

Coaxial Frequency Mixer

Level 7 (LO Power +7 dBm) 1 to 1500 MHz

Maximum Ratings

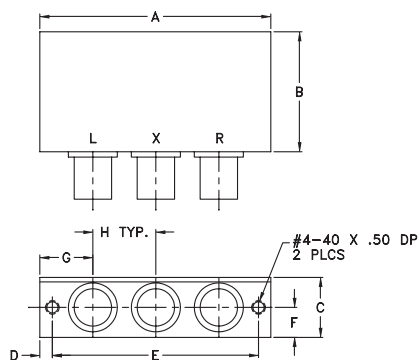
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

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

Coaxial Connections

LO	L
RF	X
IF	R

Outline Drawing



Outline Dimensions (inch)

A	B	C	D	E	F	G	H	wt
2.31	1.20	.60	.125	2.062	.30	.53	.63	grams
58.67	30.48	15.24	3.18	52.37	7.62	13.46	16.00	75.0

Features

- low conversion loss, 5.9 dB typ.
- wideband, 1 to 1500 MHz
- high L-R isolation, 40 dB typ., L-L, 45 dB typ.
- rugged shielded case

Applications

- VHF/UHF
- satellite distribution
- instrumentation



Generic photo used for illustration purposes only

CASE STYLE: GG60

Connectors	Model
BNC	ZP-5X+
SMA	ZP-5X-S(+)

+RoHS Compliant

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

Electrical Specifications

FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)						LO-IF ISOLATION (dB)					
LO/RF	IF	Mid-Band m		Total Range Max.		L		M		U		L		M		U	
f_L - f_U		$\bar{X}$	σ	Max.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.
1-1500	1-1000	5.9	0.10	7.0	9.0	60	40	40	20	28	17	60	45	45	25	38	20

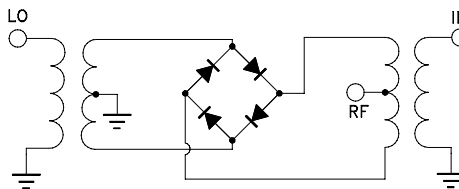
1 dB COMP.: +1 dBm typ.

L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U]
m = mid band [$2f_L$ to $f_U/2$]

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
1.01	31.01	5.81	76.49	72.03	1.25	2.94
2.13	32.13	5.83	74.70	73.03	1.25	2.78
10.96	40.96	5.80	63.50	69.26	1.26	2.54
56.50	86.50	5.80	50.82	61.44	1.28	2.46
160.38	130.38	5.88	43.16	54.92	1.37	2.37
216.07	186.07	5.81	40.68	53.11	1.43	2.38
250.80	220.80	5.85	39.60	53.11	1.48	2.36
337.90	307.90	5.93	36.86	51.90	1.58	2.37
455.25	425.25	6.15	33.77	50.56	1.70	2.44
528.42	498.42	6.01	31.68	49.21	1.75	2.45
613.35	583.35	6.23	30.05	50.49	1.78	2.49
750.00	720.00	6.34	27.83	48.82	1.78	2.64
826.36	796.36	6.30	26.21	49.29	1.75	2.69
900.00	870.00	6.30	25.22	49.14	1.69	2.79
1000.00	970.00	6.43	24.31	49.77	1.59	2.85
1200.00	1170.00	6.37	24.48	44.45	1.40	2.84
1292.29	1262.29	6.29	24.10	42.55	1.34	3.11
1400.00	1370.00	6.43	24.34	41.19	1.31	3.52
1450.00	1420.00	6.56	24.29	40.04	1.32	3.68
1500.00	1470.00	6.77	25.14	40.04	1.38	3.90

