

Frequency Mixer

ADE-6+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+4	+7	+10			+4	+7	+10			+4	+7	+10
10.1	40.1	4.67	4.48	4.59	10.1	40.1	16.25	19.53	20.58	10.1	40.1	1.98	1.49	1.09
20.1	50.1	4.89	4.80	4.63	20.1	50.1	19.39	21.60	16.69	20.1	50.1	1.62	1.37	1.13
30.1	60.1	5.06	4.89	4.70	30.1	60.1	19.75	18.81	15.74	30.1	60.1	1.68	1.39	1.14
40.1	70.1	5.08	4.86	4.74	40.1	70.1	19.24	20.68	14.27	40.1	70.1	1.61	1.27	1.13
50.1	80.1	5.11	4.88	4.74	50.1	80.1	19.41	15.59	14.16	50.1	80.1	1.52	1.30	1.09
60.1	90.1	5.09	4.89	4.79	60.1	90.1	19.52	15.02	13.72	60.1	90.1	1.59	1.29	1.10
70.1	100.1	4.96	4.85	4.75	70.1	100.1	13.56	12.76	12.58	70.1	100.1	1.59	1.38	1.06
80.1	110.1	4.94	4.80	4.73	80.1	110.1	10.69	9.65	9.65	80.1	110.1	1.61	1.34	1.13
90.1	120.1	5.07	4.88	4.74	90.1	120.1	12.20	10.87	11.40	90.1	120.1	1.44	1.22	1.03
100.1	130.1	5.29	5.01	4.83	100.1	130.1	15.13	14.15	15.74	100.1	130.1	1.28	1.08	0.86
110.1	140.1	5.41	5.18	4.97	110.1	140.1	12.91	12.66	14.50	110.1	140.1	1.24	1.02	0.86
120.1	150.1	5.40	5.21	5.07	120.1	150.1	11.51	10.56	10.85	120.1	150.1	1.32	1.10	0.92
130.1	160.1	5.42	5.25	5.12	130.1	160.1	11.10	10.94	11.63	130.1	160.1	1.41	1.15	0.97
140.1	170.1	5.38	5.23	5.15	140.1	170.1	9.68	9.77	10.73	140.1	170.1	1.58	1.29	1.06
150.1	180.1	5.46	5.32	5.25	150.1	180.1	8.70	9.07	10.99	150.1	180.1	1.78	1.39	1.13
160.1	190.1	5.49	5.36	5.30	160.1	190.1	8.55	9.32	11.22	160.1	190.1	1.97	1.48	1.23
170.1	200.1	5.59	5.42	5.36	170.1	200.1	9.09	10.21	12.04	170.1	200.1	2.09	1.57	1.29
180.1	210.1	5.81	5.56	5.43	180.1	210.1	7.37	10.22	12.65	180.1	210.1	2.28	1.77	1.42
190.1	220.1	6.03	5.69	5.48	190.1	220.1	3.99	8.08	11.67	190.1	220.1	2.46	2.01	1.62
200.1	230.1	6.22	5.90	5.52	200.1	230.1	1.83	4.49	8.56	200.1	230.1	2.61	2.23	1.91
210.1	240.1	6.39	6.09	5.70	210.1	240.1	1.09	2.66	5.56	210.1	240.1	2.64	2.29	2.07
220.1	250.1	6.50	6.20	5.88	220.1	250.1	0.66	1.54	3.22	220.1	250.1	2.69	2.40	2.17
230.1	260.1	6.61	6.27	5.94	230.1	260.1	0.87	1.52	2.44	230.1	260.1	2.64	2.37	2.15
240.1	270.1	6.57	6.18	5.84	240.1	270.1	1.44	2.17	3.16	240.1	270.1	2.69	2.45	2.19
250.1	280.1	6.76	6.30	5.91	250.1	280.1	2.51	3.49	5.26	250.1	280.1	2.51	2.28	2.05
260.1	290.1	6.81	6.31	5.87	260.1	290.1	4.04	5.50	8.10	260.1	290.1	2.44	2.21	1.99
270.1	300.1	7.15	6.58	6.15	270.1	300.1	5.74	7.53	10.07	270.1	300.1	2.18	1.98	1.79
280.1	310.1	7.06	6.58	6.25	280.1	310.1	7.55	9.08	11.11	280.1	310.1	2.15	1.86	1.68
290.1	320.1	7.26	6.79	6.48	290.1	320.1	8.60	10.12	11.75	290.1	320.1	2.11	1.86	1.62
300.1	330.1	7.39	7.05	6.85	300.1	330.1	9.20	10.44	11.52	300.1	330.1	1.95	1.65	1.40
