

Frequency Mixer

HJK-ED11604/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=413MHz (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	423.1	6.96	6.80	7.40
50.1	463.1	9.13	8.62	7.18
100.1	513.1	7.27	7.28	7.34
150.1	563.1	6.99	6.97	7.09
200.1	613.1	6.96	6.94	7.10
250.1	663.1	7.05	6.97	7.07
300.1	713.1	7.11	7.05	7.18
350.1	763.1	7.30	7.18	7.27
400.1	813.1	7.30	7.23	7.39
450.1	863.1	7.50	7.32	7.42
500.1	913.1	7.71	7.57	7.51
550.1	963.1	7.80	7.56	7.49
600.1	1013.1	7.71	7.54	7.54
650.1	1063.1	7.93	7.68	7.65
700.1	1113.1	7.87	7.68	7.68
750.1	1163.1	8.16	7.95	7.93
800.1	1213.1	8.14	7.98	7.99
850.1	1263.1	8.32	8.11	8.05
900.1	1313.1	8.26	8.10	8.08
1000.1	1413.1	8.36	8.21	8.22
1100.1	1513.1	8.46	8.23	8.20
1200.1	1613.1	8.64	8.33	8.23
1300.1	1713.1	8.81	8.50	8.37
1400.1	1813.1	8.96	8.65	8.54
1500.1	1913.1	9.05	8.76	8.69
1600.1	2013.1	9.09	8.73	8.60
1700.1	2113.1	9.22	8.84	8.65
1800.1	2213.1	9.36	9.03	8.88
1900.1	2313.1	9.50	9.19	9.05
2000.1	2413.1	9.49	9.27	9.21
2100.1	2513.1	9.42	9.19	9.17
2150.1	2563.1	9.54	9.30	9.20
2200.1	2613.1	9.60	9.44	9.39
2250.1	2663.1	9.65	9.52	9.54
2300.1	2713.1	9.68	9.49	9.56
2350.1	2763.1	9.75	9.47	9.49
2400.1	2813.1	9.99	9.59	9.54
2450.1	2863.1	10.19	9.75	9.68
2500.1	2913.1	10.48	9.90	9.74
2550.1	2963.1	10.56	9.99	9.79

RF (IN) (MHz)	LO (MHz)	IP-3 INPUT (dBm)
		@LO (dBm)
		+17
10.1	423.1	24.02
50.1	463.1	21.86
100.1	513.1	26.03
150.1	563.1	26.25
200.1	613.1	26.78
250.1	663.1	24.42
300.1	713.1	24.37
350.1	763.1	24.23
400.1	813.1	24.73
450.1	863.1	26.32
500.1	913.1	27.56
550.1	963.1	28.05
600.1	1013.1	26.89
650.1	1063.1	26.88
700.1	1113.1	27.32
750.1	1163.1	26.00
800.1	1213.1	26.23
850.1	1263.1	26.65
900.1	1313.1	27.04
1000.1	1413.1	26.92
1100.1	1513.1	26.90
1200.1	1613.1	27.74
1300.1	1713.1	29.01
1400.1	1813.1	30.73
1500.1	1913.1	30.45
1600.1	2013.1	29.58
1700.1	2113.1	28.44
1800.1	2213.1	28.13
1900.1	2313.1	27.05
2000.1	2413.1	26.42
2100.1	2513.1	23.89
2150.1	2563.1	25.19
2200.1	2613.1	26.37
2250.1	2663.1	25.24
2300.1	2713.1	24.14
2350.1	2763.1	25.39
2400.1	2813.1	26.17
2450.1	2863.1	24.68
2500.1	2913.1	22.86
2550.1	2963.1	23.01

