

Engineering Development Model

Frequency Mixer

MCA-ED12748/1

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.



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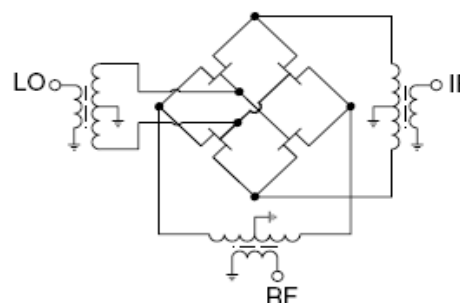
CASE STYLE : DZ883

| ELECTRICAL SPECIFICATIONS 50Ω @ +25°C | | | | | |
|---------------------------------------|----------------------|------|------|------|-------|
| Parameter | | Min. | Typ. | Max. | Units |
| Frequency | LO (fL to fu) | 900 | | 2720 | MHz |
| | RF (fL to fu) | 900 | | 2720 | MHz |
| | IF | 160 | | 960 | MHz |
| Conversion Loss | Total Range | | 7.1 | | dB |
| LO-RF Isolation | | | 40 | | dB |
| LO-IF Isolation | | | 32 | | dB |
| Input IP3 | | | +29 | | dBm |
| 1 dB Compression | | | +15 | | dBm |

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

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

Electrical Schematics



Frequency Mixer

MCA-ED12748/1

Typical Performance Data

| RF (IN) (MHz) | LO (MHz) | CONVERSION LOSS IF FIXED @IF(OUT)=350MHz (dB) | | |
|---------------|----------|---|-------|-------|
| | | @LO (dBm) | | |
| | | +14 | +17 | +20 |
| 540.1 | 190.1 | 14.87 | 12.71 | 11.79 |
| 600.1 | 250.1 | 12.28 | 10.17 | 9.26 |
| 660.1 | 310.1 | 10.58 | 8.63 | 7.87 |
| 720.1 | 370.1 | 8.90 | 7.35 | 7.05 |
| 780.1 | 430.1 | 7.28 | 6.55 | 6.43 |
| 840.1 | 490.1 | 9.74 | 9.35 | 9.14 |
| 900.1 | 550.1 | 8.11 | 7.90 | 7.84 |
| 960.1 | 610.1 | 6.93 | 6.67 | 6.57 |
| 1020.1 | 670.1 | 6.35 | 6.12 | 6.07 |
| 1080.1 | 730.1 | 6.20 | 5.93 | 5.82 |
| 1140.1 | 790.1 | 6.60 | 6.23 | 6.07 |
| 1200.1 | 850.1 | 6.88 | 6.37 | 6.20 |
| 1260.1 | 910.1 | 7.38 | 6.92 | 6.77 |
| 1320.1 | 970.1 | 7.54 | 7.04 | 6.99 |
| 1380.1 | 1030.1 | 7.05 | 6.51 | 6.44 |
| 1440.1 | 1090.1 | 6.89 | 6.39 | 6.33 |
| 1500.1 | 1150.1 | 6.72 | 6.32 | 6.31 |
| 1560.1 | 1210.1 | 6.63 | 6.19 | 6.14 |
| 1620.1 | 1270.1 | 6.47 | 6.12 | 6.13 |
| 1680.1 | 1330.1 | 6.59 | 6.66 | 6.89 |
| 1740.1 | 1390.1 | 6.90 | 6.84 | 6.98 |
| 1810.1 | 1460.1 | 7.11 | 6.94 | 7.06 |
| 1870.1 | 1520.1 | 7.17 | 7.14 | 7.31 |
| 1940.1 | 1590.1 | 7.06 | 7.03 | 7.20 |
| 2000.1 | 1650.1 | 7.03 | 6.96 | 7.08 |
| 2070.1 | 1720.1 | 7.51 | 7.53 | 7.66 |
| 2130.1 | 1780.1 | 7.39 | 7.41 | 7.55 |
| 2200.1 | 1850.1 | 7.62 | 7.58 | 7.67 |
| 2260.1 | 1910.1 | 7.96 | 7.89 | 7.94 |
| 2330.1 | 1980.1 | 7.86 | 7.80 | 7.86 |
| 2390.1 | 2040.1 | 7.69 | 7.55 | 7.61 |
| 2460.1 | 2110.1 | 7.81 | 7.62 | 7.65 |
| 2520.1 | 2170.1 | 8.02 | 7.82 | 7.80 |
| 2590.1 | 2240.1 | 8.29 | 8.05 | 8.01 |
| 2650.1 | 2300.1 | 8.46 | 8.11 | 8.05 |
| 2720.1 | 2370.1 | 8.54 | 8.15 | 8.10 |
| 2780.1 | 2430.1 | 8.59 | 8.15 | 8.11 |
| 2850.1 | 2500.1 | 9.16 | 8.62 | 8.52 |
| 2910.1 | 2560.1 | 10.39 | 9.85 | 9.72 |
| 2980.1 | 2630.1 | 13.42 | 12.99 | 12.74 |

| RF (IN) (MHz) | LO (MHz) | IP3 INPUT (dBm) | | |
|---------------|----------|-----------------|-------|-------|
| | | @LO (dBm) | | |
| | | +14 | +17 | +20 |
| 540.1 | 190.1 | 11.48 | 12.63 | 15.75 |
| 600.1 | 250.1 | 14.02 | 17.66 | 18.70 |
| 660.1 | 310.1 | 15.34 | 17.27 | 17.38 |
| 720.1 | 370.1 | 16.91 | 17.73 | 20.68 |
| 780.1 | 430.1 | 21.30 | 22.11 | 24.37 |
| 840.1 | 490.1 | 19.97 | 21.64 | 21.99 |
| 900.1 | 550.1 | 18.03 | 19.66 | 22.42 |
| 960.1 | 610.1 | 24.73 | 27.23 | 29.38 |
| 1020.1 | 670.1 | 29.76 | 32.55 | 32.95 |
| 1080.1 | 730.1 | 30.57 | 32.38 | 36.01 |
| 1140.1 | 790.1 | 27.53 | 32.32 | 36.85 |
| 1200.1 | 850.1 | 39.56 | 29.76 | 30.25 |
| 1260.1 | 910.1 | 27.69 | 29.75 | 28.66 |
| 1320.1 | 970.1 | 22.90 | 25.52 | 26.88 |
| 1380.1 | 1030.1 | 22.23 | 24.84 | 29.25 |
| 1440.1 | 1090.1 | 22.83 | 27.19 | 32.30 |
| 1500.1 | 1150.1 | 24.06 | 27.93 | 35.55 |
| 1560.1 | 1210.1 | 26.07 | 29.30 | 30.21 |
| 1620.1 | 1270.1 | 22.81 | 22.66 | 24.88 |
| 1680.1 | 1330.1 | 19.72 | 25.77 | 34.17 |
| 1740.1 | 1390.1 | 28.78 | 25.92 | 30.22 |
| 1810.1 | 1460.1 | 23.32 | 25.57 | 30.33 |
| 1870.1 | 1520.1 | 23.77 | 30.10 | 31.05 |
| 1940.1 | 1590.1 | 22.76 | 26.85 | 31.70 |
| 2000.1 | 1650.1 | 24.44 | 28.94 | 32.16 |
| 2070.1 | 1720.1 | 28.82 | 33.42 | 33.41 |
| 2130.1 | 1780.1 | 26.02 | 33.25 | 31.99 |
| 2200.1 | 1850.1 | 27.13 | 34.72 | 34.24 |
| 2260.1 | 1910.1 | 27.58 | 32.94 | 36.96 |
| 2330.1 | 1980.1 | 27.54 | 33.15 | 38.49 |
| 2390.1 | 2040.1 | 26.05 | 30.37 | 37.84 |
| 2460.1 | 2110.1 | 26.02 | 28.40 | 32.10 |
| 2520.1 | 2170.1 | 28.01 | 30.22 | 34.29 |
| 2590.1 | 2240.1 | 27.23 | 27.99 | 38.53 |
| 2650.1 | 2300.1 | 25.52 | 30.92 | 40.98 |
| 2720.1 | 2370.1 | 26.94 | 32.45 | 36.59 |
| 2780.1 | 2430.1 | 26.67 | 31.28 | 40.03 |
| 2850.1 | 2500.1 | 25.59 | 30.01 | 32.28 |
| 2910.1 | 2560.1 | 25.90 | 30.08 | 36.11 |
| 2980.1 | 2630.1 | 26.02 | 30.15 | 32.25 |

