

Non-Catalog Model

Frequency Mixer

ADE-20H

Level 17 (LO Power +17 dBm)

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 : CD542

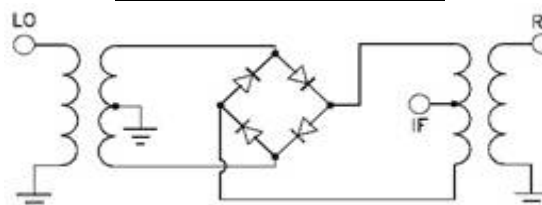
ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (fL to fU)	1500		2000	MHz
	RF (fL to fU)	1500		2000	MHz
	IF	0		300	MHz
Conversion Loss			5.2	7.8	dB
LO-RF Isolation		22	29		dB
LO-IF Isolation		20	31		dB
IP3 Input			+24		dBm
1 dB Comp. Input Power			+14		dBm

Note: Aqueous washable.

MAXIMUM RATINGS	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA

PIN CONNECTIONS	
LO	6
RF	4
IF	3
GROUND	1, 2, 5

Electrical Schematics



Frequency Mixer

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+14dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+14	+17	+20			+14	+17	+20			+14	+17	+20
850.1	880.1	11.47	10.47	9.45	850.1	880.1	21.87	20.37	25.94	850.1	880.1	-0.28	-0.22	0.07
930.4	960.4	10.46	9.36	8.59	930.4	960.4	19.41	18.76	22.84	930.4	960.4	0.02	0.13	0.22
1010.7	1040.7	9.86	8.58	7.77	1010.7	1040.7	16.59	18.12	23.36	1010.7	1040.7	0.11	0.37	0.44
1070.9	1100.9	9.53	8.07	7.31	1070.9	1100.9	14.86	18.21	23.65	1070.9	1100.9	0.27	0.58	0.54
1151.2	1181.2	8.65	7.16	6.80	1151.2	1181.2	13.96	22.17	23.78	1151.2	1181.2	0.58	0.87	0.62
1211.4	1241.4	8.48	6.82	6.52	1211.4	1241.4	13.68	23.67	23.66	1211.4	1241.4	0.70	0.92	0.62
1291.7	1321.7	7.32	6.39	6.20	1291.7	1321.7	18.92	24.72	24.56	1291.7	1321.7	1.28	0.89	0.63
1351.9	1381.9	6.87	6.15	5.99	1351.9	1381.9	19.28	22.58	23.48	1351.9	1381.9	1.39	0.85	0.64
1432.2	1462.2	6.30	5.89	5.76	1432.2	1462.2	20.01	21.55	22.78	1432.2	1462.2	1.52	0.80	0.64
1492.4	1522.4	6.16	5.77	5.66	1492.4	1522.4	20.37	21.22	22.29	1492.4	1522.4	1.41	0.77	0.63
1572.7	1602.7	5.95	5.64	5.55	1572.7	1602.7	20.50	20.89	21.67	1572.7	1602.7	1.33	0.73	0.59
1632.9	1662.9	5.90	5.58	5.49	1632.9	1662.9	20.86	21.19	22.15	1632.9	1662.9	1.19	0.69	0.57
1713.2	1743.2	5.87	5.52	5.43	1713.2	1743.2	20.98	21.67	23.06	1713.2	1743.2	1.21	0.64	0.52
1773.5	1803.5	5.80	5.48	5.40	1773.5	1803.5	21.99	22.25	23.42	1773.5	1803.5	1.13	0.58	0.46
1853.7	1883.7	5.87	5.47	5.36	1853.7	1883.7	22.56	23.02	23.78	1853.7	1883.7	1.13	0.51	0.37
1914.0	1944.0	5.86	5.46	5.36	1914.0	1944.0	22.63	23.65	24.16	1914.0	1944.0	1.12	0.50	0.36
1994.3	2024.3	6.01	5.52	5.39	1994.3	2024.3	21.71	23.00	24.64	1994.3	2024.3	1.14	0.45	0.30
2054.5	2084.5	5.89	5.53	5.42	2054.5	2084.5	22.49	23.22	24.75	2054.5	2084.5	1.06	0.39	0.26
2134.8	2164.8	6.09	5.63	5.53	2134.8	2164.8	23.01	24.33	26.41	2134.8	2164.8	1.01	0.34	0.21
2195.0	2225.0	6.32	5.72	5.61	2195.0	2225.0	23.01	24.11	27.13	2195.0	2225.0	1.03	0.34	0.20
2275.3	2305.3	6.44	5.84	5.76	2275.3	2305.3	21.02	24.21	28.31	2275.3	2305.3	0.97	0.34	0.17
2335.5	2365.5	6.52	5.89	5.81	2335.5	2365.5	19.56	27.18	28.66	2335.5	2365.5	0.86	0.34	0.16
2415.8	2445.8	6.93	5.99	5.83	2415.8	2445.8	17.77	24.34	29.42	2415.8	2445.8	0.64	0.34	0.20
2476.0	2506.0	7.27	6.15	5.89	2476.0	2506.0	17.20	23.32	30.83	2476.0	2506.0	0.49	0.30	0.20
2556.3	2586.3	7.38	6.32	6.02	2556.3	2586.3	16.66	23.73	31.80	2556.3	2586.3	0.38	0.23	0.16
2616.5	2646.5	8.03	6.51	6.14	2616.5	2646.5	15.02	21.75	33.19	2616.5	2646.5	0.15	0.24	0.16
2696.8	2726.8	8.68	6.78	6.28	2696.8	2726.8	14.31	21.71	30.97	2696.8	2726.8	0.01	0.24	0.16
2757.0	2787.0	8.80	6.93	6.37	2757.0	2787.0	14.84	24.77	29.26	2757.0	2787.0	0.02	0.23	0.16
2837.3	2867.3	8.92	7.06	6.47	2837.3	2867.3	16.21	23.15	23.47	2837.3	2867.3	0.07	0.26	0.19
2897.5	2927.5	10.05	7.44	6.63	2897.5	2927.5	13.82	22.11	22.29	2897.5	2927.5	-0.38	0.25	0.23
2977.8	3007.8	10.33	7.70	6.93	2977.8	3007.8	13.84	22.59	21.96	2977.8	3007.8	-0.56	0.17	0.21
3038.1	3068.1	9.47	7.73	7.14	3038.1	3068.1	16.17	23.31	22.67	3038.1	3068.1	-0.17	0.14	0.20
3118.3	3148.3	10.23	8.09	7.56	3118.3	3148.3	14.21	27.05	23.79	3118.3	3148.3	-0.67	0.11	0.16
3178.6	3208.6	11.92	8.33	7.84	3178.6	3208.6	11.19	20.37	24.59	3178.6	3208.6	-1.99	0.20	0.16
3258.9	3288.9	12.91	8.53	8.13	3258.9	3288.9	10.43	19.22	26.26	3258.9	3288.9	-2.71	0.29	0.14
3319.1	3349.1	10.68	8.58	8.26	3319.1	3349.1	15.00	20.99	27.57	3319.1	3349.1	-0.70	0.27	0.15
3399.4	3429.4	14.40	9.05	8.50	3399.4	3429.4	9.68	19.32	31.43	3399.4	3429.4	-3.62	0.27	0.18
3459.6	3489.6	14.54	9.27	8.78	3459.6	3489.6	10.00	20.01	30.49	3459.6	3489.6	-3.50	0.32	0.18
3539.9	3569.9	14.39	9.43	9.18	3539.9	3569.9	10.86	19.79	30.47	3539.9	3569.9	-3.08	0.43	0.15
3600.1	3630.1	14.75	9.39	9.24	3600.1	3630.1	10.75	19.21	25.64	3600.1	3630.1	-3.26	0.56	0.21



