

Coaxial Frequency Mixer

Level 7 (LO Power +7 dBm) 0.5 to 500 MHz

ZX05-1-S+

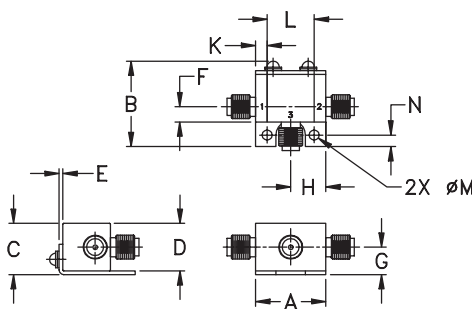
Maximum Ratings

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)

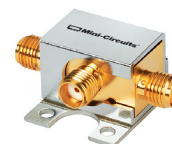
A	B	C	D	E	F	G
.74	.90	.54	.50	.04	.16	.29
18.80	22.86	13.72	12.70	1.02	4.06	7.37
H	J	K	L	M	N	wt
.37	--	.122	.496	.106	.122	grams
9.40	--	3.10	12.60	2.69	3.10	20.0

Features

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

Applications

- cellular
- PCS
- instrumentation
- satellite communication



Generic photo used for illustration purposes only

CASE STYLE: FL905

Connectors	Model
SMA	ZX05-1-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.	Max.	L		M		U		L		M		U		
		$\overline{X}$	σ			Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	
0.5-500	DC-500	5.0	0.1	6.5	7.8	70	50	55	35	45	30	65	45	40	25	30	20	15

1 dB COMP.: +1 dBm typ.

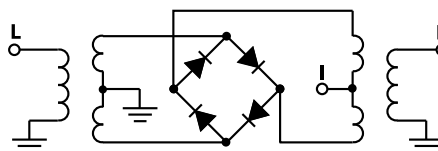
L = low range [f_L to 10 f_L]
m = mid range [2 f_L to f_U/2]

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 +7dBm	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm
0.50	30.50	5.43	87.25	65.36	1.40	2.73
10.10	40.10	4.75	78.62	65.76	1.14	2.60
50.10	80.10	4.82	64.80	62.59	1.11	2.60
111.71	81.71	4.83	58.65	49.84	1.08	2.60
125.58	95.58	4.82	58.02	48.48	1.07	2.60
153.33	123.33	4.89	56.73	46.06	1.05	2.64
167.20	137.20	4.95	56.61	45.36	1.04	2.64
208.81	178.81	4.96	52.62	43.32	1.02	2.63
236.55	206.55	5.02	54.29	41.47	1.02	2.72
250.10	220.10	5.04	54.34	40.76	1.02	2.70
278.17	248.17	5.07	54.24	41.16	1.04	2.65
305.91	275.91	5.11	50.00	39.81	1.08	2.76
319.78	289.78	5.18	48.59	38.79	1.09	2.81
347.52	317.52	5.27	45.62	37.96	1.09	2.71
375.26	345.26	5.32	46.14	35.84	1.10	2.63
403.00	373.00	5.34	45.16	33.19	1.12	2.80
430.75	400.75	5.28	44.30	32.33	1.12	2.84
444.62	414.62	5.27	43.71	31.87	1.11	2.78
472.36	442.36	5.34	45.07	29.71	1.15	2.88
500.10	470.10	5.54	45.02	29.13	1.27	3.13

