

Non-Catalog Model

Frequency Mixer

Level 7 (LO Power +7 dBm)

TUF-11A

Important Note

This is a non-catalog model and can be manufactured on specific request.
Pricing and delivery information can be supplied upon request.

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CASE STYLE : B02

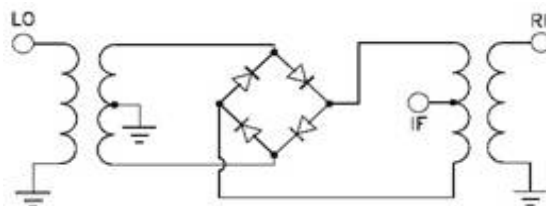
ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (fL to fU)	1400		1900	MHz
	RF (fL to fU)	1400		1900	MHz
	IF	40		500	MHz
Conversion Loss			6.8	8.6	dB
LO-RF Isolation		20	33		dB
LO-IF Isolation		15	29		dB
1 dB Comp. Input Power			+1		dBm

Non-hermetic

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

PIN CONNECTIONS	
LO	4
RF	1
IF	2
GROUND	3

Electrical Schematics



Frequency Mixer

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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
750.1	780.1	11.09	10.45	10.11
830.3	860.3	9.41	8.92	8.64
910.6	940.6	8.11	7.69	7.57
990.8	1020.8	7.36	7.03	6.87
1071.1	1101.1	7.16	6.84	6.67
1151.3	1181.3	7.17	6.90	6.76
1231.5	1261.5	7.30	7.05	7.01
1311.8	1341.8	7.50	7.25	7.19
1392.0	1422.0	7.72	7.42	7.31
1472.3	1502.3	7.75	7.36	7.17
1552.5	1582.5	7.72	7.17	6.93
1632.7	1662.7	7.70	7.03	6.73
1713.0	1743.0	7.70	6.98	6.59
1793.2	1823.2	7.80	7.10	6.67
1873.5	1903.5	7.89	7.20	6.82
1953.7	1983.7	8.05	7.35	6.94
2033.9	2063.9	8.04	7.40	7.00
2114.2	2144.2	8.04	7.43	7.03
2194.4	2224.4	8.10	7.51	7.15
2294.7	2324.7	8.22	7.64	7.31
2375.0	2405.0	8.36	7.74	7.38
2475.2	2505.2	8.34	7.80	7.48
2555.5	2585.5	8.24	7.71	7.48
2655.8	2685.8	8.32	7.76	7.60
2736.0	2766.0	8.48	7.99	7.84
2836.3	2866.3	8.57	8.07	7.87
2916.6	2946.6	8.61	8.16	7.98
3016.9	3046.9	8.67	8.26	8.16
3097.1	3127.1	8.66	8.27	8.18
3197.4	3227.4	8.74	8.23	8.07
3277.6	3307.6	8.72	8.16	7.94
3377.9	3407.9	8.97	8.27	8.07
3458.2	3488.2	9.17	8.44	8.18
3558.5	3588.5	9.49	8.62	8.36
3638.7	3668.7	9.79	8.71	8.40
3739.0	3769.0	10.23	8.87	8.48
3819.3	3849.3	10.76	9.11	8.59
3919.6	3949.6	11.57	9.29	8.75
3999.8	4029.8	12.58	9.63	8.69
4100.1	4130.1	13.84	10.24	8.78

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+4	+7	+10
750.1	780.1	12.32	13.62	15.77
830.3	860.3	8.62	9.19	9.01
910.6	940.6	5.90	6.81	6.92
990.8	1020.8	5.38	6.72	7.71
1071.1	1101.1	6.45	8.80	10.99
1151.3	1181.3	7.79	10.79	12.99
1231.5	1261.5	10.70	13.45	15.53
1311.8	1341.8	17.57	21.53	21.48
1392.0	1422.0	20.89	20.37	17.76
1472.3	1502.3	16.00	20.89	19.43
1552.5	1582.5	14.93	14.07	13.55
1632.7	1662.7	11.02	10.49	10.91
1713.0	1743.0	8.83	8.95	9.75
1793.2	1823.2	7.87	9.69	9.90
1873.5	1903.5	7.42	9.07	10.38
1953.7	1983.7	7.49	8.63	10.17
2033.9	2063.9	7.39	8.33	8.99
2114.2	2144.2	7.32	8.65	9.91
2194.4	2224.4	7.13	8.26	9.24
2294.7	2324.7	7.53	8.39	9.40
2375.0	2405.0	7.49	8.71	9.95
2475.2	2505.2	7.95	8.96	10.64
2555.5	2585.5	8.64	9.88	11.50
2655.8	2685.8	10.35	12.59	12.47
2736.0	2766.0	10.99	12.87	13.65
2836.3	2866.3	10.43	14.31	15.34
2916.6	2946.6	11.24	13.96	14.24
3016.9	3046.9	10.62	13.96	15.66
3097.1	3127.1	11.38	12.82	14.87
3197.4	3227.4	11.76	12.51	12.68
3277.6	3307.6	10.68	13.35	14.12
3377.9	3407.9	11.10	13.44	15.88
3458.2	3488.2	11.50	14.72	15.96
3558.5	3588.5	11.20	12.94	15.48
3638.7	3668.7	12.52	13.15	15.63
3739.0	3769.0	13.20	12.64	15.70
3819.3	3849.3	13.83	14.41	15.19
3919.6	3949.6	10.25	13.05	15.74
3999.8	4029.8	6.21	10.42	16.75
4100.1	4130.1	4.40	9.64	13.49