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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1750.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1500.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2000.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+17			+17			+17
250.0	1500.1	5.87	10.0	1510.1	5.88	300.0	1700.1	5.99
237.4	1512.7	5.86	17.4	1517.5	5.81	292.6	1707.5	5.99
224.7	1525.4	5.86	24.9	1525.0	5.76	285.1	1715.0	5.98
212.1	1538.0	5.84	32.3	1532.4	5.76	277.7	1722.4	5.97
199.5	1550.6	5.82	39.7	1539.8	5.75	270.3	1729.8	5.96
186.8	1563.3	5.79	47.2	1547.3	5.76	262.8	1737.3	5.97
174.2	1575.9	5.79	54.6	1554.7	5.77	255.4	1744.7	5.96
161.6	1588.5	5.75	62.1	1562.2	5.77	247.9	1752.2	5.92
148.9	1601.2	5.71	69.5	1569.6	5.78	240.5	1759.6	5.88
136.3	1613.8	5.70	76.9	1577.0	5.79	233.1	1767.0	5.87
123.7	1626.4	5.67	84.4	1584.5	5.81	225.6	1774.5	5.88
111.1	1639.0	5.65	91.8	1591.9	5.82	218.2	1781.9	5.88
98.4	1651.7	5.64	99.2	1599.3	5.83	210.8	1789.3	5.87
85.8	1664.3	5.61	106.7	1606.8	5.86	203.3	1796.8	5.84
73.2	1676.9	5.59	114.1	1614.2	5.87	195.9	1804.2	5.83
60.5	1689.6	5.56	121.5	1621.6	5.89	188.5	1811.6	5.81
47.9	1702.2	5.55	129.0	1629.1	5.90	181.0	1819.1	5.80
35.3	1714.8	5.53	136.4	1636.5	5.93	173.6	1826.5	5.81
22.6	1727.5	5.52	143.8	1643.9	5.96	166.2	1833.9	5.80
10.0	1740.1	5.65	151.3	1651.4	5.98	158.7	1841.4	5.79
10.0	1760.1	5.67	158.7	1658.8	5.99	151.3	1848.8	5.76
22.6	1772.7	5.52	166.2	1666.3	6.01	143.8	1856.3	5.74
35.3	1785.4	5.50	173.6	1673.7	6.03	136.4	1863.7	5.73
47.9	1798.0	5.51	181.0	1681.1	6.05	129.0	1871.1	5.73
60.5	1810.6	5.50	188.5	1688.6	6.05	121.5	1878.6	5.72
73.2	1823.3	5.52	195.9	1696.0	6.07	114.1	1886.0	5.70
85.8	1835.9	5.56	203.3	1703.4	6.09	106.7	1893.4	5.68
98.4	1848.5	5.56	210.8	1710.9	6.12	99.2	1900.9	5.67
111.1	1861.2	5.58	218.2	1718.3	6.13	91.8	1908.3	5.66
123.7	1873.8	5.62	225.6	1725.7	6.14	84.4	1915.7	5.65
136.3	1886.4	5.66	233.1	1733.2	6.15	76.9	1923.2	5.64
148.9	1899.0	5.68	240.5	1740.6	6.17	69.5	1930.6	5.63
161.6	1911.7	5.71	247.9	1748.0	6.19	62.1	1938.0	5.61
174.2	1924.3	5.77	255.4	1755.5	6.22	54.6	1945.5	5.59
186.8	1936.9	5.79	262.8	1762.9	6.25	47.2	1952.9	5.58
199.5	1949.6	5.80	270.3	1770.4	6.28	39.7	1960.4	5.58
212.1	1962.2	5.87	277.7	1777.8	6.30	32.3	1967.8	5.58
224.7	1974.8	5.92	285.1	1785.2	6.30	24.9	1975.2	5.56
237.4	1987.5	5.92	292.6	1792.7	6.32	17.4	1982.7	5.58
250.0	2000.1	5.95	300.0	1800.1	6.35	10.0	1990.1	5.67

