

Engineering Development Model

Frequency Mixer

MCA1-ED12413/1

Level 17 (LO Power + 17 dBm)

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.



Please click "Back", and then click "Contact Us" for Applications support.

CASE STYLE : DZ885

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (f _L to f _U)	4500		8000	MHz
	RF (f _L to f _U)	10		3500	MHz
	IF	4455		4660	MHz
Conversion Loss	Total Range		6.8		dB
LO-RF Isolation			18		dB
LO-IF Isolation			30		dB
Input IP3			+24		dBm
1 dB Compression			+14		dBm

MAXIMUM RATINGS	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to +100°C

PIN CONNECTIONS	
LO	5
RF	3
IF	10
GROUND	1,2,4,6,7,8,9



ISO 9001 ISO 14001 AS 9100 CERTIFIED



Frequency Mixer

MCA1-ED12413/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=4560MHz (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	4570.1	5.06	5.06	5.14
130.1	4690.1	5.63	5.52	5.63
250.1	4810.1	5.76	5.73	5.90
370.1	4930.1	5.98	5.98	6.20
490.1	5050.1	6.38	6.33	6.53
610.1	5170.1	6.61	6.49	6.65
730.1	5290.1	6.61	6.59	6.84
850.1	5410.1	7.11	7.05	7.30
970.1	5530.1	7.41	7.36	7.59
1090.1	5650.1	7.99	7.95	8.08
1210.1	5770.1	8.75	8.52	8.43
1310.1	5870.1	8.60	8.25	8.14
1430.1	5990.1	8.15	7.72	7.62
1530.1	6090.1	7.56	7.11	7.08
1650.1	6210.1	7.09	6.65	6.68
1750.1	6310.1	6.95	6.43	6.48
1870.1	6430.1	6.76	6.21	6.27
1970.1	6530.1	6.55	5.93	6.05
2090.1	6650.1	6.23	5.65	5.80
2190.1	6750.1	6.14	5.57	5.68
2310.1	6870.1	5.91	5.39	5.53
2410.1	6970.1	5.75	5.33	5.44
2530.1	7090.1	6.02	5.46	5.55
2630.1	7190.1	6.06	5.51	5.66
2750.1	7310.1	5.77	5.47	5.64
2850.1	7410.1	5.61	5.41	5.64
2970.1	7530.1	5.30	5.30	5.63
3070.1	7630.1	5.24	5.28	5.63
3190.1	7750.1	5.35	5.34	5.67
3290.1	7850.1	5.44	5.46	5.78
3410.1	7970.1	5.54	5.56	5.94
3510.1	8070.1	5.56	5.58	6.02
3630.1	8190.1	5.33	5.50	6.01
3730.1	8290.1	5.20	5.47	6.07
3850.1	8410.1	5.28	5.55	6.16
3950.1	8510.1	5.30	5.53	6.15
4070.1	8630.1	5.26	5.61	6.31
4170.1	8730.1	5.25	5.66	6.43
4290.1	8850.1	5.35	5.90	6.74
4390.1	8950.1	5.46	6.11	7.00

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+14	+17	+20
10.1	4570.1	20.45	24.19	24.68
130.1	4690.1	20.00	22.77	23.64
250.1	4810.1	19.70	22.93	24.22
370.1	4930.1	20.44	24.07	25.26
490.1	5050.1	20.91	23.61	24.55
610.1	5170.1	22.08	24.47	24.68
730.1	5290.1	21.74	24.15	24.03
850.1	5410.1	21.85	24.42	24.32
970.1	5530.1	22.85	24.80	24.41
1090.1	5650.1	23.49	23.78	23.55
1210.1	5770.1	23.63	22.23	22.88
1310.1	5870.1	22.14	22.14	23.64
1430.1	5990.1	21.16	21.50	24.00
1530.1	6090.1	22.29	22.10	25.65
1650.1	6210.1	23.26	23.57	27.88
1750.1	6310.1	22.75	24.96	31.19
1870.1	6430.1	23.25	28.24	29.62
1970.1	6530.1	21.01	27.37	26.92
2090.1	6650.1	19.73	25.03	25.27
2190.1	6750.1	20.12	24.69	24.81
2310.1	6870.1	20.99	24.78	24.94
2410.1	6970.1	21.07	24.44	24.65
2530.1	7090.1	20.38	24.33	24.65
2630.1	7190.1	19.48	23.95	23.88
2750.1	7310.1	20.12	23.92	23.88
2850.1	7410.1	20.44	24.16	23.72
2970.1	7530.1	21.03	23.51	23.40
3070.1	7630.1	21.25	23.51	23.66
3190.1	7750.1	20.61	23.42	23.75
3290.1	7850.1	21.39	23.98	24.11
3410.1	7970.1	21.61	24.17	24.18
3510.1	8070.1	21.60	23.44	23.70
3630.1	8190.1	20.60	23.15	23.48
3730.1	8290.1	19.41	22.69	23.35
3850.1	8410.1	18.62	22.58	23.47
3950.1	8510.1	18.76	22.53	23.36
4070.1	8630.1	18.93	22.55	23.45
4170.1	8730.1	18.65	22.58	23.37
4290.1	8850.1	18.29	22.64	23.34
4390.1	8950.1	18.51	23.20	23.84