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)		
		+4	+7	+10
750.1	780.1	0.20	0.27	0.32
830.3	860.3	0.86	0.78	0.76
910.6	940.6	1.26	1.05	0.90
990.8	1020.8	1.19	0.93	0.77
1071.1	1101.1	0.90	0.64	0.54
1151.3	1181.3	0.67	0.42	0.34
1231.5	1261.5	0.53	0.31	0.27
1311.8	1341.8	0.55	0.33	0.29
1392.0	1422.0	0.66	0.41	0.32
1472.3	1502.3	0.90	0.64	0.52
1552.5	1582.5	1.18	0.97	0.82
1632.7	1662.7	1.37	1.23	1.07
1713.0	1743.0	1.38	1.27	1.12
1793.2	1823.2	1.34	1.16	1.03
1873.5	1903.5	1.25	1.06	0.91
1953.7	1983.7	1.13	0.92	0.81
2033.9	2063.9	1.08	0.87	0.70
2114.2	2144.2	1.04	0.80	0.68
2194.4	2224.4	1.01	0.77	0.68
2294.7	2324.7	0.98	0.75	0.70
2375.0	2405.0	0.96	0.78	0.72
2475.2	2505.2	1.01	0.79	0.74
2555.5	2585.5	1.00	0.80	0.75
2655.8	2685.8	1.04	0.78	0.70
2736.0	2766.0	0.93	0.69	0.58
2836.3	2866.3	0.81	0.58	0.48
2916.6	2946.6	0.73	0.48	0.41
3016.9	3046.9	0.77	0.40	0.32
3097.1	3127.1	0.75	0.36	0.29
3197.4	3227.4	0.78	0.39	0.23
3277.6	3307.6	0.87	0.45	0.27
3377.9	3407.9	0.88	0.46	0.28
3458.2	3488.2	0.88	0.43	0.26
3558.5	3588.5	0.88	0.49	0.24
3638.7	3668.7	0.85	0.53	0.31
3739.0	3769.0	0.81	0.57	0.31
3819.3	3849.3	0.66	0.60	0.35
3919.6	3949.6	0.28	0.60	0.34
3999.8	4029.8	-0.24	0.51	0.29
4100.1	4130.1	-0.93	0.30	0.30

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IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED • RoHS compliant

