

Frequency Mixer

HJK-ED9605/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=55MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+15dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
+19	+21	+23	+19	+21	+23	+19	+21	+23						
10.1	65.1	4.74	4.71	4.64	10.1	65.1	27.77	26.71	25.86	10.1	65.1	1.84	1.63	1.42
90.1	145.1	5.47	5.40	5.35	90.1	145.1	21.45	21.68	22.54	90.1	145.1	1.49	1.32	1.16
170.1	225.1	5.60	5.49	5.39	170.1	225.1	20.65	21.84	23.73	170.1	225.1	1.51	1.37	1.22
250.1	305.1	5.82	5.61	5.44	250.1	305.1	20.49	22.62	25.69	250.1	305.1	1.60	1.50	1.37
330.1	385.1	6.04	5.76	5.58	330.1	385.1	22.47	25.52	28.36	330.1	385.1	1.67	1.60	1.47
410.1	465.1	6.19	5.89	5.72	410.1	465.1	24.42	28.08	31.47	410.1	465.1	1.69	1.62	1.49
490.1	545.1	6.16	5.92	5.79	490.1	545.1	27.48	31.05	31.94	490.1	545.1	1.75	1.64	1.47
570.1	625.1	6.19	6.02	5.91	570.1	625.1	29.30	29.87	29.15	570.1	625.1	1.71	1.56	1.39
650.1	705.1	6.30	6.15	6.05	650.1	705.1	29.00	28.88	28.60	650.1	705.1	1.64	1.48	1.30
730.1	785.1	6.46	6.30	6.20	730.1	785.1	26.56	27.19	27.82	730.1	785.1	1.48	1.34	1.19
810.1	865.1	6.58	6.45	6.37	810.1	865.1	26.49	27.02	27.44	810.1	865.1	1.24	1.13	1.01
890.1	945.1	6.67	6.57	6.50	890.1	945.1	27.08	27.57	27.76	890.1	945.1	1.02	0.92	0.80
970.1	1025.1	6.80	6.71	6.66	970.1	1025.1	26.73	27.21	27.72	970.1	1025.1	0.83	0.74	0.63
1050.1	1105.1	6.90	6.82	6.77	1050.1	1105.1	26.56	27.21	27.49	1050.1	1105.1	0.71	0.62	0.52
1130.1	1185.1	6.99	6.90	6.86	1130.1	1185.1	26.72	26.88	27.24	1130.1	1185.1	0.60	0.52	0.44
1210.1	1265.1	7.10	7.00	6.95	1210.1	1265.1	28.32	27.98	27.94	1210.1	1265.1	0.56	0.48	0.41
1290.1	1345.1	7.24	7.11	7.05	1290.1	1345.1	31.90	29.98	28.95	1290.1	1345.1	0.50	0.43	0.36
1370.1	1425.1	7.38	7.22	7.15	1370.1	1425.1	32.41	30.18	29.66	1370.1	1425.1	0.52	0.45	0.39
1450.1	1505.1	7.51	7.33	7.23	1450.1	1505.1	34.18	31.54	30.08	1450.1	1505.1	0.54	0.48	0.42
1550.1	1605.1	7.72	7.52	7.41	1550.1	1605.1	30.03	29.16	28.79	1550.1	1605.1	0.50	0.45	0.39
1630.1	1685.1	7.68	7.50	7.41	1630.1	1685.1	27.63	27.48	27.49	1630.1	1685.1	0.57	0.50	0.45
1730.1	1785.1	7.73	7.58	7.49	1730.1	1785.1	26.19	26.15	26.28	1730.1	1785.1	0.58	0.53	0.47
1810.1	1865.1	7.67	7.53	7.45	1810.1	1865.1	26.12	25.94	25.88	1810.1	1865.1	0.63	0.56	0.52
1910.1	1965.1	7.69	7.59	7.52	1910.1	1965.1	25.71	25.83	25.85	1910.1	1965.1	0.66	0.58	0.53
1990.1	2045.1	7.63	7.54	7.51	1990.1	2045.1	25.52	25.82	25.91	1990.1	2045.1	0.71	0.62	0.56
2090.1	2145.1	7.65	7.57	7.53	2090.1	2145.1	25.22	25.55	25.91	2090.1	2145.1	0.66	0.55	0.49
2170.1	2225.1	7.69	7.58	7.53	2170.1	2225.1	24.51	24.77	25.08	2170.1	2225.1	0.66	0.54	0.49
2270.1	2325.1	7.77	7.64	7.57	2270.1	2325.1	23.97	24.14	24.43	2270.1	2325.1	0.68	0.53	0.47
2350.1	2405.1	7.86	7.72	7.64	2350.1	2405.1	23.41	23.60	24.03	2350.1	2405.1	0.73	0.52	0.44
2450.1	2505.1	7.95	7.81	7.73	2450.1	2505.1	22.99	23.30	23.88	2450.1	2505.1	0.75	0.52	0.42
2530.1	2585.1	8.17	8.03	7.95	2530.1	2585.1	22.81	23.29	23.98	2530.1	2585.1	0.73	0.47	0.35
2630.1	2685.1	8.41	8.29	8.20	2630.1	2685.1	23.18	23.52	24.21	2630.1	2685.1	0.64	0.41	0.28
2710.1	2765.1	8.72	8.56	8.46	2710.1	2765.1	23.90	24.10	24.75	2710.1	2765.1	0.62	0.36	0.24
2810.1	2865.1	9.15	8.95	8.84	2810.1	2865.1	24.87	25.07	25.39	2810.1	2865.1	0.65	0.36	0.23
2890.1	2945.1	9.54	9.31	9.16	2890.1	2945.1	25.97	25.97	26.16	2890.1	2945.1	0.60	0.35	0.22
2990.1	3045.1	10.03	9.75	9.56	2990.1	3045.1	28.04	27.42	27.74	2990.1	3045.1	0.63	0.42	0.26
3070.1	3125.1	10.40	10.07	9.84	3070.1	3125.1	33.13	28.73	28.59	3070.1	3125.1	0.61	0.46	0.31
3170.1	3225.1	10.98	10.56	10.25	3170.1	3225.1	30.51	34.57	30.42	3170.1	3225.1	0.55	0.46	0.37
3250.1	3305.1	11.40	10.93	10.55	3250.1	3305.1	30.16	31.92	29.97	3250.1	3305.1	0.46	0.40	0.36
3350.1	3405.1	11.83	11.32	10.95	3350.1	3405.1	29.54	28.49	27.98	3350.1	3405.1	0.36	0.31	0.30

