Coaxial

Frequency Mixer WIDE BAND

ZX05-14-S+

Level 7 (LO Power +7 dBm) 3700 to 10000 MHz

Generic photo used for illustration purposes only

CASE STYLE: FL905

Connectors	Model
SMA	ZX05-14-S+

+RoHS Compliant

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

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

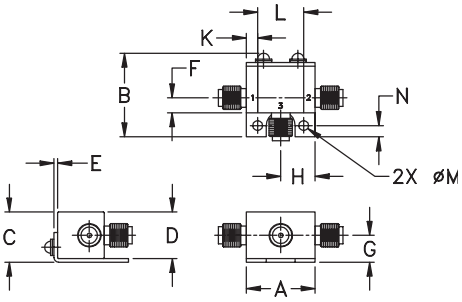
Features

- wide bandwidth, 3700 to 10000 MHz
- low conversion loss, 6.7 dB typ.
- high L-R isolation, 38 dB typ.
- excellent IF BW, DC to 4000 MHz
- rugged construction
- small size
- useable as up and down converter
- protected by US patents 6,790,049; 7,027,795

Applications

- satellite up and down converters
- defense radar and communications
- line of sight links
- federal fixed service
- WIFI
- blue tooth
- VSAT
- ISM

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

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	Typ.	σ	Max.	Typ.	Min.	Typ.	Min.	Typ.
3700-10000	**DC-4000**								
3700-6200		6.7	0.3	8.0	40	33	16	10	14
6200-10000		6.7	0.3	10	35	25	17	9	11

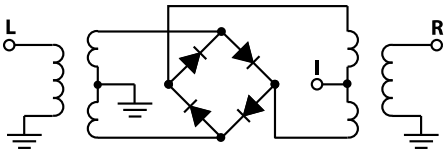
1 dB COMPR.: +1 dBm typ.

* 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 +7dBm	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm
3700.10	3730.10	6.58	51.26	20.04	2.93	7.34
4100.10	4130.10	6.38	40.67	18.99	2.87	4.92
4500.10	4530.10	6.22	40.61	15.96	2.46	3.13
4900.10	4930.10	6.05	38.79	14.00	2.37	2.09
5300.10	5330.10	6.46	40.71	12.81	3.15	1.49
5700.10	5730.10	6.57	37.62	13.21	3.25	1.89
6100.10	6130.10	6.30	40.74	14.07	2.93	2.61
6200.10	6230.10	6.35	39.60	14.24	2.84	2.82
6600.10	6630.10	6.30	38.69	14.80	2.67	3.44
7000.10	7030.10	6.34	37.07	15.30	2.28	3.48
7400.10	7430.10	6.22	39.52	14.92	2.07	3.29
7800.10	7830.10	6.02	36.84	13.50	2.06	2.66
8200.10	8230.10	6.29	31.74	11.66	2.17	1.74
8600.10	8630.10	6.54	38.46	14.46	2.47	1.46
9000.10	9030.10	7.07	37.71	20.29	3.00	1.81
9400.10	9430.10	7.75	30.76	22.38	3.66	2.18
9700.10	9730.10	7.85	28.88	19.34	4.14	2.36
9800.10	9830.10	8.00	28.40	18.54	4.22	2.35
9900.10	9930.10	8.09	28.25	18.00	4.38	2.32
10000.10	10030.10	8.15	28.31	17.54	4.43	2.26

Electrical Schematic



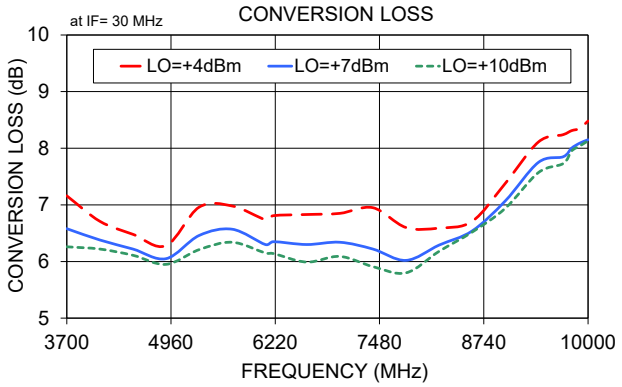
Notes

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.

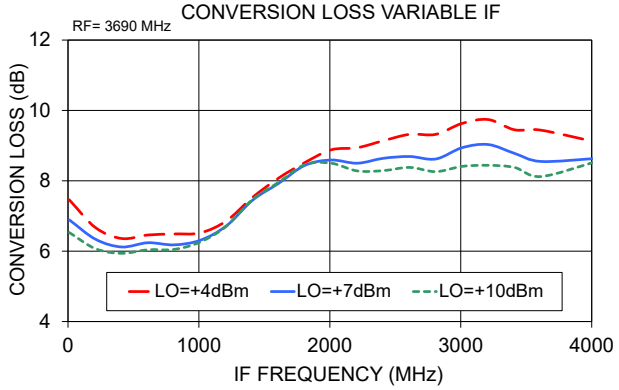
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.