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+14	+17	+20	+14	+17	+20
850.1	25.59	25.82	24.58	12.98	13.98	14.17
930.4	27.55	27.17	25.38	13.76	14.52	14.42
1010.7	31.15	29.36	26.81	14.57	14.91	14.59
1070.9	36.26	32.07	28.52	15.39	15.47	15.08
1151.2	46.03	38.61	31.38	16.81	16.70	16.44
1211.4	34.88	38.58	33.53	18.00	18.00	17.76
1291.7	29.28	32.07	32.47	20.11	20.43	20.07
1351.9	27.72	29.65	30.60	22.17	22.75	22.28
1432.2	26.41	28.04	28.86	25.11	26.32	25.68
1492.4	26.40	27.79	28.44	27.70	29.31	28.67
1572.7	26.24	27.92	28.55	30.17	33.62	33.42
1632.9	26.29	28.07	28.85	32.11	36.84	37.92
1713.2	25.82	27.68	28.69	33.08	39.53	48.24
1773.5	25.52	26.89	27.96	33.63	39.04	48.54
1853.7	25.81	26.65	27.29	33.90	37.40	39.84
1914.0	26.41	27.15	27.57	34.23	36.90	37.52
1994.3	27.04	27.62	28.01	34.61	36.11	35.80
2054.5	27.27	27.63	27.95	34.46	35.26	34.48
2134.8	27.79	27.85	28.06	34.57	34.52	33.17
2195.0	28.19	28.23	28.34	34.57	34.32	32.54
2275.3	28.58	28.74	28.82	34.60	34.22	32.24
2335.5	28.81	28.91	29.10	34.18	34.05	31.96
2415.8	29.07	28.91	29.12	33.93	33.81	31.60
2476.0	29.21	28.97	29.07	33.88	33.42	31.24
2556.3	29.90	29.27	29.16	33.50	33.15	30.72
2616.5	30.66	29.57	29.44	33.31	33.17	30.49
2696.8	31.75	30.05	29.63	33.31	32.94	30.23
2757.0	32.47	30.70	29.96	33.56	32.68	29.90
2837.3	34.91	32.06	30.70	33.22	33.27	29.99
2897.5	35.56	33.16	32.02	33.53	33.16	29.90
2977.8	37.08	35.01	33.25	33.51	33.18	29.87
3038.1	38.19	36.48	34.99	33.59	33.14	29.91
3118.3	40.99	38.33	37.45	33.31	33.65	30.15
3178.6	40.27	39.00	38.62	33.66	32.96	29.98
3258.9	40.29	38.27	38.90	33.70	32.55	29.87
3319.1	42.44	37.51	37.43	33.40	32.99	29.83
3399.4	41.56	37.16	35.94	33.45	32.84	29.26
3459.6	39.02	36.57	35.20	33.51	31.56	28.42
3539.9	38.12	36.45	35.50	33.37	31.55	28.19
3600.1	37.80	36.04	35.71	33.05	32.45	28.56

