

Frequency Mixer

MACY-ED12640/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=250MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+15dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		-3	0	+3			-3	0	+3			-3	0	+3
154.00	404.00	11.92	10.91	10.90	154.00	404.00	16.14	18.62	25.33	154.00	404.00	0.13	0.12	0.21
204.00	454.00	8.95	8.42	9.14	204.00	454.00	17.87	19.95	24.68	204.00	454.00	1.41	1.10	0.60
254.00	504.00	7.67	7.66	8.23	254.00	504.00	20.68	19.89	23.23	254.00	504.00	1.35	1.18	0.65
304.00	554.00	6.93	6.99	6.93	304.00	554.00	23.64	27.18	28.40	304.00	554.00	1.08	0.74	0.63
354.00	604.00	6.87	7.03	7.47	354.00	604.00	22.15	24.63	19.27	354.00	604.00	1.13	0.65	0.85
404.00	654.00	6.99	7.56	8.65	404.00	654.00	22.66	23.72	19.28	404.00	654.00	0.63	0.21	-0.35
454.00	704.00	7.41	8.23	11.49	454.00	704.00	18.96	18.03	20.58	454.00	704.00	1.17	1.37	0.31
504.00	754.00	7.16	7.31	7.91	504.00	754.00	26.34	22.64	24.94	504.00	754.00	0.68	0.74	0.67
554.00	804.00	6.89	6.93	7.10	554.00	804.00	25.07	24.93	25.93	554.00	804.00	0.48	0.36	0.36
604.00	854.00	6.61	6.64	6.74	604.00	854.00	24.00	25.73	28.33	604.00	854.00	0.40	0.27	0.25
654.00	904.00	6.76	6.73	6.79	654.00	904.00	23.88	24.86	24.82	654.00	904.00	0.12	0.05	0.05
704.00	954.00	7.10	7.08	7.13	704.00	954.00	24.01	25.29	24.89	704.00	954.00	0.48	0.42	0.44
754.00	1004.00	6.77	6.65	6.70	754.00	1004.00	24.12	24.76	24.26	754.00	1004.00	0.25	0.29	0.34
804.00	1054.00	7.70	7.67	7.68	804.00	1054.00	32.33	34.55	35.47	804.00	1054.00	0.23	0.13	0.11
854.00	1104.00	7.10	7.02	6.99	854.00	1104.00	34.72	37.95	38.74	854.00	1104.00	0.12	0.08	0.07
904.00	1154.00	7.37	7.27	7.15	904.00	1154.00	33.44	35.02	35.90	904.00	1154.00	0.08	0.06	0.07
954.00	1204.00	7.21	7.08	7.02	954.00	1204.00	28.54	29.86	30.20	954.00	1204.00	0.38	0.28	0.27
1004.00	1254.00	7.31	7.15	7.13	1004.00	1254.00	25.44	26.93	27.28	1004.00	1254.00	0.69	0.51	0.49
1054.00	1304.00	7.37	7.14	7.08	1054.00	1304.00	24.64	25.79	25.99	1054.00	1304.00	0.74	0.59	0.56
1104.00	1354.00	7.52	7.24	7.12	1104.00	1354.00	23.15	24.23	25.02	1104.00	1354.00	0.80	0.71	0.66
1154.00	1404.00	7.58	7.32	7.21	1154.00	1404.00	23.40	23.83	24.60	1154.00	1404.00	0.73	0.58	0.52
1204.00	1454.00	7.79	7.54	7.46	1204.00	1454.00	22.87	23.26	24.03	1204.00	1454.00	0.88	0.67	0.58
1254.00	1504.00	8.02	7.76	7.68	1254.00	1504.00	22.13	22.33	22.94	1254.00	1504.00	1.06	0.87	0.77
1304.00	1554.00	8.36	8.14	8.08	1304.00	1554.00	22.65	22.13	21.47	1304.00	1554.00	1.10	0.93	0.88
1354.00	1604.00	8.63	8.42	8.61	1354.00	1604.00	24.86	23.84	23.62	1354.00	1604.00	0.93	0.81	0.66
1404.00	1654.00	9.17	9.00	9.14	1404.00	1654.00	25.62	30.14	28.24	1404.00	1654.00	0.49	0.44	0.39
1454.00	1704.00	9.38	9.05	8.87	1454.00	1704.00	20.97	22.71	25.12	1454.00	1704.00	0.14	0.18	0.32
1504.00	1754.00	9.46	9.09	8.88	1504.00	1754.00	19.57	19.77	20.63	1504.00	1754.00	0.15	0.08	0.16
1554.00	1804.00	9.39	9.01	8.84	1554.00	1804.00	20.67	20.74	20.74	1554.00	1804.00	0.56	0.35	0.22
1604.00	1854.00	9.23	8.71	8.46	1604.00	1854.00	24.77	24.91	26.82	1604.00	1854.00	0.66	0.36	0.11
1664.00	1914.00	9.35	8.75	8.41	1664.00	1914.00	22.80	23.93	26.00	1664.00	1914.00	0.74	0.64	0.51
1714.00	1964.00	9.74	9.15	8.83	1714.00	1964.00	20.32	21.73	23.42	1714.00	1964.00	0.78	0.78	0.70
1774.00	2024.00	10.74	10.25	10.05	1774.00	2024.00	22.25	23.27	24.13	1774.00	2024.00	0.64	0.65	0.58
1824.00	2074.00	10.86	10.34	10.02	1824.00	2074.00	26.26	25.61	25.76	1824.00	2074.00	0.31	0.36	0.37
1884.00	2134.00	9.85	9.46	9.23	1884.00	2134.00	23.52	24.81	26.17	1884.00	2134.00	0.32	0.39	0.36
1934.00	2184.00	9.87	9.66	9.53	1934.00	2184.00	27.22	28.35	29.20	1934.00	2184.00	0.27	0.23	0.18
1994.00	2244.00	9.88	9.76	9.70	1994.00	2244.00	28.34	30.40	31.63	1994.00	2244.00	0.33	0.23	0.17
2044.00	2294.00	10.34	10.22	10.19	2044.00	2294.00	29.09	30.38	29.53	2044.00	2294.00	0.28	0.21	0.16
2104.00	2354.00	10.41	10.14	10.01	2104.00	2354.00	25.26	27.02	28.28	2104.00	2354.00	0.44	0.40	0.33
2154.00	2404.00	11.25	10.95	10.81	2154.00	2404.00	28.01	28.03	28.74	2154.00	2404.00	0.38	0.32	0.28

