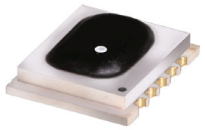
*Ceramic*

# Frequency Mixer WIDE BAND

# MCA1T-60+

## Level 7 (LO Power+7 dBm) 1600 to 6000 MHz



CASE STYLE: DZ885-2

### Maximum Ratings

| | |
|---|---|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -40°C to 85°C |
| RF Power | 50 mW |
| IF Current | 40 mA |

Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

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

### Features

- wide bandwidth, 1600 to 6000 MHz
- useable to 8000 MHz
- IF, DC to 2000 MHz
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.095"
- protected by US Patent 7,027,795 & 8,749,989

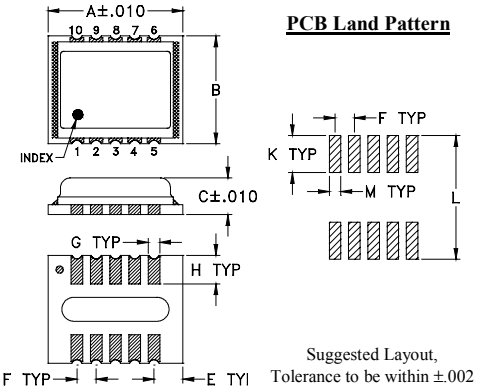
***+RoHS Compliant***

*The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications*

### Applications

- PCN
- defense & weather radar
- WCDMA
- defense communications

### Outline Drawing

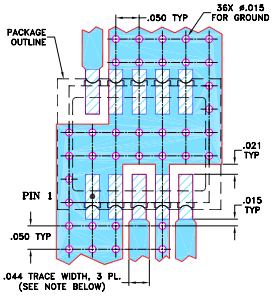



### Outline Dimensions ( inch / mm )

| A | B | C | E | F | G |
|---|---|---|---|---|---|
| .350 | .280 | .095 | .075 | .050 | .030 |
| 8.89 | 7.11 | 2.41 | 1.91 | 1.27 | 0.76 |

| H | K | L | M | wt |
|---|---|---|---|---|
| .074 | .096 | .321 | .030 | grams |
| 1.88 | 2.44 | 8.15 | 0.76 | 0.21 |

***Demo Board MCL P/N: TB-493+***
***Suggested PCB Layout (PL-288)***




NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B 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

### Electrical Specifications ($T_{AMB}$=-40°C to 85°C)

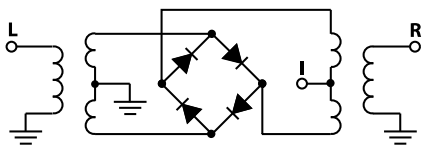
| FREQUENCY (MHz) | | CONVERSION LOSS (dB) | | | LO-RF ISOLATION (dB) | | LO-IF ISOLATION (dB) | | IP3 at center band (dBm) |
|---|---|---|---|---|---|---|---|---|---|
| LO/RF $f_L$-$f_U$ | IF | $\overline{X}$ | σ | Max. | Typ. | Min. | Typ. | Min. | Typ. |
| 1600-4400 | DC-2000 | 6.3 | 0.2 | 8.3* | 32 | 20 | 17 | — | 9 |
| 4400-6000 | DC-2000 | 6.2 | 0.3 | 8.5* | 23 | 17 | 18 | — | 8 |

1 dB COMPR. +1 dBm typ.
*Conversion loss at 30 MHz IF, increases with IF frequency. See Graphs

### Typical Performance Data

| Frequency (MHz) | | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) |
|---|---|---|---|---|---|---|
| RF | LO | LO +7dBm | LO +7dBm | LO +7dBm | LO +7dBm | LO +7dBm |
| 1600.00 | 1630.00 | 5.85 | 33.44 | 18.92 | 3.21 | 2.77 |
| 1800.00 | 1830.00 | 5.57 | 43.23 | 20.13 | 2.72 | 3.06 |
| 2000.00 | 2030.00 | 5.67 | 35.50 | 19.59 | 1.52 | 3.18 |
| 2300.00 | 2330.00 | 5.57 | 30.85 | 17.13 | 2.55 | 2.32 |
| 2500.00 | 2530.00 | 5.67 | 31.53 | 16.64 | 3.70 | 1.12 |
| 3000.00 | 3030.00 | 6.65 | 33.86 | 17.37 | 6.40 | 4.50 |
| 3300.00 | 3330.00 | 6.51 | 33.27 | 17.79 | 2.35 | 4.42 |
| 3500.00 | 3530.00 | 6.26 | 32.26 | 16.02 | 2.17 | 2.74 |
| 3800.00 | 3830.00 | 5.85 | 33.61 | 14.80 | 2.21 | 4.29 |
| 4000.00 | 4030.00 | 6.13 | 34.90 | 16.01 | 2.03 | 3.49 |
| 4300.00 | 4330.00 | 6.05 | 33.36 | 17.95 | 1.97 | 3.60 |
| 4500.00 | 4530.00 | 5.95 | 29.83 | 18.64 | 2.31 | 2.60 |
| 4700.00 | 4730.00 | 6.02 | 28.69 | 19.14 | 1.78 | 2.51 |
| 4900.00 | 4930.00 | 6.11 | 25.78 | 19.89 | 1.91 | 2.02 |
| 5000.00 | 5030.00 | 5.99 | 24.51 | 20.40 | 1.50 | 1.54 |
| 5200.00 | 5230.00 | 5.88 | 23.40 | 21.37 | 1.53 | 1.71 |
| 5300.00 | 5330.00 | 6.06 | 22.68 | 21.68 | 2.25 | 2.45 |
| 5500.00 | 5530.00 | 6.00 | 22.63 | 19.20 | 3.70 | 3.96 |
| 5700.00 | 5730.00 | 6.14 | 23.13 | 15.10 | 5.34 | 6.43 |
| 6000.00 | 6030.00 | 6.61 | 24.37 | 13.33 | 1.73 | 2.81 |

### Electrical Schematic




Notes

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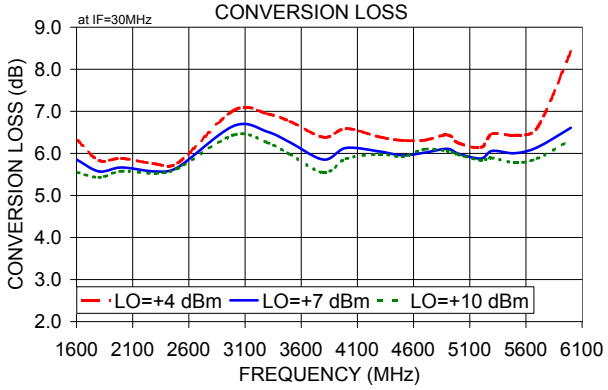
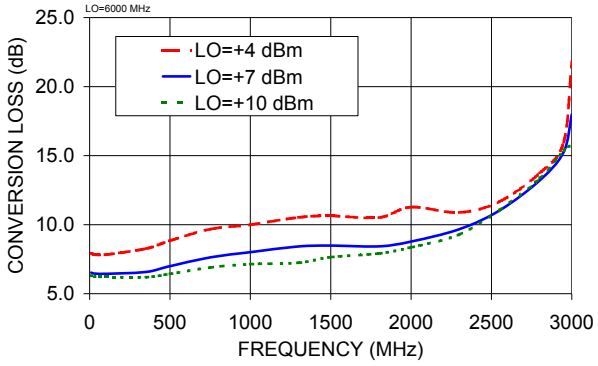
## Performance Charts

# MCA1T-60+

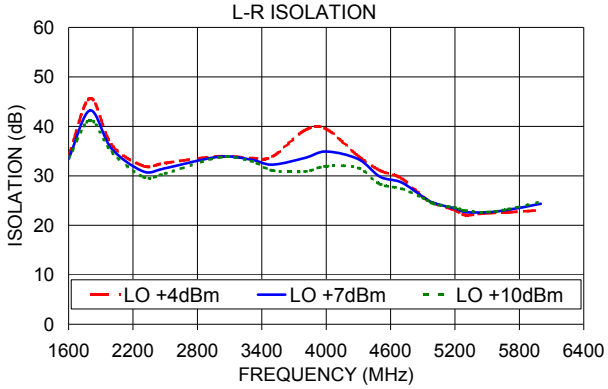
MCA1T-60+
CONVERSION LOSS



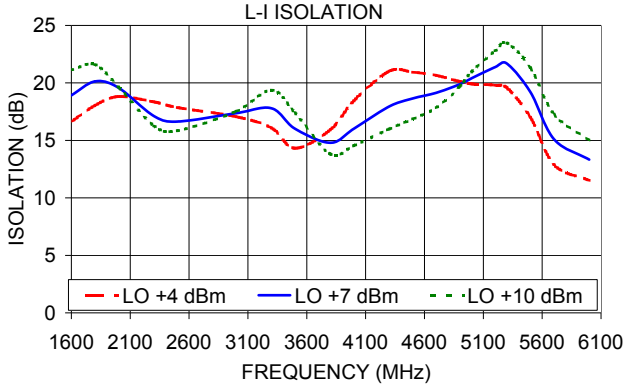

MCA1T-60+
CONVERSION LOSS (VAR. IF)



