

Frequency Mixer WIDE BAND

ZX05-63LH-S+

Level 10 (LO Power +10 dBm) 750 to 6000 MHz

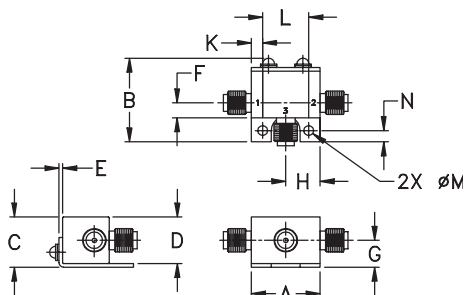
Maximum Ratings

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

Coaxial Connections

LO	2
RF	3
IF	1

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

- wide bandwidth, 750 to 6000 MHz
- low conversion loss, 6.2 dB typ.
- excellent L-R isolation, 34 dB typ.
- rugged construction
- small size
- useable as up and down converter
- protected by US patents, 6,790,049 and 7,027,795

Applications

- cellular
- defense and weather radar
- defense communications
- PCN
- WCDMA
- WIFI
- blue tooth
- VSAT

Electrical Specifications

FREQUENCY (MHz)		CONVERSION LOSS* (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
		Typ.	σ	Max.	Typ.	Min.	Typ.	Min.	
LO/RF $f_c - f_u$	IF								
750-6000	DC-1000								
750-1700		6.3	0.1	7.5	37	27	30	20	10
1700-2000		6.6	0.1	7.5	34	29	17	10	16
2000-3100		5.8	0.1	7.4	30	22	20	10	8
3100-3800		6.0	0.1	7.7	26	21	24	16	13
3800-6000		8.0	0.2	9.6	25	20	20	12	15

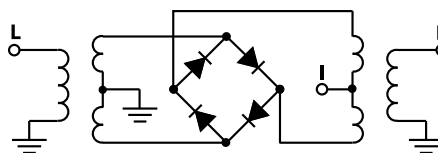
1 dB COMPR.: +3 dBm typ.

* Conversion loss at 30 MHz IF. σ is a measure of repeatability from unit to unit.

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
750.00	780.00	6.60	40.63	26.74	2.25	8.35
910.00	940.00	6.25	39.15	28.45	1.72	4.37
1110.00	1140.00	6.07	42.18	31.98	2.92	2.27
1510.00	1540.00	5.90	32.02	33.61	2.72	1.84
1690.00	1720.00	6.08	33.84	24.01	2.75	2.49
1990.00	2020.00	6.34	33.41	13.04	2.95	2.53
2210.00	2240.00	6.41	33.26	13.81	2.98	2.46
2410.00	2440.00	5.71	30.45	17.02	1.93	2.35
2610.00	2640.00	6.07	27.96	19.56	2.17	2.02
2850.00	2880.00	5.09	26.10	19.91	1.32	1.24
3090.00	3120.00	5.13	25.33	22.29	1.61	1.17
3250.00	3280.00	5.48	25.13	24.67	1.66	1.39
3790.00	3820.00	6.60	25.66	19.37	2.74	2.42
4010.00	4040.00	7.22	26.37	19.41	3.74	2.95
4250.00	4280.00	7.55	26.01	16.82	3.78	3.26
4500.00	4530.00	6.96	26.36	15.62	2.69	3.90
4800.00	4830.00	7.22	26.30	21.35	2.74	4.17
5040.00	5070.00	7.63	25.78	31.97	3.25	3.73
5500.00	5530.00	8.10	24.40	21.73	4.25	3.14
6000.00	6030.00	8.09	23.12	18.03	3.37	2.21

Electrical Schematic



Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
 B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
 C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



