

Coaxial Frequency Mixer

Level 13 (LO Power +13 dBm) 10 to 1200 MHz

ZX05-12MH-S+

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA
Permanent damage may occur if any of these limits are exceeded.	

Coaxial Connections

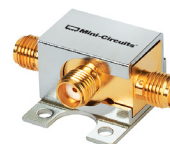
LO	1
RF	2
IF	3

Features

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

Applications

- cellular
- PCS
- instrumentation
- satellite communication



Generic photo used for illustration purposes only

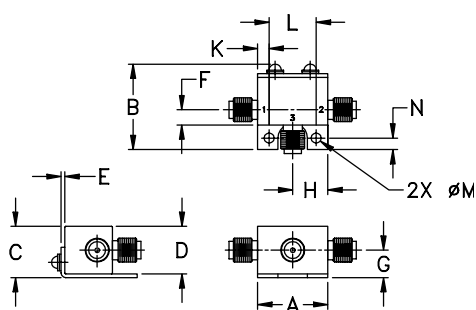
CASE STYLE: FL905

Connectors	Model
SMA	ZX05-12MH-S+

+RoHS Compliant

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

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

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

FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)						LO-IF ISOLATION (dB)						IP3 at center band (dBm)
LO/RF f_L - f_U	IF	Mid-Band m			Total Range Max.	L		M		U		L		M		U		
		$\overline{X}$	σ	Max.		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	
10-1200	DC-1200	6.3	0.1	8.0	9.3	62	45	45	32	40	26	68	40	42	27	30	20	22

1 dB COMP.: +9 dBm typ.

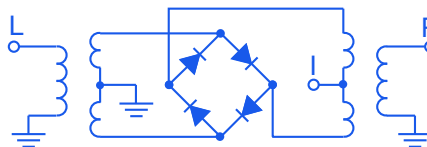
L = low range [f_L to 10 f_L]
m= mid band [2 f_L to f_U /2]

M = mid range [10 f_L to f_U /2]
U = upper range [f_U /2 to f_U]

Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
10.10	40.10	6.79	77.06	75.81	1.43	1.67
35.10	65.10	6.61	65.97	67.93	1.43	1.60
120.10	90.10	6.55	55.51	58.17	1.42	1.61
176.57	146.57	6.48	52.09	55.53	1.41	1.67
233.04	203.04	6.37	49.87	52.59	1.39	1.63
261.28	231.28	6.32	49.09	51.10	1.37	1.68
317.75	287.75	6.31	47.53	48.02	1.36	1.67
374.22	344.22	6.26	46.54	45.84	1.35	1.73
430.69	400.69	6.23	45.73	43.99	1.33	1.78
487.16	457.16	6.24	44.02	41.31	1.33	1.71
543.63	513.63	6.18	43.51	40.06	1.31	1.76
600.10	570.10	6.23	43.41	39.38	1.28	1.79
661.53	631.53	6.16	44.54	38.57	1.25	1.76
744.39	714.39	6.35	43.91	38.12	1.25	1.78
827.24	797.24	6.52	42.35	36.05	1.23	1.82
910.10	880.10	6.45	40.78	32.90	1.19	1.83
992.96	962.96	6.00	39.70	31.56	1.06	1.92
1075.81	1045.81	5.99	36.90	31.08	1.10	1.98
1158.67	1128.67	6.09	35.90	31.14	1.31	2.07
1200.10	1170.10	6.41	34.83	31.18	1.44	2.08