Electrical Schematic



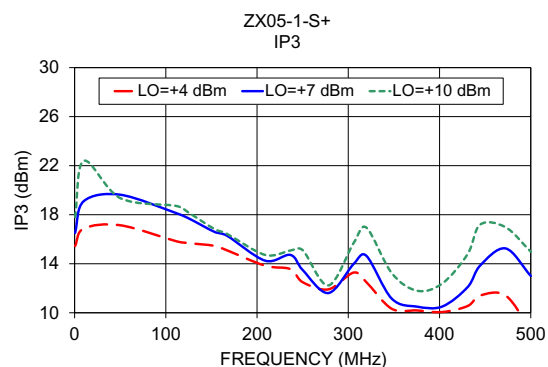
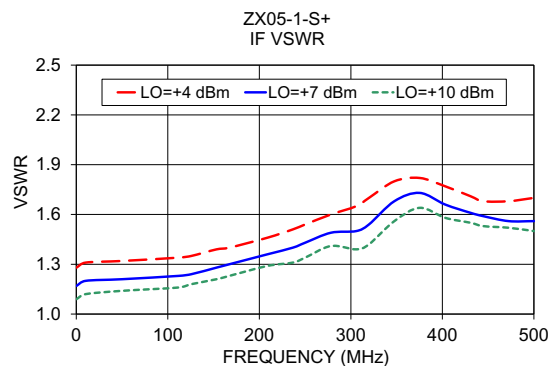
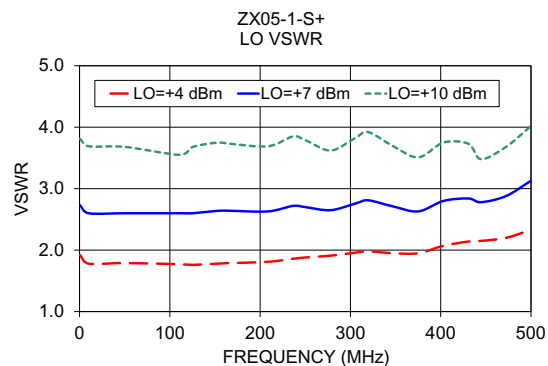
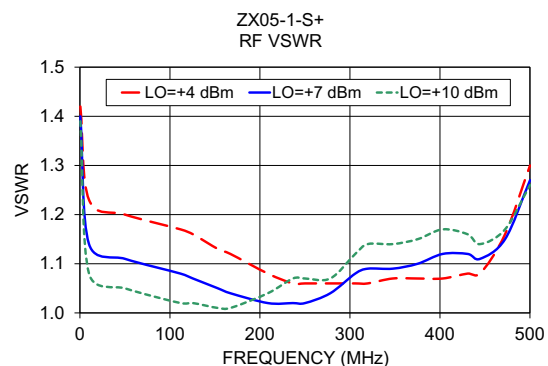
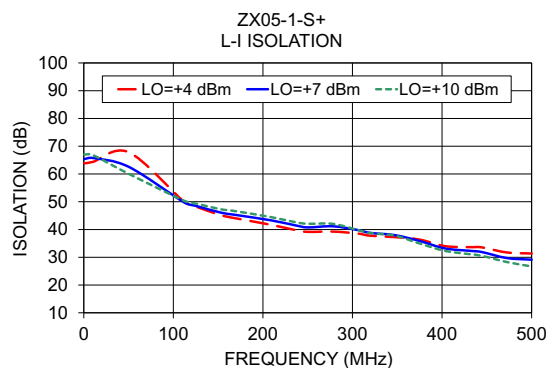
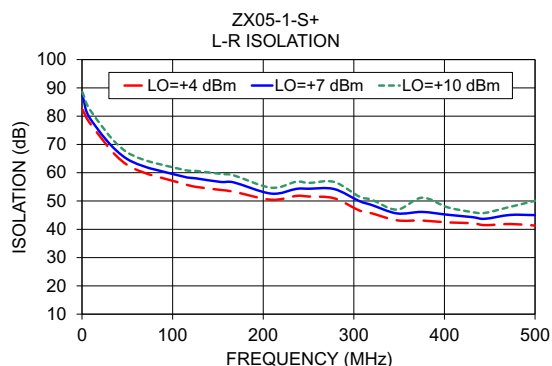
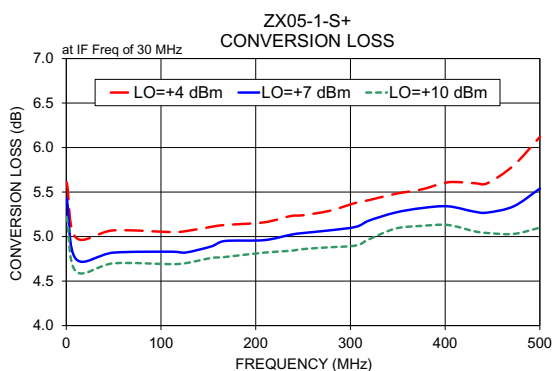
Notes

- 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.
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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+4	+7	+10
0.5	30.5	5.85	5.68	5.52
0.8	30.8	5.71	5.55	5.38
1.0	31.0	5.69	5.35	5.18
5.0	35.0	5.22	5.06	4.89
10.1	40.1	5.12	4.95	4.79
30.1	60.1	5.18	4.85	4.79
50.1	80.1	5.21	4.91	4.84
70.1	100.1	5.17	4.99	4.87
90.1	120.1	5.23	5.01	4.88
110.1	140.1	5.26	5.02	4.89
130.1	160.1	5.25	5.05	4.93
150.1	180.1	5.32	5.11	4.97
170.1	200.1	5.35	5.13	4.99
190.1	220.1	5.36	5.13	5.00
210.1	240.1	5.36	5.14	5.02
230.1	260.1	5.43	5.19	5.03
250.1	280.1	5.53	5.23	5.04
290.1	320.1	5.61	5.38	5.20
310.1	340.1	5.62	5.41	5.26
330.1	360.1	5.65	5.41	5.25
350.1	380.1	5.66	5.38	5.21
370.1	400.1	5.67	5.37	5.21
390.1	420.1	5.76	5.41	5.27
410.1	440.1	5.97	5.58	5.38
450.1	480.1	6.36	5.92	5.56
470.1	500.1	6.47	6.05	5.64
510.1	540.1	6.82	6.37	5.96
530.1	560.1	6.95	6.49	6.06
570.1	600.1	7.04	6.45	5.98
590.1	620.1	7.01	6.43	5.95
650.1	680.1	7.01	6.47	6.14
690.1	720.1	7.23	6.76	6.51
750.1	780.1	7.61	7.21	7.00
770.1	800.1	7.80	7.43	7.26
810.1	840.1	8.29	8.00	7.90
830.1	860.1	8.61	8.32	8.24
870.1	900.1	9.42	9.10	8.99
890.1	920.1	9.86	9.48	9.35
930.1	960.1	10.71	10.25	10.07
950.1	980.1	11.18	10.70	10.51