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Frequency Mixer

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1650.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1400.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1900.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
250.0	1400.1	7.13	10.0	1410.1	7.58	500.0	1400.1	6.78
237.4	1412.7	7.14	22.6	1422.7	7.45	487.4	1412.7	6.78
224.7	1425.4	7.09	35.1	1435.2	7.35	474.9	1425.2	6.78
212.1	1438.0	7.07	47.7	1447.8	7.30	462.3	1437.8	6.77
199.5	1450.6	7.06	60.3	1460.4	7.29	449.7	1450.4	6.75
186.8	1463.3	6.99	72.8	1472.9	7.26	437.2	1462.9	6.79
174.2	1475.9	6.98	85.4	1485.5	7.30	424.6	1475.5	6.80
161.6	1488.5	6.99	97.9	1498.0	7.33	412.1	1488.0	6.75
148.9	1501.2	6.93	110.5	1510.6	7.30	399.5	1500.6	6.72
136.3	1513.8	6.96	123.1	1523.2	7.31	386.9	1513.2	6.73
123.7	1526.4	6.95	135.6	1535.7	7.31	374.4	1525.7	6.70
111.1	1539.0	6.91	148.2	1548.3	7.30	361.8	1538.3	6.73
98.4	1551.7	6.96	160.8	1560.9	7.37	349.2	1550.9	6.72
85.8	1564.3	6.93	173.3	1573.4	7.36	336.7	1563.4	6.71
73.2	1576.9	6.93	185.9	1586.0	7.36	324.1	1576.0	6.75
60.5	1589.6	7.01	198.5	1598.6	7.40	311.5	1588.6	6.74
47.9	1602.2	7.01	211.0	1611.1	7.37	299.0	1601.1	6.76
35.3	1614.8	7.11	223.6	1623.7	7.38	286.4	1613.7	6.78
22.6	1627.5	7.26	236.2	1636.3	7.38	273.8	1626.3	6.73
10.0	1640.1	7.54	248.7	1648.8	7.32	261.3	1638.8	6.77
10.0	1660.1	7.31	261.3	1661.4	7.34	248.7	1651.4	6.80
22.6	1672.7	7.06	273.8	1673.9	7.31	236.2	1663.9	6.78
35.3	1685.4	7.03	286.4	1686.5	7.28	223.6	1676.5	6.84
47.9	1698.0	6.97	299.0	1699.1	7.31	211.0	1689.1	6.85
60.5	1710.6	6.91	311.5	1711.6	7.26	198.5	1701.6	6.84
73.2	1723.3	6.95	324.1	1724.2	7.24	185.9	1714.2	6.92
85.8	1735.9	6.89	336.7	1736.8	7.26	173.3	1726.8	6.89
98.4	1748.5	6.90	349.2	1749.3	7.23	160.8	1739.3	6.93
111.1	1761.2	6.93	361.8	1761.9	7.25	148.2	1751.9	6.99
123.7	1773.8	6.88	374.4	1774.5	7.25	135.6	1764.5	6.98
136.3	1786.4	6.91	386.9	1787.0	7.23	123.1	1777.0	7.06
148.9	1799.0	6.90	399.5	1799.6	7.23	110.5	1789.6	7.08
161.6	1811.7	6.83	412.1	1812.2	7.21	97.9	1802.2	7.06
174.2	1824.3	6.85	424.6	1824.7	7.19	85.4	1814.7	7.14
186.8	1836.9	6.81	437.2	1837.3	7.18	72.8	1827.3	7.13
199.5	1849.6	6.79	449.7	1849.8	7.12	60.3	1839.8	7.17
212.1	1862.2	6.81	462.3	1862.4	7.11	47.7	1852.4	7.27
224.7	1874.8	6.78	474.9	1875.0	7.11	35.1	1865.0	7.30
237.4	1887.5	6.82	487.4	1887.5	7.08	22.6	1877.5	7.47
250.0	1900.1	6.82	500.0	1900.1	7.07	10.0	1890.1	7.50

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+4	+7	+10	+4	+7	+10
750.1	49.89	51.88	53.30	30.93	31.47	31.68
830.3	47.25	49.53	50.68	31.46	32.08	32.29
910.6	43.98	46.27	48.10	32.87	33.52	32.89
990.8	41.99	43.40	44.11	34.33	34.01	31.66
1071.1	41.47	41.69	41.42	34.93	32.03	29.12
1151.3	40.96	40.86	40.22	34.51	29.95	26.99
1231.5	40.16	40.24	39.77	31.71	27.50	24.84
1311.8	39.51	40.07	40.18	29.08	25.68	23.42
1392.0	39.60	40.98	41.84	26.38	23.73	21.86
1472.3	40.28	43.19	45.42	24.49	22.20	20.59
1552.5	40.73	45.02	49.25	22.92	20.99	19.58
1632.7	39.87	43.33	46.28	21.75	20.10	18.79
1713.0	37.93	39.91	41.03	21.00	19.53	18.38
1793.2	36.04	37.37	38.61	20.60	19.25	18.11
1873.5	34.70	35.31	35.89	20.37	19.20	18.21
1953.7	33.61	33.81	34.05	20.76	19.54	18.64
2033.9	32.62	32.57	32.75	21.50	20.39	19.48
2114.2	31.60	31.33	31.27	23.04	21.89	20.84
2194.4	30.49	30.17	30.16	25.41	24.31	23.28
2294.7	29.13	28.81	28.77	29.96	29.59	28.10
2375.0	28.11	27.90	27.95	30.63	32.01	32.04
2475.2	27.33	27.10	27.29	24.73	25.52	26.63
2555.5	26.71	26.81	27.21	20.97	21.57	22.58
2655.8	26.27	26.59	27.18	18.12	18.71	19.67
2736.0	26.13	26.61	27.23	16.68	17.40	18.36
2836.3	26.35	27.03	27.72	15.62	16.50	17.51
2916.6	26.76	27.60	28.48	15.26	16.18	17.25
3016.9	27.25	28.11	28.86	15.00	15.95	17.03
3097.1	27.69	28.54	29.39	15.12	16.02	17.02
3197.4	28.10	28.95	29.69	15.26	16.28	17.11
3277.6	28.51	29.18	29.93	15.52	16.44	17.19
3377.9	29.06	29.50	30.02	15.83	16.55	17.07
3458.2	29.54	29.89	30.19	16.19	16.65	16.87
3558.5	30.26	30.31	30.33	16.61	16.72	16.61
3638.7	30.95	30.76	30.68	16.78	16.57	16.23
3739.0	31.87	31.22	31.00	16.83	16.37	15.82
3819.3	32.57	31.37	31.15	16.53	15.92	15.43
3919.6	34.05	31.76	31.13	15.98	15.44	15.03
3999.8	35.15	32.37	31.41	15.30	15.02	14.67
4100.1	35.98	32.74	30.67	14.38	14.33	13.95