Frequency Mixer

MACY-ED12640/1

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=859MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=824MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=894.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		0			0			0
470.00	389.00	10.80	10.10	834.10	17.87	510.00	384.10	11.21
448.44	410.56	9.84	30.10	854.10	10.66	500.00	394.10	10.71
426.88	432.13	9.30	50.10	874.10	8.54	490.00	404.10	10.16
405.31	453.69	9.05	70.10	894.10	7.84	480.00	414.10	9.79
383.75	475.25	9.39	90.10	914.10	7.47	470.00	424.10	9.54
362.19	496.81	9.43	110.10	934.10	7.27	460.00	434.10	9.33
340.63	518.38	9.53	130.10	954.10	7.11	450.00	444.10	9.12
319.06	539.94	8.31	150.10	974.10	6.87	440.00	454.10	9.12
297.50	561.50	7.57	170.10	994.10	6.67	430.00	464.10	9.18
275.94	583.06	7.36	190.10	1014.10	7.18	420.00	474.10	9.34
254.38	604.63	7.31	210.10	1034.10	8.02	410.00	484.10	9.32
232.81	626.19	7.36	230.10	1054.10	7.58	400.00	494.10	9.40
211.25	647.75	7.70	250.10	1074.10	7.22	390.00	504.10	9.35
189.69	669.31	8.42	270.10	1094.10	7.11	380.00	514.10	9.47
160.94	698.06	8.23	290.10	1114.10	7.01	370.00	524.10	9.75
139.38	719.63	9.71	310.10	1134.10	7.13	360.00	534.10	9.10
110.63	748.38	8.30	330.10	1154.10	7.15	350.00	544.10	8.31
89.06	769.94	7.75	350.10	1174.10	7.06	340.00	554.10	7.94
60.31	798.69	8.35	370.10	1194.10	7.01	320.00	574.10	7.56
38.75	820.25	9.60	390.10	1214.10	7.15	310.00	584.10	7.48
10.00	849.00	17.85	410.10	1234.10	7.33	290.00	604.10	7.32
35.23	894.23	9.58	430.10	1254.10	7.56	280.00	614.10	7.32
85.69	944.69	7.49	450.10	1274.10	7.68	260.00	634.10	7.44
123.54	982.54	6.96	470.10	1294.10	7.85	250.00	644.10	7.57
174.00	1033.00	8.05	490.10	1314.10	7.98	230.00	664.10	8.18
211.85	1070.85	7.36	510.10	1334.10	8.10	220.00	674.10	8.48
262.31	1121.31	6.96	530.10	1354.10	8.23	200.00	694.10	8.11
300.15	1159.15	7.16	550.10	1374.10	8.34	190.00	704.10	8.23
350.62	1209.62	7.15	570.10	1394.10	8.41	170.00	724.10	9.63
388.46	1247.46	7.35	590.10	1414.10	8.43	160.00	734.10	9.42
438.92	1297.92	7.82	610.10	1434.10	8.48	140.00	754.10	7.79
476.77	1335.77	8.06	630.10	1454.10	8.49	130.00	764.10	7.53
527.23	1386.23	8.34	650.10	1474.10	8.58	110.00	784.10	7.50
565.08	1424.08	8.42	670.10	1494.10	8.65	100.00	794.10	7.62
615.54	1474.54	8.45	690.10	1514.10	8.73	80.00	814.10	7.95
653.38	1512.38	8.68	710.10	1534.10	8.86	70.00	824.10	8.15
703.85	1562.85	9.08	730.10	1554.10	9.19	50.00	844.10	8.76
741.69	1600.69	9.86	760.10	1584.10	9.80	40.00	854.10	9.34
792.15	1651.15	10.65	780.10	1604.10	10.12	20.00	874.10	12.76
830.00	1689.00	11.15	810.10	1634.10	10.57	10.00	884.10	17.69