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	16.73	26.25	26.32
30.1	60.1	21.76	23.53	22.13
50.1	80.1	21.16	18.27	26.58
70.1	100.1	21.80	21.99	20.94
90.1	120.1	23.95	19.81	18.98
110.1	140.1	18.24	18.96	17.77
130.1	160.1	20.30	17.78	16.74
150.1	180.1	26.34	16.58	13.59
170.1	200.1	23.92	17.31	15.80
190.1	220.1	14.04	13.07	14.55
210.1	240.1	13.29	11.75	12.26
230.1	260.1	15.78	13.53	15.23
250.1	280.1	14.16	14.41	18.30
270.1	300.1	12.70	12.80	17.27
290.1	320.1	12.67	12.69	14.04
310.1	340.1	12.68	12.46	13.70
330.1	360.1	12.88	12.68	14.37
350.1	380.1	13.41	12.14	14.28
370.1	400.1	13.68	14.71	15.83
390.1	420.1	12.91	14.81	16.86
410.1	440.1	9.47	14.16	17.89
430.1	460.1	6.29	9.96	16.09
450.1	480.1	5.00	7.35	12.63
470.1	500.1	4.08	5.93	9.15
510.1	540.1	4.11	5.19	6.96
530.1	560.1	4.02	5.10	6.89
570.1	600.1	5.65	7.76	12.50
590.1	620.1	7.01	9.84	19.98
630.1	660.1	9.81	15.42	13.56
650.1	680.1	10.47	13.29	14.57
690.1	720.1	10.54	12.28	13.62
710.1	740.1	10.17	11.76	12.15
750.1	780.1	10.12	10.44	10.90
770.1	800.1	9.91	9.71	10.12
810.1	840.1	9.47	9.66	10.46
830.1	860.1	9.38	9.80	12.02
870.1	900.1	10.57	13.11	14.50
890.1	920.1	10.15	13.15	14.50
930.1	960.1	10.32	13.90	14.16
950.1	980.1	10.84	14.37	15.76

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	1.36	1.06	0.83
30.1	60.1	1.38	1.05	0.82
50.1	80.1	1.05	1.04	0.83
70.1	100.1	1.37	0.94	0.77
90.1	120.1	1.26	0.92	0.75
110.1	140.1	1.20	0.91	0.69
130.1	160.1	1.22	0.91	0.73
150.1	180.1	1.19	0.93	0.71
170.1	200.1	1.14	0.88	0.70
190.1	220.1	1.10	0.85	0.71
210.1	240.1	1.11	0.87	0.69
230.1	260.1	1.13	0.88	0.72
250.1	280.1	1.09	0.88	0.71
270.1	300.1	1.06	0.85	0.71
290.1	320.1	1.10	0.86	0.71
310.1	340.1	1.16	0.89	0.75
330.1	360.1	1.26	1.00	0.83
350.1	380.1	1.38	1.08	0.88
370.1	400.1	1.52	1.15	0.93
390.1	420.1	1.63	1.25	0.98
410.1	440.1	1.72	1.37	1.09
430.1	460.1	1.85	1.53	1.26
450.1	480.1	1.86	1.57	1.33
470.1	500.1	1.89	1.63	1.46
510.1	540.1	1.97	1.75	1.62
530.1	560.1	1.95	1.80	1.66
570.1	600.1	1.97	1.83	1.64
590.1	620.1	1.95	1.77	1.60
630.1	660.1	1.98	1.63	1.48
650.1	680.1	1.91	1.59	1.39
690.1	720.1	1.84	1.49	1.27
710.1	740.1	1.71	1.42	1.22
750.1	780.1	1.60	1.32	1.15
770.1	800.1	1.51	1.22	1.03
810.1	840.1	1.40	1.03	0.83
830.1	860.1	1.34	0.93	0.74
870.1	900.1	1.27	0.85	0.68
890.1	920.1	1.27	0.84	0.68
930.1	960.1	1.28	0.83	0.72
950.1	980.1	1.31	0.84	0.74