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
750.1	780.1	24.01	23.63	23.37
830.3	860.3	22.86	22.60	22.48
910.6	940.6	22.56	22.51	22.62
990.8	1020.8	22.86	23.24	23.60
1071.1	1101.1	23.33	24.08	24.68
1151.3	1181.3	23.20	23.93	24.41
1231.5	1261.5	22.53	23.07	23.42
1311.8	1341.8	21.95	22.33	22.58
1392.0	1422.0	21.47	21.71	21.99
1472.3	1502.3	21.22	21.50	21.79
1552.5	1582.5	21.52	21.79	22.13
1632.7	1662.7	22.40	22.80	23.07
1713.0	1743.0	23.72	24.22	24.85
1793.2	1823.2	25.06	25.46	26.05
1873.5	1903.5	26.47	26.90	27.34
1953.7	1983.7	27.42	27.78	28.15
2033.9	2063.9	27.77	28.15	28.45
2114.2	2144.2	27.85	28.08	28.18
2194.4	2224.4	27.34	27.60	27.56
2294.7	2324.7	26.47	26.52	26.28
2375.0	2405.0	25.86	25.74	25.24
2475.2	2505.2	24.95	24.45	23.55
2555.5	2585.5	24.46	23.69	22.62
2655.8	2685.8	24.03	23.17	22.24
2736.0	2766.0	23.60	22.79	22.05
2836.3	2866.3	23.61	23.00	22.30
2916.6	2946.6	23.83	23.41	22.86
3016.9	3046.9	24.29	23.93	23.60
3097.1	3127.1	24.67	24.36	24.06
3197.4	3227.4	24.95	24.69	24.32
3277.6	3307.6	24.99	24.82	24.42
3377.9	3407.9	24.92	24.70	24.39
3458.2	3488.2	24.95	24.64	24.23
3558.5	3588.5	24.59	24.28	23.89
3638.7	3668.7	24.07	23.79	23.38
3739.0	3769.0	23.13	23.09	22.72
3819.3	3849.3	22.26	22.44	22.04
3919.6	3949.6	20.86	21.28	20.94
3999.8	4029.8	19.83	20.21	19.93
4100.1	4130.1	18.91	19.36	19.32