Electrical Schematic



Notes

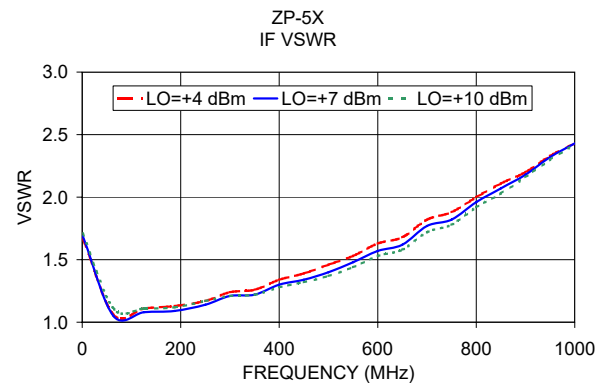
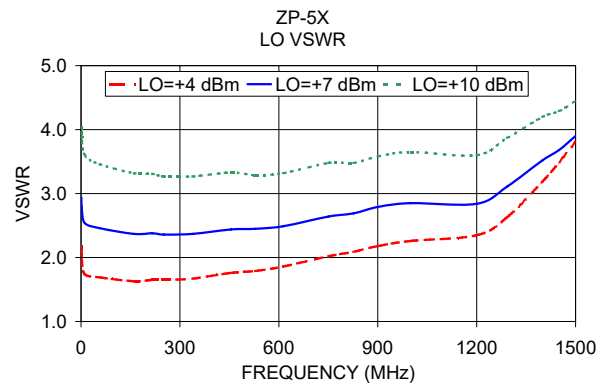
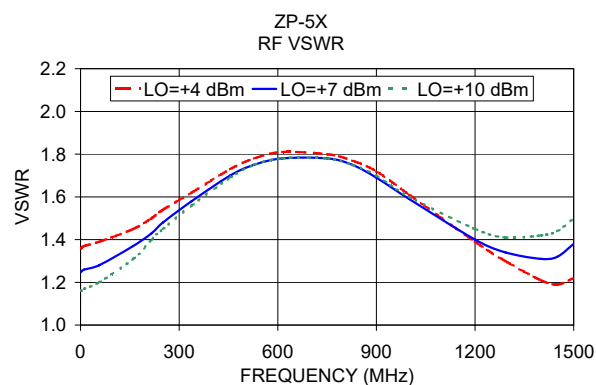
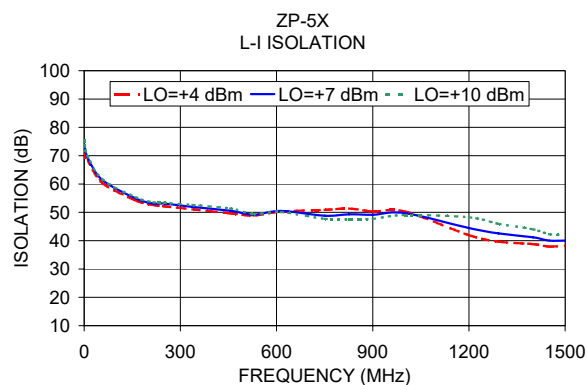
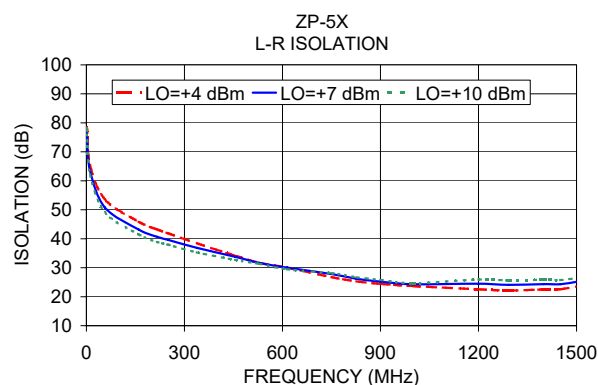
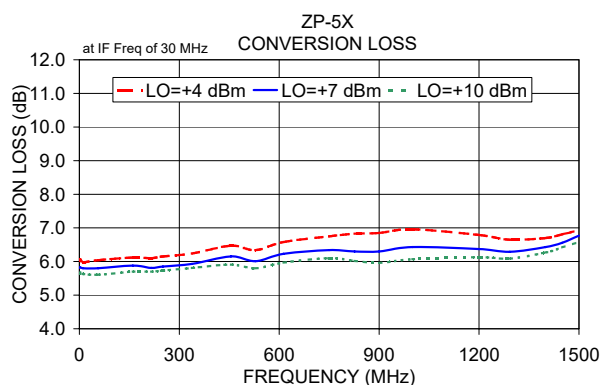
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Performance Charts



