

# Frequency Mixer

MBR-EE7756/4

## Typical Performance Data

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>IF FIXED<br>@IF(OUT)=30MHz<br>(dB) |       |       | RF<br>(IN)<br>(MHz) | LO<br>(MHz) | IP3 INPUT<br>(dBm) |       |       | RF<br>(IN)<br>(MHz) | LO<br>(MHz) | COMPRESSION<br>@RF IN=0dBm<br>(dB) |      |      |
|---------------------|-------------|-------------------------------------------------------|-------|-------|---------------------|-------------|--------------------|-------|-------|---------------------|-------------|------------------------------------|------|------|
|                     |             | @LO (dBm)                                             |       |       |                     |             | @LO (dBm)          |       |       |                     |             | @LO (dBm)                          |      |      |
|                     |             | +1                                                    | +4    | +7    |                     |             | +1                 | +4    | +7    |                     |             | +1                                 | +4   | +7   |
| 1500.0              | 1530.0      | 13.19                                                 | 11.73 | 11.30 | 1500.0              | 1530.0      | 15.90              | 11.67 | 8.75  | 1500.0              | 1530.0      | 0.22                               | 0.32 | 0.42 |
| 1600.0              | 1630.0      | 11.40                                                 | 10.41 | 10.01 | 1600.0              | 1630.0      | 10.49              | 8.27  | 6.49  | 1600.0              | 1630.0      | 0.53                               | 0.60 | 0.69 |
| 1700.0              | 1730.0      | 10.17                                                 | 9.47  | 9.04  | 1700.0              | 1730.0      | 7.82               | 7.20  | 6.92  | 1700.0              | 1730.0      | 0.64                               | 0.61 | 0.73 |
| 1800.0              | 1830.0      | 9.20                                                  | 8.66  | 8.24  | 1800.0              | 1830.0      | 6.95               | 7.11  | 7.63  | 1800.0              | 1830.0      | 0.69                               | 0.56 | 0.68 |
| 1900.0              | 1930.0      | 8.47                                                  | 7.97  | 7.56  | 1900.0              | 1930.0      | 6.49               | 8.03  | 9.36  | 1900.0              | 1930.0      | 0.81                               | 0.58 | 0.62 |
| 2000.0              | 2030.0      | 7.83                                                  | 7.29  | 6.92  | 2000.0              | 2030.0      | 8.60               | 11.53 | 11.90 | 2000.0              | 2030.0      | 0.96                               | 0.67 | 0.56 |
| 2100.0              | 2130.0      | 7.24                                                  | 6.79  | 6.56  | 2100.0              | 2130.0      | 9.65               | 10.25 | 10.88 | 2100.0              | 2130.0      | 1.00                               | 0.59 | 0.46 |
| 2200.0              | 2230.0      | 6.79                                                  | 6.47  | 6.30  | 2200.0              | 2230.0      | 8.39               | 9.59  | 11.56 | 2200.0              | 2230.0      | 1.01                               | 0.61 | 0.50 |
| 2300.0              | 2330.0      | 6.55                                                  | 6.25  | 6.12  | 2300.0              | 2330.0      | 6.64               | 8.39  | 10.94 | 2300.0              | 2330.0      | 1.06                               | 0.63 | 0.56 |
| 2400.0              | 2430.0      | 6.46                                                  | 6.23  | 6.21  | 2400.0              | 2430.0      | 7.32               | 8.93  | 11.41 | 2400.0              | 2430.0      | 1.05                               | 0.57 | 0.41 |
| 2480.0              | 2510.0      | 6.57                                                  | 6.34  | 6.33  | 2480.0              | 2510.0      | 8.19               | 9.81  | 10.92 | 2480.0              | 2510.0      | 1.08                               | 0.55 | 0.33 |
| 2580.0              | 2610.0      | 6.75                                                  | 6.43  | 6.33  | 2580.0              | 2610.0      | 7.84               | 8.57  | 9.76  | 2580.0              | 2610.0      | 1.17                               | 0.68 | 0.41 |
| 2660.0              | 2690.0      | 6.70                                                  | 6.25  | 6.07  | 2660.0              | 2690.0      | 6.22               | 7.19  | 8.34  | 2660.0              | 2690.0      | 1.41                               | 0.95 | 0.67 |
| 2760.0              | 2790.0      | 6.53                                                  | 6.06  | 5.87  | 2760.0              | 2790.0      | 5.13               | 6.05  | 7.56  | 2760.0              | 2790.0      | 1.55                               | 1.08 | 0.79 |
| 2840.0              | 2870.0      | 6.40                                                  | 5.91  | 5.71  | 2840.0              | 2870.0      | 5.54               | 6.41  | 7.66  | 2840.0              | 2870.0      | 1.49                               | 1.05 | 0.76 |