| RF (IN) (MHz) | LO (MHz) | COMPRESSION @RF IN=+15dBm (dB) | | |
|---------------|----------|--------------------------------|-------|-------|
| | | @LO (dBm) | | |
| | | +14 | +17 | +20 |
| 540.1 | 190.1 | 4.37 | 3.82 | 2.72 |
| 600.1 | 250.1 | 4.13 | 3.64 | 2.58 |
| 660.1 | 310.1 | 3.99 | 3.51 | 2.43 |
| 720.1 | 370.1 | 3.64 | 3.09 | 1.91 |
| 780.1 | 430.1 | 2.73 | 1.72 | 0.73 |
| 840.1 | 490.1 | -0.09 | -0.13 | 0.15 |
| 900.1 | 550.1 | 1.64 | 0.99 | 0.70 |
| 960.1 | 610.1 | 1.10 | 0.48 | 0.20 |
| 1020.1 | 670.1 | 0.19 | 0.13 | 0.07 |
| 1080.1 | 730.1 | 0.18 | 0.13 | 0.06 |
| 1140.1 | 790.1 | 0.12 | 0.09 | 0.02 |
| 1200.1 | 850.1 | 0.18 | 0.15 | 0.08 |
| 1260.1 | 910.1 | 0.24 | 0.10 | 0.04 |
| 1320.1 | 970.1 | 1.16 | 0.69 | 0.32 |
| 1380.1 | 1030.1 | 1.37 | 0.80 | 0.36 |
| 1440.1 | 1090.1 | 1.13 | 0.64 | 0.24 |
| 1500.1 | 1150.1 | 0.90 | 0.50 | 0.20 |
| 1560.1 | 1210.1 | 0.96 | 0.52 | 0.19 |
| 1620.1 | 1270.1 | 0.91 | 0.38 | 0.08 |
| 1680.1 | 1330.1 | 0.69 | 0.11 | 0.03 |
| 1740.1 | 1390.1 | 0.98 | 0.40 | 0.15 |
| 1810.1 | 1460.1 | 0.89 | 0.55 | 0.23 |
| 1870.1 | 1520.1 | 0.86 | 0.44 | 0.17 |
| 1940.1 | 1590.1 | 0.79 | 0.38 | 0.13 |
| 2000.1 | 1650.1 | 0.74 | 0.38 | 0.15 |
| 2070.1 | 1720.1 | 0.69 | 0.33 | 0.15 |
| 2130.1 | 1780.1 | 0.61 | 0.28 | 0.12 |
| 2200.1 | 1850.1 | 0.42 | 0.20 | 0.10 |
| 2260.1 | 1910.1 | 0.37 | 0.19 | 0.11 |
| 2330.1 | 1980.1 | 0.25 | 0.13 | 0.07 |
| 2390.1 | 2040.1 | 0.19 | 0.10 | 0.06 |
| 2460.1 | 2110.1 | 0.10 | 0.04 | 0.02 |
| 2520.1 | 2170.1 | -0.03 | -0.03 | -0.01 |
| 2590.1 | 2240.1 | 0.03 | 0.10 | 0.09 |
| 2650.1 | 2300.1 | 0.39 | 0.21 | 0.08 |
| 2720.1 | 2370.1 | 0.45 | 0.19 | 0.08 |
| 2780.1 | 2430.1 | 0.39 | 0.19 | 0.08 |
| 2850.1 | 2500.1 | 0.33 | 0.19 | 0.09 |
| 2910.1 | 2560.1 | 0.24 | 0.14 | 0.08 |
| 2980.1 | 2630.1 | 0.13 | 0.10 | 0.05 |

Frequency Mixer

MCA-ED12748/1

Typical Performance Data

| IF (OUT) (MHz) | LO (MHz) | CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2600.1001MHz (dB) |
|----------------|----------|--|
| | | @LO (dBm) |
| | | +17 |
| 2060.0 | 540.1 | 11.60 |
| 1957.5 | 642.6 | 12.21 |
| 1855.0 | 745.1 | 10.83 |
| 1752.5 | 847.6 | 10.18 |
| 1650.0 | 950.1 | 9.86 |
| 1547.5 | 1052.6 | 10.05 |
| 1445.0 | 1155.1 | 9.77 |
| 1342.5 | 1257.6 | 9.01 |
| 1240.0 | 1360.1 | 10.68 |
| 1137.5 | 1462.6 | 10.07 |
| 1035.0 | 1565.1 | 9.49 |
| 932.5 | 1667.6 | 9.33 |
| 830.0 | 1770.1 | 8.94 |
| 727.5 | 1872.6 | 8.82 |
| 625.0 | 1975.1 | 8.61 |
| 522.5 | 2077.6 | 8.30 |
| 420.0 | 2180.1 | 8.02 |
| 317.5 | 2282.6 | 7.90 |
| 215.0 | 2385.1 | 7.78 |
| 112.5 | 2487.6 | 8.93 |
| 10.0 | 2590.1 | 23.96 |
| 22.3 | 2622.4 | 17.42 |
| 40.8 | 2640.9 | 13.34 |
| 59.3 | 2659.4 | 11.47 |
| 77.8 | 2677.9 | 10.49 |
| 96.3 | 2696.4 | 9.83 |
| 114.8 | 2714.9 | 9.45 |
| 133.3 | 2733.4 | 9.23 |
| 151.8 | 2751.9 | 9.11 |
| 170.3 | 2770.4 | 9.07 |
| 188.8 | 2788.9 | 9.03 |
| 207.3 | 2807.4 | 9.00 |
| 232.0 | 2832.1 | 8.97 |
| 250.5 | 2850.6 | 8.99 |
| 275.2 | 2875.3 | 9.05 |
| 293.7 | 2893.8 | 9.13 |
| 318.3 | 2918.4 | 9.61 |
| 336.8 | 2936.9 | 10.15 |
| 361.5 | 2961.6 | 10.37 |
| 380.0 | 2980.1 | 10.18 |

