

Coaxial Frequency Mixer

Level 7 (LO Power +7 dBm) 5 to 1000 MHz

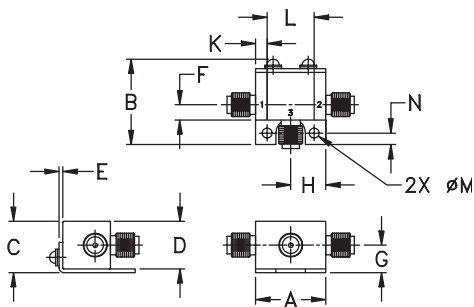
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA
Permanent damage may occur if any of these limits are exceeded.	

Coaxial Connections

LO	1
RF	2
IF	3

Outline Drawing



Outline Dimensions (inch/mm)

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

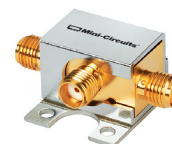
Features

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

Applications

- cellular
- PCS
- instrumentation
- satellite communication

ZX05-2-S+



Generic photo used for illustration purposes only

CASE STYLE: FL905

Connectors	Model
SMA	ZX05-2-S+

+RoHS Compliant

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

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

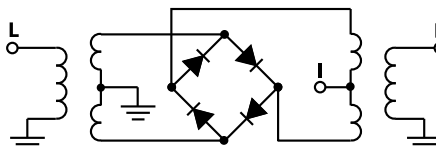
FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)						LO-IF ISOLATION (dB)						IP3 at center band (dBm)
LO/RF	IF	Mid-Band		Total Range	Max.	L	M	U				L	M	U				
		$\overline{X}$	σ															
		f_L - f_U							Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	
5-1000	DC-1000	6.67	0.26	8.0	9.5	65	50	47	25	35	22	62	35	45	25	32	20	20

1 dB COMP.: +1 dBm typ.

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
5.10	35.10	7.35	79.73	72.80	1.70	2.96
35.10	65.10	6.68	65.41	57.58	1.34	2.85
75.10	45.10	6.67	58.51	51.10	1.33	2.81
100.10	70.10	6.68	55.55	48.57	1.33	2.77
145.43	115.43	6.59	52.55	46.15	1.36	2.85
196.10	166.10	6.61	49.74	43.87	1.37	2.83
246.77	216.77	6.58	47.83	42.51	1.40	2.89
297.43	267.43	6.57	45.98	40.86	1.41	2.87
348.10	318.10	6.55	44.72	39.74	1.43	2.90
398.77	368.77	6.49	43.55	38.33	1.45	2.97
449.43	419.43	6.47	42.18	37.67	1.48	2.86
500.10	470.10	6.57	41.33	35.99	1.47	3.08
554.39	524.39	6.50	40.85	34.37	1.50	2.94
622.96	592.96	6.47	40.13	33.54	1.54	2.96
691.53	661.53	6.54	38.92	32.56	1.58	3.07
760.10	730.10	6.57	37.34	30.86	1.57	3.01
828.67	798.67	6.66	36.40	29.95	1.53	2.86
897.24	867.24	6.74	36.20	29.79	1.48	2.80
965.81	935.81	6.84	35.76	29.08	1.46	2.93
1000.10	970.10	6.92	35.50	28.61	1.47	2.79