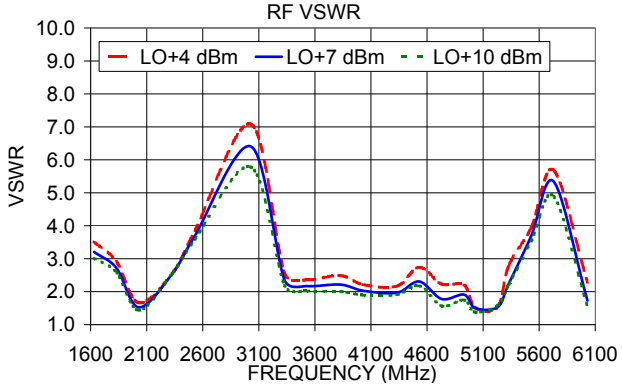

MCA1T-60+
L-R ISOLATION



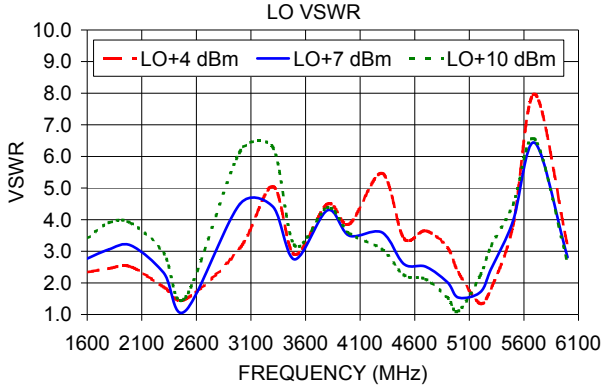

MCA1T-60+
L-I ISOLATION



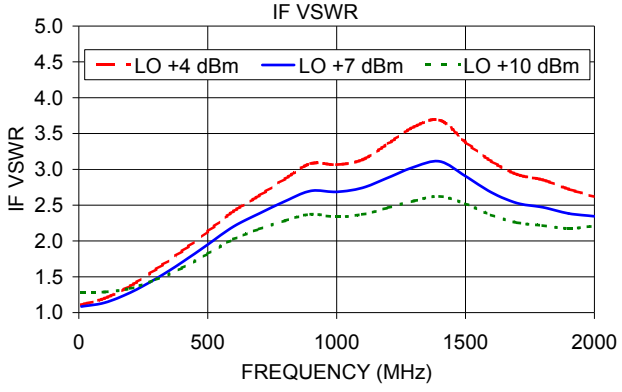

MCA1T-60+
RF VSWR



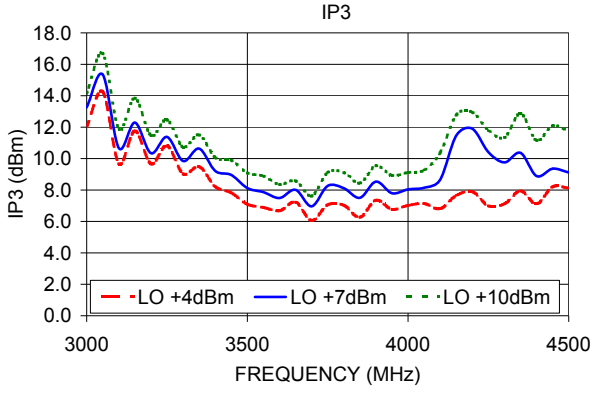

MCA1T-60+
LO VSWR




MCA1T-60+
IF VSWR




MCA1T-60+
IP3

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# Frequency Mixer MCA1T-60+

## *Typical Performance Data*

| RF (IN) (MHz) | LO (MHz) | CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm) | | |
|---|---|---|---|---|
| | | +4 | +7 | +10 |
| 1500.1 | 1530.1 | 7.98 | 6.89 | 6.68 |
| 1680.1 | 1710.1 | 6.39 | 5.98 | 5.73 |
| 1860.1 | 1890.1 | 5.80 | 5.56 | 5.42 |
| 2040.1 | 2070.1 | 5.73 | 5.50 | 5.39 |
| 2220.1 | 2250.1 | 5.53 | 5.35 | 5.32 |
| 2400.1 | 2430.1 | 5.52 | 5.37 | 5.33 |
| 2580.1 | 2610.1 | 5.54 | 5.46 | 5.46 |
| 2760.1 | 2790.1 | 5.78 | 5.58 | 5.48 |
| 2940.1 | 2970.1 | 6.71 | 6.34 | 6.13 |
| 3120.1 | 3150.1 | 7.25 | 6.86 | 6.64 |
| 3300.1 | 3330.1 | 7.70 | 7.25 | 6.98 |
| 3480.1 | 3510.1 | 7.98 | 7.44 | 7.15 |
| 3660.1 | 3690.1 | 7.73 | 7.12 | 6.81 |
| 3840.1 | 3870.1 | 7.73 | 6.94 | 6.55 |
| 4020.1 | 4050.1 | 7.71 | 7.01 | 6.62 |
| 4200.1 | 4230.1 | 7.19 | 6.46 | 6.23 |
| 4380.1 | 4410.1 | 6.77 | 5.91 | 5.77 |
| 4560.1 | 4590.1 | 6.44 | 5.66 | 5.57 |
| 4740.1 | 4770.1 | 6.92 | 6.11 | 5.95 |
| 4920.1 | 4950.1 | 6.22 | 5.74 | 5.68 |
| 5100.1 | 5130.1 | 5.92 | 5.63 | 5.60 |
| 5280.1 | 5310.1 | 6.19 | 5.87 | 5.77 |
| 5460.1 | 5490.1 | 6.49 | 6.10 | 5.91 |
| 5640.1 | 5670.1 | 7.09 | 6.61 | 6.34 |
| 5820.1 | 5850.1 | 8.23 | 7.15 | 6.87 |
| 6000.1 | 6030.1 | 9.84 | 7.81 | 7.09 |
| 6180.1 | 6210.1 | 10.85 | 8.52 | 7.67 |
| 6360.1 | 6390.1 | 13.27 | 9.18 | 7.67 |
| 6540.1 | 6570.1 | 15.37 | 11.67 | 9.22 |
| 6720.1 | 6750.1 | 8.73 | 8.14 | 7.89 |
| 6900.1 | 6930.1 | 9.26 | 8.41 | 8.19 |
| 7080.1 | 7110.1 | 10.34 | 9.11 | 8.84 |
| 7280.1 | 7310.1 | 10.10 | 9.19 | 8.95 |
| 7460.1 | 7490.1 | 9.63 | 9.00 | 8.80 |
| 7660.1 | 7690.1 | 9.41 | 9.01 | 8.85 |
| 7840.1 | 7870.1 | 9.50 | 9.07 | 8.87 |
| 8040.1 | 8070.1 | 9.65 | 9.14 | 8.92 |
| 8220.1 | 8250.1 | 9.43 | 8.66 | 8.34 |
| 8420.1 | 8450.1 | 9.63 | 8.12 | 7.68 |
| 8600.1 | 8630.1 | 21.47 | 12.79 | 8.96 |

| RF (IN) (MHz) | LO (MHz) | IP3 INPUT (dBm) @LO (dBm) | | |
|---|---|---|---|---|
| | | +4 | +7 | +10 |
| 1500.1 | 1530.1 | 6.96 | 8.69 | 6.55 |
| 1680.1 | 1710.1 | 9.49 | 8.89 | 8.24 |
| 1860.1 | 1890.1 | 11.50 | 10.44 | 10.14 |
| 2040.1 | 2070.1 | 11.14 | 9.93 | 9.04 |
| 2220.1 | 2250.1 | 10.55 | 11.64 | 12.96 |
| 2400.1 | 2430.1 | 10.32 | 12.25 | 13.92 |
| 2580.1 | 2610.1 | 15.30 | 18.27 | 19.91 |
| 2760.1 | 2790.1 | 15.12 | 16.59 | 16.68 |
| 2940.1 | 2970.1 | 15.64 | 17.06 | 16.75 |
| 3120.1 | 3150.1 | 12.36 | 13.54 | 15.99 |
| 3300.1 | 3330.1 | 13.50 | 13.95 | 14.85 |
| 3480.1 | 3510.1 | 9.87 | 11.55 | 12.43 |
| 3660.1 | 3690.1 | 9.86 | 10.96 | 11.25 |
| 3840.1 | 3870.1 | 7.71 | 9.70 | 10.87 |
| 4020.1 | 4050.1 | 6.66 | 8.18 | 10.13 |
| 4200.1 | 4230.1 | 5.10 | 10.93 | 13.21 |
| 4380.1 | 4410.1 | 5.67 | 7.85 | 10.93 |
| 4560.1 | 4590.1 | 9.06 | 9.01 | 12.38 |
| 4740.1 | 4770.1 | 11.12 | 10.32 | 11.27 |
| 4920.1 | 4950.1 | 7.71 | 8.67 | 10.01 |
| 5100.1 | 5130.1 | 10.18 | 10.13 | 11.61 |
| 5280.1 | 5310.1 | 12.45 | 11.40 | 12.46 |
| 5460.1 | 5490.1 | 10.51 | 10.07 | 10.88 |
| 5640.1 | 5670.1 | 8.03 | 7.85 | 8.29 |
| 5820.1 | 5850.1 | 7.52 | 11.15 | 11.41 |
| 6000.1 | 6030.1 | 0.79 | 6.72 | 11.57 |
| 6180.1 | 6210.1 | 2.04 | 2.88 | 5.61 |
| 6360.1 | 6390.1 | 8.23 | 3.41 | 4.98 |
| 6540.1 | 6570.1 | 3.03 | 9.01 | 9.40 |
| 6720.1 | 6750.1 | 13.35 | 16.11 | 14.81 |
| 6900.1 | 6930.1 | 17.02 | 17.79 | 17.95 |
| 7080.1 | 7110.1 | 17.98 | 17.74 | 18.05 |
| 7280.1 | 7310.1 | 12.33 | 15.14 | 16.81 |
| 7460.1 | 7490.1 | 11.21 | 14.09 | 15.79 |
| 7660.1 | 7690.1 | 12.33 | 14.42 | 15.78 |
| 7840.1 | 7870.1 | 12.85 | 15.00 | 16.26 |
| 8040.1 | 8070.1 | 11.46 | 14.42 | 15.48 |
| 8220.1 | 8250.1 | 8.53 | 11.66 | 13.92 |
| 8420.1 | 8450.1 | 6.75 | 9.30 | 12.01 |
| 8600.1 | 8630.1 | -4.58 | 4.66 | 8.74 |