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

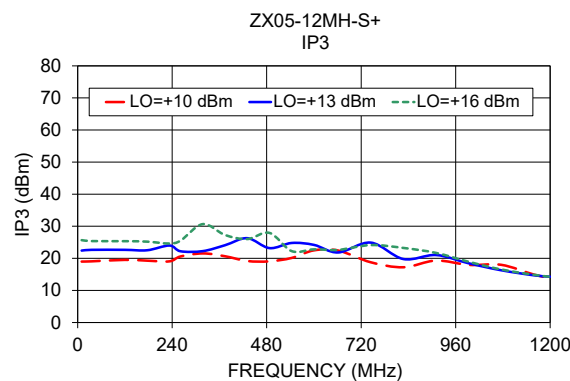
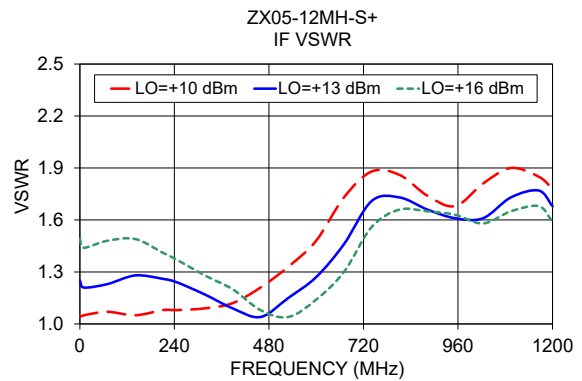
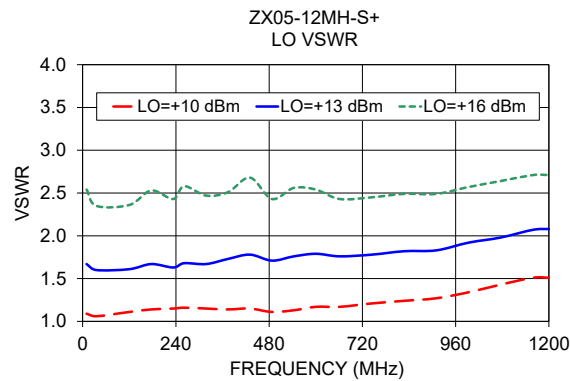
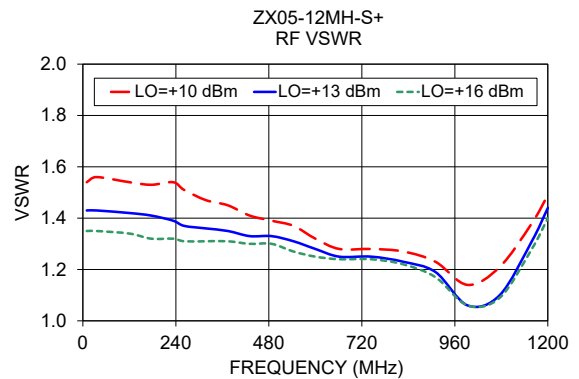
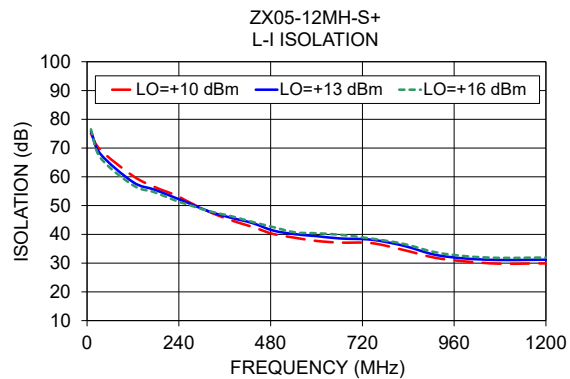
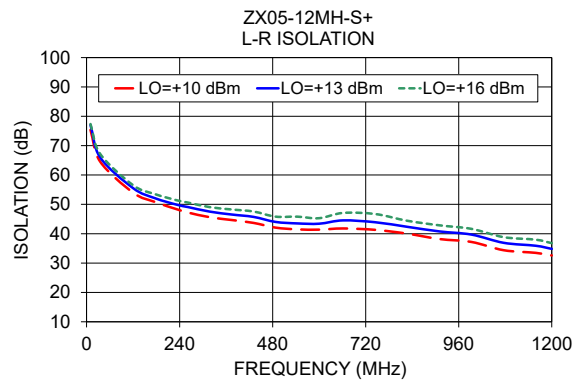
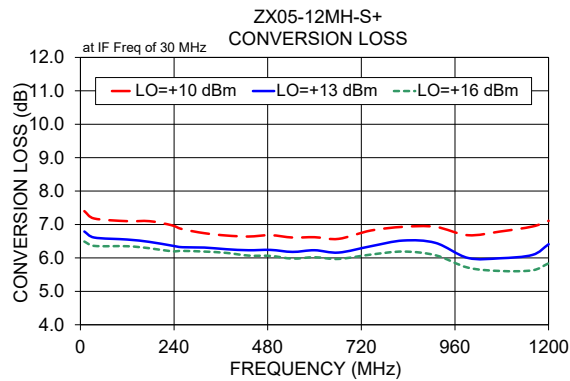


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Performance Charts

ZX05-12MH-S+



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Frequency Mixer

ZX05-12MH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	7.07	6.52	6.24
50.3	80.3	7.34	6.80	6.53
90.5	120.5	7.37	6.78	6.49
130.8	160.8	7.32	6.71	6.45
171.0	201.0	7.25	6.68	6.45
211.2	241.2	7.15	6.62	6.44
251.4	281.4	7.10	6.65	6.45
291.7	321.7	7.04	6.61	6.46
331.9	361.9	6.98	6.63	6.44
372.1	402.1	6.98	6.60	6.46
412.3	442.3	6.90	6.58	6.40
452.6	482.6	6.95	6.59	6.41
492.8	522.8	6.89	6.51	6.31
533.0	563.0	6.89	6.53	6.31
573.2	603.2	6.88	6.54	6.35
613.5	643.5	6.87	6.52	6.34
653.7	683.7	6.90	6.51	6.33
693.9	723.9	6.96	6.54	6.33
734.1	764.1	7.08	6.65	6.38
794.5	824.5	7.17	6.77	6.49
834.7	864.7	7.23	6.80	6.50
895.0	925.0	7.13	6.65	6.37
935.3	965.3	7.01	6.49	6.21
995.6	1025.6	6.93	6.35	6.08
1035.8	1065.8	7.00	6.32	6.04
1096.2	1126.2	7.14	6.40	6.07
1136.4	1166.4	7.24	6.53	6.17
1196.7	1226.7	7.45	6.81	6.37
1237.0	1267.0	7.59	7.00	6.55
1297.3	1327.3	7.95	7.47	7.05
1337.5	1367.5	8.18	7.83	7.47
1397.9	1427.9	8.45	8.17	7.96
1438.1	1468.1	8.56	8.35	8.17
1498.4	1528.4	8.87	8.66	8.45
1538.6	1568.6	9.11	8.88	8.72
1599.0	1629.0	9.53	9.32	9.17
1639.2	1669.2	9.83	9.64	9.53
1699.5	1729.5	10.37	10.21	10.10
1739.8	1769.8	10.76	10.62	10.49
1800.1	1830.1	11.36	11.20	11.10

