

Frequency Mixer

ADE-ED14942/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP-3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+9dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+14	+17	+20			+14	+17	+20			+14	+17	+20
10.1	40.1	6.89	6.65	6.54	10.1	40.1	26.67	29.04	28.79	10.1	40.1	0.02	0.00	0.00
30.1	60.1	6.73	6.52	6.43	30.1	60.1	26.24	26.03	29.87	30.1	60.1	0.04	0.03	0.02
60.1	90.1	6.79	6.55	6.46	60.1	90.1	26.05	33.12	34.09	60.1	90.1	0.01	0.02	0.02
80.1	110.1	6.63	6.46	6.41	80.1	110.1	28.09	34.56	38.40	80.1	110.1	0.07	0.05	0.03
110.1	140.1	6.67	6.50	6.45	110.1	140.1	34.52	35.23	32.93	110.1	140.1	0.07	0.03	0.02
130.1	160.1	6.59	6.45	6.40	130.1	160.1	32.20	34.92	31.11	130.1	160.1	0.10	0.05	0.03
160.1	190.1	6.58	6.47	6.41	160.1	190.1	36.16	30.98	30.24	160.1	190.1	0.15	0.07	0.04
180.1	210.1	6.47	6.37	6.33	180.1	210.1	36.36	31.98	30.43	180.1	210.1	0.15	0.09	0.06
210.1	240.1	6.53	6.43	6.38	210.1	240.1	31.88	29.94	29.32	210.1	240.1	0.08	0.04	0.02
230.1	260.1	6.39	6.30	6.25	230.1	260.1	29.79	27.70	27.73	230.1	260.1	0.10	0.07	0.06
260.1	290.1	6.49	6.38	6.33	260.1	290.1	28.58	28.88	28.68	260.1	290.1	0.04	0.02	0.01
280.1	310.1	6.36	6.26	6.22	280.1	310.1	28.79	27.07	26.44	280.1	310.1	0.09	0.06	0.05
310.1	340.1	6.38	6.29	6.23	310.1	340.1	27.16	28.64	28.42	310.1	340.1	0.06	0.04	0.03
340.1	370.1	6.34	6.22	6.18	340.1	370.1	28.42	26.21	25.53	340.1	370.1	0.11	0.07	0.05
360.1	390.1	6.34	6.23	6.15	360.1	390.1	29.57	28.30	26.13	360.1	390.1	0.12	0.08	0.06
390.1	420.1	6.28	6.19	6.13	390.1	420.1	27.77	28.59	27.23	390.1	420.1	0.14	0.10	0.07
410.1	440.1	6.28	6.13	6.10	410.1	440.1	25.01	25.74	25.33	410.1	440.1	0.10	0.11	0.06
440.1	470.1	6.23	6.10	6.04	440.1	470.1	29.07	25.16	24.80	440.1	470.1	0.11	0.08	0.06
460.1	490.1	6.27	6.12	6.04	460.1	490.1	31.60	28.17	25.24	460.1	490.1	0.06	0.06	0.05
490.1	520.1	6.24	6.12	6.07	490.1	520.1	31.58	39.70	28.45	490.1	520.1	0.10	0.08	0.07
510.1	540.1	6.26	6.13	6.06	510.1	540.1	31.34	29.80	25.92	510.1	540.1	0.11	0.08	0.07
540.1	570.1	6.20	6.06	5.99	540.1	570.1	26.47	27.29	25.89	540.1	570.1	0.20	0.16	0.13
560.1	590.1	6.16	6.00	5.94	560.1	590.1	23.87	24.82	24.77	560.1	590.1	0.26	0.20	0.17
590.1	620.1	6.22	6.04	5.97	590.1	620.1	23.97	23.29	23.83	590.1	620.1	0.24	0.18	0.14
610.1	640.1	6.26	6.05	5.95	610.1	640.1	25.43	22.68	22.88	610.1	640.1	0.19	0.15	0.12
640.1	670.1	6.28	6.09	5.99	640.1	670.1	30.74	23.90	22.60	640.1	670.1	0.16	0.13	0.10
670.1	700.1	6.25	6.07	5.96	670.1	700.1	30.86	27.16	23.75	670.1	700.1	0.14	0.11	0.10
690.1	720.1	6.35	6.18	6.06	690.1	720.1	27.45	28.97	26.28	690.1	720.1	0.14	0.10	0.10
720.1	750.1	6.28	6.12	6.00	720.1	750.1	26.82	26.61	25.49	720.1	750.1	0.21	0.16	0.14
740.1	770.1	6.30	6.13	5.99	740.1	770.1	25.65	25.02	24.78	740.1	770.1	0.25	0.20	0.15
770.1	800.1	6.18	5.99	5.88	770.1	800.1	23.26	23.95	23.84	770.1	800.1	0.37	0.31	0.23
790.1	820.1	6.17	5.97	5.88	790.1	820.1	22.84	22.98	22.81	790.1	820.1	0.41	0.34	0.24
820.1	850.1	6.04	5.89	5.82	820.1	850.1	20.47	20.95	21.23	820.1	850.1	0.40	0.31	0.23
840.1	870.1	6.09	5.92	5.84	840.1	870.1	19.83	20.49	21.03	840.1	870.1	0.42	0.32	0.24
870.1	900.1	6.13	5.93	5.84	870.1	900.1	18.60	19.34	20.01	870.1	900.1	0.47	0.37	0.27
890.1	920.1	6.21	5.97	5.85	890.1	920.1	17.56	17.97	18.56	890.1	920.1	0.51	0.42	0.32
920.1	950.1	6.26	6.00	5.86	920.1	950.1	17.62	17.67	18.61	920.1	950.1	0.51	0.43	0.30
940.1	970.1	6.35	6.03	5.88	940.1	970.1	18.82	18.08	18.81	940.1	970.1	0.55	0.49	0.39
970.1	1000.1	6.39	6.06	5.92	970.1	1000.1	18.59	17.98	18.44	970.1	1000.1	0.50	0.45	0.37
1000.1	1030.1	6.61	6.20	6.02	1000.1	1030.1	20.68	18.59	18.35	1000.1	1030.1	0.51	0.50	0.44