| RF (IN) (MHz) | LO (MHz) | COMPRESSION @RF IN=+1dBm (dB) @LO (dBm) | | |
|---|---|---|---|---|
| | | +4 | +7 | +10 |
| 1500.1 | 1530.1 | 1.99 | 2.00 | 1.88 |
| 1680.1 | 1710.1 | 2.05 | 1.75 | 1.50 |
| 1860.1 | 1890.1 | 1.67 | 1.43 | 1.28 |
| 2040.1 | 2070.1 | 1.47 | 1.27 | 1.14 |
| 2220.1 | 2250.1 | 1.34 | 1.06 | 0.89 |
| 2400.1 | 2430.1 | 1.27 | 0.99 | 0.82 |
| 2580.1 | 2610.1 | 0.85 | 0.57 | 0.45 |
| 2760.1 | 2790.1 | 1.21 | 0.97 | 0.77 |
| 2940.1 | 2970.1 | 1.19 | 0.95 | 0.79 |
| 3120.1 | 3150.1 | 0.72 | 0.57 | 0.46 |
| 3300.1 | 3330.1 | 0.53 | 0.41 | 0.34 |
| 3480.1 | 3510.1 | 0.51 | 0.41 | 0.35 |
| 3660.1 | 3690.1 | 0.75 | 0.54 | 0.45 |
| 3840.1 | 3870.1 | 1.01 | 0.58 | 0.49 |
| 4020.1 | 4050.1 | 1.09 | 0.68 | 0.56 |
| 4200.1 | 4230.1 | 1.23 | 0.86 | 0.63 |
| 4380.1 | 4410.1 | 1.15 | 0.72 | 0.54 |
| 4560.1 | 4590.1 | 1.09 | 0.64 | 0.38 |
| 4740.1 | 4770.1 | 1.18 | 1.01 | 0.75 |
| 4920.1 | 4950.1 | 1.24 | 1.00 | 0.86 |
| 5100.1 | 5130.1 | 1.08 | 0.81 | 0.69 |
| 5280.1 | 5310.1 | 1.02 | 0.78 | 0.62 |
| 5460.1 | 5490.1 | 1.10 | 0.90 | 0.78 |
| 5640.1 | 5670.1 | 1.36 | 1.08 | 1.01 |
| 5820.1 | 5850.1 | 1.55 | 1.07 | 0.82 |
| 6000.1 | 6030.1 | 2.08 | 1.63 | 1.04 |
| 6180.1 | 6210.1 | 3.71 | 3.56 | 2.25 |
| 6360.1 | 6390.1 | 4.43 | 5.77 | 4.73 |
| 6540.1 | 6570.1 | -1.52 | 0.33 | 1.07 |
| 6720.1 | 6750.1 | 0.60 | 0.42 | 0.39 |
| 6900.1 | 6930.1 | 0.42 | 0.27 | 0.26 |
| 7080.1 | 7110.1 | 0.29 | 0.25 | 0.22 |
| 7280.1 | 7310.1 | 0.55 | 0.30 | 0.23 |
| 7460.1 | 7490.1 | 0.75 | 0.34 | 0.26 |
| 7660.1 | 7690.1 | 0.64 | 0.35 | 0.28 |
| 7840.1 | 7870.1 | 0.70 | 0.38 | 0.32 |
| 8040.1 | 8070.1 | 0.83 | 0.47 | 0.42 |
| 8220.1 | 8250.1 | 1.22 | 0.62 | 0.47 |
| 8420.1 | 8450.1 | 1.35 | 1.04 | 0.54 |
| 8600.1 | 8630.1 | -5.86 | -0.09 | 1.43 |

## *Typical Performance Data*

| IF (OUT) (MHz) | LO (MHz) | CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=3800MHz (dB) |
|---|---|---|
| | | @LO (dBm) |
| | | +7 |
| 2199.9 | 1600.1 | 9.69 |
| 2079.4 | 1720.6 | 9.17 |
| 1958.8 | 1841.2 | 8.31 |
| 1838.3 | 1961.7 | 8.05 |
| 1717.7 | 2082.3 | 8.50 |
| 1597.2 | 2202.8 | 8.05 |
| 1476.6 | 2323.4 | 9.07 |
| 1356.1 | 2443.9 | 9.48 |
| 1235.5 | 2564.5 | 9.06 |
| 1115.0 | 2685.0 | 8.87 |
| 994.5 | 2805.5 | 9.21 |
| 873.9 | 2926.1 | 8.70 |
| 753.4 | 3046.6 | 8.12 |
| 652.9 | 3147.1 | 7.46 |
| 532.4 | 3267.6 | 7.01 |
| 431.9 | 3368.1 | 6.78 |
| 311.4 | 3488.6 | 6.80 |
| 210.9 | 3589.1 | 6.60 |
| 90.4 | 3709.6 | 6.88 |
| 10.0 | 3810.0 | 7.26 |
| 129.5 | 3929.5 | 7.13 |
| 229.0 | 4029.0 | 7.40 |
| 348.5 | 4148.5 | 7.70 |
| 448.0 | 4248.0 | 7.41 |
| 567.5 | 4367.5 | 7.52 |
| 667.0 | 4467.0 | 7.57 |
| 786.5 | 4586.5 | 7.71 |
| 886.0 | 4686.0 | 7.60 |
| 1005.5 | 4805.5 | 7.83 |
| 1105.1 | 4905.1 | 7.80 |
| 1224.5 | 5024.5 | 8.05 |
| 1324.1 | 5124.1 | 8.02 |
| 1443.5 | 5243.5 | 8.35 |
| 1543.1 | 5343.1 | 8.30 |
| 1662.5 | 5462.5 | 8.47 |
| 1762.1 | 5562.1 | 8.79 |
| 1881.5 | 5681.5 | 9.47 |
| 1981.1 | 5781.1 | 10.05 |
| 2100.6 | 5900.6 | 10.55 |
| 2200.1 | 6000.1 | 11.13 |

| IF (OUT) (MHz) | LO (MHz) | CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1590MHz (dB) |
|---|---|---|
| | | @LO (dBm) |
| | | +7 |
| 10.1 | 1600.1 | 6.73 |
| 70.1 | 1660.1 | 6.25 |
| 130.1 | 1720.1 | 6.02 |
| 190.1 | 1780.1 | 5.85 |
| 270.1 | 1860.1 | 5.74 |
| 330.1 | 1920.1 | 5.63 |
| 410.1 | 2000.1 | 5.58 |
| 470.1 | 2060.1 | 5.62 |
| 550.1 | 2140.1 | 5.91 |
| 610.1 | 2200.1 | 6.02 |
| 690.1 | 2280.1 | 6.08 |
| 750.1 | 2340.1 | 6.22 |
| 830.1 | 2420.1 | 6.45 |
| 890.1 | 2480.1 | 6.50 |
| 970.1 | 2560.1 | 6.46 |
| 1030.1 | 2620.1 | 6.58 |
| 1110.1 | 2700.1 | 6.54 |
| 1170.1 | 2760.1 | 6.35 |
| 1250.1 | 2840.1 | 6.28 |
| 1310.1 | 2900.1 | 6.17 |
| 1390.1 | 2980.1 | 6.22 |
| 1450.1 | 3040.1 | 6.45 |
| 1530.1 | 3120.1 | 6.58 |
| 1590.1 | 3180.1 | 6.77 |
| 1670.1 | 3260.1 | 6.82 |
| 1730.1 | 3320.1 | 6.89 |
| 1810.1 | 3400.1 | 7.10 |
| 1870.1 | 3460.1 | 7.33 |
| 1950.1 | 3540.1 | 7.18 |
| 2010.1 | 3600.1 | 7.34 |
| 2090.1 | 3680.1 | 6.97 |
| 2150.1 | 3740.1 | 6.80 |
| 2230.1 | 3820.1 | 6.77 |
| 2290.1 | 3880.1 | 6.93 |
| 2370.1 | 3960.1 | 7.44 |
| 2430.1 | 4020.1 | 7.72 |
| 2510.1 | 4100.1 | 8.17 |
| 2570.1 | 4160.1 | 8.86 |
| 2650.1 | 4240.1 | 9.79 |
| 2710.1 | 4300.1 | 10.63 |

