

Frequency Mixer

ZX05-C60LH-S+

Level 10 (LO Power +10 dBm) 1600 to 6000 MHz

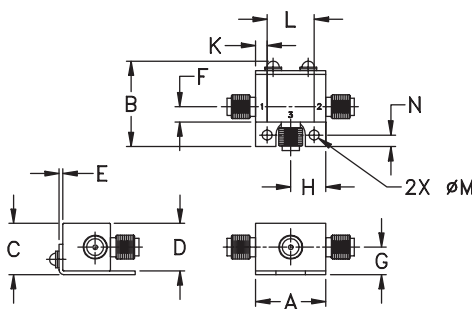
Maximum Ratings

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 6,790,049 & 7,027,795

Applications

- cellular
- PCS
- instrumentation
- satellite communication

CASE STYLE: FL905

Connectors	Model
SMA	ZX05-C60LH-S+

+RoHS Compliant

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

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

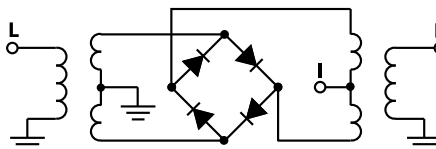
FREQUENCY (MHz)		CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
LO/RF	IF	$\bar{X}$	σ	Max.	Typ.	Min.	Typ.	Min.	
$f_L - f_U$									Typ.
1600-6000	DC-2000								
1600-4400	DC-2000	6.3	0.1	8.5	35	23	17	—	13
4400-6000	DC-2000	6.0	0.1	8.3	27	20	21	—	11

1 dB COMP.: +5 dBm typ.
Conversion Loss specification at 30 MHz IF

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 +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm
1700.10	1730.11	6.59	33.55	17.79	2.27	3.57
1920.56	1950.57	5.91	43.58	20.00	2.42	2.46
2141.01	2171.02	5.69	31.78	18.73	2.27	2.18
2361.47	2391.48	5.50	31.56	18.41	2.13	1.93
2581.93	2611.94	5.38	33.00	17.67	1.65	1.86
2802.38	2832.39	5.57	36.30	18.26	1.78	2.10
3022.84	3052.85	6.06	35.33	18.50	2.50	1.97
3243.30	3273.31	6.34	37.11	17.87	2.07	2.40
3463.75	3493.76	6.72	37.99	15.73	2.67	2.37
3684.21	3714.22	7.24	36.04	13.60	2.93	2.96
3904.66	3934.67	7.14	34.06	14.83	2.88	3.40
4125.12	4155.13	7.15	33.41	15.53	2.88	2.75
4400.10	4430.11	6.52	34.87	18.12	2.65	3.20
4676.26	4706.27	6.17	33.98	19.74	2.47	3.29
4896.72	4926.73	6.48	33.26	22.54	3.32	1.93
5117.17	5147.18	5.57	27.67	25.33	1.95	1.23
5337.63	5367.64	5.89	24.83	25.13	2.48	1.40
5558.09	5588.10	5.56	23.69	24.63	2.20	1.74
5778.54	5808.55	5.48	22.62	15.27	1.84	2.73
5999.00	5968.99	6.49	23.51	11.54	1.19	5.84