Frequency Mixer

ZX05-1+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=250.1MHz (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)=500.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
240.0	10.1	5.29	10.0	20.1	4.84	490.0	10.1	5.96
234.1	16.0	5.28	22.3	32.4	4.85	477.7	22.4	5.89
228.2	21.9	5.19	34.6	44.7	4.86	465.4	34.7	5.84
222.3	27.8	5.19	46.9	57.0	4.87	453.1	47.0	5.85
216.4	33.7	5.17	59.2	69.3	4.80	440.8	59.3	5.90
210.5	39.6	5.14	71.5	81.6	4.78	428.5	71.6	5.85
204.6	45.5	5.16	83.8	93.9	4.79	416.2	83.9	5.84
198.7	51.4	5.10	96.2	106.3	4.80	403.8	96.3	5.81
192.8	57.3	5.12	108.5	118.6	4.79	391.5	108.6	5.79
186.9	63.2	5.09	120.8	130.9	4.79	379.2	120.9	5.81
181.0	69.1	5.11	133.1	143.2	4.81	366.9	133.2	5.85
175.1	75.0	5.13	145.4	155.5	4.87	354.6	145.5	5.82
169.2	80.9	5.12	157.7	167.8	4.89	342.3	157.8	5.82
163.3	86.8	5.13	170.0	180.1	4.92	330.0	170.1	5.84
157.4	92.7	5.14	182.3	192.4	4.91	317.7	182.4	5.86
151.5	98.6	5.12	194.6	204.7	4.92	305.4	194.7	5.87
145.6	104.5	5.13	206.9	217.0	4.94	293.1	207.0	5.84
139.7	110.4	5.13	219.2	229.3	4.96	280.8	219.3	5.83
133.8	116.3	5.12	231.5	241.6	4.97	268.5	231.6	5.87
127.9	122.2	5.09	243.8	253.9	4.95	256.2	243.9	5.89
122.1	128.0	5.09	256.2	266.3	4.98	243.8	256.3	5.91
116.2	133.9	5.11	268.5	278.6	4.99	231.5	268.6	5.90
110.3	139.8	5.11	280.8	290.9	5.03	219.2	280.9	5.86
104.4	145.7	5.12	293.1	303.2	5.11	206.9	293.2	5.89
98.5	151.6	5.12	305.4	315.5	5.13	194.6	305.5	5.87
92.6	157.5	5.12	317.7	327.8	5.20	182.3	317.8	5.85
86.7	163.4	5.12	330.0	340.1	5.19	170.0	330.1	5.87
80.8	169.3	5.14	342.3	352.4	5.16	157.7	342.4	5.86
74.9	175.2	5.13	354.6	364.7	5.18	145.4	354.7	5.85
69.0	181.1	5.14	366.9	377.0	5.15	133.1	367.0	5.81
63.1	187.0	5.12	379.2	389.3	5.08	120.8	379.3	5.74
57.2	192.9	5.12	391.5	401.6	5.03	108.5	391.6	5.69
51.3	198.8	5.13	403.8	413.9	5.00	96.2	403.9	5.68
45.4	204.7	5.14	416.2	426.3	5.01	83.8	416.3	5.64
39.5	210.6	5.16	428.5	438.6	5.06	71.5	428.6	5.65
33.6	216.5	5.16	440.8	450.9	5.13	59.2	440.9	5.71
27.7	222.4	5.16	453.1	463.2	5.16	46.9	453.2	5.79
21.8	228.3	5.18	465.4	475.5	5.17	34.6	465.5	5.91
15.9	234.2	5.19	477.7	487.8	5.17	22.3	477.8	6.01
10.0	240.1	5.24	490.0	500.1	5.18	10.0	490.1	6.18

REV. X2

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

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+4	+7	+10	+4	+7	+10
0.5	65.51	67.49	69.34	59.66	56.67	55.50
0.8	65.50	67.50	69.00	59.84	56.83	55.34
1.0	65.66	67.51	69.17	59.50	56.67	55.34
5.0	64.33	66.17	67.84	58.16	55.50	54.00
10.1	63.17	65.17	66.84	57.00	54.17	52.84
30.1	61.42	63.14	64.71	65.38	64.59	62.11
50.1	58.65	60.39	62.34	59.34	59.76	57.83
70.1	56.11	57.91	59.58	56.65	55.35	54.10
90.1	53.98	56.09	58.02	53.97	52.69	51.87
110.1	52.88	55.03	56.90	50.91	50.03	50.24
130.1	52.09	54.50	56.58	48.87	48.71	48.77
150.1	50.80	52.93	54.71	47.19	47.41	47.53
190.1	49.41	51.80	53.79	44.78	45.30	45.95
210.1	48.36	50.38	52.36	43.51	44.10	44.68
230.1	48.29	50.36	52.21	42.87	43.57	43.62
250.1	47.82	49.68	51.30	42.46	43.68	43.63
270.1	48.84	51.24	53.31	41.45	42.36	42.46
290.1	48.69	51.34	53.26	41.23	41.79	41.55
310.1	47.04	49.81	52.26	41.01	40.88	39.93
350.1	44.50	46.74	48.75	38.80	38.74	38.02
370.1	42.38	44.30	46.04	38.62	37.60	36.30
390.1	41.57	43.82	46.36	37.38	36.18	34.66
410.1	41.10	43.35	45.28	35.79	33.84	32.49
450.1	39.95	42.32	44.15	35.42	32.30	30.45
470.1	39.60	41.70	43.46	35.74	31.87	29.42
510.1	40.78	42.73	43.99	35.23	31.77	28.27
530.1	41.49	43.75	44.90	34.92	31.75	28.55
570.1	41.22	42.71	42.14	34.41	30.83	27.54
590.1	39.71	39.77	39.06	33.70	29.53	26.11
650.1	38.21	37.15	36.10	31.60	26.22	23.32
690.1	37.60	36.10	34.81	28.18	24.05	21.46
710.1	37.96	35.31	33.26	26.46	22.79	20.47
750.1	37.68	33.37	30.96	23.63	20.79	18.90
770.1	36.35	32.11	29.59	22.14	19.86	17.97
810.1	32.57	28.90	26.57	19.87	18.28	16.62
830.1	31.16	27.56	25.35	18.99	17.63	16.14
870.1	27.76	25.07	23.04	17.44	16.66	15.34
890.1	25.98	23.66	21.76	16.55	16.15	14.92
930.1	23.96	22.03	20.33	15.35	15.39	14.49
950.1	22.97	21.12	19.60	14.81	15.00	14.25