| IF (OUT) (MHz) | LO (MHz) | CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=6010.1MHz (dB) |
|---|---|---|
| | | @LO (dBm) |
| | | +7 |
| 2610.0 | 3400.1 | 11.24 |
| 2550.0 | 3460.1 | 10.57 |
| 2490.0 | 3520.1 | 10.18 |
| 2430.0 | 3580.1 | 10.01 |
| 2370.0 | 3640.1 | 9.94 |
| 2310.0 | 3700.1 | 9.66 |
| 2250.0 | 3760.1 | 9.58 |
| 2190.0 | 3820.1 | 9.47 |
| 2130.0 | 3880.1 | 9.38 |
| 2070.0 | 3940.1 | 9.33 |
| 2010.0 | 4000.1 | 9.42 |
| 1950.0 | 4060.1 | 9.52 |
| 1890.0 | 4120.1 | 9.40 |
| 1830.0 | 4180.1 | 9.17 |
| 1750.0 | 4260.1 | 9.23 |
| 1690.0 | 4320.1 | 9.20 |
| 1610.0 | 4400.1 | 9.30 |
| 1550.0 | 4460.1 | 9.46 |
| 1470.0 | 4540.1 | 9.31 |
| 1410.0 | 4600.1 | 9.15 |
| 1330.0 | 4680.1 | 8.85 |
| 1270.0 | 4740.1 | 8.64 |
| 1190.0 | 4820.1 | 8.19 |
| 1130.0 | 4880.1 | 7.97 |
| 1050.0 | 4960.1 | 7.97 |
| 990.0 | 5020.1 | 7.71 |
| 910.0 | 5100.1 | 7.67 |
| 850.0 | 5160.1 | 7.57 |
| 770.0 | 5240.1 | 7.63 |
| 710.0 | 5300.1 | 7.72 |
| 630.0 | 5380.1 | 7.77 |
| 570.0 | 5440.1 | 7.82 |
| 490.0 | 5520.1 | 7.57 |
| 430.0 | 5580.1 | 7.54 |
| 350.0 | 5660.1 | 7.57 |
| 290.0 | 5720.1 | 7.80 |
| 210.0 | 5800.1 | 7.60 |
| 150.0 | 5860.1 | 7.58 |
| 70.0 | 5940.1 | 7.57 |
| 10.0 | 6000.1 | 8.17 |

## *Typical Performance Data*

| LO (MHz) | LO-RF ISOLATION (dB) @LO (dBm) | | | LO-IF ISOLATION (dB) @LO (dBm) | | |
|---|---|---|---|---|---|---|
| | +4 | +7 | +10 | +4 | +7 | +10 |
| 1530.1 | 35.75 | 33.84 | 35.00 | 16.30 | 18.51 | 20.46 |
| 1710.1 | 33.20 | 32.50 | 31.87 | 17.36 | 19.59 | 21.52 |
| 1890.1 | 43.11 | 41.51 | 39.92 | 19.41 | 21.31 | 22.22 |
| 2070.1 | 38.68 | 36.41 | 34.68 | 19.04 | 19.49 | 19.27 |
| 2250.1 | 33.84 | 32.27 | 31.03 | 18.99 | 18.01 | 17.22 |
| 2430.1 | 31.50 | 30.17 | 28.82 | 17.95 | 16.86 | 15.80 |
| 2610.1 | 32.22 | 30.52 | 29.47 | 18.05 | 16.61 | 15.74 |
| 2790.1 | 35.69 | 34.93 | 34.16 | 17.90 | 16.97 | 16.16 |
| 2970.1 | 34.15 | 33.92 | 33.95 | 16.97 | 16.44 | 16.17 |
| 3150.1 | 32.90 | 32.74 | 32.40 | 16.50 | 17.19 | 17.39 |
| 3330.1 | 34.84 | 34.41 | 34.35 | 16.13 | 17.50 | 18.84 |
| 3510.1 | 35.43 | 34.36 | 33.79 | 15.20 | 16.96 | 18.79 |
| 3690.1 | 39.91 | 35.97 | 33.41 | 14.59 | 15.51 | 16.19 |
| 3870.1 | 46.91 | 37.98 | 34.16 | 16.41 | 15.57 | 14.95 |
| 4050.1 | 58.90 | 42.41 | 35.67 | 19.80 | 17.44 | 15.58 |
| 4230.1 | 42.06 | 48.27 | 38.71 | 22.71 | 18.81 | 16.56 |
| 4410.1 | 36.01 | 37.82 | 35.16 | 24.78 | 21.10 | 18.12 |
| 4590.1 | 33.71 | 33.20 | 30.38 | 24.45 | 21.33 | 18.91 |
| 4770.1 | 30.40 | 31.11 | 30.39 | 23.73 | 21.44 | 19.72 |
| 4950.1 | 26.12 | 25.99 | 25.73 | 22.69 | 21.67 | 21.22 |
| 5130.1 | 23.42 | 23.46 | 23.42 | 21.00 | 21.23 | 21.99 |
| 5310.1 | 21.87 | 22.63 | 23.16 | 20.04 | 21.54 | 22.99 |
| 5490.1 | 22.14 | 22.81 | 23.39 | 18.44 | 20.33 | 22.39 |
| 5670.1 | 23.02 | 23.96 | 24.69 | 14.25 | 16.21 | 18.52 |
| 5850.1 | 23.29 | 24.05 | 24.82 | 13.32 | 15.36 | 17.64 |
| 6030.1 | 23.40 | 24.62 | 25.49 | 13.40 | 15.26 | 17.03 |
| 6210.1 | 22.70 | 23.80 | 25.21 | 12.50 | 14.11 | 15.78 |
| 6390.1 | 21.42 | 22.36 | 23.16 | 10.30 | 11.43 | 12.58 |
| 6570.1 | 19.52 | 19.90 | 20.23 | 7.26 | 8.11 | 9.07 |
| 6750.1 | 21.71 | 21.44 | 20.81 | 10.91 | 12.60 | 14.12 |
| 6930.1 | 24.58 | 22.80 | 21.38 | 16.38 | 17.44 | 18.31 |
| 7110.1 | 24.30 | 23.18 | 21.75 | 21.95 | 22.50 | 22.15 |
| 7310.1 | 24.04 | 23.60 | 22.68 | 28.78 | 27.29 | 24.99 |
| 7490.1 | 22.25 | 22.71 | 23.11 | 31.85 | 27.59 | 25.46 |
| 7690.1 | 20.73 | 21.97 | 23.27 | 26.04 | 25.01 | 24.40 |
| 7870.1 | 19.40 | 20.84 | 22.30 | 21.86 | 22.21 | 22.38 |
| 8070.1 | 17.42 | 18.83 | 20.24 | 18.79 | 19.43 | 19.77 |
| 8250.1 | 16.34 | 17.88 | 19.33 | 16.31 | 16.87 | 17.10 |
| 8450.1 | 16.14 | 17.86 | 19.37 | 13.19 | 13.62 | 13.45 |
| 8630.1 | 18.94 | 19.62 | 20.94 | 12.48 | 12.67 | 12.68 |

| RF (IN) (MHz) | LO (MHz) | RF-IF ISOLATION (dB) @LO (dBm) | | |
|---|---|---|---|---|
| | | +4 | +7 | +10 |
| 1500.1 | 1530.1 | 12.62 | 10.84 | 10.76 |
| 1680.1 | 1710.1 | 14.39 | 13.25 | 12.49 |
| 1860.1 | 1890.1 | 19.56 | 18.60 | 17.80 |
| 2040.1 | 2070.1 | 23.19 | 22.68 | 21.95 |
| 2220.1 | 2250.1 | 22.55 | 20.89 | 19.64 |
| 2400.1 | 2430.1 | 18.90 | 18.00 | 17.27 |
| 2580.1 | 2610.1 | 15.79 | 15.25 | 14.92 |
| 2760.1 | 2790.1 | 17.38 | 17.06 | 16.79 |
| 2940.1 | 2970.1 | 20.69 | 20.40 | 20.06 |
| 3120.1 | 3150.1 | 19.06 | 18.96 | 18.81 |
| 3300.1 | 3330.1 | 19.90 | 19.94 | 19.97 |
| 3480.1 | 3510.1 | 23.34 | 23.37 | 23.43 |
| 3660.1 | 3690.1 | 27.32 | 26.68 | 26.29 |
| 3840.1 | 3870.1 | 16.60 | 16.20 | 15.89 |
| 4020.1 | 4050.1 | 14.13 | 13.91 | 13.66 |
| 4200.1 | 4230.1 | 14.04 | 13.72 | 13.40 |
| 4380.1 | 4410.1 | 14.13 | 14.04 | 13.89 |
| 4560.1 | 4590.1 | 14.69 | 14.68 | 14.58 |
| 4740.1 | 4770.1 | 15.59 | 15.57 | 15.58 |
| 4920.1 | 4950.1 | 15.50 | 15.44 | 15.47 |
| 5100.1 | 5130.1 | 16.09 | 15.82 | 15.79 |
| 5280.1 | 5310.1 | 15.65 | 14.98 | 14.49 |
| 5460.1 | 5490.1 | 19.36 | 18.62 | 18.12 |
| 5640.1 | 5670.1 | 27.94 | 27.09 | 26.12 |
| 5820.1 | 5850.1 | 22.75 | 22.31 | 22.24 |
| 6000.1 | 6030.1 | 20.44 | 21.90 | 21.34 |
| 6180.1 | 6210.1 | 18.51 | 19.87 | 21.18 |
| 6360.1 | 6390.1 | 17.50 | 18.70 | 19.50 |
| 6540.1 | 6570.1 | 16.58 | 16.57 | 16.70 |
| 6720.1 | 6750.1 | 16.03 | 16.16 | 16.33 |
| 6900.1 | 6930.1 | 14.95 | 15.24 | 15.48 |
| 7080.1 | 7110.1 | 14.14 | 14.51 | 14.58 |
| 7280.1 | 7310.1 | 12.58 | 12.83 | 12.88 |
| 7460.1 | 7490.1 | 10.81 | 10.82 | 10.85 |
| 7660.1 | 7690.1 | 9.03 | 9.07 | 9.10 |
| 7840.1 | 7870.1 | 7.72 | 7.79 | 7.79 |
| 8040.1 | 8070.1 | 7.32 | 7.50 | 7.63 |
| 8220.1 | 8250.1 | 8.55 | 8.88 | 9.14 |
| 8420.1 | 8450.1 | 12.12 | 12.87 | 13.35 |
| 8600.1 | 8630.1 | 13.74 | 14.85 | 16.27 |

