

Frequency Mixer

ADE-ED6545/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	5.62	5.38	5.25
50.1	80.1	5.59	5.35	5.21
90.1	120.1	5.62	5.37	5.24
130.1	160.1	5.60	5.40	5.26
170.1	200.1	5.65	5.41	5.30
210.1	240.1	5.68	5.46	5.32
250.1	280.1	5.71	5.49	5.35
290.1	320.1	5.74	5.50	5.36
330.1	360.1	5.83	5.58	5.43
350.1	380.1	5.83	5.60	5.45
390.1	420.1	5.86	5.58	5.41
410.1	440.1	5.88	5.58	5.42
450.1	480.1	5.99	5.72	5.52
470.1	500.1	6.04	5.78	5.60
510.1	540.1	6.10	5.87	5.70
530.1	560.1	6.16	5.90	5.72
570.1	600.1	6.25	5.90	5.68
590.1	620.1	6.29	5.89	5.68
630.1	660.1	6.52	5.96	5.68
650.1	680.1	6.67	6.03	5.70
690.1	720.1	7.03	6.25	5.81
710.1	740.1	7.17	6.41	5.88
750.1	780.1	7.35	6.64	6.06
770.1	800.1	7.45	6.79	6.21
810.1	840.1	7.62	7.06	6.54
830.1	860.1	7.70	7.20	6.72
870.1	900.1	7.80	7.36	6.96
890.1	920.1	7.82	7.37	7.00
930.1	960.1	7.83	7.37	7.05
950.1	980.1	7.82	7.37	7.08
990.1	1020.1	7.81	7.42	7.18
1010.1	1040.1	7.89	7.51	7.30
1050.1	1080.1	8.03	7.70	7.52
1070.1	1100.1	8.17	7.87	7.72
1110.1	1140.1	8.47	8.18	8.08
1130.1	1160.1	8.65	8.40	8.30
1170.1	1200.1	9.10	8.85	8.79
1190.1	1220.1	9.33	9.07	9.02
1230.1	1260.1	9.90	9.63	9.57
1250.1	1280.1	10.22	9.93	9.84

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	20.53	23.89	24.57
50.1	80.1	25.78	24.49	23.75
90.1	120.1	20.19	21.34	23.32
130.1	160.1	22.55	22.09	18.90
170.1	200.1	24.23	19.41	18.17
210.1	240.1	19.25	16.93	17.29
250.1	280.1	18.72	16.51	19.36
290.1	320.1	16.16	17.21	19.33
330.1	360.1	14.72	13.32	17.43
350.1	380.1	16.30	15.81	16.31
390.1	420.1	22.24	33.70	21.60
410.1	440.1	25.98	19.89	22.04
450.1	480.1	12.19	14.64	19.77
470.1	500.1	11.10	11.60	14.10
510.1	540.1	9.54	10.02	10.95
530.1	560.1	9.55	10.32	11.64
570.1	600.1	9.99	12.03	16.30
590.1	620.1	11.24	14.85	23.07
630.1	660.1	11.21	19.77	17.15
650.1	680.1	10.34	18.98	19.94
690.1	720.1	7.96	15.96	16.29
710.1	740.1	7.19	13.05	17.56
750.1	780.1	7.93	11.22	18.02
770.1	800.1	8.11	11.02	17.07
810.1	840.1	8.67	11.06	15.53
830.1	860.1	8.88	10.88	12.90
870.1	900.1	10.00	11.95	13.81
890.1	920.1	10.07	12.14	13.68
930.1	960.1	11.06	12.97	13.92
950.1	980.1	11.71	13.86	15.82
990.1	1020.1	12.09	14.74	14.33
1010.1	1040.1	12.96	14.75	15.30
1050.1	1080.1	11.07	12.28	13.70
1070.1	1100.1	10.29	11.54	12.12
1110.1	1140.1	9.93	11.12	11.95
1130.1	1160.1	10.03	11.22	11.57
1170.1	1200.1	10.74	11.29	13.01
1190.1	1220.1	10.71	13.12	13.22
1230.1	1260.1	10.85	13.23	15.40
1250.1	1280.1	9.67	13.21	14.28