Frequency Mixer

MACY-ED12640/1

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)					@LO (dBm)		
	-3	0	+3	-3	0	+3			-3	0	+3
404.00	31.71	30.58	31.73	29.00	28.68	27.58	154.00	404.00	29.68	22.86	16.96
454.00	30.30	31.61	36.12	26.37	26.20	27.21	204.00	454.00	29.48	21.09	15.19
504.00	27.60	28.57	30.81	22.68	22.99	26.98	254.00	504.00	29.48	21.50	15.68
554.00	25.06	24.57	26.59	19.37	19.60	22.68	304.00	554.00	27.65	19.44	19.74
604.00	21.38	22.51	24.43	17.46	18.70	22.05	354.00	604.00	22.86	17.78	16.07
654.00	19.61	21.65	23.33	15.87	16.23	21.29	404.00	654.00	20.36	17.04	16.40
704.00	14.49	15.17	17.48	18.68	20.23	23.83	454.00	704.00	25.96	18.91	35.05
754.00	21.97	22.82	25.14	14.84	17.10	21.16	504.00	754.00	32.54	28.48	33.35
804.00	21.96	22.01	23.42	13.67	15.38	18.52	554.00	804.00	29.79	30.21	30.37
854.00	22.19	22.15	23.64	12.08	13.40	15.77	604.00	854.00	30.34	30.80	31.32
904.00	20.34	19.19	19.99	12.24	13.60	15.97	654.00	904.00	28.92	29.49	30.30
954.00	21.56	21.23	21.78	9.01	9.70	11.94	704.00	954.00	35.40	40.17	60.43
1004.00	16.07	16.18	17.05	6.39	7.42	9.84	754.00	1004.00	31.94	35.69	38.42
1054.00	25.60	27.25	29.55	7.41	8.34	11.01	804.00	1054.00	26.15	25.81	25.97
1104.00	19.09	20.61	22.42	5.48	6.87	9.58	854.00	1104.00	26.18	26.58	29.19
1154.00	17.30	19.54	22.43	6.73	8.27	11.06	904.00	1154.00	19.75	20.22	23.82
1204.00	28.46	31.80	32.67	10.20	12.08	16.01	954.00	1204.00	21.70	22.04	23.29
1254.00	20.01	21.26	22.79	12.59	14.98	18.35	1004.00	1254.00	23.38	23.82	24.80
1304.00	18.62	19.84	21.79	12.86	15.16	18.15	1054.00	1304.00	31.01	32.22	32.06
1354.00	17.66	18.76	20.77	13.59	15.69	18.43	1104.00	1354.00	24.70	25.57	25.59
1404.00	15.46	16.59	18.69	14.37	16.33	18.81	1154.00	1404.00	20.03	20.47	20.41
1454.00	14.81	15.83	17.52	14.97	16.94	19.41	1204.00	1454.00	18.51	18.94	19.02
1504.00	14.10	15.52	17.31	15.24	17.12	19.59	1254.00	1504.00	17.44	17.94	18.08
1554.00	13.55	15.28	17.50	15.47	17.20	19.75	1304.00	1554.00	16.93	17.45	17.69
1604.00	13.82	15.68	18.30	15.72	16.68	18.46	1354.00	1604.00	16.44	17.00	17.38
1654.00	15.21	16.59	18.37	15.32	16.21	17.85	1404.00	1654.00	16.19	16.72	17.10
1704.00	14.32	15.19	16.79	15.33	16.38	17.92	1454.00	1704.00	16.03	16.40	16.75
1754.00	14.50	15.01	16.24	15.63	16.86	18.59	1504.00	1754.00	16.00	16.18	16.41
1804.00	13.65	13.76	14.57	15.61	17.01	18.91	1554.00	1804.00	16.53	16.67	16.77
1854.00	15.91	15.65	16.03	16.33	17.81	19.76	1604.00	1854.00	17.48	17.80	18.07
1914.00	19.40	18.61	17.93	17.33	19.73	22.74	1664.00	1914.00	18.62	18.94	19.05
1964.00	20.46	20.68	19.21	16.55	18.96	22.34	1714.00	1964.00	20.17	20.52	20.53
2024.00	17.76	20.46	23.70	10.26	11.62	13.50	1774.00	2024.00	21.32	20.85	20.34
2074.00	22.39	28.62	36.24	9.89	11.53	13.73	1824.00	2074.00	17.06	16.72	16.39
2134.00	19.02	17.07	16.77	13.74	15.37	17.10	1884.00	2134.00	18.36	18.10	17.72
2184.00	12.74	12.55	13.03	26.07	26.17	25.38	1934.00	2184.00	17.55	17.20	16.83
2244.00	9.57	9.90	10.78	14.47	16.43	18.57	1994.00	2244.00	17.80	17.42	17.07
2294.00	8.36	9.01	10.28	9.68	11.23	12.98	2044.00	2294.00	16.74	16.41	16.07
2354.00	0.04	1.11	2.65	7.83	9.46	11.45	2104.00	2354.00	15.52	15.48	15.38
2404.00	0.10	1.28	2.72	4.26	5.64	7.25	2154.00	2404.00	13.40	13.29	13.10