Notes

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Frequency Mixer

ZP-5X+

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	+4	+7	+10			
10.1	40.1	6.17	5.96	5.69	10.1	40.1	16.27	18.95	20.57	10.1	40.1	1.26	0.80	0.34
50.1	80.1	6.57	6.15	5.93	50.1	80.1	17.06	18.00	19.30	50.1	80.1	1.00	0.65	0.47
90.1	120.1	6.40	6.09	5.94	90.1	120.1	16.49	20.95	18.97	90.1	120.1	1.30	0.86	0.60
150.1	180.1	6.62	6.26	6.10	150.1	180.1	19.17	17.79	15.35	150.1	180.1	1.07	0.70	0.48
190.1	220.1	6.58	6.27	6.10	190.1	220.1	15.13	13.82	14.26	190.1	220.1	1.26	0.87	0.61
250.1	280.1	6.64	6.33	6.14	250.1	280.1	14.38	13.78	15.07	250.1	280.1	1.12	0.76	0.55
290.1	320.1	6.69	6.35	6.17	290.1	320.1	12.23	12.60	13.96	290.1	320.1	1.23	0.87	0.64
350.1	380.1	6.70	6.37	6.17	350.1	380.1	13.96	14.42	16.23	350.1	380.1	1.21	0.87	0.65
390.1	420.1	6.82	6.48	6.27	390.1	420.1	11.28	12.68	14.66	390.1	420.1	1.20	0.87	0.65
450.1	480.1	6.74	6.37	6.16	450.1	480.1	11.61	12.91	16.56	450.1	480.1	1.31	0.99	0.76
490.1	520.1	6.92	6.53	6.28	490.1	520.1	11.17	12.50	15.10	490.1	520.1	1.22	0.94	0.74
550.1	580.1	6.88	6.53	6.32	550.1	580.1	11.15	12.51	13.97	550.1	580.1	1.32	1.03	0.82
590.1	620.1	7.10	6.72	6.48	590.1	620.1	10.96	13.31	16.20	590.1	620.1	1.25	0.94	0.75
650.1	680.1	7.08	6.68	6.47	650.1	680.1	9.75	14.97	20.77	650.1	680.1	1.35	1.05	0.84
690.1	720.1	7.20	6.75	6.51	690.1	720.1	9.18	12.78	16.06	690.1	720.1	1.29	1.05	0.86
750.1	780.1	7.26	6.76	6.51	750.1	780.1	8.08	9.38	11.49	750.1	780.1	1.25	1.08	0.90
790.1	820.1	7.37	6.84	6.54	790.1	820.1	9.03	9.20	10.31	790.1	820.1	1.17	1.05	0.90
850.1	880.1	7.45	6.91	6.57	850.1	880.1	8.01	9.22	9.73	850.1	880.1	1.13	1.03	0.91
890.1	920.1	7.52	6.98	6.59	890.1	920.1	7.84	9.86	10.99	890.1	920.1	1.15	1.03	0.92
950.1	980.1	7.62	7.11	6.70	950.1	980.1	6.33	8.23	10.85	950.1	980.1	1.12	0.97	0.89
990.1	1020.1	7.67	7.18	6.79	990.1	1020.1	5.48	6.95	9.23	990.1	1020.1	1.09	0.91	0.82
1050.1	1080.1	7.55	7.09	6.71	1050.1	1080.1	5.38	6.78	8.87	1050.1	1080.1	1.21	0.96	0.82
1090.1	1120.1	7.52	7.02	6.64	1090.1	1120.1	6.15	8.32	10.16	1090.1	1120.1	1.20	0.94	0.75
1150.1	1180.1	7.27	6.77	6.50	1150.1	1180.1	8.29	10.57	11.27	1150.1	1180.1	1.46	1.05	0.73
1190.1	1220.1	7.23	6.77	6.55	1190.1	1220.1	9.38	11.92	11.73	1190.1	1220.1	1.39	0.90	0.59
1250.1	1280.1	7.13	6.75	6.57	1250.1	1280.1	9.04	12.15	12.56	1250.1	1280.1	1.48	0.85	0.57
1290.1	1320.1	7.18	6.82	6.65	1290.1	1320.1	9.80	12.96	13.60	1290.1	1320.1	1.37	0.74	0.50
1350.1	1380.1	7.29	6.96	6.80	1350.1	1380.1	10.14	12.93	13.63	1350.1	1380.1	1.30	0.65	0.42
1390.1	1420.1	7.39	7.06	6.91	1390.1	1420.1	10.02	12.33	13.06	1390.1	1420.1	1.22	0.59	0.35
1450.1	1480.1	7.62	7.29	7.15	1450.1	1480.1	9.56	11.70	12.60	1450.1	1480.1	1.14	0.50	0.28
1490.1	1520.1	7.79	7.46	7.31	1490.1	1520.1	9.54	11.75	13.22	1490.1	1520.1	1.09	0.48	0.26
1550.1	1580.1	8.11	7.75	7.61	1550.1	1580.1	9.09	11.99	13.63	1550.1	1580.1	1.08	0.45	0.23
1590.1	1620.1	8.38	7.99	7.83	1590.1	1620.1	8.85	12.02	14.25	1590.1	1620.1	1.07	0.45	0.24
1650.1	1680.1	8.76	8.36	8.21	1650.1	1680.1	9.12	12.43	14.91	1650.1	1680.1	1.00	0.43	0.22
1690.1	1720.1	9.15	8.69	8.52	1690.1	1720.1	9.07	12.88	15.77	1690.1	1720.1	1.00	0.45	0.22
1750.1	1780.1	9.57	9.09	8.95	1750.1	1780.1	10.32	14.37	18.37	1750.1	1780.1	0.94	0.43	0.22
1790.1	1820.1	10.09	9.49	9.33	1790.1	1820.1	11.12	14.41	19.23	1790.1	1820.1	0.93	0.46	0.23
1850.1	1880.1	10.52	9.90	9.74	1850.1	1880.1	14.44	15.58	19.13	1850.1	1880.1	0.94	0.52	0.27
1890.1	1920.1	11.13	10.39	10.16	1890.1	1920.1	13.27	15.36	18.62	1890.1	1920.1	0.94	0.59	0.31
1950.1	1980.1	11.54	10.75	10.47	1950.1	1980.1	10.08	13.04	17.20	1950.1	1980.1	0.99	0.64	0.41