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+14dBm (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	4570.1	4.38	3.68	3.12
130.1	4690.1	3.77	3.07	2.61
250.1	4810.1	3.56	2.93	2.39
370.1	4930.1	3.27	2.65	2.18
490.1	5050.1	2.94	2.46	2.10
610.1	5170.1	2.59	2.23	1.97
730.1	5290.1	2.38	1.95	1.75
850.1	5410.1	2.12	1.75	1.58
970.1	5530.1	1.80	1.48	1.38
1090.1	5650.1	1.13	0.87	0.88
1210.1	5770.1	0.31	0.11	0.24
1310.1	5870.1	0.31	0.12	0.20
1430.1	5990.1	0.76	0.43	0.45
1530.1	6090.1	1.44	1.00	0.91
1650.1	6210.1	2.08	1.50	1.28
1750.1	6310.1	2.30	1.76	1.49
1870.1	6430.1	2.55	1.88	1.58
1970.1	6530.1	2.72	1.97	1.58
2090.1	6650.1	3.00	2.14	1.71
2190.1	6750.1	2.98	2.10	1.71
2310.1	6870.1	3.33	2.37	1.91
2410.1	6970.1	3.29	2.33	1.88
2530.1	7090.1	3.35	2.37	1.84
2630.1	7190.1	3.35	2.34	1.84
2750.1	7310.1	3.66	2.52	2.02
2850.1	7410.1	3.80	2.60	2.09
2970.1	7530.1	3.89	2.73	2.11
3070.1	7630.1	3.70	2.59	1.99
3190.1	7750.1	3.76	2.65	2.00
3290.1	7850.1	3.82	2.68	2.02
3410.1	7970.1	3.96	2.68	1.97
3510.1	8070.1	3.95	2.69	1.94
3630.1	8190.1	4.12	2.64	1.89
3730.1	8290.1	4.18	2.65	1.80
3850.1	8410.1	4.13	2.46	1.74
3950.1	8510.1	4.04	2.48	1.76
4070.1	8630.1	4.11	2.51	1.79
4170.1	8730.1	4.10	2.44	1.71
4290.1	8850.1	4.10	2.34	1.65
4390.1	8950.1	4.20	2.38	1.69

Frequency Mixer

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1630.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=3250.1001MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+17			+17			+17
3270.2	1640.1	11.59	2580.0	2590.1	11.88	4790.2	1540.1	12.34
3410.2	1780.1	9.68	2860.0	2870.1	9.06	4830.2	1580.1	10.31
3550.2	1920.1	7.43	3140.0	3150.1	7.03	4870.2	1620.1	6.51
3690.2	2060.1	6.33	3420.0	3430.1	5.79	4910.2	1660.1	6.35
3830.2	2200.1	5.23	3700.0	3710.1	5.20	4950.2	1700.1	6.37
3970.2	2340.1	4.80	3980.0	3990.1	4.88	4990.2	1740.1	6.06
4110.2	2480.1	5.01	4260.0	4270.1	4.76	5030.2	1780.1	6.21
4250.2	2620.1	4.76	4540.0	4550.1	5.00	5070.2	1820.1	6.05
4390.2	2760.1	5.05	4820.0	4830.1	5.34	5110.2	1860.1	6.03
4530.2	2900.1	4.93	5100.0	5110.1	5.64	5150.2	1900.1	6.12
4670.2	3040.1	5.24	5380.0	5390.1	5.86	5190.2	1940.1	6.00
4810.2	3180.1	5.21	5660.0	5670.1	6.26	5230.2	1980.1	6.05
4950.2	3320.1	5.43	5940.0	5950.1	6.39	5270.2	2020.1	6.01
5090.2	3460.1	5.40	6220.0	6230.1	6.59	5310.2	2060.1	5.87
5230.2	3600.1	5.43	6500.0	6510.1	6.92	5350.2	2100.1	5.85
5370.2	3740.1	5.66	6780.0	6790.1	7.28	5390.2	2140.1	5.90
5510.2	3880.1	5.64	7060.0	7070.1	6.95	5430.2	2180.1	5.88
5650.2	4020.1	5.92	7340.0	7350.1	7.30	5470.2	2220.1	6.06
5790.2	4160.1	6.21	7620.0	7630.1	7.58	5510.2	2260.1	5.93
5930.2	4300.1	5.88	7900.0	7910.1	7.82	5550.2	2300.1	5.91
6070.2	4440.1	6.29	8180.0	8190.1	8.68	5590.2	2340.1	6.01
6210.2	4580.1	6.38	8460.0	8470.1	8.73	5630.2	2380.1	5.87
6350.2	4720.1	6.60	8740.0	8750.1	8.00	5670.2	2420.1	6.18
6490.2	4860.1	6.91	9020.0	9030.1	8.00	5710.2	2460.1	5.97
6630.2	5000.1	7.18	9300.0	9310.1	7.64	5750.2	2500.1	6.03
6770.2	5140.1	7.66	9580.0	9590.1	7.02	5790.2	2540.1	6.17
6930.2	5300.1	7.88	9860.0	9870.1	6.91	5830.2	2580.1	5.96
7070.2	5440.1	7.79	10140.0	10150.1	7.51	5890.2	2640.1	6.13
7230.2	5600.1	8.37	10420.0	10430.1	8.29	5930.2	2680.1	5.95
7370.2	5740.1	8.18	10700.0	10710.1	8.55	5990.2	2740.1	6.10
7530.2	5900.1	8.07	10980.0	10990.1	8.20	6030.2	2780.1	5.99
7670.2	6040.1	7.94	11260.0	11270.1	8.24	6090.2	2840.1	6.10
7830.2	6200.1	8.40	11540.0	11550.1	8.86	6130.2	2880.1	6.00
7970.2	6340.1	8.97	11840.0	11850.1	10.46	6190.2	2940.1	6.07
8130.2	6500.1	9.79	12120.0	12130.1	10.18	6230.2	2980.1	6.00
8270.2	6640.1	11.02	12420.0	12430.1	9.46	6290.2	3040.1	6.02
8430.2	6800.1	10.68	12700.0	12710.1	9.53	6330.2	3080.1	6.03
8570.2	6940.1	10.01	13000.0	13010.1	9.48	6390.2	3140.1	6.07
8730.2	7100.1	9.88	13280.0	13290.1	9.74	6430.2	3180.1	6.11
8870.2	7240.1	9.47	13580.0	13590.1	10.92	6490.2	3240.1	6.16

