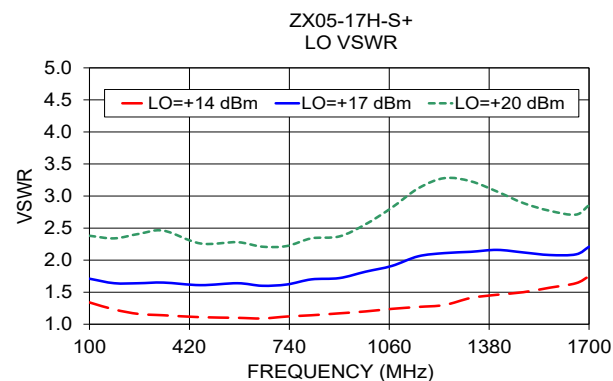
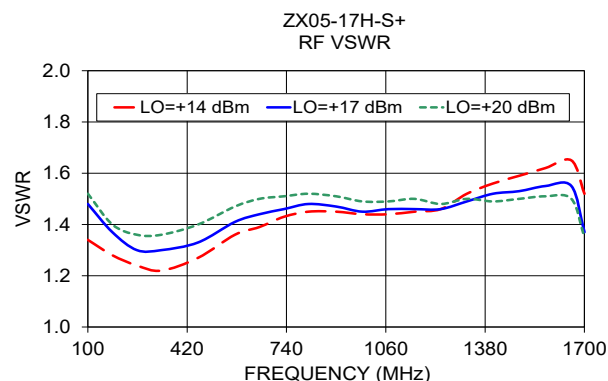
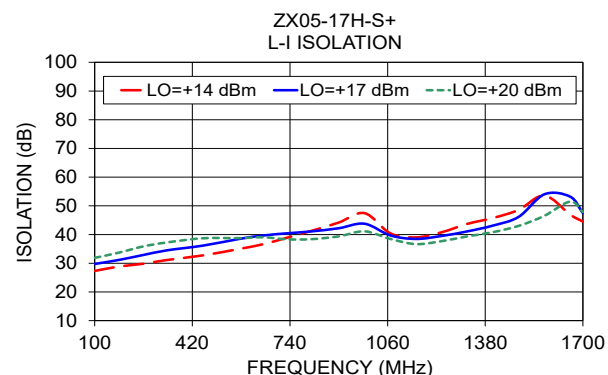
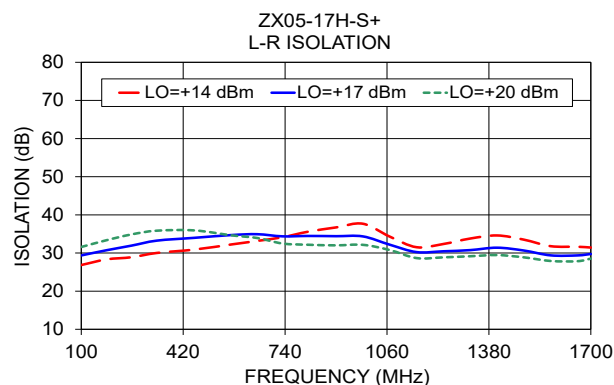
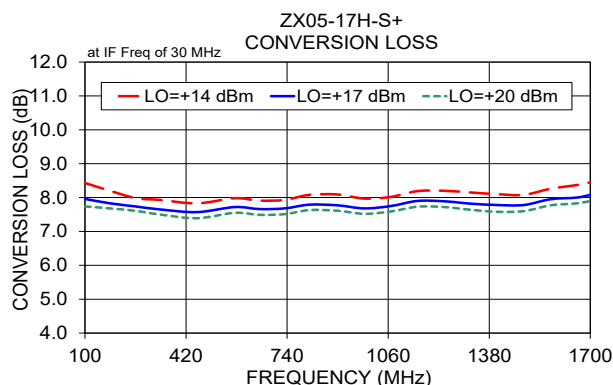
Electrical Schematic



Notes

- A. 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.
 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.
 C. 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