## *Typical Performance Data*

| RF (IN) (MHz) | LO (MHz) | RF VSWR (:1) @LO (dBm) | | |
|---|---|---|---|---|
| | | +4 | +7 | +10 |
| 1500.1 | 1530.1 | 2.14 | 1.78 | 1.71 |
| 1680.1 | 1710.1 | 2.18 | 2.04 | 1.95 |
| 1860.1 | 1890.1 | 2.33 | 2.24 | 2.19 |
| 2040.1 | 2070.1 | 2.43 | 2.30 | 2.23 |
| 2220.1 | 2250.1 | 2.36 | 2.22 | 2.14 |
| 2400.1 | 2430.1 | 2.31 | 2.20 | 2.13 |
| 2580.1 | 2610.1 | 2.05 | 1.94 | 1.88 |
| 2760.1 | 2790.1 | 2.51 | 2.32 | 2.16 |
| 2940.1 | 2970.1 | 3.72 | 3.48 | 3.30 |
| 3120.1 | 3150.1 | 3.96 | 3.73 | 3.54 |
| 3300.1 | 3330.1 | 4.05 | 3.79 | 3.58 |
| 3480.1 | 3510.1 | 4.13 | 3.82 | 3.61 |
| 3660.1 | 3690.1 | 4.06 | 3.59 | 3.29 |
| 3840.1 | 3870.1 | 3.76 | 3.26 | 2.92 |
| 4020.1 | 4050.1 | 3.37 | 2.98 | 2.70 |
| 4200.1 | 4230.1 | 2.72 | 2.22 | 2.02 |
| 4380.1 | 4410.1 | 2.45 | 1.81 | 1.60 |
| 4560.1 | 4590.1 | 1.97 | 1.41 | 1.19 |
| 4740.1 | 4770.1 | 1.97 | 1.56 | 1.37 |
| 4920.1 | 4950.1 | 1.74 | 1.48 | 1.39 |
| 5100.1 | 5130.1 | 1.70 | 1.59 | 1.59 |
| 5280.1 | 5310.1 | 1.79 | 1.67 | 1.61 |
| 5460.1 | 5490.1 | 2.19 | 2.07 | 2.01 |
| 5640.1 | 5670.1 | 2.57 | 2.44 | 2.37 |
| 5820.1 | 5850.1 | 3.06 | 2.92 | 2.89 |
| 6000.1 | 6030.1 | 4.10 | 3.34 | 3.23 |
| 6180.1 | 6210.1 | 4.64 | 3.93 | 3.50 |
| 6360.1 | 6390.1 | 5.14 | 3.88 | 3.30 |
| 6540.1 | 6570.1 | 4.95 | 3.86 | 3.48 |
| 6720.1 | 6750.1 | 3.75 | 3.54 | 3.40 |
| 6900.1 | 6930.1 | 3.48 | 3.17 | 3.03 |
| 7080.1 | 7110.1 | 3.09 | 2.78 | 2.65 |
| 7280.1 | 7310.1 | 3.35 | 3.09 | 2.95 |
| 7460.1 | 7490.1 | 3.26 | 3.07 | 2.97 |
| 7660.1 | 7690.1 | 2.81 | 2.72 | 2.66 |
| 7840.1 | 7870.1 | 2.28 | 2.21 | 2.16 |
| 8040.1 | 8070.1 | 1.99 | 1.95 | 1.90 |
| 8220.1 | 8250.1 | 1.95 | 1.87 | 1.82 |
| 8420.1 | 8450.1 | 1.89 | 1.71 | 1.65 |
| 8600.1 | 8630.1 | 2.23 | 1.93 | 1.70 |

| LO (MHz) | LO VSWR (:1) @LO (dBm) | | |
|---|---|---|---|
| | +4 | +7 | +10 |
| 1530.1 | 5.72 | 5.58 | 6.30 |
| 1710.1 | 3.42 | 4.02 | 4.93 |
| 1890.1 | 2.22 | 2.95 | 3.82 |
| 2070.1 | 1.80 | 2.46 | 3.20 |
| 2250.1 | 1.46 | 2.01 | 2.64 |
| 2430.1 | 1.31 | 1.80 | 2.37 |
| 2610.1 | 1.24 | 1.74 | 2.32 |
| 2790.1 | 1.36 | 1.89 | 2.50 |
| 2970.1 | 1.60 | 2.17 | 2.84 |
| 3150.1 | 2.00 | 2.60 | 3.35 |
| 3330.1 | 2.48 | 3.10 | 3.86 |
| 3510.1 | 3.16 | 3.59 | 4.25 |
| 3690.1 | 4.05 | 4.13 | 4.60 |
| 3870.1 | 5.12 | 4.78 | 4.91 |
| 4050.1 | 5.81 | 4.95 | 4.87 |
| 4230.1 | 6.37 | 4.57 | 4.25 |
| 4410.1 | 7.73 | 5.02 | 4.04 |
| 4590.1 | 6.81 | 4.26 | 3.14 |
| 4770.1 | 5.04 | 3.01 | 2.06 |
| 4950.1 | 2.97 | 1.84 | 1.27 |
| 5130.1 | 1.60 | 1.27 | 1.48 |
| 5310.1 | 1.21 | 1.65 | 2.18 |
| 5490.1 | 2.01 | 2.46 | 3.05 |
| 5670.1 | 3.49 | 3.66 | 4.23 |
| 5850.1 | 6.37 | 5.79 | 5.77 |
| 6030.1 | 8.68 | 8.64 | 8.01 |
| 6210.1 | 9.69 | 9.85 | 10.07 |
| 6390.1 | 7.76 | 7.73 | 8.27 |
| 6570.1 | 3.25 | 3.37 | 3.59 |
| 6750.1 | 2.82 | 2.55 | 2.52 |
| 6930.1 | 5.25 | 3.43 | 2.45 |
| 7110.1 | 6.66 | 4.18 | 2.84 |
| 7310.1 | 6.32 | 4.35 | 3.61 |
| 7490.1 | 5.00 | 4.33 | 4.38 |
| 7690.1 | 3.98 | 4.40 | 5.03 |
| 7870.1 | 3.81 | 4.56 | 5.34 |
| 8070.1 | 3.93 | 4.55 | 5.16 |
| 8250.1 | 3.78 | 4.06 | 4.37 |
| 8450.1 | 2.46 | 2.39 | 2.39 |
| 8630.1 | 1.87 | 1.88 | 1.85 |

| IF (OUT) (MHz) | IF VSWR @LO=6000MHz (:1) @LO (dBm) | | |
|---|---|---|---|
| | +4 | +7 | +10 |
| 10.1 | 2.04 | 1.19 | 1.07 |
| 90.1 | 2.07 | 1.24 | 1.14 |
| 170.1 | 2.16 | 1.35 | 1.24 |
| 250.1 | 2.30 | 1.47 | 1.35 |
| 330.1 | 2.50 | 1.63 | 1.49 |
| 410.1 | 2.75 | 1.85 | 1.69 |
| 490.1 | 3.02 | 2.07 | 1.89 |
| 570.1 | 3.27 | 2.25 | 2.04 |
| 650.1 | 3.56 | 2.43 | 2.17 |
| 730.1 | 3.87 | 2.61 | 2.27 |
| 810.1 | 4.21 | 2.78 | 2.37 |
| 890.1 | 4.52 | 2.97 | 2.49 |
| 970.1 | 4.67 | 3.08 | 2.54 |
| 1050.1 | 4.79 | 3.14 | 2.57 |
| 1130.1 | 4.83 | 3.17 | 2.57 |
| 1210.1 | 4.86 | 3.18 | 2.57 |
| 1290.1 | 4.78 | 3.13 | 2.51 |
| 1370.1 | 4.73 | 3.14 | 2.52 |
| 1450.1 | 4.84 | 3.18 | 2.52 |
| 1530.1 | 4.99 | 3.26 | 2.55 |
| 1610.1 | 4.92 | 3.21 | 2.48 |
| 1690.1 | 5.02 | 3.19 | 2.45 |
| 1770.1 | 5.23 | 3.24 | 2.52 |
| 1850.1 | 5.51 | 3.29 | 2.60 |
| 1930.1 | 5.61 | 3.27 | 2.66 |
| 2010.1 | 5.33 | 3.20 | 2.72 |
| 2090.1 | 5.09 | 3.21 | 2.89 |
| 2170.1 | 4.82 | 3.31 | 3.15 |
| 2250.1 | 4.38 | 3.37 | 3.38 |
| 2310.1 | 3.95 | 3.35 | 3.49 |
| 2390.1 | 3.64 | 3.52 | 3.82 |
| 2450.1 | 3.40 | 3.61 | 4.00 |
| 2530.1 | 3.02 | 3.65 | 4.15 |
| 2590.1 | 2.95 | 3.85 | 4.43 |
| 2670.1 | 2.86 | 4.00 | 4.61 |
| 2730.1 | 2.86 | 4.14 | 4.78 |
| 2810.1 | 3.19 | 4.61 | 5.31 |
| 2870.1 | 3.64 | 5.00 | 5.68 |
| 2950.1 | 4.39 | 5.63 | 6.24 |
| 3010.1 | 5.23 | 6.49 | 7.14 |

