

Frequency Mixer

ADE-ED9737/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=12MHz (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	22.1	5.63	5.34	5.27
45.1	57.1	6.31	5.96	5.78
80.1	92.1	6.38	6.08	5.92
115.1	127.1	6.36	6.04	5.89
150.1	162.1	6.35	6.06	5.90
185.1	197.1	6.29	6.02	5.88
220.1	232.1	6.49	6.19	6.03
255.1	267.1	6.57	6.24	6.04
290.1	302.1	6.58	6.23	6.07
325.1	337.1	6.60	6.28	6.05
360.1	372.1	6.55	6.27	6.11
395.1	407.1	6.71	6.32	6.13
430.1	442.1	6.84	6.33	6.04
465.1	477.1	6.88	6.55	6.28
500.1	512.1	6.83	6.55	6.35
535.1	547.1	6.75	6.47	6.29
570.1	582.1	6.80	6.46	6.28
605.1	617.1	6.84	6.41	6.22
640.1	652.1	7.03	6.41	6.22
675.1	687.1	7.25	6.50	6.25
710.1	722.1	7.21	6.58	6.20
745.1	757.1	7.25	6.72	6.31
780.1	792.1	7.26	6.75	6.39
815.1	827.1	7.23	6.75	6.43
850.1	862.1	7.28	6.85	6.56
885.1	897.1	7.22	6.90	6.74
920.1	932.1	7.34	7.05	6.88
955.1	967.1	7.45	7.20	7.06
990.1	1002.1	7.55	7.43	7.26
1025.1	1037.1	7.69	7.49	7.15
1060.1	1072.1	7.67	7.33	7.07
1095.1	1107.1	7.57	7.26	7.11
1130.1	1142.1	7.79	7.50	7.37
1165.1	1177.1	8.03	7.74	7.63
1205.1	1217.1	8.33	7.93	7.81
1240.1	1252.1	8.84	8.31	8.13
1280.1	1292.1	9.50	8.96	8.79
1315.1	1327.1	9.89	9.41	9.25
1355.1	1367.1	10.61	10.16	10.05
1390.1	1402.1	11.06	10.67	10.55

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+10	+13	+16
10.1	22.1	22.90	24.71	26.32
45.1	57.1	19.74	21.66	20.64
80.1	92.1	18.83	18.66	20.19
115.1	127.1	17.19	18.82	26.31
150.1	162.1	16.51	20.43	24.70
185.1	197.1	18.13	25.43	21.28
220.1	232.1	19.89	22.73	20.21
255.1	267.1	17.48	20.12	17.56
290.1	302.1	19.37	16.57	16.62
325.1	337.1	20.36	19.58	17.75
360.1	372.1	16.13	16.14	16.40
395.1	407.1	13.32	14.11	17.25
430.1	442.1	15.68	14.83	17.48
465.1	477.1	15.57	15.35	16.27
500.1	512.1	14.44	14.92	16.15
535.1	547.1	13.29	14.96	20.00
570.1	582.1	12.72	20.12	21.27
605.1	617.1	11.91	18.66	23.44
640.1	652.1	12.62	15.44	22.84
675.1	687.1	16.92	14.56	18.40
710.1	722.1	17.97	16.91	17.26
745.1	757.1	15.33	15.88	17.50
780.1	792.1	14.79	15.30	16.59
815.1	827.1	13.80	15.66	17.11
850.1	862.1	13.64	17.73	15.31
885.1	897.1	15.13	14.21	14.87
920.1	932.1	17.73	13.29	14.79
955.1	967.1	19.04	12.01	14.93
990.1	1002.1	15.87	13.30	16.83
1025.1	1037.1	15.54	18.35	18.42
1060.1	1072.1	16.32	18.24	20.13
1095.1	1107.1	10.94	15.51	20.09
1130.1	1142.1	9.97	13.47	19.27
1165.1	1177.1	12.14	12.89	15.91
1205.1	1217.1	14.67	16.32	15.86
1240.1	1252.1	13.92	18.23	18.71
1280.1	1292.1	15.41	18.87	21.69
1315.1	1327.1	15.95	19.43	20.68
1355.1	1367.1	16.13	18.04	19.32
1390.1	1402.1	16.22	18.04	19.80