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

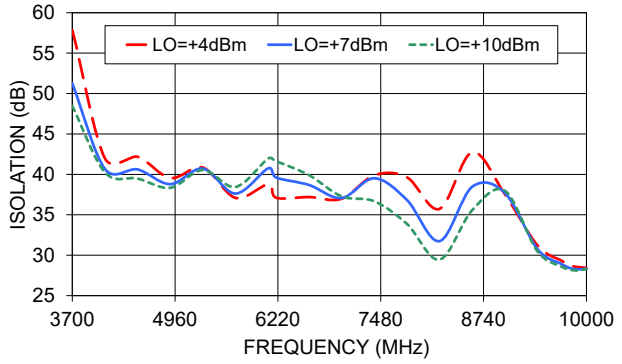
ZX05-14-S+
CONVERSION LOSS



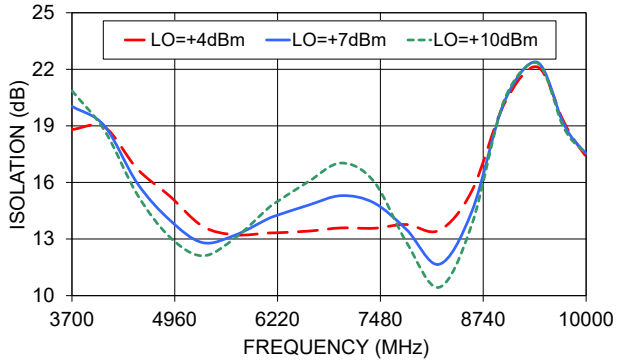
ZX05-14-S+
CONVERSION LOSS VARIABLE IF



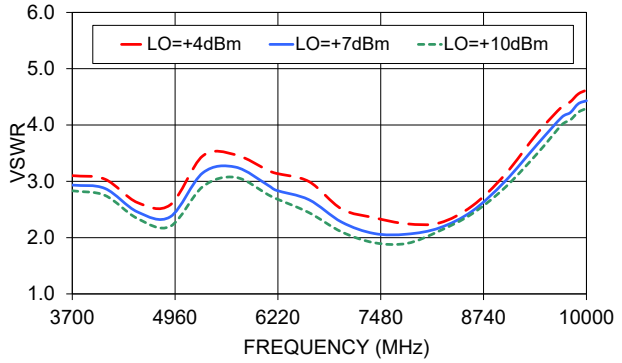
ZX05-14-S+
L-R ISOLATION



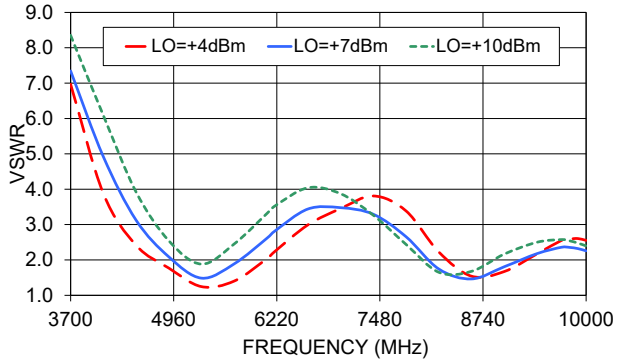
ZX05-14-S+
L-I ISOLATION



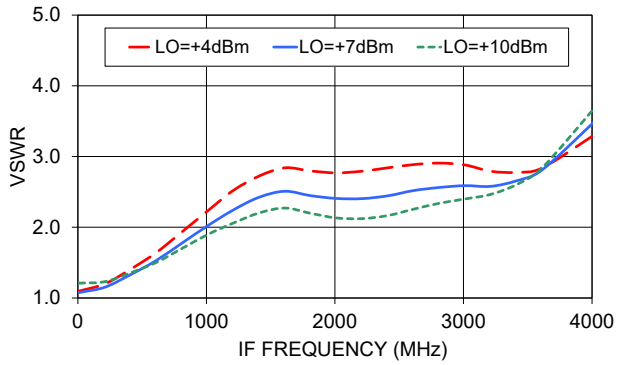
ZX05-14-S+
RF VSWR



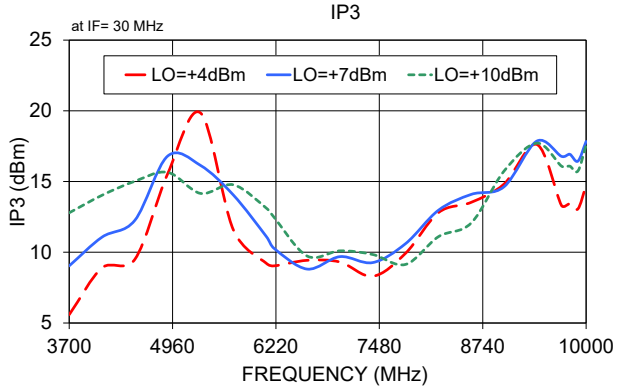
ZX05-14-S+
LO VSWR



ZX05-14-S+
IF VSWR



ZX05-14-S+
IP3



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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+4	+7	+10
2700.0	2730.0	20.09	15.63	10.70
3025.0	3055.0	14.68	9.60	7.03
3350.0	3380.0	9.08	7.29	6.74
3675.0	3705.0	7.62	7.11	6.85
4000.0	4030.0	6.93	6.65	6.51
4325.0	4355.0	6.84	6.55	6.40
4650.0	4680.0	6.57	6.36	6.28
4975.0	5005.0	6.66	6.38	6.25
5300.0	5330.0	7.12	6.76	6.54
5625.0	5655.0	6.80	6.45	6.29
5950.0	5980.0	6.41	6.04	5.89
6275.0	6305.0	6.06	5.68	5.52
6600.0	6630.0	6.01	5.60	5.36
6925.0	6955.0	6.07	5.64	5.41
7250.0	7280.0	5.90	5.49	5.29
7575.0	7605.0	6.32	5.88	5.71
7900.0	7930.0	6.31	5.96	5.89
8225.0	8255.0	6.38	6.17	6.17
8525.0	8555.0	6.64	6.38	6.36
8850.0	8880.0	6.97	6.78	6.75
9150.0	9180.0	7.48	7.28	7.27
9475.0	9505.0	8.04	7.71	7.61
9775.0	9805.0	8.68	8.42	8.36
10100.0	10130.0	9.13	8.86	8.78
10400.0	10430.0	9.18	8.93	8.86
10725.0	10755.0	9.45	9.03	8.92
11025.0	11055.0	9.57	9.08	8.93
11350.0	11380.0	9.74	8.84	8.63
11650.0	11680.0	10.12	8.64	8.37
11975.0	12005.0	11.55	9.21	8.87
12275.0	12305.0	12.95	9.49	8.96
12600.0	12630.0	15.88	9.63	8.69
12900.0	12930.0	14.11	8.86	8.09
13225.0	13255.0	10.38	8.14	7.91
13525.0	13555.0	8.63	8.07	8.00
13850.0	13880.0	8.55	8.31	8.27
14150.0	14180.0	8.87	8.63	8.60
14475.0	14505.0	8.72	8.43	8.44
14775.0	14805.0	9.24	8.53	8.55
15100.0	15130.0	11.92	9.88	9.83