Frequency Mixer

MACY-ED12640/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1144MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		-3	0	+3		-3	0	+3		-3	0	+3
154.00	404.00	4.31	3.75	3.47	404.00	3.97	3.92	3.82	40.10	3.69	3.66	3.65
204.00	454.00	2.35	2.16	2.12	454.00	3.20	3.19	3.14	60.10	2.58	2.58	2.57
254.00	504.00	1.47	1.44	1.49	504.00	2.70	2.68	2.69	80.10	2.04	2.05	2.05
304.00	554.00	1.04	1.15	1.20	554.00	2.35	2.32	2.36	100.10	1.89	1.91	1.91
354.00	604.00	1.22	1.29	1.23	604.00	2.20	2.20	2.22	120.10	1.75	1.78	1.78
404.00	654.00	1.46	1.44	1.42	654.00	2.17	2.12	2.03	140.10	1.61	1.65	1.65
454.00	704.00	1.59	1.55	1.47	704.00	2.09	1.97	1.83	160.10	1.56	1.60	1.61
504.00	754.00	1.66	1.64	1.63	754.00	1.93	1.82	1.72	180.10	1.53	1.57	1.58
554.00	804.00	1.65	1.62	1.61	804.00	1.83	1.74	1.62	200.10	1.49	1.54	1.56
604.00	854.00	1.63	1.56	1.53	854.00	1.70	1.62	1.52	220.10	1.47	1.52	1.54
654.00	904.00	1.74	1.68	1.65	904.00	1.55	1.50	1.42	240.10	1.48	1.53	1.55
704.00	954.00	1.53	1.44	1.41	954.00	1.38	1.34	1.29	260.10	1.50	1.55	1.57
754.00	1004.00	1.59	1.48	1.42	1004.00	1.17	1.16	1.16	300.10	1.55	1.60	1.62
804.00	1054.00	1.06	1.03	1.04	1054.00	1.08	1.11	1.15	320.10	1.58	1.62	1.64
854.00	1104.00	1.29	1.25	1.24	1104.00	1.28	1.31	1.31	360.10	1.67	1.71	1.73
904.00	1154.00	1.44	1.42	1.41	1154.00	1.44	1.44	1.45	380.10	1.70	1.74	1.76
954.00	1204.00	1.66	1.63	1.62	1204.00	1.58	1.55	1.53	420.10	1.75	1.79	1.80
1004.00	1254.00	1.63	1.59	1.57	1254.00	1.61	1.57	1.53	440.10	1.83	1.86	1.87
1054.00	1304.00	1.75	1.70	1.69	1304.00	1.66	1.61	1.54	480.10	1.89	1.92	1.93
1104.00	1354.00	1.59	1.52	1.51	1354.00	1.66	1.61	1.53	500.10	1.96	1.99	2.00
1154.00	1404.00	1.36	1.29	1.27	1404.00	1.64	1.59	1.48	540.10	2.09	2.11	2.13
1204.00	1454.00	1.19	1.11	1.10	1454.00	1.59	1.53	1.40	560.10	2.11	2.14	2.15
1254.00	1504.00	1.11	1.08	1.11	1504.00	1.52	1.46	1.33	600.10	2.27	2.29	2.30
1304.00	1554.00	1.08	1.10	1.15	1554.00	1.47	1.41	1.28	620.10	2.30	2.32	2.33
1354.00	1604.00	1.11	1.12	1.20	1604.00	1.42	1.37	1.25	660.10	2.39	2.39	2.40
1404.00	1654.00	1.18	1.23	1.31	1654.00	1.37	1.32	1.20	680.10	2.49	2.49	2.52
1454.00	1704.00	1.32	1.31	1.34	1704.00	1.37	1.31	1.19	720.10	2.61	2.61	2.64
1504.00	1754.00	1.49	1.45	1.44	1754.00	1.37	1.32	1.21	740.10	2.66	2.66	2.68