Electrical Schematic



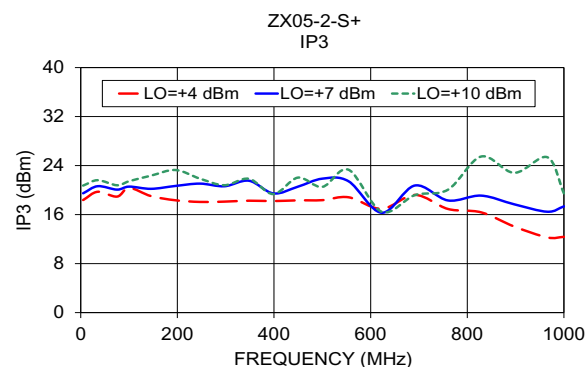
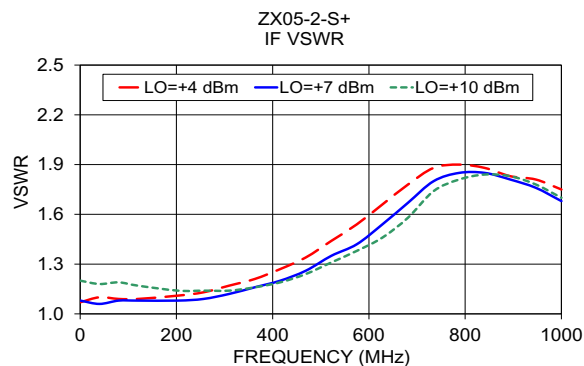
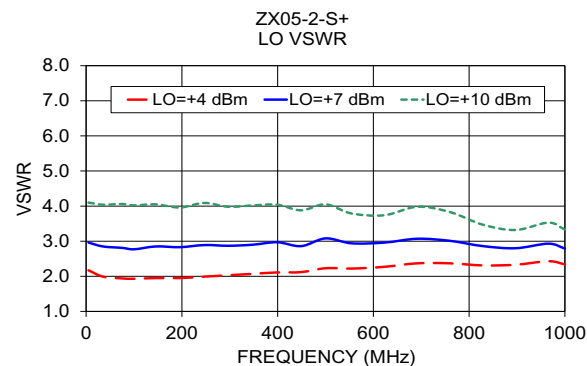
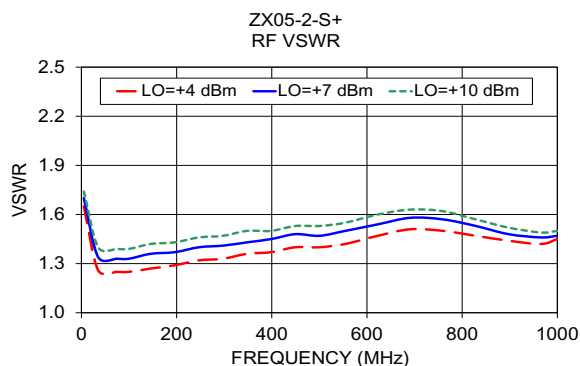
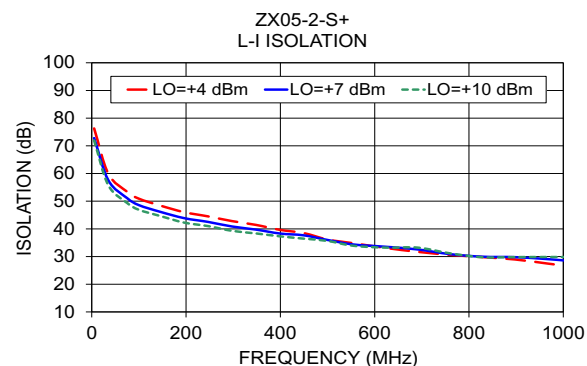
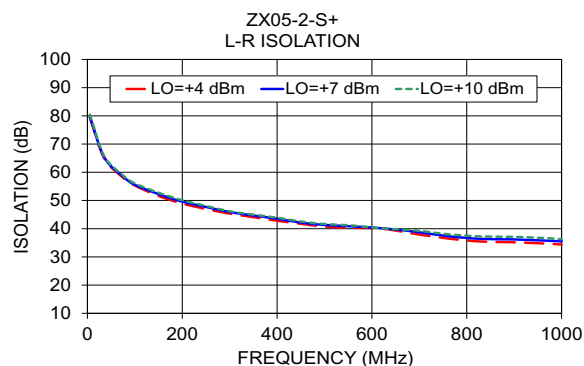
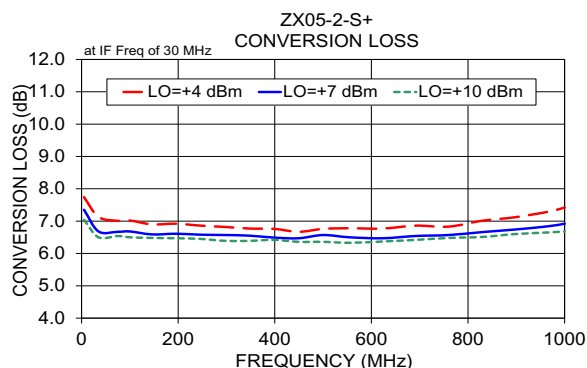
Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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ZX05-2-S+
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Frequency Mixer