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+4	+7	+10
2700.0	2730.0	-8.77	-6.38	-0.84
3025.0	3055.0	-6.03	1.32	8.72
3350.0	3380.0	3.01	7.08	11.77
3675.0	3705.0	6.27	9.71	13.11
4000.0	4030.0	9.21	11.53	14.60
4325.0	4355.0	10.96	11.45	12.02
4650.0	4680.0	13.72	17.04	19.62
4975.0	5005.0	13.15	14.10	15.22
5300.0	5330.0	15.73	16.56	15.17
5625.0	5655.0	11.27	13.58	14.33
5950.0	5980.0	8.78	10.50	12.08
6275.0	6305.0	7.88	8.32	10.18
6600.0	6630.0	7.47	7.66	8.63
6925.0	6955.0	7.07	7.88	8.33
7250.0	7280.0	7.32	8.41	8.95
7575.0	7605.0	9.06	10.78	10.36
7900.0	7930.0	12.14	12.52	10.77
8225.0	8255.0	12.38	12.19	11.03
8525.0	8555.0	14.54	15.29	12.48
8850.0	8880.0	14.87	15.22	16.05
9150.0	9180.0	15.16	15.66	16.22
9475.0	9505.0	15.78	16.77	17.40
9775.0	9805.0	14.48	16.39	17.02
10100.0	10130.0	14.13	16.92	17.12
10400.0	10430.0	14.18	17.08	17.48
10725.0	10755.0	13.65	17.28	17.86
11025.0	11055.0	12.02	15.01	16.28
11350.0	11380.0	11.83	13.24	15.60
11650.0	11680.0	12.72	11.91	14.79
11975.0	12005.0	10.18	12.40	14.42
12275.0	12305.0	6.12	12.56	13.84
12600.0	12630.0	1.03	14.96	12.86
12900.0	12930.0	1.61	15.08	12.13
13225.0	13255.0	13.04	13.55	11.98
13525.0	13555.0	12.59	13.80	11.98
13850.0	13880.0	13.41	13.86	12.12
14150.0	14180.0	13.54	14.52	12.74
14475.0	14505.0	12.19	12.96	10.70
14775.0	14805.0	8.61	12.37	11.25
15100.0	15130.0	8.04	9.22	9.26

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB) @LO (dBm)		
		+4	+7	+10
2700.0	2730.0	-2.61	-1.03	1.27
3025.0	3055.0	-2.02	1.00	2.09
3350.0	3380.0	1.33	1.54	1.16
3675.0	3705.0	1.33	0.84	0.60
4000.0	4030.0	0.90	0.60	0.45
4325.0	4355.0	0.71	0.51	0.41
4650.0	4680.0	0.50	0.29	0.21
4975.0	5005.0	0.54	0.37	0.25
5300.0	5330.0	0.66	0.50	0.42
5625.0	5655.0	0.76	0.65	0.56
5950.0	5980.0	0.90	0.79	0.72
6275.0	6305.0	1.06	0.90	0.80
6600.0	6630.0	1.16	0.93	0.81
6925.0	6955.0	1.23	0.90	0.76
7250.0	7280.0	1.25	0.95	0.77
7575.0	7605.0	1.07	0.72	0.60
7900.0	7930.0	0.90	0.65	0.61
8225.0	8255.0	0.79	0.65	0.63
8525.0	8555.0	0.62	0.52	0.55
8850.0	8880.0	0.55	0.53	0.59
9150.0	9180.0	0.47	0.47	0.54
9475.0	9505.0	0.40	0.40	0.45
9775.0	9805.0	0.27	0.31	0.38
10100.0	10130.0	0.26	0.27	0.32
10400.0	10430.0	0.22	0.23	0.29
10725.0	10755.0	0.18	0.19	0.24
11025.0	11055.0	0.13	0.17	0.22
11350.0	11380.0	0.12	0.13	0.22
11650.0	11680.0	-0.04	0.11	0.27
11975.0	12005.0	-0.55	0.06	0.24
12275.0	12305.0	-1.30	0.03	0.24
12600.0	12630.0	-3.07	0.02	0.27
12900.0	12930.0	-2.64	0.22	0.44
13225.0	13255.0	-0.09	0.48	0.73
13525.0	13555.0	0.74	0.60	0.88
13850.0	13880.0	0.60	0.59	0.82
14150.0	14180.0	0.50	0.50	0.72
14475.0	14505.0	0.53	0.53	0.80
14775.0	14805.0	0.64	0.54	0.80
15100.0	15130.0	-0.05	0.44	0.58

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=6850MHz (dB) @LO (dBm) +7
3149.9	3700.1	7.84
2989.9	3860.1	7.68
2829.9	4020.1	7.64
2669.9	4180.1	7.33
2509.9	4340.1	7.27
2349.9	4500.1	7.51
2189.9	4660.1	7.75
2029.9	4820.1	7.76
1869.9	4980.1	7.45
1709.9	5140.1	7.31
1550.0	5300.0	6.86
1390.0	5460.0	6.28
1230.0	5620.0	5.67
1070.0	5780.0	5.29
910.0	5940.0	5.11
750.0	6100.0	5.04
590.0	6260.0	5.08
430.0	6420.0	5.21
270.0	6580.0	5.30
110.0	6740.0	5.40
50.0	6900.0	5.58
210.0	7060.0	5.62
370.0	7220.0	5.66
530.0	7380.0	5.71
690.0	7540.0	5.88
850.0	7700.0	6.07
1010.0	7860.0	6.16
1170.0	8020.0	6.36
1330.0	8180.0	6.37
1490.0	8340.0	6.31
1650.1	8500.1	6.42
1810.1	8660.1	6.26
1970.1	8820.1	6.35
2130.1	8980.1	6.41
2290.1	9140.1	6.56
2470.1	9320.1	6.72
2630.1	9480.1	6.95
2810.1	9660.1	7.16
2970.1	9820.1	7.50
3150.1	10000.1	7.65

