

Wideband Double Balanced Mixer Die

MDB-24H-D+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP-3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+10dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+12	+15	+18			+12	+15	+18			+12	+15	+18
3500.1	3530.1	16.81	15.59	15.05	3500.1	3470.1	11.04	13.69	17.26	3500.1	3470.1	-1.22	-1.02	-0.73
4000.1	4030.1	12.04	11.30	10.89	4000.1	3970.1	13.26	13.94	14.17	4000.1	3970.1	0.23	0.22	0.21
4500.1	4530.1	9.05	8.48	8.29	4500.1	4470.1	13.89	14.39	15.13	4500.1	4470.1	1.87	1.69	1.37
5000.1	5030.1	7.54	7.15	6.95	5000.1	4970.1	12.97	13.74	14.48	5000.1	4970.1	2.68	2.38	2.11
5500.1	5530.1	7.29	6.92	6.74	5500.1	5470.1	14.64	15.32	15.66	5500.1	5470.1	3.17	2.83	2.50
6000.1	6030.1	6.91	6.53	6.38	6000.1	5970.1	17.11	17.91	18.25	6000.1	5970.1	2.69	2.35	1.99
6500.1	6530.1	7.06	6.65	6.47	6500.1	6470.1	18.26	19.43	19.80	6500.1	6470.1	2.56	2.19	1.81
7000.1	7030.1	6.85	6.51	6.42	7000.1	6970.1	18.59	20.04	20.48	7000.1	6970.1	1.80	1.43	1.11
7500.1	7530.1	7.41	6.91	6.85	7500.1	7470.1	18.91	22.03	23.17	7500.1	7470.1	1.31	0.92	0.68
8000.1	8030.1	7.83	7.31	7.20	8000.1	7970.1	18.05	20.05	22.09	8000.1	7970.1	0.76	0.50	0.40
8500.1	8530.1	8.19	7.59	7.43	8500.1	8470.1	20.86	20.76	20.20	8500.1	8470.1	0.60	0.32	0.22
9000.1	9030.1	8.39	7.84	7.81	9000.1	8970.1	23.28	23.41	22.25	9000.1	8970.1	0.31	0.23	0.24
9500.1	9530.1	9.13	8.01	7.89	9500.1	9470.1	21.11	21.02	23.56	9500.1	9470.1	0.22	0.15	0.04
10000.1	10030.1	9.37	8.35	8.07	10000.1	9970.1	20.39	21.09	21.85	10000.1	9970.1	0.54	0.18	0.10
10500.1	10530.1	10.06	8.65	8.40	10500.1	10470.1	21.22	21.33	22.87	10500.1	10470.1	-0.12	0.09	0.16
11000.1	11030.1	10.27	8.66	8.60	11000.1	10970.1	21.68	20.20	20.04	11000.1	10970.1	-0.08	0.21	0.22
11500.1	11530.1	8.69	7.96	8.18	11500.1	11470.1	21.13	19.69	19.39	11500.1	11470.1	1.00	0.39	0.16
12000.1	12030.1	10.06	8.42	8.42	12000.1	11970.1	20.36	20.15	20.14	12000.1	11970.1	-0.58	0.24	0.45
12500.1	12530.1	8.78	8.07	8.22	12500.1	12470.1	19.18	19.01	19.36	12500.1	12470.1	0.96	0.49	0.30
13000.1	13030.1	8.18	7.68	7.80	13000.1	12970.1	18.20	19.16	20.05	13000.1	12970.1	0.81	0.43	0.27
13500.1	13530.1	8.33	7.82	7.83	13500.1	13470.1	18.04	20.83	23.47	13500.1	13470.1	0.96	0.42	0.25
14000.1	14030.1	8.17	7.66	7.64	14000.1	13970.1	19.92	22.86	23.55	14000.1	13970.1	0.36	0.28	0.34
14500.1	14530.1	7.62	7.28	7.25	14500.1	14470.1	19.15	21.19	22.41	14500.1	14470.1	0.85	0.37	0.19
15000.1	15030.1	7.92	7.69	7.70	15000.1	14970.1	21.07	23.51	25.29	15000.1	14970.1	0.76	0.37	0.20
15500.1	15530.1	8.29	7.87	7.70	15500.1	15470.1	22.56	25.80	27.20	15500.1	15470.1	0.46	0.27	0.24
16000.1	16030.1	8.36	7.95	7.80	16000.1	15970.1	21.87	22.79	23.87	16000.1	15970.1	0.87	0.50	0.31
16500.1	16530.1	8.95	8.50	8.33	16500.1	16470.1	19.59	20.94	22.83	16500.1	16470.1	0.36	0.24	0.18
17000.1	17030.1	9.16	8.52	8.32	17000.1	16970.1	21.75	21.03	22.43	17000.1	16970.1	0.29	0.14	0.10
17500.1	17530.1	9.84	9.12	8.83	17500.1	17470.1	24.62	24.57	23.38	17500.1	17470.1	0.24	0.09	0.05
18000.1	18030.1	9.82	8.84	8.50	18000.1	17970.1	23.04	26.05	23.59	18000.1	17970.1	0.61	0.28	0.15
18500.1	18530.1	10.32	9.19	8.84	18500.1	18470.1	23.03	25.72	25.49	18500.1	18470.1	0.82	0.36	0.17
19000.1	19030.1	10.33	9.05	8.72	19000.1	18970.1	24.01	26.46	27.04	19000.1	18970.1	0.27	0.19	0.12
19500.1	19530.1	10.84	9.19	8.88	19500.1	19470.1	24.13	25.73	27.76	19500.1	19470.1	-0.22	0.08	0.06
20000.1	20030.1	10.05	9.01	8.83	20000.1	19970.1	25.53	25.33	28.01	20000.1	19970.1	0.63	0.25	0.13
20500.1	20530.1	9.92	8.88	8.73	20500.1	20470.1	22.26	24.02	27.26	20500.1	20470.1	0.47	0.23	0.12
21000.1	21030.1	10.41	9.02	8.83	21000.1	20970.1	20.79	23.00	25.02	21000.1	20970.1	0.61	0.47	0.35
21500.1	21530.1	11.97	9.80	9.29	21500.1	21470.1	23.80	22.12	23.46	21500.1	21470.1	0.37	0.50	0.30
22000.1	22030.1	17.31	12.52	11.02	22000.1	21970.1	15.32	26.07	25.40	22000.1	21970.1	-2.77	-0.55	-0.11
22500.1	22530.1	23.27	16.15	13.22	22500.1	22470.1	12.18	16.83	30.13	22500.1	22470.1	-1.11	0.84	0.39
23000.1	23030.1	32.51	25.11	17.66	23000.1	22970.1	11.66	13.18	28.31	23000.1	22970.1	-2.38	-1.86	-0.58