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Frequency Mixer

ZP-5X+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=750.1MHz (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)=1500.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
740.0	10.1	6.69	10.0	20.1	5.98	1490.0	10.1	9.45
720.0	30.1	6.71	50.0	60.1	5.72	1449.5	50.6	9.04
700.0	50.1	6.68	90.0	100.1	5.46	1408.9	91.2	8.69
680.0	70.1	6.74	150.0	160.1	5.87	1368.4	131.7	8.47
660.0	90.1	6.76	190.0	200.1	5.59	1327.8	172.3	8.21
640.0	110.1	6.78	250.0	260.1	5.63	1287.3	212.8	8.04
620.0	130.1	6.77	290.0	300.1	5.80	1246.7	253.4	7.86
600.0	150.1	6.72	350.0	360.1	5.70	1206.2	293.9	7.73
580.0	170.1	6.77	390.0	400.1	5.64	1165.6	334.5	7.62
560.0	190.1	6.68	450.0	460.1	5.95	1125.1	375.0	7.55
540.0	210.1	6.72	490.0	500.1	5.79	1084.5	415.6	7.49
520.0	230.1	6.70	550.0	560.1	5.72	1044.0	456.1	7.39
500.0	250.1	6.78	590.0	600.1	5.92	1003.4	496.7	7.35
480.0	270.1	6.77	650.0	660.1	5.85	962.9	537.2	7.31
460.0	290.1	6.67	690.0	700.1	5.95	922.3	577.8	7.33
440.0	310.1	6.70	750.0	760.1	5.89	881.8	618.3	7.30
420.0	330.1	6.62	790.0	800.1	6.04	841.2	658.9	7.25
400.0	350.1	6.59	850.0	860.1	6.38	800.7	699.4	7.26
380.0	370.1	6.68	890.0	900.1	6.31	760.1	740.0	7.31
360.0	390.1	6.61	950.0	960.1	6.55	719.6	780.5	7.22
340.0	410.1	6.73	990.0	1000.1	6.80	679.0	821.1	7.36
320.0	430.1	6.67	1050.0	1060.1	6.66	638.5	861.6	7.53
300.0	450.1	6.68	1090.0	1100.1	6.54	597.9	902.2	7.68
280.0	470.1	6.65	1150.0	1160.1	6.51	557.4	942.7	7.63
260.0	490.1	6.63	1190.0	1200.1	6.39	516.8	983.3	7.53
240.0	510.1	6.61	1250.0	1260.1	6.55	476.3	1023.8	7.44
220.0	530.1	6.81	1290.0	1300.1	6.86	435.8	1064.3	7.50
200.0	550.1	6.78	1350.0	1360.1	7.17	395.2	1104.9	7.40
180.0	570.1	6.80	1390.0	1400.1	7.41	354.7	1145.4	7.28
160.0	590.1	6.76	1450.0	1460.1	7.54	314.1	1186.0	7.32
140.0	610.1	6.82	1490.0	1500.1	7.64	273.6	1226.5	7.32
130.0	620.1	6.91	1550.0	1560.1	7.82	253.3	1246.8	7.30
110.0	640.1	6.83	1590.0	1600.1	8.24	212.7	1287.4	7.31
100.0	650.1	6.82	1650.0	1660.1	8.20	192.5	1307.6	7.33
80.0	670.1	6.84	1690.0	1700.1	8.77	151.9	1348.2	7.37
70.0	680.1	6.66	1750.0	1760.1	9.38	131.6	1368.5	7.38
50.0	700.1	6.70	1790.0	1800.1	9.42	91.1	1409.0	7.40
40.0	710.1	6.74	1850.0	1860.1	10.11	70.8	1429.3	7.40
20.0	730.1	6.67	1890.0	1900.1	10.73	30.3	1469.8	7.44
10.0	740.1	7.05	1950.0	1960.1	11.02	10.0	1490.1	7.75

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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	62.46	57.44	55.21	61.76	62.38	62.91
80.1	59.85	55.12	52.44	58.58	59.37	60.06
120.1	57.18	52.73	50.39	56.32	57.20	57.91
180.1	55.67	50.79	48.55	54.86	55.74	56.47
220.1	54.50	49.94	47.57	53.32	54.27	54.83
280.1	51.99	48.01	45.80	52.46	53.42	54.15
320.1	52.10	47.80	45.49	51.41	52.30	52.98
380.1	51.22	47.03	44.62	50.68	51.65	52.24
420.1	49.96	46.21	43.82	50.06	50.99	51.68
480.1	48.99	45.62	43.33	49.45	50.32	51.01
520.1	47.81	44.55	42.32	48.99	49.99	50.68
580.1	47.54	44.64	42.36	48.39	49.23	49.87
620.1	45.93	43.52	41.44	48.12	49.04	49.71
680.1	45.17	43.06	41.11	47.63	48.54	49.17
720.1	44.11	42.39	40.51	47.29	48.26	48.94
780.1	43.37	41.72	39.88	47.19	48.13	48.83
820.1	42.30	41.28	39.80	46.66	47.73	48.42
880.1	41.36	40.58	39.22	46.49	47.55	48.31
920.1	41.03	40.31	38.94	46.17	47.07	47.70
980.1	39.85	39.39	38.15	45.80	46.77	47.46
1020.1	39.32	39.12	37.98	45.60	46.55	47.09
1080.1	37.97	38.42	37.83	44.88	45.78	46.46
1120.1	37.52	37.99	37.52	44.85	45.72	46.34
1180.1	36.35	36.89	36.66	44.66	45.67	46.37
1220.1	36.08	36.63	36.40	44.62	45.57	46.25
1280.1	35.33	36.16	35.90	44.63	45.64	46.30
1320.1	35.17	35.95	35.57	44.68	45.56	46.11
1380.1	34.12	35.32	35.34	44.55	45.30	45.73
1420.1	33.94	35.38	35.50	44.56	45.24	45.52
1480.1	33.24	35.23	35.80	44.56	45.05	45.20
1520.1	33.05	35.04	35.63	44.70	45.12	45.13
1580.1	32.11	34.23	35.25	44.61	44.91	44.85
1620.1	31.63	33.46	34.46	44.52	44.84	44.83
1680.1	31.19	32.90	34.00	43.90	44.25	44.27
1720.1	30.64	32.10	33.12	43.89	44.29	44.33
1780.1	30.10	31.51	32.66	43.14	43.62	43.87
1820.1	29.69	31.04	32.18	43.09	43.54	43.67
1880.1	29.69	30.98	32.08	43.09	43.74	44.12
1920.1	29.05	30.14	31.10	42.85	43.47	43.75
1980.1	29.04	30.21	31.10	42.87	43.73	44.18