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=3690MHz (dB) @LO (dBm) +7
10.1	3700.1	7.25
130.1	3820.1	6.81
250.1	3940.1	6.59
370.1	4060.1	6.49
490.1	4180.1	6.46
610.1	4300.1	6.50
730.1	4420.1	6.51
850.1	4540.1	6.49
970.1	4660.1	6.58
1090.1	4780.1	6.72
1210.1	4900.1	7.05
1310.1	5000.1	7.32
1430.1	5120.1	7.84
1530.1	5220.1	8.10
1650.1	5340.1	8.66
1750.1	5440.1	8.84
1870.1	5560.1	9.10
1970.1	5660.1	9.19
2090.1	5780.1	9.08
2190.1	5880.1	8.95
2310.1	6000.1	9.10
2410.1	6100.1	9.11
2530.1	6220.1	9.31
2630.1	6320.1	9.49
2750.1	6440.1	9.52
2850.1	6540.1	9.64
2970.1	6660.1	9.70
3070.1	6760.1	9.72
3190.1	6880.1	9.63
3290.1	6980.1	9.47
3410.1	7100.1	9.16
3510.1	7200.1	9.08
3630.1	7320.1	9.03
3730.1	7420.1	9.10
3850.1	7540.1	9.11
3950.1	7640.1	9.27
4070.1	7760.1	9.46
4170.1	7860.1	9.78
4290.1	7980.1	10.44
4390.1	8080.1	10.97

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10010.09MHz (dB) @LO (dBm) +7
4010.0	6000.1	11.01
3910.0	6100.1	10.60
3810.0	6200.1	10.42
3710.0	6300.1	10.54
3610.0	6400.1	10.78
3510.0	6500.1	10.89
3410.0	6600.1	10.79
3310.0	6700.1	10.67
3210.0	6800.1	10.62
3110.0	6900.1	10.72
3010.0	7000.1	10.92
2910.0	7100.1	11.14
2810.0	7200.1	11.30
2710.0	7300.1	11.32
2610.0	7400.1	11.08
2510.0	7500.1	10.90
2410.0	7600.1	10.62
2310.0	7700.1	10.30
2210.0	7800.1	10.08
2110.0	7900.1	10.02
2010.0	8000.1	9.95
1910.0	8100.1	9.93
1810.0	8200.1	9.91
1710.0	8300.1	9.79
1610.0	8400.1	9.75
1510.0	8500.1	9.90
1410.0	8600.1	9.86
1310.0	8700.1	9.65
1210.0	8800.1	9.56
1110.0	8900.1	9.57
990.0	9020.1	9.73
890.0	9120.1	9.64
770.0	9240.1	9.47
670.0	9340.1	9.28
550.0	9460.1	9.15
450.0	9560.1	9.12
330.0	9680.1	8.82
230.0	9780.1	8.77
110.0	9900.1	8.78
10.0	10000.1	9.07

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+4	+7	+10	+4	+7	+10
2730.0	41.57	42.34	44.57	23.28	23.49	23.45
3055.0	41.29	45.52	44.37	21.21	21.61	22.06
3380.0	54.98	55.49	49.11	19.50	20.14	21.48
3705.0	49.78	48.21	47.73	18.74	19.70	20.62
4030.0	41.95	41.14	41.05	19.10	19.31	19.46
4355.0	40.14	40.04	39.98	18.23	17.88	17.23
4680.0	41.58	41.12	40.99	16.35	15.31	14.77
5005.0	41.21	41.57	41.47	15.62	14.40	13.65
5330.0	37.45	38.77	39.87	14.81	14.29	13.43
5655.0	35.92	37.25	38.78	14.71	14.55	14.44
5980.0	36.27	37.78	39.33	14.69	15.17	15.70
6305.0	34.92	37.05	39.03	14.83	15.96	16.80
6630.0	35.52	37.47	38.59	14.93	16.45	17.76
6955.0	36.33	37.62	37.86	14.89	16.62	18.35
7280.0	36.62	37.06	35.76	14.38	15.96	17.25
7605.0	38.23	37.98	36.57	14.80	14.92	14.91
7930.0	36.68	34.51	33.32	15.51	13.58	12.59
8255.0	37.74	34.73	32.72	15.83	13.74	12.68
8555.0	37.53	38.33	38.55	17.08	16.34	15.56
8880.0	35.81	34.84	34.01	19.52	19.97	20.15
9180.0	32.77	31.18	30.32	21.87	22.36	22.57
9505.0	30.42	29.23	28.65	21.09	20.98	20.99
9805.0	29.43	28.99	28.78	19.12	19.27	19.33
10130.0	30.35	30.55	30.46	18.84	19.48	19.50
10430.0	33.55	34.18	34.32	21.19	22.14	22.33
10755.0	37.40	37.08	37.09	24.30	25.24	26.05
11055.0	40.57	41.55	42.14	27.67	28.64	29.45
11380.0	37.94	39.10	39.69	32.21	33.22	34.20
11680.0	36.50	36.27	35.53	36.94	37.52	38.24
12005.0	37.60	35.50	33.91	42.78	42.63	43.08
12305.0	38.41	34.74	31.28	48.74	47.04	45.21
12630.0	34.64	32.29	29.24	59.64	54.93	48.11
12930.0	28.78	28.24	27.19	53.01	48.29	44.86
13255.0	24.64	24.75	25.19	44.80	41.32	39.20
13555.0	22.53	23.83	25.25	37.77	36.10	35.17
13880.0	23.48	25.37	27.00	31.64	31.33	30.93
14180.0	27.61	28.30	28.88	26.61	26.66	26.89
14505.0	33.57	31.74	30.57	21.27	22.02	22.56
14805.0	27.17	27.95	28.02	17.26	18.26	18.85
15130.0	17.92	17.48	17.79	15.43	15.90	16.83