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	18.31	21.97	24.50
50.3	80.3	18.01	21.57	24.53
90.5	120.5	18.21	21.66	26.10
130.8	160.8	18.54	22.84	22.82
171.0	201.0	18.69	23.48	23.02
211.2	241.2	19.73	21.57	25.15
251.4	281.4	20.73	20.98	26.87
291.7	321.7	20.13	22.83	29.38
331.9	361.9	19.46	23.33	27.72
372.1	402.1	18.67	24.71	26.63
412.3	442.3	18.46	22.54	27.63
452.6	482.6	19.86	24.22	25.40
492.8	522.8	20.85	22.46	22.01
533.0	563.0	20.91	24.57	22.34
573.2	603.2	22.14	25.17	24.08
613.5	643.5	21.59	22.21	23.52
653.7	683.7	23.94	23.54	25.03
693.9	723.9	19.98	25.76	24.11
734.1	764.1	17.37	23.35	24.32
794.5	824.5	16.36	19.69	24.98
834.7	864.7	17.67	20.48	23.70
895.0	925.0	19.66	20.32	20.23
935.3	965.3	17.69	18.34	18.58
995.6	1025.6	15.89	16.18	17.00
1035.8	1065.8	15.52	15.32	16.30
1096.2	1126.2	14.25	14.57	15.21
1136.4	1166.4	13.35	14.05	14.91
1196.7	1226.7	12.70	13.38	14.41
1237.0	1267.0	12.60	13.35	14.26
1297.3	1327.3	12.91	13.52	14.39
1337.5	1367.5	13.28	13.72	14.53
1397.9	1427.9	14.35	14.30	14.84
1438.1	1468.1	15.37	14.96	15.30
1498.4	1528.4	17.94	16.61	17.20
1538.6	1568.6	20.03	18.89	19.59
1599.0	1629.0	20.38	22.50	23.02
1639.2	1669.2	19.25	22.50	24.42
1699.5	1729.5	19.92	22.88	25.25
1739.8	1769.8	20.68	23.19	25.18
1800.1	1830.1	19.71	22.95	27.19

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+9dBm (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	0.67	0.59	0.50
50.3	80.3	0.64	0.55	0.46
90.5	120.5	0.62	0.55	0.45
130.8	160.8	0.59	0.55	0.45
171.0	201.0	0.58	0.54	0.43
211.2	241.2	0.71	0.59	0.47
251.4	281.4	0.74	0.58	0.47
291.7	321.7	0.75	0.57	0.48
331.9	361.9	0.74	0.56	0.47
372.1	402.1	0.78	0.60	0.50
412.3	442.3	0.76	0.59	0.50
452.6	482.6	0.72	0.57	0.49
492.8	522.8	0.73	0.59	0.52
533.0	563.0	0.78	0.64	0.56
573.2	603.2	0.89	0.69	0.61
613.5	643.5	0.98	0.80	0.66
653.7	683.7	1.08	0.89	0.77
693.9	723.9	1.19	1.06	0.93
734.1	764.1	1.20	1.11	0.98
794.5	824.5	1.35	1.24	1.15
834.7	864.7	1.53	1.36	1.26
895.0	925.0	1.78	1.61	1.50
935.3	965.3	2.04	1.83	1.66
995.6	1025.6	2.29	2.07	1.87
1035.8	1065.8	2.36	2.19	1.95
1096.2	1126.2	2.38	2.26	2.03
1136.4	1166.4	2.39	2.29	2.07
1196.7	1226.7	2.35	2.27	2.12
1237.0	1267.0	2.27	2.24	2.10
1297.3	1327.3	1.93	1.87	1.86
1337.5	1367.5	1.68	1.59	1.58
1397.9	1427.9	1.47	1.31	1.24
1438.1	1468.1	1.40	1.19	1.09
1498.4	1528.4	1.22	0.98	0.86
1538.6	1568.6	1.11	0.84	0.70
1599.0	1629.0	0.82	0.56	0.41
1639.2	1669.2	0.63	0.39	0.30
1699.5	1729.5	0.46	0.24	0.20
1739.8	1769.8	0.38	0.20	0.16
1800.1	1830.1	0.26	0.14	0.10