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	51.99	51.89	52.29
50.1	80.1	37.83	38.22	38.43
90.1	120.1	32.95	33.28	33.47
150.1	180.1	29.56	29.98	30.26
190.1	220.1	27.74	28.12	28.41
250.1	280.1	26.36	26.80	27.14
290.1	320.1	26.02	26.58	26.99
350.1	380.1	25.04	25.69	26.26
390.1	420.1	24.91	25.59	26.17
450.1	480.1	24.97	25.81	26.52
490.1	520.1	24.43	25.35	26.22
550.1	580.1	24.30	25.25	26.02
590.1	620.1	24.61	25.67	26.54
650.1	680.1	23.49	24.28	24.67
690.1	720.1	22.66	23.09	23.18
750.1	780.1	21.42	21.69	21.78
790.1	820.1	20.63	20.76	20.90
850.1	880.1	20.54	20.73	20.85
890.1	920.1	20.89	21.01	21.15
950.1	980.1	21.66	21.86	21.86
990.1	1020.1	22.79	23.03	23.03
1050.1	1080.1	25.52	25.64	25.27
1090.1	1120.1	27.83	27.25	26.12
1150.1	1180.1	27.58	25.46	24.16
1190.1	1220.1	24.81	23.09	22.11
1250.1	1280.1	20.91	19.72	19.07
1290.1	1320.1	18.81	17.86	17.26
1350.1	1380.1	16.32	15.45	14.93
1390.1	1420.1	15.09	14.17	13.70
1450.1	1480.1	13.74	12.86	12.32
1490.1	1520.1	12.97	11.99	11.51
1550.1	1580.1	12.05	11.08	10.57
1590.1	1620.1	11.54	10.60	10.06
1650.1	1680.1	10.76	9.92	9.42
1690.1	1720.1	10.41	9.57	9.12
1750.1	1780.1	9.89	9.10	8.72
1790.1	1820.1	9.66	8.82	8.51
1850.1	1880.1	9.36	8.58	8.21
1890.1	1920.1	9.28	8.59	8.20
1950.1	1980.1	8.96	8.39	8.08

Frequency Mixer

ZP-5X+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1500.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
10.1	40.1	1.12	1.06	1.09	40.1	1.84	2.77	4.08	10.1	1.14	1.13	1.14
50.1	80.1	1.28	1.11	1.02	80.1	1.77	2.58	3.69	50.1	1.07	1.02	1.06
90.1	120.1	1.26	1.10	1.03	120.1	1.72	2.46	3.42	90.1	1.06	1.01	1.06
150.1	180.1	1.26	1.14	1.07	180.1	1.78	2.59	3.64	130.1	1.08	1.02	1.06
190.1	220.1	1.31	1.18	1.11	220.1	1.69	2.38	3.27	170.1	1.10	1.04	1.05
250.1	280.1	1.31	1.20	1.13	280.1	1.82	2.65	3.69	210.1	1.10	1.04	1.05
290.1	320.1	1.35	1.24	1.16	320.1	1.74	2.46	3.38	250.1	1.10	1.04	1.05
350.1	380.1	1.39	1.26	1.18	380.1	1.76	2.49	3.42	290.1	1.09	1.06	1.09
390.1	420.1	1.43	1.30	1.22	420.1	1.78	2.52	3.47	330.1	1.11	1.09	1.13
450.1	480.1	1.48	1.33	1.24	480.1	1.72	2.41	3.27	370.1	1.16	1.15	1.17
490.1	520.1	1.52	1.37	1.26	520.1	1.86	2.66	3.65	410.1	1.20	1.18	1.20
550.1	580.1	1.62	1.49	1.38	580.1	1.75	2.44	3.29	450.1	1.25	1.22	1.23
590.1	620.1	1.65	1.51	1.41	620.1	1.81	2.56	3.48	490.1	1.29	1.26	1.26
650.1	680.1	1.70	1.54	1.44	680.1	1.80	2.52	3.40	530.1	1.31	1.27	1.27
690.1	720.1	1.72	1.56	1.48	720.1	1.81	2.51	3.37	570.1	1.37	1.34	1.34
750.1	780.1	1.85	1.65	1.56	780.1	1.89	2.66	3.60	610.1	1.43	1.40	1.40
790.1	820.1	1.89	1.69	1.58	820.1	1.83	2.52	3.38	650.1	1.53	1.50	1.48
850.1	880.1	1.99	1.77	1.63	880.1	1.88	2.61	3.50	690.1	1.60	1.57	1.55
890.1	920.1	2.00	1.80	1.64	920.1	1.85	2.54	3.38	730.1	1.68	1.63	1.60
950.1	980.1	2.02	1.84	1.68	980.1	1.88	2.61	3.49	770.1	1.75	1.70	1.65
990.1	1020.1	1.98	1.82	1.68	1020.1	1.99	2.75	3.67	810.1	1.80	1.74	1.69
1050.1	1080.1	1.86	1.71	1.58	1080.1	1.91	2.60	3.46	850.1	1.88	1.82	1.77
1090.1	1120.1	1.74	1.59	1.48	1120.1	1.98	2.69	3.55	890.1	1.97	1.91	1.86
1150.1	1180.1	1.55	1.41	1.34	1180.1	1.99	2.72	3.62	930.1	2.10	2.04	1.98
1190.1	1220.1	1.44	1.32	1.28	1220.1	1.99	2.71	3.58	970.1	2.17	2.11	2.05
1250.1	1280.1	1.30	1.19	1.16	1280.1	2.02	2.73	3.62	1010.1	2.22	2.17	2.11
1290.1	1320.1	1.23	1.12	1.10	1320.1	2.06	2.78	3.67	1050.1	2.26	2.22	2.15
1350.1	1380.1	1.14	1.02	1.06	1380.1	2.07	2.76	3.62	1090.1	2.27	2.23	2.17
1390.1	1420.1	1.13	1.06	1.12	1420.1	2.07	2.73	3.57	1130.1	2.35	2.33	2.28
1450.1	1480.1	1.20	1.21	1.26	1480.1	2.11	2.77	3.60	1170.1	2.36	2.34	2.30
1490.1	1520.1	1.25	1.28	1.34	1520.1	2.13	2.80	3.63	1210.1	2.43	2.43	2.40
1550.1	1580.1	1.37	1.44	1.52	1580.1	2.16	2.80	3.60	1250.1	2.41	2.41	2.38
1590.1	1620.1	1.43	1.51	1.60	1620.1	2.18	2.80	3.59	1290.1	2.40	2.40	2.38
1650.1	1680.1	1.57	1.71	1.81	1680.1	2.23	2.86	3.65	1310.1	2.42	2.43	2.41
1690.1	1720.1	1.63	1.78	1.90	1720.1	2.26	2.89	3.67	1350.1	2.42	2.42	2.41
1750.1	1780.1	1.78	1.99	2.12	1780.1	2.27	2.89	3.64	1370.1	2.37	2.36	2.35
1790.1	1820.1	1.81	2.06	2.20	1820.1	2.28	2.90	3.64	1410.1	2.41	2.41	2.40
1850.1	1880.1	1.93	2.22	2.38	1880.1	2.30	2.92	3.67	1430.1	2.44	2.42	2.41
1890.1	1920.1	1.95	2.27	2.46	1920.1	2.31	2.92	3.65	1470.1	2.42	2.40	2.39
1950.1	1980.1	2.02	2.37	2.55	1980.1	2.31	2.90	3.62	1490.1	2.49	2.47	2.45