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+4	+7	+10
2700.0	2730.0	14.85	15.11	15.82
3025.0	3055.0	17.23	19.59	17.38
3350.0	3380.0	20.96	20.36	19.93
3675.0	3705.0	23.21	23.37	23.11
4000.0	4030.0	21.57	21.01	20.40
4325.0	4355.0	19.36	18.93	18.49
4650.0	4680.0	20.31	19.92	19.50
4975.0	5005.0	22.80	22.09	21.58
5300.0	5330.0	26.18	25.87	25.52
5625.0	5655.0	24.15	23.92	23.75
5950.0	5980.0	24.06	23.85	23.56
6275.0	6305.0	25.17	24.91	24.71
6600.0	6630.0	27.48	27.35	27.10
6925.0	6955.0	33.14	33.12	32.89
7250.0	7280.0	35.28	35.14	35.00
7575.0	7605.0	24.87	24.50	24.41
7900.0	7930.0	21.17	20.77	20.44
8225.0	8255.0	20.96	20.54	20.24
8525.0	8555.0	25.57	24.07	22.63
8850.0	8880.0	30.37	32.02	35.08
9150.0	9180.0	22.29	22.69	23.08
9475.0	9505.0	15.99	15.93	16.02
9775.0	9805.0	15.18	15.13	15.19
10100.0	10130.0	14.97	15.16	15.43
10400.0	10430.0	16.70	17.18	17.57
10725.0	10755.0	18.12	18.80	19.28
11025.0	11055.0	20.79	21.46	21.87
11350.0	11380.0	22.69	23.54	23.95
11650.0	11680.0	23.95	25.08	25.46
11975.0	12005.0	24.70	26.07	26.36
12275.0	12305.0	25.01	26.45	26.88
12600.0	12630.0	24.54	25.56	26.17
12900.0	12930.0	23.67	24.65	25.02
13225.0	13255.0	22.93	23.69	23.90
13525.0	13555.0	22.64	22.92	23.09
13850.0	13880.0	22.60	22.82	23.03
14150.0	14180.0	24.35	24.52	24.70
14475.0	14505.0	28.66	28.68	28.63
14775.0	14805.0	20.07	20.28	20.70
15100.0	15130.0	13.97	14.29	14.59

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm) +4	+7	+10
2700.0	2730.0	3.92	3.02	1.99
3025.0	3055.0	4.30	2.81	2.26
3350.0	3380.0	3.71	3.21	3.09
3675.0	3705.0	3.81	3.62	3.53
4000.0	4030.0	3.80	3.60	3.47
4325.0	4355.0	3.73	3.43	3.21
4650.0	4680.0	3.33	3.07	2.88
4975.0	5005.0	3.48	3.14	2.92
5300.0	5330.0	4.31	4.00	3.73
5625.0	5655.0	3.90	3.64	3.44
5950.0	5980.0	3.25	2.92	2.73
6275.0	6305.0	2.61	2.29	2.09
6600.0	6630.0	2.25	1.98	1.76
6925.0	6955.0	1.96	1.76	1.61
7250.0	7280.0	1.78	1.64	1.55
7575.0	7605.0	1.92	1.84	1.81
7900.0	7930.0	2.30	2.26	2.25
8225.0	8255.0	2.65	2.65	2.67
8525.0	8555.0	3.27	3.23	3.23
8850.0	8880.0	4.22	4.14	4.07
9150.0	9180.0	4.42	4.30	4.22
9475.0	9505.0	4.09	3.86	3.73
9775.0	9805.0	4.59	4.42	4.31
10100.0	10130.0	5.44	5.25	5.06
10400.0	10430.0	5.49	5.28	5.10
10725.0	10755.0	4.98	4.64	4.47
11025.0	11055.0	5.36	5.07	4.88
11350.0	11380.0	6.86	6.17	5.77
11650.0	11680.0	6.15	5.31	4.91
11975.0	12005.0	5.66	4.59	4.23
12275.0	12305.0	6.94	5.36	4.74
12600.0	12630.0	7.94	5.63	4.70
12900.0	12930.0	6.44	4.64	3.92
13225.0	13255.0	4.61	3.67	3.35
13525.0	13555.0	4.33	3.86	3.58
13850.0	13880.0	3.83	3.56	3.30
14150.0	14180.0	3.17	2.92	2.77
14475.0	14505.0	3.70	3.42	3.17
14775.0	14805.0	3.58	3.17	2.78
15100.0	15130.0	1.82	1.59	1.44

LO (MHz)	LO VSWR (:1) @LO (dBm) +4	+7	+10
2730.0	38.61	36.97	35.46
3055.0	30.49	27.16	20.45
3380.0	17.22	12.44	11.85
3705.0	6.68	7.20	8.35
4030.0	3.97	5.03	6.24
4355.0	2.76	3.57	4.46
4680.0	1.88	2.40	3.00
5005.0	1.54	1.80	2.21
5330.0	1.24	1.57	2.02
5655.0	1.42	1.90	2.50
5980.0	1.93	2.48	3.19
6305.0	2.56	3.12	3.83
6630.0	3.05	3.48	4.06
6955.0	3.39	3.54	4.02
7280.0	3.72	3.38	3.54
7605.0	3.64	3.01	2.95
7930.0	2.92	2.36	2.24
8255.0	2.20	1.77	1.74
8555.0	1.95	1.72	1.84
8880.0	1.85	1.72	1.94
9180.0	1.89	1.76	1.99
9505.0	1.99	1.85	2.07
9805.0	2.09	1.94	2.17
10130.0	2.27	2.07	2.27
10430.0	2.40	2.20	2.40
10755.0	2.78	2.48	2.64
11055.0	3.82	3.19	3.20
11380.0	6.49	4.64	4.16
11680.0	9.79	6.28	5.04
12005.0	12.89	7.87	5.52
12305.0	13.70	8.68	5.54
12630.0	13.92	9.58	5.63
12930.0	12.61	8.51	5.06
13255.0	9.04	5.77	4.27
13555.0	5.03	4.26	4.22
13880.0	3.17	3.72	4.44
14180.0	2.96	3.74	4.57
14505.0	3.49	3.95	4.55
14805.0	4.37	4.24	4.50
15130.0	4.93	4.35	4.19