ZX05-2+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+4	+7	+10			+4	+7	+10			+4	+7	+10
10.1	40.1	7.76	7.03	7.23	10.1	40.1	16.01	19.38	19.80	10.1	40.1	0.50	0.41	0.19
60.1	90.1	7.66	7.21	6.95	60.1	90.1	18.57	20.39	20.52	60.1	90.1	0.42	0.25	0.15
110.1	140.1	7.56	7.12	6.96	110.1	140.1	19.72	20.44	20.52	110.1	140.1	0.43	0.26	0.16
160.1	190.1	7.59	7.16	6.96	160.1	190.1	19.62	20.42	20.52	160.1	190.1	0.47	0.29	0.18
210.1	240.1	7.43	7.09	6.92	210.1	240.1	20.29	20.45	20.54	210.1	240.1	0.49	0.28	0.15
260.1	290.1	7.44	7.12	6.95	260.1	290.1	20.28	20.44	20.53	260.1	290.1	0.51	0.29	0.18
310.1	340.1	7.38	7.07	6.92	310.1	340.1	20.31	20.47	20.54	310.1	340.1	0.49	0.29	0.19
360.1	390.1	7.45	7.12	6.96	360.1	390.1	20.28	20.44	20.52	360.1	390.1	0.48	0.29	0.18
410.1	440.1	7.38	7.11	6.93	410.1	440.1	20.31	20.45	20.54	410.1	440.1	0.46	0.29	0.19
460.1	490.1	7.44	7.14	6.96	460.1	490.1	20.28	20.03	19.43	460.1	490.1	0.50	0.31	0.21
510.1	540.1	7.43	7.13	6.96	510.1	540.1	19.21	20.43	20.52	510.1	540.1	0.47	0.31	0.22
560.1	590.1	7.48	7.18	7.00	560.1	590.1	19.84	20.41	20.50	560.1	590.1	0.50	0.31	0.22
610.1	640.1	7.50	7.18	6.97	610.1	640.1	15.32	16.03	16.78	610.1	640.1	0.49	0.32	0.21
660.1	690.1	7.59	7.25	7.04	660.1	690.1	20.20	16.39	15.95	660.1	690.1	0.52	0.35	0.24
710.1	740.1	7.64	7.32	7.10	710.1	740.1	19.17	20.34	17.40	710.1	740.1	0.52	0.34	0.23
760.1	790.1	7.70	7.39	7.18	760.1	790.1	19.01	20.30	20.41	760.1	790.1	0.59	0.37	0.25
810.1	840.1	7.72	7.43	7.23	810.1	840.1	19.39	20.28	20.35	810.1	840.1	0.66	0.41	0.27
860.1	890.1	7.74	7.44	7.23	860.1	890.1	19.37	20.28	20.39	860.1	890.1	0.78	0.49	0.33
910.1	940.1	7.77	7.44	7.24	910.1	940.1	18.12	18.21	18.15	910.1	940.1	0.87	0.54	0.37
960.1	990.1	7.85	7.49	7.29	960.1	990.1	17.94	16.23	15.84	960.1	990.1	0.94	0.61	0.41
1010.1	1040.1	8.04	7.58	7.35	1010.1	1040.1	12.03	20.21	16.04	1010.1	1040.1	0.95	0.66	0.45
1060.1	1090.1	8.24	7.70	7.41	1060.1	1090.1	10.35	20.07	17.79	1060.1	1090.1	0.93	0.72	0.50
1110.1	1140.1	8.49	7.88	7.49	1110.1	1140.1	8.32	14.25	20.25	1110.1	1140.1	0.92	0.76	0.57
1160.1	1190.1	8.70	8.09	7.60	1160.1	1190.1	7.67	11.42	20.20	1160.1	1190.1	0.91	0.76	0.62
1210.1	1240.1	8.94	8.33	7.80	1210.1	1240.1	7.52	9.92	16.37	1210.1	1240.1	0.91	0.75	0.63
1260.1	1290.1	9.15	8.54	8.01	1260.1	1290.1	7.99	9.87	13.83	1260.1	1290.1	0.88	0.73	0.62
1310.1	1340.1	9.47	8.84	8.32	1310.1	1340.1	8.39	10.40	12.81	1310.1	1340.1	0.81	0.67	0.58
1360.1	1390.1	9.69	9.08	8.53	1360.1	1390.1	7.76	9.05	10.63	1360.1	1390.1	0.73	0.60	0.54
1410.1	1440.1	9.84	9.18	8.60	1410.1	1440.1	7.43	8.74	10.87	1410.1	1440.1	0.77	0.66	0.61
1460.1	1490.1	9.95	9.22	8.60	1460.1	1490.1	7.73	9.89	13.43	1460.1	1490.1	0.84	0.76	0.72
1510.1	1540.1	10.10	9.33	8.78	1510.1	1540.1	9.38	12.81	16.13	1510.1	1540.1	0.91	0.84	0.76
1560.1	1590.1	10.18	9.48	8.97	1560.1	1590.1	11.06	14.06	16.07	1560.1	1590.1	0.98	0.90	0.83
1610.1	1640.1	10.62	10.00	9.53	1610.1	1640.1	11.52	13.95	15.55	1610.1	1640.1	0.83	0.78	0.77
1660.1	1690.1	10.93	10.45	10.05	1660.1	1690.1	11.06	12.93	14.48	1660.1	1690.1	0.65	0.59	0.62
1720.1	1750.1	11.38	11.11	10.88	1720.1	1750.1	11.66	12.35	13.81	1720.1	1750.1	0.44	0.31	0.29
1770.1	1800.1	11.29	11.08	10.92	1770.1	1800.1	13.24	13.19	13.76	1770.1	1800.1	0.51	0.32	0.24
1830.1	1860.1	11.59	11.39	11.25	1830.1	1860.1	14.97	15.41	15.76	1830.1	1860.1	0.44	0.27	0.20
1880.1	1910.1	11.80	11.57	11.42	1880.1	1910.1	13.84	16.68	17.08	1880.1	1910.1	0.49	0.28	0.20
1940.1	1970.1	12.27	12.00	11.87	1940.1	1970.1	13.68	17.04	18.06	1940.1	1970.1	0.39	0.23	0.16
1990.1	2020.1	12.75	12.42	12.31	1990.1	2020.1	13.13	16.05	17.85	1990.1	2020.1	0.36	0.22	0.15