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+14	+17	+20
850.1	880.1	12.34	12.41	12.37
930.4	960.4	11.25	11.24	11.10
1010.7	1040.7	10.25	10.07	9.94
1070.9	1100.9	9.94	9.71	9.60
1151.2	1181.2	9.97	9.82	9.66
1211.4	1241.4	10.47	10.20	9.95
1291.7	1321.7	11.56	11.12	10.77
1351.9	1381.9	12.50	12.05	11.67
1432.2	1462.2	13.10	12.66	12.39
1492.4	1522.4	13.31	12.71	12.48
1572.7	1602.7	13.39	12.75	12.47
1632.9	1662.9	13.44	12.81	12.48
1713.2	1743.2	13.43	12.94	12.64
1773.5	1803.5	13.40	13.08	12.86
1853.7	1883.7	13.47	13.40	13.30
1914.0	1944.0	13.51	13.61	13.63
1994.3	2024.3	13.71	13.98	14.10
2054.5	2084.5	14.09	14.42	14.56
2134.8	2164.8	14.50	15.16	15.42
2195.0	2225.0	14.67	15.65	16.04
2275.3	2305.3	15.02	16.29	16.89
2335.5	2365.5	15.29	16.63	17.45
2415.8	2445.8	15.29	16.79	17.77
2476.0	2506.0	15.40	16.99	17.90
2556.3	2586.3	15.88	17.41	18.25
2616.5	2646.5	15.79	17.52	18.38
2696.8	2726.8	15.96	17.57	18.34
2757.0	2787.0	16.44	17.88	18.54
2837.3	2867.3	17.30	18.77	19.36
2897.5	2927.5	17.54	19.59	20.33
2977.8	3007.8	18.76	21.05	21.79
3038.1	3068.1	20.27	22.39	22.94
3118.3	3148.3	21.44	23.64	24.24
3178.6	3208.6	22.46	24.17	24.96
3258.9	3288.9	24.34	25.00	25.48
3319.1	3349.1	25.28	25.65	25.54
3399.4	3429.4	27.65	26.15	25.74
3459.6	3489.6	28.50	26.41	25.69
3539.9	3569.9	28.95	26.58	25.60
3600.1	3630.1	29.06	26.53	25.48

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)		
		@LO (dBm)		
		+14	+17	+20
850.1	880.1	6.71	6.37	5.85
930.4	960.4	5.36	4.89	4.43
1010.7	1040.7	4.42	3.89	3.43
1070.9	1100.9	3.92	3.34	2.96
1151.2	1181.2	3.29	2.73	2.52
1211.4	1241.4	3.02	2.46	2.27
1291.7	1321.7	2.45	2.17	2.03
1351.9	1381.9	2.17	1.99	1.90
1432.2	1462.2	1.80	1.67	1.62
1492.4	1522.4	1.65	1.49	1.44
1572.7	1602.7	1.51	1.34	1.28
1632.9	1662.9	1.45	1.26	1.19
1713.2	1743.2	1.36	1.17	1.12
1773.5	1803.5	1.27	1.11	1.11
1853.7	1883.7	1.23	1.06	1.11
1914.0	1944.0	1.18	1.02	1.12
1994.3	2024.3	1.16	1.03	1.14
2054.5	2084.5	1.07	1.10	1.20
2134.8	2164.8	1.06	1.19	1.31
2195.0	2225.0	1.09	1.22	1.36
2275.3	2305.3	1.10	1.26	1.43
2335.5	2365.5	1.12	1.25	1.46
2415.8	2445.8	1.21	1.21	1.43
2476.0	2506.0	1.23	1.21	1.42
2556.3	2586.3	1.15	1.24	1.45
2616.5	2646.5	1.20	1.23	1.45
2696.8	2726.8	1.23	1.15	1.35
2757.0	2787.0	1.24	1.17	1.33
2837.3	2867.3	1.37	1.39	1.50
2897.5	2927.5	1.63	1.62	1.74
2977.8	3007.8	1.93	2.03	2.20
3038.1	3068.1	2.14	2.40	2.59
3118.3	3148.3	2.60	2.79	3.09
3178.6	3208.6	3.17	2.99	3.40
3258.9	3288.9	3.79	3.33	3.77
3319.1	3349.1	3.80	3.76	4.09
3399.4	3429.4	5.27	4.28	4.53
3459.6	3489.6	5.99	4.79	5.00
3539.9	3569.9	6.81	5.33	5.56
3600.1	3630.1	7.41	5.51	5.68