Electrical Schematic



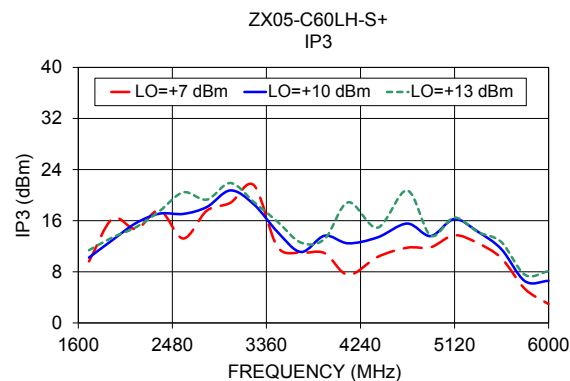
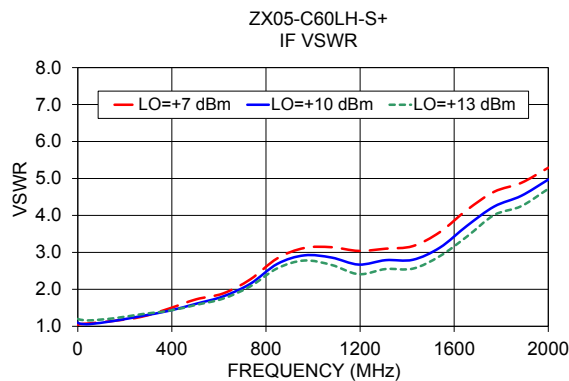
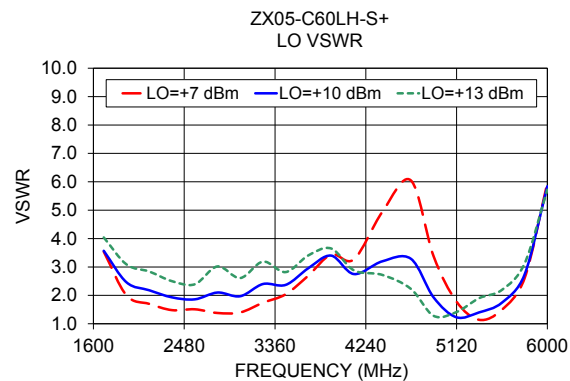
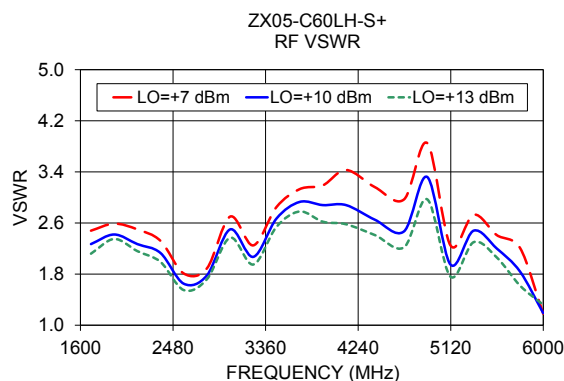
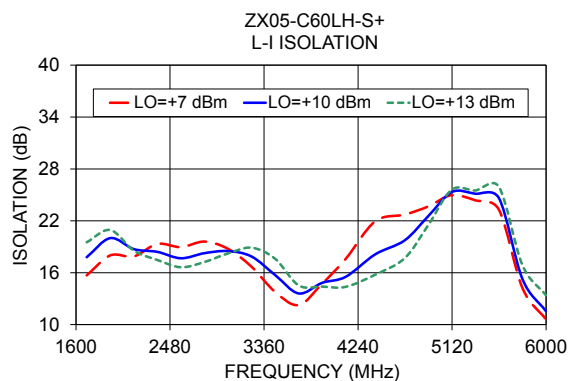
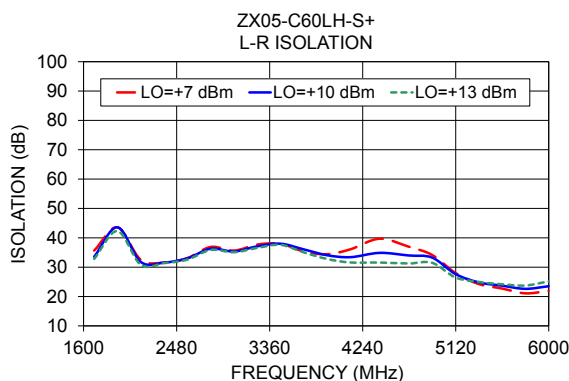
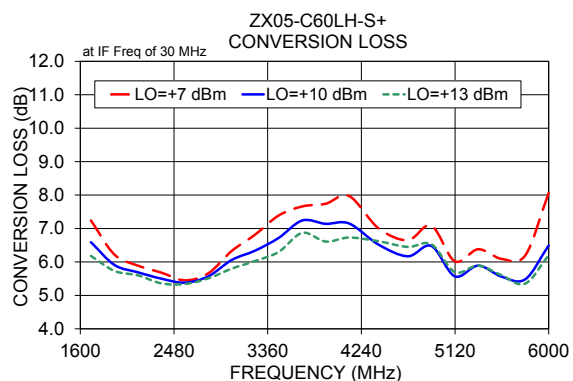
Notes

- 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.
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Performance Charts