*Harmonics Tables*

RF HARMONICS ORDER

| | (-dBm) | (-dBc) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | - | - | +13 | 20 | 20 | 39 | 15 | 45 | --- | --- | --- | --- |
| 1 | - | 10 | +0 | 28 | 20 | 42 | 35 | 50 | 45 | --- | --- | --- |
| 2 | >90 | 52 | 46 | 51 | 46 | 53 | 66 | 53 | 48 | 67 | --- | --- |
| 3 | >90 | 65 | 59 | >69 | 63 | 62 | >69 | >69 | >69 | >69 | >69 | --- |
| 4 | >90 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 5 | >90 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 6 | >90 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 7 | --- | --- | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 8 | --- | --- | --- | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 9 | --- | --- | --- | --- | >69 | 65 | >69 | >69 | >69 | >69 | >69 | >69 |
| 10 | --- | --- | --- | --- | --- | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| | RF CAL | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

**Test conditions:** RF IN: 3800 MHz; -14.00 dBm.
LO IN: 3830 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.98 dBm

RF HARMONICS ORDER

| | (-dBm) | (-dBc) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | - | - | +3 | 30 | 31 | 49 | 30 | 66 | --- | --- | --- | --- |
| 1 | - | 10 | +0 | 32 | 19 | 48 | 38 | 51 | 54 | --- | --- | --- |
| 2 | 74 | 41 | 37 | 41 | 39 | 46 | 57 | 50 | 45 | >79 | --- | --- |
| 3 | >90 | 46 | 40 | 54 | 43 | 45 | 56 | 55 | 57 | 63 | 64 | --- |
| 4 | >90 | 62 | 72 | 66 | 58 | 62 | 56 | 59 | >79 | 62 | 63 | >79 |
| 5 | >90 | >79 | 78 | 72 | 68 | >79 | 57 | 63 | 64 | 71 | 72 | 70 |
| 6 | 90 | >79 | 77 | >79 | >79 | >79 | 75 | >79 | 73 | 75 | >79 | 78 |
| 7 | --- | --- | >79 | >79 | >79 | >79 | >79 | >79 | 72 | 76 | 77 | >79 |
| 8 | --- | --- | --- | >79 | 77 | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| 9 | --- | --- | --- | --- | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| 10 | --- | --- | --- | --- | --- | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| | RF CAL | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

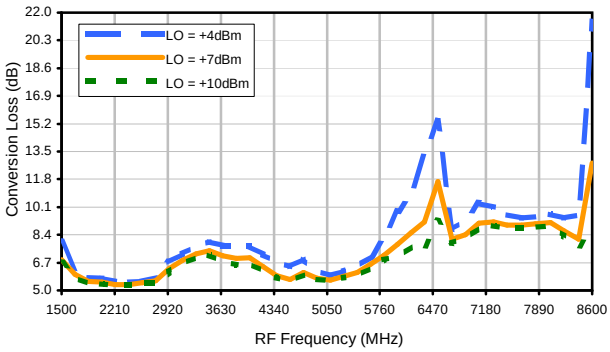
**LO HARMONICS ORDER**

**Test conditions:** RF IN: 3800 MHz; -4.00 dBm.
LO IN: 3830 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.95 dBm

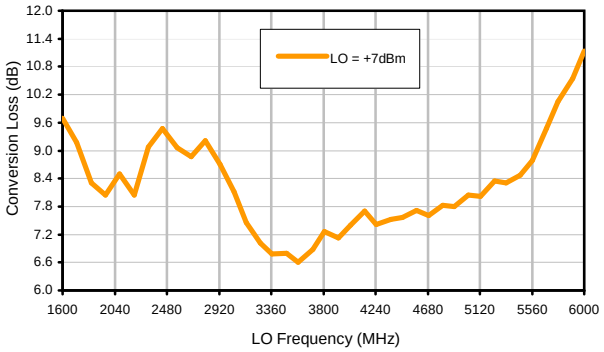
**Notes:** 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