310.1	340.1	7.50	7.19	6.98	310.1	340.1	9.41	10.42	11.61	310.1	340.1	2.03	1.74	1.50
320.1	350.1	7.78	7.69	7.35	320.1	350.1	9.33	10.26	11.67	320.1	350.1	1.90	1.56	1.29
330.1	360.1	7.88	7.65	7.54	330.1	360.1	8.64	9.28	10.35	330.1	360.1	2.01	1.68	1.39
340.1	370.1	8.55	8.36	8.31	340.1	370.1	8.26	8.96	10.10	340.1	370.1	1.73	1.41	1.13
350.1	380.1	8.70	8.39	8.41	350.1	380.1	7.80	8.44	9.47	350.1	380.1	1.80	1.56	1.30
360.1	390.1	9.40	9.17	9.09	360.1	390.1	7.48	8.23	9.09	360.1	390.1	1.45	1.23	1.05
370.1	400.1	9.50	9.27	9.20	370.1	400.1	7.27	8.20	9.29	370.1	400.1	1.45	1.25	1.06
380.1	410.1	10.20	9.98	9.70	380.1	410.1	7.46	8.50	9.87	380.1	410.1	1.29	1.29	1.26
390.1	420.1	10.67	10.40	10.27	390.1	420.1	8.13	9.43	11.58	390.1	420.1	1.18	1.02	0.91
400.1	430.1	11.39	11.07	10.89	400.1	430.1	8.72	10.77	13.51	400.1	430.1	1.09	0.97	0.91

Frequency Mixer

ADE-6+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=125.1MHz (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)=250.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
115.1	10.0	5.28	10.1	20.1	4.75	240.1	10.0	7.38
112.6	12.5	5.24	20.1	30.1	4.38	235.1	15.0	7.29
110.1	15.0	5.18	30.1	40.1	4.39	230.1	20.0	7.28
107.6	17.5	5.14	40.1	50.1	4.30	225.1	25.0	7.27
105.1	20.0	5.09	50.1	60.1	4.69	220.1	30.0	7.20
102.6	22.5	5.11	60.1	70.1	4.34	215.1	35.0	7.14
100.1	25.0	5.09	70.1	80.1	4.41	210.1	40.0	7.12
97.6	27.5	5.08	80.1	90.1	4.54	205.1	45.0	7.10
95.1	30.0	5.05	90.1	100.1	4.64	200.1	50.0	7.00
92.6	32.5	5.03	100.1	110.1	4.70	195.1	55.0	6.92
90.1	35.0	5.01	110.1	120.1	4.67	190.1	60.0	6.91
87.6	37.5	4.97	120.1	130.1	4.82	185.1	65.0	6.96
85.1	40.0	4.95	130.1	140.1	4.93	180.1	70.0	6.99
82.6	42.5	4.98	140.1	150.1	5.12	175.1	75.0	6.97
80.1	45.0	5.03	150.1	160.1	4.90	170.1	80.0	6.96
77.6	47.5	5.07	160.1	170.1	5.01	165.1	85.0	6.97
75.1	50.0	5.08	170.1	180.1	5.12	160.1	90.0	7.01
72.6	52.5	5.03	180.1	190.1	4.54	155.1	95.0	6.91
70.1	55.0	5.06	190.1	200.1	4.70	150.1	100.0	6.81
67.6	57.5	5.02	200.1	210.1	4.75	145.1	105.0	6.80
65.1	60.0	5.01	210.1	220.1	4.88	140.1	110.0	6.83
62.6	62.5	5.10	225.1	235.1	4.84	135.1	115.0	6.77
60.1	65.0	5.03	235.1	245.1	4.87	130.1	120.0	6.70
57.6	67.5	5.06	250.1	260.1	5.04	125.1	125.0	6.80
55.1	70.0	5.07	260.1	270.1	4.81	120.1	130.0	6.63
52.6	72.5	5.08	275.1	285.1	5.10	115.1	135.0	6.62
50.1	75.0	5.06	285.1	295.1	5.06	105.1	145.0	6.38
47.6	77.5	5.04	300.1	310.1	5.46	100.1	150.0	6.41
45.1	80.0	5.01	310.1	320.1	5.49	90.1	160.0	6.31
42.6	82.5	4.99	325.1	335.1	5.97	85.1	165.0	6.20
40.1	85.0	4.94	335.1	345.1	5.70	75.1	175.0	6.08