| IF (OUT) (MHz) | LO (MHz) | CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2500.1001MHz (dB) |
|----------------|----------|--|
| | | @LO (dBm) |
| | | +17 |
| 10.0 | 2510.1 | 23.62 |
| 20.0 | 2520.1 | 17.82 |
| 30.0 | 2530.1 | 14.86 |
| 40.0 | 2540.1 | 12.96 |
| 50.0 | 2550.1 | 11.76 |
| 60.0 | 2560.1 | 10.93 |
| 70.0 | 2570.1 | 10.39 |
| 80.0 | 2580.1 | 10.03 |
| 90.0 | 2590.1 | 9.76 |
| 100.0 | 2600.1 | 9.46 |
| 110.0 | 2610.1 | 9.26 |
| 120.0 | 2620.1 | 9.13 |
| 130.0 | 2630.1 | 9.03 |
| 140.0 | 2640.1 | 8.91 |
| 150.0 | 2650.1 | 8.83 |
| 160.0 | 2660.1 | 8.79 |
| 170.0 | 2670.1 | 8.76 |
| 180.0 | 2680.1 | 8.70 |
| 190.0 | 2690.1 | 8.65 |
| 200.0 | 2700.1 | 8.63 |
| 210.0 | 2710.1 | 8.61 |
| 220.0 | 2720.1 | 8.62 |
| 230.0 | 2730.1 | 8.63 |
| 240.0 | 2740.1 | 8.66 |
| 260.0 | 2760.1 | 8.65 |
| 270.0 | 2770.1 | 8.61 |
| 290.0 | 2790.1 | 8.52 |
| 300.0 | 2800.1 | 8.50 |
| 320.0 | 2820.1 | 8.45 |
| 330.0 | 2830.1 | 8.48 |
| 350.0 | 2850.1 | 8.58 |
| 360.0 | 2860.1 | 8.65 |
| 380.0 | 2880.1 | 8.79 |
| 390.0 | 2890.1 | 8.88 |
| 410.0 | 2910.1 | 9.33 |
| 420.0 | 2920.1 | 9.76 |
| 440.0 | 2940.1 | 10.43 |
| 450.0 | 2950.1 | 10.63 |
| 470.0 | 2970.1 | 10.65 |
| 480.0 | 2980.1 | 10.44 |

| IF (OUT) (MHz) | LO (MHz) | CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2700.1001MHz (dB) |
|----------------|----------|--|
| | | @LO (dBm) |
| | | +17 |
| 2170.0 | 530.1 | 11.66 |
| 2110.0 | 590.1 | 10.77 |
| 2050.0 | 650.1 | 10.90 |
| 1990.0 | 710.1 | 11.76 |
| 1930.0 | 770.1 | 12.02 |
| 1870.0 | 830.1 | 11.30 |
| 1810.0 | 890.1 | 11.07 |
| 1750.0 | 950.1 | 10.33 |
| 1690.0 | 1010.1 | 10.30 |
| 1630.0 | 1070.1 | 10.47 |
| 1570.0 | 1130.1 | 10.38 |
| 1510.0 | 1190.1 | 10.19 |
| 1450.0 | 1250.1 | 9.49 |
| 1390.0 | 1310.1 | 8.94 |
| 1330.0 | 1370.1 | 9.99 |
| 1270.0 | 1430.1 | 11.17 |
| 1210.0 | 1490.1 | 10.38 |
| 1150.0 | 1550.1 | 9.87 |
| 1090.0 | 1610.1 | 9.57 |
| 1030.0 | 1670.1 | 9.34 |
| 970.0 | 1730.1 | 9.14 |
| 910.0 | 1790.1 | 9.06 |
| 870.0 | 1830.1 | 8.86 |
| 810.0 | 1890.1 | 8.74 |
| 770.0 | 1930.1 | 8.72 |
| 710.0 | 1990.1 | 8.55 |
| 670.0 | 2030.1 | 8.51 |
| 610.0 | 2090.1 | 8.49 |
| 570.0 | 2130.1 | 8.44 |
| 510.0 | 2190.1 | 8.40 |
| 470.0 | 2230.1 | 8.52 |
| 410.0 | 2290.1 | 8.25 |
| 370.0 | 2330.1 | 8.02 |
| 310.0 | 2390.1 | 7.98 |
| 270.0 | 2430.1 | 7.93 |
| 210.0 | 2490.1 | 8.37 |
| 170.0 | 2530.1 | 8.66 |
| 110.0 | 2590.1 | 9.61 |
| 70.0 | 2630.1 | 10.88 |
| 10.0 | 2690.1 | 24.20 |

REV. X2

MCA-ED12748/1

101028

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Frequency Mixer

MCA-ED12748/1

Typical Performance Data

| LO (MHz) | LO-RF ISOLATION (dB) | | | LO-IF ISOLATION (dB) | | |
|-------------|-------------------------|-------|-------|-------------------------|-------|-------|
| | @LO (dBm) | | | @LO (dBm) | | |
| | +14 | +17 | +20 | +14 | +17 | +20 |
| 190.1 | 64.14 | 60.61 | 59.45 | 60.65 | 58.41 | 58.08 |
| 250.1 | 55.04 | 52.06 | 51.90 | 50.68 | 49.91 | 50.23 |
| 310.1 | 46.80 | 44.97 | 45.53 | 45.48 | 44.89 | 45.03 |
| 370.1 | 41.50 | 40.99 | 42.47 | 40.78 | 40.13 | 40.43 |
| 430.1 | 37.20 | 37.07 | 37.55 | 34.84 | 34.43 | 34.32 |
| 490.1 | 39.91 | 39.85 | 41.49 | 35.84 | 36.85 | 37.43 |
| 550.1 | 34.87 | 34.71 | 35.68 | 32.51 | 33.15 | 33.70 |
| 610.1 | 29.98 | 29.64 | 29.72 | 28.13 | 28.54 | 28.91 |
| 670.1 | 27.29 | 27.06 | 26.65 | 25.82 | 26.28 | 26.54 |
| 730.1 | 28.18 | 28.03 | 28.11 | 25.83 | 26.32 | 26.70 |
| 790.1 | 30.42 | 30.21 | 30.91 | 26.70 | 27.12 | 27.62 |
| 850.1 | 32.47 | 32.21 | 33.87 | 27.72 | 28.01 | 28.66 |
| 910.1 | 35.52 | 35.47 | 38.08 | 29.00 | 29.47 | 30.24 |
| 970.1 | 38.80 | 37.81 | 38.01 | 30.32 | 30.94 | 31.44 |
| 1030.1 | 43.12 | 42.12 | 42.22 | 30.71 | 31.25 | 31.78 |
| 1090.1 | 47.10 | 45.96 | 47.06 | 31.32 | 31.92 | 32.33 |
| 1150.1 | 48.28 | 46.47 | 48.55 | 32.01 | 32.62 | 33.04 |
| 1210.1 | 48.80 | 45.65 | 46.69 | 32.55 | 33.15 | 33.36 |
| 1270.1 | 49.22 | 44.36 | 42.72 | 35.07 | 35.75 | 36.27 |
| 1330.1 | 52.93 | 64.91 | 71.25 | 37.93 | 38.34 | 40.07 |
| 1390.1 | 44.06 | 43.65 | 45.72 | 38.98 | 38.86 | 39.98 |
| 1460.1 | 35.80 | 34.12 | 34.36 | 36.30 | 35.35 | 35.74 |
| 1520.1 | 40.27 | 39.34 | 39.68 | 35.61 | 35.35 | 36.07 |
| 1590.1 | 42.99 | 41.98 | 41.98 | 37.52 | 37.36 | 37.40 |
| 1650.1 | 40.81 | 39.92 | 39.88 | 32.82 | 32.19 | 31.64 |
| 1720.1 | 47.93 | 47.10 | 47.32 | 33.15 | 32.92 | 32.52 |
| 1780.1 | 45.16 | 44.42 | 42.58 | 32.38 | 32.24 | 31.78 |
| 1850.1 | 42.42 | 41.88 | 40.31 | 30.12 | 29.63 | 29.24 |
| 1910.1 | 41.02 | 40.61 | 39.39 | 28.57 | 27.97 | 27.58 |
| 1980.1 | 40.82 | 40.63 | 40.21 | 28.35 | 28.07 | 27.87 |
| 2040.1 | 41.05 | 40.73 | 40.74 | 28.69 | 28.43 | 28.53 |
| 2110.1 | 40.20 | 39.65 | 39.63 | 29.22 | 28.90 | 29.05 |
| 2170.1 | 38.23 | 37.57 | 37.63 | 30.79 | 30.71 | 31.07 |
| 2240.1 | 35.99 | 36.22 | 37.73 | 41.82 | 45.02 | 48.52 |
| 2300.1 | 43.77 | 43.85 | 46.16 | 44.34 | 43.09 | 38.96 |
| 2370.1 | 54.16 | 51.92 | 51.32 | 39.57 | 38.58 | 37.27 |
| 2430.1 | 54.50 | 49.99 | 50.36 | 39.58 | 38.57 | 37.90 |
| 2500.1 | 45.05 | 42.40 | 44.54 | 38.72 | 38.95 | 38.52 |
| 2560.1 | 39.16 | 37.91 | 40.29 | 33.69 | 33.12 | 34.24 |
| 2630.1 | 38.89 | 38.53 | 41.83 | 31.43 | 30.72 | 31.03 |