Note: Test data measured in industry standard 4x4mm, 24-lead package



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IF/RF MICROWAVE COMPONENTS

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=12500.1MHz (dB)
		@LO (dBm) +15
6500.0	6000.1	17.13
5700.0	6800.1	13.40
5300.0	7200.1	12.28
4900.0	7600.1	11.38
4500.0	8000.1	10.20
4100.0	8400.1	10.12
3700.0	8800.1	11.22
3300.0	9200.1	10.77
2900.0	9600.1	10.42
2500.0	10000.1	10.32
2100.0	10400.1	9.46
1700.0	10800.1	8.99
1300.0	11200.1	8.43
900.0	11600.1	8.04
500.0	12000.1	8.13
100.0	12400.1	7.95
80.0	12420.1	7.95
60.0	12440.1	7.97
40.0	12460.1	8.06
20.0	12480.1	8.16
10.0	12510.1	8.23
30.0	12530.1	8.03
50.0	12550.1	7.95
70.0	12570.1	7.98
90.0	12590.1	7.97
300.0	12800.1	8.08
700.0	13200.1	8.15
1100.0	13600.1	8.30
1500.0	14000.1	8.65
1900.0	14400.1	9.22
2300.0	14800.1	9.09
2700.0	15200.1	9.19
3100.0	15600.1	9.40
3500.0	16000.1	9.24
3900.0	16400.1	9.13
4250.0	16750.1	9.92
4750.0	17250.1	10.15
5250.0	17750.1	10.56
5750.0	18250.1	11.79
6250.0	18750.1	14.13

