

Frequency Mixer

AMCY-ED12653/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=140MHz (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)		
-2	+1	+4	-2	+1	+4	-2	+1	+4						
140.00	280.00	12.94	11.69	13.34	140.00	280.00	8.80	9.31	4.88	140.00	280.00	1.08	1.01	3.52
180.00	320.00	9.92	9.09	8.94	180.00	320.00	15.58	16.86	18.29	180.00	320.00	1.49	1.16	1.41
220.00	360.00	9.52	9.30	10.78	220.00	360.00	15.02	17.00	18.36	220.00	360.00	0.70	0.49	-0.10
260.00	400.00	8.18	7.92	8.57	260.00	400.00	17.69	19.50	22.39	260.00	400.00	1.24	0.93	0.52
300.00	440.00	7.52	7.44	7.86	300.00	440.00	18.52	20.32	20.49	300.00	440.00	1.21	0.76	0.70
340.00	480.00	7.31	7.19	7.07	340.00	480.00	17.52	18.87	16.29	340.00	480.00	1.56	1.06	1.81
380.00	520.00	7.13	6.95	7.47	380.00	520.00	19.19	19.60	18.18	380.00	520.00	1.25	0.96	1.90
420.00	560.00	7.07	6.93	8.46	420.00	560.00	19.90	20.87	16.02	420.00	560.00	1.10	0.96	1.05
460.00	600.00	7.36	7.19	8.07	460.00	600.00	20.85	20.27	18.17	460.00	600.00	0.96	0.85	0.70
490.00	630.00	7.45	7.31	7.97	490.00	630.00	21.76	21.37	17.80	490.00	630.00	0.97	0.86	0.74
530.00	670.00	8.43	8.83	10.68	530.00	670.00	22.74	21.01	22.60	530.00	670.00	0.51	0.34	-0.63
560.00	700.00	7.70	7.75	7.92	560.00	700.00	23.25	23.70	22.75	560.00	700.00	0.94	0.79	1.04
600.00	740.00	7.13	7.04	7.16	600.00	740.00	26.61	27.92	26.86	600.00	740.00	0.81	0.63	0.73
630.00	770.00	6.98	6.86	6.94	630.00	770.00	25.70	27.46	26.14	630.00	770.00	0.89	0.69	0.79
670.00	810.00	6.92	6.76	6.78	670.00	810.00	22.60	23.37	22.83	670.00	810.00	1.70	1.27	1.37
700.00	840.00	6.95	6.83	6.85	700.00	840.00	24.86	24.91	23.76	700.00	840.00	1.22	0.84	0.87
740.00	880.00	6.93	6.84	6.85	740.00	880.00	25.58	26.21	24.42	740.00	880.00	0.23	0.17	0.18
770.00	910.00	6.83	6.76	6.75	770.00	910.00	24.96	25.87	25.09	770.00	910.00	0.12	0.08	0.11
810.00	950.00	7.18	7.20	7.25	810.00	950.00	20.48	21.47	21.19	810.00	950.00	-0.04	-0.04	-0.02
840.00	980.00	7.58	7.56	7.62	840.00	980.00	27.37	29.85	29.74	840.00	980.00	0.18	0.23	0.25
880.00	1020.00	7.27	7.25	7.29	880.00	1020.00	34.26	35.27	35.16	880.00	1020.00	0.17	0.14	0.14
910.00	1050.00	7.20	7.19	7.21	910.00	1050.00	31.89	33.48	33.22	910.00	1050.00	0.20	0.17	0.17
950.00	1090.00	7.26	7.24	7.22	950.00	1090.00	29.39	30.19	30.29	950.00	1090.00	0.35	0.31	0.31
980.00	1120.00	7.30	7.25	7.24	980.00	1120.00	27.25	28.50	28.35	980.00	1120.00	0.58	0.47	0.49
1020.00	1160.00	7.57	7.52	7.53	1020.00	1160.00	26.16	27.69	27.67	1020.00	1160.00	0.74	0.54	0.52
1050.00	1190.00	7.59	7.49	7.47	1050.00	1190.00	24.43	25.64	25.73	1050.00	1190.00	0.93	0.76	0.72
1090.00	1230.00	7.84	7.61	7.56	1090.00	1230.00	23.06	24.16	24.11	1090.00	1230.00	0.87	0.77	0.75
1120.00	1260.00	8.08	7.78	7.72	1120.00	1260.00	22.96	23.72	23.23	1120.00	1260.00	0.61	0.59	0.57
1160.00	1300.00	8.36	7.97	7.88	1160.00	1300.00	22.78	23.40	23.47	1160.00	1300.00	0.79	0.72	0.70
1190.00	1330.00	8.59	8.15	8.06	1190.00	1330.00	22.44	23.05	23.03	1190.00	1330.00	1.01	0.87	0.86
1230.00	1370.00	8.80	8.35	8.26	1230.00	1370.00	22.41	22.41	21.85	1230.00	1370.00	1.16	0.98	0.94
1260.00	1400.00	9.05	8.55	8.46	1260.00	1400.00	22.03	22.30	21.38	1260.00	1400.00	1.30	1.09	1.05
1300.00	1440.00	9.28	8.74	8.64	1300.00	1440.00	20.98	21.98	22.15	1300.00	1440.00	1.62	1.41	1.39
1330.00	1470.00	9.47	8.91	8.80	1330.00	1470.00	19.81	20.75	21.47	1330.00	1470.00	1.86	1.69	1.73
1370.00	1510.00	9.57	9.00	8.88	1370.00	1510.00	19.31	20.56	20.89	1370.00	1510.00	2.18	2.00	2.05
1400.00	1540.00	9.54	8.93	8.79	1400.00	1540.00	19.29	20.05	19.85	1400.00	1540.00	2.47	2.28	2.33
1440.00	1580.00	9.81	9.11	9.02	1440.00	1580.00	19.03	18.66	18.44	1440.00	1580.00	2.57	2.40	2.40
1470.00	1610.00	10.26	9.56	9.67	1470.00	1610.00	18.47	17.84	18.00	1470.00	1610.00	2.56	2.41	2.24
1510.00	1650.00	11.35	10.46	10.50	1510.00	1650.00	18.32	18.01	19.00	1510.00	1650.00	2.00	1.96	1.81
1540.00	1680.00	12.06	11.02	10.79	1540.00	1680.00	15.80	16.21	17.40	1540.00	1680.00	1.59	1.50	1.43