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	1.52	1.14	0.95
50.1	80.1	1.27	0.83	0.68
90.1	120.1	1.13	0.87	0.72
130.1	160.1	1.07	0.78	0.65
170.1	200.1	1.23	0.85	0.65
210.1	240.1	1.11	0.80	0.63
250.1	280.1	1.10	0.77	0.61
290.1	320.1	1.10	0.91	0.71
330.1	360.1	1.05	0.84	0.66
350.1	380.1	0.99	0.81	0.64
390.1	420.1	1.02	0.83	0.64
410.1	440.1	1.08	0.92	0.77
450.1	480.1	1.16	0.94	0.77
470.1	500.1	1.18	1.01	0.73
510.1	540.1	1.43	1.18	1.00
530.1	560.1	1.53	1.29	1.00
570.1	600.1	1.69	1.32	1.24
590.1	620.1	1.77	1.42	1.19
630.1	660.1	1.96	1.62	1.41
650.1	680.1	1.96	1.68	1.42
690.1	720.1	1.67	1.68	1.58
710.1	740.1	1.73	1.78	1.56
750.1	780.1	1.61	1.62	1.55
770.1	800.1	1.65	1.57	1.49
810.1	840.1	1.52	1.45	1.37
830.1	860.1	1.45	1.41	1.17
870.1	900.1	1.47	1.20	1.22
890.1	920.1	1.48	1.35	1.08
930.1	960.1	1.57	1.26	1.26
950.1	980.1	1.59	1.38	1.12
990.1	1020.1	1.59	1.29	1.07
1010.1	1040.1	1.57	1.22	1.10
1050.1	1080.1	1.42	1.23	0.98
1070.1	1100.1	1.44	1.15	0.94
1110.1	1140.1	1.41	0.94	0.75
1130.1	1160.1	1.40	0.83	0.70
1170.1	1200.1	1.27	0.75	0.67
1190.1	1220.1	1.21	0.87	0.57
1230.1	1260.1	1.11	0.71	0.60
1250.1	1280.1	1.14	0.77	0.60

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=300.1MHz (dB)
		@LO (dBm) +7
290.0	10.1	5.67
282.8	17.3	5.67
275.6	24.5	5.67
268.5	31.6	5.64
261.3	38.8	5.57
254.1	46.0	5.57
246.9	53.2	5.54
239.7	60.4	5.54
232.6	67.5	5.50
225.4	74.7	5.47
218.2	81.9	5.49
211.0	89.1	5.49
203.8	96.3	5.48
196.7	103.4	5.49
189.5	110.6	5.48
182.3	117.8	5.49
175.1	125.0	5.47
167.9	132.2	5.46
160.8	139.3	5.45
153.6	146.5	5.46
146.4	153.7	5.48
139.2	160.9	5.50
132.1	168.0	5.53
124.9	175.2	5.49
117.7	182.4	5.48
110.5	189.6	5.48
103.3	196.8	5.50
96.2	203.9	5.49
89.0	211.1	5.49
81.8	218.3	5.49
74.6	225.5	5.40
67.4	232.7	5.39
60.3	239.8	5.42
53.1	247.0	5.49
45.9	254.2	5.52
38.7	261.4	5.52
31.5	268.6	5.53
24.4	275.7	5.51
17.2	282.9	5.63
10.0	290.1	5.66

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)
		@LO (dBm) +7
10.0	20.1	5.43
24.5	34.6	5.35
39.0	49.1	5.27
53.5	63.6	5.22
68.0	78.1	5.20
82.5	92.6	5.17
97.0	107.1	5.18
111.5	121.6	5.09
126.0	136.1	5.03
140.5	150.6	4.94
155.0	165.1	5.00
169.5	179.6	5.01
184.0	194.1	5.01
198.5	208.6	5.03
213.0	223.1	5.02
227.5	237.6	5.01
242.0	252.1	5.08
256.5	266.6	5.07
271.0	281.1	5.08
285.5	295.6	5.11
300.0	310.1	5.10
314.5	324.6	5.15
329.0	339.1	5.10
343.5	353.6	5.13
358.0	368.1	5.14
372.5	382.6	5.22
387.0	397.1	5.21
401.5	411.6	5.14
416.0	426.1	5.55
430.5	440.6	5.64
445.0	455.1	5.30
459.5	469.6	5.35
474.0	484.1	5.41
488.5	498.6	5.42
503.0	513.1	5.49
517.5	527.6	5.49
532.0	542.1	5.48
546.5	556.6	5.44
575.5	585.6	5.37
590.0	600.1	5.35