REV. X2

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Frequency Mixer

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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)		
	+14	+17	+20	+14	+17	+20			+14	+17	+20
4570.1	15.36	15.88	15.51	35.80	42.03	45.32	10.1	4570.1	69.65	68.81	68.20
4690.1	14.93	16.57	17.08	38.85	46.93	51.34	130.1	4690.1	47.85	46.94	46.45
4810.1	14.75	16.68	17.61	32.57	36.34	40.16	250.1	4810.1	40.51	40.00	39.72
4930.1	15.02	17.03	18.35	29.86	33.55	36.68	370.1	4930.1	35.60	35.27	35.10
5050.1	15.73	17.80	19.38	32.05	37.78	45.53	490.1	5050.1	31.98	31.85	31.81
5170.1	16.33	18.45	20.21	28.25	30.85	34.88	610.1	5170.1	29.10	29.04	29.02
5290.1	16.78	18.89	20.80	33.10	35.19	39.01	730.1	5290.1	26.79	26.78	26.80
5410.1	17.64	19.74	21.67	50.27	57.17	50.54	850.1	5410.1	24.98	24.99	25.05
5530.1	18.27	20.33	22.23	50.61	45.50	42.65	970.1	5530.1	23.35	23.41	23.48
5650.1	19.09	21.04	22.78	41.76	40.15	39.42	1090.1	5650.1	21.81	21.86	21.91
5770.1	19.83	21.56	23.00	39.50	38.09	37.66	1210.1	5770.1	20.58	20.65	20.73
5870.1	21.09	22.51	23.47	39.28	37.49	36.40	1310.1	5870.1	19.67	19.71	19.80
5990.1	22.42	23.39	23.66	39.49	38.13	37.13	1430.1	5990.1	18.64	18.71	18.79
6090.1	23.20	23.69	23.41	40.47	38.99	38.14	1530.1	6090.1	17.76	17.87	18.01
6210.1	24.05	23.95	23.18	40.08	38.30	37.58	1650.1	6210.1	16.90	17.05	17.22
6310.1	25.14	24.11	22.80	39.77	38.96	38.58	1750.1	6310.1	16.27	16.44	16.62
6430.1	26.42	24.48	22.77	40.26	40.26	40.62	1870.1	6430.1	15.36	15.75	16.07
6530.1	27.25	24.58	22.64	41.37	42.57	43.90	1970.1	6530.1	14.63	15.20	15.74
6650.1	28.54	25.24	23.07	44.93	50.11	56.72	2090.1	6650.1	14.07	14.50	15.05
6750.1	29.21	25.64	23.47	42.08	43.08	42.18	2190.1	6750.1	13.56	13.95	14.43
6870.1	29.24	26.01	24.01	35.15	35.35	35.79	2310.1	6870.1	13.24	13.71	14.27
6970.1	30.44	27.75	25.87	32.49	33.36	34.33	2410.1	6970.1	12.91	13.42	13.98
7090.1	30.00	28.07	26.38	31.04	32.12	33.51	2530.1	7090.1	12.49	13.07	13.61
7190.1	28.30	27.14	25.84	28.10	28.38	30.51	2630.1	7190.1	12.25	12.87	13.34
7310.1	25.82	25.27	24.43	28.28	28.81	30.03	2750.1	7310.1	12.15	12.85	13.47
7410.1	24.36	24.37	23.91	28.77	29.78	31.17	2850.1	7410.1	12.11	12.99	13.72
7530.1	23.24	23.73	23.78	28.86	30.07	32.53	2970.1	7530.1	12.64	13.40	14.21
7630.1	22.10	23.41	24.15	28.04	29.75	31.84	3070.1	7630.1	13.13	13.95	14.79
7750.1	20.66	22.41	23.69	26.37	29.12	31.73	3190.1	7750.1	13.70	14.54	15.32
7850.1	20.03	21.76	23.39	25.51	28.40	30.85	3290.1	7850.1	13.81	14.68	15.34
7970.1	18.90	20.57	22.19	23.74	26.22	28.55	3410.1	7970.1	13.83	14.69	15.41
8070.1	17.78	19.32	20.69	22.14	24.22	26.28	3510.1	8070.1	14.25	15.04	15.81
8190.1	17.25	18.65	19.70	20.46	22.19	23.74	3630.1	8190.1	14.59	15.39	16.23
8290.1	17.90	19.04	19.65	20.86	22.13	23.04	3730.1	8290.1	14.97	15.54	16.24
8410.1	20.21	21.07	21.11	22.70	23.31	23.40	3850.1	8410.1	15.99	16.38	16.77
8510.1	23.02	23.72	23.36	26.06	25.84	25.04	3950.1	8510.1	17.52	17.42	17.24
8630.1	23.71	25.04	25.37	28.00	27.03	25.84	4070.1	8630.1	19.15	18.44	17.57
8730.1	22.95	24.86	26.25	28.60	27.23	25.98	4170.1	8730.1	19.02	18.23	17.24
8850.1	21.51	23.66	25.98	27.78	26.62	25.62	4290.1	8850.1	18.85	17.94	16.88
8950.1	20.01	22.18	24.59	26.43	25.70	25.07	4390.1	8950.1	18.76	17.75	16.58