LO (MHz)	LO VSWR (:1)		
	@LO (dBm)		
	+14	+17	+20
850.1	3.38	1.96	1.61
930.4	3.15	1.83	1.55
1010.7	2.78	1.75	1.54
1070.9	2.67	1.75	1.51
1151.2	2.71	1.69	1.43
1211.4	2.63	1.64	1.39
1291.7	2.76	1.54	1.33
1351.9	2.66	1.46	1.26
1432.2	2.78	1.42	1.23
1492.4	2.55	1.38	1.19
1572.7	2.73	1.39	1.18
1632.9	2.56	1.38	1.16
1713.2	2.72	1.42	1.15
1773.5	2.69	1.45	1.14
1853.7	2.85	1.51	1.16
1914.0	2.97	1.56	1.16
1994.3	3.01	1.62	1.17
2054.5	3.35	1.71	1.19
2134.8	3.52	1.80	1.20
2195.0	3.75	1.91	1.22
2275.3	3.76	1.98	1.27
2335.5	4.43	2.18	1.32
2415.8	4.68	2.30	1.39
2476.0	4.53	2.30	1.41
2556.3	5.17	2.50	1.48
2616.5	5.72	2.68	1.54
2696.8	6.11	2.84	1.61
2757.0	6.11	2.88	1.65
2837.3	7.60	3.40	1.82
2897.5	7.28	3.39	1.90
2977.8	7.80	3.62	2.04
3038.1	8.08	3.70	2.16
3118.3	9.85	4.42	2.42
3178.6	9.08	4.12	2.51
3258.9	9.48	4.31	2.73
3319.1	11.53	5.34	3.00
3399.4	12.26	5.81	3.25
3459.6	11.46	5.14	3.25
3539.9	12.01	5.54	3.58
3600.1	13.81	6.89	4.06

IF (OUT) (MHz)	IF VSWR @LO=2000.1MHz (:1)		
	@LO (dBm)		
	+14	+17	+20
10.0	1.75	1.56	1.41
17.4	1.46	1.31	1.20
24.9	1.47	1.30	1.21
32.3	1.43	1.28	1.20
39.7	1.42	1.27	1.20
47.2	1.40	1.25	1.18
54.6	1.38	1.24	1.19
62.1	1.38	1.23	1.18
69.5	1.39	1.24	1.18
76.9	1.39	1.23	1.18
84.4	1.37	1.23	1.17
91.8	1.40	1.26	1.21
99.2	1.42	1.28	1.23
106.7	1.46	1.33	1.28
114.1	1.48	1.35	1.31
121.5	1.51	1.38	1.33
129.0	1.51	1.39	1.35
136.4	1.52	1.40	1.36
143.8	1.50	1.40	1.36
151.3	1.49	1.39	1.36
158.7	1.50	1.41	1.38
166.2	1.53	1.44	1.41
173.6	1.54	1.45	1.41
181.0	1.56	1.47	1.44
188.5	1.58	1.49	1.46
195.9	1.60	1.51	1.47
203.3	1.62	1.53	1.49
210.8	1.64	1.55	1.51
218.2	1.65	1.57	1.54
225.6	1.66	1.59	1.57
233.1	1.68	1.61	1.60
240.5	1.69	1.63	1.62
247.9	1.70	1.64	1.63
255.4	1.70	1.63	1.63
262.8	1.69	1.63	1.63
270.3	1.67	1.62	1.62
277.7	1.67	1.62	1.62
285.1	1.68	1.64	1.64
292.6	1.71	1.67	1.67
300.0	1.74	1.70	1.70

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	25	23	9	24	19	36	29	33	42	51
1	-	8	+0	32	29	33	34	25	38	46	48	60
2	>100	59	61	64	55	60	43	52	47	53	54	58
3	>100	74	78	69	55	72	82	64	72	58	67	77
4	>100	88	77	89	>94	85	85	89	71	78	77	76
5	>100	>94	>94	>94	>94	>94	85	>94	>94	>94	>94	90
6	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
7	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
8	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
9	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
10	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1750.1 MHz; -1.00 dBm.
 LO IN: 1780.1 MHz; +17.00 dBm
 IF OUT: 30 MHz; -6.46 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	34	35	22	38	34	43	52	56	60	73
1	-	7	+0	34	29	37	37	29	47	52	49	68
2	91	54	53	59	48	53	37	47	44	57	54	55
3	>100	63	60	50	35	52	62	51	54	43	55	68
4	>100	66	56	67	74	67	64	66	50	56	55	58
5	>100	82	74	72	77	74	58	76	83	65	72	58
6	>100	80	76	85	71	80	89	78	76	78	61	66
7	>100	92	94	95	88	85	88	97	75	>103	92	76
8	>100	97	100	91	90	>103	84	92	93	84	88	89
9	>100	>103	>103	97	100	99	>103	98	97	>103	95	>103
10	>100	>103	>103	>103	>103	>103	98	>103	96	>103	98	94
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1750.1 MHz; 9.00 dBm.
 LO IN: 1780.1 MHz; +17.00 dBm
 IF OUT: 30 MHz; 3.35 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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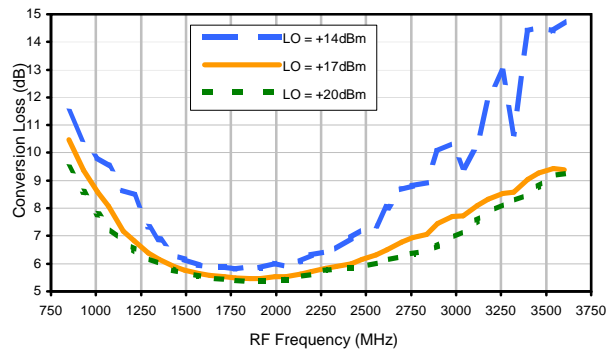