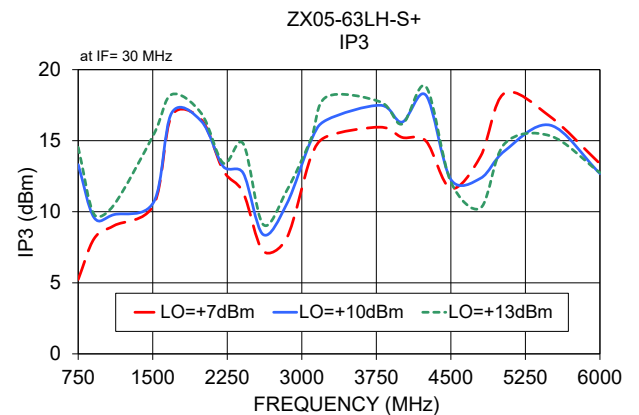
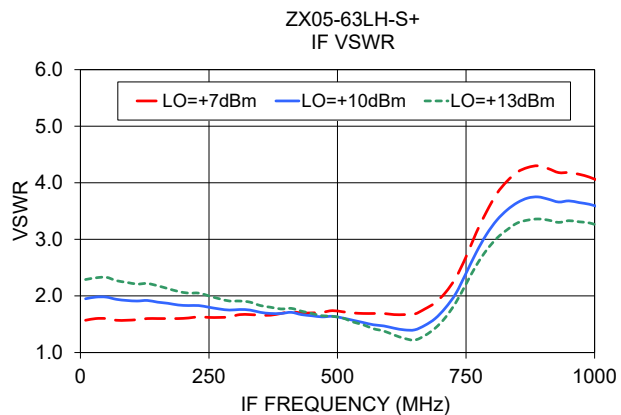
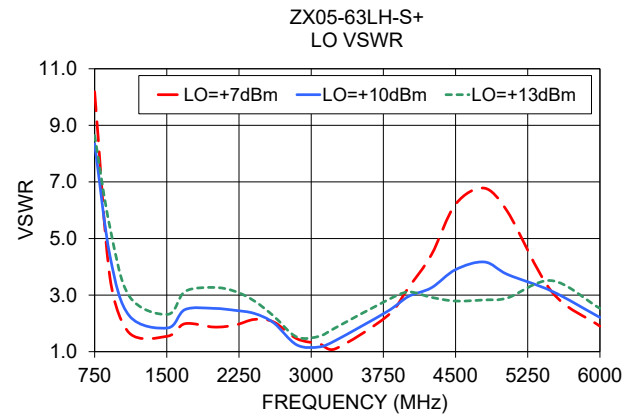
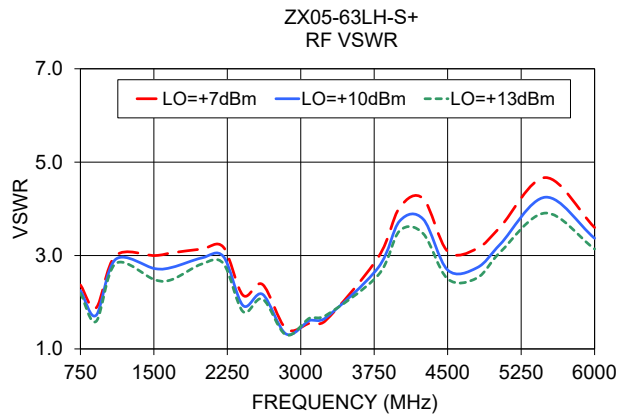
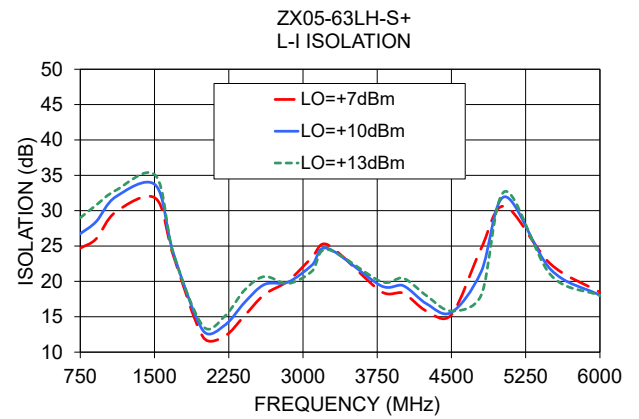
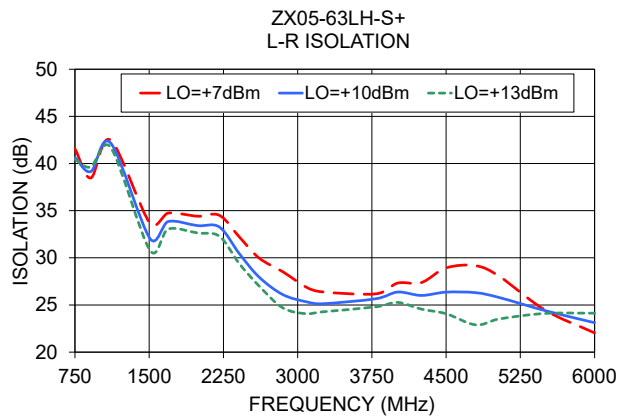
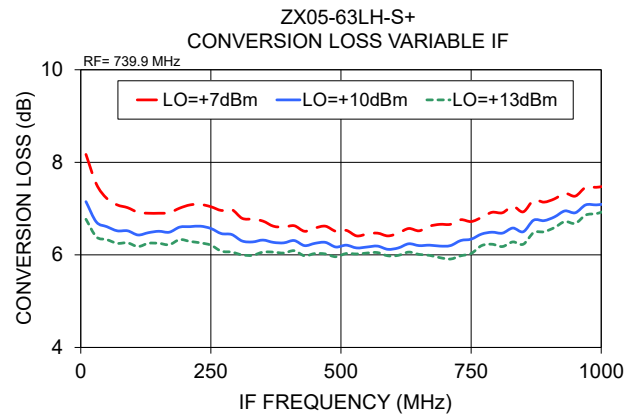
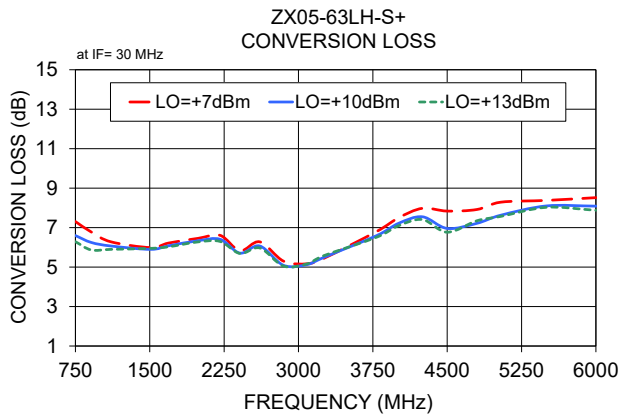
Generic photo used for illustration purposes only