Frequency Mixer

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)		
		@LO (dBm)		
		+14	+17	+20
10.1	4570.1	2.92	2.33	2.06
130.1	4690.1	2.98	2.42	2.08
250.1	4810.1	2.98	2.52	2.15
370.1	4930.1	3.12	2.68	2.35
490.1	5050.1	3.33	2.90	2.55
610.1	5170.1	3.44	3.00	2.71
730.1	5290.1	3.65	3.14	2.80
850.1	5410.1	3.86	3.37	2.92
970.1	5530.1	4.01	3.48	3.03
1090.1	5650.1	4.08	3.54	3.13
1210.1	5770.1	3.95	3.40	3.00
1310.1	5870.1	3.90	3.30	2.92
1430.1	5990.1	3.76	3.13	2.73
1530.1	6090.1	3.82	3.10	2.66
1650.1	6210.1	3.67	2.98	2.54
1750.1	6310.1	3.85	3.02	2.55
1870.1	6430.1	3.72	2.81	2.38
1970.1	6530.1	3.54	2.57	2.14
2090.1	6650.1	3.24	2.40	1.96
2190.1	6750.1	3.05	2.33	1.91
2310.1	6870.1	2.73	2.11	1.75
2410.1	6970.1	2.44	1.94	1.63
2530.1	7090.1	2.41	1.84	1.54
2630.1	7190.1	2.35	1.74	1.48
2750.1	7310.1	2.17	1.69	1.44
2850.1	7410.1	2.02	1.56	1.34
2970.1	7530.1	1.73	1.42	1.21
3070.1	7630.1	1.65	1.34	1.15
3190.1	7750.1	1.66	1.33	1.13
3290.1	7850.1	1.65	1.33	1.13
3410.1	7970.1	1.71	1.36	1.14
3510.1	8070.1	1.73	1.34	1.12
3630.1	8190.1	1.68	1.31	1.11
3730.1	8290.1	1.57	1.22	1.01
3850.1	8410.1	1.63	1.23	1.11
3950.1	8510.1	1.65	1.24	1.14
4070.1	8630.1	1.55	1.23	1.23
4170.1	8730.1	1.45	1.24	1.31
4290.1	8850.1	1.32	1.32	1.47
4390.1	8950.1	1.23	1.45	1.66

LO (MHz)	LO VSWR (:1)		
	@LO (dBm)		
	+14	+17	+20
4570.1	1.73	1.05	1.46
4690.1	1.73	1.03	1.49
4810.1	1.71	1.04	1.49
4930.1	1.75	1.10	1.49
5050.1	1.78	1.16	1.50
5170.1	1.82	1.18	1.47
5290.1	1.92	1.30	1.51
5410.1	1.95	1.35	1.56
5530.1	1.96	1.36	1.57
5650.1	1.95	1.35	1.53
5770.1	2.04	1.35	1.47
5870.1	2.19	1.43	1.46
5990.1	2.36	1.51	1.45
6090.1	2.46	1.55	1.44
6210.1	2.55	1.59	1.42
6310.1	2.62	1.61	1.40
6430.1	2.67	1.63	1.37
6530.1	2.73	1.65	1.34
6650.1	2.76	1.68	1.34
6750.1	2.73	1.68	1.35
6870.1	2.73	1.69	1.37
6970.1	2.67	1.66	1.38
7090.1	2.70	1.63	1.38
7190.1	2.64	1.59	1.37
7310.1	2.58	1.54	1.38
7410.1	2.52	1.51	1.38
7530.1	2.40	1.49	1.39
7630.1	2.39	1.50	1.40
7750.1	2.44	1.52	1.41
7850.1	2.46	1.53	1.41
7970.1	2.51	1.55	1.41
8070.1	2.53	1.59	1.44
8190.1	2.63	1.66	1.49
8290.1	2.69	1.67	1.47
8410.1	2.86	1.72	1.46
8510.1	2.98	1.76	1.46
8630.1	2.89	1.76	1.45
8730.1	2.84	1.74	1.42
8850.1	2.69	1.67	1.34
8950.1	2.55	1.59	1.26

IF (OUT) (MHz)	IF VSWR @LO=7770MHz (:1)		
	@LO (dBm)		
	+14	+17	+20
3550.0	4.25	3.63	3.37
3650.0	3.41	3.01	2.86
3750.0	2.83	2.55	2.48
3850.0	2.32	2.14	2.15
3950.0	1.93	1.86	1.95
4050.0	1.69	1.73	1.89
4150.0	1.44	1.58	1.78
4250.0	1.30	1.53	1.74
4350.0	1.32	1.58	1.80
4450.0	1.45	1.72	1.93
4570.0	1.61	1.88	2.09
4670.0	1.80	2.05	2.25
4790.0	2.03	2.27	2.44
4890.0	2.29	2.51	2.67
5010.0	2.66	2.90	3.06
5110.0	2.87	3.11	3.26
5230.0	3.01	3.24	3.39
5330.0	3.10	3.31	3.45
5450.0	3.16	3.34	3.47
5550.0	3.24	3.40	3.52
5670.0	3.27	3.40	3.50
5770.0	3.37	3.47	3.56
5890.0	3.29	3.39	3.48
5990.0	3.33	3.40	3.48
6110.0	3.30	3.36	3.45
6210.0	3.25	3.27	3.35
6330.0	3.21	3.22	3.29
6430.0	3.03	3.00	3.06
6550.0	2.98	2.91	2.92
6650.0	2.88	2.78	2.79
6770.0	3.08	2.90	2.85
6870.0	3.13	2.93	2.87
6990.0	3.55	3.21	3.07
7090.0	3.75	3.36	3.20
7210.0	4.23	3.69	3.42
7310.0	4.30	3.76	3.48
7430.0	4.57	3.90	3.56
7530.0	4.41	3.80	3.47
7650.0	4.56	3.91	3.54
7750.0	4.24	3.73	3.40