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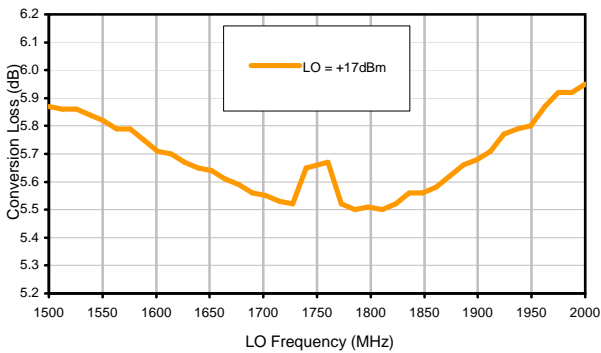


Typical Performance Curves

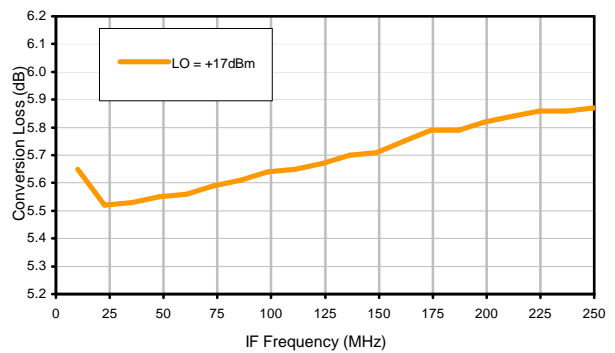
Conversion Loss @ IF=30MHz



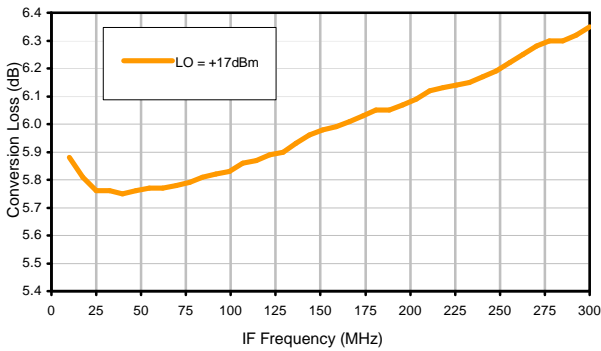
Conversion Loss vs. LO @ RF=1750.1MHz



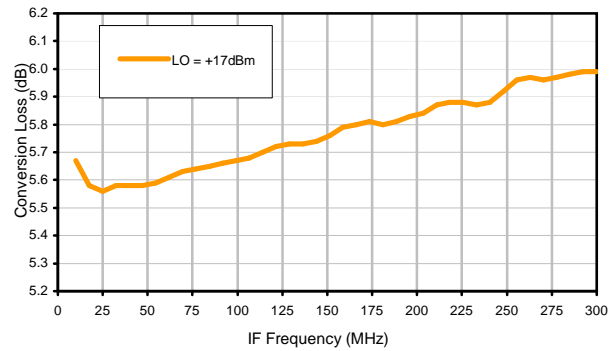
Conversion Loss vs. IF @ RF=1750.1MHz



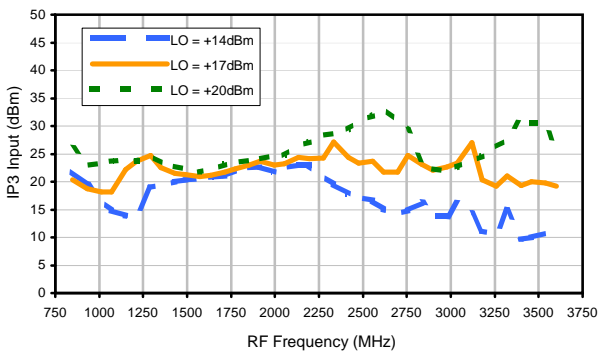
Conversion Loss vs. IF @ RF=1500.1MHz



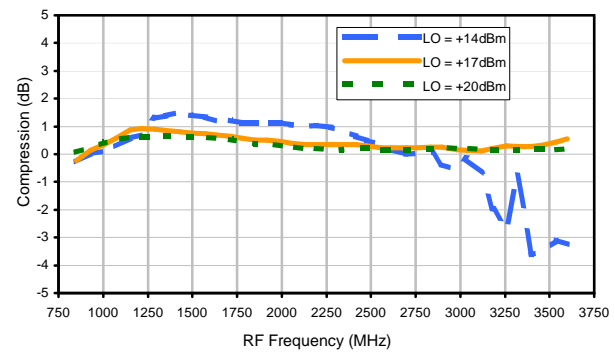
Conversion Loss vs. IF @ RF=2000.1MHz



IP3 Input

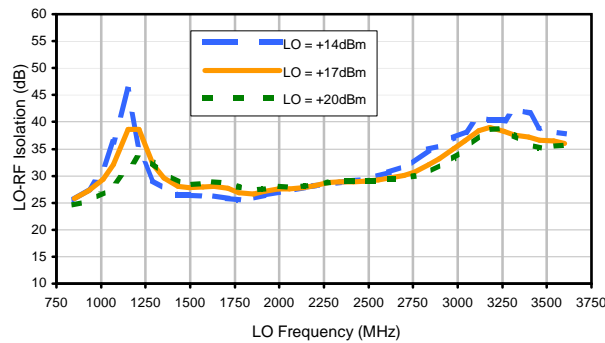


Compression @ RF IN=+14dBm

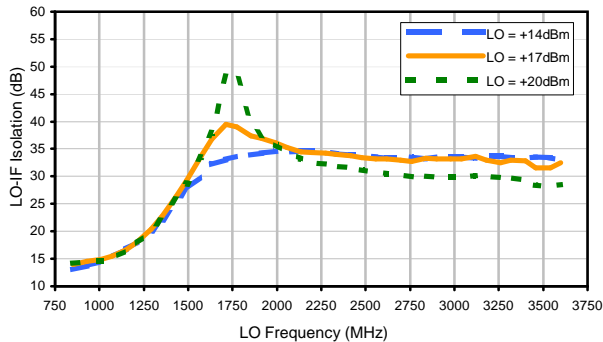


Typical Performance Curves

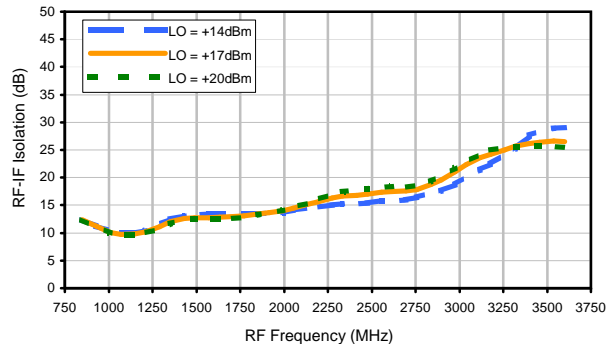
LO-RF Isolation



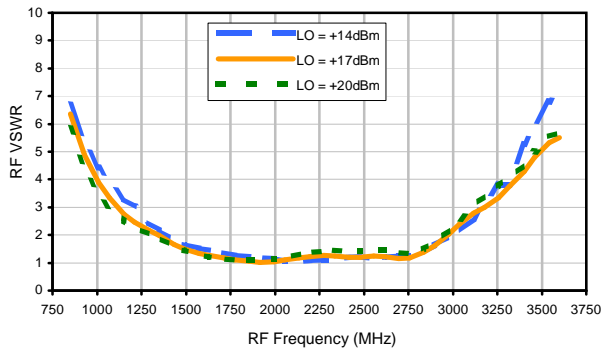
LO-IF Isolation



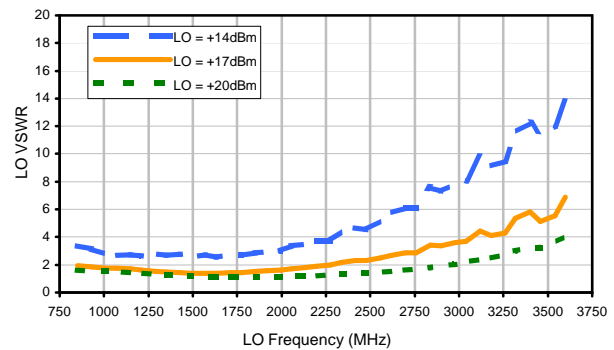
RF-IF Isolation



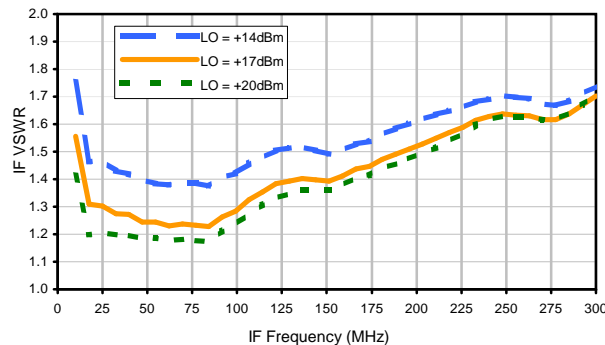
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	25	23	9	24	19	36	29	33	42	51
1	-	8	+0	32	29	33	34	25	38	46	48	60
2	>100	59	61	64	55	60	43	52	47	53	54	58
3	>100	74	78	69	55	72	82	64	72	58	67	77
4	>100	88	77	89	>94	85	85	89	71	78	77	76
5	>100	>94	>94	>94	>94	>94	85	>94	>94	>94	>94	90
6	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
7	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
8	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
9	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
10	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1750.1 MHz; -1.00 dBm.
 LO IN: 1780.1 MHz; +17.00 dBm
 IF OUT: 30 MHz; -6.46 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	34	35	22	38	34	43	52	56	60	73
1	-	7	+0	34	29	37	37	29	47	52	49	68
2	91	54	53	59	48	53	37	47	44	57	54	55
3	>100	63	60	50	35	52	62	51	54	43	55	68
4	>100	66	56	67	74	67	64	66	50	56	55	58
5	>100	82	74	72	77	74	58	76	83	65	72	58
6	>100	80	76	85	71	80	89	78	76	78	61	66