ZX05-C60LH-S+



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Frequency Mixer

ZX05-C60LH+

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=+5dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+7	+10	+13			+7	+10	+13			+7	+10	+13
1500.0	1530.0	9.86	7.98	7.29	1500.0	1530.0	2.46	5.04	6.20	1500.0	1530.0	1.71	1.86	1.66
1620.0	1650.0	9.62	8.07	6.85	1620.0	1650.0	5.37	8.06	13.68	1620.0	1650.0	1.04	1.26	1.39
1740.0	1770.0	8.06	7.28	6.78	1740.0	1770.0	9.99	10.38	11.34	1740.0	1770.0	1.58	1.29	1.10
1860.0	1890.0	6.80	6.36	6.14	1860.0	1890.0	14.51	14.41	14.02	1860.0	1890.0	1.66	1.44	1.23
1980.0	2010.0	6.49	6.19	6.00	1980.0	2010.0	14.71	12.47	12.76	1980.0	2010.0	1.38	1.15	1.04
2100.0	2130.0	6.15	5.89	5.74	2100.0	2130.0	16.31	14.21	12.68	2100.0	2130.0	1.41	1.20	1.05
2220.0	2250.0	5.91	5.76	5.77	2220.0	2250.0	13.13	16.74	18.35	2220.0	2250.0	1.28	0.91	0.69
2340.0	2370.0	6.15	5.81	5.66	2340.0	2370.0	13.52	12.84	14.25	2340.0	2370.0	0.79	0.59	0.47
2460.0	2490.0	6.01	5.81	5.70	2460.0	2490.0	15.68	16.08	17.85	2460.0	2490.0	0.84	0.59	0.46
2580.0	2610.0	5.82	5.62	5.61	2580.0	2610.0	10.41	14.78	19.42	2580.0	2610.0	0.96	0.55	0.32
2700.0	2730.0	5.84	5.74	5.74	2700.0	2730.0	15.09	18.55	20.76	2700.0	2730.0	0.95	0.51	0.39
2820.0	2850.0	6.02	5.90	5.87	2820.0	2850.0	18.90	22.41	25.21	2820.0	2850.0	0.84	0.55	0.42
2940.0	2970.0	6.35	6.12	6.00	2940.0	2970.0	19.77	17.76	17.20	2940.0	2970.0	0.81	0.58	0.45
3060.0	3090.0	6.77	6.50	6.35	3060.0	3090.0	21.45	24.38	25.60	3060.0	3090.0	1.06	0.87	0.69
3180.0	3210.0	6.80	6.44	6.22	3180.0	3210.0	14.57	16.36	17.86	3180.0	3210.0	1.03	0.78	0.61
3300.0	3330.0	7.01	6.56	6.31	3300.0	3330.0	20.97	18.97	20.50	3300.0	3330.0	0.94	0.72	0.57
3420.0	3450.0	7.37	6.77	6.45	3420.0	3450.0	18.32	17.52	18.20	3420.0	3450.0	0.99	0.86	0.71
3540.0	3570.0	7.73	6.96	6.54	3540.0	3570.0	13.05	14.99	15.71	3540.0	3570.0	0.77	0.74	0.66
3660.0	3690.0	8.07	7.17	6.66	3660.0	3690.0	11.79	12.46	14.13	3660.0	3690.0	0.80	0.83	0.76
3780.0	3810.0	7.46	7.07	6.88	3780.0	3810.0	10.18	10.85	12.04	3780.0	3810.0	1.12	0.79	0.65
3900.0	3930.0	7.76	6.93	6.51	3900.0	3930.0	11.35	12.83	13.57	3900.0	3930.0	0.85	0.74	0.77
4020.0	4050.0	8.13	7.48	6.99	4020.0	4050.0	9.88	11.37	12.85	4020.0	4050.0	0.74	0.38	0.44
4140.0	4170.0	8.17	7.28	6.77	4140.0	4170.0	9.32	11.58	18.42	4140.0	4170.0	0.88	0.67	0.59
4260.0	4290.0	7.47	6.83	6.63	4260.0	4290.0	11.45	16.04	18.60	4260.0	4290.0	1.53	0.82	0.55
4380.0	4410.0	7.26	6.68	6.56	4380.0	4410.0	10.11	13.63	15.63	4380.0	4410.0	1.00	0.57	0.49
4500.0	4530.0	7.12	6.52	6.51	4500.0	4530.0	10.41	12.34	14.76	4500.0	4530.0	0.93	0.48	0.33
4620.0	4650.0	6.83	6.13	6.13	4620.0	4650.0	12.64	14.34	15.97	4620.0	4650.0	0.85	0.36	0.20
4740.0	4770.0	7.23	6.63	6.70	4740.0	4770.0	10.19	15.32	21.49	4740.0	4770.0	0.99	0.65	0.36
4860.0	4890.0	8.81	7.46	6.98	4860.0	4890.0	11.17	17.31	16.65	4860.0	4890.0	0.28	0.55	0.57
4980.0	5010.0	7.11	6.49	6.35	4980.0	5010.0	11.62	13.05	13.07	4980.0	5010.0	0.93	0.83	0.75
5100.0	5130.0	6.35	5.89	5.78	5100.0	5130.0	12.44	13.87	14.58	5100.0	5130.0	0.88	0.64	0.53
5220.0	5250.0	6.41	6.06	6.00	5220.0	5250.0	22.07	21.28	18.94	5220.0	5250.0	0.78	0.45	0.29
5340.0	5370.0	7.23	6.72	6.43	5340.0	5370.0	17.65	16.42	14.86	5340.0	5370.0	0.97	0.82	0.75
5460.0	5490.0	6.48	6.06	5.85	5460.0	5490.0	12.25	13.17	13.39	5460.0	5490.0	1.53	1.21	1.04
5580.0	5610.0	6.34	5.89	5.68	5580.0	5610.0	10.06	11.14	11.93	5580.0	5610.0	1.89	1.56	1.38
5700.0	5730.0	6.13	5.61	5.43	5700.0	5730.0	8.40	10.80	11.91	5700.0	5730.0	2.21	2.10	2.08
5820.0	5850.0	6.33	5.68	5.42	5820.0	5850.0	6.20	6.70	6.14	5820.0	5850.0	2.63	2.32	2.37
5960.0	5990.0	7.88	7.14	7.01	5960.0	5990.0	2.24	8.11	8.85	5960.0	5990.0	2.63	1.66	1.36
5980.0	6010.0	8.31	7.37	7.05	5980.0	6010.0	2.29	10.92	7.64	5980.0	6010.0	2.46	1.56	1.42
6000.0	6030.0	8.76	7.70	7.18	6000.0	6030.0	2.22	11.45	7.59	6000.0	6030.0	2.40	1.57	1.40

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=3800MHz (dB)
		@LO (dBm)
		+10
2300.0	1500.0	11.65
2175.1	1624.9	9.79
2050.2	1749.8	8.50
1925.3	1874.7	7.60
1800.4	1999.6	8.21
1675.5	2124.5	9.90
1550.5	2249.5	8.98
1425.6	2374.4	9.73
1300.7	2499.3	10.59
1175.8	2624.2	9.69
1050.9	2749.1	9.43
926.0	2874.0	8.93
801.1	2998.9	8.16
676.2	3123.8	7.32
551.3	3248.7	7.10
447.2	3352.8	6.62
322.3	3477.7	6.51
218.2	3581.8	6.72
93.3	3706.7	7.00
10.0	3810.0	7.58
125.1	3925.1	6.79
221.0	4021.0	7.16
336.1	4136.1	7.27
432.0	4232.0	6.66
547.1	4347.1	6.66
643.0	4443.0	6.58
758.1	4558.1	6.98
854.0	4654.0	7.56
969.1	4769.1	7.69
1065.0	4865.0	8.05
1180.1	4980.1	8.41
1276.0	5076.0	8.91
1391.1	5191.1	9.53
1487.0	5287.0	9.54
1602.1	5402.1	9.44
1698.0	5498.0	9.07
1813.1	5613.1	8.75
1909.0	5709.0	9.02
2024.1	5824.1	10.24
2120.0	5920.0	10.81

