

Wideband Double Balanced Mixer Die

MDB-653H-D+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @ IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @ IF(OUT)=2GHz (dB)			RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @ IF(OUT)=3GHz (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+14	+15	+16			+14	+15	+16			+14	+15	+16
18000	18030	10.6	10.6	10.7	18000	20000	11.7	11.7	11.7	18000	21000	11.8	11.8	11.8
19000	19030	10.0	9.9	9.9	19000	21000	10.1	10.1	10.1	19000	22000	9.9	10.0	10.2
20000	20030	9.7	9.6	9.5	20000	22000	9.4	9.4	9.5	20000	23000	9.6	9.7	9.9
21000	21030	9.8	9.7	9.6	21000	23000	9.5	9.6	9.7	21000	24000	9.5	9.6	9.7
22000	22030	9.6	9.5	9.6	22000	24000	9.4	9.4	9.5	22000	25000	9.5	9.6	9.9
23000	23030	9.9	9.9	10.1	23000	25000	9.7	9.8	10.0	23000	26000	10.1	10.2	10.4
24000	24030	11.0	11.0	11.0	24000	26000	11.2	11.3	11.5	24000	27000	11.3	11.6	12.0
25000	25030	11.7	11.8	12.0	25000	27000	12.1	12.3	12.6	25000	28000	12.0	12.2	12.5
26000	26030	11.7	11.8	12.2	26000	28000	11.7	11.9	12.2	26000	29000	11.6	12.1	12.8
27000	27030	11.3	11.5	12.0	27000	29000	11.1	11.5	12.3	27000	30000	11.1	11.2	11.5
28000	28030	10.5	10.7	11.2	28000	30000	10.5	10.6	10.9	28000	31000	10.4	10.6	11.1
29000	29030	10.5	11.0	11.9	29000	31000	10.2	10.4	10.9	29000	32000	10.2	10.4	10.9
30000	30030	9.7	9.9	10.3	30000	32000	9.6	9.8	10.3	30000	33000	9.6	9.8	10.2
31000	31030	9.5	9.8	10.5	31000	33000	9.6	9.8	10.2	31000	34000	9.7	10.1	11.0
32000	32030	8.9	9.2	9.8	32000	34000	9.1	9.6	10.5	32000	35000	9.1	9.0	9.2
33000	33030	8.9	9.1	9.5	33000	35000	9.0	8.9	9.0	33000	36000	9.6	9.4	9.3
34000	34030	8.8	9.3	10.3	34000	36000	9.7	9.5	9.4	34000	37000	9.3	9.5	10.1
35000	35030	9.3	9.2	9.3	35000	37000	9.3	9.5	10.1	35000	38000	12.1	11.4	10.0
36000	36030	8.8	8.6	8.7	36000	38000	11.2	10.7	9.3	36000	39000	8.7	8.7	8.9
37000	37030	8.6	8.6	8.8	37000	39000	8.5	8.5	8.7	37000	40000	8.3	8.2	8.3
38000	38030	9.8	9.7	9.8	38000	40000	9.7	9.6	9.6	38000	41000	9.2	9.4	10.0
39000	39030	10.2	10.2	10.4	39000	41000	10.0	10.2	10.7	39000	42000	9.5	9.5	9.8
40000	40030	10.4	10.3	10.3	40000	42000	9.9	9.9	10.1	40000	43000	9.7	9.7	10.1
42000	42030	10.7	10.7	10.9	42000	44000	10.7	10.7	11.0	42000	45000	10.5	10.5	10.7
44000	44030	10.8	10.9	11.2	44000	46000	10.8	10.9	11.2	44000	47000	10.5	10.6	11.0
46000	46030	10.5	10.5	10.9	46000	48000	10.4	10.5	10.7	46000	49000	10.2	10.3	10.6
48000	48030	10.2	10.3	10.5	48000	50000	10.3	10.3	10.4	48000	51000	9.9	10.0	10.5