7	>100	92	94	95	88	85	88	97	75	>103	92	76
8	>100	97	100	91	90	>103	84	92	93	84	88	89
9	>100	>103	>103	97	100	99	>103	98	97	>103	95	>103
10	>100	>103	>103	>103	>103	>103	98	>103	96	>103	98	94
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1750.1 MHz; 9.00 dBm.
 LO IN: 1780.1 MHz; +17.00 dBm
 IF OUT: 30 MHz; 3.35 dBm

- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
 2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
 3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

REV. X2
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Case Style

CD

CD541
CD542
CD636
CD637

Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

CASE#	A	B	C	D	E	F	G	H	J	K	L	WT, GRAM
CD541					.082 (2.08)							.15
CD542	.272 (6.91)	.310 (7.87)	.220 (5.58)	.100 (2.54)	.112 (2.84)	.055 (1.40)	.100 (2.54)	.030 (0.76)	.026 (0.66)	.065 (1.65)	.300 (7.62)	.20
CD636					.162 (4.11)							.25
CD637					.206 (5.23)							.40

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .01$; 3 Pl. $\pm .005$

Notes:

- Case material: Plastic.
- Termination finish:
 - For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
 - For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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Tape & Reel Packaging TR-F34



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note	
16	12	7	Small quantity standard (see note)	20
				50
				100
				200
		13	Standard	500
				1000

Note: Availability of small reel quantity varies by model.
Refer to pricing and availability on individual model dashboard.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

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THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
A	M101143	ADDED "gk" PIN CONNECTION, TT100 CASE STYLE & NOTE 2	10/10/05	MMG	DJ
B	M102713	ADDED "...WITH SMOBC"	01/17/06	MMG	IL