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1600MHz (dB)
		@LO (dBm)
		+10
10.0	1610.0	8.96
70.0	1670.0	7.91
150.0	1750.0	7.24
210.0	1810.0	6.69
290.0	1890.0	6.31
350.0	1950.0	6.21
430.0	2030.0	6.14
490.0	2090.0	6.06
570.0	2170.0	5.90
630.0	2230.0	5.92
710.0	2310.0	6.19
770.0	2370.0	6.02
850.0	2450.0	6.43
910.0	2510.0	6.70
990.0	2590.0	6.70
1050.0	2650.0	6.86
1130.0	2730.0	7.03
1190.0	2790.0	6.90
1270.0	2870.0	6.57
1330.0	2930.0	6.37
1410.0	3010.0	6.40
1470.0	3070.0	6.47
1550.0	3150.0	6.63
1610.0	3210.0	7.04
1690.0	3290.0	7.36
1750.0	3350.0	7.41
1830.0	3430.0	8.14
1890.0	3490.0	8.70
1970.0	3570.0	9.00
2030.0	3630.0	9.05
2110.0	3710.0	9.12
2170.0	3770.0	8.76
2250.0	3850.0	9.02
2310.0	3910.0	9.28
2390.0	3990.0	9.29
2450.0	4050.0	9.24
2530.0	4130.0	9.69
2590.0	4190.0	10.15
2670.0	4270.0	10.77
2730.0	4330.0	11.10

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=6000MHz (dB)
		@LO (dBm)
		+10
2250.0	3750.0	11.31
2190.0	3810.0	10.72
2130.0	3870.0	10.46
2070.0	3930.0	10.18
2010.0	3990.0	9.92
1950.0	4050.0	9.88
1890.0	4110.0	9.53
1830.0	4170.0	8.93
1770.0	4230.0	8.40
1710.0	4290.0	8.36
1650.0	4350.0	8.61
1590.0	4410.0	8.75
1530.0	4470.0	8.52
1470.0	4530.0	8.82
1410.0	4590.0	8.98
1350.0	4650.0	8.81
1290.0	4710.0	8.48
1230.0	4770.0	7.90
1170.0	4830.0	7.63
1110.0	4890.0	7.32
1050.0	4950.0	6.95
990.0	5010.0	6.73
930.0	5070.0	6.60
870.0	5130.0	6.44
810.0	5190.0	6.12
750.0	5250.0	5.65
690.0	5310.0	5.64
630.0	5370.0	5.70
570.0	5430.0	5.75
510.0	5490.0	5.67
470.0	5530.0	5.39
410.0	5590.0	5.24
370.0	5630.0	5.23
310.0	5690.0	5.22
270.0	5730.0	5.22
210.0	5790.0	5.37
170.0	5830.0	5.45
110.0	5890.0	5.77
70.0	5930.0	6.10
10.0	5990.0	7.50

Frequency Mixer

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LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+7	+10	+13	+7	+10	+13
1530.0	43.72	35.74	32.91	14.65	16.39	18.11
1650.0	34.84	31.58	30.68	14.42	16.23	17.96
1770.0	34.97	31.89	30.68	14.96	16.95	18.61
1890.0	41.56	37.19	35.39	16.40	18.40	19.78
2010.0	41.96	44.56	44.31	17.39	18.97	19.76
2130.0	34.22	34.57	33.93	16.97	18.01	18.52
2250.0	31.01	31.04	30.63	17.52	18.11	17.84
2370.0	30.71	30.72	30.52	18.75	18.27	17.67
2490.0	31.80	32.12	31.74	19.15	18.27	17.20
2610.0	33.10	33.42	32.90	19.18	18.18	17.29
2730.0	35.41	34.75	34.24	20.08	18.54	17.61
2850.0	35.23	34.66	34.15	20.35	19.18	18.24
2970.0	34.88	34.06	33.74	20.32	19.30	18.82
3090.0	34.34	33.67	33.06	19.18	19.15	18.84
3210.0	36.43	34.69	33.88	17.66	18.48	19.14
3330.0	41.76	39.39	38.24	15.96	17.44	18.83
3450.0	41.97	39.35	37.97	13.67	15.63	17.54
3570.0	47.41	43.47	39.87	11.60	13.57	15.43
3690.0	36.31	38.43	38.42	10.38	12.05	13.38
3810.0	33.29	34.87	35.33	10.76	11.89	12.64
3930.0	34.50	35.24	34.66	12.68	13.52	13.67
4050.0	35.25	34.75	33.75	14.52	14.33	14.08
4170.0	36.01	33.84	32.71	15.71	14.29	13.81
4290.0	38.03	34.44	32.19	18.67	16.71	15.35
4410.0	46.24	37.10	33.00	23.42	19.18	16.78
4530.0	42.07	35.90	32.41	25.60	19.98	17.51
4650.0	37.82	31.52	28.04	25.85	20.33	17.83
4770.0	38.62	34.80	31.38	25.28	21.19	18.83
4890.0	39.03	36.83	34.27	24.32	21.86	20.06
5010.0	33.36	31.91	30.43	23.72	22.44	21.78
5130.0	30.08	28.71	26.95	22.79	22.55	22.82
5250.0	28.59	28.16	27.18	23.05	23.72	24.41
5370.0	26.07	26.88	27.42	22.64	23.84	24.81
5490.0	23.86	25.01	25.92	21.41	23.08	24.79
5610.0	23.16	24.34	25.08	23.15	25.05	26.59
5730.0	22.82	24.07	25.20	21.29	21.66	22.59
5850.0	22.18	23.67	25.16	14.95	15.35	16.60
5990.0	22.02	24.11	26.25	11.30	11.38	13.05
6010.0	22.06	23.93	26.12	11.24	11.28	12.96
6030.0	22.20	23.94	26.24	11.14	11.18	12.80