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	17	9	22	27	18	36	30	44	36	48
1	-	15	+0	37	16	29	29	27	43	40	48	41
2	78	54	60	48	61	67	>69	59	48	67	53	66
3	>90	62	60	63	57	68	60	64	67	64	>69	68
4	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
5	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
6	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
7	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
8	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
9	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
10	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 750.1 MHz; -14.00 dBm.
LO IN: 780.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.8 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	26	19	31	39	33	53	49	68	56	72
1	-	15	+0	37	16	34	32	33	48	51	62	57
2	58	57	56	48	59	48	56	56	44	60	54	67
3	>90	39	41	44	43	61	57	47	51	46	59	57
4	>90	74	65	55	68	54	66	63	>79	66	57	72
5	>90	72	76	75	56	63	52	64	55	63	64	63
6	>90	>79	>79	>79	71	70	>79	68	>79	69	79	71
7	>90	>79	>79	>79	>79	75	72	>79	68	>79	69	75
8	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
10	>90	>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: 750.1 MHz; -4.00 dBm.
LO IN: 780.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.82 dBm

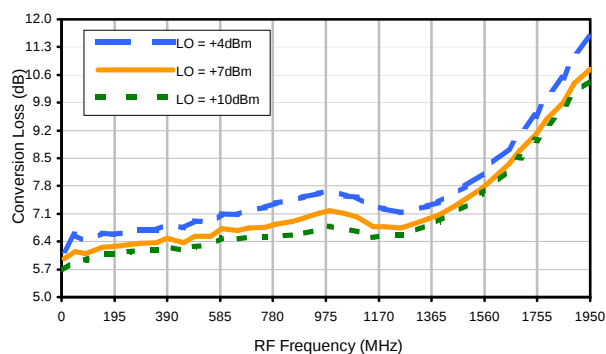
- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

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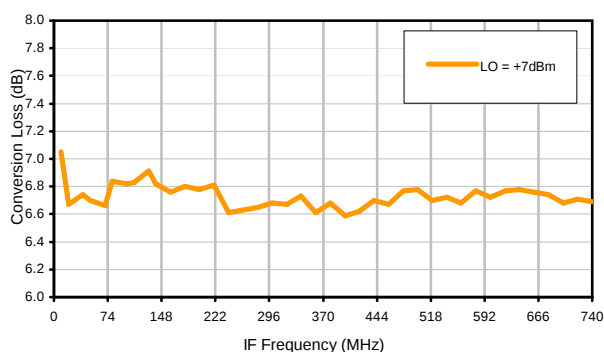


