

Frequency Mixer

ADE-ED12873/11

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	6.88	6.57	6.53
50.1	80.1	7.28	6.97	6.85
90.1	120.1	7.09	6.79	6.72
130.1	160.1	7.14	6.90	6.83
170.1	200.1	6.98	6.83	6.77
210.1	240.1	7.06	6.89	6.82
250.1	280.1	7.08	6.93	6.84
290.1	320.1	7.02	6.87	6.78
330.1	360.1	7.16	6.98	6.87
370.1	400.1	7.07	6.89	6.78
410.1	440.1	7.25	7.05	6.92
450.1	480.1	7.19	6.97	6.84
490.1	520.1	7.23	6.99	6.83
550.1	580.1	7.33	7.05	6.87
590.1	620.1	7.36	7.06	6.86
650.1	680.1	7.30	6.99	6.81
690.1	720.1	7.38	7.06	6.87
750.1	780.1	7.45	7.12	6.89
790.1	820.1	7.57	7.21	6.97
850.1	880.1	7.54	7.13	6.87
890.1	920.1	7.69	7.19	6.91
950.1	980.1	7.73	7.20	6.90
990.1	1020.1	7.89	7.26	6.95
1050.1	1080.1	8.09	7.35	6.94
1090.1	1120.1	8.24	7.42	6.96
1150.1	1180.1	8.39	7.58	7.02
1190.1	1220.1	8.38	7.59	7.03
1250.1	1280.1	8.53	7.80	7.21
1290.1	1320.1	8.62	7.91	7.34
1350.1	1380.1	8.77	8.09	7.54
1390.1	1420.1	8.70	8.04	7.53
1450.1	1480.1	8.77	8.14	7.71
1490.1	1520.1	8.77	8.18	7.81
1550.1	1580.1	9.00	8.49	8.18
1590.1	1620.1	9.00	8.56	8.30
1650.1	1680.1	9.52	9.14	8.90
1690.1	1720.1	9.70	9.37	9.15
1750.1	1780.1	10.27	9.98	9.79
1790.1	1820.1	10.42	10.17	10.00
1850.1	1880.1	10.94	10.70	10.53

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	19.21	21.32	22.47
50.1	80.1	20.31	19.79	21.99
90.1	120.1	19.08	19.44	21.34
130.1	160.1	18.56	18.85	20.60
170.1	200.1	17.75	18.94	21.12
210.1	240.1	17.35	18.96	21.27
250.1	280.1	16.83	18.47	21.55
290.1	320.1	16.63	18.80	22.44
330.1	360.1	16.12	18.47	22.84
370.1	400.1	16.88	20.07	26.24
410.1	440.1	15.58	18.02	23.36
450.1	480.1	15.42	18.62	23.32
490.1	520.1	15.16	18.92	26.58
550.1	580.1	15.91	19.50	24.29
590.1	620.1	17.20	21.25	22.43
650.1	680.1	18.30	22.50	21.86
690.1	720.1	16.81	21.90	21.87
750.1	780.1	15.77	19.14	24.40
790.1	820.1	15.25	18.30	23.83
850.1	880.1	15.41	20.01	25.29
890.1	920.1	15.30	20.98	23.48
950.1	980.1	15.70	24.15	21.29
990.1	1020.1	13.88	21.90	21.62
1050.1	1080.1	11.67	18.63	19.61
1090.1	1120.1	11.00	16.77	17.40
1150.1	1180.1	10.89	15.10	15.32
1190.1	1220.1	11.23	14.76	15.50
1250.1	1280.1	10.58	13.05	14.38
1290.1	1320.1	10.09	12.02	13.23
1350.1	1380.1	9.30	11.16	12.89
1390.1	1420.1	9.92	12.25	14.29
1450.1	1480.1	10.92	13.85	15.76
1490.1	1520.1	12.03	15.19	16.84
1550.1	1580.1	15.82	19.35	20.41
1590.1	1620.1	17.98	18.84	20.67
1650.1	1680.1	16.01	17.65	19.51
1690.1	1720.1	15.88	18.15	20.35
1750.1	1780.1	15.57	17.45	21.08
1790.1	1820.1	15.98	17.49	20.87
1850.1	1880.1	18.00	17.75	19.03