IF (OUT) (MHz)	IF VSWR @LO=10000MHz (:1) @LO (dBm) +4	+7	+10
10.0	1.05	1.11	1.23
110.2	1.11	1.15	1.26
210.5	1.20	1.22	1.30
310.7	1.30	1.30	1.36
411.0	1.41	1.39	1.42
511.2	1.52	1.48	1.49
611.4	1.63	1.57	1.56
711.7	1.75	1.66	1.64
811.9	1.86	1.75	1.70
912.2	1.99	1.85	1.77
1012.4	2.10	1.93	1.83
1112.6	2.14	1.95	1.84
1232.9	2.48	2.25	2.10
1333.2	2.51	2.26	2.10
1453.4	2.65	2.36	2.17
1553.7	2.77	2.46	2.25
1674.0	2.94	2.60	2.36
1774.2	3.08	2.71	2.46
1894.5	3.09	2.70	2.44
1994.7	3.12	2.73	2.46
2115.0	3.10	2.69	2.42
2215.3	3.14	2.73	2.44
2335.6	3.22	2.79	2.50
2435.8	3.21	2.79	2.51
2556.1	3.11	2.71	2.45
2656.3	3.06	2.68	2.44
2776.6	3.03	2.67	2.46
2876.8	3.00	2.68	2.48
2997.1	3.05	2.75	2.57
3097.4	2.96	2.69	2.55
3217.7	2.89	2.68	2.58
3317.9	2.84	2.68	2.61
3438.2	2.84	2.74	2.72
3538.4	2.83	2.78	2.79
3658.7	2.83	2.85	2.92
3758.9	2.87	2.95	3.05
3879.2	3.01	3.17	3.32
3979.5	3.12	3.32	3.51
4099.8	3.38	3.67	3.92
4200.0	3.58	3.91	4.18

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Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	+10	31	15	---	---	---	---	---	---	---
1	-	25	+0	47	27	53	---	---	---	---	---	---
2	86	62	47	57	47	68	56	---	---	---	---	---
3	>90	>70	69	>70	57	>70	>70	>70	---	---	---	---
4	---	---	>70	>70	>70	>70	>70	>70	>70	---	---	---
5	---	---	---	>70	>70	>70	>70	>70	>70	>70	---	---
6	---	---	---	---	>70	>70	>70	>70	>70	>70	>70	---
7	---	---	---	---	---	>70	>70	>70	>70	>70	>70	>70
8	---	---	---	---	---	---	>70	>70	>70	>70	>70	>70
9	---	---	---	---	---	---	---	>70	>70	>70	>70	>70
10	---	---	---	---	---	---	---	---	>70	>70	>70	>70
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 6850 MHz; -14.00 dBm.
LO IN: 6880 MHz; +7.00 dBm
IF OUT: 30 MHz; -19.69 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	+0	45	27	---	---	---	---	---	---	---
1	-	25	+0	49	27	58	---	---	---	---	---	---
2	66	53	37	46	40	62	50	---	---	---	---	---
3	>90	63	49	64	36	64	56	75	---	---	---	---
4	---	---	>80	77	61	>80	58	>80	74	---	---	---
5	---	---	---	>80	73	>80	54	>80	69	>80	---	---
6	---	---	---	---	>80	>80	>80	>80	73	>80	74	---
7	---	---	---	---	---	>80	>80	>80	67	>80	80	>80
8	---	---	---	---	---	---	>80	>80	>80	>80	>80	>80
9	---	---	---	---	---	---	---	>80	>80	>80	79	>80
10	---	---	---	---	---	---	---	---	>80	>80	>80	>80
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 6850 MHz; -4.00 dBm.
LO IN: 6880 MHz; +7.00 dBm
IF OUT: 30 MHz; -9.81 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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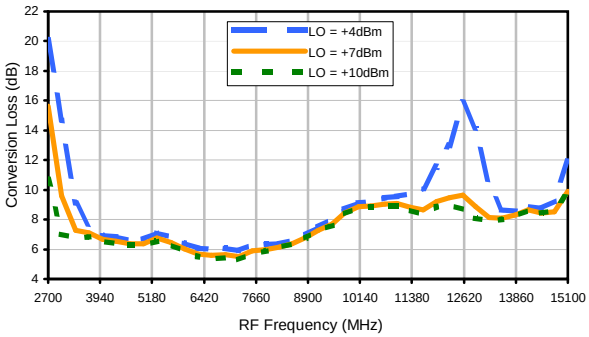
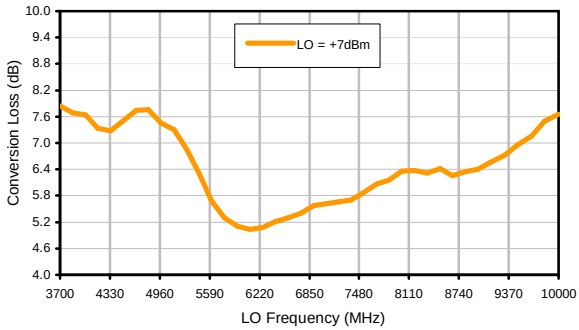
Typical Performance Curves