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	42.08	42.42	45.59
30.1	60.1	35.36	34.69	35.75
50.1	80.1	31.34	30.85	31.08
70.1	100.1	28.45	28.69	28.81
90.1	120.1	26.75	26.93	27.14
110.1	140.1	25.48	25.70	25.78
130.1	160.1	24.46	24.60	24.70
150.1	180.1	23.62	23.78	24.01
170.1	200.1	23.33	23.60	23.73
190.1	220.1	22.98	23.39	23.57
210.1	240.1	22.65	23.00	23.31
230.1	260.1	22.61	23.05	23.43
250.1	280.1	22.68	23.12	23.48
270.1	300.1	22.90	23.21	23.61
290.1	320.1	23.58	23.89	24.22
310.1	340.1	24.11	24.66	25.09
330.1	360.1	24.61	25.46	26.32
350.1	380.1	24.02	25.13	26.06
370.1	400.1	23.26	24.28	25.00
390.1	420.1	22.01	22.76	23.19
410.1	440.1	20.46	20.79	21.01
430.1	460.1	19.51	19.67	19.68
450.1	480.1	18.73	18.81	18.72
470.1	500.1	18.26	18.29	18.25
510.1	540.1	18.10	18.19	18.45
530.1	560.1	18.24	18.42	18.81
570.1	600.1	18.87	19.06	19.24
590.1	620.1	18.80	18.69	18.53
630.1	660.1	17.89	17.35	16.91
650.1	680.1	17.17	16.71	16.47
690.1	720.1	15.89	15.63	15.38
710.1	740.1	15.29	14.98	14.69
750.1	780.1	14.03	13.69	13.26
770.1	800.1	13.19	12.87	12.41
810.1	840.1	11.59	11.26	10.75
830.1	860.1	10.83	10.44	9.94
870.1	900.1	9.46	8.95	8.48
890.1	920.1	8.78	8.34	7.83
930.1	960.1	7.76	7.29	6.89
950.1	980.1	7.26	6.79	6.44