CASE STYLE: FL905

Connectors	Model
SMA	ZX05-63LH-S+

+RoHS Compliant

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



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Frequency Mixer

ZX05-63LH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+7	+10	+13
550.0	580.0	19.19	12.50	8.87
750.0	780.0	7.31	6.60	6.29
950.0	980.0	6.81	6.27	5.85
1150.0	1180.0	6.41	6.28	6.18
1350.0	1380.0	6.26	6.21	6.25
1550.0	1580.0	6.17	6.02	5.98
1750.0	1780.0	6.45	6.27	6.21
1950.0	1980.0	6.62	6.49	6.43
2150.0	2180.0	6.51	6.36	6.29
2350.0	2380.0	6.11	5.93	5.85
2550.0	2580.0	6.51	6.08	5.82
2750.0	2780.0	5.56	5.32	5.21
2950.0	2980.0	5.09	5.00	5.02
3150.0	3180.0	5.27	5.30	5.38
3350.0	3380.0	5.53	5.53	5.59
3550.0	3580.0	6.07	5.94	5.91
3730.0	3760.0	6.61	6.42	6.38
3910.0	3940.0	7.45	7.11	6.91
4010.0	4040.0	7.50	7.22	7.10
4090.0	4120.0	7.72	7.36	7.25
4190.0	4220.0	8.11	7.63	7.46
4270.0	4300.0	8.05	7.56	7.42
4370.0	4400.0	8.73	7.83	7.59
4520.0	4550.0	7.82	6.95	6.79
4640.0	4670.0	8.10	7.16	6.98
4780.0	4810.0	8.00	7.25	7.33
4900.0	4930.0	7.97	7.30	7.29
5040.0	5070.0	8.29	7.63	7.57
5160.0	5190.0	8.54	7.96	7.89
5300.0	5330.0	8.28	8.02	8.08
5420.0	5450.0	8.36	8.04	8.00
5560.0	5590.0	8.55	8.26	8.15
5680.0	5710.0	8.14	7.94	7.90
5820.0	5850.0	7.83	7.65	7.62
5940.0	5970.0	8.61	8.22	8.05
6080.0	6110.0	8.20	7.81	7.62
6200.0	6230.0	7.89	7.55	7.32
6340.0	6370.0	8.16	7.87	7.64
6460.0	6490.0	9.40	9.02	8.78
6600.0	6630.0	14.98	12.80	12.11

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+7	+10	+13
550.0	580.0	-4.69	1.33	11.39
750.0	780.0	5.24	13.31	14.53
950.0	980.0	6.35	7.94	9.60
1150.0	1180.0	8.94	9.04	9.42
1350.0	1380.0	11.85	11.61	13.01
1550.0	1580.0	14.71	13.50	16.22
1750.0	1780.0	14.26	15.40	19.95
1950.0	1980.0	18.69	18.52	18.78
2150.0	2180.0	14.48	14.86	15.31
2350.0	2380.0	10.21	11.61	12.54
2550.0	2580.0	7.65	8.63	9.91
2750.0	2780.0	5.21	6.07	7.31
2950.0	2980.0	11.89	12.65	12.76
3150.0	3180.0	14.24	15.51	16.19
3350.0	3380.0	17.19	18.84	18.91
3550.0	3580.0	14.90	14.82	15.88
3730.0	3760.0	16.81	15.55	15.21
3910.0	3940.0	14.29	15.12	15.86
4010.0	4040.0	15.23	16.31	16.17
4090.0	4120.0	16.13	18.63	17.08
4190.0	4220.0	15.09	17.38	17.41
4270.0	4300.0	15.46	18.76	19.11
4370.0	4400.0	19.68	20.22	19.84
4520.0	4550.0	11.58	11.89	11.46
4640.0	4670.0	12.83	11.34	11.19
4780.0	4810.0	14.48	12.21	10.30
4900.0	4930.0	13.87	13.33	12.63
5040.0	5070.0	18.34	14.27	14.78
5160.0	5190.0	17.21	15.09	15.72
5300.0	5330.0	13.13	15.48	14.43
5420.0	5450.0	16.26	16.37	16.22
5560.0	5590.0	17.00	16.92	15.17
5680.0	5710.0	15.06	17.73	17.29
5820.0	5850.0	16.58	15.48	16.10
5940.0	5970.0	15.08	14.11	14.34
6080.0	6110.0	12.03	11.55	11.78
6200.0	6230.0	11.57	10.93	11.17
6340.0	6370.0	13.18	12.82	12.12
6460.0	6490.0	12.69	14.75	14.71
6600.0	6630.0	9.76	11.60	13.95

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+3dBm (dB)		
		@LO (dBm)		
		+7	+10	+13
550.0	580.0	-4.17	-0.23	1.02
750.0	780.0	3.42	2.71	2.23
950.0	980.0	2.75	2.65	2.58
1150.0	1180.0	2.04	1.69	1.39
1350.0	1380.0	1.13	0.87	0.73
1550.0	1580.0	0.90	0.70	0.56
1750.0	1780.0	0.98	0.70	0.50
1950.0	1980.0	0.90	0.69	0.52
2150.0	2180.0	1.09	0.85	0.66
2350.0	2380.0	1.38	1.14	0.94
2550.0	2580.0	1.76	1.58	1.38
2750.0	2780.0	2.26	1.97	1.77
2950.0	2980.0	1.78	1.46	1.31
3150.0	3180.0	1.09	0.77	0.65
3350.0	3380.0	1.48	1.09	0.84
3550.0	3580.0	1.51	1.15	0.91
3730.0	3760.0	1.16	0.89	0.71
3910.0	3940.0	1.06	0.87	0.77
4010.0	4040.0	0.93	0.76	0.70
4090.0	4120.0	0.79	0.60	0.50
4190.0	4220.0	0.81	0.60	0.47
4270.0	4300.0	0.84	0.61	0.46
4370.0	4400.0	0.93	0.70	0.56
4520.0	4550.0	1.48	1.14	1.03
4640.0	4670.0	1.57	1.19	1.01
4780.0	4810.0	1.38	1.15	1.07
4900.0	4930.0	1.07	0.81	0.73
5040.0	5070.0	0.86	0.62	0.55
5160.0	5190.0	0.70	0.49	0.44
5300.0	5330.0	0.78	0.49	0.43
5420.0	5450.0	0.58	0.43	0.42
5560.0	5590.0	0.46	0.35	0.31
5680.0	5710.0	0.57	0.40	0.35
5820.0	5850.0	0.59	0.44	0.37
5940.0	5970.0	0.73	0.66	0.60
6080.0	6110.0	1.00	0.91	0.88
6200.0	6230.0	1.17	1.04	1.00
6340.0	6370.0	1.25	1.03	0.96
6460.0	6490.0	1.20	0.83	0.75
6600.0	6630.0	0.73	0.84	0.58