37.6	87.5	4.99	350.1	360.1	6.19	70.1	180.0	6.07
35.1	90.0	5.00	360.1	370.1	6.35	60.1	190.0	5.90
32.6	92.5	5.03	375.1	385.1	6.70	55.1	195.0	5.87
27.6	97.5	5.01	385.1	395.1	6.97	45.1	205.0	5.86
25.1	100.0	5.05	400.1	410.1	8.12	40.1	210.0	5.82
20.1	105.0	5.07	410.1	420.1	8.74	30.1	220.0	6.00
17.6	107.5	5.06	425.1	435.1	9.42	25.1	225.0	6.17
12.6	112.5	5.22	435.1	445.1	10.01	15.1	235.0	6.52
10.1	115.0	5.33	450.1	460.1	11.63	10.1	240.0	6.77

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+4	+7	+10	+4	+7	+10
40.1	57.74	57.75	57.94	57.96	56.47	54.26
50.4	56.55	56.00	55.97	54.19	54.56	53.67
60.6	54.25	54.28	54.59	50.41	51.33	51.91
70.9	54.34	54.43	54.73	47.30	48.94	50.47
81.1	52.21	52.93	53.29	45.88	47.90	49.41
91.4	49.83	49.76	50.03	43.82	46.55	49.38
101.6	50.33	50.18	50.20	40.93	42.72	44.96
111.9	52.14	51.94	51.87	40.03	41.81	43.49
122.2	51.93	52.17	51.92	39.35	41.39	43.52
132.4	49.78	50.81	50.93	38.78	40.89	43.41
142.7	45.28	46.14	46.78	39.92	42.30	44.76
152.9	42.89	43.81	44.55	38.82	41.77	44.44
163.2	41.40	42.38	43.11	36.11	38.59	41.03
173.4	40.66	41.63	42.54	34.69	36.21	37.53
183.7	40.18	41.42	42.56	33.28	34.11	34.96
193.9	40.03	41.30	42.27	31.85	32.20	32.76
204.2	39.88	40.41	40.48	31.75	32.25	32.54
214.5	39.42	39.89	39.81	31.30	32.18	31.85
224.7	39.24	39.91	40.16	30.47	32.01	31.40
235.0	39.14	39.84	40.21	30.54	31.88	32.09
245.2	38.39	38.72	38.77	30.82	31.80	32.38
255.5	37.49	37.51	37.24	30.88	31.54	31.49
265.7	37.21	37.17	36.94	30.32	30.21	29.14
276.0	36.33	35.92	35.19	29.54	28.42	26.56
286.3	35.12	34.06	32.89	28.63	26.42	24.17
296.5	34.17	32.72	31.67	27.40	24.58	22.67
306.8	33.18	31.33	30.39	25.78	22.97	21.53
317.0	31.76	29.68	28.69	24.33	21.83	20.66
327.3	30.38	28.43	27.45	23.44	21.27	20.14
337.5	29.15	27.31	26.26	22.66	20.66	19.48
347.8	28.14	26.12	25.01	21.98	19.93	18.75
358.0	27.11	24.93	23.70	21.57	19.41	18.13
368.3	26.12	23.84	22.46	20.98	18.82	17.44
378.6	25.11	22.74	21.37	20.37	18.16	16.78
388.8	24.38	21.94	20.56	19.95	17.77	16.36
399.1	23.51	21.07	19.66	19.68	17.58	16.19
409.3	22.65	20.32	18.84	19.44	17.47	16.04
419.6	21.81	19.61	18.12	18.91	17.12	15.75
429.8	21.02	18.97	17.55	18.23	16.62	15.32
440.1	20.15	18.24	16.85	17.71	16.26	15.02

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	32.97	31.93	31.35
20.1	50.1	28.35	28.28	28.12
30.1	60.1	25.79	25.95	26.00
40.1	70.1	23.65	23.51	23.89
50.1	80.1	22.80	22.95	22.97
60.1	90.1	22.23	22.59	22.76
70.1	100.1	21.32	21.95	22.33
80.1	110.1	20.99	21.51	21.93
90.1	120.1	20.46	20.90	21.30
100.1	130.1	21.36	21.75	22.09