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=600.1MHz (dB)
		@LO (dBm) +7
590.0	10.1	6.08
575.1	25.0	6.01
560.3	39.8	5.96
545.4	54.7	5.94
530.5	69.6	5.90
515.6	84.5	5.88
500.8	99.3	5.86
485.9	114.2	5.86
471.0	129.1	5.83
456.2	143.9	5.85
441.3	158.8	5.90
426.4	173.7	5.91
411.5	188.6	5.86
396.7	203.4	5.85
381.8	218.3	5.87
366.9	233.2	5.88
352.1	248.0	5.90
337.2	262.9	5.88
322.3	277.8	5.89
307.4	292.7	5.88
292.6	307.5	5.89
277.7	322.4	5.92
262.8	337.3	5.91
247.9	352.2	5.93
233.1	367.0	5.92
218.2	381.9	5.94
203.3	396.8	5.93
188.5	411.6	5.90
173.6	426.5	5.90
158.7	441.4	5.95
143.8	456.3	5.96
129.0	471.1	6.04
114.1	486.0	6.07
99.2	500.9	6.08
84.4	515.7	6.11
69.5	530.6	6.11
54.6	545.5	6.12
39.7	560.4	6.14
24.9	575.2	6.11
10.0	590.1	5.76

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	66.91	72.51	77.06	58.18	51.70	64.23
80.1	67.72	76.48	88.12	55.41	53.98	53.76
120.1	61.36	66.99	77.09	49.85	49.00	48.46
160.1	58.15	63.37	70.86	46.38	45.55	45.47
200.1	54.35	59.13	64.29	43.96	43.64	43.40
240.1	52.13	56.36	60.24	42.31	41.90	41.69
280.1	50.06	53.78	56.67	41.01	40.61	40.31
320.1	48.58	51.80	54.34	39.77	39.48	38.83
360.1	46.17	49.18	51.69	38.74	38.40	37.77
380.1	44.93	47.49	49.79	38.27	37.58	37.07
420.1	43.50	45.40	46.93	37.57	36.94	36.19
440.1	43.13	45.04	46.47	37.14	36.47	35.72
480.1	42.91	44.38	44.88	36.01	35.04	34.21
500.1	42.44	43.60	44.00	35.46	34.17	33.23
540.1	41.71	42.57	42.71	34.86	33.18	31.84
560.1	41.25	41.98	41.99	34.47	32.66	31.35
600.1	40.26	41.12	41.00	33.69	31.80	30.39
620.1	39.72	40.66	40.58	33.22	31.25	29.65
660.1	38.55	39.58	39.22	31.65	29.70	28.20
680.1	37.84	38.79	38.65	30.81	28.98	27.58
720.1	36.07	36.88	37.04	28.79	27.30	26.05
740.1	35.17	35.95	36.13	28.07	26.36	25.15
780.1	33.54	34.37	34.63	27.23	25.48	24.03
800.1	33.06	33.84	34.11	26.77	25.04	23.52
840.1	32.32	33.12	33.33	25.82	24.08	22.61
860.1	31.89	32.63	32.88	25.33	23.63	22.28
900.1	31.14	31.82	32.08	24.70	23.08	21.66
920.1	30.82	31.43	31.63	24.13	22.61	21.11
960.1	30.05	30.48	30.36	23.37	21.87	20.27
980.1	29.63	29.89	29.61	23.04	21.49	19.82
1020.1	28.72	28.48	27.83	22.04	20.47	18.72
1040.1	28.09	27.53	26.73	21.44	19.93	18.15
1080.1	27.03	25.88	24.96	20.56	19.07	17.39
1100.1	26.43	25.15	24.26	20.03	18.61	17.06
1140.1	25.10	23.61	22.69	18.86	17.76	16.41
1160.1	24.47	22.97	22.06	18.28	17.44	16.18
1200.1	23.18	21.75	20.84	17.13	16.70	15.71
1220.1	22.54	21.09	20.22	16.60	16.28	15.44
1260.1	21.38	20.13	19.18	15.68	15.77	15.11
1280.1	20.82	19.58	18.67	15.23	15.40	14.87