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+16dBm (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	423.1	0.26	0.31	0.63
50.1	463.1	-0.43	-0.45	0.13
100.1	513.1	0.73	0.27	0.10
150.1	563.1	0.87	0.46	0.33
200.1	613.1	0.70	0.38	0.36
250.1	663.1	0.87	0.48	0.52
300.1	713.1	0.71	0.42	0.54
350.1	763.1	0.89	0.48	0.63
400.1	813.1	0.71	0.42	0.68
450.1	863.1	0.93	0.64	0.99
500.1	913.1	0.57	0.37	0.81
550.1	963.1	0.75	0.42	0.65
600.1	1013.1	0.61	0.31	0.50
650.1	1063.1	0.84	0.44	0.57
700.1	1113.1	0.61	0.34	0.49
750.1	1163.1	0.79	0.40	0.47
800.1	1213.1	0.53	0.28	0.36
850.1	1263.1	0.66	0.29	0.34
900.1	1313.1	0.55	0.25	0.30
1000.1	1413.1	0.65	0.31	0.28
1100.1	1513.1	0.66	0.37	0.35
1200.1	1613.1	0.76	0.43	0.39
1300.1	1713.1	0.61	0.35	0.35
1400.1	1813.1	0.47	0.30	0.32
1500.1	1913.1	0.48	0.30	0.28
1600.1	2013.1	0.52	0.36	0.35
1700.1	2113.1	0.47	0.30	0.34
1800.1	2213.1	0.53	0.31	0.32
1900.1	2313.1	0.65	0.36	0.35
2000.1	2413.1	0.86	0.48	0.38
2100.1	2513.1	1.04	0.65	0.49
2150.1	2563.1	1.02	0.58	0.50
2200.1	2613.1	1.08	0.54	0.42
2250.1	2663.1	1.15	0.61	0.42
2300.1	2713.1	1.33	0.80	0.52
2350.1	2763.1	1.27	0.83	0.57
2400.1	2813.1	1.26	0.90	0.63
2450.1	2863.1	1.12	0.84	0.62
2500.1	2913.1	1.10	0.87	0.71
2550.1	2963.1	1.00	0.76	0.64



P.O. Box 350188, Brooklyn, New York 11235-0000 (718) 934-4500 Fax (718) 332-4851 For detailed performance specs & shopping online see Mini-Circuits web site
The Design Engineers Search Engine Provides ACTUAL Data Instantly From MN-CIRCUITS At: www.minicircuits.com

IF/RF MICROWAVE COMPONENTS



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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+14	+17	+20	+14	+17	+20
423.1	46.45	47.51	48.92	55.45	55.08	58.37
463.1	46.02	47.76	49.30	59.48	58.00	57.61
513.1	46.98	48.52	50.01	54.22	54.54	54.23
563.1	47.53	48.80	49.84	52.35	52.76	52.96
613.1	47.38	48.71	49.86	50.53	50.77	50.88
663.1	48.28	49.47	50.20	50.64	50.95	51.03
713.1	48.22	49.48	50.33	49.32	49.61	49.70
763.1	49.70	50.89	51.65	50.03	50.51	50.71
813.1	49.91	51.23	52.29	49.95	50.47	50.66
863.1	51.74	52.91	54.13	54.02	55.79	56.40
913.1	49.91	50.43	50.96	60.66	64.99	60.60
963.1	48.73	49.32	49.79	50.29	50.50	50.54
1013.1	46.79	47.58	48.04	45.52	45.80	45.96
1063.1	47.37	48.21	48.71	45.00	45.32	45.55
1113.1	45.50	46.07	46.47	42.16	42.24	42.30
1163.1	45.67	46.06	46.25	41.84	41.77	41.77
1213.1	45.23	45.79	46.07	40.85	40.99	41.13
1263.1	46.79	47.52	47.96	42.09	42.32	42.58
1313.1	46.44	47.27	47.70	41.19	41.50	41.74
1413.1	48.98	50.54	51.50	41.40	41.95	42.35
1513.1	53.91	57.75	62.66	40.73	41.08	41.36
1613.1	47.85	48.51	49.09	39.14	39.25	39.37
1713.1	45.24	45.87	46.36	39.49	39.75	40.02
1813.1	45.46	46.40	47.22	40.82	41.23	41.65
1913.1	46.22	47.60	48.91	42.30	42.84	43.35
2013.1	48.15	50.25	52.39	44.39	45.04	45.63
2113.1	50.87	54.06	56.70	47.19	47.98	48.67
2213.1	50.74	53.87	56.40	49.81	50.17	50.48
2313.1	48.46	50.82	52.33	49.16	48.43	47.86
2413.1	47.48	49.77	51.11	47.13	46.00	45.21
2513.1	45.98	47.99	49.58	45.19	43.95	42.99
2563.1	45.71	47.63	49.10	44.66	43.40	42.46
2613.1	45.25	47.21	48.68	43.68	42.42	41.46
2663.1	44.54	46.43	48.06	43.30	42.06	41.06
2713.1	44.11	45.90	47.54	43.34	42.22	41.16
2763.1	43.74	45.32	46.89	43.54	42.84	41.93
2813.1	43.43	44.80	46.23	43.83	44.00	43.77
2863.1	42.97	44.10	45.38	43.15	44.04	44.95
2913.1	43.12	44.08	45.22	42.30	43.22	44.51
2963.1	42.92	43.82	44.83	40.79	41.62	42.74