Frequency Mixer

ZX05-63LH+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=3010.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=739.9MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=6010.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+10			+10			+10
1550.1	1460.0	10.80	10.1	750.0	7.15	1510.1	4500.0	12.60
1510.1	1500.0	9.60	50.1	790.0	6.61	1470.1	4540.0	12.09
1470.1	1540.0	8.86	90.1	830.0	6.52	1430.1	4580.0	11.81
1430.1	1580.0	8.52	130.1	870.0	6.48	1390.1	4620.0	11.43
1390.1	1620.0	8.25	170.1	910.0	6.49	1350.1	4660.0	11.16
1350.1	1660.0	8.09	210.1	950.0	6.61	1310.1	4700.0	11.12
1310.1	1700.0	7.72	250.1	990.0	6.57	1270.1	4740.0	10.77
1270.1	1740.0	7.42	290.1	1030.0	6.44	1230.1	4780.0	10.57
1230.1	1780.0	7.56	330.1	1070.0	6.28	1190.1	4820.0	10.21
1190.1	1820.0	8.01	370.1	1110.0	6.27	1150.1	4860.0	9.78
1150.1	1860.0	8.15	410.1	1150.0	6.31	1110.1	4900.0	9.45
1110.1	1900.0	8.11	450.1	1190.0	6.25	1070.1	4940.0	9.00
1070.1	1940.0	8.05	490.1	1230.0	6.17	1030.1	4980.0	8.63
1030.1	1980.0	8.02	530.1	1270.0	6.15	990.1	5020.0	8.33
990.1	2020.0	7.96	570.1	1310.0	6.19	950.1	5060.0	7.96
950.1	2060.0	7.63	610.1	1350.0	6.15	910.1	5100.0	7.94
910.1	2100.0	7.42	650.1	1390.0	6.20	870.1	5140.0	7.68
870.1	2140.0	7.12	690.1	1430.0	6.19	830.1	5180.0	7.62
830.1	2180.0	6.75	730.1	1470.0	6.31	790.1	5220.0	7.52
790.1	2220.0	6.59	770.1	1510.0	6.45	750.1	5260.0	7.34
750.1	2260.0	6.44	810.1	1550.0	6.47	710.1	5300.0	7.35
710.1	2300.0	6.52	850.1	1590.0	6.50	670.1	5340.0	7.14
670.1	2340.0	6.53	890.1	1630.0	6.74	630.1	5380.0	7.04
630.1	2380.0	6.54	930.1	1670.0	6.95	590.1	5420.0	6.93
590.1	2420.0	6.09	970.1	1710.0	7.08	550.1	5460.0	6.91
550.1	2460.0	5.82	1010.1	1750.0	7.09	510.1	5500.0	6.98
510.1	2500.0	5.55	1050.1	1790.0	6.97	470.1	5540.0	6.86
470.1	2540.0	5.35	1090.1	1830.0	7.24	430.1	5580.0	6.78
430.1	2580.0	5.25	1130.1	1870.0	7.40	390.1	5620.0	6.89
390.1	2620.0	5.30	1170.1	1910.0	7.56	350.1	5660.0	6.92
350.1	2660.0	5.22	1210.1	1950.0	7.62	310.1	5700.0	7.04
310.1	2700.0	5.19	1250.1	1990.0	7.82	270.1	5740.0	7.25
270.1	2740.0	5.13	1290.1	2030.0	7.98	230.1	5780.0	7.51
230.1	2780.0	5.19	1330.1	2070.0	8.09	190.1	5820.0	7.81
190.1	2820.0	5.28	1370.1	2110.0	8.24	150.1	5860.0	8.00
150.1	2860.0	5.28	1410.1	2150.0	8.47	130.1	5880.0	8.10
110.1	2900.0	5.19	1450.1	2190.0	8.64	90.1	5920.0	8.11
70.1	2940.0	5.15	1490.1	2230.0	9.04	70.1	5940.0	8.04
30.1	2980.0	5.07	1530.1	2270.0	9.49	30.1	5980.0	8.00
10.1	3000.0	5.50	1590.1	2330.0	10.59	10.1	6000.0	8.36

REV. X2
ZX05-63LH+
101011
Page 2 of 5



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED • RoHS compliant
P.O. Box 350186, Brooklyn, New York 11235-0008 (718) 934-4500 Fax (718) 332-4661



The Design Engineers Search Engine finds the model you need, instantly • For detailed performance specs & shopping online see



Frequency Mixer

ZX05-63LH+

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+7	+10	+13	+7	+10	+13
580.0	63.45	61.39	57.89	28.88	29.02	29.15
780.0	41.56	40.63	40.44	24.70	26.74	28.99
980.0	40.40	41.01	41.50	26.69	29.00	31.11
1180.0	41.05	40.43	39.67	30.66	32.25	32.44
1380.0	35.15	33.80	32.71	34.02	35.24	35.38
1580.0	33.73	32.61	31.73	29.06	30.36	31.29
1780.0	35.56	34.34	33.22	21.21	21.45	21.31
1980.0	34.56	33.58	32.83	13.04	13.91	14.39
2180.0	34.91	33.62	32.74	11.63	13.04	14.15
2380.0	32.27	30.75	29.52	14.31	16.03	17.69
2580.0	31.12	29.87	29.25	17.19	18.76	20.20
2780.0	29.16	27.24	25.56	19.24	19.71	19.79
2980.0	29.15	26.63	25.11	21.25	20.40	19.94
3180.0	26.71	25.38	24.20	24.41	23.57	22.91
3380.0	27.34	26.20	25.58	22.76	22.56	22.42
3580.0	26.33	25.60	25.13	22.35	22.66	23.06
3760.0	26.10	25.39	24.62	18.77	19.30	19.74
3940.0	26.79	26.15	25.21	19.36	20.00	20.67
4040.0	27.32	26.37	25.27	18.35	19.41	20.46
4120.0	27.12	26.29	25.18	16.71	17.76	18.88
4220.0	26.99	25.98	24.63	15.77	16.77	17.92
4300.0	27.83	26.32	24.62	15.51	16.49	17.61
4400.0	29.46	27.18	25.08	15.03	15.82	16.76
4550.0	28.75	26.19	23.87	15.37	15.61	15.63
4670.0	28.87	26.27	23.15	17.25	16.86	15.46
4810.0	29.10	26.50	22.98	23.17	20.55	17.38
4930.0	28.98	26.37	23.38	38.13	31.88	27.43
5070.0	28.02	25.78	23.52	30.61	31.97	32.72
5190.0	27.04	25.32	23.76	26.74	27.04	26.72
5330.0	25.81	24.93	24.14	24.70	24.32	23.79
5450.0	24.79	24.49	24.12	23.32	22.66	22.00
5590.0	24.27	24.36	24.22	21.96	21.12	20.48
5710.0	24.14	24.54	24.72	21.17	20.19	19.74
5850.0	23.40	24.23	24.50	19.71	19.17	18.62
5970.0	22.69	23.76	24.70	18.72	18.20	18.07
6110.0	21.45	22.59	23.67	18.27	18.02	18.10
6230.0	21.12	22.47	23.50	18.04	18.30	18.37
6370.0	22.28	23.88	25.14	18.39	19.09	19.52
6490.0	24.64	26.57	28.27	18.50	19.69	20.47
6630.0	29.01	29.94	31.33	17.62	18.74	19.14