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+7	+10	+13
1500.0	1530.0	15.25	12.03	10.64
1620.0	1650.0	12.57	10.95	9.97
1740.0	1770.0	13.02	11.66	11.04
1860.0	1890.0	15.37	14.08	13.39
1980.0	2010.0	20.66	19.70	18.69
2100.0	2130.0	22.25	22.42	23.76
2220.0	2250.0	23.62	23.68	23.12
2340.0	2370.0	22.45	21.32	20.57
2460.0	2490.0	21.80	20.47	19.45
2580.0	2610.0	19.67	18.52	17.91
2700.0	2730.0	18.86	18.14	17.64
2820.0	2850.0	19.42	18.85	18.45
2940.0	2970.0	20.47	19.92	19.50
3060.0	3090.0	22.25	21.49	20.94
3180.0	3210.0	24.21	23.34	22.67
3300.0	3330.0	24.64	23.90	23.40
3420.0	3450.0	25.25	24.88	24.49
3540.0	3570.0	26.17	26.48	26.53
3660.0	3690.0	27.48	26.94	26.67
3780.0	3810.0	20.92	19.96	19.38
3900.0	3930.0	17.42	16.55	15.89
4020.0	4050.0	15.69	15.18	14.74
4140.0	4170.0	14.88	14.16	13.66
4260.0	4290.0	13.81	13.16	12.90
4380.0	4410.0	14.68	13.64	13.07
4500.0	4530.0	16.52	15.52	14.85
4620.0	4650.0	16.30	15.39	14.88
4740.0	4770.0	17.58	16.71	16.22
4860.0	4890.0	20.91	20.08	19.46
4980.0	5010.0	20.13	20.01	20.02
5100.0	5130.0	19.73	19.07	18.92
5220.0	5250.0	20.37	18.92	18.30
5340.0	5370.0	23.95	22.12	21.06
5460.0	5490.0	20.34	18.69	17.87
5580.0	5610.0	18.59	18.17	18.11
5700.0	5730.0	20.90	22.29	23.24
5820.0	5850.0	21.73	23.07	22.66
5960.0	5990.0	20.27	21.40	19.10
5980.0	6010.0	20.84	21.16	18.53
6000.0	6030.0	20.82	20.61	17.96