Frequency Mixer

ZX05-12MH+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=600.1MHz (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)=1200.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+13			+13			+13
590.0	10.1	6.78	10.0	20.1	6.84	1190.0	10.1	7.83
575.1	25.0	6.72	50.0	60.1	6.59	1150.0	50.1	7.65
560.3	39.8	6.68	90.0	100.1	6.59	1110.0	90.1	7.52
545.4	54.7	6.65	110.0	120.1	6.61	1090.0	110.1	7.44
530.5	69.6	6.63	150.0	160.1	6.60	1050.0	150.1	7.34
515.6	84.5	6.59	170.0	180.1	6.62	1030.0	170.1	7.33
500.8	99.3	6.52	210.0	220.1	6.62	990.0	210.1	7.22
485.9	114.2	6.46	230.0	240.1	6.61	970.0	230.1	7.20
471.0	129.1	6.39	270.0	280.1	6.68	930.0	270.1	7.15
456.2	143.9	6.37	290.0	300.1	6.69	910.0	290.1	7.11
441.3	158.8	6.33	330.0	340.1	6.75	870.0	330.1	7.04
426.4	173.7	6.31	350.0	360.1	6.75	850.0	350.1	7.02
411.5	188.6	6.27	390.0	400.1	6.88	810.0	390.1	6.98
396.7	203.4	6.26	410.0	420.1	6.83	790.0	410.1	6.94
381.8	218.3	6.26	450.0	460.1	6.93	750.0	450.1	6.86
366.9	233.2	6.23	470.0	480.1	6.94	730.0	470.1	6.80
352.1	248.0	6.26	510.0	520.1	6.95	690.0	510.1	6.72
337.2	262.9	6.26	530.0	540.1	7.01	670.0	530.1	6.68
322.3	277.8	6.29	570.0	580.1	7.18	630.0	570.1	6.62
307.4	292.7	6.25	590.0	600.1	7.23	610.0	590.1	6.58
292.6	307.5	6.25	630.0	640.1	7.39	570.0	630.1	6.47
277.7	322.4	6.27	650.0	660.1	7.41	550.0	650.1	6.42
262.8	337.3	6.26	690.0	700.1	7.46	510.0	690.1	6.29
247.9	352.2	6.29	710.0	720.1	7.50	490.0	710.1	6.25
233.1	367.0	6.27	750.0	760.1	7.53	450.0	750.1	6.25
218.2	381.9	6.31	770.0	780.1	7.52	430.0	770.1	6.25
203.3	396.8	6.30	810.0	820.1	7.45	390.0	810.1	6.23
188.5	411.6	6.30	830.0	840.1	7.43	370.0	830.1	6.27
173.6	426.5	6.30	870.0	880.1	7.34	330.0	870.1	6.25
158.7	441.4	6.32	890.0	900.1	7.28	310.0	890.1	6.20
143.8	456.3	6.36	930.0	940.1	7.15	270.0	930.1	6.06
129.0	471.1	6.34	950.0	960.1	7.10	250.0	950.1	5.97
114.1	486.0	6.33	990.0	1000.1	7.07	210.0	990.1	5.87
99.2	500.9	6.31	1010.0	1020.1	7.08	190.0	1010.1	5.86
84.4	515.7	6.33	1050.0	1060.1	7.14	150.0	1050.1	5.93
69.5	530.6	6.34	1070.0	1080.1	7.18	130.0	1070.1	6.01
54.6	545.5	6.38	1110.0	1120.1	7.20	90.0	1110.1	6.15
39.7	560.4	6.42	1130.0	1140.1	7.22	70.0	1130.1	6.29
24.9	575.2	6.45	1170.0	1180.1	7.26	30.0	1170.1	6.53
10.0	590.1	6.68	1190.0	1200.1	7.28	10.0	1190.1	6.73

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Frequency Mixer

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+10	+13	+16	+10	+13	+16
10.1	75.62	76.70	77.70	74.83	66.15	64.02
50.3	62.03	64.14	65.87	61.22	57.91	55.94
90.5	57.15	59.01	60.86	57.81	54.47	52.08
130.8	53.91	56.03	57.87	56.31	52.20	50.69
171.0	51.69	53.48	55.57	54.59	51.85	49.91
211.2	49.73	51.71	54.17	53.42	51.72	48.71
251.4	47.99	50.44	52.82	52.05	50.55	47.39
291.7	46.67	49.20	51.67	48.72	48.45	46.60
331.9	45.53	48.16	50.72	45.19	46.16	45.34
372.1	44.98	47.74	50.34	42.82	44.55	44.40
412.3	44.19	47.08	49.95	41.17	42.95	43.19
452.6	43.11	45.56	48.25	38.91	41.12	42.25
492.8	42.09	44.56	47.06	37.48	39.27	40.88
533.0	41.43	44.15	47.21	36.39	38.10	39.19
573.2	41.31	43.97	47.10	35.81	38.03	39.33
613.5	41.66	43.92	46.35	35.31	37.63	39.45
653.7	42.47	45.04	47.38	34.88	36.82	38.83
693.9	42.62	46.06	49.03	34.60	36.16	37.94
734.1	42.25	45.53	48.52	34.01	35.82	37.26
794.5	40.67	43.24	45.41	32.20	34.44	36.24
834.7	39.07	41.16	43.00	30.87	33.07	35.11
895.0	37.41	39.08	40.22	29.14	31.03	32.94
935.3	36.55	38.47	39.80	27.94	29.65	31.59
995.6	35.22	37.30	38.46	26.80	28.62	30.61
1035.8	34.12	36.26	37.33	26.27	28.10	30.06
1096.2	32.93	35.13	36.39	26.20	27.97	29.86
1136.4	32.32	34.45	35.71	26.11	27.93	29.76
1196.7	31.47	33.41	34.47	25.92	27.78	29.49
1237.0	30.93	32.74	33.58	25.86	27.81	29.45
1297.3	30.32	31.96	32.64	25.60	27.65	29.28
1337.5	30.00	31.60	32.28	25.20	27.22	28.83
1397.9	28.95	30.45	31.17	24.62	26.22	27.60
1438.1	27.92	29.29	30.05	24.10	25.27	26.39
1498.4	26.90	28.02	28.61	23.30	23.85	24.24
1538.6	26.44	27.44	28.05	22.92	23.10	23.39
1599.0	25.87	26.77	27.33	22.40	22.51	22.78
1639.2	25.64	26.37	26.65	22.30	22.38	22.45
1699.5	25.68	26.15	26.21	23.00	22.81	22.51
1739.8	25.89	26.11	26.03	23.64	23.09	22.47
1800.1	26.11	26.03	25.68	24.73	23.60	22.61