C	M108637	REMOVED "PIN 1", ADDED INDEX ON UNIT	12/01/06	MYG	FL

SUGGESTED MOUNTING CONFIGURATION
FOR BH292, CD541/542/636/637, TT100/240 CASE
STYLES, "gk", "ht", "hu", "nd", "w" PIN CONNECTIONS



- NOTES:** 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
 2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED	INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN MMG	07/17/02
TOLERANCES ON:	CHECKED WL	08/02/02
2 PL DECIMALS ±	APPROVED DJ	08/05/02
3 PL DECIMALS ± .005		
ANGLES ±		
FRACTIONS ±		

Mini-Circuits® 13 Neptune Avenue
 Brooklyn NY 11235

PL, gk/ht/hu/nd/w, BH292,
 CD541/542/636/637, TT100/240, TB-03

SIZE A	CODE IDENT 15542	DRAWING NO: 98-PL-052	REV: C
FILE: 98PL052	SCALE: 8:1	SHEET: 1 OF 1	

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THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
E	M119737	UPDATED PCB	10.08	MF	AD
F	M127659	UPDATED CARR	06.10	SW	SG
G	M127846	UPDATED SCHEMATIC DIAGRAM	06.10	SW	SG
H	M131840	UPDATED DWG	05.11	MF	AD



NOTES:

1. REFER TO -09 PAGE FOR ITEM DESCRIPTIONS.
DESIGNATION NUMBERS ON -20 PAGE CORRESPOND TO THE NUMBERS ON -09 PAGE.
2. FOR TEXT HEIGHT & STYLE ON THE LABEL REFER TO: D3-G209.

UNLESS OTHERWISE SPECIFIED	INITIALS	DATE
DIMENSIONS ARE IN INCHES TOLERANCES ON: 2 PL DECIMALS ± 3 PL DECIMALS ± ANGLES ± FRACTIONS ±	DRAWN	S.WOLYNSKI 06.29.99
	CHECKED	SG 07.06.99
	APPROVED	MG 07.10.99

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Brooklyn NY 11235

TB,ADE,CD542/636,06MX01,50

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SIZE A	CODE IDENT 15542	DRAWING NO: TB-03-20	REV: H
FILE: WTB-03	SCALE: 1.5:1	SHEET: 1 OF 2	

Evaluation Board and Circuit

For Pin Connections and DUT Orientation Refer to
Data Sheet of the DUT



TB-03



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

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