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=4100.1MHz (dB)
		@LO (dBm) +15
10.0	4110.1	10.56
20.0	4120.1	10.38
30.0	4130.1	10.22
40.0	4140.1	10.19
50.0	4150.1	10.28
60.0	4160.1	10.30
70.0	4170.1	10.35
80.0	4180.1	10.18
90.0	4190.1	10.21
100.0	4200.1	10.27
150.0	4250.1	10.06
400.0	4500.1	10.00
650.0	4750.1	9.96
900.0	5000.1	10.33
1150.0	5250.1	10.87
1400.0	5500.1	10.87
1650.0	5750.1	10.97
1900.0	6000.1	10.67
2150.0	6250.1	10.38
2400.0	6500.1	10.49
2650.0	6750.1	10.39
2900.0	7000.1	10.08
3150.0	7250.1	10.51
3400.0	7500.1	10.66
3650.0	7750.1	10.26
3900.0	8000.1	10.31
4150.0	8250.1	10.61
4400.0	8500.1	10.36
4650.0	8750.1	10.30
4900.0	9000.1	10.60
5150.0	9250.1	10.81
5400.0	9500.1	11.21
5650.0	9750.1	11.21
5900.0	10000.1	11.20
6150.0	10250.1	11.51
6400.0	10500.1	12.53
6650.0	10750.1	13.18
6900.0	11000.1	14.54
7400.0	11500.1	16.05
7900.0	12000.1	17.42

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=21500.1MHz (dB)
		@LO (dBm) +15
5500.0	16000.1	14.85
5300.0	16200.1	14.21
5100.0	16400.1	13.91
4900.0	16600.1	13.50
4700.0	16800.1	13.12
4500.0	17000.1	12.64
4300.0	17200.1	12.63
4100.0	17400.1	12.42
3900.0	17600.1	12.47
3700.0	17800.1	12.62
3500.0	18000.1	12.66
3300.0	18200.1	12.91
3100.0	18400.1	13.26
2900.0	18600.1	12.98
2700.0	18800.1	13.31
2500.0	19000.1	12.90
2300.0	19200.1	12.55
2100.0	19400.1	12.20
1900.0	19600.1	11.92
1700.0	19800.1	11.59
1500.0	20000.1	10.97
1300.0	20200.1	10.61
1100.0	20400.1	10.34
900.0	20600.1	9.90
700.0	20800.1	9.77
500.0	21000.1	9.83
300.0	21200.1	9.71
100.0	21400.1	9.74
90.0	21410.1	9.70
80.0	21420.1	9.74
70.0	21430.1	9.79
60.0	21440.1	9.78
50.0	21450.1	9.78
40.0	21460.1	9.80
30.0	21470.1	9.81
20.0	21480.1	9.88
10.0	21490.1	10.05