REV. X2

HJK-ED9605/1

101012

Page 1 of 5



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED • RoHS compliant
P.O. Box 350186, Brooklyn, New York 11235-0008 (718) 934-4500 Fax (718) 332-4861



The Design Engineers Search Engine finds the model you need, instantly • For detailed performance specs & shopping online see



Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=250.1MHz (dB)
		@LO (dBm)
		+21
240.0	10.1	5.45
227.1	23.0	5.46
214.2	35.9	5.43
203.5	46.6	5.48
190.6	59.5	5.55
179.8	70.3	5.55
166.9	83.2	5.59
156.2	93.9	5.63
143.3	106.8	5.57
132.5	117.6	5.72
119.6	130.5	5.71
108.9	141.2	5.66
96.0	154.1	5.66
85.2	164.9	5.69
72.3	177.8	5.73
61.6	188.5	5.81
48.7	201.4	5.75
37.9	212.2	5.78
25.0	225.1	5.84
14.3	235.8	6.00
124.1	374.2	5.57
314.3	564.4	5.34
542.5	792.6	5.64
732.7	982.8	6.15
960.9	1211.0	6.81
1151.1	1401.2	6.99
1379.3	1629.4	6.96
1569.5	1819.6	7.24
1797.8	2047.9	7.82
1987.9	2238.0	7.90
2216.2	2466.3	8.00
2406.4	2656.5	8.24
2634.6	2884.7	8.50
2824.8	3074.9	8.83
3053.0	3303.1	9.51
3243.2	3493.3	10.30
3471.4	3721.5	11.06
3661.6	3911.7	11.48
3889.8	4139.9	12.11
4080.0	4330.1	12.18

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=100.1MHz (dB)
		@LO (dBm)
		+21
10.0	110.1	6.12
90.0	190.1	5.38
170.0	270.1	5.27
250.0	350.1	5.35
330.0	430.1	5.32
410.0	510.1	5.29
490.0	590.1	5.34
590.0	690.1	5.57
670.0	770.1	5.75
770.0	870.1	6.09
850.0	950.1	6.27
950.0	1050.1	6.48
1030.0	1130.1	6.63
1130.0	1230.1	6.84
1210.0	1310.1	6.91
1310.0	1410.1	6.94
1390.0	1490.1	7.00
1490.0	1590.1	7.04
1570.0	1670.1	7.12
1670.0	1770.1	7.28
1750.0	1850.1	7.41
1850.0	1950.1	7.61
1930.0	2030.1	7.74
2030.0	2130.1	7.73
2110.0	2210.1	7.75
2210.0	2310.1	7.83
2290.0	2390.1	7.87
2390.0	2490.1	7.97
2470.0	2570.1	8.05
2570.0	2670.1	8.27
2650.0	2750.1	8.26
2750.0	2850.1	8.43
2830.0	2930.1	8.59
2930.0	3030.1	9.05
3010.0	3110.1	9.27
3110.0	3210.1	9.62
3190.0	3290.1	9.99
3290.0	3390.1	10.46
3370.0	3470.1	10.74
3470.0	3570.1	11.03