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	14	+5	32	---	---	---	---	---	---	---
1	-	11	+0	18	23	44	---	---	---	---	---	---
2	60	41	46	41	54	70	---	---	---	---	---	---
3	>90	74	69	74	60	81	---	---	---	---	---	---
4	>90	81	>82	82	>82	>82	---	---	---	---	---	---
5	>90	>82	>82	>82	>82	>82	>82	---	---	---	---	---
6	>90	>82	>82	>82	>82	>82	>82	---	---	---	---	---
7	>90	>82	>82	>82	>82	>82	>82	---	---	---	---	---
8	>90	>82	>82	>82	>82	>82	>82	---	---	---	---	---
9	>90	>82	>82	>82	>82	>82	>82	>82	---	---	---	---
10	>90	>82	>82	>82	>82	>82	>82	>82	---	---	---	---
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 1625 MHz; -1.00 dBm.
 LO IN: 6185 MHz; +17.00 dBm
 IF OUT: 4560 MHz; -7.78 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	24	7	42	---	---	---	---	---	---	---
1	-	11	+0	19	24	47	---	---	---	---	---	---
2	40	34	36	29	45	60	---	---	---	---	---	---
3	76	46	44	57	37	61	---	---	---	---	---	---
4	>90	47	70	46	54	80	---	---	---	---	---	---
5	>90	61	53	62	53	63	90	---	---	---	---	---
6	>90	56	60	57	62	64	86	---	---	---	---	---
7	>90	65	59	74	63	70	>92	---	---	---	---	---
8	>90	69	75	83	71	69	>92	---	---	---	---	---
9	>90	83	78	78	76	81	>92	>92	---	---	---	---
10	>90	>92	83	88	86	82	>92	>92	---	---	---	---
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

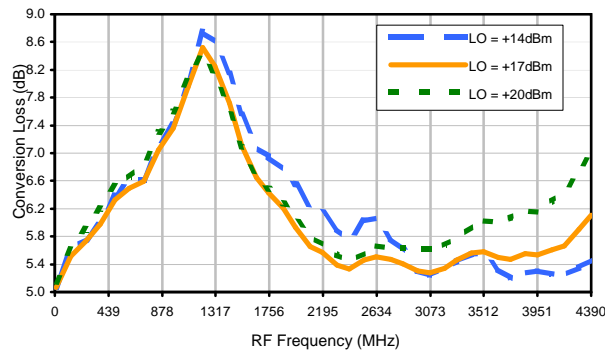
LO HARMONICS ORDER

Test conditions: RF IN: 1625 MHz; 9.00 dBm.
 LO IN: 6185 MHz; +17.00 dBm
 IF OUT: 4560 MHz; 2.32 dBm

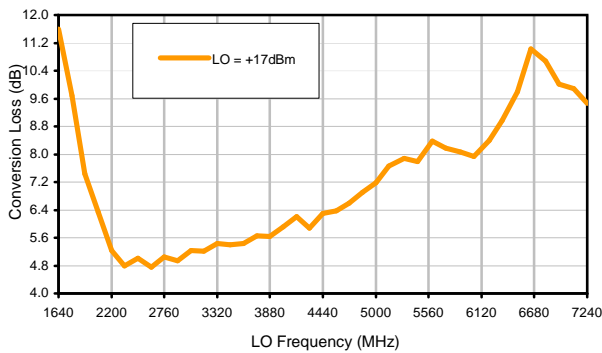
- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
 2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
 3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Typical Performance Curves