ZX05-17H+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=50MHz (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	60.1	10.94	10.43	10.14
110.4	160.4	8.21	7.81	7.67
210.6	260.6	8.04	7.67	7.55
310.9	360.9	7.89	7.59	7.46
411.1	461.1	7.92	7.65	7.48
511.4	561.4	7.94	7.61	7.42
611.6	661.6	7.98	7.64	7.46
711.9	761.9	7.92	7.61	7.47
812.1	862.1	7.98	7.64	7.45
912.4	962.4	8.04	7.68	7.54
1012.6	1062.6	7.93	7.63	7.47
1112.9	1162.9	8.03	7.77	7.64
1213.1	1263.1	7.96	7.67	7.52
1313.4	1363.4	7.97	7.65	7.50
1413.6	1463.6	7.90	7.62	7.49
1513.9	1563.9	7.93	7.63	7.50
1614.1	1664.1	8.00	7.66	7.56
1714.4	1764.4	8.15	7.80	7.67
1814.6	1864.6	8.52	8.06	7.86
1914.9	1964.9	9.07	8.48	8.18
2015.1	2065.1	9.72	8.95	8.50
2115.4	2165.4	10.45	9.44	8.85
2215.6	2265.6	10.76	9.73	9.11
2315.9	2365.9	10.23	9.43	8.96
2416.1	2466.1	10.19	9.36	8.93
2516.4	2566.4	10.33	9.41	8.94
2616.6	2666.6	10.45	9.53	9.00
2716.9	2766.9	10.31	9.52	8.99
2817.1	2867.1	10.12	9.37	8.95
2917.4	2967.4	10.01	9.34	9.00
3017.6	3067.6	9.76	9.15	8.87
3117.9	3167.9	9.71	9.04	8.73
3238.2	3288.2	9.61	9.00	8.71
3338.4	3388.4	9.67	9.08	8.77
3458.7	3508.7	9.71	9.20	8.91
3559.0	3609.0	9.73	9.27	9.02
3679.3	3729.3	9.88	9.42	9.18
3779.5	3829.5	10.09	9.64	9.40
3899.8	3949.8	10.37	9.91	9.66
4000.1	4050.1	10.66	10.15	9.93

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+14	+17	+20
10.1	60.1	18.01	20.03	22.34
110.4	160.4	19.70	20.06	23.41
210.6	260.6	18.07	20.67	24.37
310.9	360.9	18.26	22.23	27.84
411.1	461.1	20.02	24.51	30.73
511.4	561.4	21.77	25.79	28.27
611.6	661.6	22.59	24.57	28.10
711.9	761.9	24.71	30.58	30.02
812.1	862.1	25.62	29.84	29.60
912.4	962.4	28.27	32.66	29.77
1012.6	1062.6	20.93	26.87	23.99
1112.9	1162.9	21.11	27.49	23.16
1213.1	1263.1	26.37	28.24	27.12
1313.4	1363.4	27.78	29.05	28.46
1413.6	1463.6	25.38	32.29	32.58
1513.9	1563.9	24.50	29.72	30.95
1614.1	1664.1	23.85	26.57	30.40
1714.4	1764.4	21.74	24.65	28.25
1814.6	1864.6	20.46	22.97	26.27
1914.9	1964.9	19.09	20.95	23.11
2015.1	2065.1	18.41	20.06	22.58
2115.4	2165.4	18.31	20.65	22.64
2215.6	2265.6	20.72	22.73	24.73
2315.9	2365.9	27.11	28.22	32.19
2416.1	2466.1	28.79	31.97	33.06
2516.4	2566.4	30.61	29.55	29.69
2616.6	2666.6	29.78	27.95	27.61
2716.9	2766.9	28.14	27.30	26.90
2817.1	2867.1	25.73	25.88	25.65
2917.4	2967.4	24.31	24.66	24.98
3017.6	3067.6	23.07	24.01	24.53
3117.9	3167.9	24.45	23.46	23.92
3238.2	3288.2	23.64	23.26	23.72
3338.4	3388.4	23.00	23.21	23.16
3458.7	3508.7	21.88	22.38	22.88
3559.0	3609.0	21.10	22.01	22.34
3679.3	3729.3	20.69	21.79	22.40
3779.5	3829.5	21.25	22.47	23.16
3899.8	3949.8	21.81	22.99	24.32
4000.1	4050.1	23.07	23.98	25.42

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+14dBm (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	1.09	0.67	0.38
110.4	140.4	1.10	0.55	0.26
210.6	240.6	1.16	0.48	0.25
310.9	340.9	1.07	0.47	0.24
411.1	441.1	1.08	0.43	0.17
511.4	541.4	1.04	0.52	0.27
611.6	641.6	1.09	0.47	0.28
711.9	741.9	1.18	0.57	0.29
812.1	842.1	0.99	0.47	0.30
912.4	942.4	1.02	0.48	0.36
1012.6	1042.6	1.11	0.55	0.44
1112.9	1142.9	1.10	0.48	0.36
1213.1	1243.1	1.02	0.47	0.35
1313.4	1343.4	1.09	0.52	0.40
1413.6	1443.6	1.16	0.58	0.44
1513.9	1543.9	1.17	0.67	0.51
1614.1	1644.1	1.21	0.73	0.54
1714.4	1744.4	1.39	0.91	0.63
1814.6	1844.6	1.41	1.03	0.75
1914.9	1944.9	1.27	0.97	0.74
2015.1	2045.1	0.99	0.81	0.69
2115.4	2145.4	0.44	0.52	0.49
2215.6	2245.6	0.14	0.28	0.32
2315.9	2345.9	0.38	0.36	0.34
2416.1	2446.1	0.57	0.38	0.35
2516.4	2546.4	0.41	0.27	0.26
2616.6	2646.6	0.22	0.26	0.21
2716.9	2746.9	0.19	0.13	0.20
2817.1	2847.1	0.20	0.15	0.15
2917.4	2947.4	0.28	0.14	0.17
3017.6	3047.6	0.32	0.21	0.16
3117.9	3147.9	0.35	0.28	0.21
3238.2	3268.2	0.43	0.34	0.29
3338.4	3368.4	0.54	0.33	0.30
3458.7	3488.7	0.69	0.41	0.34
3559.0	3589.0	0.70	0.39	0.31
3679.3	3709.3	0.80	0.46	0.30
3779.5	3809.5	0.89	0.48	0.35
3899.8	3929.8	0.93	0.47	0.27
4000.1	4030.1	0.96	0.51	0.32