REV. X2

ZX05-2+

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Frequency Mixer

ZX05-2+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
490.0	10.1	7.20	10.0	20.1	7.39	990.0	10.1	7.55
477.7	22.4	7.11	70.0	80.1	7.12	970.0	30.1	7.41
465.4	34.7	7.04	130.0	140.1	7.24	950.0	50.1	7.40
453.1	47.0	7.13	190.0	200.1	7.45	930.0	70.1	7.37
440.8	59.3	7.10	250.0	260.1	7.42	910.0	90.1	7.35
428.5	71.6	7.09	310.0	320.1	7.44	890.0	110.1	7.31
416.2	83.9	7.08	370.0	380.1	7.24	870.0	130.1	7.23
403.8	96.3	7.10	430.0	440.1	7.38	850.0	150.1	7.23
391.5	108.6	7.02	490.0	500.1	7.46	830.0	170.1	7.21
379.2	120.9	6.98	550.0	560.1	7.41	810.0	190.1	7.18
366.9	133.2	6.91	610.0	620.1	7.51	790.0	210.1	7.21
354.6	145.5	6.94	670.0	680.1	7.76	770.0	230.1	7.18
342.3	157.8	6.93	730.0	740.1	7.43	750.0	250.1	7.13
330.0	170.1	6.95	790.0	800.1	7.73	730.0	270.1	7.18
317.7	182.4	6.94	850.0	860.1	7.61	710.0	290.1	7.18
305.4	194.7	6.93	910.0	920.1	7.36	690.0	310.1	7.17
293.1	207.0	6.92	970.0	980.1	7.41	670.0	330.1	7.18
280.8	219.3	6.90	1030.0	1040.1	7.45	650.0	350.1	7.21
268.5	231.6	6.91	1090.0	1100.1	7.18	630.0	370.1	7.19
256.2	243.9	6.91	1150.0	1160.1	7.38	610.0	390.1	7.21
243.8	256.3	6.87	1210.0	1220.1	7.72	570.0	430.1	7.19
231.5	268.6	6.86	1270.0	1280.1	7.65	550.0	450.1	7.20
219.2	280.9	6.87	1330.0	1340.1	7.78	510.0	490.1	7.22
206.9	293.2	6.94	1390.0	1400.1	7.94	490.0	510.1	7.20
194.6	305.5	6.96	1450.0	1460.1	7.54	450.0	550.1	7.27
182.3	317.8	6.95	1510.0	1520.1	7.47	430.0	570.1	7.27
170.0	330.1	6.97	1590.0	1600.1	7.28	390.0	610.1	7.28
157.7	342.4	6.93	1650.0	1660.1	7.25	370.0	630.1	7.27
145.4	354.7	6.98	1730.0	1740.1	7.24	330.0	670.1	7.24
133.1	367.0	6.98	1790.0	1800.1	7.39	310.0	690.1	7.25
120.8	379.3	7.03	1870.0	1880.1	7.57	270.0	730.1	7.35
108.5	391.6	7.04	1930.0	1940.1	8.11	250.0	750.1	7.41
96.2	403.9	7.04	2010.0	2020.1	8.54	210.0	790.1	7.40
83.8	416.3	7.00	2070.0	2080.1	8.53	190.0	810.1	7.40
71.5	428.6	7.02	2150.0	2160.1	9.14	150.0	850.1	7.45
59.2	440.9	7.03	2210.0	2220.1	9.57	130.0	870.1	7.46
46.9	453.2	7.08	2290.0	2300.1	10.18	90.0	910.1	7.39
34.6	465.5	7.05	2350.0	2360.1	10.78	70.0	930.1	7.37
22.3	477.8	7.10	2430.0	2440.1	11.43	30.0	970.1	7.41
10.0	490.1	7.23	2490.0	2500.1	11.88	10.0	990.1	7.59



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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
40.1	60.28	60.14	60.92	56.03	57.21	57.48
90.1	55.86	56.15	56.95	55.14	54.97	54.39
140.1	52.54	53.13	53.77	53.06	52.42	51.51
190.1	49.94	50.72	51.53	51.98	51.40	50.37
240.1	48.17	49.15	49.82	50.41	49.83	48.70
290.1	46.59	47.55	48.24	48.80	48.62	47.87
340.1	45.40	46.40	47.04	47.07	47.29	46.65
390.1	44.23	45.21	45.91	45.59	46.14	45.79
440.1	43.36	44.38	45.15	44.31	45.11	45.46
490.1	42.33	43.32	44.04	43.11	44.42	44.39
540.1	41.67	42.76	43.56	41.70	43.31	44.78
590.1	40.93	41.98	42.93	40.89	41.81	42.49
640.1	40.53	41.51	42.30	40.38	42.13	42.40
690.1	39.99	41.12	41.90	39.40	42.12	44.55
740.1	39.40	40.96	42.07	38.41	40.79	43.69
790.1	38.49	39.90	41.18	37.82	39.88	42.32
840.1	37.94	39.24	40.38	37.38	38.89	40.20
890.1	37.46	38.88	40.08	37.61	40.03	41.11
940.1	36.88	38.39	39.75	36.66	40.05	43.38
990.1	36.63	38.26	39.68	35.58	38.56	42.14
1040.1	36.75	38.62	40.03	34.89	37.56	40.86
1090.1	36.09	38.12	39.65	34.67	37.14	39.95
1140.1	35.37	37.36	39.03	34.91	37.26	39.31
1190.1	34.95	36.85	38.56	35.11	37.37	38.74
1240.1	34.59	36.39	38.12	35.29	37.52	38.44
1290.1	34.32	35.97	37.57	35.95	38.35	39.98
1340.1	34.06	35.52	36.87	37.54	40.55	43.72
1390.1	33.90	35.18	36.34	39.45	43.52	47.31
1440.1	33.91	35.18	36.39	41.59	44.77	44.63
1490.1	34.12	35.49	36.89	39.14	38.88	37.49
1540.1	34.52	36.16	37.85	36.14	34.90	33.65
1590.1	35.09	36.97	38.87	32.83	31.68	30.70
1640.1	35.80	37.86	39.94	30.51	29.50	28.80
1690.1	37.42	39.86	42.20	28.69	27.75	27.16
1750.1	41.48	45.55	48.70	27.63	26.60	25.98
1800.1	45.54	54.19	51.79	27.12	26.00	25.26
1860.1	49.67	56.10	46.08	26.56	25.41	24.61
1910.1	48.43	49.66	42.90	26.17	24.96	24.06
1970.1	45.38	44.38	39.71	25.33	24.34	23.43
2020.1	42.17	42.19	38.19	24.78	24.03	23.16