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=400.1MHz (dB)
		@LO (dBm)
		+21
390.0	10.1	5.75
380.0	20.1	5.71
370.0	30.1	5.73
360.0	40.1	5.84
350.0	50.1	5.85
340.0	60.1	5.94
330.0	70.1	5.93
320.0	80.1	6.00
310.0	90.1	5.99
300.0	100.1	6.07
290.0	110.1	6.03
280.0	120.1	6.12
270.0	130.1	6.09
260.0	140.1	6.14
250.0	150.1	6.23
240.0	160.1	6.22
230.0	170.1	6.24
220.0	180.1	6.22
210.0	190.1	6.30
200.0	200.1	6.24
190.0	210.1	6.26
180.0	220.1	6.23
170.0	230.1	6.17
160.0	240.1	6.17
150.0	250.1	6.21
140.0	260.1	6.19
130.0	270.1	6.22
120.0	280.1	6.30
110.0	290.1	6.20
100.0	300.1	6.21
90.0	310.1	5.98
80.0	320.1	6.00
70.0	330.1	6.05
60.0	340.1	6.10
50.0	350.1	6.05
40.0	360.1	6.09
30.0	370.1	6.05
25.0	375.1	6.09
15.0	385.1	6.12
10.0	390.1	6.72

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+19	+21	+23	+19	+21	+23
65.1	45.59	46.68	47.42	60.23	61.92	60.95
145.1	44.05	44.01	43.76	59.40	56.58	54.28
225.1	41.83	41.44	41.28	57.17	53.11	50.62
305.1	40.76	40.33	40.05	55.26	51.06	48.65
385.1	40.19	39.84	39.36	52.83	49.51	47.34
465.1	40.01	39.47	38.86	50.67	47.98	46.34
545.1	39.95	39.28	38.66	49.31	47.23	45.84
625.1	39.17	38.71	38.16	47.73	46.29	45.06
705.1	38.91	38.56	38.21	47.30	46.04	45.07
785.1	38.59	38.65	38.47	48.09	47.10	46.14
865.1	38.57	39.00	39.05	48.67	48.67	47.94
945.1	39.13	39.80	39.99	48.76	49.68	49.55
1025.1	39.94	41.00	41.47	48.21	50.28	51.27
1105.1	40.08	41.70	42.67	46.30	48.76	50.60
1185.1	40.56	42.53	43.75	44.22	46.71	48.84
1265.1	39.47	40.78	41.24	42.88	45.17	47.08
1345.1	39.90	41.57	42.59	41.77	43.76	45.55
1425.1	40.49	42.28	43.43	40.89	42.51	44.10
1505.1	40.91	42.41	43.31	40.24	41.80	43.13
1605.1	41.00	41.93	42.50	40.62	42.11	43.46
1685.1	40.83	41.35	41.63	41.57	43.16	44.58
1785.1	39.69	39.87	39.95	42.86	44.54	46.33
1865.1	39.02	39.31	39.33	44.16	46.11	48.10
1965.1	37.46	38.21	38.62	44.12	45.50	46.62
2045.1	35.93	36.93	37.92	43.53	43.97	44.09
2145.1	34.30	35.35	36.47	42.11	41.59	40.95
2225.1	33.18	34.00	34.88	40.46	39.66	38.60
2325.1	32.21	32.79	33.55	38.15	37.30	36.84
2405.1	31.31	31.78	32.37	36.41	35.56	34.99
2505.1	30.27	30.76	31.35	34.69	34.12	33.82
2585.1	29.58	30.03	30.40	33.83	33.51	33.17
2685.1	29.26	29.78	29.98	34.04	33.79	33.38
2765.1	29.39	30.00	30.37	34.51	34.33	34.01
2865.1	29.55	30.13	30.59	34.18	33.82	33.46
2945.1	29.71	30.32	30.89	33.76	33.47	33.32
3045.1	29.89	30.55	30.94	33.17	33.20	32.73
3125.1	30.20	30.80	31.18	32.67	32.75	32.33
3225.1	29.85	30.41	30.73	32.36	32.55	32.37
3305.1	29.58	29.96	30.23	32.20	32.30	32.39
3405.1	29.15	29.19	29.36	32.00	31.95	32.23