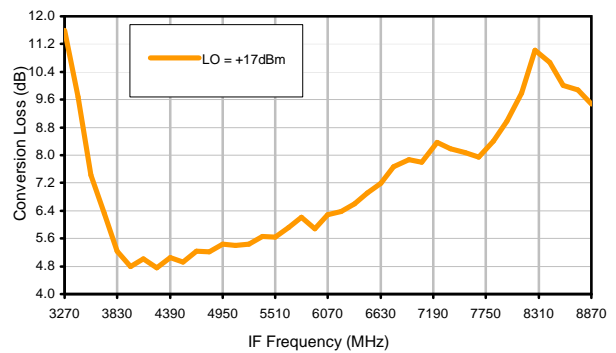
Conversion Loss @ IF=4560MHz



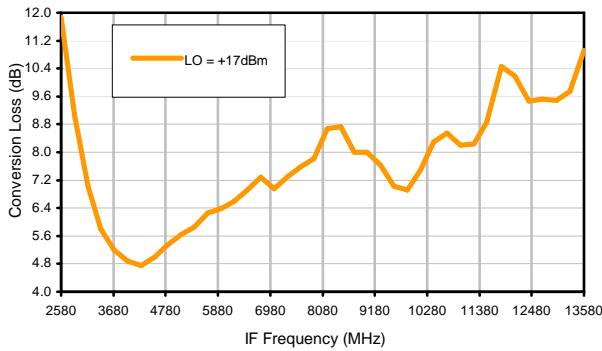
Conversion Loss vs. LO @ RF=1630.1MHz



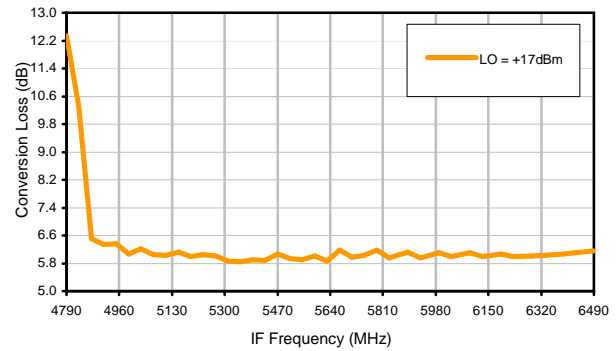
Conversion Loss vs. IF @ RF=1630.1MHz



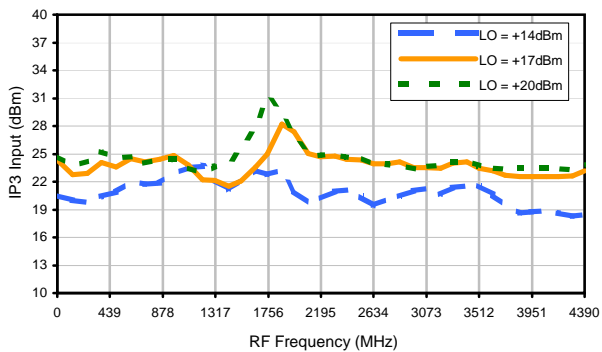
Conversion Loss vs. IF @ RF=10.1MHz



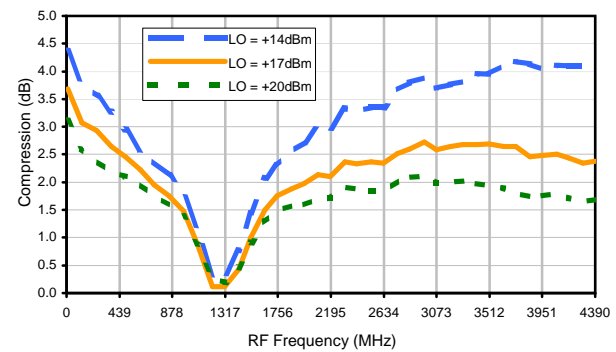
Conversion Loss vs. IF @ RF=3250.1001MHz