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	423.1	42.38	38.44	33.09
50.1	463.1	29.79	29.18	31.63
100.1	513.1	53.30	48.19	44.56
150.1	563.1	49.63	49.38	43.94
200.1	613.1	50.39	44.57	38.46
250.1	663.1	46.62	47.77	43.37
300.1	713.1	45.82	43.65	38.73
350.1	763.1	41.08	41.05	38.68
400.1	813.1	35.13	36.24	35.65
450.1	863.1	27.52	29.11	31.33
500.1	913.1	22.08	23.64	25.88
550.1	963.1	20.83	22.19	24.15
600.1	1013.1	23.96	24.81	25.87
650.1	1063.1	27.04	28.18	30.13
700.1	1113.1	30.55	31.52	32.94
750.1	1163.1	35.79	38.68	43.15
800.1	1213.1	37.89	39.49	41.52
850.1	1263.1	38.30	40.93	44.18
900.1	1313.1	41.72	44.76	47.32
1000.1	1413.1	37.33	36.97	36.88
1100.1	1513.1	37.80	37.63	37.30
1200.1	1613.1	37.94	38.53	38.83
1300.1	1713.1	35.73	35.35	35.11
1400.1	1813.1	34.19	33.86	33.59
1500.1	1913.1	33.44	32.78	32.26
1600.1	2013.1	35.31	34.91	34.28
1700.1	2113.1	38.53	38.33	38.37
1800.1	2213.1	38.64	37.83	37.12
1900.1	2313.1	36.22	36.01	36.11
2000.1	2413.1	35.02	35.37	35.95
2100.1	2513.1	33.74	34.45	35.33
2150.1	2563.1	32.55	33.46	34.37
2200.1	2613.1	31.58	32.87	33.93
2250.1	2663.1	29.99	31.53	32.85
2300.1	2713.1	28.55	30.08	31.52
2350.1	2763.1	26.82	27.81	28.91
2400.1	2813.1	25.21	25.82	26.88
2450.1	2863.1	24.40	24.80	25.59
2500.1	2913.1	24.50	24.81	25.37
2550.1	2963.1	25.29	25.53	25.97