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	50.27	50.19	48.71
60.1	90.1	37.47	37.12	37.16
110.1	140.1	32.53	32.62	32.55
160.1	190.1	29.61	29.69	29.67
210.1	240.1	27.68	27.69	27.73
260.1	290.1	26.30	26.40	26.43
310.1	340.1	25.28	25.34	25.45
360.1	390.1	24.45	24.53	24.65
410.1	440.1	24.01	24.23	24.32
460.1	490.1	23.57	23.80	24.00
510.1	540.1	23.23	23.50	23.75
560.1	590.1	23.03	23.29	23.46
610.1	640.1	22.92	23.19	23.45
660.1	690.1	22.82	23.27	23.61
710.1	740.1	22.61	23.10	23.56
760.1	790.1	22.10	22.57	22.99
810.1	840.1	21.44	21.91	22.30
860.1	890.1	20.49	20.91	21.23
910.1	940.1	19.62	19.96	20.22
960.1	990.1	18.84	19.07	19.26
1010.1	1040.1	18.08	18.21	18.37
1060.1	1090.1	17.60	17.71	17.87
1110.1	1140.1	17.24	17.37	17.52
1160.1	1190.1	17.10	17.23	17.42
1210.1	1240.1	17.12	17.25	17.44
1260.1	1290.1	17.11	17.23	17.32
1310.1	1340.1	17.20	17.32	17.41
1360.1	1390.1	17.36	17.55	17.67
1410.1	1440.1	17.54	17.85	18.09
1460.1	1490.1	17.63	18.05	18.33
1510.1	1540.1	17.58	17.99	18.15
1560.1	1590.1	17.25	17.54	17.60
1610.1	1640.1	16.62	16.78	16.78
1660.1	1690.1	15.78	15.81	15.74
1720.1	1750.1	14.65	14.49	14.31
1770.1	1800.1	13.78	13.45	13.19
1830.1	1860.1	12.76	12.30	11.94
1880.1	1910.1	12.08	11.48	11.04
1940.1	1970.1	11.18	10.48	10.01
1990.1	2020.1	10.59	9.76	9.25