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=445MHz (dB)
		@LO (dBm)
		+17
434.9	10.1	6.25
414.9	30.1	6.18
394.9	50.1	6.06
369.9	75.1	6.02
349.9	95.1	6.02
329.9	115.1	6.02
304.9	140.1	5.93
284.9	160.1	5.94
264.9	180.1	6.01
239.9	205.1	6.06
219.9	225.1	5.97
199.9	245.1	5.94
174.9	270.1	6.02
154.9	290.1	6.09
129.9	315.1	6.06
109.9	335.1	5.99
89.9	355.1	5.97
64.9	380.1	6.10
44.9	400.1	6.11
24.9	420.1	6.05
10.1	455.1	6.04
35.1	480.1	6.15
65.1	510.1	6.20
90.1	535.1	6.15
120.1	565.1	6.13
145.1	590.1	6.17
175.1	620.1	6.20
205.1	650.1	6.27
230.1	675.1	6.43
260.1	705.1	6.60
285.1	730.1	6.62
315.1	760.1	6.68
345.1	790.1	6.65
370.1	815.1	6.66
400.1	845.1	6.62
425.1	870.1	6.72
455.1	900.1	6.90
485.1	930.1	6.87
510.1	955.1	6.82
540.1	985.1	6.82

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=380MHz (dB)
		@LO (dBm)
		+17
10.1	390.1	6.11
25.1	405.1	6.11
40.1	420.1	6.19
55.1	435.1	6.18
70.1	450.1	6.20
85.1	465.1	6.16
100.1	480.1	6.16
115.1	495.1	6.15
135.1	515.1	6.27
150.1	530.1	6.23
165.1	545.1	6.33
180.1	560.1	6.26
195.1	575.1	6.23
210.1	590.1	6.19
225.1	605.1	6.21
240.1	620.1	6.31
260.1	640.1	6.43
275.1	655.1	6.49
290.1	670.1	6.54
305.1	685.1	6.59
320.1	700.1	6.58
335.1	715.1	6.67
350.1	730.1	6.74
365.1	745.1	6.84
385.1	765.1	6.90
400.1	780.1	6.83
415.1	795.1	6.71
430.1	810.1	6.70
445.1	825.1	6.78
460.1	840.1	6.84
475.1	855.1	6.88
490.1	870.1	6.88
510.1	890.1	6.85
525.1	905.1	6.83
540.1	920.1	6.89
555.1	935.1	6.94
570.1	950.1	6.98
585.1	965.1	6.95
600.1	980.1	6.85
620.1	1000.1	6.74

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=510.1MHz (dB)
		@LO (dBm)
		+17
500.0	10.1	6.12
488.0	22.1	6.12
476.0	34.1	6.10
464.0	46.1	6.06
450.0	60.1	5.99
438.0	72.1	5.95
426.0	84.1	5.91
414.0	96.1	5.88
400.0	110.1	5.88
388.0	122.1	5.86
376.0	134.1	5.89
362.0	148.1	5.90
350.0	160.1	5.91
338.0	172.1	5.94
326.0	184.1	5.91
312.0	198.1	5.91
300.0	210.1	5.91
288.0	222.1	5.90
274.0	236.1	5.95
262.0	248.1	5.92
250.0	260.1	5.93
238.0	272.1	5.92
224.0	286.1	5.89
212.0	298.1	5.95
200.0	310.1	5.94