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	42.01	38.27	36.20
50.1	80.1	33.78	33.97	33.74
90.1	120.1	28.98	29.35	29.64
130.1	160.1	26.85	26.63	26.88
170.1	200.1	25.05	25.36	25.53
210.1	240.1	24.04	24.27	24.40
250.1	280.1	23.53	23.86	24.06
290.1	320.1	23.36	23.91	24.26
330.1	360.1	23.46	23.77	24.15
350.1	380.1	23.55	23.82	24.14
390.1	420.1	23.96	24.53	24.91
410.1	440.1	24.04	24.92	25.58
450.1	480.1	23.95	24.93	25.76
470.1	500.1	23.52	24.10	24.71
510.1	540.1	21.76	21.93	22.07
530.1	560.1	20.72	20.76	20.69
570.1	600.1	18.91	18.75	18.59
590.1	620.1	18.32	18.13	18.02
630.1	660.1	17.55	17.41	17.39
650.1	680.1	17.35	17.32	17.36
690.1	720.1	17.12	17.15	17.31
710.1	740.1	17.19	17.16	17.30
750.1	780.1	17.26	17.06	17.04
770.1	800.1	17.23	16.96	16.88
810.1	840.1	17.13	16.81	16.60
830.1	860.1	16.97	16.68	16.42
870.1	900.1	16.54	16.22	15.93
890.1	920.1	16.16	15.91	15.59
930.1	960.1	15.30	15.04	14.90
950.1	980.1	14.66	14.46	14.32
990.1	1020.1	13.45	13.27	13.13
1010.1	1040.1	12.75	12.58	12.36
1050.1	1080.1	11.55	11.30	10.98
1070.1	1100.1	10.92	10.61	10.28
1110.1	1140.1	9.72	9.35	9.01
1130.1	1160.1	9.16	8.77	8.41
1170.1	1200.1	8.16	7.76	7.34
1190.1	1220.1	7.70	7.28	6.90
1230.1	1260.1	6.90	6.49	6.09
1250.1	1280.1	6.49	6.08	5.72