Frequency Mixer

ZX05-C60LH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=6000MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+7	+10	+13		+7	+10	+13		+7	+10	+13
1500.0	1530.0	2.92	2.01	1.75	1530.0	8.77	6.15	6.51	10.0	1.42	1.15	1.42
1620.0	1650.0	2.66	2.12	1.77	1650.0	5.30	4.72	5.06	70.0	1.44	1.21	1.45
1740.0	1770.0	2.58	2.27	2.09	1770.0	3.56	3.52	4.02	130.0	1.51	1.26	1.48
1860.0	1890.0	2.64	2.44	2.33	1890.0	2.27	2.57	3.20	190.0	1.57	1.35	1.56
1980.0	2010.0	2.84	2.65	2.54	2010.0	1.79	2.21	2.85	250.0	1.67	1.44	1.62
2100.0	2130.0	2.82	2.60	2.46	2130.0	1.70	2.13	2.72	310.0	1.78	1.50	1.65
2220.0	2250.0	2.44	2.19	2.08	2250.0	1.60	1.92	2.45	370.0	1.89	1.60	1.76
2340.0	2370.0	2.55	2.25	2.07	2370.0	1.55	1.83	2.32	430.0	2.03	1.67	1.79
2460.0	2490.0	2.43	2.16	1.97	2490.0	1.62	1.90	2.39	490.0	2.12	1.69	1.81
2580.0	2610.0	2.08	1.84	1.73	2610.0	1.67	1.83	2.31	550.0	2.26	1.78	1.88
2700.0	2730.0	2.01	1.87	1.79	2730.0	1.49	1.75	2.26	590.0	2.37	1.81	1.87
2820.0	2850.0	2.24	2.12	2.04	2850.0	1.36	1.75	2.31	650.0	2.52	1.87	1.90
2940.0	2970.0	2.81	2.61	2.46	2970.0	1.32	1.83	2.46	690.0	2.63	1.90	1.90
3060.0	3090.0	3.08	2.90	2.77	3090.0	1.34	1.92	2.58	750.0	2.72	1.93	1.88
3180.0	3210.0	3.17	2.93	2.74	3210.0	1.44	2.01	2.66	790.0	2.86	1.97	1.90
3300.0	3330.0	3.25	2.98	2.83	3330.0	1.59	2.12	2.75	850.0	2.97	1.98	1.86
3420.0	3450.0	3.34	3.09	2.92	3450.0	1.84	2.31	2.93	890.0	3.15	2.04	1.88
3540.0	3570.0	3.28	3.04	2.86	3570.0	2.15	2.55	3.15	950.0	3.35	2.05	1.82
3660.0	3690.0	3.28	2.96	2.77	3690.0	2.48	2.82	3.30	990.0	3.53	2.11	1.84
3780.0	3810.0	3.07	2.80	2.67	3810.0	2.80	2.95	3.29	1050.0	3.75	2.14	1.80
3900.0	3930.0	3.24	2.81	2.52	3930.0	3.12	3.19	3.50	1090.0	3.91	2.24	1.87
4020.0	4050.0	3.18	2.89	2.64	4050.0	3.30	3.19	3.46	1150.0	4.21	2.29	1.85
4140.0	4170.0	3.08	2.63	2.37	4170.0	3.28	2.77	2.94	1190.0	4.30	2.34	1.87
4260.0	4290.0	2.84	2.56	2.43	4290.0	4.17	3.14	3.01	1250.0	4.59	2.45	1.92
4380.0	4410.0	2.86	2.38	2.19	4410.0	5.70	3.52	2.94	1290.0	4.70	2.48	1.93
4500.0	4530.0	3.03	2.35	2.09	4530.0	6.39	3.60	2.71	1350.0	4.98	2.61	2.04
4620.0	4650.0	2.77	2.01	1.73	4650.0	6.32	3.40	2.38	1390.0	5.16	2.67	2.07
4740.0	4770.0	2.88	2.33	2.13	4770.0	5.72	3.00	1.99	1450.0	5.36	2.78	2.20
4860.0	4890.0	4.64	3.84	3.37	4890.0	4.82	2.55	1.65	1490.0	5.47	2.81	2.22
4980.0	5010.0	3.70	3.08	2.74	5010.0	3.79	2.09	1.45	1550.0	5.66	2.91	2.35
5100.0	5130.0	2.79	2.32	2.05	5130.0	2.71	1.72	1.47	1590.0	5.66	2.89	2.34
5220.0	5250.0	2.41	2.12	1.97	5250.0	1.90	1.51	1.68	1650.0	5.83	2.99	2.48
5340.0	5370.0	2.99	2.72	2.50	5370.0	1.34	1.49	1.93	1690.0	5.79	3.02	2.52
5460.0	5490.0	2.45	2.22	2.06	5490.0	1.22	1.71	2.29	1750.0	5.91	3.12	2.65
5580.0	5610.0	2.17	1.96	1.83	5610.0	1.61	2.07	2.67	1790.0	5.75	3.15	2.70
5700.0	5730.0	1.85	1.65	1.54	5730.0	2.30	2.56	3.05	1850.0	5.75	3.20	2.80
5820.0	5850.0	1.65	1.44	1.34	5850.0	3.29	3.17	3.45	1890.0	5.56	3.22	2.86
5960.0	5990.0	1.62	1.44	1.55	5990.0	4.44	3.95	4.02	1950.0	5.51	3.31	3.00
5980.0	6010.0	1.59	1.44	1.57	6010.0	4.62	4.18	4.19	1990.0	5.28	3.34	3.09
6000.0	6030.0	1.55	1.46	1.62	6030.0	4.78	4.38	4.33	2050.0	5.25	3.48	3.26

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+15	16	16	22	19	45	---	---	---	---
1	-	12	+0	25	21	41	34	39	51	---	---	---
2	>90	50	41	49	40	54	54	55	53	>73	---	---
3	>90	56	53	69	54	60	59	65	>73	66	71	---
4	>90	>73	>73	>73	73	>73	>73	>73	>73	>73	>73	>73
5	>90	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
6	>90	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
7	---	---	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
8	---	---	---	>73	>73	>73	>73	>73	>73	>73	>73	>73
9	---	---	---	---	>73	>73	>73	>73	>73	>73	>73	>73
10	---	---	---	---	---	>73	>73	>73	>73	>73	>73	>73
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 3800 MHz; -10.00 dBm.

LO IN: 3830 MHz; +10.00 dBm

IF OUT: 30 MHz; -16.98 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+5	26	28	36	32	57	---	---	---	---
1	-	11	+0	28	19	49	37	47	60	---	---	---
2	69	36	33	37	33	46	46	65	49	72	---	---
3	>90	36	34	53	36	46	48	53	53	54	69	---
4	>90	65	62	56	50	60	50	70	61	70	68	80
5	>90	69	66	56	53	71	49	61	54	65	70	68
6	>90	>83	80	82	69	74	65	76	63	73	69	74
7	---	---	>83	>83	81	68	67	>83	60	69	64	70
8	---	---	---	>83	>83	>83	78	>83	79	>83	74	79
9	---	---	---	---	>83	>83	>83	79	77	>83	69	76
10	---	---	---	---	---	>83	>83	>83	>83	>83	>83	>83
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 3800 MHz; 0.00 dBm.

LO IN: 3830 MHz; +10.00 dBm

IF OUT: 30 MHz; -7.08 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

ZX05-60LH+

101011

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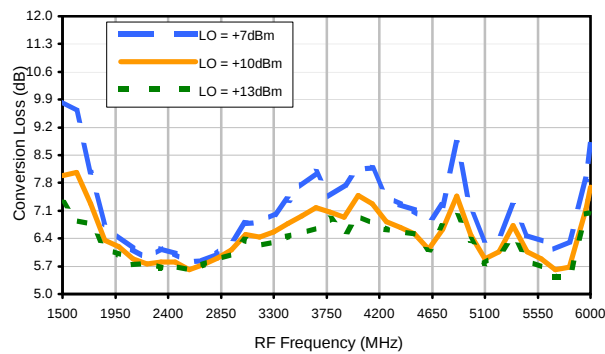