186.0	324.1	5.95
174.0	336.1	6.00
162.0	348.1	5.96
150.0	360.1	5.93
136.0	374.1	5.98
124.0	386.1	5.95
112.0	398.1	5.99
98.0	412.1	6.01
86.0	424.1	6.03
74.0	436.1	6.04
62.0	448.1	6.00
48.0	462.1	6.00
36.0	474.1	5.98
24.0	486.1	5.98
10.0	500.1	6.05

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+14	+17	+20	+14	+17	+20
40.1	62.91	63.73	64.27	65.56	65.08	64.48
60.1	59.43	60.51	60.74	63.91	63.88	62.64
90.1	55.62	56.16	56.59	60.99	60.10	59.48
110.1	53.63	54.48	55.05	58.82	58.80	58.26
140.1	51.50	52.86	53.67	56.62	57.46	57.24
160.1	50.30	51.65	52.35	55.43	56.08	55.72
190.1	48.66	49.91	50.70	53.88	54.09	53.87
210.1	48.18	49.53	50.33	53.10	53.21	52.95
240.1	47.05	48.44	49.20	51.88	51.84	51.27
260.1	46.45	47.72	48.41	50.58	50.60	50.27
290.1	45.39	46.53	47.08	49.46	49.22	47.99
310.1	45.15	46.42	46.71	48.76	48.37	47.94
340.1	44.46	45.72	46.09	48.39	47.97	47.22
370.1	43.78	44.91	44.92	46.35	46.05	46.05
390.1	43.36	44.59	45.02	46.01	45.00	44.57
420.1	43.09	44.38	44.87	46.36	45.64	44.91
440.1	42.64	43.86	44.19	45.42	45.15	44.86
470.1	42.57	43.72	43.78	43.15	42.99	42.87
490.1	42.16	43.30	42.68	43.06	42.08	42.20
520.1	41.85	43.15	42.76	43.47	42.51	42.22
540.1	41.51	42.67	42.48	43.06	42.29	42.09
570.1	41.12	42.26	42.42	41.94	41.48	41.53
590.1	41.17	42.35	42.21	41.35	41.02	41.08
620.1	41.52	42.60	42.30	39.77	40.03	40.30
640.1	41.33	42.42	42.54	39.12	39.10	39.37
670.1	41.29	42.44	42.25	38.72	38.03	38.20
700.1	41.03	42.39	42.80	38.81	37.75	37.50
720.1	40.77	42.19	43.01	38.85	37.69	36.83
750.1	40.35	41.70	42.96	38.60	37.39	35.47
770.1	39.99	41.19	42.44	38.23	37.16	35.05
800.1	39.74	41.07	42.71	37.64	37.43	35.62
820.1	39.97	41.28	42.80	36.96	36.85	35.38
850.1	40.52	41.50	41.72	35.98	35.66	34.75
870.1	40.93	41.75	42.14	35.69	35.28	34.36
900.1	41.14	41.92	42.33	35.28	34.78	33.83
920.1	41.27	41.88	42.09	35.12	34.52	33.50
950.1	41.25	41.70	41.05	34.81	34.04	32.83
970.1	40.90	41.04	40.19	34.51	33.73	32.49
1000.1	41.05	41.40	40.16	33.93	33.36	32.11
1030.1	40.55	41.04	39.06	33.67	33.30	32.08