50000	50030	9.9	9.9	10.1	50000	52000	10.0	10.1	10.4	50000	53000	9.7	9.7	10.1
52000	52030	8.7	8.9	9.3	52000	54000	9.0	9.1	9.5	52000	55000	8.6	8.7	9.1
54000	54030	9.4	9.5	9.9	54000	56000	9.0	9.2	9.6	54000	57000	8.8	9.0	9.4
56000	56030	9.9	10.0	10.3	56000	58000	10.1	10.3	10.7	56000	59000	9.8	9.8	9.9
58000	58030	11.7	11.9	12.4	58000	60000	11.9	11.9	12.1	58000	61000	11.7	11.4	11.2
60000	60030	11.4	11.5	11.7	60000	62000	11.4	11.4	11.6	60000	63000	10.8	10.8	11.1
62000	62030	11.0	11.0	11.2	63000	65000	12.5	12.4	12.6	62000	65000	10.6	10.6	10.8
65000	65030	13.0	13.0	13.2	64000	66000	---	---	---	63900	66900	---	---	---



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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	IP-3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @ RF IN=+10dBm (dB)		
		@LO (dBm)					@LO (dBm)		
		+14	+15	+16			+14	+15	+16
20000	22000	19.22	19.56	20.34	20000	22000	0.89	0.88	0.77
21000	23000	20.02	20.07	20.29	21000	23000	0.70	0.64	0.56
22000	24000	19.74	19.75	19.93	22000	24000	0.69	0.64	0.64
23000	25000	23.63	23.21	23.64	23000	25000	0.49	0.41	0.35
24000	26000	24.62	24.84	25.35	24000	26000	0.78	0.81	0.58
25000	27000	27.49	27.76	28.78	25000	27000	0.29	0.28	0.32
26000	28000	24.63	25.54	26.93	26000	28000	0.28	0.22	0.20
27000	29000	25.75	25.41	26.24	27000	29000	0.24	0.18	0.14
28000	30000	22.91	22.84	23.31	28000	30000	0.42	0.36	0.30
29000	31000	23.23	23.15	24.24	29000	31000	0.42	0.37	0.26
30000	32000	23.02	22.84	22.72	30000	32000	0.41	0.40	0.32
31000	33000	21.54	21.55	21.83	31000	33000	0.46	0.40	0.35
32000	34000	21.64	21.57	21.35	32000	34000	0.37	0.31	0.21
33000	35000	23.21	23.46	23.75	33000	35000	0.43	0.37	0.30
34000	36000	25.07	23.99	24.19	34000	36000	0.18	0.17	0.13
35000	37000	21.77	21.29	21.56	35000	37000	0.33	0.33	0.27
36000	38000	21.56	21.09	21.43	36000	38000	0.42	0.37	0.49
37000	39000	21.60	21.47	21.39	37000	39000	1.03	0.89	0.80
38000	40000	22.86	21.34	22.65	38000	40000	0.95	0.81	0.84
39000	41000	23.88	23.23	23.82	39000	41000	0.62	0.59	0.41
40000	42000	19.55	19.11	20.52	40000	42000	0.89	0.83	0.87
41000	43000	27.73	23.97	22.57	41000	43000	0.48	0.48	0.78
42000	44000	19.53	19.34	23.12	42000	44000	0.80	0.72	0.58
43000	45000	23.73	21.02	20.58	43000	45000	0.77	0.73	0.75
44000	46000	19.20	18.97	28.28	44000	46000	0.36	0.32	0.39
45000	47000	21.49	19.57	19.01	45000	47000	0.94	0.90	0.88
46000	48000	18.96	18.90	25.52	46000	48000	0.72	0.72	0.71