Frequency Mixer

ZX05-1+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=500.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
0.5	30.5	1.50	1.46	1.45	0.5	1.69	2.51	3.46	0.1	2.17	1.74	1.49
0.8	30.8	1.38	1.32	1.30	0.8	1.67	2.56	3.57	0.3	2.13	1.74	1.49
1.0	31.0	1.34	1.29	1.26	1.0	1.71	2.56	3.57	0.5	2.20	1.78	1.52
5.0	35.0	1.29	1.19	1.12	5.0	1.67	2.51	3.46	0.8	2.28	1.85	1.55
10.1	40.1	1.29	1.18	1.11	10.1	1.69	2.51	3.46	1.0	2.28	1.85	1.55
30.1	60.1	1.23	1.15	1.06	30.1	1.77	2.64	3.77	5.0	2.24	1.81	1.54
50.1	80.1	1.23	1.13	1.07	50.1	1.75	2.60	3.68	10.0	2.33	1.95	1.75
70.1	100.1	1.19	1.11	1.06	70.1	1.67	2.41	3.37	22.6	2.28	1.97	1.69
90.1	120.1	1.20	1.10	1.05	90.1	1.66	2.37	3.30	35.1	2.19	1.83	1.57
110.1	140.1	1.17	1.08	1.03	110.1	1.69	2.46	3.47	47.7	2.17	1.83	1.55
150.1	180.1	1.17	1.09	1.04	150.1	1.75	2.54	3.52	60.3	2.15	1.82	1.52
170.1	200.1	1.15	1.06	1.03	170.1	1.72	2.46	3.39	85.4	2.19	1.87	1.57
190.1	220.1	1.13	1.06	1.04	190.1	1.73	2.47	3.40	97.9	2.18	1.86	1.58
210.1	240.1	1.12	1.04	1.03	210.1	1.81	2.58	3.56	110.5	2.19	1.87	1.59
250.1	280.1	1.11	1.05	1.07	250.1	1.85	2.62	3.58	123.1	2.19	1.89	1.60
270.1	300.1	1.12	1.06	1.08	270.1	1.87	2.60	3.52	135.6	2.19	1.88	1.59
290.1	320.1	1.11	1.08	1.10	290.1	1.90	2.66	3.60	148.2	2.14	1.85	1.58
310.1	340.1	1.09	1.09	1.12	310.1	1.97	2.77	3.76	173.3	2.12	1.83	1.59
350.1	380.1	1.09	1.15	1.20	350.1	2.02	2.78	3.74	185.9	2.13	1.84	1.60
370.1	400.1	1.10	1.17	1.22	370.1	2.03	2.77	3.70	198.5	2.15	1.87	1.63
390.1	420.1	1.10	1.17	1.21	390.1	2.10	2.84	3.79	211.0	2.15	1.88	1.64
410.1	440.1	1.09	1.13	1.18	410.1	2.21	2.96	3.94	223.6	2.15	1.88	1.65
450.1	480.1	1.17	1.12	1.14	450.1	2.35	3.11	4.04	236.2	2.13	1.87	1.65
470.1	500.1	1.23	1.17	1.17	470.1	2.40	3.18	4.12	248.7	2.13	1.87	1.65
510.1	540.1	1.42	1.37	1.33	510.1	2.54	3.39	4.40	273.8	2.15	1.88	1.67
530.1	560.1	1.54	1.48	1.43	530.1	2.57	3.40	4.41	286.4	2.10	1.86	1.66
570.1	600.1	1.79	1.71	1.66	570.1	2.61	3.42	4.41	299.0	2.06	1.83	1.64
590.1	620.1	1.89	1.83	1.78	590.1	2.66	3.48	4.47	311.5	2.05	1.81	1.62
630.1	660.1	2.16	2.10	2.07	630.1	2.71	3.47	4.42	324.1	2.05	1.82	1.64
650.1	680.1	2.32	2.26	2.22	650.1	2.71	3.45	4.39	336.7	2.04	1.83	1.66
690.1	720.1	2.65	2.60	2.55	690.1	2.80	3.56	4.53	349.2	2.05	1.83	1.67
710.1	740.1	2.80	2.73	2.68	710.1	2.88	3.62	4.57	374.4	2.03	1.82	1.66
750.1	780.1	2.96	2.88	2.81	750.1	3.07	3.74	4.63	386.9	2.01	1.79	1.65
770.1	800.1	3.04	2.94	2.86	770.1	3.21	3.86	4.73	399.5	2.00	1.79	1.63
810.1	840.1	3.18	3.06	2.96	810.1	3.54	4.09	4.87	424.6	1.96	1.78	1.65
830.1	860.1	3.25	3.11	3.00	830.1	3.71	4.18	4.89	437.2	1.96	1.76	1.64
870.1	900.1	3.33	3.15	3.03	870.1	4.06	4.41	5.00	449.7	1.98	1.78	1.64
890.1	920.1	3.35	3.15	3.02	890.1	4.21	4.50	5.03	474.9	1.99	1.80	1.67
930.1	960.1	3.35	3.12	3.00	930.1	4.41	4.61	5.04	487.4	2.00	1.79	1.65
950.1	980.1	3.31	3.09	2.96	950.1	4.43	4.63	5.03	500.0	2.18	2.08	2.06

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	16	37	12	35	12	46	19	40	33	53
1	-	18	+0	25	11	38	22	37	36	49	46	44
2	106	73	51	79	52	83	50	65	50	66	53	80
3	116	72	63	74	62	77	61	78	81	80	73	84
4	109	95	98	96	87	89	86	105	91	102	91	99
5	112	110	95	92	86	86	88	101	87	102	98	103
6	133	98	98	104	98	90	94	86	100	101	102	96
7	121	96	102	104	100	102	99	83	90	98	100	96
8	115	99	99	102	102	93	106	114	78	99	100	102
9	120	114	107	102	100	101	94	101	92	66	107	93
10	113	105	105	104	104	110	97	93	95	89	81	88
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; -14.00 dBm.
LO IN: 280.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -19.35 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	24	51	23	46	24	55	31	52	49	65
1	-	19	+0	27	12	41	24	43	38	54	55	57
2	102	63	43	71	45	62	44	57	44	61	49	66
3	107	45	42	47	44	48	38	50	47	54	54	69
4	111	76	67	72	64	73	64	77	59	69	58	70
5	119	67	64	59	52	66	51	65	51	66	66	73
6	112	89	84	107	81	91	80	94	82	78	80	82
7	110	92	83	85	73	70	71	69	68	69	63	71
8	113	94	109	95	95	94	89	88	83	88	83	87
9	111	86	107	102	88	90	75	82	77	70	76	92
10	110	101	104	102	101	104	96	97	93	95	83	96
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

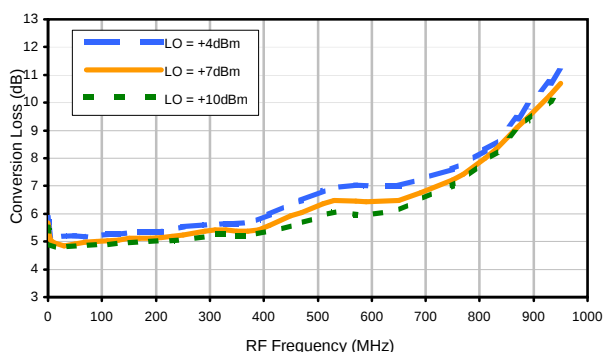
Test conditions: RF IN: 250.1 MHz; -4.00 dBm.
LO IN: 280.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -9.37 dBm