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+7	+10	+13
550.0	580.0	28.19	24.87	20.29
750.0	780.0	15.77	14.32	13.73
950.0	980.0	13.04	12.49	12.14
1150.0	1180.0	19.12	18.82	18.59
1350.0	1380.0	25.03	25.52	25.81
1550.0	1580.0	27.10	27.10	26.93
1750.0	1780.0	26.91	26.76	26.66
1950.0	1980.0	34.07	33.90	33.78
2150.0	2180.0	38.73	38.67	38.80
2350.0	2380.0	39.43	39.65	39.88
2550.0	2580.0	35.36	35.39	35.77
2750.0	2780.0	28.79	28.56	28.48
2950.0	2980.0	26.35	26.47	26.85
3150.0	3180.0	23.48	23.15	23.13
3350.0	3380.0	28.25	27.43	26.63
3550.0	3580.0	20.01	19.82	19.70
3730.0	3760.0	22.13	21.38	21.07
3910.0	3940.0	30.07	29.81	30.35
4010.0	4040.0	39.05	37.74	35.98
4090.0	4120.0	28.93	27.45	26.62
4190.0	4220.0	24.96	23.27	22.25
4270.0	4300.0	23.66	21.67	20.76
4370.0	4400.0	27.85	26.80	26.85
4520.0	4550.0	28.12	27.53	26.68
4640.0	4670.0	27.25	25.93	24.68
4780.0	4810.0	27.86	25.14	23.31
4900.0	4930.0	24.46	23.14	22.15
5040.0	5070.0	23.06	23.60	23.76
5160.0	5190.0	24.58	25.25	25.68
5300.0	5330.0	27.45	28.29	28.93
5420.0	5450.0	30.17	30.94	31.60
5560.0	5590.0	32.40	33.31	34.02
5680.0	5710.0	34.31	35.22	35.52
5820.0	5850.0	33.90	34.52	34.77
5940.0	5970.0	29.66	29.74	29.64
6080.0	6110.0	25.98	25.61	25.13
6200.0	6230.0	24.19	23.69	22.91
6340.0	6370.0	22.52	22.03	21.33
6460.0	6490.0	21.60	21.29	20.97
6600.0	6630.0	21.78	21.32	21.62