IP3 Input

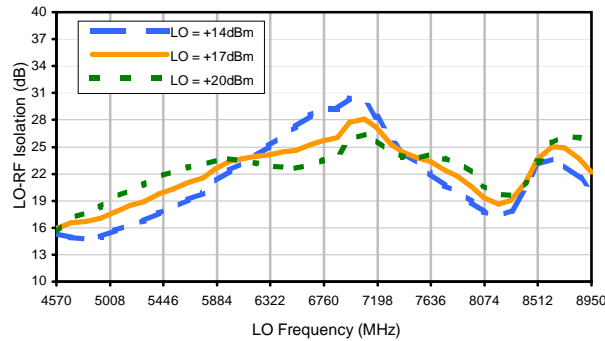


Compression @ RF IN=+14dBm

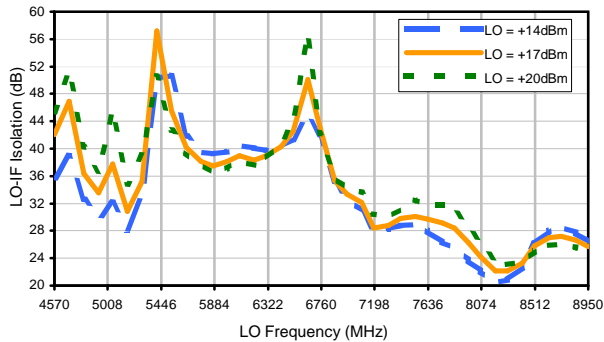


Typical Performance Curves

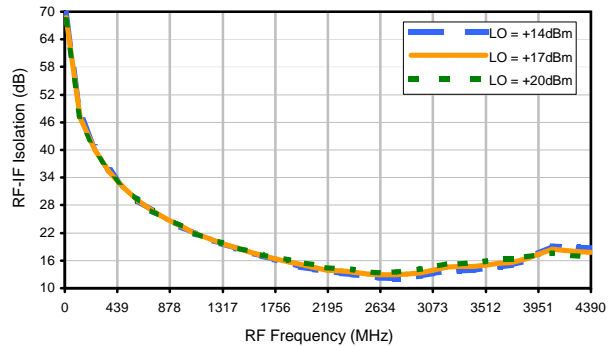
LO-RF Isolation



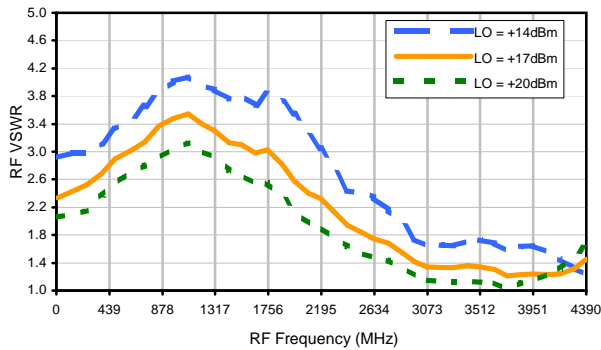
LO-IF Isolation



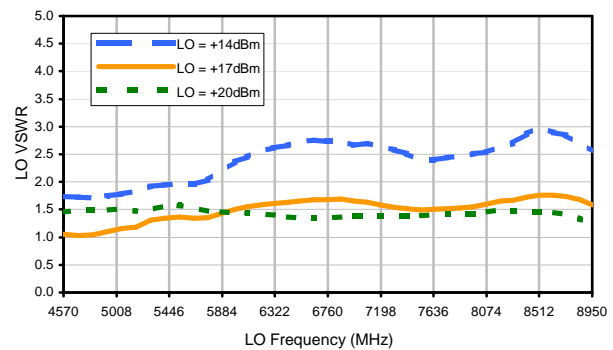
RF-IF Isolation



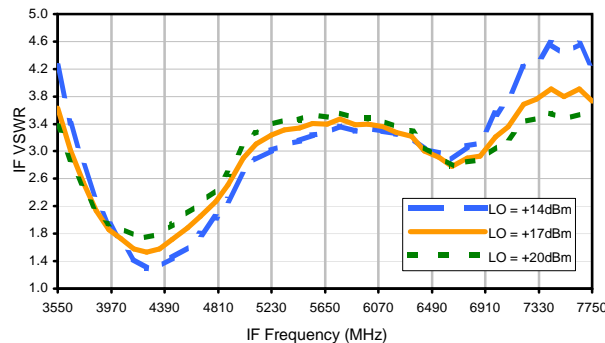
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	14	+5	32	---	---	---	---	---	---	---
1	-	11	+0	18	23	44	---	---	---	---	---	---
2	60	41	46	41	54	70	---	---	---	---	---	---
3	>90	74	69	74	60	81	---	---	---	---	---	---
4	>90	81	>82	82	>82	>82	---	---	---	---	---	---
5	>90	>82	>82	>82	>82	>82	>82	---	---	---	---	---
6	>90	>82	>82	>82	>82	>82	>82	---	---	---	---	---
7	>90	>82	>82	>82	>82	>82	>82	---	---	---	---	---
8	>90	>82	>82	>82	>82	>82	>82	---	---	---	---	---
9	>90	>82	>82	>82	>82	>82	>82	>82	---	---	---	---
10	>90	>82	>82	>82	>82	>82	>82	>82	---	---	---	---
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 1625 MHz; -1.00 dBm.
 LO IN: 6185 MHz; +17.00 dBm
 IF OUT: 4560 MHz; -7.78 dBm

RF HARMONICS ORDER

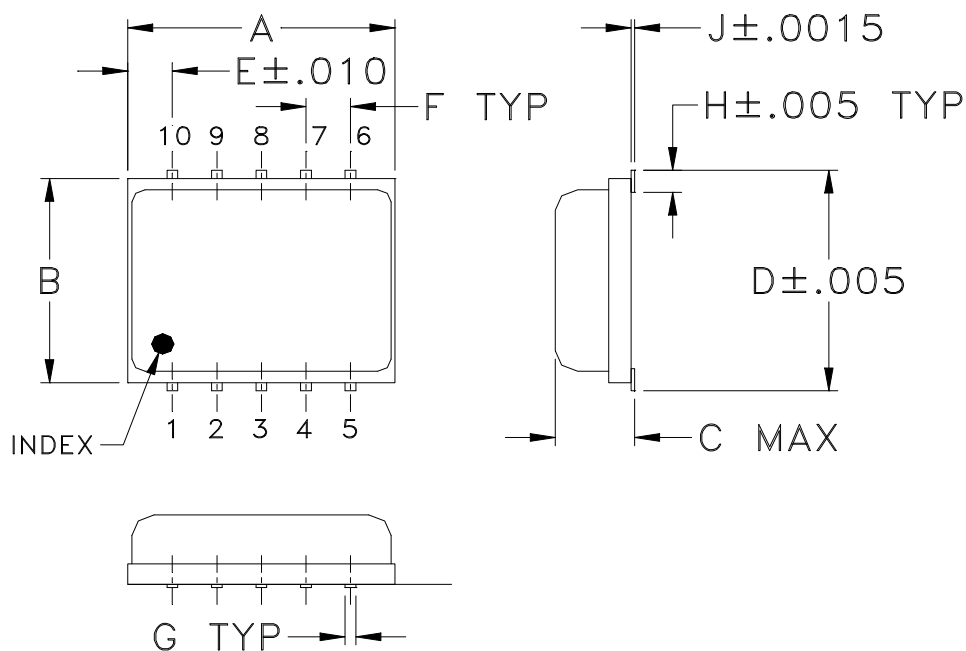
	(-dBm)	(-dBc)										
0	-	-	24	7	42	---	---	---	---	---	---	---
1	-	11	+0	19	24	47	---	---	---	---	---	---
2	40	34	36	29	45	60	---	---	---	---	---	---
3	76	46	44	57	37	61	---	---	---	---	---	---
4	>90	47	70	46	54	80	---	---	---	---	---	---
5	>90	61	53	62	53	63	90	---	---	---	---	---
6	>90	56	60	57	62	64	86	---	---	---	---	---
7	>90	65	59	74	63	70	>92	---	---	---	---	---
8	>90	69	75	83	71	69	>92	---	---	---	---	---
9	>90	83	78	78	76	81	>92	>92	---	---	---	---
10	>90	>92	83	88	86	82	>92	>92	---	---	---	---
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

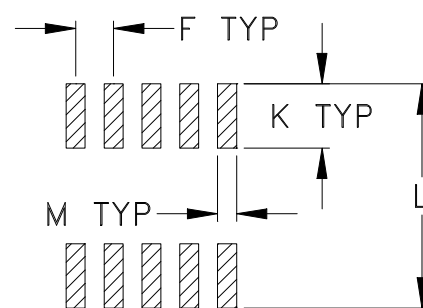
Test conditions: RF IN: 1625 MHz; 9.00 dBm.
 LO IN: 6185 MHz; +17.00 dBm
 IF OUT: 4560 MHz; 2.32 dBm

- 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.

Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

CASE#	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAMS
DZ885	.30 (7.62)	.250 (6.35)	.085 (2.16)	.266 (6.76)	.050 (1.27)	.050 (1.27)	.012 (0.30)	.029 (0.74)	.004 (0.10)	.085 (2.16)	.296 (7.52)	.030 (0.76)	0.25
DZ1034			.105 (2.67)										0.3

Dimensions are in inches (mm). Tolerances: 2Pl. $\pm .01$; 3Pl. $\pm .005$

Notes:

- Case material: Plastic encapsulation on Ceramic base.
- Termination finish:
 - For RoHS Case Styles: Tin plate. All models, (+) suffix.
 - For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

Tape & Reel Packaging TR-F34



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note	
16	12	7	Small quantity standard (see note)	20
				50
				100
				200
		13	Standard	500
1000				

Note: Availability of small reel quantity varies by model.
Refer to pricing and availability on individual model dashboard.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf



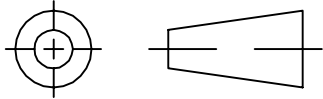
INTERNET <http://www.minicircuits.com>

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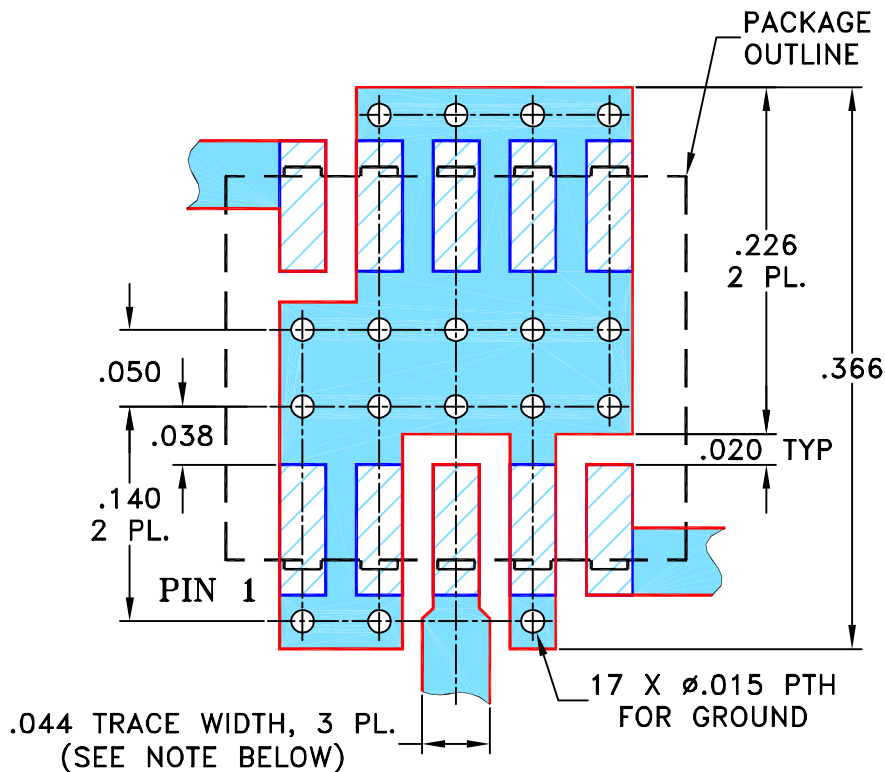
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
A	M81781	UPDATED PCB LAYOUT	06/07/02	GF	DJ
B	M82377	UPDATED DRAWING	07/31/02	AV	WL
C	M102713	ADDED NOTE 2 & "...WITH SMOBC"	01/17/06	MMG	IL
D	M135488	ADDED DZ1650, CHANGED PIN CONN.	02/02/12	GF	DJ

SUGGESTED MOUNTING CONFIGURATION FOR
DZ883, DZ885 & DZ1650 CASE STYLES, "10MX01" PIN CONNECTION



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.



DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)



DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED

INITIALS

DATE

DIMENSIONS ARE IN INCHES

DRAWN

AV

05/08/02

TOLERANCES ON:

CHECKED

DB

05/16/02

2 PL DECIMALS ± .005

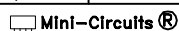
APPROVED

WL

05/16/02

ANGLES ±

FRACTIONS ±



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Mini-Circuits®

13 Neptune Avenue
Brooklyn NY 11235

PL, 10MX01, DZ883/885/1650, TB-144

SIZE

CODE IDENT

DRAWING NO:

REV:

A

15542

98-PL-045

D

FILE:

98PL045

SCALE:

8:1

SHEET:

1 OF 1

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Autoclave	15 psig, 100% RH, 121°C, 96 hours	JESD22-A102-C, Condition C
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutectic Process: 225°C peak Pb-Free Process: 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2; Figure 5-1
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215