Frequency Mixer

AMCY-ED12653/1

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=880MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=838MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=921MHz (dB)
		@LO (dBm) +1			@LO (dBm) +1			@LO (dBm) +1
520.00	360.00	10.89	10.00	848.00	6.99	810.00	111.00	40.94
488.78	391.22	9.40	20.00	858.00	6.92	790.00	131.00	33.01
457.55	422.45	8.84	30.00	868.00	6.89	770.00	151.00	24.48
426.33	453.67	9.06	40.00	878.00	6.77	750.00	171.00	16.54
395.10	484.90	9.21	50.00	888.00	6.77	730.00	191.00	14.06
363.88	516.12	8.96	60.00	898.00	6.73	710.00	211.00	14.20
343.06	536.94	8.78	70.00	908.00	6.68	690.00	231.00	14.44
311.84	568.16	8.52	80.00	918.00	6.73	670.00	251.00	13.86
291.02	588.98	8.33	90.00	928.00	6.78	650.00	271.00	13.18
259.80	620.20	8.19	100.00	938.00	6.86	630.00	291.00	12.46
238.98	641.02	7.98	110.00	948.00	7.07	610.00	311.00	11.96
207.76	672.24	8.99	120.00	958.00	7.57	590.00	331.00	11.53
186.94	693.06	8.37	130.00	968.00	7.70	570.00	351.00	11.79
155.71	724.29	7.14	140.00	978.00	7.57	550.00	371.00	10.59
134.90	745.10	7.07	150.00	988.00	7.54	530.00	391.00	9.79
103.67	776.33	7.03	160.00	998.00	7.36	510.00	411.00	9.19
82.86	797.14	7.01	170.00	1008.00	7.30	490.00	431.00	8.83
51.63	828.37	7.01	180.00	1018.00	7.28	470.00	451.00	8.74
30.82	849.18	6.92	200.00	1038.00	7.20	450.00	471.00	8.98
10.00	890.00	6.90	210.00	1048.00	7.16	430.00	491.00	9.22
28.80	908.80	6.83	230.00	1068.00	7.25	410.00	511.00	9.23
57.00	937.00	6.82	240.00	1078.00	7.21	390.00	531.00	9.18
75.80	955.80	7.40	260.00	1098.00	7.29	370.00	551.00	9.09
104.00	984.00	7.52	270.00	1108.00	7.35	350.00	571.00	8.92
122.80	1002.80	7.37	290.00	1128.00	7.53	330.00	591.00	8.71
151.00	1031.00	7.17	300.00	1138.00	7.78	310.00	611.00	8.53
169.80	1049.80	7.15	320.00	1158.00	7.85	290.00	631.00	8.35
198.00	1078.00	7.22	330.00	1168.00	7.92	270.00	651.00	8.25
216.80	1096.80	7.27	350.00	1188.00	8.11	250.00	671.00	9.25
245.00	1125.00	7.50	360.00	1198.00	8.25	230.00	691.00	8.65
263.80	1143.80	7.74	380.00	1218.00	8.49	210.00	711.00	7.46
292.00	1172.00	7.87	390.00	1228.00	8.67	190.00	731.00	7.31
310.80	1190.80	8.01	410.00	1248.00	9.07	170.00	751.00	7.18
339.00	1219.00	8.46	420.00	1258.00	9.32	150.00	771.00	7.16
357.80	1237.80	8.78	440.00	1278.00	9.64	130.00	791.00	7.16
386.00	1266.00	9.29	450.00	1288.00	9.77	110.00	811.00	7.14
404.80	1284.80	9.44	470.00	1308.00	10.08	90.00	831.00	7.11
433.00	1313.00	10.02	480.00	1318.00	10.25	60.00	861.00	7.03
451.80	1331.80	10.30	500.00	1338.00	10.56	40.00	881.00	6.93
480.00	1360.00	10.67	510.00	1348.00	10.72	10.00	911.00	6.84