Frequency Mixer

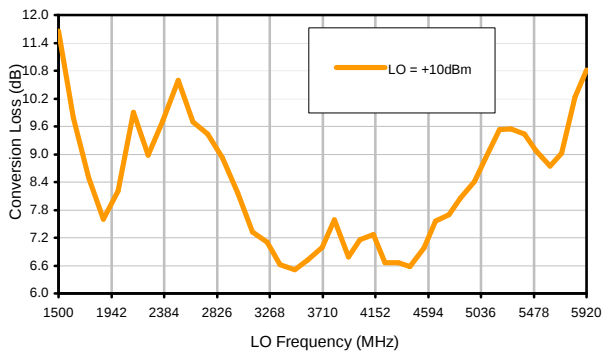
ZX05-C60LH+

Typical Performance Curves

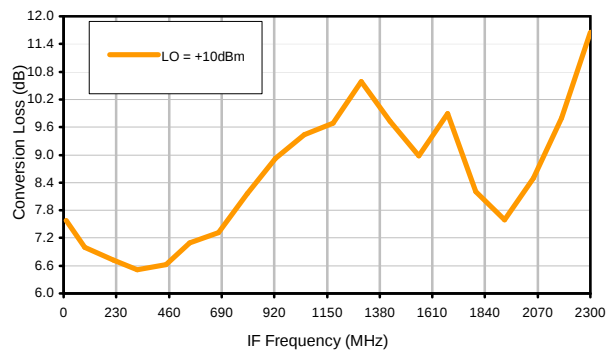
Conversion Loss @ IF=30MHz



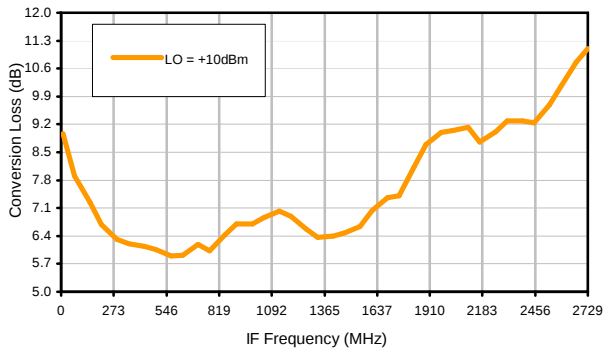
Conversion Loss vs. LO @ RF=3800MHz



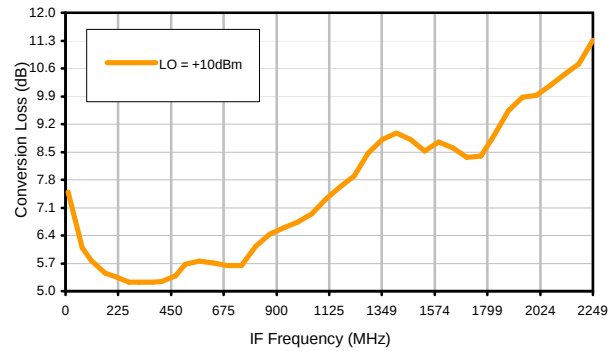
Conversion Loss vs. IF @ RF=3800MHz



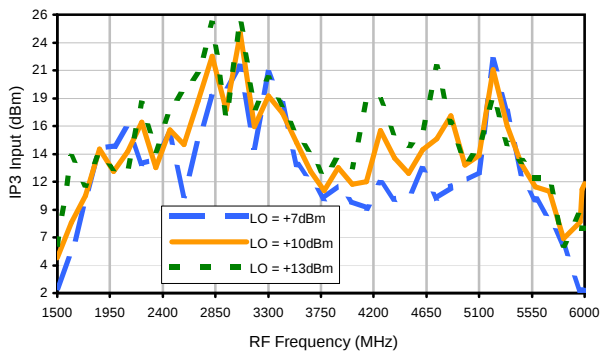
Conversion Loss vs. IF @ RF=1600MHz



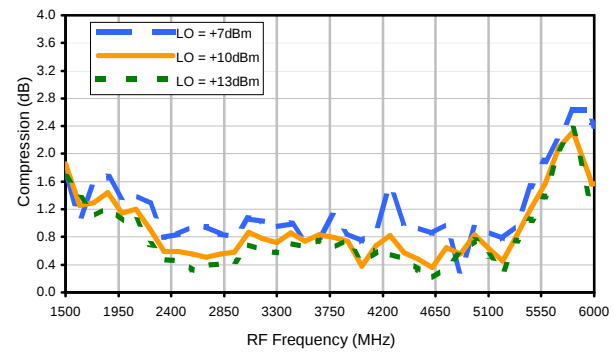
Conversion Loss vs. IF @ RF=6000MHz



IP3 Input

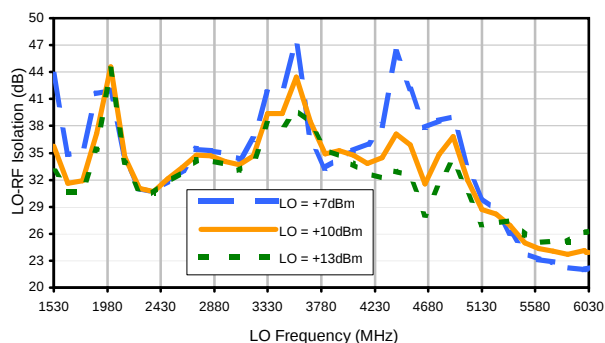


Compression @ RF IN=+5dBm

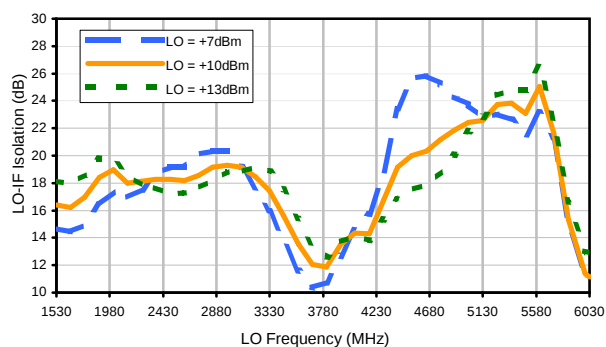


Typical Performance Curves

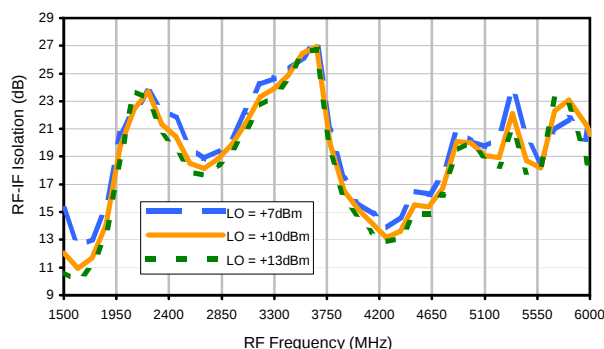
LO-RF Isolation



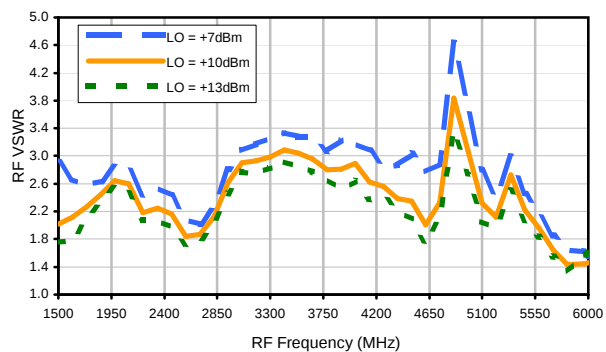
LO-IF Isolation



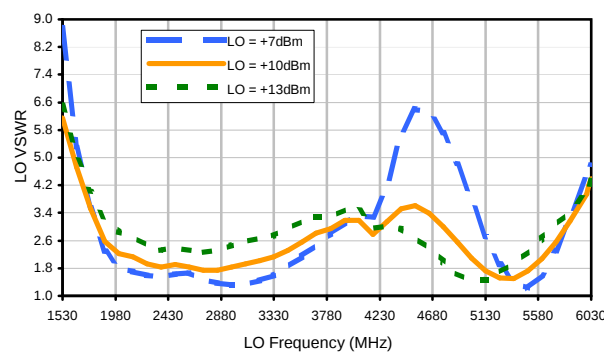
RF-IF Isolation



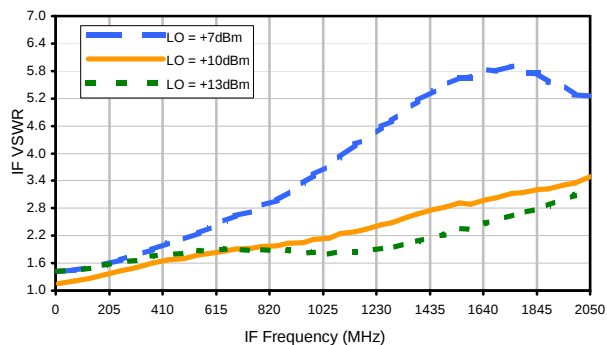
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+15	16	16	22	19	45	---	---	---	---
1	-	12	+0	25	21	41	34	39	51	---	---	---
2	>90	50	41	49	40	54	54	55	53	>73	---	---
3	>90	56	53	69	54	60	59	65	>73	66	71	---
4	>90	>73	>73	>73	73	>73	>73	>73	>73	>73	>73	>73
5	>90	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