| RF (IN) (MHz) | LO (MHz) | RF-IF ISOLATION (dB) | | |
|---------------------|-------------|-------------------------|-------|-------|
| | | @LO (dBm) | | |
| | | +14 | +17 | +20 |
| 540.1 | 190.1 | 25.62 | 24.26 | 30.99 |
| 600.1 | 250.1 | 25.85 | 24.16 | 35.97 |
| 660.1 | 310.1 | 25.80 | 25.59 | 32.57 |
| 720.1 | 370.1 | 27.83 | 28.51 | 32.34 |
| 780.1 | 430.1 | 31.12 | 31.43 | 34.84 |
| 840.1 | 490.1 | 24.09 | 26.00 | 25.33 |
| 900.1 | 550.1 | 29.41 | 30.86 | 25.29 |
| 960.1 | 610.1 | 39.75 | 40.82 | 31.69 |
| 1020.1 | 670.1 | 33.76 | 35.60 | 37.34 |
| 1080.1 | 730.1 | 31.94 | 33.59 | 44.79 |
| 1140.1 | 790.1 | 27.20 | 27.85 | 37.63 |
| 1200.1 | 850.1 | 23.41 | 23.76 | 32.38 |
| 1260.1 | 910.1 | 17.82 | 18.06 | 21.70 |
| 1320.1 | 970.1 | 18.58 | 18.68 | 17.52 |
| 1380.1 | 1030.1 | 24.66 | 24.76 | 20.84 |
| 1440.1 | 1090.1 | 30.37 | 31.03 | 24.35 |
| 1500.1 | 1150.1 | 38.26 | 39.08 | 24.49 |
| 1560.1 | 1210.1 | 49.24 | 59.49 | 26.56 |
| 1620.1 | 1270.1 | 39.90 | 38.23 | 27.32 |
| 1680.1 | 1330.1 | 34.35 | 31.66 | 31.22 |
| 1740.1 | 1390.1 | 52.79 | 52.26 | 24.50 |
| 1810.1 | 1460.1 | 31.09 | 30.38 | 21.84 |
| 1870.1 | 1520.1 | 28.87 | 28.17 | 22.96 |
| 1940.1 | 1590.1 | 30.13 | 28.88 | 24.69 |
| 2000.1 | 1650.1 | 33.80 | 32.52 | 26.04 |
| 2070.1 | 1720.1 | 32.92 | 33.33 | 23.67 |
| 2130.1 | 1780.1 | 31.40 | 31.89 | 23.15 |
| 2200.1 | 1850.1 | 28.40 | 28.87 | 22.84 |
| 2260.1 | 1910.1 | 26.51 | 26.73 | 22.53 |
| 2330.1 | 1980.1 | 26.23 | 26.72 | 23.05 |
| 2390.1 | 2040.1 | 25.94 | 26.57 | 23.01 |
| 2460.1 | 2110.1 | 26.45 | 27.24 | 23.98 |
| 2520.1 | 2170.1 | 26.85 | 27.86 | 24.68 |
| 2590.1 | 2240.1 | 27.18 | 27.57 | 23.51 |
| 2650.1 | 2300.1 | 27.92 | 28.85 | 24.03 |
| 2720.1 | 2370.1 | 29.36 | 29.72 | 26.47 |
| 2780.1 | 2430.1 | 28.62 | 28.58 | 29.94 |
| 2850.1 | 2500.1 | 24.77 | 25.02 | 31.85 |
| 2910.1 | 2560.1 | 17.62 | 17.92 | 20.32 |
| 2980.1 | 2630.1 | 11.22 | 11.33 | 12.10 |