Frequency Mixer

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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)		
	-2	+1	+4	-2	+1	+4			-2	+1	+4
280.00	29.52	29.33	30.21	29.72	30.45	33.36	140.00	280.00	12.90	10.64	10.49
320.00	25.54	25.29	25.57	27.56	28.03	28.89	180.00	320.00	28.90	29.88	32.47
360.00	24.62	23.87	23.95	29.12	31.74	41.20	220.00	360.00	26.19	25.20	18.36
400.00	26.03	26.07	29.13	23.91	25.17	27.46	260.00	400.00	28.29	28.86	20.49
440.00	24.09	24.94	27.14	22.08	23.24	25.11	300.00	440.00	28.81	28.52	27.29
480.00	24.00	24.70	26.25	20.20	21.61	23.31	340.00	480.00	28.68	29.79	22.02
520.00	22.39	22.94	24.64	18.68	19.87	24.12	380.00	520.00	26.18	25.00	20.00
560.00	21.53	22.08	24.98	18.22	19.70	27.21	420.00	560.00	25.74	22.92	31.93
600.00	20.25	20.94	23.31	18.57	20.28	25.84	460.00	600.00	26.67	24.46	25.33
630.00	18.88	19.53	22.21	19.15	21.28	26.60	490.00	630.00	27.29	25.04	22.19
670.00	14.12	14.28	16.69	22.56	26.10	37.35	530.00	670.00	25.46	22.59	21.17
700.00	19.56	19.95	21.68	15.74	17.47	20.62	560.00	700.00	20.78	19.72	18.90
740.00	24.30	25.12	27.97	14.02	15.48	18.93	600.00	740.00	27.00	26.52	26.61
770.00	24.76	25.58	28.73	13.63	15.04	18.13	630.00	770.00	30.26	30.40	30.52
810.00	26.28	27.26	29.14	12.94	14.45	17.62	670.00	810.00	31.66	32.39	33.10
840.00	26.75	28.59	31.68	12.34	13.95	17.01	700.00	840.00	38.19	39.41	42.47
880.00	25.88	27.04	29.38	11.24	13.01	16.08	740.00	880.00	38.73	38.41	36.93
910.00	20.72	21.24	23.51	10.42	12.33	15.39	770.00	910.00	34.94	33.90	31.76
950.00	12.76	13.36	15.54	14.13	17.12	20.46	810.00	950.00	32.83	32.01	29.82
980.00	23.38	26.81	28.67	15.38	17.49	20.81	840.00	980.00	31.24	31.00	30.23
1020.00	22.40	22.55	27.11	8.91	10.87	13.95	880.00	1020.00	28.52	28.30	27.58
1050.00	21.01	23.23	30.24	6.42	8.48	11.59	910.00	1050.00	28.11	28.08	27.98
1090.00	26.22	30.32	40.35	4.79	6.77	9.56	950.00	1090.00	28.52	28.29	28.39
1120.00	29.68	30.52	30.07	5.45	7.45	10.21	980.00	1120.00	28.52	28.20	28.48
1160.00	17.70	18.84	21.03	10.19	12.42	15.38	1020.00	1160.00	28.18	27.79	28.30
1190.00	21.24	22.50	39.00	12.49	14.86	17.90	1050.00	1190.00	30.24	30.21	30.99
1230.00	22.47	24.11	26.25	14.63	17.10	20.24	1090.00	1230.00	41.01	43.95	47.02
1260.00	22.76	25.02	27.38	15.08	17.48	20.59	1120.00	1260.00	37.75	40.30	42.25
1300.00	21.97	24.40	26.97	15.65	17.94	20.95	1160.00	1300.00	42.91	46.92	45.52
1330.00	22.14	24.75	27.64	15.62	17.76	20.62	1190.00	1330.00	40.01	40.57	40.01
1370.00	22.23	24.17	26.60	15.42	17.44	20.12	1230.00	1370.00	36.75	36.85	36.95
1400.00	21.24	23.32	25.99	15.24	17.19	19.84	1260.00	1400.00	36.34	36.08	36.06
1440.00	21.24	23.07	25.79	15.04	16.84	19.34	1300.00	1440.00	35.52	34.47	34.57
1470.00	21.63	23.34	26.06	14.61	16.34	18.79	1330.00	1470.00	35.35	34.54	35.09
1510.00	22.93	24.49	27.40	14.03	15.64	18.02	1370.00	1510.00	35.47	35.57	37.16
1540.00	23.82	25.65	29.52	13.51	15.07	17.42	1400.00	1540.00	34.31	34.63	35.93
1580.00	26.64	28.52	33.21	12.93	14.54	16.91	1440.00	1580.00	31.96	31.15	31.15
1610.00	28.63	30.86	35.32	12.45	14.18	16.67	1470.00	1610.00	31.24	30.47	30.71
1650.00	26.37	27.66	30.66	11.56	13.35	15.93	1510.00	1650.00	31.59	30.78	30.60
1680.00	22.37	23.18	25.71	10.94	12.64	15.11	1540.00	1680.00	32.46	31.28	30.05