Frequency Mixer

ADE-ED6545/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=600.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
10.1	40.1	1.33	1.36	1.19	40.1	1.86	2.59	3.62	10.0	1.57	1.63	1.41
50.1	80.1	1.07	1.04	1.07	80.1	1.86	2.72	3.84	24.8	1.71	1.48	1.26
90.1	120.1	1.13	1.07	1.05	120.1	1.78	2.57	3.58	39.5	1.61	1.36	1.27
130.1	160.1	1.07	1.02	1.06	160.1	1.82	2.63	3.68	54.3	1.58	1.35	1.21
170.1	200.1	1.12	1.06	1.05	200.1	1.80	2.59	3.60	69.0	1.58	1.36	1.21
210.1	240.1	1.06	1.04	1.08	240.1	1.82	2.60	3.60	83.8	1.60	1.41	1.23
250.1	280.1	1.09	1.07	1.09	280.1	1.86	2.65	3.65	98.5	1.66	1.45	1.30
290.1	320.1	1.06	1.06	1.10	320.1	1.85	2.61	3.58	113.3	1.69	1.46	1.31
330.1	360.1	1.10	1.09	1.11	360.1	1.92	2.71	3.69	128.0	1.70	1.44	1.29
350.1	380.1	1.10	1.09	1.11	380.1	1.94	2.72	3.70	142.8	1.65	1.43	1.26
390.1	420.1	1.12	1.14	1.18	420.1	1.95	2.71	3.66	157.5	1.63	1.43	1.28
410.1	440.1	1.12	1.14	1.19	440.1	1.98	2.73	3.68	172.3	1.64	1.43	1.29
450.1	480.1	1.11	1.12	1.17	480.1	2.04	2.80	3.73	187.0	1.66	1.45	1.30
470.1	500.1	1.11	1.13	1.18	500.1	2.05	2.81	3.75	201.8	1.67	1.45	1.31
510.1	540.1	1.09	1.10	1.12	540.1	2.11	2.88	3.83	216.5	1.68	1.46	1.31
530.1	560.1	1.09	1.10	1.13	560.1	2.14	2.90	3.84	231.3	1.65	1.45	1.31
570.1	600.1	1.12	1.11	1.13	600.1	2.16	2.88	3.77	246.0	1.66	1.45	1.31
590.1	620.1	1.13	1.11	1.12	620.1	2.18	2.89	3.78	260.8	1.65	1.46	1.32
630.1	660.1	1.21	1.18	1.18	660.1	2.27	2.96	3.84	275.5	1.68	1.48	1.34
650.1	680.1	1.28	1.24	1.24	680.1	2.31	2.98	3.84	290.3	1.69	1.49	1.36
690.1	720.1	1.42	1.36	1.33	720.1	2.40	3.09	3.91	305.0	1.69	1.49	1.35
710.1	740.1	1.50	1.44	1.41	740.1	2.44	3.15	3.97	319.8	1.70	1.49	1.37
750.1	780.1	1.71	1.63	1.57	780.1	2.48	3.19	4.01	334.5	1.70	1.50	1.36
770.1	800.1	1.76	1.69	1.62	800.1	2.50	3.21	4.02	349.3	1.68	1.50	1.38
810.1	840.1	1.93	1.87	1.81	840.1	2.56	3.27	4.09	364.0	1.71	1.52	1.39
830.1	860.1	2.05	2.00	1.93	860.1	2.58	3.29	4.09	378.8	1.72	1.54	1.42
870.1	900.1	2.15	2.10	2.05	900.1	2.60	3.27	4.05	393.5	1.74	1.55	1.44
890.1	920.1	2.24	2.20	2.15	920.1	2.62	3.29	4.06	408.3	1.75	1.57	1.45
930.1	960.1	2.36	2.31	2.26	960.1	2.66	3.30	4.04	423.0	1.74	1.56	1.46
950.1	980.1	2.33	2.29	2.23	980.1	2.66	3.27	4.00	437.8	1.75	1.57	1.47
990.1	1020.1	2.45	2.41	2.37	1020.1	2.66	3.24	3.90	452.5	1.76	1.59	1.49
1010.1	1040.1	2.50	2.45	2.40	1040.1	2.67	3.24	3.88	467.3	1.77	1.61	1.51
1050.1	1080.1	2.48	2.44	2.40	1080.1	2.69	3.21	3.83	482.0	1.78	1.62	1.52
1070.1	1100.1	2.56	2.51	2.46	1100.1	2.69	3.19	3.80	496.8	1.81	1.64	1.54
1110.1	1140.1	2.53	2.47	2.42	1140.1	2.76	3.25	3.82	511.5	1.81	1.65	1.55
1130.1	1160.1	2.52	2.46	2.42	1160.1	2.82	3.28	3.85	526.3	1.81	1.66	1.56
1170.1	1200.1	2.57	2.51	2.45	1200.1	2.89	3.31	3.83	541.0	1.82	1.68	1.58
1190.1	1220.1	2.51	2.43	2.37	1220.1	2.93	3.33	3.81	555.8	1.84	1.69	1.61
1230.1	1260.1	2.49	2.42	2.36	1260.1	3.06	3.41	3.85	585.3	1.86	1.72	1.64
1250.1	1280.1	2.48	2.39	2.33	1280.1	3.08	3.43	3.84	600.0	1.91	1.98	2.07

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	5	14	12	31	18	33	43	52	33	48
1	-	16	0	33	12	31	40	46	46	51	54	59
2	116	68	44	58	43	73	50	63	55	62	79	73
3	117	65	56	62	55	64	56	75	74	84	75	85
4	117	97	97	88	87	86	84	90	96	89	102	92
5	115	109	103	101	91	93	85	89	90	106	104	115
6	111	100	106	103	104	103	118	84	99	109	111	108
7	117	111	103	112	100	103	95	96	94	104	107	102
8	120	108	113	106	110	106	96	97	98	92	103	110
9	111	116	111	106	111	104	106	96	96	100	103	110
10	118	125	106	108	104	108	104	113	115	110	86	95
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -14.00 dBm.
LO IN: 530.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -19.63 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	14	26	23	42	30	44	54	65	44	67
1	-	16	0	31	13	34	39	50	54	57	58	68
2	95	46	39	56	39	48	42	58	47	61	69	69
3	115	44	38	51	40	63	41	51	65	64	62	71
4	120	68	62	68	53	57	52	57	60	65	66	68
5	106	71	70	73	53	57	51	59	55	75	70	77
6	108	81	88	79	77	73	69	79	80	69	77	78
7	129	94	92	94	83	86	70	71	65	68	67	88
8	118	106	92	89	96	90	83	78	73	75	74	83
9	116	111	104	104	104	124	100	92	82	87	82	82
10	119	112	107	114	110	101	109	97	92	90	86	90
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -4.00 dBm.
LO IN: 530.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -9.61 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.