Frequency Mixer

MCA-ED12748/1

Typical Performance Data

| RF (IN) (MHz) | LO (MHz) | RF VSWR (:1) | | | LO (MHz) | LO VSWR (:1) | | | IF (OUT) (MHz) | IF VSWR @LO=2350MHz (:1) | | |
|---------------|----------|--------------|------|------|----------|--------------|--------|--------|----------------|--------------------------|-------|-------|
| | | @LO (dBm) | | | | @LO (dBm) | | | | @LO (dBm) | | |
| | | +14 | +17 | +20 | | +14 | +17 | +20 | | +14 | +17 | +20 |
| 540.1 | 190.1 | 4.32 | 3.65 | 3.43 | 190.1 | 45.72 | 46.96 | 46.96 | 10.0 | 45.72 | 44.55 | 46.96 |
| 600.1 | 250.1 | 4.01 | 3.27 | 2.97 | 250.1 | 579.06 | 868.59 | 868.59 | 60.0 | 5.49 | 5.12 | 5.02 |
| 660.1 | 310.1 | 3.85 | 3.11 | 2.82 | 310.1 | 248.17 | 217.15 | 217.15 | 110.0 | 2.44 | 2.39 | 2.41 |
| 720.1 | 370.1 | 3.58 | 2.96 | 2.84 | 370.1 | 66.82 | 64.35 | 64.35 | 160.0 | 1.64 | 1.72 | 1.76 |
| 780.1 | 430.1 | 3.29 | 2.98 | 2.95 | 430.1 | 45.72 | 43.44 | 42.38 | 210.0 | 1.31 | 1.48 | 1.53 |
| 840.1 | 490.1 | 2.27 | 1.88 | 1.84 | 490.1 | 26.33 | 25.94 | 25.56 | 260.0 | 1.27 | 1.47 | 1.52 |
| 900.1 | 550.1 | 2.24 | 2.00 | 1.95 | 550.1 | 17.39 | 17.22 | 16.89 | 310.0 | 1.38 | 1.56 | 1.60 |
| 960.1 | 610.1 | 2.20 | 2.03 | 1.95 | 610.1 | 8.20 | 8.08 | 7.83 | 360.0 | 1.53 | 1.67 | 1.70 |
| 1020.1 | 670.1 | 1.91 | 1.79 | 1.71 | 670.1 | 4.48 | 4.47 | 4.33 | 410.0 | 1.67 | 1.78 | 1.81 |
| 1080.1 | 730.1 | 1.84 | 1.67 | 1.57 | 730.1 | 6.63 | 6.71 | 6.71 | 460.0 | 1.84 | 1.91 | 1.92 |
| 1140.1 | 790.1 | 2.13 | 1.95 | 1.89 | 790.1 | 11.61 | 11.69 | 11.61 | 510.0 | 1.96 | 1.99 | 1.99 |
| 1200.1 | 850.1 | 2.26 | 2.04 | 1.99 | 850.1 | 16.56 | 16.72 | 16.72 | 560.0 | 2.14 | 2.15 | 2.15 |
| 1260.1 | 910.1 | 1.91 | 1.71 | 1.66 | 910.1 | 20.45 | 20.45 | 19.98 | 610.0 | 2.20 | 2.22 | 2.20 |
| 1320.1 | 970.1 | 2.16 | 1.91 | 1.88 | 970.1 | 22.58 | 22.29 | 21.46 | 660.0 | 2.15 | 2.15 | 2.14 |
| 1380.1 | 1030.1 | 2.16 | 1.87 | 1.84 | 1030.1 | 24.14 | 24.14 | 23.49 | 710.0 | 2.00 | 1.95 | 1.95 |
| 1440.1 | 1090.1 | 1.97 | 1.71 | 1.70 | 1090.1 | 23.81 | 23.49 | 22.29 | 760.0 | 1.98 | 1.88 | 1.88 |
| 1500.1 | 1150.1 | 1.78 | 1.53 | 1.52 | 1150.1 | 23.49 | 23.18 | 22.29 | 810.0 | 1.92 | 1.77 | 1.77 |
| 1560.1 | 1210.1 | 1.68 | 1.46 | 1.44 | 1210.1 | 22.00 | 21.73 | 20.70 | 860.0 | 1.91 | 1.74 | 1.73 |
| 1620.1 | 1270.1 | 1.55 | 1.37 | 1.34 | 1270.1 | 19.32 | 18.11 | 16.72 | 910.0 | 2.01 | 1.81 | 1.77 |
| 1680.1 | 1330.1 | 1.37 | 1.12 | 1.10 | 1330.1 | 17.93 | 17.05 | 16.56 | 960.0 | 2.18 | 1.96 | 1.90 |
| 1740.1 | 1390.1 | 1.17 | 1.06 | 1.08 | 1390.1 | 18.30 | 17.93 | 17.05 | 1010.0 | 2.29 | 2.06 | 2.00 |
| 1810.1 | 1460.1 | 1.13 | 1.24 | 1.25 | 1460.1 | 16.89 | 16.11 | 15.13 | 1060.0 | 2.40 | 2.18 | 2.13 |
| 1870.1 | 1520.1 | 1.32 | 1.46 | 1.46 | 1520.1 | 17.75 | 17.39 | 16.72 | 1110.0 | 2.32 | 2.17 | 2.12 |
| 1940.1 | 1590.1 | 1.49 | 1.62 | 1.59 | 1590.1 | 15.96 | 15.53 | 14.62 | 1160.0 | 2.14 | 2.05 | 2.02 |
| 2000.1 | 1650.1 | 1.66 | 1.76 | 1.73 | 1650.1 | 13.70 | 13.29 | 12.44 | 1210.0 | 1.93 | 1.87 | 1.86 |
| 2070.1 | 1720.1 | 1.89 | 2.00 | 1.96 | 1720.1 | 13.19 | 12.80 | 12.26 | 1260.0 | 1.69 | 1.68 | 1.70 |
| 2130.1 | 1780.1 | 2.13 | 2.22 | 2.18 | 1780.1 | 11.85 | 11.61 | 11.09 | 1310.0 | 1.35 | 1.33 | 1.34 |
| 2200.1 | 1850.1 | 2.35 | 2.44 | 2.39 | 1850.1 | 10.02 | 9.74 | 9.28 | 1360.0 | 1.50 | 1.41 | 1.39 |
| 2260.1 | 1910.1 | 2.49 | 2.56 | 2.53 | 1910.1 | 8.99 | 8.81 | 8.51 | 1410.0 | 1.53 | 1.42 | 1.40 |
| 2330.1 | 1980.1 | 2.62 | 2.67 | 2.65 | 1980.1 | 7.83 | 7.76 | 7.63 | 1460.0 | 1.61 | 1.50 | 1.48 |
| 2390.1 | 2040.1 | 2.71 | 2.72 | 2.68 | 2040.1 | 6.76 | 6.68 | 6.49 | 1500.0 | 1.65 | 1.53 | 1.51 |
| 2460.1 | 2110.1 | 2.77 | 2.73 | 2.68 | 2110.1 | 5.83 | 5.75 | 5.59 | 1550.0 | 1.67 | 1.53 | 1.51 |
| 2520.1 | 2170.1 | 2.89 | 2.79 | 2.74 | 2170.1 | 5.10 | 5.00 | 4.92 | 1590.0 | 1.80 | 1.64 | 1.62 |
| 2590.1 | 2240.1 | 2.78 | 2.56 | 2.47 | 2240.1 | 4.34 | 4.33 | 4.27 | 1640.0 | 1.91 | 1.75 | 1.72 |
| 2650.1 | 2300.1 | 2.69 | 2.53 | 2.47 | 2300.1 | 5.07 | 5.13 | 4.99 | 1680.0 | 2.08 | 1.91 | 1.87 |
| 2720.1 | 2370.1 | 2.85 | 2.68 | 2.66 | 2370.1 | 5.91 | 5.93 | 5.83 | 1730.0 | 2.39 | 2.22 | 2.16 |
| 2780.1 | 2430.1 | 2.86 | 2.67 | 2.65 | 2430.1 | 6.51 | 6.53 | 6.44 | 1770.0 | 2.60 | 2.44 | 2.38 |
| 2850.1 | 2500.1 | 2.61 | 2.43 | 2.40 | 2500.1 | 7.25 | 7.20 | 6.94 | 1820.0 | 2.95 | 2.82 | 2.73 |
| 2910.1 | 2560.1 | 1.99 | 1.87 | 1.83 | 2560.1 | 7.47 | 7.41 | 7.25 | 1860.0 | 3.23 | 3.15 | 3.06 |
| 2980.1 | 2630.1 | 1.15 | 1.12 | 1.13 | 2630.1 | 7.97 | 7.97 | 7.94 | 1910.0 | 3.52 | 3.52 | 3.43 |

Harmonics Tables

RF HARMONICS ORDER

| | (-dBm) | (-dBc) | | | | | | | | | | |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | - | - | 5 | 16 | 16 | 25 | 28 | 21 | 34 | 35 | 57 | 52 |
| 1 | - | 14 | +0 | 31 | 18 | 34 | 32 | 47 | 43 | 45 | 59 | 67 |
| 2 | 62 | 44 | 60 | >81 | 53 | 66 | 58 | 55 | 73 | 68 | 59 | 73 |
| 3 | >90 | 69 | 61 | 71 | 66 | 66 | 64 | >81 | 64 | 78 | >81 | 77 |
| 4 | >90 | >81 | >81 | >81 | >81 | >81 | 81 | >81 | >81 | >81 | >81 | >81 |
| 5 | >90 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 6 | >90 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 7 | >90 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 8 | >90 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 9 | >90 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 10 | --- | --- | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| | RF CAL | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Test conditions: RF IN: 2600 MHz; 0.00 dBm.
 LO IN: 2150 MHz; +17.00 dBm
 IF OUT: 450 MHz; -8.59 dBm