Frequency Mixer

ZX05-17H+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=850.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=100.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1700.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+17			+17			+17
650.0	200.1	6.89	50.0	150.1	7.88	1500.0	200.1	7.74
634.6	215.5	6.83	90.8	190.9	7.73	1459.7	240.4	7.66
619.2	230.9	6.87	131.7	231.8	7.62	1419.4	280.7	7.71
603.8	246.3	6.86	172.5	272.6	7.54	1379.2	320.9	7.67
588.5	261.6	6.86	213.4	313.5	7.48	1338.9	361.2	7.70
573.1	277.0	6.87	254.2	354.3	7.44	1298.6	401.5	7.67
557.7	292.4	6.85	295.1	395.2	7.40	1258.3	441.8	7.70
542.3	307.8	6.86	335.9	436.0	7.39	1218.1	482.0	7.74
526.9	323.2	6.81	376.8	476.9	7.37	1177.8	522.3	7.75
511.5	338.6	6.85	417.6	517.7	7.35	1137.5	562.6	7.77
496.2	353.9	6.82	458.5	558.6	7.34	1097.2	602.9	7.71
480.8	369.3	6.85	499.3	599.4	7.32	1056.9	643.2	7.62
465.4	384.7	6.81	540.1	640.2	7.26	1016.7	683.4	7.63
450.0	400.1	6.81	581.0	681.1	7.26	976.4	723.7	7.57
434.6	415.5	6.74	621.8	721.9	7.32	936.1	764.0	7.55
419.2	430.9	6.83	662.7	762.8	7.26	895.8	804.3	7.50
403.8	446.3	6.83	703.5	803.6	7.26	855.6	844.5	7.47
388.5	461.6	6.82	744.4	844.5	7.29	815.3	884.8	7.53
373.1	477.0	6.87	785.2	885.3	7.26	775.0	925.1	7.51
357.7	492.4	6.86	826.1	926.2	7.25	734.7	965.4	7.55
342.3	507.8	6.90	866.9	967.0	7.25	694.4	1005.7	7.47
326.9	523.2	6.92	907.7	1007.8	7.21	654.2	1045.9	7.44
311.5	538.6	6.93	948.6	1048.7	7.17	613.9	1086.2	7.43
296.2	553.9	6.96	989.4	1089.5	7.19	573.6	1126.5	7.39
280.8	569.3	6.95	1030.3	1130.4	7.22	533.3	1166.8	7.39
265.4	584.7	7.00	1071.1	1171.2	7.19	493.1	1207.0	7.34
250.0	600.1	6.97	1112.0	1212.1	7.17	452.8	1247.3	7.32
234.6	615.5	7.03	1132.4	1232.5	7.15	412.5	1287.6	7.35
219.2	630.9	7.00	1173.2	1273.3	7.15	372.2	1327.9	7.31
203.8	646.3	7.05	1193.7	1293.8	7.13	352.1	1348.0	7.34
188.5	661.6	7.08	1234.5	1334.6	7.07	311.8	1388.3	7.37
173.1	677.0	7.14	1254.9	1355.0	7.04	291.7	1408.4	7.37
157.7	692.4	7.19	1295.8	1395.9	6.97	251.4	1448.7	7.40
142.3	707.8	7.24	1316.2	1416.3	6.98	231.3	1468.9	7.44
126.9	723.2	7.32	1357.0	1457.1	6.92	191.0	1509.1	7.48
111.5	738.6	7.37	1377.5	1477.6	6.95	170.8	1529.3	7.56
96.2	753.9	7.47	1418.3	1518.4	6.93	130.6	1569.5	7.65
80.8	769.3	7.49	1438.7	1538.8	6.92	110.4	1589.7	7.69
65.4	784.7	7.54	1479.6	1579.7	6.96	70.1	1630.0	7.85
50.0	800.1	7.64	1500.0	1600.1	6.97	50.0	1650.1	7.91