Frequency Mixer

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+14	+17	+20		+14	+17	+20		+14	+17	+20
10.1	423.1	1.37	1.41	1.44	423.1	19.48	21.11	16.91	10.0	3.07	3.11	3.14
50.1	463.1	1.18	1.28	1.36	463.1	15.41	17.78	14.87	35.0	2.56	2.60	2.63
100.1	513.1	1.27	1.42	1.55	513.1	22.45	24.78	19.45	60.0	2.69	2.74	2.78
150.1	563.1	1.34	1.46	1.56	563.1	24.12	26.49	20.06	85.0	2.82	2.88	2.92
200.1	613.1	1.44	1.55	1.63	613.1	24.77	26.56	19.71	110.0	2.93	2.99	3.03
250.1	663.1	1.51	1.58	1.63	663.1	24.71	26.15	19.18	135.0	3.00	3.06	3.10
300.1	713.1	1.63	1.69	1.75	713.1	24.13	25.63	18.78	160.0	3.05	3.12	3.16
350.1	763.1	1.71	1.73	1.77	763.1	23.12	24.07	17.98	185.0	3.11	3.18	3.22
400.1	813.1	1.85	1.85	1.89	813.1	21.69	22.93	17.38	210.0	3.17	3.24	3.28
450.1	863.1	2.05	1.93	1.91	863.1	20.83	21.72	17.47	235.0	3.21	3.28	3.33
500.1	913.1	2.30	2.14	2.08	913.1	19.25	19.92	16.40	260.0	3.24	3.31	3.36
550.1	963.1	2.32	2.16	2.10	963.1	17.47	17.77	15.44	285.0	3.28	3.36	3.40
600.1	1013.1	2.30	2.17	2.13	1013.1	15.05	15.13	13.46	310.0	3.34	3.41	3.47
650.1	1063.1	2.37	2.22	2.19	1063.1	14.27	14.60	13.41	335.0	3.41	3.49	3.54
700.1	1113.1	2.34	2.20	2.17	1113.1	13.34	13.75	13.02	360.0	3.47	3.54	3.60
750.1	1163.1	2.42	2.25	2.20	1163.1	11.96	12.33	11.90	385.0	3.52	3.60	3.65
800.1	1213.1	2.28	2.13	2.08	1213.1	10.50	10.70	10.48	410.0	3.59	3.67	3.72
850.1	1263.1	2.45	2.25	2.18	1263.1	9.22	9.52	9.62	435.0	3.65	3.73	3.79
900.1	1313.1	2.25	2.10	2.02	1313.1	8.05	8.14	8.08	460.0	3.68	3.76	3.82
1000.1	1413.1	2.20	2.04	1.94	1413.1	7.03	7.16	7.28	485.0	3.81	3.89	3.95
1100.1	1513.1	2.16	1.99	1.88	1513.1	6.14	6.17	6.22	510.0	3.93	4.01	4.07
1200.1	1613.1	2.17	2.01	1.91	1613.1	5.41	5.48	5.53	535.0	4.06	4.15	4.21
1300.1	1713.1	2.24	2.09	2.00	1713.1	4.93	4.95	4.98	560.0	4.16	4.26	4.32
1400.1	1813.1	2.37	2.24	2.17	1813.1	4.54	4.61	4.66	585.0	4.21	4.31	4.38
1500.1	1913.1	2.49	2.40	2.35	1913.1	4.30	4.37	4.37	610.0	4.28	4.39	4.45
1600.1	2013.1	2.52	2.47	2.45	2013.1	4.19	4.29	4.30	635.0	4.42	4.52	4.59
1700.1	2113.1	2.18	2.16	2.15	2113.1	4.16	4.26	4.26	660.0	4.52	4.63	4.70
1800.1	2213.1	2.09	2.03	2.01	2213.1	4.22	4.35	4.33	685.0	4.54	4.65	4.72
1900.1	2313.1	2.02	1.95	1.93	2313.1	4.31	4.47	4.46	710.0	4.58	4.68	4.76
2000.1	2413.1	1.87	1.80	1.78	2413.1	4.45	4.63	4.59	735.0	4.72	4.83	4.91
2100.1	2513.1	1.70	1.60	1.58	2513.1	4.57	4.78	4.74	760.0	4.86	4.97	5.05
2150.1	2563.1	1.63	1.55	1.52	2563.1	4.72	4.96	4.96	785.0	4.87	4.99	5.07
2200.1	2613.1	1.58	1.51	1.49	2613.1	4.84	5.07	5.02	810.0	4.85	4.96	5.04
2250.1	2663.1	1.57	1.50	1.49	2663.1	4.92	5.14	5.05	835.0	4.95	5.07	5.15
2300.1	2713.1	1.56	1.49	1.49	2713.1	4.99	5.19	5.09	860.0	5.12	5.24	5.33
2350.1	2763.1	1.62	1.56	1.56	2763.1	5.07	5.24	5.11	885.0	5.09	5.22	5.31
2400.1	2813.1	1.70	1.63	1.63	2813.1	5.12	5.29	5.13	910.0	4.97	5.09	5.18
2450.1	2863.1	1.81	1.74	1.73	2863.1	5.20	5.33	5.19	935.0	4.99	5.11	5.19
2500.1	2913.1	1.95	1.87	1.85	2913.1	5.28	5.42	5.28	960.0	5.18	5.31	5.39
2550.1	2963.1	2.06	1.97	1.95	2963.1	5.40	5.55	5.43	985.0	5.26	5.38	5.47