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	50.62	53.11	48.82
50.3	80.3	35.48	35.60	35.64
90.5	120.5	30.72	30.80	30.90
130.8	160.8	27.91	27.95	28.00
171.0	201.0	25.92	26.00	26.04
211.2	241.2	24.50	24.62	24.67
251.4	281.4	23.42	23.59	23.64
291.7	321.7	22.67	22.72	22.79
331.9	361.9	22.06	22.21	22.28
372.1	402.1	21.63	21.86	21.99
412.3	442.3	21.23	21.51	21.59
452.6	482.6	20.68	20.87	21.04
492.8	522.8	20.30	20.57	20.84
533.0	563.0	20.22	20.61	20.93
573.2	603.2	20.23	20.81	21.14
613.5	643.5	20.12	20.70	21.03
653.7	683.7	19.41	19.81	20.01
693.9	723.9	18.44	18.56	18.59
734.1	764.1	17.40	17.34	17.24
794.5	824.5	16.03	15.99	15.86
834.7	864.7	15.51	15.51	15.40
895.0	925.0	15.06	15.06	15.10
935.3	965.3	14.94	15.09	15.19
995.6	1025.6	14.80	14.96	15.09
1035.8	1065.8	14.85	14.87	14.91
1096.2	1126.2	15.42	15.19	15.02
1136.4	1166.4	15.82	15.63	15.32
1196.7	1226.7	16.39	16.30	15.99
1237.0	1267.0	16.50	16.51	16.25
1297.3	1327.3	16.03	16.05	15.88
1337.5	1367.5	15.33	15.25	15.04
1397.9	1427.9	14.02	13.75	13.44
1438.1	1468.1	13.14	12.73	12.36
1498.4	1528.4	11.81	11.25	10.79
1538.6	1568.6	10.82	10.15	9.68
1599.0	1629.0	9.21	8.65	8.28
1639.2	1669.2	8.32	7.79	7.54
1699.5	1729.5	7.23	6.81	6.59
1739.8	1769.8	6.69	6.30	6.09
1800.1	1830.1	6.04	5.67	5.47

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Frequency Mixer

ZX05-12MH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	1.52	1.41	1.34
50.3	80.3	1.52	1.40	1.33
90.5	120.5	1.53	1.40	1.32
130.8	160.8	1.52	1.39	1.31
171.0	201.0	1.51	1.38	1.31
211.2	241.2	1.50	1.37	1.31
251.4	281.4	1.49	1.37	1.32
291.7	321.7	1.48	1.37	1.33
331.9	361.9	1.47	1.38	1.34
372.1	402.1	1.47	1.38	1.34
412.3	442.3	1.46	1.39	1.34
452.6	482.6	1.44	1.38	1.34
492.8	522.8	1.41	1.35	1.31
533.0	563.0	1.38	1.32	1.29
573.2	603.2	1.35	1.31	1.29
613.5	643.5	1.33	1.29	1.28
653.7	683.7	1.32	1.29	1.28
693.9	723.9	1.32	1.29	1.29
734.1	764.1	1.33	1.30	1.29
794.5	824.5	1.31	1.27	1.26
834.7	864.7	1.27	1.24	1.23
895.0	925.0	1.18	1.15	1.14
935.3	965.3	1.12	1.07	1.08
995.6	1025.6	1.10	1.04	1.08
1035.8	1065.8	1.16	1.12	1.14
1096.2	1126.2	1.29	1.26	1.27
1136.4	1166.4	1.41	1.38	1.38
1196.7	1226.7	1.63	1.62	1.61
1237.0	1267.0	1.81	1.80	1.79
1297.3	1327.3	2.06	2.08	2.07
1337.5	1367.5	2.21	2.25	2.26
1397.9	1427.9	2.34	2.39	2.43
1438.1	1468.1	2.43	2.47	2.51
1498.4	1528.4	2.57	2.59	2.61
1538.6	1568.6	2.67	2.69	2.71
1599.0	1629.0	2.77	2.76	2.76
1639.2	1669.2	2.77	2.74	2.73
1699.5	1729.5	2.70	2.67	2.65
1739.8	1769.8	2.64	2.60	2.57
1800.1	1830.1	2.53	2.48	2.45

LO (MHz)	LO VSWR (:1)		
	@LO (dBm)		
	+10	+13	+16
10.1	1.04	1.52	2.26
50.3	1.09	1.66	2.49
90.5	1.06	1.60	2.36
130.8	1.11	1.61	2.39
171.0	1.12	1.61	2.36
211.2	1.13	1.60	2.36
251.4	1.15	1.63	2.40
291.7	1.14	1.60	2.34
331.9	1.14	1.63	2.39
372.1	1.14	1.63	2.37
412.3	1.13	1.65	2.40
452.6	1.12	1.67	2.42
492.8	1.12	1.67	2.41
533.0	1.12	1.70	2.45
573.2	1.13	1.71	2.45
613.5	1.15	1.75	2.49
653.7	1.16	1.76	2.49
693.9	1.18	1.78	2.51
734.1	1.21	1.82	2.55
794.5	1.24	1.85	2.57
834.7	1.28	1.89	2.61
895.0	1.30	1.90	2.61
935.3	1.33	1.93	2.64
995.6	1.37	1.95	2.64
1035.8	1.43	2.02	2.71
1096.2	1.47	2.04	2.70
1136.4	1.53	2.11	2.79
1196.7	1.57	2.13	2.77
1237.0	1.62	2.20	2.86
1297.3	1.65	2.20	2.83
1337.5	1.70	2.26	2.91
1397.9	1.72	2.25	2.87
1438.1	1.75	2.28	2.91
1498.4	1.73	2.24	2.84
1538.6	1.74	2.25	2.86
1599.0	1.70	2.18	2.78
1639.2	1.74	2.23	2.84
1699.5	1.81	2.26	2.85
1739.8	1.92	2.35	2.93
1800.1	2.03	2.40	2.93