Frequency Mixer

ZX05-63LH+

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
550.0	580.0	10.89	6.81	4.82	580.0	36.97	34.75	28.03	10.0	1.57	1.95	2.29
750.0	780.0	2.37	2.25	2.19	780.0	10.19	8.35	8.64	50.0	1.60	1.98	2.33
950.0	980.0	2.13	1.96	1.82	980.0	3.07	3.85	4.80	90.0	1.57	1.92	2.24
1150.0	1180.0	3.15	3.12	3.07	1180.0	1.46	2.01	2.62	130.0	1.60	1.92	2.22
1350.0	1380.0	3.19	3.08	3.05	1380.0	1.08	1.40	1.86	170.0	1.60	1.87	2.13
1550.0	1580.0	2.95	2.71	2.48	1580.0	1.67	2.01	2.53	210.0	1.61	1.83	2.05
1750.0	1780.0	3.05	2.74	2.55	1780.0	2.07	2.62	3.31	250.0	1.62	1.80	2.00
1950.0	1980.0	3.18	3.01	2.89	1980.0	1.92	2.61	3.39	290.0	1.63	1.75	1.91
2150.0	2180.0	3.08	2.89	2.75	2180.0	1.90	2.48	3.17	330.0	1.67	1.75	1.89
2350.0	2380.0	2.59	2.39	2.24	2380.0	2.08	2.40	2.90	370.0	1.66	1.69	1.80
2550.0	2580.0	2.82	2.60	2.44	2580.0	1.98	2.03	2.35	410.0	1.72	1.71	1.78
2750.0	2780.0	1.90	1.70	1.52	2780.0	1.64	1.52	1.76	450.0	1.70	1.65	1.69
2950.0	2980.0	1.34	1.34	1.35	2980.0	1.43	1.15	1.45	490.0	1.74	1.64	1.64
3150.0	3180.0	1.60	1.67	1.73	3180.0	1.18	1.24	1.65	530.0	1.70	1.57	1.54
3350.0	3380.0	1.54	1.51	1.51	3380.0	1.17	1.56	2.05	570.0	1.69	1.49	1.42
3550.0	3580.0	2.26	2.13	2.06	3580.0	1.63	1.98	2.48	610.0	1.67	1.43	1.31
3730.0	3760.0	3.09	2.88	2.74	3760.0	2.12	2.37	2.82	650.0	1.68	1.40	1.22
3910.0	3940.0	3.85	3.56	3.33	3940.0	2.77	2.73	3.03	690.0	1.88	1.60	1.43
4010.0	4040.0	4.03	3.74	3.53	4040.0	3.26	2.95	3.11	730.0	2.32	2.04	1.88
4090.0	4120.0	4.10	3.74	3.46	4120.0	3.72	3.13	3.11	770.0	3.12	2.77	2.54
4190.0	4220.0	4.42	3.98	3.67	4220.0	4.20	3.26	3.04	810.0	3.81	3.34	3.02
4270.0	4300.0	4.16	3.69	3.37	4300.0	4.68	3.29	2.86	850.0	4.19	3.65	3.29
4370.0	4400.0	4.66	4.01	3.69	4400.0	5.72	3.67	2.86	890.0	4.30	3.75	3.36
4520.0	4550.0	3.05	2.67	2.47	4550.0	6.28	3.95	2.78	930.0	4.18	3.66	3.30
4640.0	4670.0	2.98	2.60	2.36	4670.0	6.73	4.29	2.88	970.0	4.15	3.65	3.31
4780.0	4810.0	3.13	2.73	2.51	4810.0	6.91	4.27	2.87	1010.0	4.03	3.57	3.24
4900.0	4930.0	3.24	2.86	2.67	4930.0	6.76	4.00	2.72	1050.0	3.98	3.55	3.26
5040.0	5070.0	3.62	3.25	3.08	5070.0	5.95	3.73	2.90	1090.0	3.95	3.55	3.29
5160.0	5190.0	4.04	3.67	3.52	5190.0	5.19	3.56	3.16	1130.0	3.97	3.63	3.42
5300.0	5330.0	4.36	3.96	3.84	5330.0	4.17	3.40	3.43	1170.0	4.10	3.81	3.64
5420.0	5450.0	4.47	4.05	3.78	5450.0	3.43	3.25	3.56	1210.0	4.20	3.96	3.84
5560.0	5590.0	4.45	4.09	3.74	5590.0	2.94	3.06	3.44	1250.0	4.41	4.27	4.22
5680.0	5710.0	4.19	3.84	3.56	5710.0	2.63	2.90	3.30	1290.0	4.67	4.61	4.64
5820.0	5850.0	3.45	3.14	2.88	5850.0	2.15	2.52	2.93	1330.0	5.10	5.16	5.28
5940.0	5970.0	3.79	3.52	3.28	5970.0	1.94	2.27	2.62	1370.0	5.68	5.87	6.11
6080.0	6110.0	2.92	2.73	2.55	6110.0	1.90	2.19	2.48	1390.0	6.01	6.28	6.56
6200.0	6230.0	2.10	1.99	1.84	6230.0	2.11	2.39	2.66	1430.0	6.86	7.31	7.70
6340.0	6370.0	1.74	1.68	1.61	6370.0	2.71	3.03	3.31	1450.0	7.34	7.87	8.31
6460.0	6490.0	2.28	2.24	2.19	6490.0	3.37	3.71	3.99	1490.0	8.39	9.04	9.58
6600.0	6630.0	4.02	3.83	3.76	6630.0	3.02	3.17	3.28	1510.0	8.90	9.63	10.13

Frequency Mixer

ZX05-63LH+

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	4	4	12	36	19	36	32	---	---	---
1	-	18	+0	22	12	31	41	57	46	46	---	---
2	90	63	52	60	69	64	64	>72	64	67	65	---
3	>90	>72	66	>72	67	>72	66	>72	>72	>72	>72	>72
4	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
5	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
6	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
7	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
8	---	---	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
9	---	---	---	>72	>72	>72	>72	>72	>72	>72	>72	>72
10	---	---	---	---	>72	>72	>72	>72	>72	>72	>72	>72
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 3375 MHz; -12.00 dBm.

LO IN: 3405 MHz; +10.00 dBm

IF OUT: 30 MHz; -17.76 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	6	15	22	48	30	49	45	---	---	---
1	-	17	+0	22	12	32	41	56	48	47	---	---
2	70	51	40	49	64	53	56	70	55	58	56	---
3	>90	62	45	55	44	52	44	60	70	70	65	70
4	>90	>82	71	66	70	61	65	65	77	>82	77	75
5	>90	75	>82	>82	70	75	68	>82	72	82	>82	>82
6	>90	>82	>82	>82	>82	>82	>82	77	82	>82	>82	>82
7	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
8	---	---	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
9	---	---	---	>82	>82	>82	>82	>82	>82	>82	>82	>82
10	---	---	---	---	>82	>82	>82	>82	>82	>82	>82	>82
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 3375 MHz; -2.00 dBm.

LO IN: 3405 MHz; +10.00 dBm

IF OUT: 30 MHz; -7.85 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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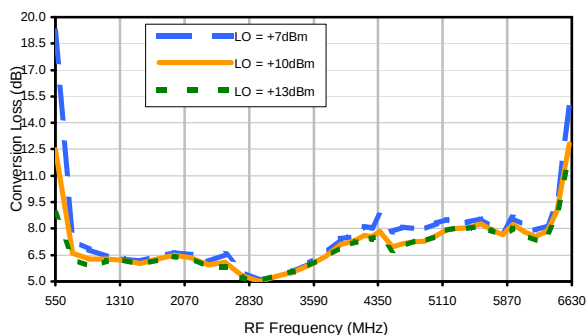