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+19	+21	+23
10.1	65.1	37.85	38.57	40.85
90.1	145.1	39.00	39.78	40.93
170.1	225.1	40.27	40.48	40.63
250.1	305.1	40.40	40.55	40.65
330.1	385.1	40.89	40.89	40.37
410.1	465.1	42.60	43.28	43.89
490.1	545.1	44.64	45.39	47.19
570.1	625.1	44.85	44.67	44.59
650.1	705.1	45.57	45.06	43.91
730.1	785.1	45.48	44.75	43.05
810.1	865.1	44.85	44.41	42.87
890.1	945.1	43.98	43.75	42.43
970.1	1025.1	42.80	42.76	42.39
1050.1	1105.1	41.40	41.61	41.45
1130.1	1185.1	39.94	40.07	39.99
1210.1	1265.1	38.62	38.95	38.83
1290.1	1345.1	38.01	38.29	38.40
1370.1	1425.1	38.27	38.47	38.42
1450.1	1505.1	38.13	38.22	38.02
1550.1	1605.1	38.91	38.66	38.39
1630.1	1685.1	40.04	39.75	39.33
1730.1	1785.1	41.05	40.93	40.47
1810.1	1865.1	41.21	41.15	40.90
1910.1	1965.1	39.75	39.89	40.18
1990.1	2045.1	38.59	38.56	38.66
2090.1	2145.1	37.63	37.48	37.39
2170.1	2225.1	37.23	37.12	36.89
2270.1	2325.1	37.43	37.28	37.30
2350.1	2405.1	37.90	37.68	37.61
2450.1	2505.1	37.78	37.53	37.49
2530.1	2585.1	37.69	37.69	37.60
2630.1	2685.1	37.51	37.79	38.11
2710.1	2765.1	38.53	38.53	38.55
2810.1	2865.1	41.27	40.74	39.62
2890.1	2945.1	45.46	44.90	43.93
2990.1	3045.1	51.18	50.87	51.49
3070.1	3125.1	49.37	49.51	55.36
3170.1	3225.1	44.97	44.59	45.84
3250.1	3305.1	42.42	41.56	41.52
3350.1	3405.1	40.19	39.17	38.60