IF (OUT) (MHz)	IF VSWR @LO=1200.5MHz (:1)		
	@LO (dBm)		
	+10	+13	+16
10.0	2.24	1.75	1.50
50.3	2.18	1.79	1.55
90.7	2.23	1.83	1.61
110.8	2.32	1.88	1.64
151.2	2.25	1.83	1.61
171.4	2.15	1.76	1.54
211.7	2.36	1.92	1.70
231.9	2.27	1.84	1.61
272.2	2.25	1.83	1.63
292.4	2.28	1.85	1.64
332.7	2.25	1.83	1.61
352.9	2.22	1.81	1.61
393.2	2.25	1.84	1.64
413.4	2.31	1.88	1.66
453.7	2.14	1.75	1.56
473.9	2.20	1.82	1.63
514.2	2.23	1.84	1.65
534.4	2.18	1.81	1.62
574.7	2.19	1.84	1.67
594.9	2.18	1.84	1.67
635.3	2.10	1.80	1.64
655.4	2.07	1.79	1.65
695.8	2.15	1.88	1.72
715.9	2.09	1.83	1.68
756.3	2.02	1.81	1.70
776.4	2.04	1.83	1.72
816.8	1.95	1.78	1.68
836.9	1.94	1.79	1.71
877.3	1.94	1.81	1.73
897.5	1.91	1.78	1.71
937.8	1.78	1.70	1.66
958.0	1.83	1.76	1.73
998.3	1.80	1.72	1.69
1018.5	1.70	1.65	1.64
1058.8	1.76	1.73	1.74
1079.0	1.75	1.71	1.71
1119.3	1.59	1.58	1.60
1139.5	1.60	1.62	1.66
1179.8	1.68	1.68	1.70
1200.0	1.74	1.80	1.88

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	11	22	11	29	22	30	22	45	41	70
1	-	14	+0	36	12	32	30	43	50	37	62	54
2	97	65	57	61	57	66	58	67	64	65	59	78
3	>100	67	70	66	63	68	59	69	75	85	84	84
4	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
5	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
6	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
7	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
8	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
9	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
10	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 600.1 MHz; -6.00 dBm.
LO IN: 630.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -12.54 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	21	33	22	42	33	41	34	58	62	73
1	-	15	+0	32	12	33	30	48	57	43	68	61
2	81	54	51	62	45	53	46	54	54	61	51	66
3	>100	44	45	53	49	48	40	54	63	59	60	54
4	>100	78	67	60	66	60	72	59	61	74	79	71
5	>100	71	73	71	57	60	55	64	54	58	69	75
6	>100	95	96	85	74	74	73	75	67	71	77	80
7	>100	91	94	>97	84	76	77	77	75	70	73	82
8	>100	96	92	97	97	95	92	81	82	82	79	76
9	>100	>97	>97	96	>97	>97	>97	89	81	83	82	80
10	>100	>97	>97	>97	>97	>97	>97	96	89	87	90	88
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 600.1 MHz; 4.00 dBm.
LO IN: 630.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -2.57 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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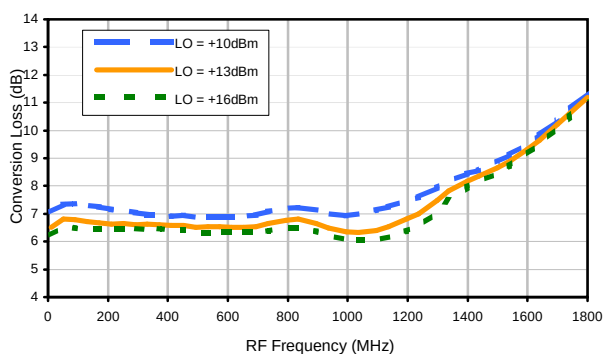


Frequency Mixer

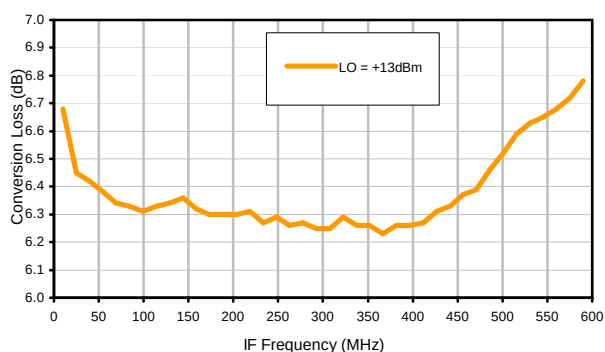
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Typical Performance Curves