Note: Test data measured in industry standard 4x4mm, 24-lead package

Wideband Double Balanced Mixer Die MDB-24H-D+

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)					@LO (dBm)		
	+12	+15	+18	+12	+15	+18			+12	+15	+18
3530.1	29.52	28.00	28.18	32.50	29.02	28.63	3500.1	3530.1	6.04	6.27	6.20
4030.1	24.41	25.24	26.08	29.31	29.00	28.93	4000.1	4030.1	6.63	6.47	6.29
4530.1	23.80	24.98	26.05	28.87	28.50	28.39	4500.1	4530.1	6.77	6.51	6.35
5030.1	27.79	29.14	29.87	29.14	28.30	27.86	5000.1	5030.1	8.95	8.73	8.63
5530.1	33.59	33.97	33.97	31.11	29.70	28.89	5500.1	5530.1	9.15	8.85	8.74
6030.1	39.19	37.75	36.84	35.26	32.94	31.64	6000.1	6030.1	9.26	9.03	8.91
6530.1	35.28	35.80	36.88	38.28	35.72	33.96	6500.1	6530.1	9.77	9.62	9.59
7030.1	33.00	33.60	34.40	40.96	40.34	38.44	7000.1	7030.1	9.98	9.85	9.84
7530.1	31.28	31.25	31.61	37.06	41.02	41.47	7500.1	7530.1	10.76	10.77	10.81
8030.1	30.54	31.43	31.89	32.59	36.45	39.05	8000.1	8030.1	10.69	10.76	10.82
8530.1	29.91	31.96	32.73	32.19	35.09	37.32	8500.1	8530.1	11.02	11.24	11.42
9030.1	30.58	32.09	32.77	33.26	35.67	37.60	9000.1	9030.1	12.16	12.40	12.57
9530.1	32.43	34.55	36.06	33.32	35.28	36.89	9500.1	9530.1	13.09	13.50	13.80
10030.1	32.01	32.66	32.70	33.81	35.57	37.12	10000.1	10030.1	14.31	14.59	14.83
10530.1	33.14	33.85	33.30	34.53	36.01	37.28	10500.1	10530.1	16.13	16.47	16.65
11030.1	33.62	33.81	33.09	34.50	35.64	36.50	11000.1	11030.1	18.14	18.52	18.73
11530.1	30.21	30.02	29.49	32.12	33.05	33.57	11500.1	11530.1	20.91	21.20	21.36
12030.1	28.89	28.84	27.86	28.12	28.57	28.67	12000.1	12030.1	21.98	22.18	22.32
12530.1	43.00	37.08	33.28	34.21	34.84	35.22	12500.1	12530.1	14.93	15.27	15.48
13030.1	33.64	29.83	28.29	46.33	47.82	49.06	13000.1	13030.1	17.22	17.55	17.74
13530.1	29.94	27.80	27.15	51.24	49.70	49.30	13500.1	13530.1	19.05	19.38	19.58
14030.1	31.60	29.82	28.57	49.07	47.57	46.55	14000.1	14030.1	20.41	20.73	20.92
14530.1	33.93	33.00	31.37	46.00	45.10	44.14	14500.1	14530.1	20.59	20.75	20.87
15030.1	33.97	33.82	31.85	41.91	41.12	40.16	15000.1	15030.1	20.89	20.99	21.07
15530.1	30.82	31.92	31.52	40.39	40.05	39.43	15500.1	15530.1	20.68	20.73	20.77
16030.1	27.14	27.81	27.69	37.22	36.98	36.59	16000.1	16030.1	21.64	21.62	21.58
16530.1	25.71	27.59	28.42	36.32	36.89	37.01	16500.1	16530.1	23.19	23.09	22.99
17030.1	25.23	26.45	27.42	37.30	38.24	38.94	17000.1	17030.1	24.02	23.71	23.48
17530.1	23.57	23.99	24.49	38.97	39.65	40.32	17500.1	17530.1	24.43	23.93	23.53
18030.1	24.88	24.66	24.70	41.01	40.85	40.87	18000.1	18030.1	23.26	22.73	22.34
18530.1	24.90	24.14	23.84	40.28	39.19	38.62	18500.1	18530.1	22.61	22.12	21.78
19030.1	24.22	23.35	22.95	40.24	39.18	38.53	19000.1	19030.1	22.20	21.67	21.32
19530.1	24.42	23.37	22.83	38.71	37.89	37.29	19500.1	19530.1	21.96	21.52	21.21
20030.1	21.77	21.29	20.95	35.91	35.65	35.36	20000.1	20030.1	21.12	20.80	20.53
20530.1	21.50	21.35	21.16	35.86	35.94	35.89	20500.1	20530.1	20.07	19.88	19.70
21030.1	21.92	22.09	22.05	36.86	37.18	37.34	21000.1	21030.1	19.95	19.94	19.85
21530.1	24.91	25.45	25.56	38.71	39.04	39.28	21500.1	21530.1	19.51	19.73	19.79
22030.1	29.75	29.62	29.79	39.40	39.44	39.57	22000.1	22030.1	18.71	18.98	19.16
22530.1	30.57	30.56	29.37	37.32	37.41	37.30	22500.1	22530.1	19.37	19.55	19.73
23030.1	28.52	28.71	28.69	37.20	37.23	37.29	23000.1	23030.1	19.86	19.91	20.04