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	56.67	52.94	44.24
30.1	60.1	47.28	47.43	46.27
60.1	90.1	41.00	41.90	38.83
80.1	110.1	39.26	40.00	38.56
110.1	140.1	36.07	36.63	36.51
130.1	160.1	35.26	35.66	35.84
160.1	190.1	33.02	33.31	33.76
180.1	210.1	32.42	32.73	33.16
210.1	240.1	30.56	30.90	31.24
230.1	260.1	30.24	30.66	31.24
260.1	290.1	28.87	29.29	29.63
280.1	310.1	28.52	29.04	29.55
310.1	340.1	27.21	27.61	28.11
340.1	370.1	26.74	27.34	28.10
360.1	390.1	26.19	26.70	27.37
390.1	420.1	25.68	26.16	26.82
410.1	440.1	25.06	25.69	26.41
440.1	470.1	24.53	25.30	26.13
460.1	490.1	24.19	24.89	25.79
490.1	520.1	23.53	24.00	24.73
510.1	540.1	23.08	23.55	24.37
540.1	570.1	22.97	23.63	24.51
560.1	590.1	23.11	23.84	24.48
590.1	620.1	22.66	23.42	24.06
610.1	640.1	22.35	23.17	23.76
640.1	670.1	22.17	23.07	23.83
670.1	700.1	22.24	23.04	24.01
690.1	720.1	22.09	22.78	23.69
720.1	750.1	22.46	23.18	24.18
740.1	770.1	22.60	23.46	24.56
770.1	800.1	23.77	24.95	25.94
790.1	820.1	24.19	25.35	26.28
820.1	850.1	25.17	26.16	26.72
840.1	870.1	25.51	26.54	27.28
870.1	900.1	26.17	27.50	28.71
890.1	920.1	26.50	28.22	30.02
920.1	950.1	27.15	29.31	33.24
940.1	970.1	27.35	29.75	33.01
970.1	1000.1	27.85	30.19	31.59
1000.1	1030.1	28.45	31.14	31.01