Frequency Mixer

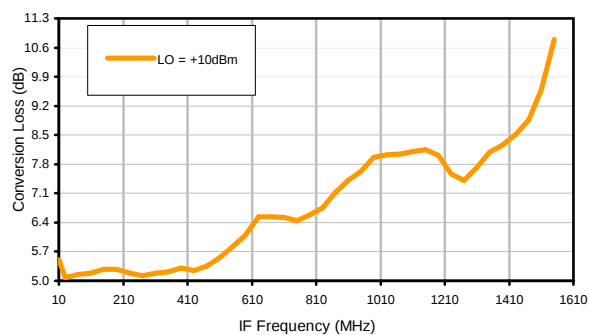
ZX05-63LH+

Typical Performance Curves

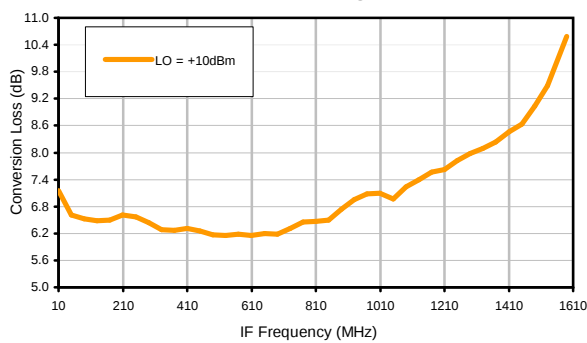
Conversion Loss @ IF=30MHz



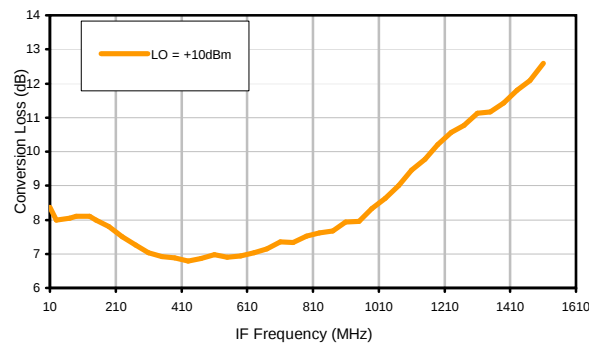
Conversion Loss vs. IF @ RF=3010.1MHz



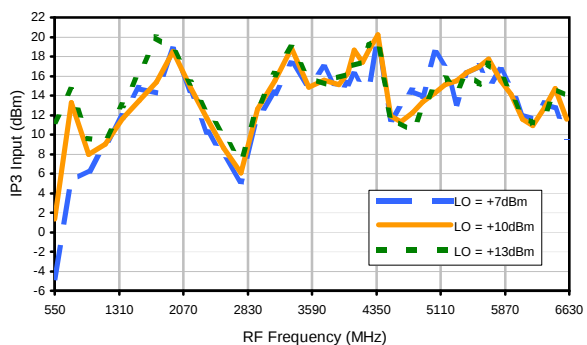
Conversion Loss vs. IF @ RF=739.9MHz



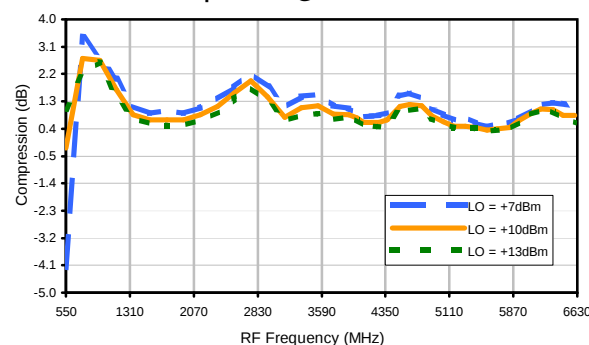
Conversion Loss vs. IF @ RF=6010.1MHz



IP3 Input



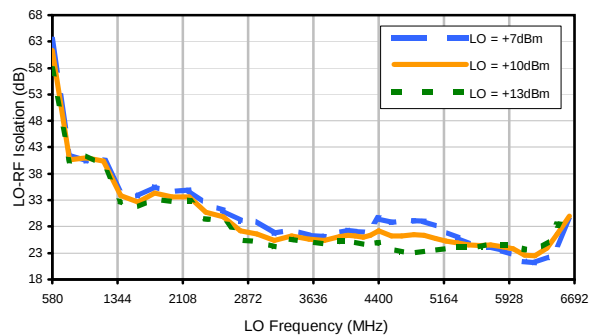
Compression @ RF IN=+3dBm



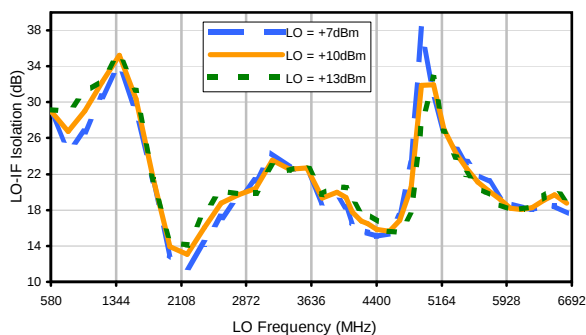
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Typical Performance Curves