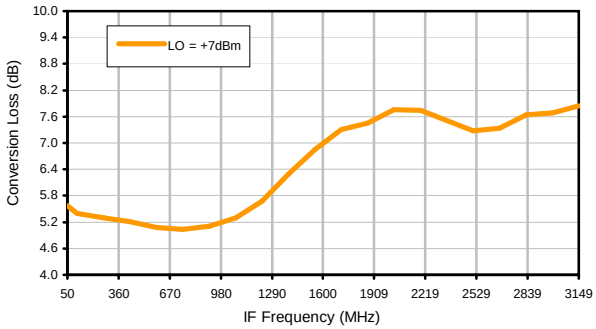
Conversion Loss @ IF=30MHz



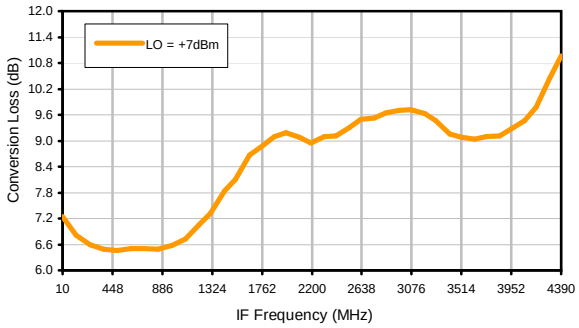
Conversion Loss vs. LO @ RF=6850MHz



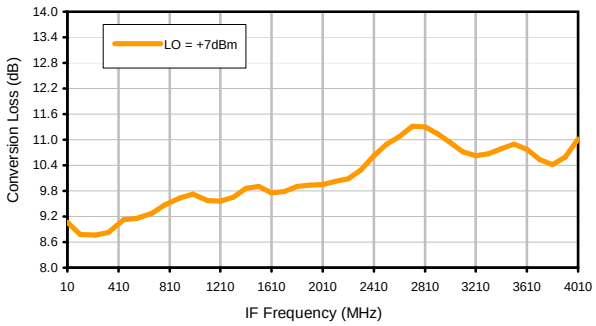
Conversion Loss vs. IF @ RF=6850MHz



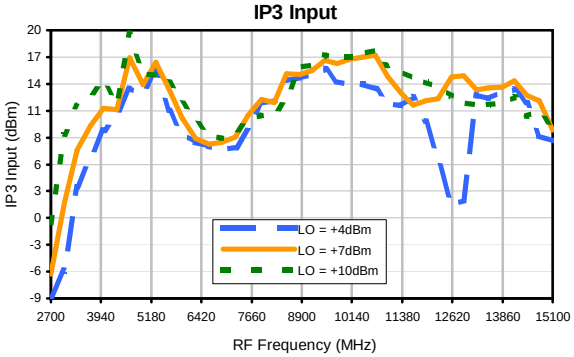
Conversion Loss vs. IF @ RF=3690MHz



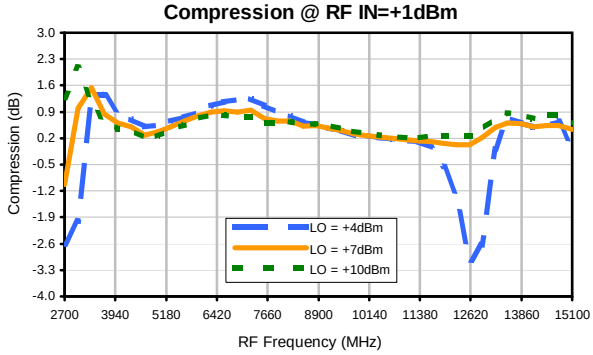
Conversion Loss vs. IF @ RF=10010.09MHz



IP3 Input



Compression @ RF IN=+1dBm



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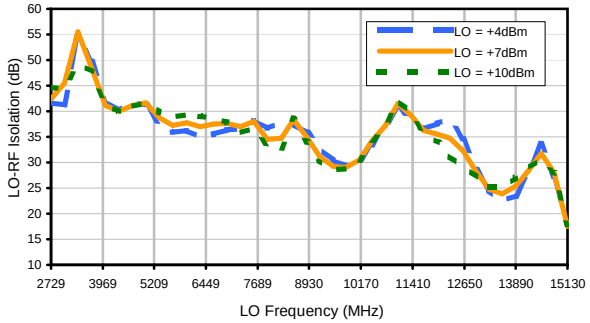
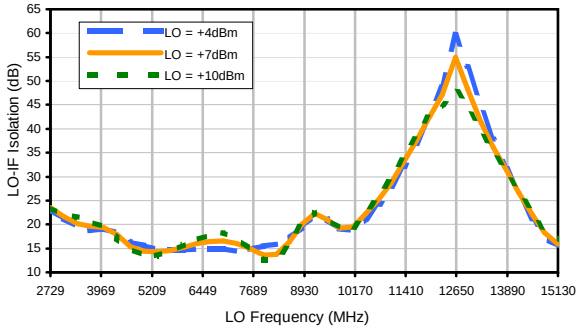
Typical Performance Curves