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+5dBm (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	0.20	0.22	0.20
50.1	80.1	0.22	0.09	0.06
90.1	120.1	0.33	0.19	0.09
130.1	160.1	0.27	0.12	0.04
170.1	200.1	0.33	0.18	0.09
210.1	240.1	0.27	0.12	0.05
250.1	280.1	0.26	0.15	0.07
290.1	320.1	0.26	0.15	0.10
330.1	360.1	0.22	0.12	0.06
370.1	400.1	0.32	0.20	0.13
410.1	440.1	0.22	0.13	0.08
450.1	480.1	0.31	0.21	0.15
490.1	520.1	0.25	0.18	0.14
550.1	580.1	0.27	0.20	0.15
590.1	620.1	0.31	0.22	0.17
650.1	680.1	0.42	0.32	0.25
690.1	720.1	0.46	0.35	0.25
750.1	780.1	0.56	0.44	0.33
790.1	820.1	0.63	0.48	0.38
850.1	880.1	0.78	0.66	0.53
890.1	920.1	0.89	0.77	0.66
950.1	980.1	1.07	0.92	0.78
990.1	1020.1	1.13	1.01	0.86
1050.1	1080.1	1.14	1.13	0.97
1090.1	1120.1	1.17	1.15	1.03
1150.1	1180.1	1.16	1.21	1.12
1190.1	1220.1	1.24	1.26	1.17
1250.1	1280.1	1.25	1.25	1.19
1290.1	1320.1	1.17	1.15	1.08
1350.1	1380.1	1.21	1.17	1.09
1390.1	1420.1	1.25	1.20	1.10
1450.1	1480.1	1.43	1.34	1.15
1490.1	1520.1	1.36	1.26	1.10
1550.1	1580.1	1.39	1.23	1.05
1590.1	1620.1	1.35	1.15	0.98
1650.1	1680.1	1.15	0.93	0.79
1690.1	1720.1	1.00	0.78	0.67
1750.1	1780.1	0.79	0.58	0.47
1790.1	1820.1	0.73	0.53	0.40
1850.1	1880.1	0.61	0.37	0.28

Frequency Mixer

ADE-ED12873/11

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=760.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1510.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+13			+13			+13
750.1	10.0	7.12	10.1	20.1	6.79	1500.1	10.0	9.44
731.1	29.0	7.06	50.5	60.5	6.48	1460.4	49.7	9.44
712.2	47.9	6.97	91.0	101.0	6.25	1420.6	89.5	9.39
693.2	66.9	6.90	131.4	141.4	6.58	1380.9	129.2	9.26
674.2	85.9	6.89	171.8	181.8	6.39	1341.2	168.9	9.23
655.2	104.9	6.81	212.3	222.3	6.77	1301.4	208.7	9.09
636.3	123.8	6.75	252.7	262.7	6.54	1261.7	248.4	9.02
617.3	142.8	6.79	293.1	303.1	6.75	1222.0	288.1	8.89
598.3	161.8	6.78	333.5	343.5	6.89	1182.2	327.9	8.72
579.3	180.8	6.77	374.0	384.0	6.76	1142.5	367.6	8.64
560.4	199.7	6.78	414.4	424.4	6.91	1102.8	407.3	8.50
541.4	218.7	6.78	475.0	485.0	7.03	1063.0	447.1	8.38
522.4	237.7	6.76	515.5	525.5	6.84	1023.3	486.8	8.20
503.4	256.7	6.80	576.1	586.1	7.02	983.6	526.5	8.05
484.5	275.6	6.79	616.6	626.6	7.15	943.8	566.3	8.01
465.5	294.6	6.75	677.2	687.2	7.33	904.1	606.0	7.95
446.5	313.6	6.75	717.6	727.6	7.58	864.4	645.7	7.83
427.5	332.6	6.74	778.3	788.3	7.54	824.6	685.5	7.67
408.6	351.5	6.77	818.7	828.7	7.63	784.9	725.2	7.65
389.6	370.5	6.81	879.3	889.3	7.21	745.2	764.9	7.66
370.6	389.5	6.80	919.8	929.8	7.47	705.4	804.7	7.67
351.6	408.5	6.74	980.4	990.4	7.22	665.7	844.4	7.61
332.7	427.4	6.80	1020.9	1030.9	7.20	626.0	884.1	7.49
313.7	446.4	6.82	1081.5	1091.5	7.29	586.2	923.9	7.46
294.7	465.4	6.79	1121.9	1131.9	7.47	546.5	963.6	7.41
275.7	484.4	6.82	1182.6	1192.6	7.50	506.8	1003.3	7.44
256.8	503.3	6.77	1223.0	1233.0	7.57	467.0	1043.1	7.46
237.8	522.3	6.78	1283.6	1293.6	8.14	427.3	1082.8	7.49
218.8	541.3	6.83	1324.1	1334.1	8.16	387.6	1122.5	7.67
199.8	560.3	6.84	1384.7	1394.7	8.24	347.8	1162.3	7.79
180.9	579.2	6.85	1425.2	1435.2	7.99	308.1	1202.0	7.87
161.9	598.2	6.86	1485.8	1495.8	8.30	268.4	1241.7	7.97
142.9	617.2	6.84	1526.2	1536.2	8.45	228.6	1281.5	8.16
123.9	636.2	6.87	1586.9	1596.9	8.59	188.9	1321.2	8.30
105.0	655.1	6.86	1627.3	1637.3	9.02	149.2	1360.9	8.40
86.0	674.1	6.89	1687.9	1697.9	9.28	129.3	1380.8	8.43
67.0	693.1	6.86	1728.4	1738.4	9.56	89.6	1420.5	8.44
48.0	712.1	6.99	1789.0	1799.0	10.19	69.7	1440.4	8.41
29.1	731.0	7.07	1829.5	1839.5	10.75	30.0	1480.1	8.39
10.1	750.0	7.48	1890.1	1900.1	11.36	10.1	1500.0	8.77