Frequency Mixer

AMCY-ED12653/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1037MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		-2	+1	+4		-2	+1	+4		-2	+1	+4
140.00	280.00	5.77	4.63	3.49	280.00	8.77	8.86	8.95	10.00	1.53	1.57	1.59
180.00	320.00	3.16	2.85	2.73	320.00	6.53	6.63	6.81	30.00	1.54	1.59	1.60
220.00	360.00	1.87	1.82	1.83	360.00	5.20	5.28	5.49	50.00	1.47	1.52	1.52
260.00	400.00	1.42	1.47	1.54	400.00	4.32	4.39	4.60	70.00	1.55	1.59	1.60
300.00	440.00	1.17	1.31	1.29	440.00	3.74	3.81	4.06	90.00	1.55	1.59	1.60
340.00	480.00	1.09	1.24	1.11	480.00	3.40	3.44	3.63	110.00	1.50	1.54	1.54
380.00	520.00	1.18	1.22	1.26	520.00	3.03	3.06	3.18	130.00	1.56	1.60	1.60
420.00	560.00	1.30	1.32	1.34	560.00	2.77	2.75	2.76	150.00	1.51	1.55	1.55
460.00	600.00	1.46	1.45	1.46	600.00	2.53	2.49	2.47	170.00	1.59	1.62	1.63
490.00	630.00	1.54	1.52	1.62	630.00	2.37	2.32	2.29	190.00	1.60	1.63	1.63
530.00	670.00	1.60	1.49	1.51	670.00	2.20	2.15	2.10	210.00	1.56	1.59	1.59
560.00	700.00	1.52	1.45	1.44	700.00	2.07	2.01	1.96	230.00	1.66	1.69	1.69
600.00	740.00	1.52	1.44	1.42	740.00	1.88	1.83	1.79	250.00	1.65	1.67	1.68
630.00	770.00	1.54	1.44	1.43	770.00	1.78	1.73	1.70	270.00	1.68	1.70	1.71
670.00	810.00	1.63	1.53	1.55	810.00	1.63	1.59	1.56	290.00	1.74	1.75	1.76
700.00	840.00	1.61	1.51	1.53	840.00	1.53	1.50	1.49	310.00	1.74	1.75	1.75
740.00	880.00	1.59	1.51	1.54	880.00	1.42	1.40	1.40	330.00	1.85	1.86	1.86
770.00	910.00	1.62	1.55	1.57	910.00	1.32	1.31	1.33	350.00	1.87	1.88	1.89
810.00	950.00	1.67	1.58	1.57	950.00	1.22	1.22	1.26	390.00	2.04	2.04	2.04
840.00	980.00	1.31	1.26	1.24	980.00	1.15	1.17	1.21	410.00	2.01	2.01	2.01
880.00	1020.00	1.37	1.34	1.34	1020.00	1.21	1.23	1.25	450.00	2.13	2.14	2.13
910.00	1050.00	1.46	1.43	1.43	1050.00	1.35	1.34	1.34	470.00	2.16	2.16	2.16
950.00	1090.00	1.54	1.52	1.52	1090.00	1.47	1.44	1.42	510.00	2.29	2.28	2.28
980.00	1120.00	1.57	1.54	1.52	1120.00	1.51	1.47	1.44	530.00	2.37	2.37	2.36
1020.00	1160.00	1.51	1.47	1.45	1160.00	1.54	1.49	1.45	570.00	2.46	2.45	2.45
1050.00	1190.00	1.52	1.47	1.46	1190.00	1.53	1.48	1.44	590.00	2.59	2.58	2.58
1090.00	1230.00	1.64	1.57	1.56	1230.00	1.45	1.42	1.39	630.00	2.66	2.65	2.64
1120.00	1260.00	1.67	1.58	1.57	1260.00	1.42	1.39	1.37	650.00	2.78	2.76	2.76
1160.00	1300.00	1.62	1.51	1.49	1300.00	1.36	1.35	1.34	690.00	2.85	2.84	2.84