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1010.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
10.1	40.1	1.53	1.44	1.61	40.1	3.26	8.64	8.72	10.1	1.69	1.45	1.30
60.1	90.1	1.31	1.41	1.48	90.1	2.05	3.11	4.86	40.1	1.68	1.45	1.30
110.1	140.1	1.32	1.40	1.47	140.1	2.08	3.12	4.66	70.1	1.70	1.47	1.33
160.1	190.1	1.29	1.38	1.45	190.1	1.92	2.74	3.88	100.1	1.66	1.44	1.30
210.1	240.1	1.32	1.41	1.46	240.1	1.97	2.84	3.99	120.1	1.71	1.49	1.35
260.1	290.1	1.32	1.40	1.46	290.1	1.90	2.67	3.67	150.1	1.67	1.45	1.31
310.1	340.1	1.35	1.42	1.48	340.1	1.97	2.76	3.75	170.1	1.70	1.49	1.36
360.1	390.1	1.34	1.42	1.47	390.1	1.95	2.68	3.58	200.1	1.69	1.47	1.35
410.1	440.1	1.37	1.44	1.50	440.1	2.01	2.75	3.66	220.1	1.73	1.52	1.40
460.1	490.1	1.38	1.45	1.52	490.1	2.00	2.69	3.53	250.1	1.69	1.48	1.36
510.1	540.1	1.40	1.46	1.52	540.1	2.07	2.77	3.60	270.1	1.72	1.51	1.40
560.1	590.1	1.40	1.47	1.52	590.1	2.08	2.74	3.53	300.1	1.71	1.51	1.40
610.1	640.1	1.44	1.51	1.57	640.1	2.14	2.78	3.53	320.1	1.73	1.54	1.44
660.1	690.1	1.45	1.53	1.59	690.1	2.16	2.79	3.51	350.1	1.73	1.54	1.44
710.1	740.1	1.48	1.55	1.62	740.1	2.23	2.86	3.58	370.1	1.73	1.55	1.46
760.1	790.1	1.50	1.56	1.61	790.1	2.25	2.85	3.56	400.1	1.73	1.56	1.47
810.1	840.1	1.53	1.59	1.64	840.1	2.29	2.87	3.55	420.1	1.75	1.58	1.50
860.1	890.1	1.54	1.61	1.66	890.1	2.32	2.86	3.51	450.1	1.76	1.60	1.53
910.1	940.1	1.57	1.65	1.70	940.1	2.39	2.92	3.56	470.1	1.74	1.59	1.52
960.1	990.1	1.56	1.63	1.68	990.1	2.46	2.98	3.59	500.1	1.76	1.61	1.55
1010.1	1040.1	1.57	1.63	1.69	1040.1	2.53	3.05	3.65	520.1	1.77	1.64	1.58
1060.1	1090.1	1.59	1.65	1.70	1090.1	2.59	3.10	3.67	550.1	1.77	1.65	1.60
1110.1	1140.1	1.64	1.68	1.73	1140.1	2.62	3.16	3.73	570.1	1.76	1.64	1.59
1160.1	1190.1	1.75	1.77	1.81	1190.1	2.68	3.21	3.79	600.1	1.79	1.67	1.62
1210.1	1240.1	1.88	1.88	1.90	1240.1	2.71	3.23	3.82	620.1	1.79	1.69	1.65
1260.1	1290.1	2.07	2.06	2.05	1290.1	2.74	3.24	3.83	650.1	1.76	1.67	1.64
1310.1	1340.1	2.26	2.23	2.21	1340.1	2.73	3.22	3.80	670.1	1.78	1.70	1.67
1360.1	1390.1	2.52	2.48	2.44	1390.1	2.76	3.22	3.79	700.1	1.80	1.71	1.69
1410.1	1440.1	2.75	2.70	2.66	1440.1	2.75	3.19	3.75	720.1	1.79	1.72	1.71
1460.1	1490.1	3.04	2.98	2.92	1490.1	2.76	3.17	3.73	750.1	1.78	1.71	1.71
1510.1	1540.1	3.26	3.20	3.13	1540.1	2.77	3.18	3.73	770.1	1.78	1.72	1.73
1560.1	1590.1	3.49	3.42	3.34	1590.1	2.83	3.22	3.76	800.1	1.80	1.74	1.74
1610.1	1640.1	3.65	3.58	3.50	1640.1	2.94	3.33	3.86	820.1	1.78	1.73	1.75
1660.1	1690.1	3.83	3.79	3.73	1690.1	3.07	3.42	3.93	850.1	1.78	1.73	1.75
1720.1	1750.1	4.00	3.99	3.96	1750.1	3.27	3.58	4.08	870.1	1.75	1.71	1.74
1770.1	1800.1	3.95	3.95	3.93	1800.1	3.42	3.66	4.10	900.1	1.80	1.75	1.77
1830.1	1860.1	4.02	3.99	3.96	1860.1	3.68	3.87	4.29	920.1	1.76	1.73	1.76
1880.1	1910.1	3.98	3.92	3.87	1910.1	3.92	4.01	4.39	950.1	1.77	1.74	1.78
1940.1	1970.1	4.07	3.97	3.91	1970.1	4.21	4.22	4.55	970.1	1.72	1.70	1.74
1990.1	2020.1	3.99	3.84	3.76	2020.1	4.43	4.35	4.63	1000.1	1.82	1.80	1.85

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	16	23	17	27	25	38	30	46	34	46
1	-	16	+0	31	12	37	18	39	37	54	43	57
2	93	>79	65	67	64	72	61	68	64	>79	69	>79
3	>100	>79	71	>79	71	79	62	>79	70	>79	74	>79
4	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
5	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
6	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
7	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
8	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
10	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -14.00 dBm.
LO IN: 530.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -21.2 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	26	34	27	38	36	49	43	59	48	59
1	-	16	+0	31	12	37	18	41	38	58	47	62
2	73	57	55	62	52	62	50	58	57	69	64	74
3	>100	59	50	59	59	74	46	65	50	63	58	69
4	>100	70	72	67	81	70	78	69	74	70	73	85
5	>100	75	69	71	63	72	60	69	58	76	58	74
6	>100	>89	>89	84	88	86	88	86	84	87	83	>89
7	>100	>89	89	>89	77	>89	78	85	79	86	82	84
8	>100	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89
9	>100	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89
10	>100	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -4.00 dBm.
LO IN: 530.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -11.2 dBm