Frequency Mixer

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1900.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
750.1	780.1	8.27	7.83	7.53	750.1	1.68	2.12	2.79	10.0	1.89	1.77	1.86
830.3	860.3	5.56	5.23	5.04	830.3	1.67	2.07	2.70	22.6	1.32	1.23	1.21
910.6	940.6	3.67	3.44	3.32	910.6	1.66	2.01	2.61	35.1	1.29	1.16	1.11
990.8	1020.8	2.67	2.52	2.44	990.8	1.66	1.96	2.52	47.7	1.29	1.14	1.04
1071.1	1101.1	2.26	2.22	2.25	1071.1	1.63	1.89	2.42	60.3	1.31	1.16	1.05
1151.3	1181.3	2.15	2.25	2.37	1151.3	1.62	1.84	2.34	72.8	1.32	1.17	1.06
1231.5	1261.5	2.09	2.27	2.45	1231.5	1.61	1.79	2.26	85.4	1.32	1.17	1.07
1311.8	1341.8	1.96	2.15	2.32	1311.8	1.60	1.75	2.20	97.9	1.31	1.16	1.05
1392.0	1422.0	1.76	1.91	2.03	1392.0	1.58	1.72	2.16	110.5	1.28	1.14	1.02
1472.3	1502.3	1.48	1.60	1.70	1472.3	1.57	1.71	2.14	123.1	1.27	1.12	1.04
1552.5	1582.5	1.19	1.31	1.40	1552.5	1.57	1.71	2.15	135.6	1.27	1.12	1.05
1632.7	1662.7	1.16	1.24	1.32	1632.7	1.57	1.72	2.14	148.2	1.30	1.15	1.05
1713.0	1743.0	1.45	1.45	1.52	1713.0	1.57	1.73	2.13	160.8	1.32	1.17	1.06
1793.2	1823.2	1.73	1.70	1.73	1793.2	1.58	1.75	2.16	173.3	1.32	1.17	1.07
1873.5	1903.5	2.01	1.97	1.96	1873.5	1.60	1.77	2.17	185.9	1.30	1.15	1.06
1953.7	1983.7	2.33	2.28	2.26	1953.7	1.61	1.78	2.18	198.5	1.26	1.12	1.05
2033.9	2063.9	2.63	2.58	2.56	2033.9	1.62	1.77	2.16	211.0	1.25	1.10	1.05
2114.2	2144.2	2.84	2.78	2.73	2114.2	1.63	1.74	2.11	223.6	1.25	1.12	1.05
2194.4	2224.4	2.93	2.88	2.81	2194.4	1.63	1.69	2.01	236.2	1.27	1.14	1.08
2294.7	2324.7	3.03	2.99	2.94	2294.7	1.62	1.62	1.89	248.7	1.28	1.15	1.10
2375.0	2405.0	3.23	3.19	3.12	2375.0	1.61	1.56	1.77	261.3	1.26	1.14	1.11
2475.2	2505.2	3.41	3.40	3.34	2475.2	1.58	1.48	1.65	273.8	1.25	1.12	1.09
2555.5	2585.5	3.32	3.31	3.27	2555.5	1.55	1.42	1.56	286.4	1.24	1.11	1.08
2655.8	2685.8	3.20	3.18	3.17	2655.8	1.53	1.37	1.46	299.0	1.25	1.12	1.09
2736.0	2766.0	3.23	3.23	3.24	2736.0	1.49	1.31	1.39	311.5	1.25	1.14	1.12
2836.3	2866.3	3.40	3.42	3.42	2836.3	1.44	1.25	1.30	324.1	1.24	1.15	1.16
2916.6	2946.6	3.43	3.45	3.45	2916.6	1.39	1.19	1.24	336.7	1.24	1.15	1.17
3016.9	3046.9	3.23	3.28	3.29	3016.9	1.31	1.13	1.21	349.2	1.24	1.15	1.16
3097.1	3127.1	3.15	3.19	3.25	3097.1	1.25	1.08	1.21	361.8	1.26	1.16	1.16
3197.4	3227.4	3.33	3.30	3.37	3197.4	1.15	1.09	1.26	374.4	1.27	1.18	1.18
3277.6	3307.6	3.50	3.44	3.48	3277.6	1.07	1.15	1.33	386.9	1.28	1.20	1.20
3377.9	3407.9	3.54	3.43	3.40	3377.9	1.08	1.26	1.46	399.5	1.26	1.19	1.22
3458.2	3488.2	3.45	3.33	3.30	3458.2	1.18	1.36	1.57	412.1	1.25	1.19	1.22
3558.5	3588.5	3.50	3.35	3.34	3558.5	1.34	1.52	1.73	424.6	1.24	1.18	1.22
3638.7	3668.7	3.75	3.52	3.50	3638.7	1.48	1.65	1.86	437.2	1.25	1.20	1.23
3739.0	3769.0	4.04	3.67	3.60	3739.0	1.68	1.83	2.04	449.7	1.26	1.22	1.27
3819.3	3849.3	4.10	3.62	3.54	3819.3	1.86	1.98	2.18	462.3	1.27	1.25	1.31
3919.6	3949.6	4.18	3.56	3.40	3919.6	2.13	2.18	2.36	474.9	1.26	1.25	1.32
3999.8	4029.8	4.46	3.65	3.40	3999.8	2.36	2.34	2.47	487.4	1.25	1.24	1.31
4100.1	4130.1	5.10	4.05	3.63	4100.1	2.66	2.61	2.69	500.0	1.26	1.25	1.31

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+8	12	6	30	17	28	21	30	36	39
1	-	16	+0	32	15	50	44	44	51	45	39	52
2	>100	57	57	58	52	60	51	64	54	61	55	59
3	>100	77	66	73	59	>79	77	>79	73	>79	76	77
4	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
5	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
6	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
7	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
8	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
10	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1650.1 MHz; -14.00 dBm.
LO IN: 1690.01 MHz; +7.00 dBm
IF OUT: 39.91 MHz; -21.03 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	2	23	16	42	29	43	35	45	54	55
1	-	16	+0	33	15	50	45	48	56	51	48	67
2	84	46	47	46	40	52	42	58	49	58	50	57
3	>100	57	46	49	39	61	49	73	58	64	63	63
4	>100	84	76	63	66	56	66	64	64	69	64	66
5	>100	74	82	74	57	77	53	82	63	81	70	84
6	>100	74	84	85	82	66	66	85	78	75	80	85
7	>100	>89	79	>89	>89	>89	75	82	71	>89	77	89
8	>100	>89	>89	>89	>89	>89	>89	86	88	79	>89	>89
9	>100	>89	>89	>89	>89	>89	>89	>89	87	>89	85	>89
10	>100	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1650.1 MHz; -4.00 dBm.
LO IN: 1690.01 MHz; +7.00 dBm
IF OUT: 39.91 MHz; -11.06 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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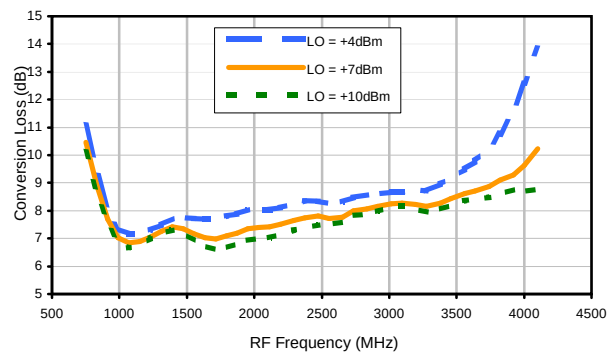
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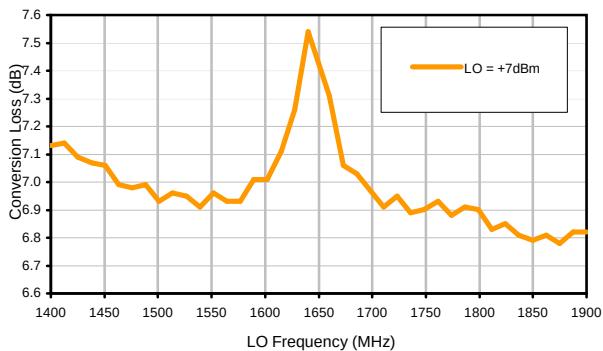