REV. X2
ZX05-17H+
100818
Page 2 of 5

Frequency Mixer

ZX05-17H+

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+14	+17	+20	+14	+17	+20
10.1	20.76	21.19	22.52	19.68	20.30	21.53
110.4	27.65	30.22	32.49	27.68	30.30	32.59
210.6	28.88	31.55	34.42	29.61	32.35	35.13
310.9	30.10	33.16	36.17	30.90	33.97	36.37
411.1	30.98	34.60	36.83	32.82	35.95	36.57
511.4	33.52	36.52	36.70	34.93	36.20	35.03
611.6	34.63	36.91	35.77	36.35	35.61	33.62
711.9	36.45	36.77	34.65	36.72	34.47	32.34
812.1	38.38	36.55	33.86	36.02	33.21	31.17
912.4	39.20	35.70	33.20	34.49	32.04	30.44
1012.6	39.17	35.29	33.40	33.13	31.19	29.94
1112.9	35.60	33.31	31.79	31.03	29.55	28.41
1213.1	35.39	33.73	31.88	30.66	29.53	28.19
1313.4	34.86	32.27	30.69	30.35	28.79	27.75
1413.6	34.43	31.90	30.26	29.99	28.56	27.52
1513.9	33.38	31.23	29.73	29.69	28.53	27.52
1614.1	32.75	31.16	29.88	29.84	29.14	28.35
1714.4	32.61	31.18	30.00	30.00	29.72	29.30
1814.6	32.73	31.51	30.85	30.69	30.43	30.42
1914.9	33.69	32.56	31.74	31.32	31.29	31.44
2015.1	35.27	34.15	33.12	31.60	31.51	31.66
2115.4	37.28	36.02	35.00	31.62	31.35	31.66
2215.6	39.04	38.54	37.27	31.53	31.53	31.88
2315.9	41.95	41.48	40.26	31.57	31.70	32.32
2416.1	42.36	42.33	41.45	32.48	32.95	33.78
2516.4	36.78	37.60	38.19	32.87	33.55	34.60
2616.6	35.00	35.67	36.24	32.81	34.17	35.61
2716.9	35.00	35.72	35.87	33.24	34.91	36.81
2817.1	34.34	35.12	35.68	34.13	36.02	37.94
2917.4	33.75	34.24	34.99	34.91	37.03	39.00
3017.6	32.93	33.53	34.14	35.77	38.42	40.55
3117.9	32.05	32.70	33.36	35.98	38.86	41.47
3238.2	30.68	31.48	32.17	36.70	39.99	42.78
3338.4	29.86	30.71	31.52	36.77	40.08	42.92
3458.7	28.88	29.99	30.91	36.44	39.56	42.08
3559.0	28.44	29.52	30.45	36.64	39.57	41.37
3679.3	28.01	29.42	30.50	36.29	39.99	42.55
3779.5	27.37	29.13	30.54	36.45	40.32	43.46
3899.8	27.41	29.16	30.51	35.88	38.53	40.51
4000.1	27.59	29.45	31.02	35.57	37.56	39.28

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	16.82	19.65	21.47
110.4	140.4	28.23	29.78	30.73
210.6	240.6	30.04	31.57	32.82
310.9	340.9	31.13	31.67	32.34
411.1	441.1	31.96	32.63	32.96
511.4	541.4	33.98	33.96	34.21
611.6	641.6	36.31	36.58	36.97
711.9	741.9	35.15	34.26	33.94
812.1	842.1	38.51	37.08	35.45
912.4	942.4	35.02	32.90	31.79
1012.6	1042.6	34.42	32.85	31.84
1112.9	1142.9	33.96	32.03	30.46
1213.1	1243.1	36.54	33.03	28.16
1313.4	1343.4	34.19	32.06	29.47
1413.6	1443.6	31.45	30.57	30.02
1513.9	1543.9	32.27	32.35	32.91
1614.1	1644.1	34.24	35.01	35.37
1714.4	1744.4	33.78	31.78	29.57
1814.6	1844.6	29.58	27.51	26.13
1914.9	1944.9	25.30	24.36	23.70
2015.1	2045.1	23.26	22.79	22.61
2115.4	2145.4	22.66	22.42	22.41
2215.6	2245.6	22.75	22.57	22.49
2315.9	2345.9	22.98	22.93	22.77
2416.1	2446.1	22.72	22.74	22.68
2516.4	2546.4	22.73	22.74	22.66
2616.6	2646.6	22.45	22.56	22.58
2716.9	2746.9	22.30	22.48	22.59
2817.1	2847.1	22.07	22.30	22.47
2917.4	2947.4	21.91	22.23	22.48
3017.6	3047.6	22.06	22.38	22.62
3117.9	3147.9	22.09	22.39	22.61
3238.2	3268.2	21.91	21.94	21.98
3338.4	3368.4	21.74	21.52	21.40
3458.7	3488.7	20.97	20.50	20.30
3559.0	3589.0	20.00	19.61	19.47
3679.3	3709.3	18.89	18.65	18.77
3779.5	3809.5	18.33	18.25	18.66
3899.8	3929.8	18.32	18.28	18.73
4000.1	4030.1	18.38	18.76	19.28