Note: Test data measured in industry standard 4x4mm, 24-lead package



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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=21500.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+12	+15	+18		+12	+15	+18		+12	+15	+18
3500.1	3530.1	2.70	2.69	2.68	3530.1	9.40	6.79	6.15	10.1	2.10	1.47	1.17
4000.1	4030.1	2.17	2.14	2.08	4030.1	4.44	4.20	4.41	20.1	2.24	1.46	1.20
4500.1	4530.1	1.97	1.93	1.88	4530.1	2.77	2.99	3.44	30.1	2.27	1.47	1.24
5000.1	5030.1	1.87	1.83	1.77	5030.1	1.92	2.38	2.90	40.1	2.24	1.47	1.23
5500.1	5530.1	1.78	1.74	1.69	5530.1	1.63	2.17	2.72	50.1	2.24	1.49	1.22
6000.1	6030.1	1.78	1.74	1.68	6030.1	1.65	2.17	2.70	60.1	2.25	1.49	1.23
6500.1	6530.1	2.13	2.08	2.00	6530.1	1.86	2.29	2.77	70.1	2.27	1.50	1.23
7000.1	7030.1	2.22	2.19	2.12	7030.1	2.08	2.31	2.70	80.1	2.25	1.48	1.23
7500.1	7530.1	2.10	2.09	2.02	7530.1	2.48	2.44	2.68	90.1	2.26	1.50	1.23
8000.1	8030.1	2.08	2.09	2.06	8030.1	2.96	2.61	2.61	100.1	2.25	1.49	1.23
8500.1	8530.1	2.36	2.37	2.35	8530.1	3.34	2.78	2.66	200.1	2.26	1.49	1.24
9000.1	9030.1	2.55	2.65	2.72	9030.1	3.72	2.85	2.60	300.1	2.32	1.54	1.29
9500.1	9530.1	2.76	2.85	2.94	9530.1	4.95	3.41	2.75	400.1	2.34	1.57	1.32
10000.1	10030.1	2.55	2.62	2.74	10030.1	5.65	3.70	2.86	500.1	2.43	1.64	1.38
10500.1	10530.1	2.49	2.55	2.69	10530.1	6.59	3.90	2.78	600.1	2.52	1.71	1.45
11000.1	11030.1	2.56	2.62	2.78	11030.1	6.89	3.85	2.62	700.1	2.56	1.74	1.47
11500.1	11530.1	2.60	2.66	2.86	11530.1	5.17	3.16	2.32	800.1	2.67	1.82	1.55
12000.1	12030.1	2.42	2.41	2.51	12030.1	5.80	3.33	2.36	900.1	2.80	1.94	1.66
12500.1	12530.1	2.29	2.26	2.31	12530.1	4.34	2.90	2.37	1000.1	2.79	1.95	1.68
13000.1	13030.1	2.25	2.18	2.19	13030.1	3.64	2.81	2.54	1500.1	3.17	2.22	1.91
13500.1	13530.1	2.49	2.42	2.40	13530.1	3.32	2.81	2.71	2000.1	3.16	2.36	2.07
14000.1	14030.1	2.98	2.96	2.94	14030.1	2.68	2.60	2.85	2500.1	3.24	2.49	2.20
14500.1	14530.1	3.52	3.55	3.54	14530.1	2.27	2.64	3.13	3000.1	3.34	2.63	2.31
15000.1	15030.1	3.32	3.42	3.46	15030.1	2.28	2.90	3.53	3500.1	3.06	2.50	2.21
15500.1	15530.1	2.83	2.89	2.91	15530.1	2.16	2.76	3.38	4000.1	3.71	3.07	2.70
16000.1	16030.1	2.57	2.56	2.53	16030.1	2.42	3.01	3.62	4500.1	4.45	3.60	3.11
16500.1	16530.1	3.10	3.11	3.09	16530.1	2.75	3.11	3.56	5000.1	5.19	4.20	3.68
17000.1	17030.1	3.96	3.98	3.96	17030.1	3.13	3.28	3.54	5500.1	5.98	4.93	4.46
17500.1	17530.1	3.90	3.89	3.87	17530.1	3.63	3.62	3.80	6000.1	5.01	4.42	4.27
18000.1	18030.1	3.65	3.66	3.65	18030.1	4.20	3.93	3.97	6500.1	4.79	4.84	5.10
18500.1	18530.1	3.36	3.37	3.35	18530.1	4.74	4.13	4.03	7000.1	5.91	6.80	7.45
19000.1	19030.1	3.68	3.68	3.65	19030.1	4.64	3.85	3.59	7500.1	8.10	9.73	10.73
19500.1	19530.1	3.46	3.42	3.36	19530.1	4.30	3.42	3.07	8000.1	8.37	9.61	10.35
20000.1	20030.1	2.61	2.53	2.47	20030.1	2.97	2.41	2.15	8500.1	10.74	11.85	12.51
20500.1	20530.1	2.18	2.09	2.04	20530.1	2.01	1.67	1.52	9000.1	14.55	15.48	16.01
21000.1	21030.1	1.68	1.60	1.56	21030.1	1.49	1.34	1.38	9500.1	13.49	13.87	14.11
21500.1	21530.1	1.66	1.58	1.54	21530.1	1.79	1.78	1.90	10000.1	15.13	15.32	15.47
22000.1	22030.1	1.72	1.66	1.62	22030.1	2.63	2.57	2.60				
22500.1	22530.1	2.26	2.23	2.21	22530.1	3.87	3.80	3.76				
23000.1	23030.1	3.51	3.48	3.42	23030.1	4.96	4.91	4.79				

Note: Test data measured in industry standard 4x4mm, 24-lead package



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