Typical Performance Curves

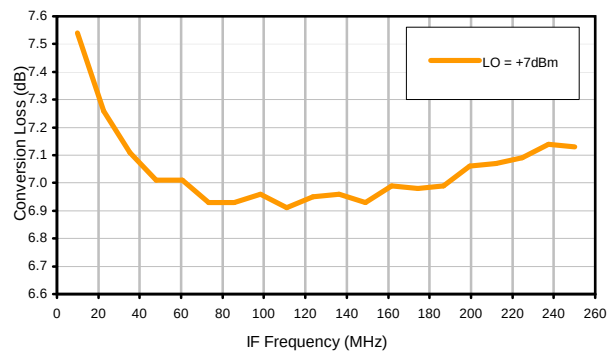
Conversion Loss @ IF=30MHz



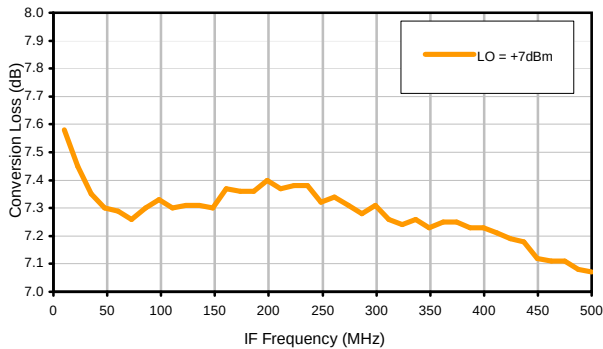
Conversion Loss vs. LO @ RF=1650.1MHz



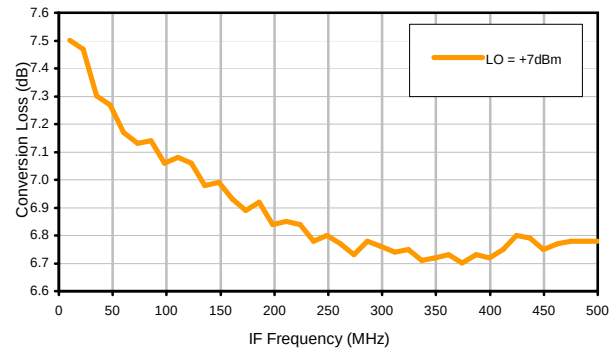
Conversion Loss vs. IF @ RF=1650.1MHz



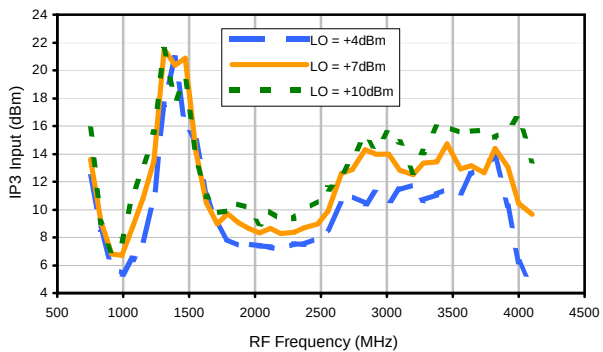
Conversion Loss vs. IF @ RF=1400.1MHz



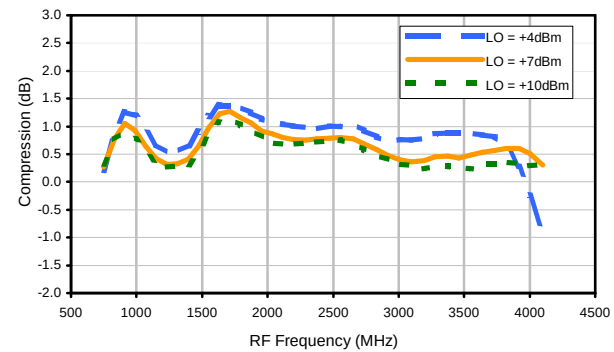
Conversion Loss vs. IF @ RF=1900.1MHz



IP3 Input

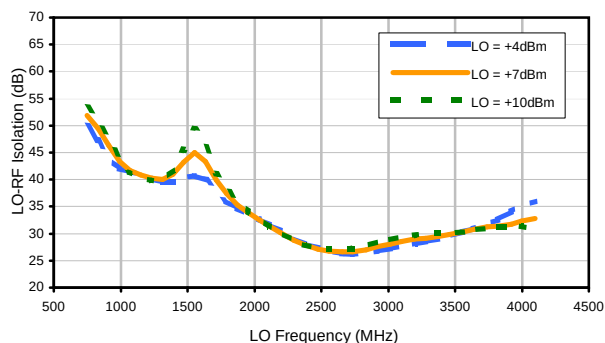


Compression @ RF IN=+1dBm

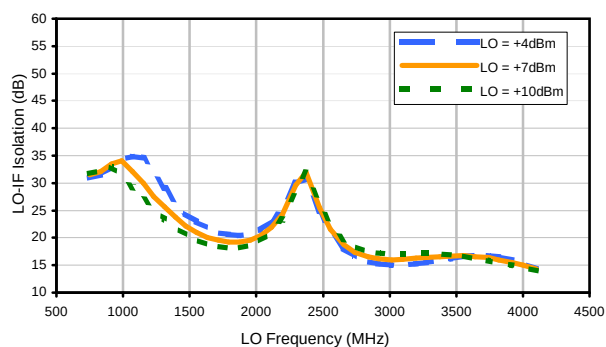


Typical Performance Curves

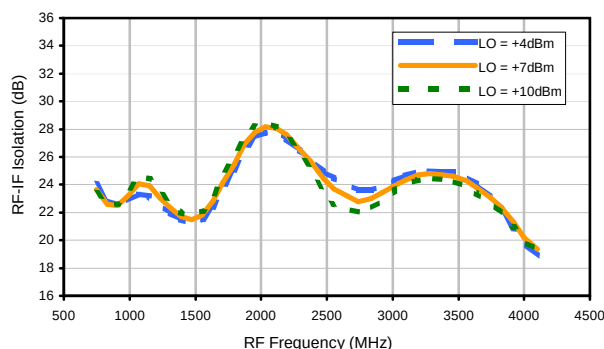
LO-RF Isolation



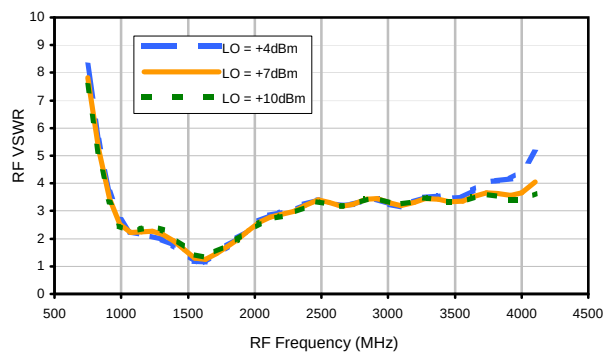
LO-IF Isolation