Typical Performance Curves

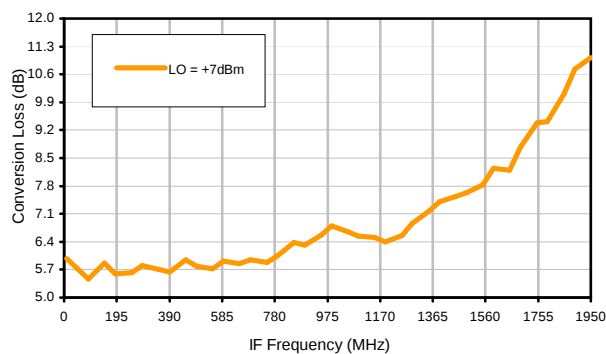
Conversion Loss @ IF=30MHz



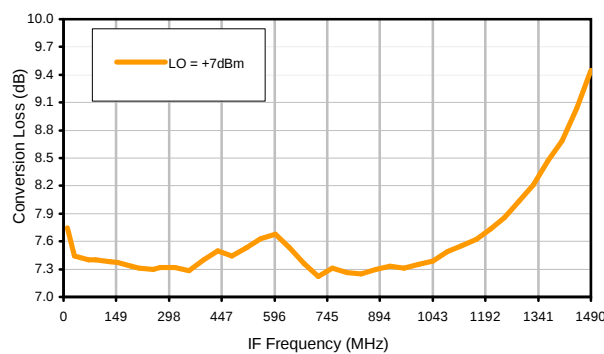
Conversion Loss vs. IF @ RF=750.1MHz



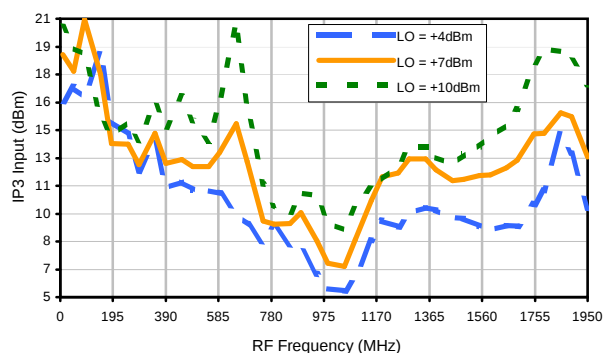
Conversion Loss vs. IF @ RF=10.1MHz



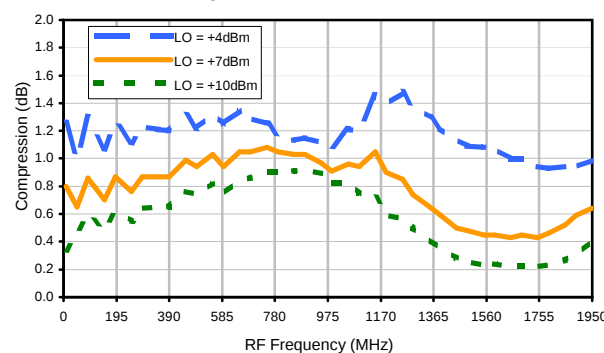
Conversion Loss vs. IF @ RF=1500.1MHz



IP3 Input

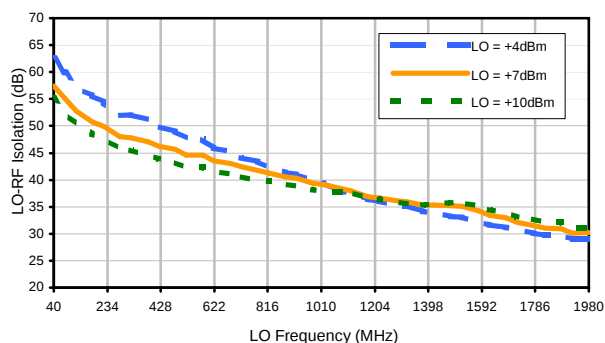


Compression @ RF IN=+1dBm

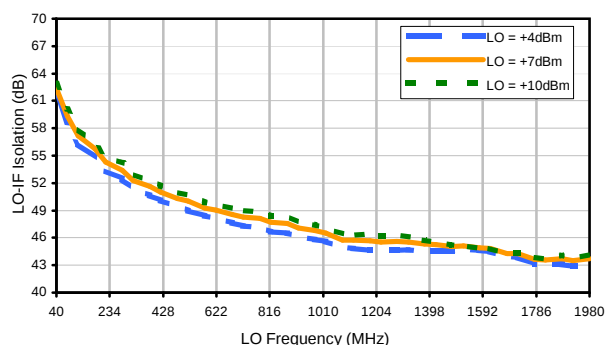


Typical Performance Curves

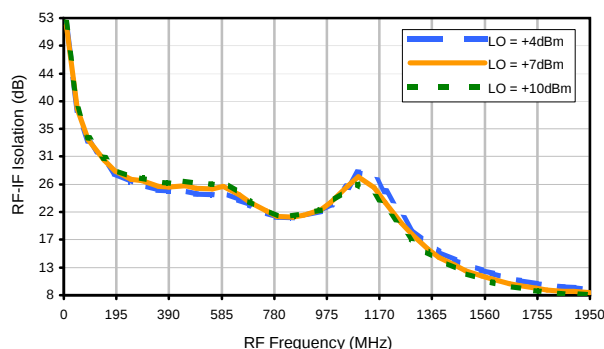
LO-RF Isolation



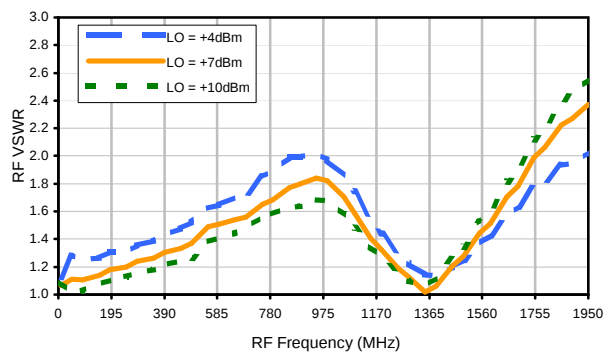
LO-IF Isolation



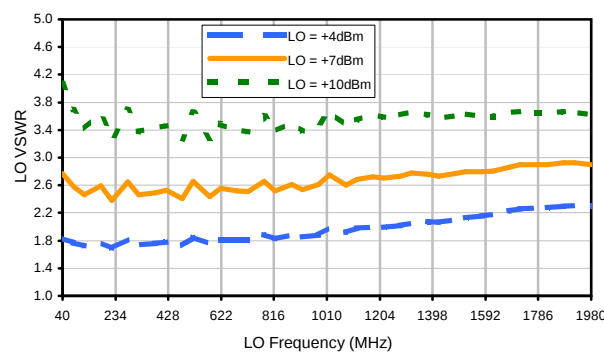
RF-IF Isolation



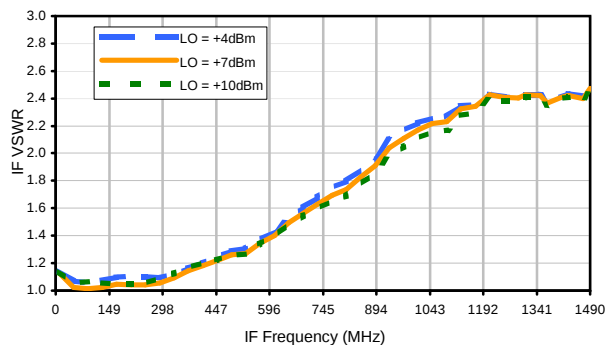
RF VSWR



LO VSWR



IF VSWR



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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	17	9	22	27	18	36	30	44	36	48
1	-	15	+0	37	16	29	29	27	43	40	48	41
2	78	54	60	48	61	67	>69	59	48	67	53	66
3	>90	62	60	63	57	68	60	64	67	64	>69	68
4	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
5	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
6	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
7	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
8	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
9	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