6	>90	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
7	---	---	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
8	---	---	---	>73	>73	>73	>73	>73	>73	>73	>73	>73
9	---	---	---	---	>73	>73	>73	>73	>73	>73	>73	>73
10	---	---	---	---	---	>73	>73	>73	>73	>73	>73	>73
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 3800 MHz; -10.00 dBm.
LO IN: 3830 MHz; +10.00 dBm
IF OUT: 30 MHz; -16.98 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+5	26	28	36	32	57	---	---	---	---
1	-	11	+0	28	19	49	37	47	60	---	---	---
2	69	36	33	37	33	46	46	65	49	72	---	---
3	>90	36	34	53	36	46	48	53	53	54	69	---
4	>90	65	62	56	50	60	50	70	61	70	68	80
5	>90	69	66	56	53	71	49	61	54	65	70	68
6	>90	>83	80	82	69	74	65	76	63	73	69	74
7	---	---	>83	>83	81	68	67	>83	60	69	64	70
8	---	---	---	>83	>83	>83	78	>83	79	>83	74	79
9	---	---	---	---	>83	>83	>83	79	77	>83	69	76
10	---	---	---	---	---	>83	>83	>83	>83	>83	>83	>83
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 3800 MHz; 0.00 dBm.
LO IN: 3830 MHz; +10.00 dBm
IF OUT: 30 MHz; -7.08 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.

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