RF HARMONICS ORDER

| | (-dBm) | (-dBc) | | | | | | | | | | |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | - | - | 15 | 26 | 26 | 34 | 38 | 32 | 47 | 45 | 68 | 62 |
| 1 | - | 14 | +0 | 31 | 18 | 36 | 33 | 48 | 43 | 49 | 60 | 74 |
| 2 | 43 | 35 | 52 | 47 | 48 | 67 | 56 | 49 | 61 | 64 | 52 | 61 |
| 3 | 67 | 53 | 42 | 61 | 47 | 54 | 50 | 71 | 52 | 62 | 73 | 61 |
| 4 | >90 | 74 | 74 | 69 | 67 | 57 | 60 | 59 | 61 | 63 | >91 | 79 |
| 5 | >90 | 75 | 78 | 79 | 72 | 70 | 86 | 66 | 63 | 71 | 65 | 79 |
| 6 | >90 | >91 | 84 | 80 | >91 | 73 | 80 | 74 | 70 | 71 | 75 | 79 |
| 7 | >90 | >91 | >91 | 91 | >91 | >91 | 90 | 77 | 82 | 85 | 72 | 81 |
| 8 | >90 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | 90 | 87 | 79 | 82 |
| 9 | >90 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | 89 |
| 10 | --- | --- | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 |
| | RF CAL | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

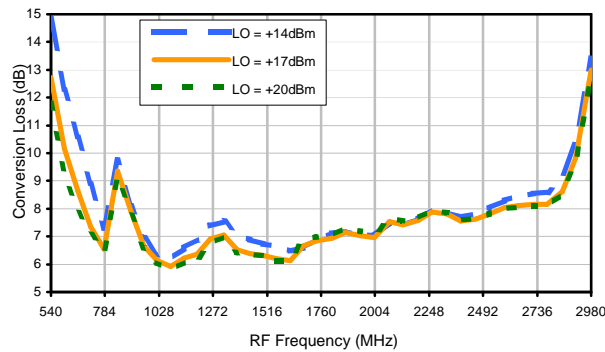
LO HARMONICS ORDER

Test conditions: RF IN: 2600 MHz; 10.00 dBm.
 LO IN: 2150 MHz; +17.00 dBm
 IF OUT: 450 MHz; 1.34 dBm

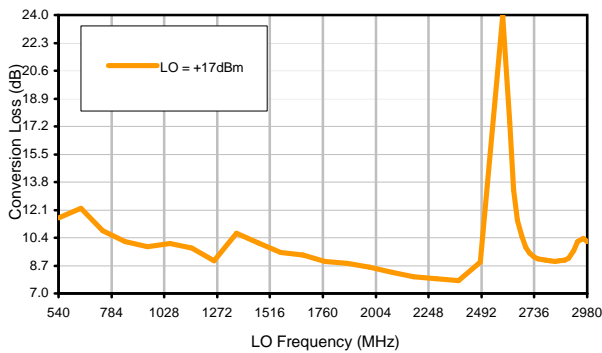
- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
 2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
 3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Typical Performance Curves

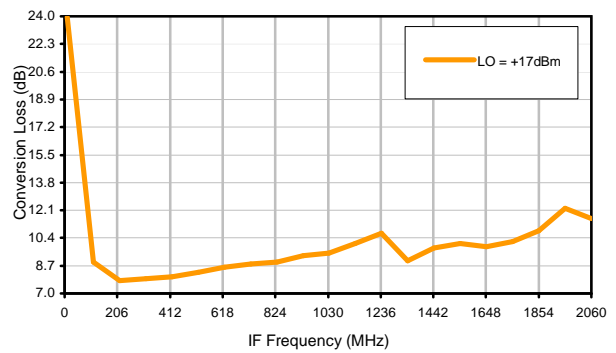
Conversion Loss @ IF=350MHz



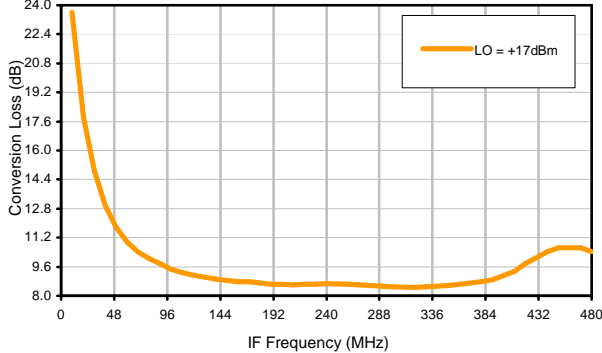
Conversion Loss vs. LO @ RF=2600.1001MHz



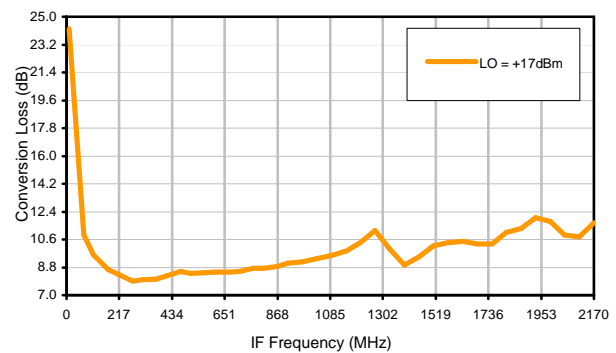
Conversion Loss vs. IF @ RF=2600.1001MHz



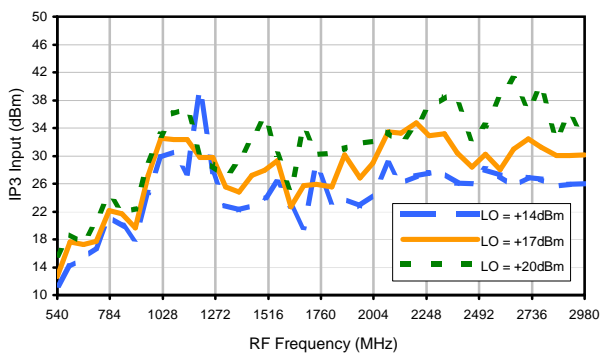
Conversion Loss vs. IF @ RF=2500.1001MHz



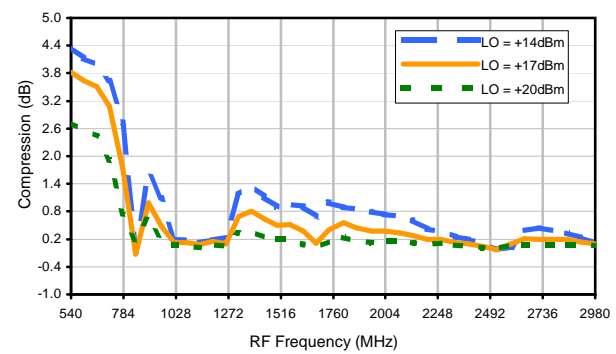
Conversion Loss vs. IF @ RF=2700.1001MHz