10	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 750.1 MHz; -14.00 dBm.
LO IN: 780.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.8 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	26	19	31	39	33	53	49	68	56	72
1	-	15	+0	37	16	34	32	33	48	51	62	57
2	58	57	56	48	59	48	56	56	44	60	54	67
3	>90	39	41	44	43	61	57	47	51	46	59	57
4	>90	74	65	55	68	54	66	63	>79	66	57	72
5	>90	72	76	75	56	63	52	64	55	63	64	63
6	>90	>79	>79	>79	71	70	>79	68	>79	69	79	71
7	>90	>79	>79	>79	>79	75	72	>79	68	>79	69	75
8	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
10	>90	>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: 750.1 MHz; -4.00 dBm.
LO IN: 780.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.82 dBm

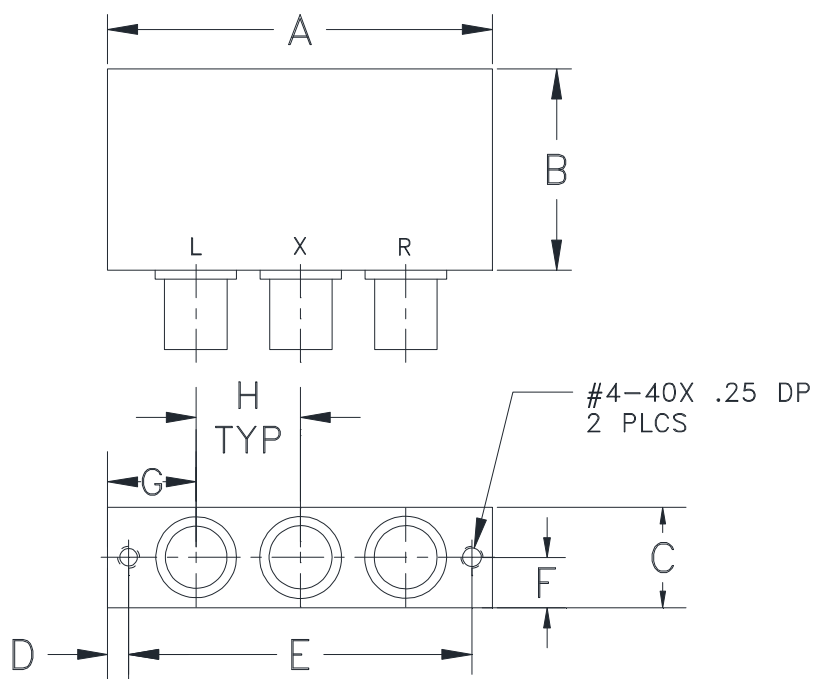
- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

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Outline Dimensions

GG60



CASE #.	A	B	C	D	E	F	G	H	WT. GRAM
GG60	2.31 (58.67)	1.20 (30.48)	.60 (15.24)	.125 (3.18)	2.062 (52.37)	.30 (7.62)	.53 (13.46)	.63 (16.00)	75.0

Dimensions are in inches (mm). Tolerances: 2Pl. $\pm .03$; 3Pl. $\pm .015$

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.



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Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100°C Ambient Environment	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