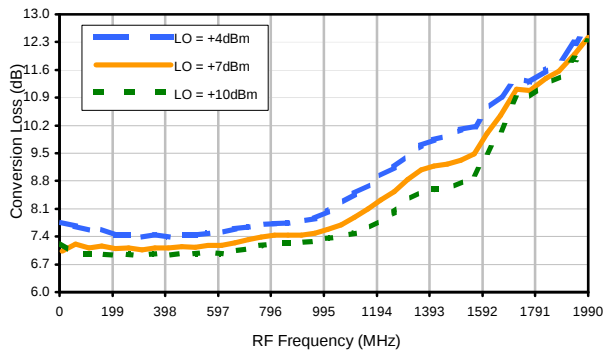
- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

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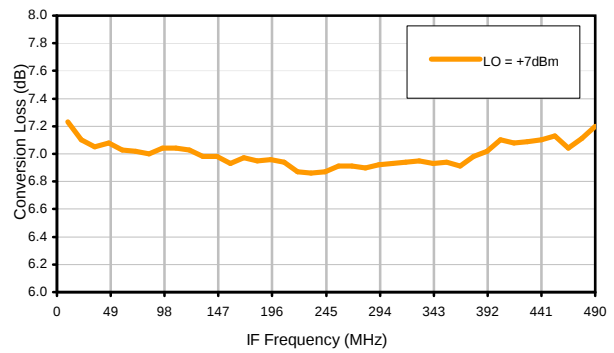