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)		
	+10	+13	+16	+10	+13	+16			+10	+13	+16
40.1	68.31	66.94	66.93	53.59	51.65	50.40	10.1	40.1	47.23	46.34	45.57
80.1	62.97	62.77	62.96	49.78	47.44	46.08	50.1	80.1	35.01	35.62	34.58
120.1	60.11	60.24	59.64	46.26	44.27	43.08	90.1	120.1	31.08	30.65	30.58
160.1	58.24	58.05	57.64	44.22	42.59	41.22	130.1	160.1	28.04	27.92	28.07
200.1	58.23	57.86	57.61	42.83	41.09	39.76	170.1	200.1	26.19	26.24	26.37
240.1	57.14	56.84	56.51	42.20	40.12	38.60	210.1	240.1	24.73	24.77	24.73
280.1	56.07	55.81	55.67	41.70	39.64	37.93	250.1	280.1	23.64	23.79	23.85
320.1	55.01	54.89	54.98	40.98	38.64	36.99	290.1	320.1	22.97	23.15	23.17
360.1	53.95	54.02	54.18	40.43	38.21	36.45	330.1	360.1	22.39	22.51	22.62
400.1	52.59	52.82	52.99	39.94	37.52	35.55	370.1	400.1	21.93	22.18	22.31
440.1	52.18	52.35	52.40	40.03	37.45	35.31	410.1	440.1	21.60	21.81	22.00
480.1	51.12	50.98	51.08	39.89	36.94	35.06	450.1	480.1	21.26	21.42	21.53
520.1	50.39	50.41	50.35	39.94	37.02	34.83	490.1	520.1	20.68	20.93	21.09
580.1	48.15	48.41	48.51	40.06	36.80	34.24	550.1	580.1	20.11	20.43	20.76
620.1	46.93	47.03	47.15	39.54	36.45	34.23	590.1	620.1	20.03	20.57	21.04
680.1	45.13	45.11	45.14	37.91	35.02	33.36	650.1	680.1	19.94	20.52	20.95
720.1	44.32	44.15	44.06	37.84	34.63	32.82	690.1	720.1	19.58	20.03	20.36
780.1	43.05	42.80	42.47	36.74	33.50	31.31	750.1	780.1	18.51	18.69	18.83
820.1	42.63	42.15	41.65	36.62	33.10	30.71	790.1	820.1	17.43	17.47	17.43
880.1	41.72	40.91	40.15	35.56	32.30	30.04	850.1	880.1	16.11	16.03	15.93
920.1	41.53	40.67	40.12	34.34	31.43	29.60	890.1	920.1	15.41	15.29	15.26
980.1	41.02	40.53	40.07	32.07	29.94	28.21	950.1	980.1	14.89	14.84	14.76
1020.1	40.68	40.11	39.80	31.09	29.03	27.51	990.1	1020.1	14.56	14.52	14.53
1080.1	39.72	38.98	38.31	29.68	27.90	26.43	1050.1	1080.1	14.20	14.22	14.25
1120.1	40.16	39.36	38.68	29.50	27.45	25.90	1090.1	1120.1	14.11	14.14	14.19
1180.1	40.03	39.21	38.26	29.03	27.13	25.33	1150.1	1180.1	14.10	14.02	14.03
1220.1	39.69	38.59	37.64	28.84	26.80	25.12	1190.1	1220.1	13.93	13.91	13.90
1280.1	39.84	38.71	37.63	28.44	26.65	24.94	1250.1	1280.1	13.67	13.57	13.51
1320.1	39.72	38.28	37.09	28.16	26.33	24.57	1290.1	1320.1	13.33	13.18	13.00
1380.1	39.34	37.35	35.76	27.63	25.80	23.90	1350.1	1380.1	12.71	12.49	12.23
1420.1	38.74	36.29	34.85	26.92	24.95	23.22	1390.1	1420.1	12.08	11.83	11.52
1480.1	38.07	34.88	33.47	25.92	24.01	22.39	1450.1	1480.1	11.12	10.85	10.53
1520.1	36.32	33.60	32.52	24.92	23.12	21.78	1490.1	1520.1	10.49	10.20	9.94
1580.1	34.68	32.21	31.06	23.67	22.39	21.10	1550.1	1580.1	9.41	9.15	8.90
1620.1	32.91	30.88	29.87	22.94	21.89	20.82	1590.1	1620.1	8.81	8.56	8.36
1680.1	31.16	29.24	28.19	21.89	21.27	20.39	1650.1	1680.1	7.93	7.64	7.43
1720.1	29.97	28.34	27.29	21.24	20.82	20.01	1690.1	1720.1	7.32	7.00	6.80
1780.1	28.86	27.31	26.30	20.34	20.33	19.68	1750.1	1780.1	6.71	6.35	6.14
1820.1	27.89	26.50	25.44	19.88	20.05	19.42	1790.1	1820.1	6.14	5.77	5.50
1880.1	26.71	25.47	24.63	19.16	19.66	19.37	1850.1	1880.1	5.60	5.27	4.96