47000	49000	20.29	17.97	17.92	47000	49000	1.13	0.86	0.95
48000	50000	20.68	16.64	16.93	48000	50000	1.25	1.19	1.22
49000	51000	19.01	18.89	19.79	49000	51000	0.57	0.51	0.78
50000	52000	23.33	14.86	14.62	50000	52000	1.44	1.55	1.56
51000	53000	18.92	18.97	21.80	51000	53000	1.09	1.11	1.03
52000	54000	29.43	17.65	17.33	52000	54000	1.00	1.46	1.44
53000	55000	18.10	17.95	20.64	53000	55000	1.16	1.27	1.19
54000	56000	27.09	19.12	19.15	54000	56000	1.27	1.24	1.13
56000	58000	23.50	22.67	21.83	56000	58000	0.58	0.93	0.92
58000	60000	22.21	22.76	23.52	58000	60000	2.30	2.17	2.08
60000	62000	20.34	16.07	15.87	60000	62000	2.67	2.37	2.13



Typical Performance Data

IF (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @ RF=40GHz (dB)			IF (MHz)	RF (MHz)	CONVERSION LOSS VS. IF FREQUENCY @ LO=40GHz (dB)		
		@LO (dBm)					@LO (dBm)		
		+14	+15	+16			+14	+15	+16
10	40010	10.5	10.4	10.4	10	40010	10.5	10.3	10.3
1000	41000	10.4	10.5	10.9	1000	41000	10.6	10.4	10.3
2000	42000	10.2	10.2	10.4	2000	42000	11.0	10.7	10.6
3000	43000	10.3	10.4	10.7	3000	43000	11.4	11.1	10.9
4000	44000	10.6	10.5	10.7	4000	44000	11.5	11.1	11.0
5000	45000	10.7	10.6	10.9	5000	45000	11.2	10.8	10.6
6000	46000	11.0	11.0	11.1	6000	46000	11.2	10.8	10.6
7000	47000	11.1	11.1	11.4	7000	47000	11.5	11.0	10.8
8000	48000	11.4	11.3	11.4	8000	48000	11.9	11.5	11.2
9000	49000	11.2	11.1	11.4	9000	49000	12.1	11.6	11.4
10000	50000	11.6	11.4	11.5	10000	50000	12.2	11.6	11.3
11000	51000	11.8	11.9	12.4	11000	51000	12.0	11.4	11.1
12000	52000	11.8	11.9	12.3	12000	52000	11.7	11.1	10.9
13000	53000	11.9	12.0	12.4	13000	53000	11.8	11.3	11.1
14000	54000	12.0	12.1	12.6	14000	54000	12.1	11.6	11.3
15000	55000	12.7	12.7	13.3	15000	55000	13.0	12.6	12.3
16000	56000	13.2	13.2	13.7	16000	56000	14.8	14.2	13.9
17000	57000	13.2	13.2	13.8	17000	57000	16.2	15.6	15.2
18000	58000	13.3	13.5	14.1	18000	58000	17.2	16.4	15.9
19000	59000	14.0	13.8	13.8	19000	59000	18.0	17.0	16.4
20000	60000	14.4	14.2	14.5	20000	60000	18.8	17.7	16.9
21000	61000	15.9	15.2	14.9	21000	61000	18.3	17.3	16.6
22000	62000	15.4	15.2	15.3	22000	62000	16.6	16.0	15.6
23000	63000	14.6	14.6	14.8	23000	63000	16.0	15.5	15.3
24000	64000	15.3	15.4	15.7	24000	64000	16.8	16.4	16.3
25000	65000	17.0	17.1	17.3	25000	65000	18.6	18.4	18.4

Wideband Double Balanced Mixer Die

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			RF (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)					@LO (dBm)		