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+7dBm (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	22.1	0.89	0.57	0.41
45.1	57.1	0.51	0.27	0.14
80.1	92.1	0.62	0.36	0.21
115.1	127.1	0.58	0.33	0.20
150.1	162.1	0.58	0.34	0.23
185.1	197.1	0.71	0.44	0.31
220.1	232.1	0.54	0.31	0.20
255.1	267.1	0.57	0.36	0.28
290.1	302.1	0.63	0.47	0.36
325.1	337.1	0.61	0.44	0.39
360.1	372.1	0.80	0.54	0.44
395.1	407.1	0.65	0.54	0.45
430.1	442.1	0.56	0.59	0.56
465.1	477.1	0.63	0.50	0.49
500.1	512.1	0.70	0.53	0.49
535.1	547.1	0.79	0.63	0.58
570.1	582.1	0.79	0.65	0.62
605.1	617.1	0.79	0.62	0.62
640.1	652.1	0.70	0.70	0.61
675.1	687.1	0.47	0.66	0.61
710.1	722.1	0.51	0.62	0.67
745.1	757.1	0.57	0.58	0.68
780.1	792.1	0.59	0.61	0.70
815.1	827.1	0.70	0.73	0.81
850.1	862.1	0.79	0.78	0.83
885.1	897.1	0.89	0.81	0.78
920.1	932.1	0.75	0.66	0.67
955.1	967.1	0.73	0.60	0.58
990.1	1002.1	0.79	0.49	0.49
1025.1	1037.1	0.77	0.36	0.45
1060.1	1072.1	0.93	0.38	0.37
1095.1	1107.1	1.15	0.41	0.29
1130.1	1142.1	1.13	0.35	0.21
1165.1	1177.1	1.13	0.32	0.14
1205.1	1217.1	1.06	0.41	0.21
1240.1	1252.1	0.95	0.44	0.25
1280.1	1292.1	0.95	0.50	0.29
1315.1	1327.1	1.04	0.54	0.32
1355.1	1367.1	1.11	0.54	0.34
1390.1	1402.1	1.03	0.49	0.33

Frequency Mixer

ADE-ED9737/1

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=130MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=124MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=136.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+13			+13			+13
119.9	10.1	5.69	10.1	134.1	6.19	126.1	10.0	5.67
113.4	16.6	5.71	50.1	174.1	5.68	124.1	12.0	5.68
107.0	23.0	5.60	90.1	214.1	5.63	120.1	16.0	5.73
100.5	29.5	5.69	130.1	254.1	5.75	118.1	18.0	5.72
94.0	36.0	5.65	170.1	294.1	5.69	114.1	22.0	5.60
87.6	42.4	5.57	210.1	334.1	5.70	112.1	24.0	5.55
81.1	48.9	5.69	250.1	374.1	5.79	108.1	28.0	5.65
74.6	55.4	5.71	290.1	414.1	5.82	106.1	30.0	5.66
68.2	61.8	5.69	330.1	454.1	5.91	102.1	34.0	5.68
61.7	68.3	5.68	370.1	494.1	5.83	100.1	36.0	5.67
55.3	74.7	5.76	410.1	534.1	5.83	96.1	40.0	5.65
48.8	81.2	5.71	430.1	554.1	5.88	94.1	42.0	5.61
42.3	87.7	5.63	470.1	594.1	5.83	90.1	46.0	5.61
35.9	94.1	5.75	490.1	614.1	5.83	88.1	48.0	5.64
29.4	100.6	5.71	530.1	654.1	5.99	84.1	52.0	5.66
22.9	107.1	5.71	550.1	674.1	6.10	82.1	54.0	5.69
16.5	113.5	5.81	590.1	714.1	6.35	78.1	58.0	5.73
10.0	120.0	6.23	610.1	734.1	6.50	76.1	60.0	5.74
46.8	176.8	5.69	650.1	774.1	6.94	72.1	64.0	5.70
120.3	250.3	5.66	670.1	794.1	7.19	70.1	66.0	5.67
193.8	323.8	5.63	710.1	834.1	7.38	66.1	70.0	5.66
267.4	397.4	5.81	730.1	854.1	7.36	64.1	72.0	5.67
340.9	470.9	5.79	770.1	894.1	7.18	60.1	76.0	5.75
377.7	507.7	5.90	790.1	914.1	7.11	58.1	78.0	5.79
451.2	581.2	5.85	830.1	954.1	7.01	54.1	82.0	5.76
488.0	618.0	5.83	850.1	974.1	6.95	52.1	84.0	5.72
561.5	691.5	6.18	890.1	1014.1	6.85	48.1	88.0	5.63
598.3	728.3	6.51	910.1	1034.1	6.82	46.1	90.0	5.62
671.8	801.8	7.22	950.1	1074.1	6.85	42.1	94.0	5.70
708.6	838.6	7.42	970.1	1094.1	6.90	40.1	96.0	5.71
782.1	912.1	7.15	1010.1	1134.1	7.17	36.1	100.0	5.69
818.9	948.9	6.99	1030.1	1154.1	7.35	34.1	102.0	5.72
892.4	1022.4	6.77	1070.1	1194.1	7.77	30.1	106.0	5.72
929.2	1059.2	6.81	1090.1	1214.1	8.06	28.1	108.0	5.68
1002.7	1132.7	7.14	1130.1	1254.1	8.53	24.1	112.0	5.67
1039.5	1169.5	7.49	1150.1	1274.1	8.76	22.1	114.0	5.72
1113.0	1243.0	8.40	1190.1	1314.1	9.44	18.1	118.0	5.76
1149.8	1279.8	8.76	1210.1	1334.1	9.86	16.1	120.0	5.80
1223.3	1353.3	9.96	1250.1	1374.1	10.48	12.1	124.0	6.04
1260.1	1390.1	10.64	1270.1	1394.1	10.80	10.1	126.0	6.15