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

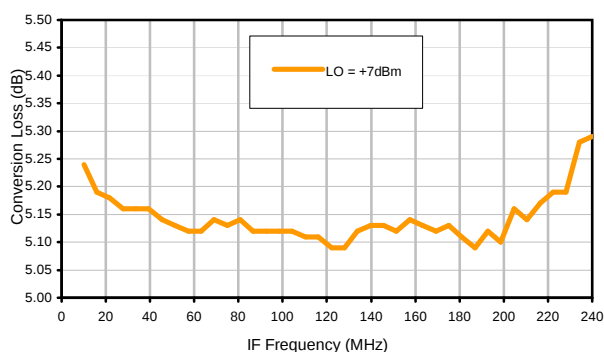
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Typical Performance Curves

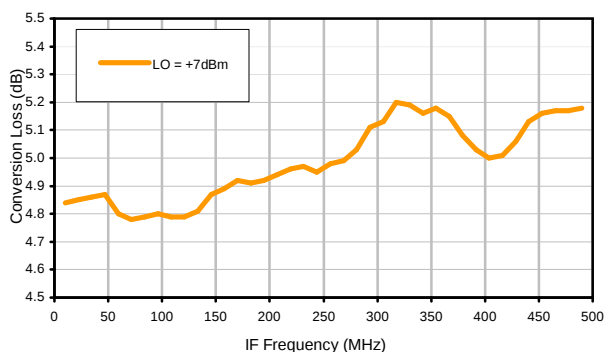
Conversion Loss @ IF=30MHz



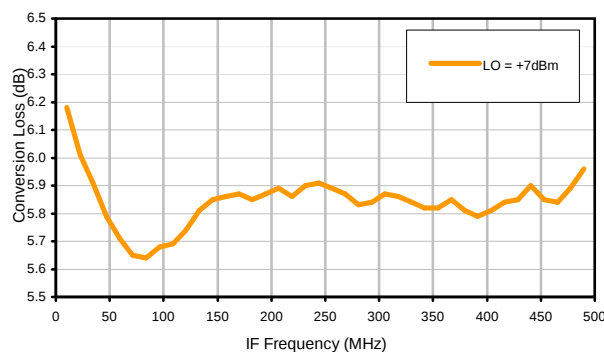
Conversion Loss vs. IF @ RF=250.1MHz



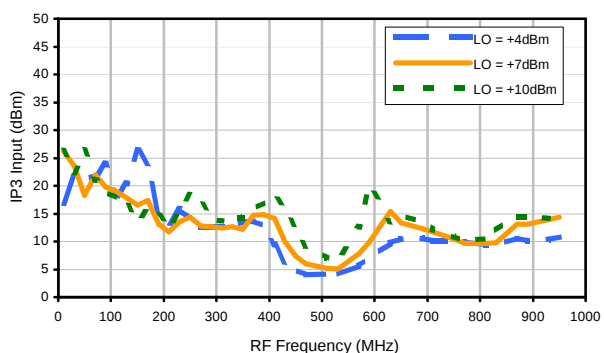
Conversion Loss vs. IF @ RF=10.1MHz



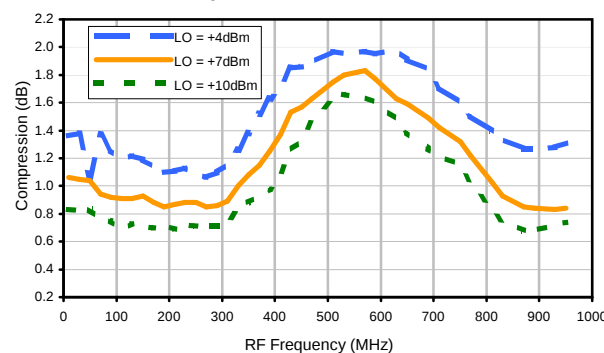
Conversion Loss vs. IF @ RF=500.1MHz



IP3 Input

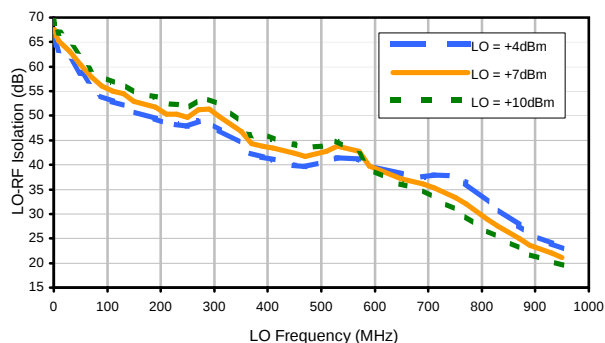


Compression @ RF IN=+1dBm

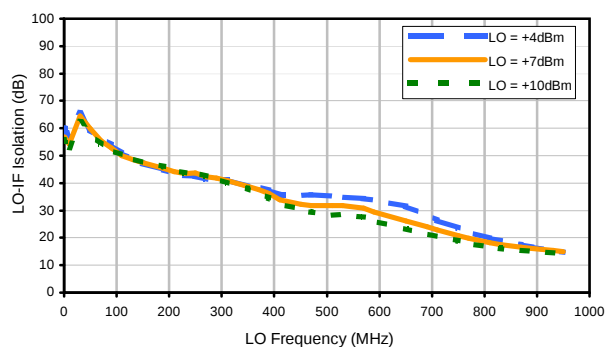


Typical Performance Curves

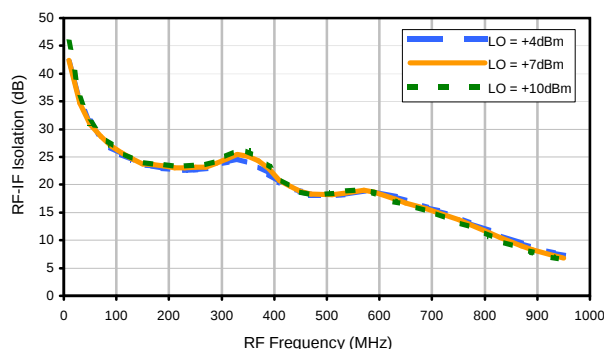
LO-RF Isolation



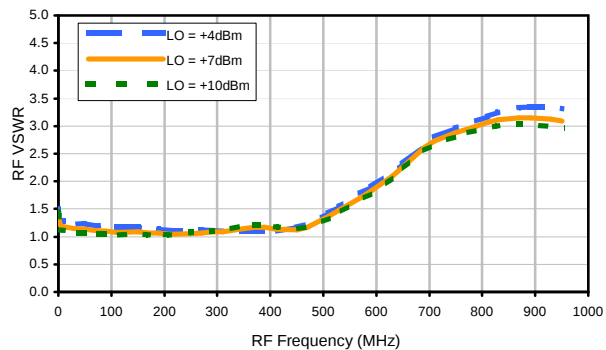
LO-IF Isolation



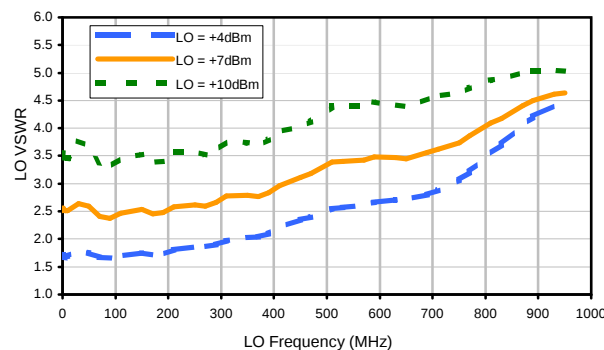
RF-IF Isolation



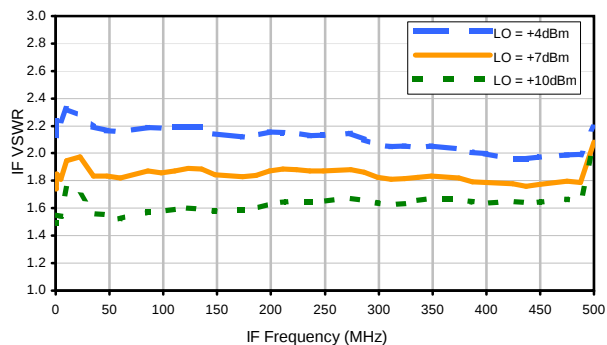
RF VSWR



LO VSWR



IF VSWR



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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	16	37	12	35	12	46	19	40	33	53
1	-	18	+0	25	11	38	22	37	36	49	46	44
2	106	73	51	79	52	83	50	65	50	66	53	80
3	116	72	63	74	62	77	61	78	81	80	73	84
4	109	95	98	96	87	89	86	105	91	102	91	99
5	112	110	95	92	86	86	88	101	87	102	98	103
6	133	98	98	104	98	90	94	86	100	101	102	96
7	121	96	102	104	100	102	99	83	90	98	100	96
8	115	99	99	102	102	93	106	114	78	99	100	102
9	120	114	107	102	100	101	94	101	92	66	107	93
10	113	105	105	104	104	110	97	93	95	89	81	88
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; -14.00 dBm.
LO IN: 280.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -19.35 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	24	51	23	46	24	55	31	52	49	65
1	-	19	+0	27	12	41	24	43	38	54	55	57
2	102	63	43	71	45	62	44	57	44	61	49	66
3	107	45	42	47	44	48	38	50	47	54	54	69
4	111	76	67	72	64	73	64	77	59	69	58	70
5	119	67	64	59	52	66	51	65	51	66	66	73
6	112	89	84	107	81	91	80	94	82	78	80	82
7	110	92	83	85	73	70	71	69	68	69	63	71
8	113	94	109	95	95	94	89	88	83	88	83	87
9	111	86	107	102	88	90	75	82	77	70	76	92
10	110	101	104	102	101	104	96	97	93	95	83	96
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; -4.00 dBm.
LO IN: 280.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -9.37 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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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