110.1	140.1	21.62	21.89	22.19
120.1	150.1	23.49	24.04	24.52
130.1	160.1	23.71	24.62	25.42
140.1	170.1	23.11	24.32	25.36
150.1	180.1	20.34	20.99	21.50
160.1	190.1	18.59	19.04	19.27
170.1	200.1	16.74	17.02	17.18
180.1	210.1	15.85	16.11	16.39
190.1	220.1	15.10	15.36	15.66
200.1	230.1	14.38	14.59	15.00
210.1	240.1	14.17	14.37	14.81
220.1	250.1	14.18	14.41	14.89
230.1	260.1	14.57	14.73	15.13
240.1	270.1	14.64	14.77	15.11
250.1	280.1	15.11	15.26	15.41
260.1	290.1	14.95	14.92	14.95
270.1	300.1	14.51	14.35	14.23
280.1	310.1	13.55	13.33	13.13
290.1	320.1	12.70	12.42	12.12
300.1	330.1	11.71	11.49	11.25
310.1	340.1	11.11	10.84	10.60
320.1	350.1	10.44	10.16	9.92
330.1	360.1	9.72	9.50	9.22
340.1	370.1	9.02	8.75	8.49
350.1	380.1	8.40	8.17	7.86
360.1	390.1	7.72	7.45	7.20
370.1	400.1	7.16	6.90	6.66
380.1	410.1	6.66	6.38	6.14
390.1	420.1	6.20	5.91	5.66
400.1	430.1	5.84	5.53	5.27

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=250.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
10.1	40.1	1.54	1.32	1.36	40.1	1.75	2.52	3.52	10.0	2.18	1.97	1.74
20.1	50.1	1.35	1.26	1.21	50.4	1.75	2.52	3.51	15.0	2.17	1.96	1.73
30.1	60.1	1.33	1.24	1.15	60.6	1.75	2.51	3.50	20.0	2.15	1.93	1.70
40.1	70.1	1.32	1.21	1.14	70.9	1.76	2.49	3.47	25.0	2.14	1.93	1.71
50.1	80.1	1.26	1.16	1.12	81.1	1.77	2.52	3.48	30.0	2.15	1.95	1.72
60.1	90.1	1.24	1.14	1.07	91.4	1.78	2.53	3.48	35.0	2.18	1.97	1.75
70.1	100.1	1.21	1.11	1.05	101.6	1.81	2.56	3.50	40.0	2.19	1.99	1.78
80.1	110.1	1.19	1.12	1.06	111.9	1.83	2.60	3.58	45.0	2.21	2.02	1.80
90.1	120.1	1.17	1.09	1.03	122.2	1.86	2.62	3.59	50.0	2.21	2.02	1.81
100.1	130.1	1.15	1.06	1.03	132.4	1.86	2.60	3.50	55.0	2.21	2.01	1.81
110.1	140.1	1.10	1.03	1.04	142.7	1.88	2.64	3.59	60.0	2.20	2.00	1.80
120.1	150.1	1.06	1.01	1.06	152.9	1.92	2.71	3.72	65.0	2.20	2.00	1.79
130.1	160.1	1.03	1.06	1.11	163.2	1.95	2.72	3.73	70.0	2.18	1.99	1.79
140.1	170.1	1.03	1.11	1.18	173.4	1.95	2.71	3.65	75.0	2.20	2.01	1.81
150.1	180.1	1.06	1.14	1.19	183.7	1.99	2.73	3.66	80.0	2.22	2.04	1.84
160.1	190.1	1.09	1.15	1.20	193.9	2.06	2.81	3.79	85.0	2.22	2.04	1.86
170.1	200.1	1.10	1.16	1.19	204.2	2.13	2.87	3.85	90.0	2.24	2.06	1.89
180.1	210.1	1.13	1.16	1.18	214.5	2.22	2.95	3.85	95.0	2.25	2.08	1.91
190.1	220.1	1.17	1.14	1.14	224.7	2.28	3.07	4.02	100.0	2.23	2.06	1.90
200.1	230.1	1.21	1.16	1.12	235.0	2.30	3.13	4.14	105.0	2.21	2.04	1.88
210.1	240.1	1.26	1.20	1.13	245.2	2.29	3.10	4.06	110.0	2.19	2.03	1.87
220.1	250.1	1.34	1.27	1.20	255.5	2.28	3.10	4.06	115.0	2.15	2.00	1.84
230.1	260.1	1.44	1.36	1.28	265.7	2.29	3.12	4.12	120.0	2.13	1.98	1.83