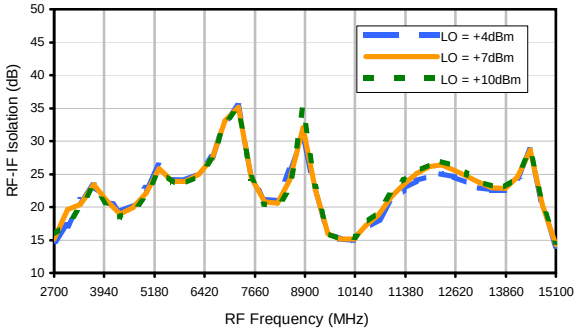
LO-RF Isolation



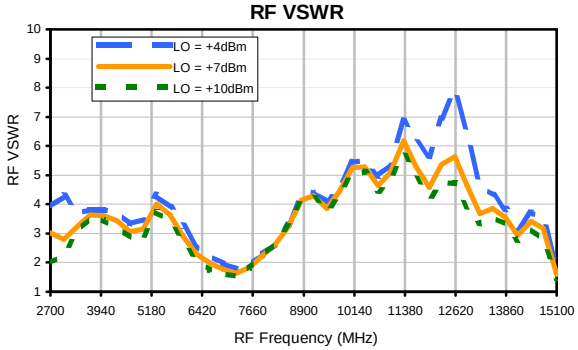
LO-IF Isolation



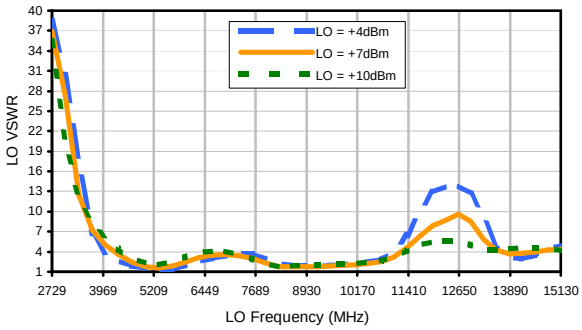
RF-IF Isolation



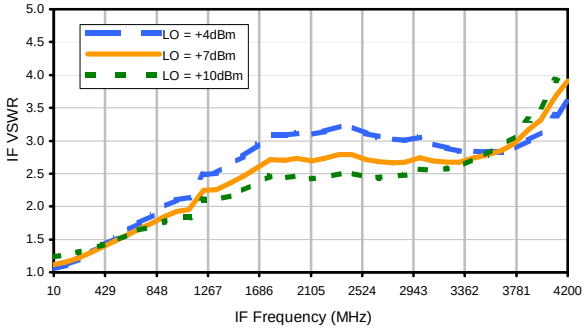
RF VSWR



LO VSWR



IF VSWR



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Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	+10	31	15	---	---	---	---	---	---	---
1	-	25	+0	47	27	53	---	---	---	---	---	---
2	86	62	47	57	47	68	56	---	---	---	---	---
3	>90	>70	69	>70	57	>70	>70	>70	---	---	---	---
4	---	---	>70	>70	>70	>70	>70	>70	>70	---	---	---
5	---	---	---	>70	>70	>70	>70	>70	>70	>70	---	---
6	---	---	---	---	>70	>70	>70	>70	>70	>70	>70	---
7	---	---	---	---	---	>70	>70	>70	>70	>70	>70	>70
8	---	---	---	---	---	---	>70	>70	>70	>70	>70	>70
9	---	---	---	---	---	---	---	>70	>70	>70	>70	>70
10	---	---	---	---	---	---	---	---	>70	>70	>70	>70
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 6850 MHz; -14.00 dBm.
LO IN: 6880 MHz; +7.00 dBm
IF OUT: 30 MHz; -19.69 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	+0	45	27	---	---	---	---	---	---	---
1	-	25	+0	49	27	58	---	---	---	---	---	---
2	66	53	37	46	40	62	50	---	---	---	---	---
3	>90	63	49	64	36	64	56	75	---	---	---	---
4	---	---	>80	77	61	>80	58	>80	74	---	---	---
5	---	---	---	>80	73	>80	54	>80	69	>80	---	---
6	---	---	---	---	>80	>80	>80	>80	73	>80	74	---
7	---	---	---	---	---	>80	>80	>80	67	>80	80	>80
8	---	---	---	---	---	---	>80	>80	>80	>80	>80	>80
9	---	---	---	---	---	---	---	>80	>80	>80	79	>80
10	---	---	---	---	---	---	---	---	>80	>80	>80	>80
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 6850 MHz; -4.00 dBm.
LO IN: 6880 MHz; +7.00 dBm
IF OUT: 30 MHz; -9.81 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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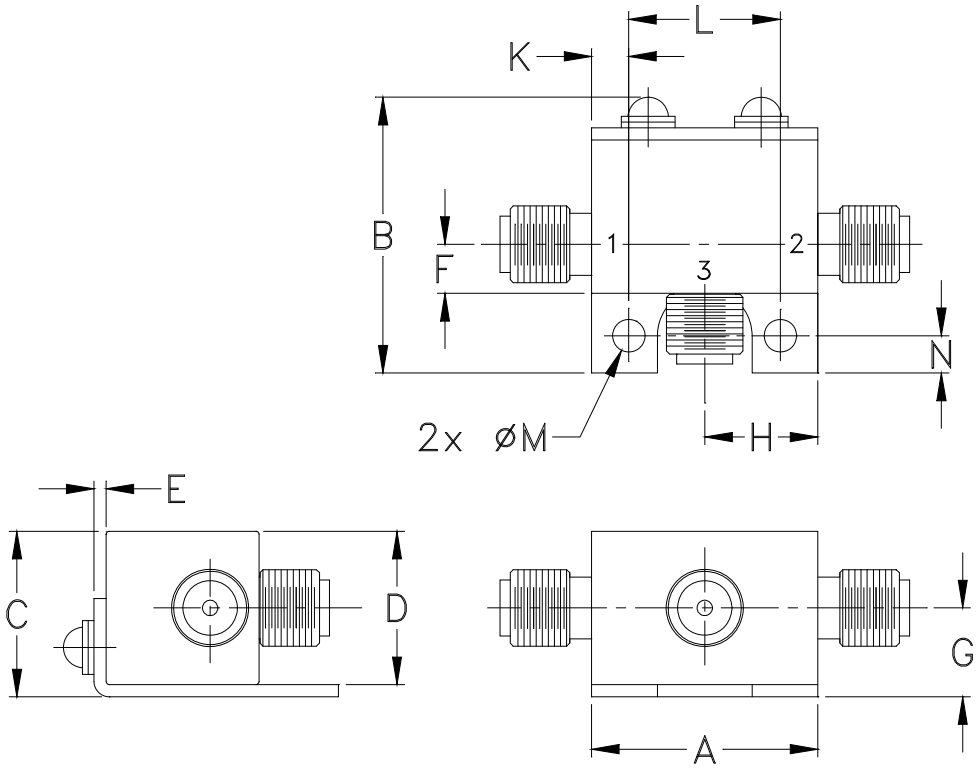
Case Style FL

FL905

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. ± .03; 3Pl. ± .015.
Tolerance on hole size and interaxes dimensions to be ±.005.

Notes:

1. Case material: Brass.
2. Case finish: Nickel plate.

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Environmental Specifications ENV28T5

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

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