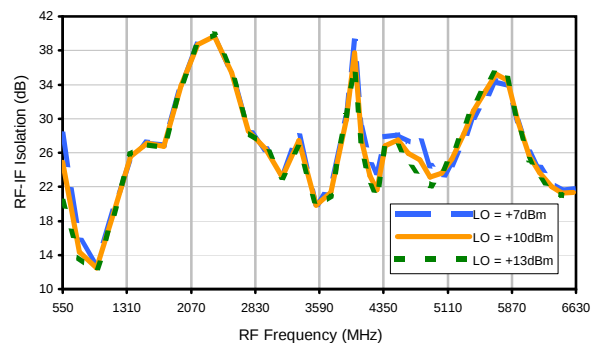
LO-RF Isolation



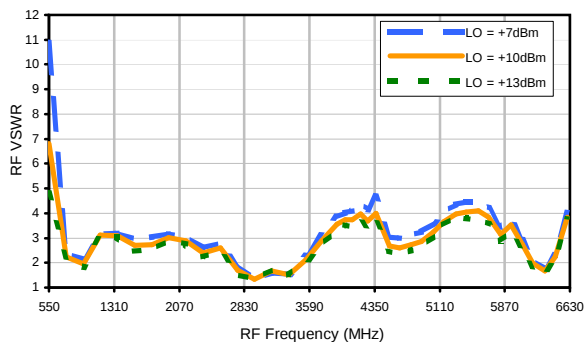
LO-IF Isolation



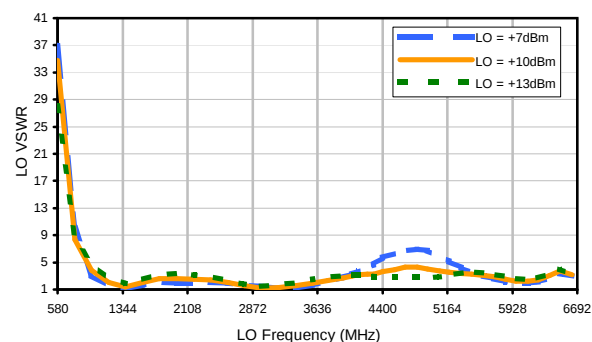
RF-IF Isolation



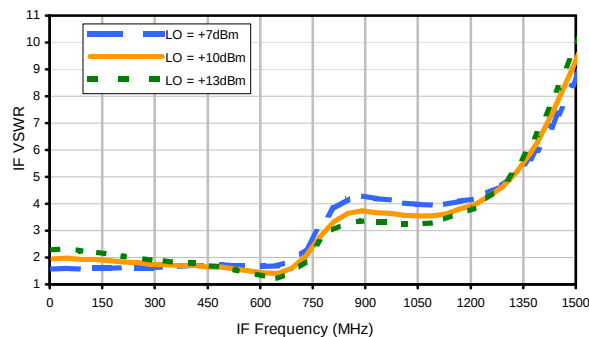
RF VSWR



LO VSWR



IF VSWR



Frequency Mixer

ZX05-63LH+

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	4	4	12	36	19	36	32	---	---	---
1	-	18	+0	22	12	31	41	57	46	46	---	---
2	90	63	52	60	69	64	64	>72	64	67	65	---
3	>90	>72	66	>72	67	>72	66	>72	>72	>72	>72	>72
4	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
5	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
6	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
7	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
8	---	---	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
9	---	---	---	>72	>72	>72	>72	>72	>72	>72	>72	>72
10	---	---	---	---	>72	>72	>72	>72	>72	>72	>72	>72
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 3375 MHz; -12.00 dBm.

LO IN: 3405 MHz; +10.00 dBm

IF OUT: 30 MHz; -17.76 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	6	15	22	48	30	49	45	---	---	---
1	-	17	+0	22	12	32	41	56	48	47	---	---
2	70	51	40	49	64	53	56	70	55	58	56	---
3	>90	62	45	55	44	52	44	60	70	70	65	70
4	>90	>82	71	66	70	61	65	65	77	>82	77	75
5	>90	75	>82	>82	70	75	68	>82	72	82	>82	>82
6	>90	>82	>82	>82	>82	>82	>82	77	82	>82	>82	>82
7	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
8	---	---	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
9	---	---	---	>82	>82	>82	>82	>82	>82	>82	>82	>82
10	---	---	---	---	>82	>82	>82	>82	>82	>82	>82	>82
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 3375 MHz; -2.00 dBm.

LO IN: 3405 MHz; +10.00 dBm

IF OUT: 30 MHz; -7.85 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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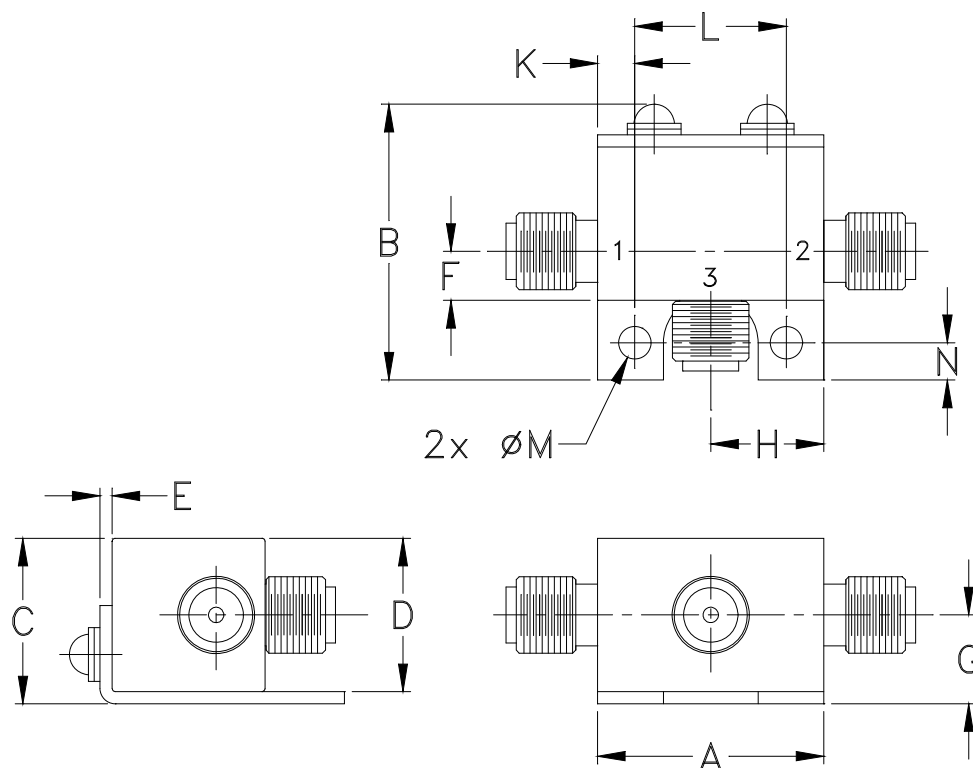
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Outline Dimensions



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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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