## *Typical Performance Curves*

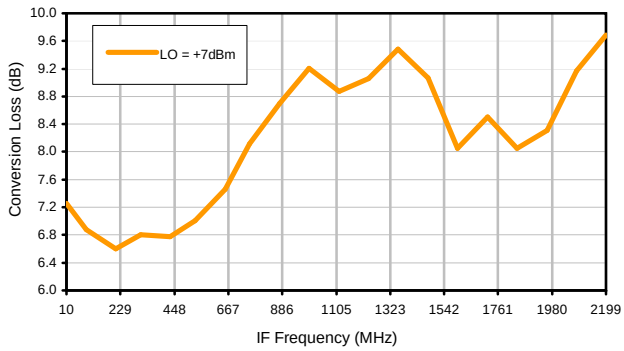
### Conversion Loss @ IF=30MHz



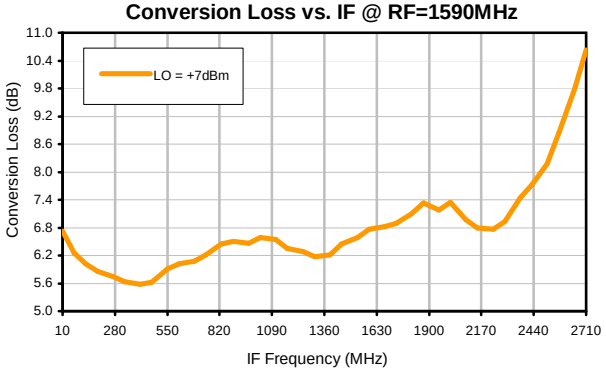

### Conversion Loss vs. LO @ RF=3800MHz



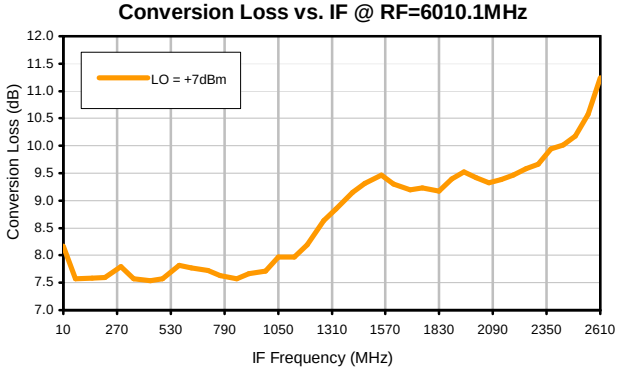

### Conversion Loss vs. IF @ RF=3800MHz



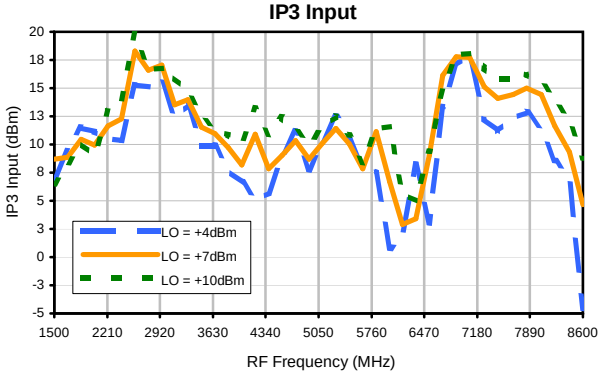

### Conversion Loss vs. IF @ RF=1590MHz



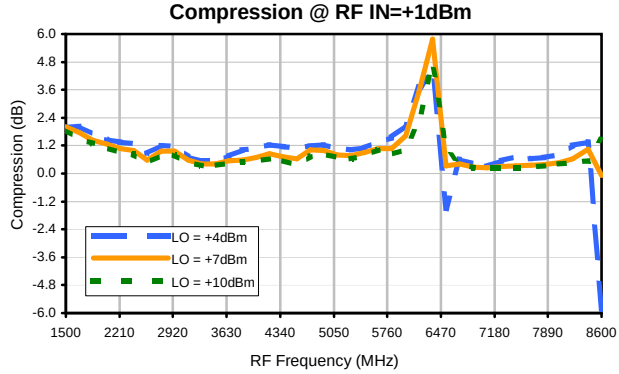

### Conversion Loss vs. IF @ RF=6010.1MHz




### IP3 Input

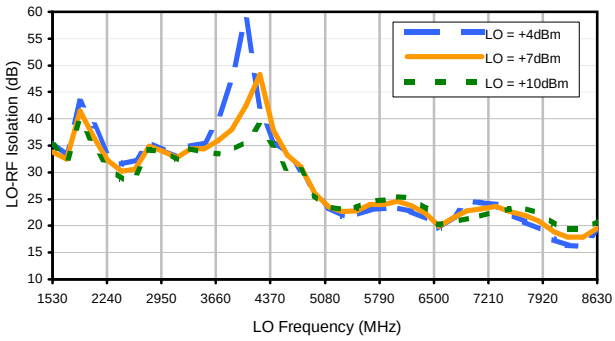



### Compression @ RF IN=+1dBm

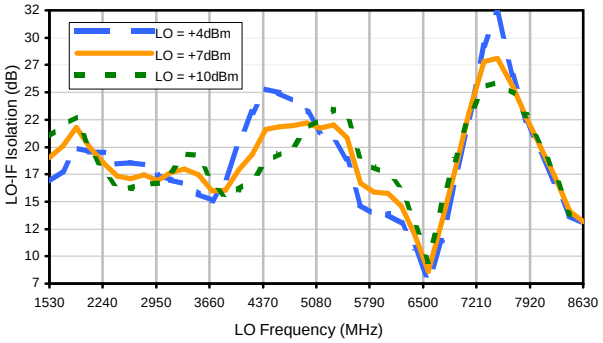


## *Typical Performance Curves*

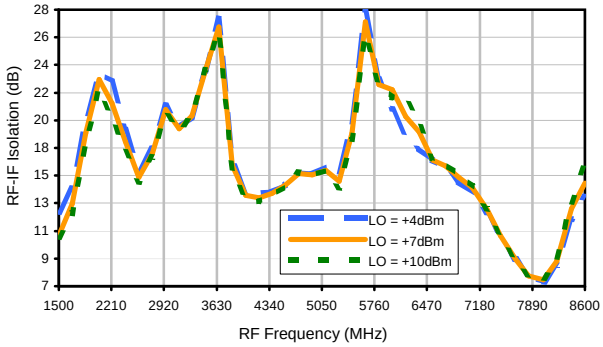
### LO-RF Isolation



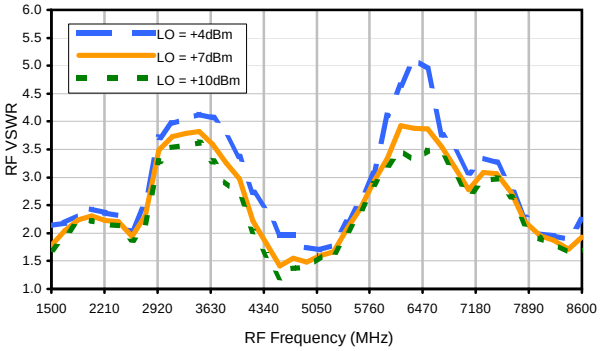

### LO-IF Isolation



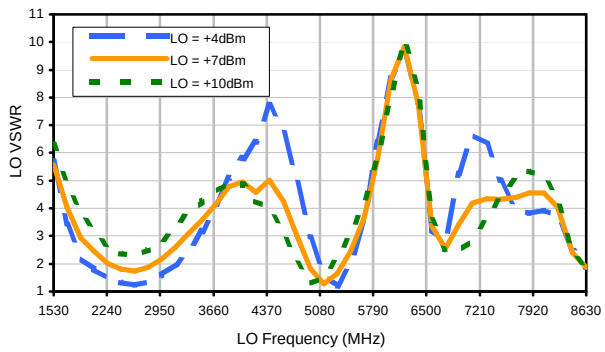

### RF-IF Isolation



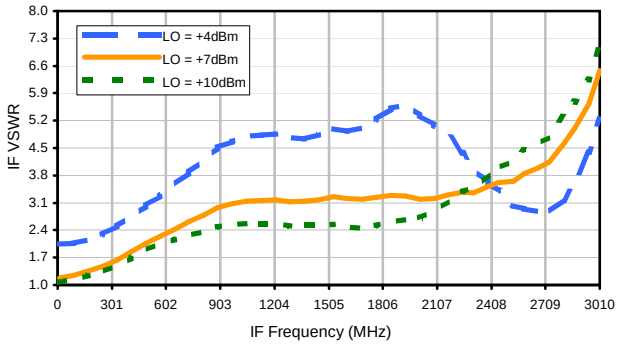

### RF VSWR




### LO VSWR




### IF VSWR



## *Harmonics Tables*

RF HARMONICS ORDER

| | (-dBm) | (-dBc) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | - | - | +13 | 20 | 20 | 39 | 15 | 45 | --- | --- | --- | --- |
| 1 | - | 10 | +0 | 28 | 20 | 42 | 35 | 50 | 45 | --- | --- | --- |
| 2 | >90 | 52 | 46 | 51 | 46 | 53 | 66 | 53 | 48 | 67 | --- | --- |
| 3 | >90 | 65 | 59 | >69 | 63 | 62 | >69 | >69 | >69 | >69 | >69 | --- |
| 4 | >90 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 5 | >90 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 6 | >90 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 7 | --- | --- | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 8 | --- | --- | --- | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 9 | --- | --- | --- | --- | >69 | 65 | >69 | >69 | >69 | >69 | >69 | >69 |
| 10 | --- | --- | --- | --- | --- | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| | RF CAL | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

**Test conditions:** RF IN: 3800 MHz; -14.00 dBm.
LO IN: 3830 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.98 dBm

RF HARMONICS ORDER

| | (-dBm) | (-dBc) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | - | - | +3 | 30 | 31 | 49 | 30 | 66 | --- | --- | --- | --- |
| 1 | - | 10 | +0 | 32 | 19 | 48 | 38 | 51 | 54 | --- | --- | --- |
| 2 | 74 | 41 | 37 | 41 | 39 | 46 | 57 | 50 | 45 | >79 | --- | --- |
| 3 | >90 | 46 | 40 | 54 | 43 | 45 | 56 | 55 | 57 | 63 | 64 | --- |
| 4 | >90 | 62 | 72 | 66 | 58 | 62 | 56 | 59 | >79 | 62 | 63 | >79 |
| 5 | >90 | >79 | 78 | 72 | 68 | >79 | 57 | 63 | 64 | 71 | 72 | 70 |
| 6 | 90 | >79 | 77 | >79 | >79 | >79 | 75 | >79 | 73 | 75 | >79 | 78 |
| 7 | --- | --- | >79 | >79 | >79 | >79 | >79 | >79 | 72 | 76 | 77 | >79 |
| 8 | --- | --- | --- | >79 | 77 | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| 9 | --- | --- | --- | --- | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| 10 | --- | --- | --- | --- | --- | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| | RF CAL | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

**LO HARMONICS ORDER**

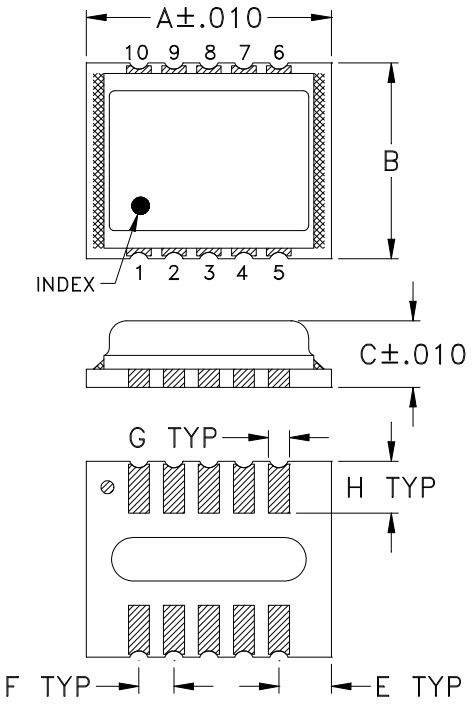
**Test conditions:** RF IN: 3800 MHz; -4.00 dBm.
LO IN: 3830 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.95 dBm

**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.

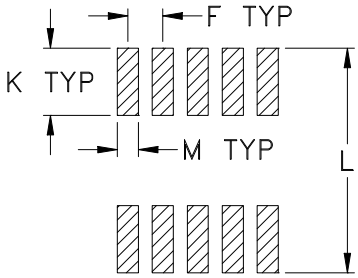
# Case Style DZ

**DZ885-2**

## Outline Dimensions




## PCB Land Pattern




Suggested Layout,
Tolerance to be within ±.002

| CASE# | A | B | C | D | E | F | G | H | J | K | L | M | WT. GRAMS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DZ885-2 | .350 (8.89) | .280 (7.11) | .095 (2.41) | -- -- | .075 (1.91) | .050 (1.27) | .030 (0.76) | .074 (1.88) | -- -- | .096 (2.44) | .321 (8.15) | .030 (0.76) | 0.21 |