	+14	+15	+16	+14	+15	+16			+14	+15	+16
18000	32.9	33.4	33.8	30.1	30.5	31.0	18000	20000	27.0	27.8	28.5
19000	31.9	34.3	36.5	33.5	34.0	34.8	19000	21000	27.2	28.0	28.4
20000	37.4	37.8	37.8	33.2	34.3	36.2	20000	22000	31.6	32.5	32.9
21000	41.2	42.6	43.0	36.2	37.8	39.8	21000	23000	32.3	30.7	30.9
22000	42.3	42.8	42.6	35.1	36.6	38.7	22000	24000	36.6	33.7	31.1
23000	41.3	41.6	41.3	36.1	37.6	39.6	23000	25000	29.0	29.0	30.1
24000	43.0	43.7	43.9	36.1	37.3	38.6	24000	26000	29.7	29.0	29.7
25000	43.6	43.5	43.4	37.5	38.9	40.4	25000	27000	34.7	33.9	35.2
26000	44.6	44.4	44.1	38.2	39.6	41.0	26000	28000	38.0	38.0	39.0
27000	43.8	44.6	45.4	37.8	39.2	40.7	27000	29000	36.1	35.9	37.5
28000	42.6	43.7	44.8	38.6	40.0	41.3	28000	30000	36.8	36.8	36.6
29000	40.1	40.8	42.2	41.7	43.8	45.6	29000	31000	33.8	33.0	31.7
30000	39.9	40.7	41.6	47.1	48.3	49.2	30000	32000	32.9	32.8	32.5
31000	40.1	40.6	40.8	52.3	51.6	51.2	31000	33000	29.5	29.1	28.6
32000	40.2	40.4	39.9	56.1	52.0	50.2	32000	34000	29.6	29.5	29.2
33000	36.6	36.7	36.6	53.4	51.4	50.2	33000	35000	28.0	27.9	27.8
34000	36.5	37.0	36.6	50.5	48.0	47.0	34000	36000	27.3	27.4	27.5
35000	35.9	36.2	36.1	53.6	52.9	52.3	35000	37000	27.7	27.7	27.8
36000	34.6	34.7	34.8	53.1	52.7	52.5	36000	38000	25.9	26.3	26.7
37000	35.1	35.2	35.0	49.9	50.7	51.4	37000	39000	26.2	26.3	26.5
38000	36.2	36.2	35.9	45.2	46.3	47.4	38000	40000	25.1	25.4	25.5
39000	36.6	36.5	36.3	41.0	41.8	42.5	39000	41000	24.8	24.8	24.9
40000	38.0	38.1	38.0	38.3	39.1	39.8	40000	42000	24.1	24.2	24.1
42000	38.1	38.1	37.9	32.4	33.0	33.5	42000	44000	21.7	21.7	21.7
44000	38.3	38.2	38.1	28.0	28.4	28.7	44000	46000	20.1	20.1	20.1
46000	39.7	39.6	39.4	23.9	24.3	24.6	46000	48000	17.7	17.7	17.7
48000	42.1	41.9	41.8	21.7	22.0	22.4	48000	50000	16.5	16.6	16.7
50000	54.5	56.4	58.6	23.7	24.0	24.2	50000	52000	19.5	19.5	19.5
52000	51.3	49.9	48.7	25.7	25.7	25.8	52000	54000	22.4	22.4	22.3
54000	48.4	47.3	46.3	29.4	29.2	29.1	54000	56000	27.0	26.8	26.8
56000	44.7	44.2	43.8	28.7	28.5	28.4	56000	58000	26.1	26.1	26.1
58000	43.6	43.1	42.8	29.5	29.3	29.3	58000	60000	28.1	27.8	27.9
60000	44.0	43.4	43.0	31.9	31.6	31.5	60000	62000	29.5	29.8	29.7
62000	41.5	41.4	41.4	32.1	31.8	31.8	62000	64000	30.1	31.0	30.4
64900	38.4	38.6	38.7	30.2	30.2	30.0	64900	66900	38.7	39.3	39.8



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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 @ LO=2GHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+14	+15	+16		+14	+15	+16		+14	+15	+16