Frequency Mixer

ADE-ED14942/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=510MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+14	+17	+20		+14	+17	+20		+14	+17	+20
10.1	40.1	1.33	1.28	1.24	40.1	1.96	2.91	3.67	10.1	1.13	1.21	1.28
30.1	60.1	1.29	1.23	1.18	60.1	1.94	2.86	3.64	15.1	1.14	1.22	1.28
60.1	90.1	1.29	1.23	1.19	90.1	2.02	2.93	3.59	20.1	1.14	1.22	1.29
80.1	110.1	1.25	1.19	1.16	110.1	1.97	2.86	3.54	25.1	1.15	1.23	1.29
110.1	140.1	1.26	1.20	1.17	140.1	1.89	2.73	3.49	30.1	1.15	1.23	1.30
130.1	160.1	1.24	1.19	1.17	160.1	1.91	2.74	3.45	40.1	1.15	1.23	1.29
160.1	190.1	1.26	1.21	1.19	190.1	1.96	2.85	3.70	45.1	1.14	1.22	1.29
180.1	210.1	1.23	1.19	1.16	210.1	1.92	2.78	3.57	50.1	1.13	1.21	1.28
210.1	240.1	1.24	1.21	1.18	240.1	1.86	2.67	3.36	55.1	1.12	1.20	1.27
230.1	260.1	1.22	1.18	1.16	260.1	1.92	2.76	3.48	65.1	1.11	1.19	1.25
260.1	290.1	1.24	1.20	1.18	290.1	1.96	2.77	3.31	70.1	1.11	1.19	1.25
280.1	310.1	1.22	1.18	1.15	310.1	1.93	2.72	3.25	75.1	1.11	1.19	1.25
310.1	340.1	1.24	1.20	1.18	340.1	1.93	2.69	3.25	80.1	1.12	1.19	1.26
340.1	370.1	1.22	1.18	1.15	370.1	1.99	2.77	3.35	90.1	1.13	1.21	1.27
360.1	390.1	1.22	1.18	1.16	390.1	2.03	2.83	3.48	95.1	1.13	1.21	1.28
390.1	420.1	1.22	1.18	1.16	420.1	1.97	2.71	3.29	100.1	1.13	1.21	1.28
410.1	440.1	1.23	1.19	1.16	440.1	1.97	2.70	3.30	105.1	1.13	1.21	1.27
440.1	470.1	1.21	1.17	1.15	470.1	2.08	2.85	3.42	110.1	1.13	1.20	1.27
460.1	490.1	1.21	1.17	1.15	490.1	2.08	2.80	3.26	120.1	1.11	1.18	1.25
490.1	520.1	1.23	1.20	1.18	520.1	2.00	2.69	3.18	125.1	1.10	1.17	1.24
510.1	540.1	1.23	1.20	1.18	540.1	2.03	2.70	3.16	130.1	1.09	1.17	1.23
540.1	570.1	1.19	1.16	1.15	570.1	2.07	2.75	3.22	135.1	1.09	1.16	1.23
560.1	590.1	1.17	1.14	1.13	590.1	2.10	2.81	3.34	145.1	1.10	1.17	1.23
590.1	620.1	1.17	1.14	1.13	620.1	2.10	2.78	3.29	150.1	1.10	1.17	1.24
610.1	640.1	1.17	1.13	1.12	640.1	2.12	2.80	3.37	155.1	1.11	1.18	1.25
640.1	670.1	1.17	1.14	1.13	670.1	2.24	2.98	3.63	160.1	1.11	1.19	1.25
670.1	700.1	1.16	1.13	1.11	700.1	2.21	2.91	3.43	170.1	1.11	1.18	1.25
690.1	720.1	1.17	1.15	1.14	720.1	2.22	2.91	3.41	175.1	1.11	1.18	1.24
720.1	750.1	1.13	1.11	1.11	750.1	2.28	2.97	3.41	180.1	1.10	1.17	1.24
740.1	770.1	1.13	1.11	1.11	770.1	2.30	2.99	3.47	185.1	1.09	1.16	1.23
770.1	800.1	1.10	1.10	1.11	800.1	2.26	2.91	3.42	190.1	1.08	1.15	1.22
790.1	820.1	1.11	1.12	1.14	820.1	2.25	2.89	3.39	200.1	1.07	1.14	1.20
820.1	850.1	1.08	1.11	1.13	850.1	2.36	3.06	3.63	205.1	1.07	1.14	1.20
840.1	870.1	1.08	1.10	1.13	870.1	2.46	3.17	3.75	210.1	1.08	1.14	1.20
870.1	900.1	1.07	1.11	1.14	900.1	2.44	3.09	3.57	215.1	1.08	1.15	1.21
890.1	920.1	1.06	1.10	1.14	920.1	2.50	3.15	3.61	225.1	1.09	1.16	1.21
920.1	950.1	1.03	1.09	1.14	950.1	2.63	3.30	3.70	230.1	1.09	1.16	1.22
940.1	970.1	1.01	1.07	1.12	970.1	2.65	3.30	3.69	235.1	1.09	1.16	1.22
970.1	1000.1	1.03	1.10	1.15	1000.1	2.69	3.31	3.70	240.1	1.08	1.15	1.21
1000.1	1030.1	1.08	1.11	1.15	1030.1	2.70	3.33	3.73	250.1	1.06	1.13	1.19