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+10	+13	+16	+10	+13	+16
22.1	56.89	54.94	53.85	61.92	61.78	61.89
57.1	49.96	48.14	46.76	54.44	54.80	55.19
92.1	46.64	44.69	43.79	50.97	51.69	52.31
127.1	43.37	41.99	41.29	48.76	49.73	50.11
162.1	41.64	40.65	39.99	47.79	48.86	49.34
197.1	41.13	40.06	39.12	46.61	47.25	47.60
232.1	40.22	39.00	37.78	45.44	46.09	46.31
267.1	38.96	37.66	36.33	44.73	45.20	45.32
302.1	37.96	36.49	35.44	44.60	44.75	44.77
337.1	38.35	36.04	34.14	43.76	44.09	43.82
372.1	37.63	35.81	34.26	42.16	42.41	42.35
407.1	35.53	34.16	32.87	40.19	40.29	39.95
442.1	34.56	31.87	30.50	38.64	39.15	39.33
477.1	35.27	32.16	29.80	36.97	37.32	37.54
512.1	34.58	31.70	29.58	36.11	36.14	36.02
547.1	33.72	31.36	29.26	35.71	35.26	34.74
582.1	32.59	30.47	27.81	35.70	34.90	34.32
617.1	29.62	28.15	26.20	35.18	34.12	33.36
652.1	27.57	26.01	24.61	34.42	33.20	32.14
687.1	26.82	24.67	23.36	33.38	32.23	31.18
722.1	25.73	23.86	22.16	33.36	32.38	31.67
757.1	25.10	23.65	21.76	32.82	32.09	31.32
792.1	24.16	22.82	21.05	32.54	31.81	30.98
827.1	22.86	21.94	20.37	32.06	31.21	30.38
862.1	22.22	21.58	20.13	32.50	31.77	31.19
897.1	21.43	20.94	19.42	33.36	32.77	32.33
932.1	21.10	20.89	19.25	33.41	32.90	32.48
967.1	19.98	19.86	17.99	33.66	32.76	31.85
1002.1	18.12	17.96	16.04	35.11	33.27	31.60
1037.1	16.97	16.60	14.99	38.27	34.17	31.61
1072.1	15.62	15.29	14.00	44.27	34.48	31.02
1107.1	14.41	14.35	13.37	43.01	33.06	29.41
1142.1	13.38	13.61	12.82	36.25	30.74	27.50
1177.1	12.18	12.62	12.00	30.65	27.67	25.26
1217.1	11.43	11.83	11.25	27.28	25.03	23.11
1252.1	11.17	11.56	10.97	24.75	23.07	21.38
1292.1	10.81	11.36	10.81	22.40	21.18	19.68
1327.1	10.82	11.41	10.97	21.29	20.28	19.01
1367.1	10.37	11.02	10.81	19.44	18.84	17.97
1402.1	9.98	10.60	10.46	18.24	17.85	17.20