1190.00	1330.00	1.58	1.46	1.45	1330.00	1.34	1.33	1.32	710.00	2.86	2.85	2.84
1230.00	1370.00	1.53	1.40	1.39	1370.00	1.31	1.29	1.30	750.00	3.03	3.01	3.00
1260.00	1400.00	1.51	1.38	1.37	1400.00	1.28	1.27	1.27	770.00	3.05	3.03	3.02
1300.00	1440.00	1.52	1.40	1.39	1440.00	1.24	1.24	1.25	810.00	3.17	3.15	3.14
1330.00	1470.00	1.52	1.41	1.41	1470.00	1.23	1.22	1.23	830.00	3.21	3.19	3.18
1370.00	1510.00	1.56	1.43	1.41	1510.00	1.20	1.19	1.20	870.00	3.23	3.21	3.20
1400.00	1540.00	1.59	1.46	1.43	1540.00	1.19	1.17	1.18	890.00	3.31	3.30	3.29
1440.00	1580.00	1.64	1.49	1.42	1580.00	1.17	1.15	1.15	930.00	3.43	3.43	3.42
1470.00	1610.00	1.72	1.55	1.47	1610.00	1.16	1.13	1.12	950.00	3.47	3.46	3.45
1510.00	1650.00	1.90	1.70	1.63	1650.00	1.14	1.10	1.09	990.00	3.32	3.33	3.33
1540.00	1680.00	2.07	1.85	1.77	1680.00	1.13	1.09	1.08	1010.00	3.09	3.10	3.09

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	3	6	41	25	32	34	35	47	36	37
1	-	21	+0	36	18	37	50	51	49	49	50	69
2	62	53	69	49	61	48	71	72	79	66	69	73
3	95	91	76	81	78	84	82	92	>93	92	>93	>93
4	>100	>93	>93	>93	>93	>93	>93	93	>93	>93	>93	>93
5	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
6	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
7	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
8	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
9	>100	>93	>93	>93	>93	>93	>93	>93	>93	90	>93	>93
10	>100	>93	>93	>93	>93	>93	>93	90	>93	91	>93	91
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 880 MHz; 0.00 dBm.
 LO IN: 1020 MHz; +1.00 dBm
 IF OUT: 140 MHz; -7.09 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	13	16	50	36	42	42	47	56	48	48
1	-	21	+0	37	18	37	51	51	49	50	50	71
2	42	43	58	38	51	38	60	62	71	57	62	65
3	65	65	53	63	53	63	57	70	89	68	72	78
4	92	84	76	79	82	73	86	69	88	88	78	82
5	>100	98	86	83	95	81	87	88	85	103	>103	90
6	>100	>103	>103	>103	97	97	100	95	101	99	>103	>103
7	>100	100	>103	>103	96	99	93	95	88	103	94	>103
8	>100	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103
9	>100	>103	>103	>103	>103	>103	101	100	96	92	100	98
10	>100	>103	>103	>103	>103	>103	>103	99	102	101	>103	102
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 880 MHz; 10.00 dBm.
 LO IN: 1020 MHz; +1.00 dBm
 IF OUT: 140 MHz; 2.86 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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