Frequency Mixer

Harmonics Tables

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RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	---	---	20.87	26.06	30.49	37.07	21.03	38.34	19.79	43.56	32.55	37.43
1	---	16.70	---	28.64	11.25	39.30	15.01	28.91	34.44	42.91	42.24	41.07
2	91.75	63.79	53.87	61.39	54.59	60.66	53.44	57.50	50.24	61.42	45.74	56.98
3	109.19	53.48	51.97	56.93	63.78	72.03	54.81	65.23	59.63	62.21	76.98	77.12
4	124.90	93.63	82.61	86.84	88.34	90.93	89.11	93.51	79.42	88.23	82.22	85.59
5	116.79	86.27	90.08	87.14	76.68	85.07	77.75	82.70	82.87	93.02	79.60	83.54
6	116.81	124.48	97.11	111.35	98.46	111.19	98.83	105.58	101.88	107.95	94.03	98.44
7	130.61	115.92	121.89	105.47	114.21	107.34	101.89	102.27	102.00	110.35	102.02	111.99
8	131.81	110.92	114.59	120.39	116.13	115.49	116.71	113.02	115.39	113.14	131.42	115.95
9	114.25	117.47	125.73	118.65	125.26	115.76	119.16	117.73	122.73	120.70	119.23	116.71
10	110.64	113.69	120.96	122.00	117.74	117.33	115.83	127.08	113.75	123.69	118.08	123.90
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 445 MHz; 0 dBm.
LO IN: 475 MHz; +17.00 dBm
IF OUT: 30 MHz; -5.82 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	---	---	28.83	38.33	38.94	56.76	32.47	54.27	31.79	57.68	47.50	59.41
1	---	20.04	---	33.11	12.11	40.64	19.69	40.76	39.91	53.80	50.37	65.85
2	90.27	53.39	50.31	44.74	63.67	53.91	43.78	54.50	48.23	61.43	49.84	56.87
3	107.88	24.45	17.85	46.31	28.00	75.20	31.53	49.15	36.65	49.30	55.89	57.73
4	99.71	55.34	58.84	63.78	57.69	60.85	60.91	61.05	59.04	61.52	56.52	68.62
5	99.67	42.77	45.47	42.85	37.41	43.79	44.38	50.76	44.81	52.30	49.77	55.36
6	98.83	78.33	62.07	56.10	63.36	67.96	58.63	63.90	58.33	62.90	63.24	71.80
7	106.66	48.02	45.99	49.37	51.13	50.06	55.66	51.21	50.12	58.37	52.35	62.10
8	105.24	76.11	72.62	66.83	75.87	66.87	76.57	69.59	70.09	78.68	65.22	77.37
9	99.10	68.70	61.60	58.72	58.75	73.31	67.75	60.03	53.96	57.02	58.25	67.21
10	97.50	83.18	74.88	75.29	73.93	75.75	70.00	65.50	66.33	69.28	66.69	79.00
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 445 MHz; 10 dBm.
LO IN: 475 MHz; +17.00 dBm
IF OUT: 30 MHz; 3.01 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 represents the Harmonics level of the RF Input Signal to the mixer