Typical Performance Curves

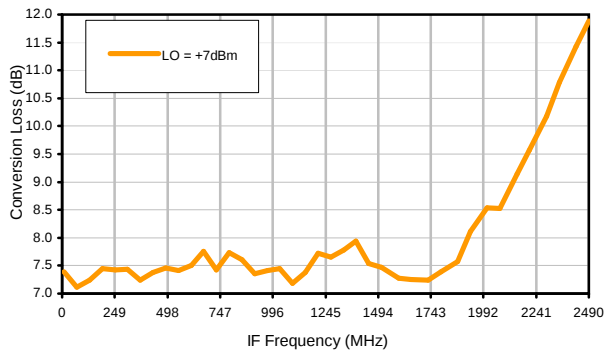
Conversion Loss @ IF=30MHz



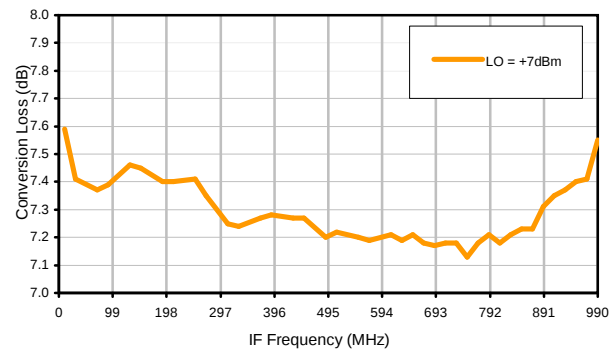
Conversion Loss vs. IF @ RF=500.1MHz



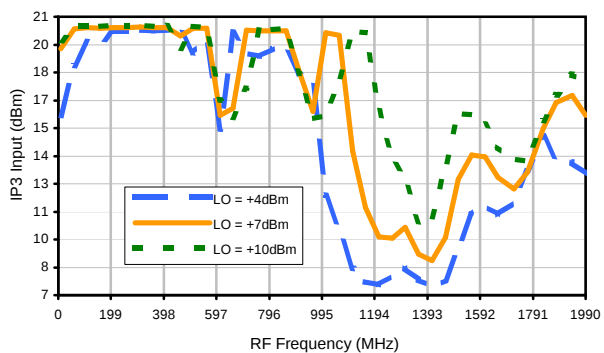
Conversion Loss vs. IF @ RF=10.1MHz



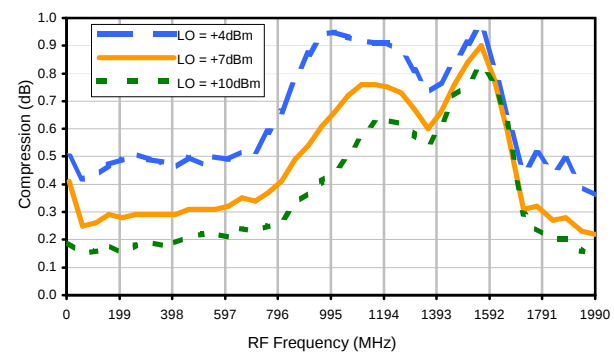
Conversion Loss vs. IF @ RF=1000.1MHz



IP3 Input

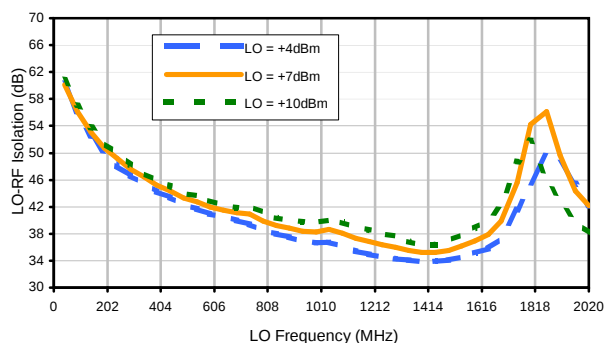


Compression @ RF IN=+1dBm

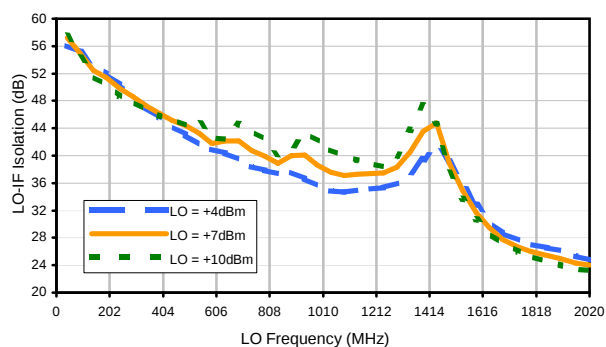


Typical Performance Curves

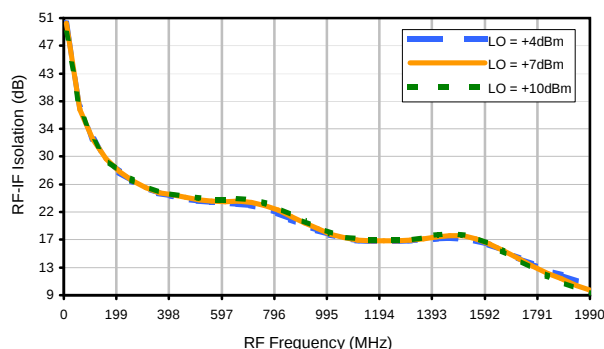
LO-RF Isolation



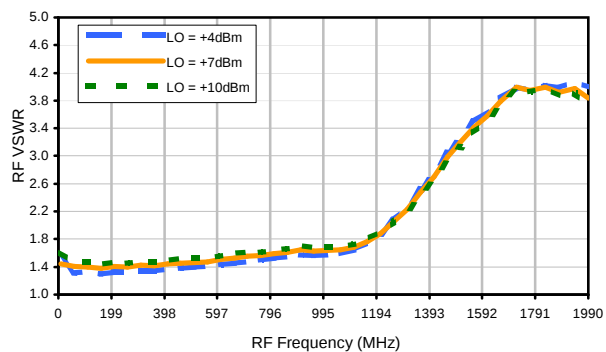
LO-IF Isolation



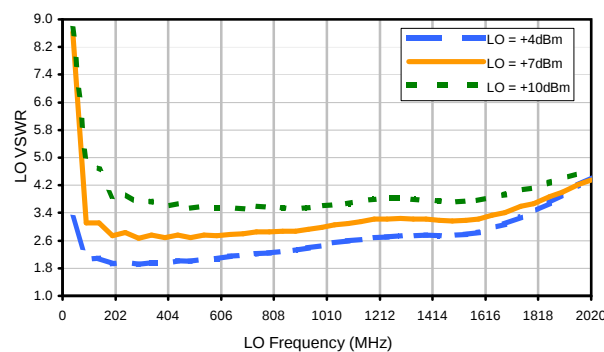
RF-IF Isolation



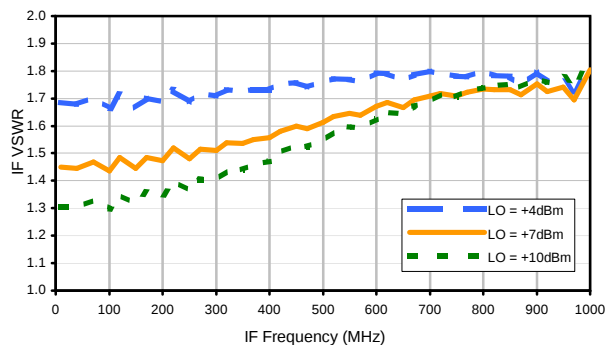
RF VSWR



LO VSWR



IF VSWR



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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	16	23	17	27	25	38	30	46	34	46
1	-	16	+0	31	12	37	18	39	37	54	43	57
2	93	>79	65	67	64	72	61	68	64	>79	69	>79
3	>100	>79	71	>79	71	79	62	>79	70	>79	74	>79
4	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
5	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
6	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
7	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
8	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
10	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -14.00 dBm.
LO IN: 530.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -21.2 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	26	34	27	38	36	49	43	59	48	59
1	-	16	+0	31	12	37	18	41	38	58	47	62
2	73	57	55	62	52	62	50	58	57	69	64	74
3	>100	59	50	59	59	74	46	65	50	63	58	69
4	>100	70	72	67	81	70	78	69	74	70	73	85
5	>100	75	69	71	63	72	60	69	58	76	58	74
6	>100	>89	>89	84	88	86	88	86	84	87	83	>89
7	>100	>89	89	>89	77	>89	78	85	79	86	82	84
8	>100	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89
9	>100	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89
10	>100	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -4.00 dBm.
LO IN: 530.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -11.2 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:

- 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