Frequency Mixer

ZX05-17H+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)				IF (OUT) (MHz)	IF VSWR @LO=1700.1MHz (:1)			
		@LO (dBm)				@LO (dBm)					@LO (dBm)			
		+14	+17	+20		+14	+17	+20	+14		+17	+20		
10.1	40.1	4.78	4.60	4.66	10.1	2.25	3.08	3.99	50.1	1.54	1.59	1.62		
110.4	140.4	1.25	1.39	1.45	110.4	1.29	1.68	2.32	90.4	1.27	1.31	1.36		
210.6	240.6	1.17	1.27	1.31	210.6	1.16	1.60	2.28	130.7	1.23	1.27	1.32		
310.9	340.9	1.13	1.20	1.26	310.9	1.12	1.60	2.28	170.9	1.16	1.24	1.32		
411.1	441.1	1.17	1.23	1.29	411.1	1.06	1.61	2.29	211.2	1.11	1.15	1.21		
511.4	541.4	1.24	1.28	1.34	511.4	1.08	1.63	2.31	251.5	1.13	1.20	1.27		
611.6	641.6	1.30	1.35	1.41	611.6	1.08	1.65	2.34	291.8	1.04	1.12	1.21		
711.9	741.9	1.35	1.38	1.43	711.9	1.10	1.68	2.37	332.0	1.06	1.09	1.17		
812.1	842.1	1.42	1.43	1.48	812.1	1.14	1.72	2.40	372.3	1.01	1.11	1.20		
912.4	942.4	1.49	1.51	1.55	912.4	1.17	1.75	2.44	412.6	1.07	1.07	1.15		
1012.6	1042.6	1.52	1.55	1.60	1012.6	1.19	1.77	2.47	452.9	1.06	1.12	1.21		
1112.9	1142.9	1.54	1.57	1.62	1112.9	1.25	1.79	2.47	493.2	1.13	1.13	1.20		
1213.1	1243.1	1.58	1.59	1.65	1213.1	1.29	1.80	2.47	533.4	1.12	1.12	1.19		
1313.4	1343.4	1.64	1.64	1.66	1313.4	1.35	1.82	2.47	573.7	1.18	1.18	1.24		
1413.6	1443.6	1.69	1.67	1.68	1413.6	1.43	1.84	2.48	614.0	1.20	1.17	1.21		
1513.9	1543.9	1.71	1.67	1.66	1513.9	1.53	1.89	2.51	654.3	1.23	1.21	1.26		
1614.1	1644.1	1.68	1.61	1.60	1614.1	1.63	1.94	2.53	694.5	1.30	1.25	1.27		
1714.4	1744.4	1.65	1.55	1.52	1714.4	1.70	1.99	2.57	734.8	1.30	1.26	1.28		
1814.6	1844.6	1.67	1.56	1.51	1814.6	1.77	2.03	2.60	775.1	1.37	1.33	1.34		
1914.9	1944.9	1.81	1.68	1.61	1914.9	1.83	2.05	2.61	815.4	1.38	1.32	1.33		
2015.1	2045.1	2.05	1.92	1.84	2015.1	1.84	2.04	2.59	855.7	1.43	1.38	1.39		
2115.4	2145.4	2.36	2.21	2.12	2115.4	1.82	2.00	2.55	895.9	1.47	1.40	1.39		
2215.6	2245.6	2.56	2.42	2.32	2215.6	1.75	1.90	2.45	936.2	1.49	1.41	1.41		
2315.9	2345.9	2.62	2.48	2.39	2315.9	1.70	1.82	2.36	976.5	1.53	1.44	1.42		
2416.1	2446.1	2.67	2.54	2.46	2416.1	1.73	1.78	2.29	1016.8	1.53	1.43	1.42		
2516.4	2546.4	2.80	2.66	2.56	2516.4	1.78	1.76	2.22	1057.0	1.62	1.52	1.49		
2616.6	2646.6	2.84	2.68	2.57	2616.6	1.81	1.72	2.13	1097.3	1.61	1.49	1.45		
2716.9	2746.9	2.87	2.72	2.57	2716.9	1.77	1.66	2.04	1137.6	1.64	1.53	1.49		
2817.1	2847.1	2.89	2.74	2.61	2817.1	1.67	1.58	1.97	1177.9	1.70	1.55	1.49		
2917.4	2947.4	2.84	2.71	2.59	2917.4	1.56	1.50	1.91	1198.0	1.65	1.51	1.46		
3017.6	3047.6	2.71	2.56	2.43	3017.6	1.44	1.43	1.88	1238.3	1.70	1.55	1.50		
3117.9	3147.9	2.65	2.44	2.27	3117.9	1.34	1.44	1.90	1258.4	1.75	1.60	1.54		
3238.2	3268.2	2.51	2.30	2.13	3238.2	1.22	1.47	1.96	1298.7	1.69	1.53	1.45		
3338.4	3368.4	2.36	2.17	1.99	3338.4	1.16	1.54	2.07	1318.9	1.71	1.54	1.47		
3458.7	3488.7	2.16	1.97	1.80	3458.7	1.20	1.70	2.29	1359.1	1.75	1.58	1.49		
3559.0	3589.0	1.99	1.82	1.67	3559.0	1.32	1.88	2.52	1379.3	1.78	1.59	1.49		
3679.3	3709.3	1.83	1.67	1.54	3679.3	1.55	2.18	2.90	1419.5	1.71	1.52	1.43		
3779.5	3809.5	1.68	1.55	1.46	3779.5	1.73	2.40	3.18	1439.7	1.75	1.56	1.47		
3899.8	3929.8	1.59	1.51	1.47	3899.8	2.01	2.71	3.52	1480.0	1.79	1.58	1.47		
4000.1	4030.1	1.58	1.54	1.54	4000.1	2.29	2.99	3.82	1500.1	1.76	1.55	1.43		