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	22.1	44.99	45.14	45.58
45.1	57.1	32.65	32.77	32.79
80.1	92.1	28.18	28.42	28.36
115.1	127.1	25.56	25.79	25.83
150.1	162.1	23.73	23.96	24.11
185.1	197.1	22.60	22.88	23.00
220.1	232.1	21.64	21.88	22.02
255.1	267.1	21.44	21.74	21.98
290.1	302.1	20.98	21.37	21.64
325.1	337.1	20.95	21.35	21.76
360.1	372.1	21.65	21.96	22.23
395.1	407.1	21.88	22.34	22.73
430.1	442.1	22.25	22.85	23.60
465.1	477.1	22.76	23.55	24.42
500.1	512.1	22.51	23.18	23.91
535.1	547.1	21.86	22.18	22.60
570.1	582.1	20.80	21.14	21.35
605.1	617.1	18.86	18.75	18.53
640.1	652.1	17.63	17.27	17.06
675.1	687.1	16.84	16.34	16.16
710.1	722.1	16.28	15.91	15.79
745.1	757.1	15.99	15.60	15.56
780.1	792.1	15.75	15.42	15.41
815.1	827.1	15.51	15.27	15.32
850.1	862.1	15.25	15.12	15.18
885.1	897.1	15.01	14.95	14.98
920.1	932.1	14.59	14.52	14.55
955.1	967.1	14.33	14.24	14.30
990.1	1002.1	13.83	13.75	13.79
1025.1	1037.1	13.50	13.45	13.41
1060.1	1072.1	12.98	12.96	12.83
1095.1	1107.1	12.37	12.32	12.03
1130.1	1142.1	11.43	11.31	10.92
1165.1	1177.1	10.30	10.14	9.77
1205.1	1217.1	9.24	9.00	8.73
1240.1	1252.1	8.54	8.28	8.04
1280.1	1292.1	7.84	7.51	7.29
1315.1	1327.1	7.25	6.92	6.70
1355.1	1367.1	6.69	6.38	6.19
1390.1	1402.1	6.34	6.06	5.87