Frequency Mixer

ADE-ED12873/11

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	1.43	1.39	1.23
50.1	80.1	1.43	1.34	1.28
90.1	120.1	1.40	1.32	1.28
130.1	160.1	1.38	1.32	1.29
170.1	200.1	1.38	1.33	1.31
210.1	240.1	1.40	1.35	1.33
250.1	280.1	1.42	1.38	1.36
290.1	320.1	1.43	1.39	1.37
330.1	360.1	1.45	1.41	1.39
370.1	400.1	1.47	1.44	1.41
410.1	440.1	1.49	1.46	1.44
450.1	480.1	1.51	1.48	1.46
490.1	520.1	1.53	1.50	1.48
550.1	580.1	1.54	1.51	1.49
590.1	620.1	1.53	1.50	1.48
650.1	680.1	1.53	1.51	1.49
690.1	720.1	1.53	1.51	1.50
750.1	780.1	1.55	1.53	1.52
790.1	820.1	1.55	1.53	1.52
850.1	880.1	1.53	1.51	1.49
890.1	920.1	1.51	1.48	1.46
950.1	980.1	1.48	1.43	1.41
990.1	1020.1	1.45	1.39	1.37
1050.1	1080.1	1.39	1.33	1.29
1090.1	1120.1	1.32	1.26	1.23
1150.1	1180.1	1.21	1.15	1.12
1190.1	1220.1	1.13	1.06	1.06
1250.1	1280.1	1.11	1.07	1.11
1290.1	1320.1	1.16	1.17	1.21
1350.1	1380.1	1.30	1.32	1.36
1390.1	1420.1	1.40	1.43	1.47
1450.1	1480.1	1.56	1.58	1.61
1490.1	1520.1	1.65	1.67	1.68
1550.1	1580.1	1.78	1.78	1.79
1590.1	1620.1	1.85	1.84	1.84
1650.1	1680.1	1.93	1.92	1.90
1690.1	1720.1	1.99	1.97	1.95
1750.1	1780.1	2.00	1.97	1.95
1790.1	1820.1	2.03	2.00	1.97
1850.1	1880.1	2.00	1.97	1.93