REV. X2
ZX05-17H+
100818
Page 4 of 5

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	7	10	27	21	26	41	31	38	37	52
1	-	20	+0	34	13	49	19	43	41	39	32	52
2	88	44	45	47	51	47	52	39	63	52	56	52
3	>100	67	57	85	52	66	46	62	42	68	51	64
4	>100	73	72	87	76	74	72	72	68	66	71	76
5	>100	90	73	84	77	80	74	77	72	80	73	80
6	>100	>91	>91	87	>91	88	91	90	>91	90	>91	84
7	>100	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91
8	>100	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91
9	>100	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91
10	>100	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 900.1 MHz; -1.00 dBm.
LO IN: 950.01 MHz; +17.00 dBm
IF OUT: 49.91 MHz; -8.54 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	18	21	46	42	42	53	41	56	45	66
1	-	20	+0	30	13	53	29	50	51	59	49	66
2	73	39	38	43	40	50	46	42	50	67	57	63
3	>100	49	38	51	40	50	38	54	34	59	53	56
4	>100	64	56	54	57	50	59	49	56	46	65	60
5	>100	60	53	62	48	72	45	63	43	67	41	67
6	>100	75	70	64	68	63	68	66	59	63	60	56
7	>100	71	72	78	66	70	59	64	57	62	54	62
8	>100	79	79	79	88	80	85	82	89	72	78	69
9	>100	84	94	80	85	72	79	74	73	70	70	67
10	>100	100	84	95	84	89	93	85	84	84	82	76
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 900.1 MHz; 9.00 dBm.
LO IN: 950.01 MHz; +17.00 dBm
IF OUT: 49.91 MHz; 1.25 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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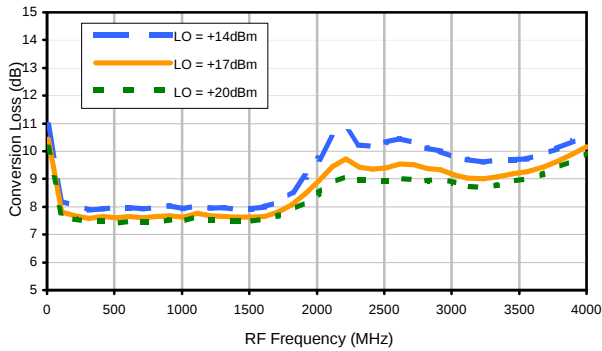
The Design Engineers Search Engine finds the model you need, instantly • For detailed performance specs & shopping online see