Frequency Mixer

ADE-ED9737/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=146MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+10	+13	+16		+10	+13	+16		+10	+13	+16
10.1	22.1	1.48	1.27	1.18	22.1	1.72	3.36	7.60	10.1	1.17	1.06	1.02
45.1	57.1	1.39	1.21	1.10	57.1	1.56	2.63	4.38	14.1	1.16	1.05	1.02
80.1	92.1	1.44	1.25	1.16	92.1	1.44	2.19	3.24	18.1	1.16	1.05	1.03
115.1	127.1	1.41	1.24	1.16	127.1	1.47	2.32	3.47	22.1	1.15	1.05	1.03
150.1	162.1	1.40	1.27	1.19	162.1	1.44	2.20	3.19	26.1	1.17	1.07	1.04
185.1	197.1	1.44	1.32	1.25	197.1	1.44	2.17	3.11	30.1	1.18	1.08	1.04
220.1	232.1	1.45	1.33	1.25	232.1	1.51	2.28	3.26	34.1	1.21	1.10	1.04
255.1	267.1	1.55	1.42	1.33	267.1	1.50	2.20	3.09	38.1	1.22	1.11	1.05
290.1	302.1	1.60	1.46	1.37	302.1	1.52	2.23	3.14	42.1	1.24	1.12	1.06
325.1	337.1	1.62	1.48	1.36	337.1	1.57	2.30	3.21	46.1	1.24	1.12	1.06
360.1	372.1	1.71	1.59	1.50	372.1	1.59	2.25	3.11	50.1	1.23	1.13	1.07
395.1	407.1	1.75	1.57	1.45	407.1	1.66	2.33	3.19	54.1	1.22	1.12	1.07
430.1	442.1	1.89	1.64	1.47	442.1	1.72	2.39	3.23	58.1	1.19	1.10	1.07
465.1	477.1	2.02	1.83	1.65	477.1	1.71	2.37	3.21	62.1	1.18	1.08	1.05
500.1	512.1	1.99	1.84	1.69	512.1	1.77	2.44	3.29	66.1	1.17	1.07	1.05
535.1	547.1	2.02	1.86	1.72	547.1	1.81	2.42	3.24	68.1	1.16	1.06	1.04
570.1	582.1	2.01	1.80	1.66	582.1	1.85	2.42	3.20	72.1	1.17	1.07	1.03
605.1	617.1	1.94	1.74	1.64	617.1	1.95	2.50	3.27	74.1	1.18	1.08	1.03
640.1	652.1	2.07	1.79	1.71	652.1	2.04	2.57	3.29	78.1	1.20	1.09	1.03
675.1	687.1	2.22	1.83	1.71	687.1	2.09	2.69	3.38	80.1	1.21	1.10	1.04
710.1	722.1	2.23	1.88	1.69	722.1	2.12	2.74	3.45	84.1	1.21	1.11	1.05
745.1	757.1	2.30	2.00	1.75	757.1	2.13	2.74	3.47	86.1	1.21	1.11	1.06
780.1	792.1	2.21	1.92	1.68	792.1	2.17	2.79	3.52	90.1	1.21	1.12	1.08
815.1	827.1	2.17	1.87	1.61	827.1	2.18	2.78	3.50	92.1	1.21	1.12	1.09
850.1	862.1	2.15	1.83	1.55	862.1	2.18	2.76	3.46	96.1	1.20	1.11	1.09
885.1	897.1	2.02	1.70	1.43	897.1	2.20	2.77	3.44	98.1	1.19	1.10	1.09
920.1	932.1	1.95	1.64	1.43	932.1	2.21	2.74	3.38	102.1	1.16	1.09	1.09
955.1	967.1	1.87	1.56	1.38	967.1	2.20	2.70	3.29	104.1	1.15	1.08	1.08
990.1	1002.1	1.66	1.40	1.28	1002.1	2.19	2.65	3.20	108.1	1.14	1.06	1.07
1025.1	1037.1	1.51	1.31	1.23	1037.1	2.20	2.62	3.17	110.1	1.14	1.05	1.06
1060.1	1072.1	1.41	1.23	1.16	1072.1	2.24	2.64	3.16	114.1	1.15	1.05	1.04
1095.1	1107.1	1.35	1.14	1.08	1107.1	2.35	2.72	3.20	116.1	1.16	1.05	1.03
1130.1	1142.1	1.35	1.11	1.07	1142.1	2.50	2.82	3.26	120.1	1.18	1.08	1.02
1165.1	1177.1	1.41	1.17	1.20	1177.1	2.57	2.87	3.26	122.1	1.20	1.09	1.03
1205.1	1217.1	1.56	1.34	1.32	1217.1	2.60	2.92	3.29	126.1	1.22	1.11	1.05
1240.1	1252.1	1.73	1.52	1.46	1252.1	2.57	2.89	3.24	128.1	1.23	1.12	1.07
1280.1	1292.1	1.78	1.66	1.62	1292.1	2.50	2.84	3.20	132.1	1.24	1.13	1.09
1315.1	1327.1	1.74	1.68	1.67	1327.1	2.50	2.87	3.24	134.1	1.24	1.14	1.09
1355.1	1367.1	1.79	1.76	1.75	1367.1	2.39	2.78	3.15	138.1	1.24	1.14	1.11
1390.1	1402.1	1.78	1.75	1.74	1402.1	2.32	2.73	3.13	140.1	1.23	1.14	1.11

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	23	35	30	58	33	48	42	51	40	52
1	-	19	+0	32	11	38	17	41	27	48	35	45
2	62	69	54	61	53	68	54	66	45	61	47	60
3	>90	49	48	51	49	52	49	49	56	50	47	55
4	>90	72	71	75	70	67	75	80	71	79	69	70
5	>90	74	71	67	60	68	56	63	53	63	52	59
6	>90	74	85	73	>86	73	77	80	74	83	73	>86
7	>90	67	73	68	70	68	69	67	67	68	67	71
8	>90	71	77	73	>86	73	83	75	79	76	74	>86
9	>90	51	62	51	59	52	63	53	64	56	70	60
10	>90	66	70	61	70	69	79	71	82	75	69	75
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 130 MHz; 2.00 dBm.
LO IN: 140 MHz; +13.00 dBm
IF OUT: 10 MHz; -4.17 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	14	26	19	43	21	36	26	36	22	42
1	-	19	+0	30	11	34	17	37	28	42	42	39
2	82	69	60	65	60	67	57	67	53	63	52	65
3	>90	67	73	70	63	>76	57	72	54	65	53	65
4	>90	>76	>76	>76	75	>76	>76	>76	>76	>76	>76	>76
5	>90	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
6	>90	>76	>76	>76	>76	73	>76	72	>76	>76	>76	>76
7	>90	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
8	>90	>76	>76	>76	>76	>76	>76	>76	72	>76	72	>76
9	>90	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
10	>90	>76	>76	>76	>76	>76	>76	>76	>76	>76	73	>76
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 130 MHz; -8.00 dBm.
LO IN: 140 MHz; +13.00 dBm
IF OUT: 10 MHz; -14.09 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.