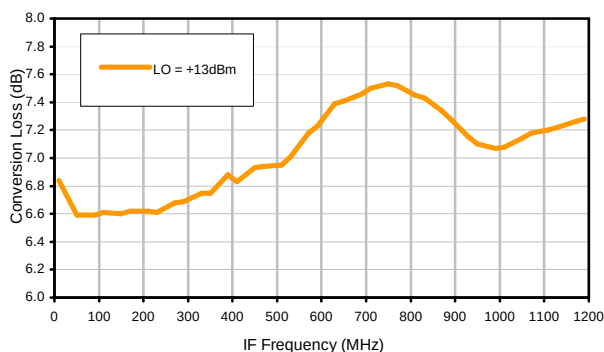
Conversion Loss @ IF=30MHz



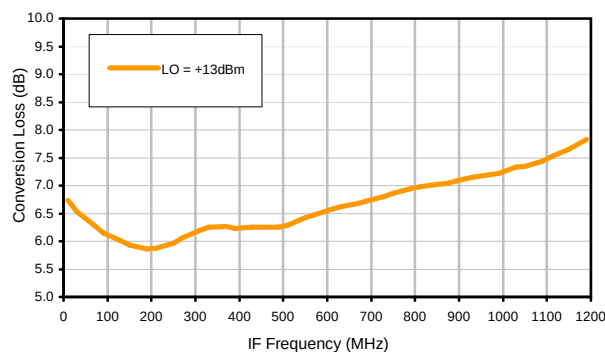
Conversion Loss vs. IF @ RF=600.1MHz



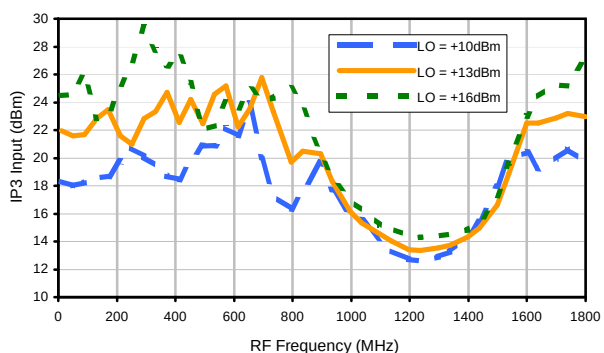
Conversion Loss vs. IF @ RF=10.1MHz



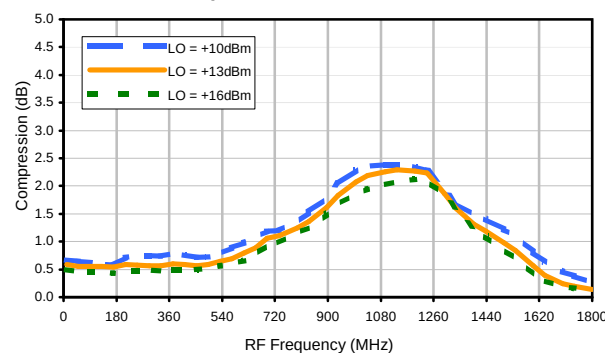
Conversion Loss vs. IF @ RF=1200.1MHz



IP3 Input



Compression @ RF IN=+9dBm



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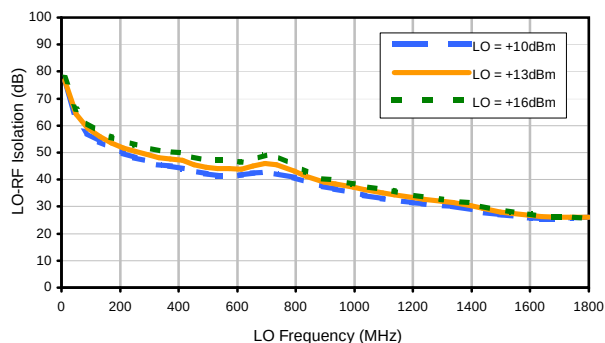


Frequency Mixer

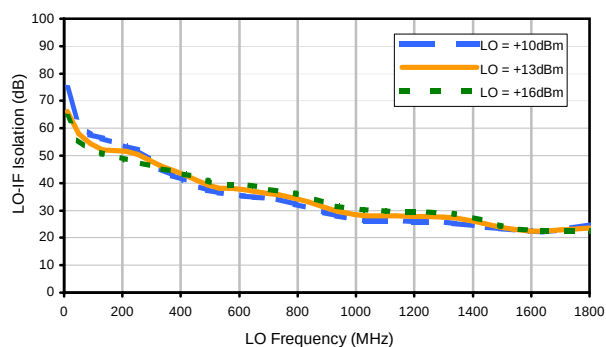
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Typical Performance Curves