LO (MHz)	LO VSWR (:1)		
	@LO (dBm)		
	+10	+13	+16
40.1	1.55	2.22	3.00
80.1	1.48	2.04	2.71
120.1	1.58	2.19	2.91
160.1	1.57	2.14	2.83
200.1	1.63	2.21	2.91
240.1	1.67	2.28	3.00
280.1	1.71	2.30	3.01
320.1	1.80	2.44	3.18
360.1	1.83	2.46	3.20
400.1	1.94	2.60	3.38
440.1	1.99	2.66	3.43
480.1	2.09	2.78	3.58
520.1	2.17	2.89	3.70
580.1	2.31	3.06	3.90
620.1	2.39	3.14	3.99
680.1	2.56	3.35	4.22
720.1	2.62	3.42	4.30
780.1	2.80	3.62	4.52
820.1	2.86	3.68	4.57
880.1	3.03	3.88	4.79
920.1	3.12	3.96	4.87
980.1	3.32	4.18	5.09
1020.1	3.42	4.29	5.19
1080.1	3.56	4.43	5.33
1120.1	3.67	4.54	5.44
1180.1	3.79	4.66	5.52
1220.1	3.91	4.78	5.65
1280.1	3.98	4.82	5.65
1320.1	4.11	4.95	5.77
1380.1	4.15	4.93	5.74
1420.1	4.29	5.06	5.85
1480.1	4.32	5.04	5.83
1520.1	4.45	5.19	5.95
1580.1	4.53	5.22	5.95
1620.1	4.72	5.38	6.07
1680.1	4.91	5.46	6.09
1720.1	5.12	5.63	6.19
1780.1	5.38	5.75	6.24
1820.1	5.56	5.87	6.28
1880.1	5.72	5.97	6.30

IF (OUT) (MHz)	IF VSWR @LO=1500MHz (:1)		
	@LO (dBm)		
	+10	+13	+16
10.1	2.09	1.82	1.64
50.1	2.10	1.83	1.65
90.1	2.10	1.84	1.66
130.1	2.04	1.78	1.62
170.1	2.06	1.80	1.64
210.1	2.00	1.76	1.61
250.1	1.97	1.73	1.59
290.1	1.97	1.75	1.62
330.1	1.89	1.68	1.56
370.1	1.90	1.69	1.58
410.1	1.83	1.64	1.55
450.1	1.78	1.59	1.50
490.1	1.77	1.59	1.53
530.1	1.69	1.52	1.47
570.1	1.69	1.52	1.47
610.1	1.63	1.48	1.46
650.1	1.60	1.44	1.42
690.1	1.57	1.43	1.42
730.1	1.52	1.38	1.39
770.1	1.50	1.37	1.37
810.1	1.46	1.35	1.37
850.1	1.43	1.31	1.34
890.1	1.41	1.30	1.35
930.1	1.37	1.28	1.34
970.1	1.34	1.26	1.33
990.1	1.31	1.24	1.32
1030.1	1.31	1.25	1.33
1050.1	1.28	1.23	1.33
1090.1	1.26	1.22	1.32
1110.1	1.24	1.21	1.31
1150.1	1.21	1.22	1.35
1170.1	1.19	1.20	1.32
1210.1	1.18	1.21	1.35
1230.1	1.17	1.21	1.34
1270.1	1.13	1.21	1.35
1290.1	1.13	1.20	1.34
1330.1	1.10	1.21	1.36
1350.1	1.10	1.21	1.36
1390.1	1.06	1.20	1.35
1410.1	1.06	1.20	1.35

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	5	16	13	23	18	45	37	50	44	50
1	-	12	+0	29	12	34	37	41	51	53	55	56
2	83	64	48	64	49	66	54	73	59	68	72	>73
3	>90	70	63	66	62	67	61	>73	>73	>73	>73	>73
4	>90	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
5	>90	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
6	>90	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
7	>90	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
8	>90	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
9	>90	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
10	>90	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73	>73
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 755 MHz; -10.00 dBm.
LO IN: 785 MHz; +13.00 dBm
IF OUT: 30 MHz; -17.13 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	14	27	24	34	30	54	49	61	57	64
1	-	12	+0	31	12	35	36	45	61	60	64	61
2	62	57	39	52	40	54	45	61	49	64	67	75
3	>90	48	43	54	49	48	44	58	62	58	60	68
4	>90	70	70	68	60	64	71	67	65	70	77	76
5	>90	74	70	70	62	61	58	66	57	68	>83	77
6	>90	>83	>83	>83	80	75	68	68	68	72	75	>83
7	>90	>83	>83	>83	>83	>83	74	79	75	75	78	>83
8	>90	>83	>83	>83	>83	>83	>83	>83	82	>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: 755 MHz; 0.00 dBm.
LO IN: 785 MHz; +13.00 dBm
IF OUT: 30 MHz; -7.07 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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