IP3 Input

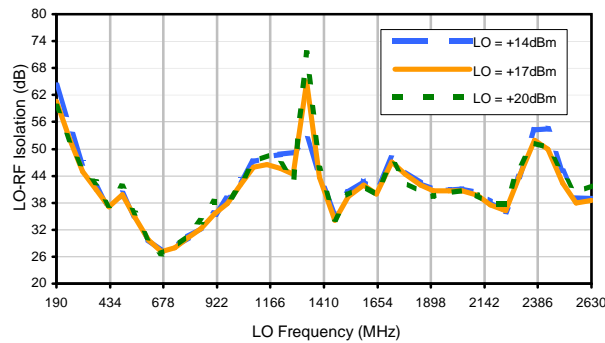


Compression @ RF IN=+15dBm

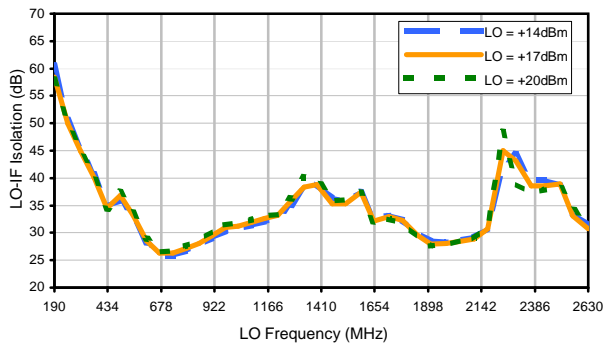


Typical Performance Curves

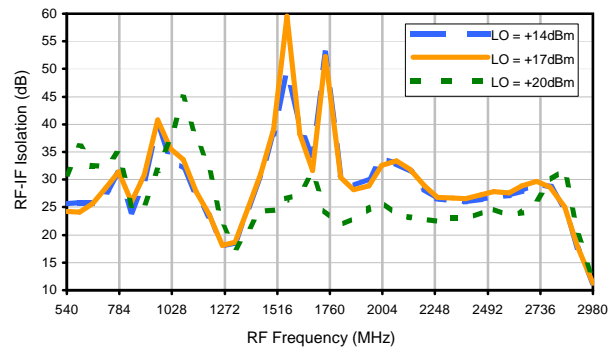
LO-RF Isolation



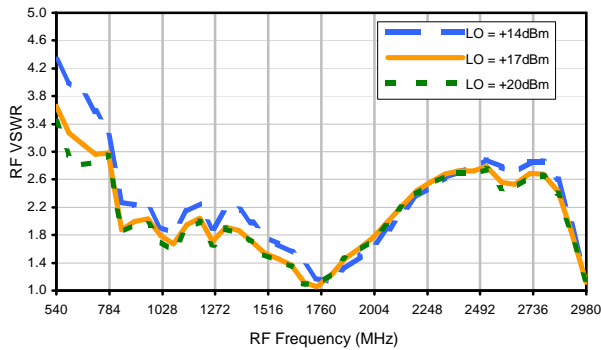
LO-IF Isolation



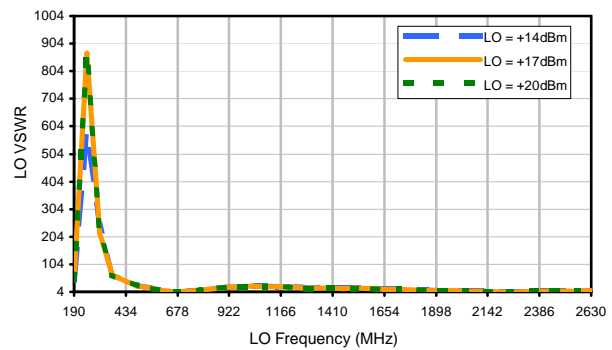
RF-IF Isolation



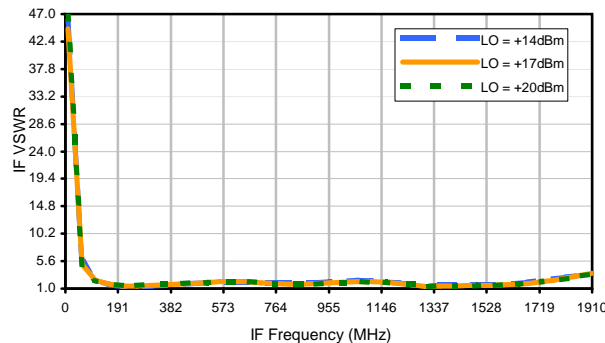
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

| | (-dBm) | (-dBc) | | | | | | | | | | |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | - | - | 5 | 16 | 16 | 25 | 28 | 21 | 34 | 35 | 57 | 52 |
| 1 | - | 14 | +0 | 31 | 18 | 34 | 32 | 47 | 43 | 45 | 59 | 67 |
| 2 | 62 | 44 | 60 | >81 | 53 | 66 | 58 | 55 | 73 | 68 | 59 | 73 |
| 3 | >90 | 69 | 61 | 71 | 66 | 66 | 64 | >81 | 64 | 78 | >81 | 77 |
| 4 | >90 | >81 | >81 | >81 | >81 | >81 | 81 | >81 | >81 | >81 | >81 | >81 |
| 5 | >90 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 6 | >90 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 7 | >90 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 8 | >90 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 9 | >90 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 10 | --- | --- | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| | RF CAL | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Test conditions: RF IN: 2600 MHz; 0.00 dBm.
 LO IN: 2150 MHz; +17.00 dBm
 IF OUT: 450 MHz; -8.59 dBm

RF HARMONICS ORDER

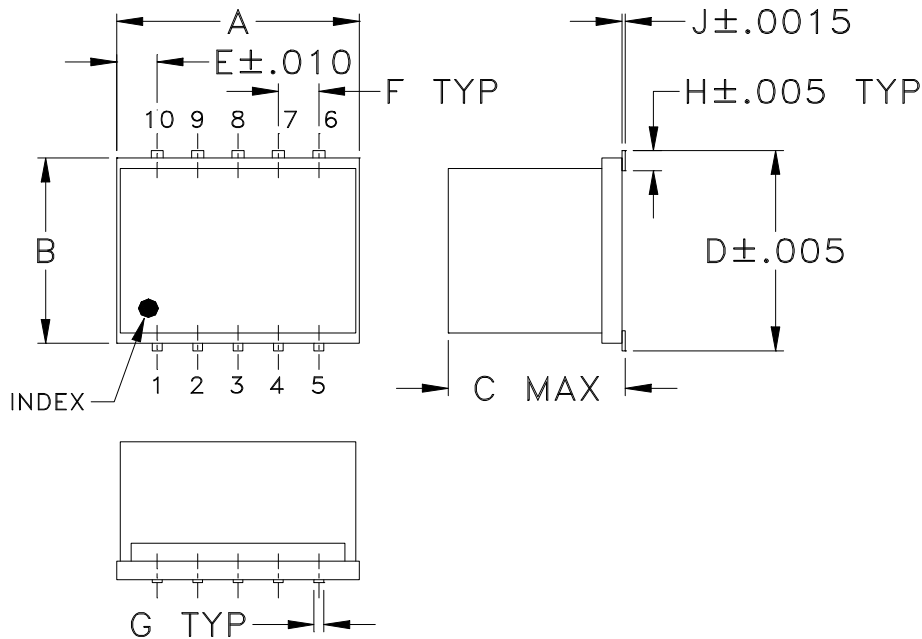
| | (-dBm) | (-dBc) | | | | | | | | | | |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | - | - | 15 | 26 | 26 | 34 | 38 | 32 | 47 | 45 | 68 | 62 |
| 1 | - | 14 | +0 | 31 | 18 | 36 | 33 | 48 | 43 | 49 | 60 | 74 |
| 2 | 43 | 35 | 52 | 47 | 48 | 67 | 56 | 49 | 61 | 64 | 52 | 61 |
| 3 | 67 | 53 | 42 | 61 | 47 | 54 | 50 | 71 | 52 | 62 | 73 | 61 |
| 4 | >90 | 74 | 74 | 69 | 67 | 57 | 60 | 59 | 61 | 63 | >91 | 79 |
| 5 | >90 | 75 | 78 | 79 | 72 | 70 | 86 | 66 | 63 | 71 | 65 | 79 |
| 6 | >90 | >91 | 84 | 80 | >91 | 73 | 80 | 74 | 70 | 71 | 75 | 79 |
| 7 | >90 | >91 | >91 | 91 | >91 | >91 | 90 | 77 | 82 | 85 | 72 | 81 |
| 8 | >90 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | 90 | 87 | 79 | 82 |
| 9 | >90 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | 89 |
| 10 | --- | --- | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 | >91 |
| | RF CAL | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