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=490MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+19	+21	+23		+19	+21	+23		+19	+21	+23
10.1	65.1	1.51	1.46	1.40	65.1	2.30	3.15	4.30	10.0	1.22	1.12	1.05
90.1	145.1	1.34	1.29	1.25	145.1	2.12	2.74	3.48	20.0	1.23	1.13	1.06
170.1	225.1	1.41	1.37	1.33	225.1	1.98	2.52	3.14	30.0	1.22	1.11	1.04
250.1	305.1	1.57	1.50	1.46	305.1	1.88	2.34	2.87	40.0	1.20	1.10	1.05
330.1	385.1	1.74	1.66	1.61	385.1	1.76	2.18	2.66	50.0	1.22	1.12	1.07
410.1	465.1	1.93	1.85	1.78	465.1	1.68	2.05	2.49	60.0	1.23	1.12	1.07
490.1	545.1	2.14	2.04	1.98	545.1	1.57	1.93	2.35	70.0	1.22	1.11	1.06
570.1	625.1	2.33	2.24	2.18	625.1	1.51	1.83	2.20	80.0	1.23	1.13	1.09
650.1	705.1	2.48	2.39	2.33	705.1	1.44	1.70	2.03	90.0	1.24	1.15	1.10
730.1	785.1	2.62	2.54	2.47	785.1	1.38	1.57	1.85	100.0	1.25	1.15	1.10
810.1	865.1	2.66	2.58	2.52	865.1	1.32	1.44	1.68	110.0	1.23	1.14	1.10
890.1	945.1	2.60	2.53	2.48	945.1	1.28	1.32	1.53	120.0	1.23	1.15	1.11
970.1	1025.1	2.54	2.48	2.43	1025.1	1.25	1.21	1.42	130.0	1.22	1.14	1.11
1050.1	1105.1	2.48	2.42	2.37	1105.1	1.22	1.11	1.34	140.0	1.23	1.15	1.13
1130.1	1185.1	2.44	2.37	2.31	1185.1	1.22	1.07	1.32	150.0	1.23	1.16	1.15
1210.1	1265.1	2.40	2.32	2.25	1265.1	1.24	1.14	1.35	160.0	1.24	1.17	1.15
1290.1	1345.1	2.32	2.23	2.16	1345.1	1.28	1.25	1.45	170.0	1.25	1.17	1.15
1370.1	1425.1	2.26	2.18	2.12	1425.1	1.35	1.36	1.57	180.0	1.24	1.17	1.15
1450.1	1505.1	2.21	2.14	2.08	1505.1	1.41	1.47	1.69	190.0	1.24	1.17	1.16
1550.1	1605.1	2.11	2.05	2.00	1605.1	1.47	1.58	1.82	200.0	1.25	1.19	1.18
1630.1	1685.1	1.98	1.93	1.89	1685.1	1.49	1.65	1.90	210.0	1.25	1.19	1.19
1730.1	1785.1	1.83	1.77	1.73	1785.1	1.51	1.70	1.96	220.0	1.24	1.19	1.19
1810.1	1865.1	1.69	1.63	1.59	1865.1	1.54	1.76	2.03	230.0	1.24	1.20	1.21
1910.1	1965.1	1.56	1.51	1.46	1965.1	1.57	1.81	2.07	240.0	1.25	1.21	1.22
1990.1	2045.1	1.48	1.42	1.38	2045.1	1.61	1.86	2.12	260.0	1.23	1.20	1.22
2090.1	2145.1	1.39	1.34	1.30	2145.1	1.65	1.89	2.14	270.0	1.24	1.22	1.24
2170.1	2225.1	1.36	1.31	1.27	2225.1	1.68	1.92	2.16	290.0	1.23	1.20	1.22
2270.1	2325.1	1.27	1.23	1.20	2325.1	1.70	1.93	2.15	300.0	1.23	1.22	1.25
2350.1	2405.1	1.23	1.19	1.16	2405.1	1.72	1.94	2.14	320.0	1.26	1.25	1.28
2450.1	2505.1	1.17	1.15	1.15	2505.1	1.75	1.95	2.13	330.0	1.23	1.24	1.28
2530.1	2585.1	1.13	1.14	1.16	2585.1	1.78	1.96	2.11	350.0	1.26	1.28	1.32
2630.1	2685.1	1.17	1.21	1.25	2685.1	1.84	1.99	2.13	360.0	1.24	1.26	1.30
2710.1	2765.1	1.19	1.25	1.30	2765.1	1.85	1.99	2.10	380.0	1.26	1.30	1.34
2810.1	2865.1	1.23	1.29	1.34	2865.1	1.88	1.99	2.08	390.0	1.27	1.30	1.35
2890.1	2945.1	1.24	1.30	1.35	2945.1	1.91	2.00	2.08	410.0	1.25	1.31	1.37
2990.1	3045.1	1.25	1.30	1.35	3045.1	1.91	1.97	2.03	420.0	1.29	1.35	1.41
3070.1	3125.1	1.29	1.34	1.38	3125.1	1.95	2.00	2.05	440.0	1.25	1.32	1.39
3170.1	3225.1	1.36	1.39	1.43	3225.1	1.92	1.95	1.99	450.0	1.28	1.37	1.44
3250.1	3305.1	1.48	1.50	1.53	3305.1	1.90	1.91	1.94	470.0	1.28	1.36	1.42
3350.1	3405.1	1.63	1.64	1.66	3405.1	1.85	1.84	1.86	480.0	1.27	1.36	1.44

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	23	24	28	40	33	35	31	36	36	36
1	-	36	+0	53	11	61	20	60	30	56	30	64
2	72	61	65	64	63	66	64	76	69	87	70	80
3	>100	90	59	>94	57	87	58	86	59	90	59	88
4	>100	>94	88	91	88	>94	87	90	89	>94	93	91
5	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
6	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
7	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
8	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
9	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
10	>100	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; 0.00 dBm.
LO IN: 305.1 MHz; +21.00 dBm
IF OUT: 55 MHz; -6.28 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	31	34	39	48	45	47	44	50	53	52
1	-	37	+0	51	11	66	20	63	29	61	36	68
2	53	53	55	56	54	60	54	67	57	64	56	65
3	79	72	41	72	41	72	43	71	48	69	44	70
4	>100	75	79	74	82	73	77	76	75	78	90	77
5	>100	88	63	88	59	89	53	77	52	77	56	78
6	>100	83	81	79	78	79	75	79	74	81	77	84
7	>100	86	70	87	66	85	64	84	63	85	66	85
8	>100	92	87	95	88	98	89	96	92	91	94	91
9	>100	94	78	95	78	93	81	91	89	91	81	90
10	>100	90	97	>103	>103	>103	100	103	97	98	92	97
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; 10.00 dBm.
LO IN: 305.1 MHz; +21.00 dBm
IF OUT: 55 MHz; 3.11 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.