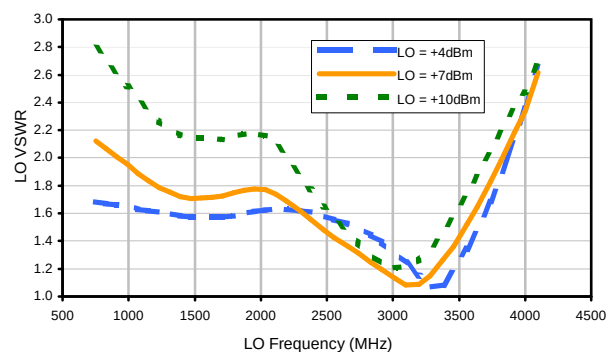
RF-IF Isolation



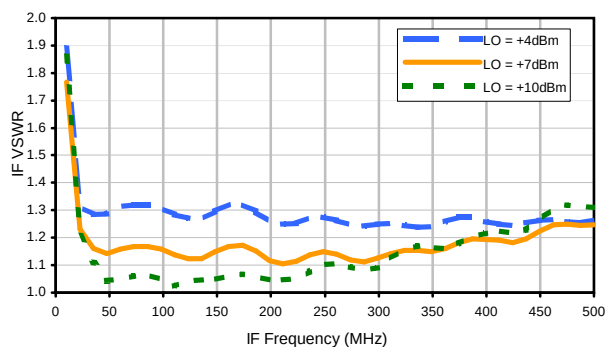
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+8	12	6	30	17	28	21	30	36	39
1	-	16	+0	32	15	50	44	44	51	45	39	52
2	>100	57	57	58	52	60	51	64	54	61	55	59
3	>100	77	66	73	59	>79	77	>79	73	>79	76	77
4	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
5	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
6	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
7	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
8	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
10	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1650.1 MHz; -14.00 dBm.
LO IN: 1690.01 MHz; +7.00 dBm
IF OUT: 39.91 MHz; -21.03 dBm