**Dimensions are in inches (mm). Tolerances: 2Pl. ± .01; 3Pl. ± .005**

### Notes:

1. Case material: Plastic encapsulation on Ceramic base, mounted on PCB carrier board.
2. Termination finish:
   For RoHS Case Styles: 3-5 µ inch (.08-.13 microns) Gold over 120-240 µ inch (3.05-6.10 microns) Nickel plate. All models, (+) suffix.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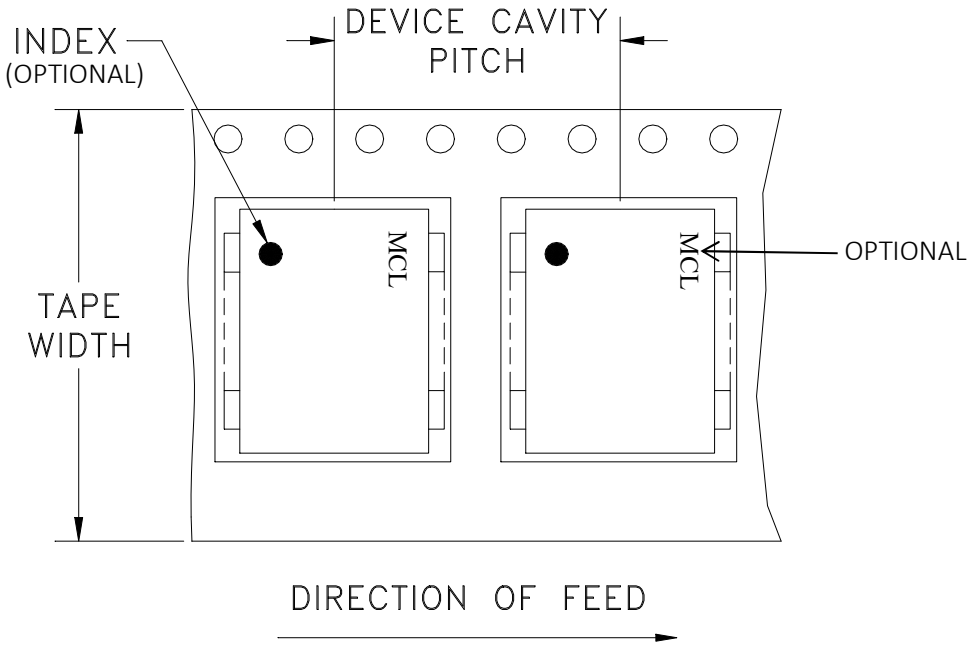
# Tape & Reel Packaging TR-F34

DEVICE ORIENTATION IN T&R




| 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

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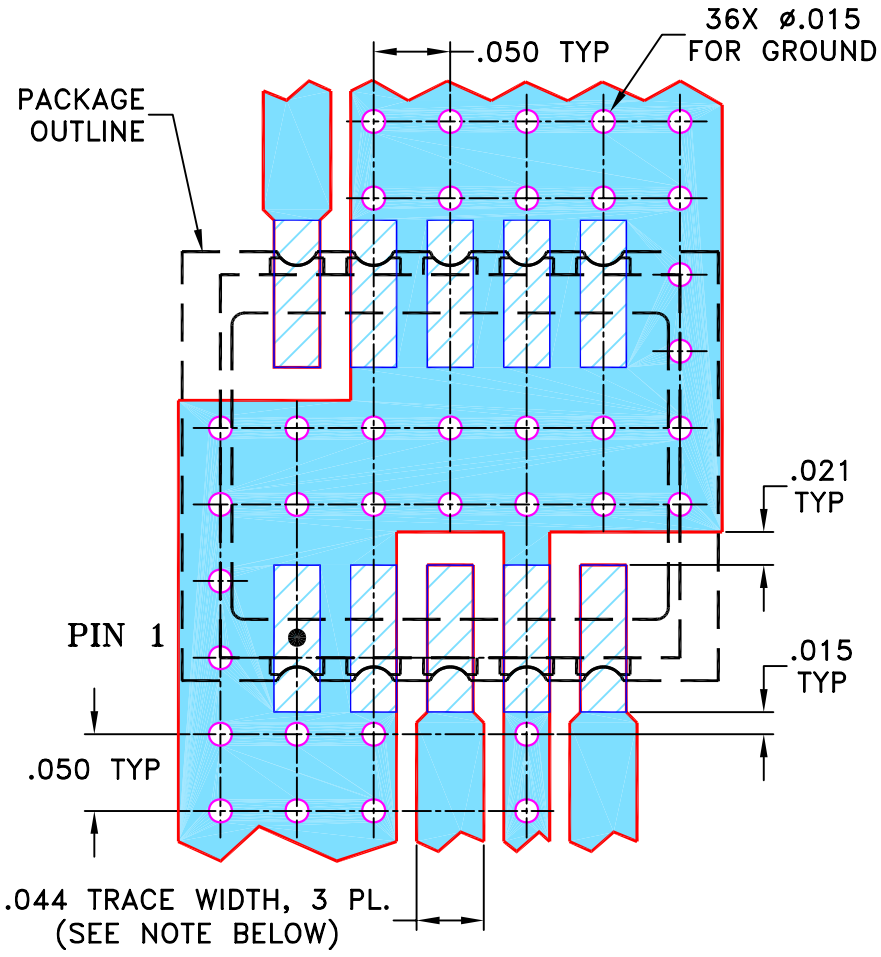
THIRD ANGLE PROJECTION

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| REV | ECN No. | DESCRIPTION | DATE | DR | AUTH |
| OR | M119455 | NEW RELEASE | 09/08/08 | AV | DJ |

# SUGGESTED MOUNTING CONFIGURATION FOR DZ885-2/DZ1383-2 CASE STYLES "10MX01" PIN CODE




NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B 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 | 09/05/08 |
| TOLERANCES ON: | CHECKED | MMG | 09/08/08 |
| 2 PL DECIMALS ± | APPROVED | DJ | 09/08/08 |
| 3 PL DECIMALS ± .005 | | | |
| ANGLES ± | | | |
| FRACTIONS ± | | | |



ASHEETA1.DWG REV:A DATE:01/12/95

Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

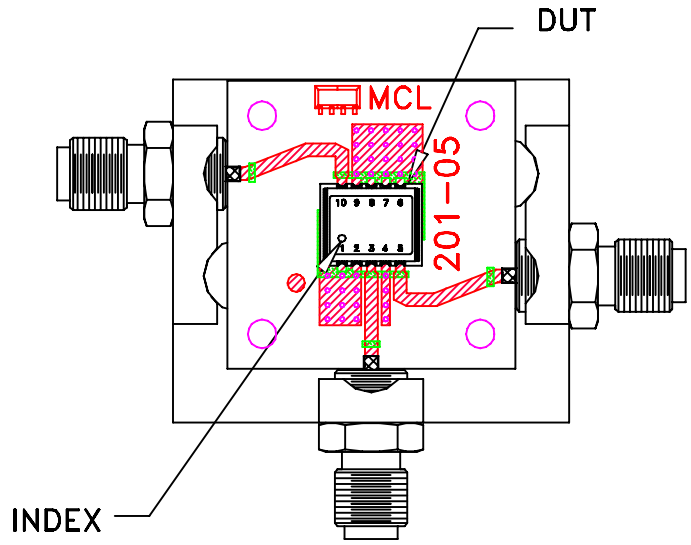
PL, 10MX01, DZ885-2/DZ1383-2, TB-493

| SIZE | CODE IDENT | DRAWING NO: | REV: |
|---|---|---|---|
| A | 15542 | 98-PL-288 | OR |

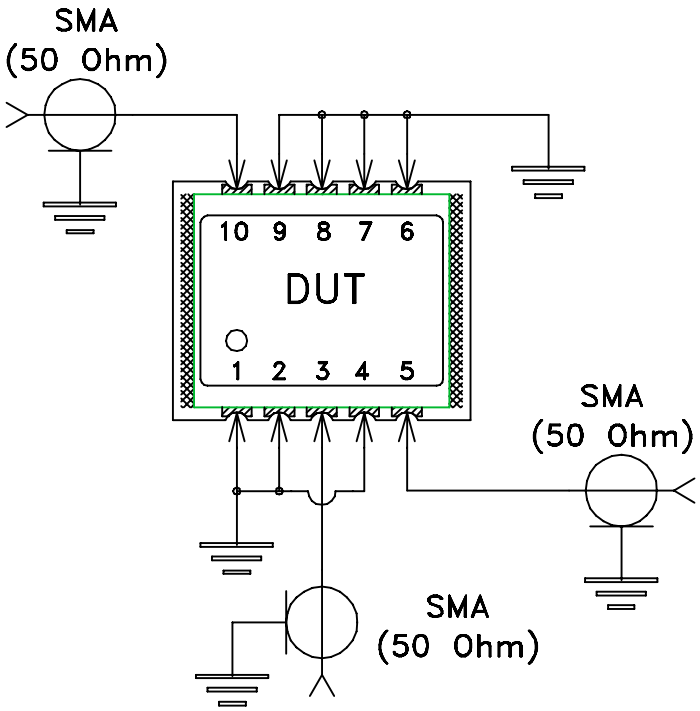
| FILE: | SCALE: | SHEET: |
|---|---|---|
| 98PL288 | 8:1 | 1 OF 1 |

# Evaluation Board and Circuit

For Pin Connections refer to Data Sheet of the DUT




TB-493+




Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.020 inch.

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# Environmental Specifications ENV10T2

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 | -40° to 85° C<br>Case Temperature | Individual Model Data Sheet |
| Storage Temperature | -40° to 85° C<br>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<br>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;<br>distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215 |