1554.00	1804.00	1.68	1.62	1.59	1804.00	1.40	1.35	1.25	780.10	2.88	2.88	2.92
1604.00	1854.00	1.91	1.82	1.77	1854.00	1.40	1.36	1.27	800.10	2.96	2.96	3.00
1664.00	1914.00	2.26	2.15	2.10	1914.00	1.44	1.39	1.33	840.10	3.05	3.05	3.10
1714.00	1964.00	2.64	2.50	2.42	1964.00	1.45	1.41	1.37	860.10	3.15	3.16	3.21
1774.00	2024.00	2.81	2.67	2.58	2024.00	1.50	1.44	1.42	900.10	3.34	3.34	3.40
1824.00	2074.00	2.86	2.77	2.71	2074.00	1.51	1.44	1.46	920.10	3.35	3.34	3.41
1884.00	2134.00	3.18	3.05	2.95	2134.00	1.47	1.38	1.40	960.10	3.57	3.57	3.65
1934.00	2184.00	3.24	3.12	3.02	2184.00	1.38	1.30	1.33	980.10	3.61	3.61	3.69
1994.00	2244.00	3.34	3.22	3.13	2244.00	1.15	1.10	1.15	1020.10	3.71	3.71	3.79
2044.00	2294.00	3.35	3.24	3.15	2294.00	1.19	1.15	1.09	1040.10	3.74	3.76	3.82
2104.00	2354.00	3.53	3.40	3.30	2354.00	1.54	1.42	1.29	1080.10	3.65	3.67	3.70
2154.00	2404.00	3.38	3.25	3.13	2404.00	1.62	1.49	1.35	1100.10	3.47	3.48	3.50

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	1	19	21	21	41	38	27	43	33	55
1	-	18	+0	27	21	45	38	33	54	39	62	53
2	63	58	54	51	61	62	74	63	67	70	72	>83
3	>90	73	69	70	69	73	79	>83	>83	>83	>83	>83
4	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
5	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
6	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
7	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
8	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
9	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
10	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 895 MHz; 0.00 dBm.
 LO IN: 1109 MHz; +0.00 dBm
 IF OUT: 250 MHz; -6.95 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	11	27	32	31	49	51	37	53	45	77
1	-	19	+0	27	21	47	39	34	56	40	60	54
2	43	50	42	41	50	51	66	54	59	62	64	82
3	65	52	48	49	47	53	56	68	66	66	71	86
4	>90	77	67	71	68	70	73	76	78	>93	85	91
5	>90	93	>93	81	86	89	89	83	>93	90	>93	>93
6	>90	>93	>93	>93	91	90	>93	93	>93	>93	>93	>93
7	>90	>93	>93	>93	>93	>93	91	>93	87	>93	>93	>93
8	>90	>93	>93	>93	>93	>93	>93	86	>93	>93	>93	>93
9	>90	>93	>93	>93	>93	>93	>93	>93	>93	91	>93	>93
10	>90	>93	>93	>93	>93	>93	>93	90	>93	>93	>93	>93
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 859 MHz; 10.00 dBm.
 LO IN: 1109 MHz; +0.00 dBm
 IF OUT: 250 MHz; 3.02 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.