RF HARMONICS ORDER

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0	-	-	2	23	16	42	29	43	35	45	54	55
1	-	16	+0	33	15	50	45	48	56	51	48	67
2	84	46	47	46	40	52	42	58	49	58	50	57
3	>100	57	46	49	39	61	49	73	58	64	63	63
4	>100	84	76	63	66	56	66	64	64	69	64	66
5	>100	74	82	74	57	77	53	82	63	81	70	84
6	>100	74	84	85	82	66	66	85	78	75	80	85
7	>100	>89	79	>89	>89	>89	75	82	71	>89	77	89
8	>100	>89	>89	>89	>89	>89	>89	86	88	79	>89	>89
9	>100	>89	>89	>89	>89	>89	>89	>89	87	>89	85	>89
10	>100	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1650.1 MHz; -4.00 dBm.
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3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

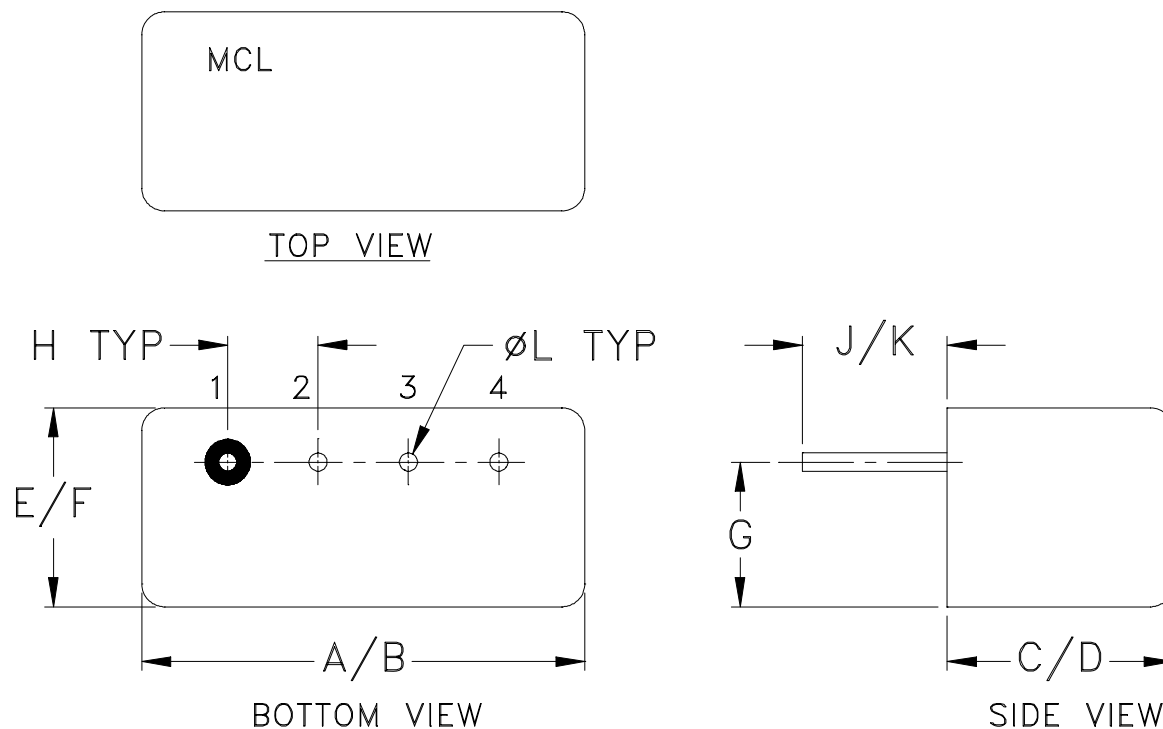
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B02

B13

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	WT, GRAM
B02	.480 (12.19)	.500 (12.70)	.240 (6.10)	.255 (6.48)	.210 (5.33)	.230 (5.84)	.16 (4.06)	.100 (2.54)	.14 (3.56)	.20 (5.08)	.020 (.51)	1.9
B13			.390 (9.91)	.405 (10.29)								2.3

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

Notes:

- Header material: C.R.S.
Pin material: #52 alloy.
Cover material: Cupro-Nickel.
- Pin finish: Electro Tin-Silver.
- Tolerance on pin diameter $\pm .005$ inch.
- Glass meniscus 0.015 inch max.
- Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.



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