240.1	270.1	1.51	1.41	1.33	276.0	2.33	3.15	4.19	125.0	2.12	1.97	1.82
250.1	280.1	1.64	1.54	1.46	286.3	2.30	3.08	4.07	130.0	2.13	1.98	1.84
260.1	290.1	1.67	1.57	1.50	296.5	2.25	2.96	3.84	135.0	2.15	2.00	1.86
270.1	300.1	1.82	1.72	1.66	306.8	2.26	2.99	3.90	145.0	2.17	2.02	1.88
280.1	310.1	1.79	1.71	1.67	317.0	2.30	3.06	4.05	150.0	2.16	2.02	1.88
290.1	320.1	1.98	1.90	1.86	327.3	2.27	2.99	3.88	160.0	2.11	1.97	1.84
300.1	330.1	2.06	1.99	1.95	337.5	2.27	2.95	3.81	165.0	2.09	1.95	1.82
310.1	340.1	2.17	2.10	2.05	347.8	2.32	3.00	3.88	175.0	2.08	1.95	1.83
320.1	350.1	2.22	2.17	2.13	358.0	2.35	2.98	3.77	180.0	2.08	1.95	1.83
330.1	360.1	2.25	2.18	2.12	368.3	2.39	2.99	3.78	190.0	2.10	1.97	1.84
340.1	370.1	2.32	2.24	2.18	378.6	2.51	3.12	3.92	195.0	2.09	1.96	1.83
350.1	380.1	2.27	2.18	2.12	388.8	2.58	3.11	3.82	205.0	2.02	1.88	1.75
360.1	390.1	2.33	2.24	2.17	399.1	2.57	3.01	3.66	210.0	1.98	1.84	1.71
370.1	400.1	2.29	2.20	2.13	409.3	2.68	3.08	3.70	220.0	1.98	1.84	1.69
380.1	410.1	2.38	2.27	2.20	419.6	2.87	3.26	3.90	225.0	2.01	1.86	1.70
390.1	420.1	2.38	2.28	2.20	429.8	2.94	3.26	3.83	235.0	2.08	1.91	1.73
400.1	430.1	2.42	2.30	2.22	440.1	2.92	3.16	3.59	240.0	2.09	1.91	1.72

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	15	19	11	37	17	36	28	51	36	44
1	-	20	+0	33	12	36	36	60	37	49	31	44
2	>90	52	51	52	54	51	53	62	54	69	67	>71
3	>90	65	59	58	61	61	65	70	66	>71	60	>71
4	>90	>71	>71	>71	66	>71	>71	>71	>71	>71	>71	>71
5	>90	>71	>71	>71	>71	>71	69	>71	>71	>71	>71	>71
6	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
7	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
8	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
9	>90	>71	>71	>71	>71	>71	>71	>71	70	>71	>71	>71
10	>90	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71	>71
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 125.1 MHz; -14.00 dBm.
 LO IN: 155.1 MHz; +7.00 dBm
 IF OUT: 30 MHz; -19.09 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	24	31	22	52	28	48	42	67	53	63
1	-	20	+0	30	12	35	36	51	45	54	39	57
2	74	48	42	47	42	44	50	54	48	57	69	61
3	>90	50	36	51	40	51	41	53	59	64	49	71
4	>90	68	54	69	60	66	69	60	61	68	70	71
5	>90	71	71	63	53	60	52	55	61	66	68	64
6	>90	>81	>81	74	68	80	73	70	71	75	76	78
7	>90	>81	>81	>81	72	70	64	67	64	65	75	77
8	>90	>81	>81	>81	>81	>81	>81	>81	78	>81	>81	>81
9	>90	79	>81	>81	>81	>81	>81	>81	>81	>81	76	>81
10	>90	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 125.1 MHz; -4.00 dBm.
 LO IN: 155.1 MHz; +7.00 dBm
 IF OUT: 30 MHz; -9.21 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.