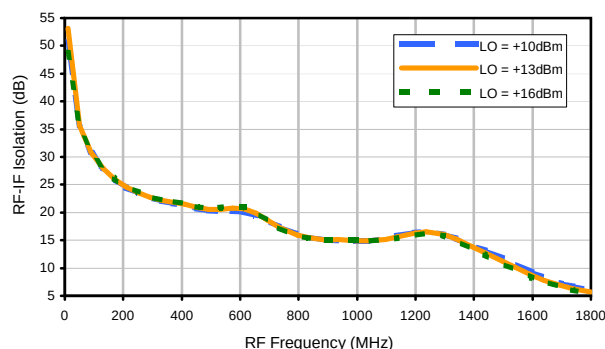
LO-RF Isolation



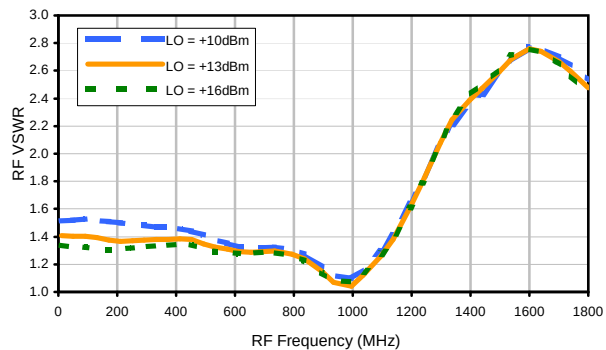
LO-IF Isolation



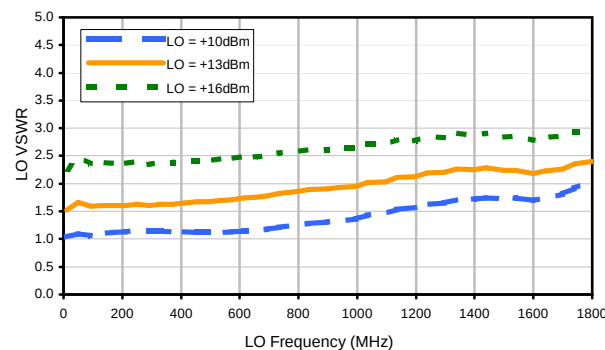
RF-IF Isolation



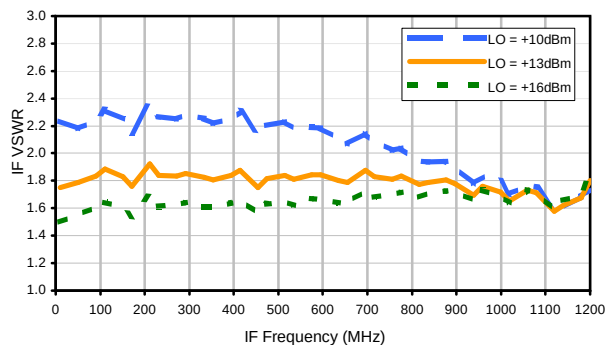
RF VSWR



LO VSWR



IF VSWR



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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	11	22	11	29	22	30	22	45	41	70
1	-	14	+0	36	12	32	30	43	50	37	62	54
2	97	65	57	61	57	66	58	67	64	65	59	78
3	>100	67	70	66	63	68	59	69	75	85	84	84
4	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
5	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
6	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
7	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
8	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
9	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
10	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 600.1 MHz; -6.00 dBm.

LO IN: 630.01 MHz; +13.00 dBm

IF OUT: 29.91 MHz; -12.54 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	21	33	22	42	33	41	34	58	62	73
1	-	15	+0	32	12	33	30	48	57	43	68	61
2	81	54	51	62	45	53	46	54	54	61	51	66
3	>100	44	45	53	49	48	40	54	63	59	60	54
4	>100	78	67	60	66	60	72	59	61	74	79	71
5	>100	71	73	71	57	60	55	64	54	58	69	75
6	>100	95	96	85	74	74	73	75	67	71	77	80
7	>100	91	94	>97	84	76	77	77	75	70	73	82
8	>100	96	92	97	97	95	92	81	82	82	79	76
9	>100	>97	>97	96	>97	>97	>97	89	81	83	82	80
10	>100	>97	>97	>97	>97	>97	>97	96	89	87	90	88
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 600.1 MHz; 4.00 dBm.

LO IN: 630.01 MHz; +13.00 dBm

IF OUT: 29.91 MHz; -2.57 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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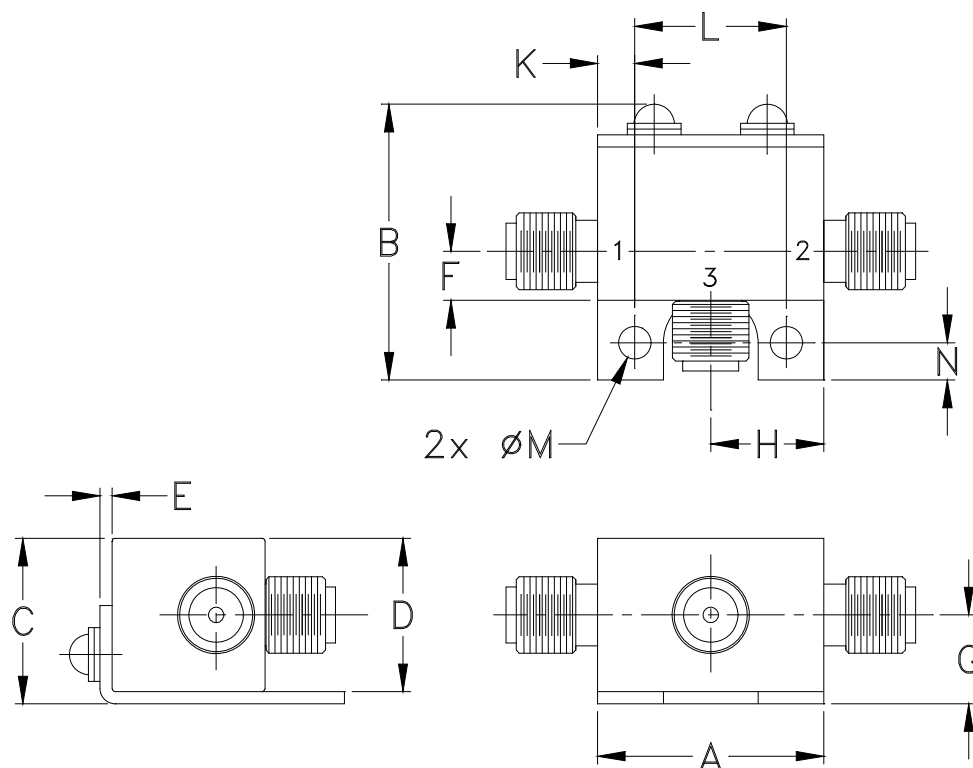
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Outline Dimensions



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:

- Case material: Brass.
- 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