LO HARMONICS ORDER

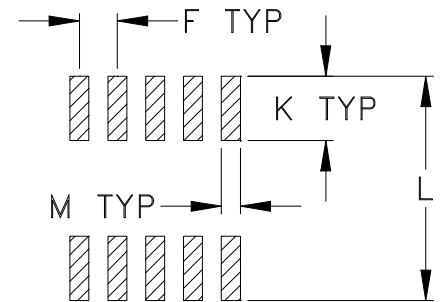
Test conditions: RF IN: 2600 MHz; 10.00 dBm.
 LO IN: 2150 MHz; +17.00 dBm
 IF OUT: 450 MHz; 1.34 dBm

- 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 |
|-------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|
| DZ883 | .30 (7.62) | .250 (6.35) | .190 (4.83) | .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) | 0.5 |

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

Notes:

- Case material: Ceramic.
- 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



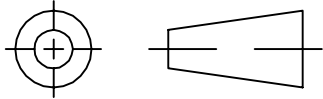
INTERNET <http://www.minicircuits.com>

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

Mini-Circuits ISO 9001 & ISO 14001 Certified

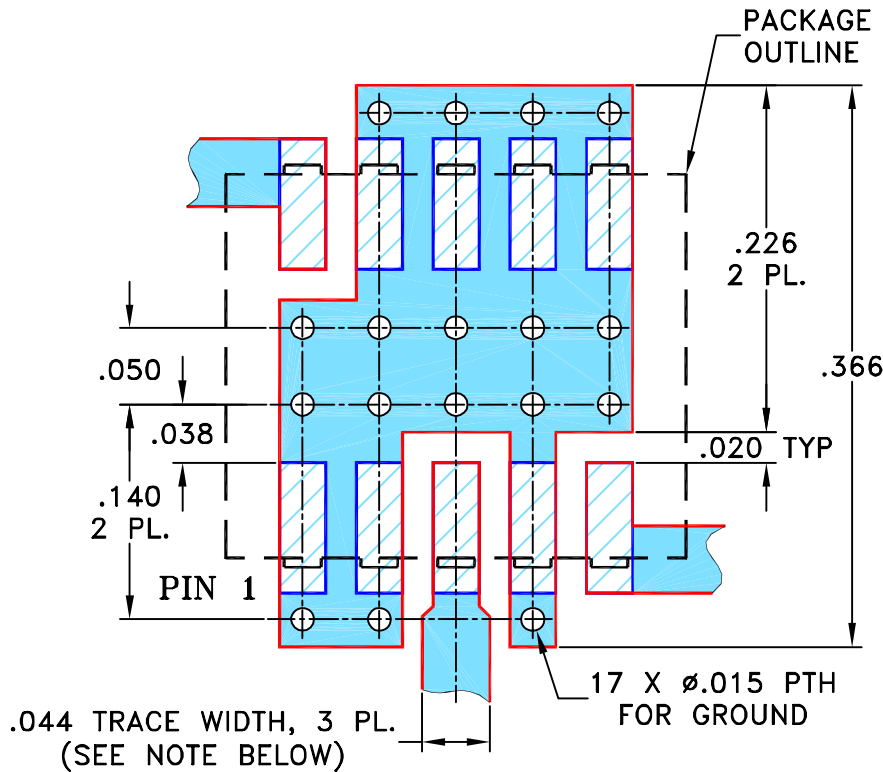
THIRD ANGLE PROJECTION



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)

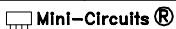


DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

| UNLESS OTHERWISE SPECIFIED | INITIALS | DATE |
|----------------------------|-------------|----------|
| DIMENSIONS ARE IN INCHES | DRAWN AV | 05/08/02 |
| TOLERANCES ON: | CHECKED DB | 05/16/02 |
| 2 PL DECIMALS ± | APPROVED WL | 05/16/02 |
| 3 PL DECIMALS ± .005 | | |
| ANGLES ± | | |
| FRACTIONS ± | | |

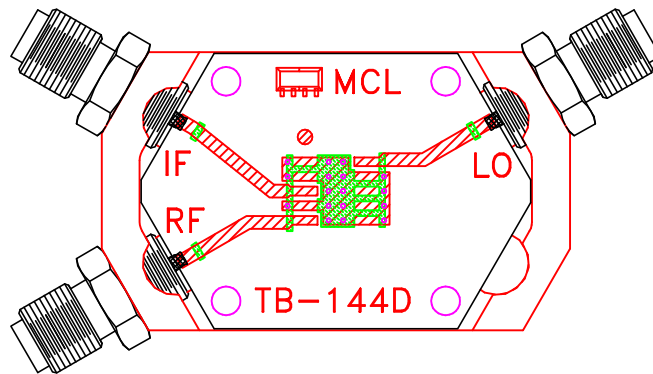
 **Mini-Circuits**[®] 13 Neptune Avenue
Brooklyn NY 11235

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

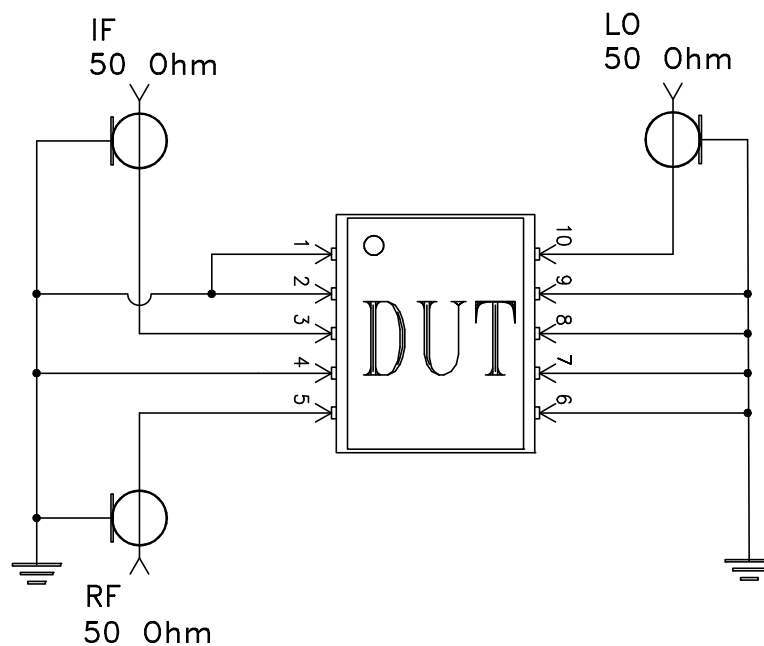
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| SIZE | CODE IDENT | DRAWING NO: | REV: |
|-------|------------|-------------|--------|
| A | 15542 | 98-PL-045 | D |
| FILE: | 98PL045 | SCALE: | 8:1 |
| | | SHEET: | 1 OF 1 |

Evaluation Board and Circuit




TB-144



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.020 inch.

 **Mini-Circuits®**

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 |