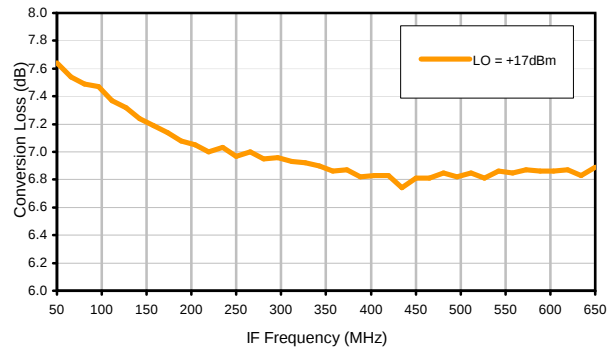
REV. X2
ZX05-17H+
100818
Page 5 of 5

Typical Performance Curves

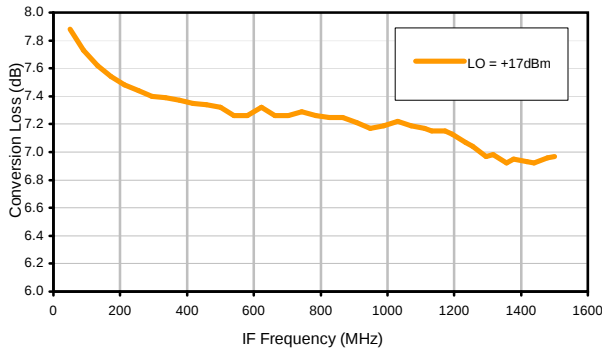
Conversion Loss @ IF=50MHz



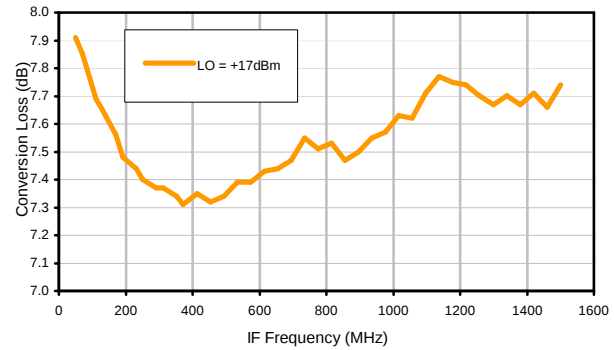
Conversion Loss vs. IF @ RF=850.1MHz



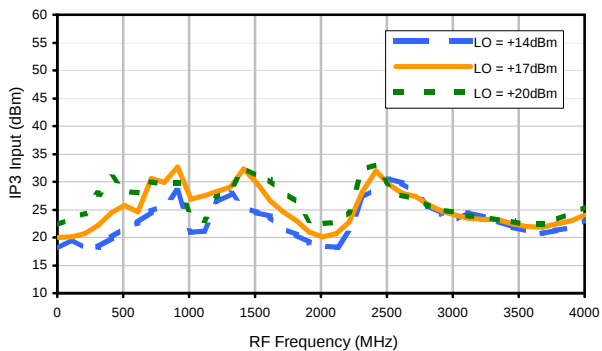
Conversion Loss vs. IF @ RF=100.1MHz



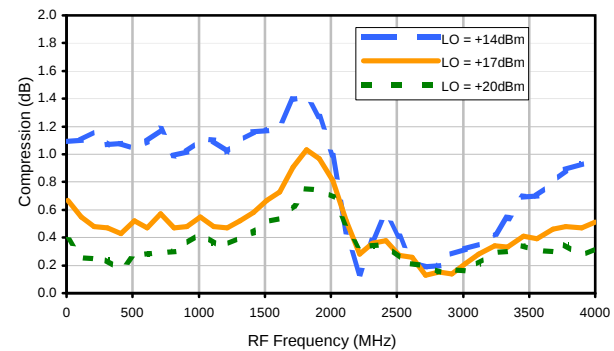
Conversion Loss vs. IF @ RF=1700.1MHz



IP3 Input

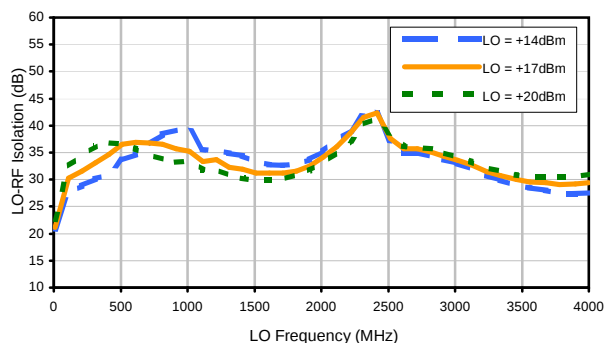


Compression @ RF IN=+14dBm

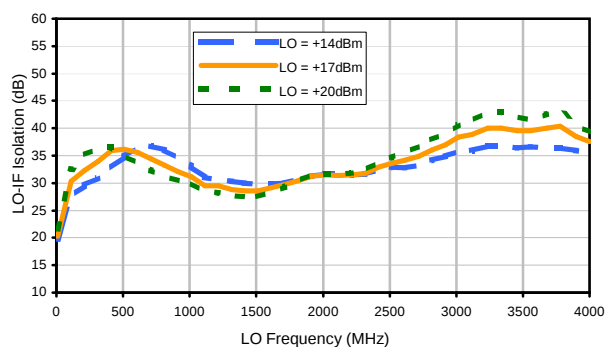


Typical Performance Curves

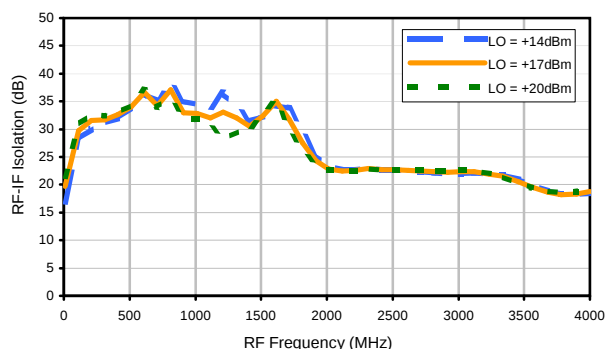
LO-RF Isolation



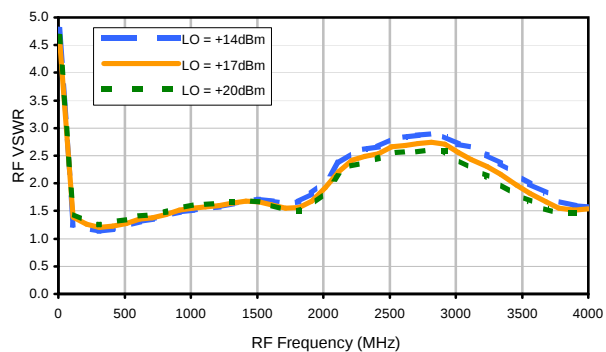
LO-IF Isolation



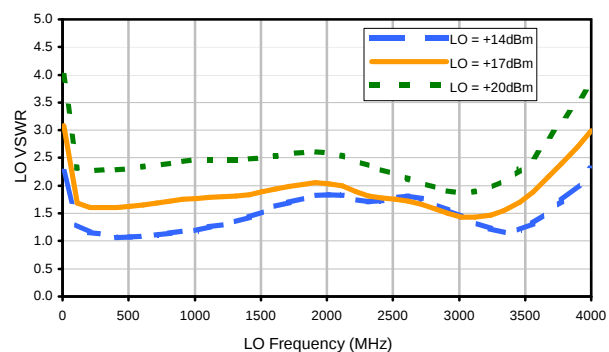
RF-IF Isolation



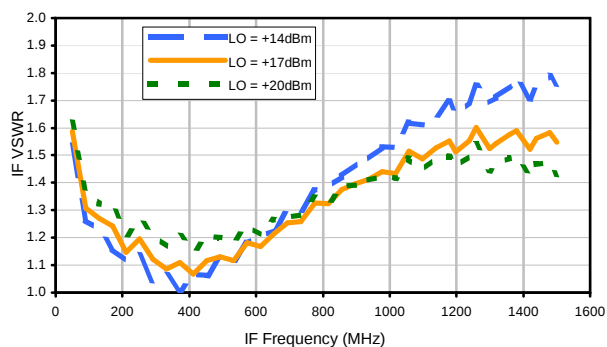
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	7	10	27	21	26	41	31	38	37	52
1	-	20	+0	34	13	49	19	43	41	39	32	52
2	88	44	45	47	51	47	52	39	63	52	56	52
3	>100	67	57	85	52	66	46	62	42	68	51	64
4	>100	73	72	87	76	74	72	72	68	66	71	76
5	>100	90	73	84	77	80	74	77	72	80	73	80
6	>100	>91	>91	87	>91	88	91	90	>91	90	>91	84
7	>100	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91
8	>100	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91
9	>100	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91
10	>100	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91	>91
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 900.1 MHz; -1.00 dBm.
LO IN: 950.01 MHz; +17.00 dBm
IF OUT: 49.91 MHz; -8.54 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	18	21	46	42	42	53	41	56	45	66
1	-	20	+0	30	13	53	29	50	51	59	49	66
2	73	39	38	43	40	50	46	42	50	67	57	63
3	>100	49	38	51	40	50	38	54	34	59	53	56
4	>100	64	56	54	57	50	59	49	56	46	65	60
5	>100	60	53	62	48	72	45	63	43	67	41	67
6	>100	75	70	64	68	63	68	66	59	63	60	56
7	>100	71	72	78	66	70	59	64	57	62	54	62
8	>100	79	79	79	88	80	85	82	89	72	78	69
9	>100	84	94	80	85	72	79	74	73	70	70	67
10	>100	100	84	95	84	89	93	85	84	84	82	76
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 900.1 MHz; 9.00 dBm.
LO IN: 950.01 MHz; +17.00 dBm
IF OUT: 49.91 MHz; 1.25 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
ZX05-17H+
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