18000	20000	4.92	5.00	5.06	18000	5.69	5.20	4.89	10	1.07	1.04	1.01
19000	21000	3.31	3.52	3.63	19000	4.06	3.81	3.62	500	1.11	1.08	1.06
20000	22000	2.88	3.04	3.09	20000	3.07	2.97	2.90	1000	1.18	1.15	1.13
21000	23000	3.10	3.13	3.14	21000	2.57	2.54	2.52	2000	1.37	1.34	1.32
22000	24000	3.50	3.50	3.48	22000	2.41	2.38	2.37	3000	1.56	1.53	1.51
23000	25000	4.06	3.98	3.95	23000	2.32	2.32	2.35	4000	1.64	1.61	1.59
24000	26000	4.76	4.61	4.53	24000	2.03	2.09	2.14	5000	1.60	1.56	1.54
25000	27000	5.17	5.04	4.97	25000	1.80	1.89	1.96	6000	1.61	1.57	1.54
26000	28000	5.00	4.91	4.88	26000	1.58	1.68	1.74	7000	1.68	1.64	1.60
27000	29000	4.79	4.57	4.49	27000	1.55	1.61	1.64	8000	1.83	1.78	1.74
28000	30000	4.11	3.98	3.94	28000	1.63	1.64	1.65	9000	2.02	1.96	1.91
29000	31000	3.42	3.26	3.24	29000	1.78	1.75	1.72	10000	2.29	2.21	2.14
30000	32000	2.75	2.66	2.64	30000	1.89	1.82	1.78	11000	2.55	2.46	2.37
31000	33000	2.45	2.37	2.35	31000	1.91	1.82	1.77	12000	2.87	2.77	2.67
32000	34000	2.42	2.25	2.23	32000	2.00	1.87	1.79	13000	3.12	3.01	2.91
33000	35000	2.47	2.33	2.27	33000	2.03	1.90	1.81	14000	3.66	3.54	3.43
34000	36000	2.81	2.48	2.39	34000	2.26	2.12	2.02	15000	4.65	4.52	4.39
35000	37000	2.04	1.94	1.92	35000	2.88	2.61	2.44	16000	5.52	5.39	5.26
36000	38000	3.01	2.53	2.22	36000	3.27	3.01	2.83	17000	5.85	5.72	5.57
37000	39000	1.94	1.76	1.72	37000	5.08	4.08	3.83	18000	5.82	5.68	5.53
38000	40000	2.87	2.52	2.46	38000	7.98	5.59	5.01	19000	5.92	5.75	5.58
39000	41000	3.29	3.12	3.08	39000	7.12	5.12	4.62	20000	6.04	5.85	5.67
40000	42000	3.96	3.54	3.45	40000	5.64	4.25	3.89	21000	6.08	5.91	5.74
42000	44000	3.88	3.59	3.51	42000	3.68	3.00	2.83	22000	5.60	5.49	5.38
44000	46000	3.27	3.03	2.96	44000	3.70	2.91	2.67	23000	4.61	4.52	4.46
46000	48000	2.67	2.42	2.35	46000	2.96	2.51	2.36	24000	4.42	4.35	4.30
48000	50000	2.96	2.66	2.59	48000	3.62	2.94	2.76	25000	5.62	5.63	5.66
50000	52000	2.63	2.48	2.43	50000	3.76	3.06	2.86	26000	7.20	7.31	7.40
52000	54000	1.73	1.67	1.65	52000	2.24	2.00	1.94	27000	8.53	8.69	8.84
54000	56000	1.22	1.15	1.13	54000	2.19	1.86	1.77	---	---	---	---
56000	58000	1.72	1.68	1.66	56000	1.56	1.42	1.38	---	---	---	---
58000	60000	3.59	3.40	3.32	58000	1.90	1.70	1.63	---	---	---	---
60000	62000	3.19	2.96	2.85	60000	3.92	3.33	3.34	---	---	---	---
62000	64000	1.67	1.60	1.57	62000	3.20	2.77	2.62	---	---	---	---
64900	66900	6.17	5.30	5.04	65000	2.23	2.03	1.97	---	---	---	---