| 2940.0              | 2970.0      | 6.37                                                  | 5.90  | 5.69  | 2940.0              | 2970.0      | 5.85               | 6.87  | 7.88  | 2940.0              | 2970.0      | 1.35                               | 0.93 | 0.66 |
| 3020.0              | 3050.0      | 6.38                                                  | 5.92  | 5.71  | 3020.0              | 3050.0      | 6.53               | 7.63  | 8.63  | 3020.0              | 3050.0      | 1.36                               | 0.92 | 0.66 |
| 3120.0              | 3150.0      | 6.42                                                  | 5.99  | 5.79  | 3120.0              | 3150.0      | 7.56               | 8.61  | 9.90  | 3120.0              | 3150.0      | 1.29                               | 0.81 | 0.58 |
| 3200.0              | 3230.0      | 6.47                                                  | 6.07  | 5.89  | 3200.0              | 3230.0      | 9.13               | 10.14 | 11.26 | 3200.0              | 3230.0      | 1.20                               | 0.68 | 0.45 |
| 3300.0              | 3330.0      | 6.40                                                  | 6.01  | 5.91  | 3300.0              | 3330.0      | 10.95              | 14.16 | 14.77 | 3300.0              | 3330.0      | 1.49                               | 0.80 | 0.49 |
| 3380.0              | 3410.0      | 7.31                                                  | 6.68  | 6.35  | 3380.0              | 3410.0      | 8.73               | 9.22  | 9.94  | 3380.0              | 3410.0      | 1.37                               | 1.03 | 0.81 |
| 3480.0              | 3510.0      | 7.17                                                  | 6.69  | 6.42  | 3480.0              | 3510.0      | 8.00               | 8.87  | 9.82  | 3480.0              | 3510.0      | 1.06                               | 0.82 | 0.66 |
| 3560.0              | 3590.0      | 7.11                                                  | 6.70  | 6.47  | 3560.0              | 3590.0      | 8.47               | 9.27  | 10.35 | 3560.0              | 3590.0      | 1.03                               | 0.73 | 0.58 |
| 3660.0              | 3690.0      | 7.14                                                  | 6.75  | 6.51  | 3660.0              | 3690.0      | 9.40               | 9.80  | 10.58 | 3660.0              | 3690.0      | 0.93                               | 0.63 | 0.49 |
| 3740.0              | 3770.0      | 7.10                                                  | 6.72  | 6.50  | 3740.0              | 3770.0      | 9.33               | 9.72  | 10.63 | 3740.0              | 3770.0      | 0.96                               | 0.63 | 0.49 |
| 3840.0              | 3870.0      | 7.15                                                  | 6.78  | 6.57  | 3840.0              | 3870.0      | 9.82               | 10.05 | 10.91 | 3840.0              | 3870.0      | 0.93                               | 0.57 | 0.44 |
| 3920.0              | 3950.0      | 7.09                                                  | 6.72  | 6.52  | 3920.0              | 3950.0      | 9.82               | 10.25 | 10.90 | 3920.0              | 3950.0      | 1.01                               | 0.60 | 0.44 |
| 4020.0              | 4050.0      | 7.14                                                  | 6.73  | 6.50  | 4020.0              | 4050.0      | 9.82               | 10.47 | 11.01 | 4020.0              | 4050.0      | 1.10                               | 0.66 | 0.47 |
| 4100.0              | 4130.0      | 7.20                                                  | 6.69  | 6.44  | 4100.0              | 4130.0      | 9.95               | 11.33 | 11.49 | 4100.0              | 4130.0      | 1.09                               | 0.67 | 0.48 |
| 4200.0              | 4230.0      | 7.42                                                  | 6.81  | 6.51  | 4200.0              | 4230.0      | 9.27               | 12.13 | 12.89 | 4200.0              | 4230.0      | 1.21                               | 0.79 | 0.64 |
| 4280.0              | 4310.0      | 7.63                                                  | 6.97  | 6.68  | 4280.0              | 4310.0      | 8.96               | 11.45 | 11.69 | 4280.0              | 4310.0      | 1.21                               | 0.79 | 0.64 |
| 4380.0              | 4410.0      | 7.90                                                  | 7.06  | 6.72  | 4380.0              | 4410.0      | 8.48               | 11.89 | 11.75 | 4380.0              | 4410.0      | 1.26                               | 0.85 | 0.72 |
| 4460.0              | 4490.0      | 8.19                                                  | 7.17  | 6.79  | 4460.0              | 4490.0      | 8.78               | 11.03 | 11.62 | 4460.0              | 4490.0      | 1.23                               | 0.86 | 0.76 |
| 4560.0              | 4590.0      | 8.61                                                  | 7.36  | 6.92  | 4560.0              | 4590.0      | 8.40               | 10.58 | 11.61 | 4560.0              | 4590.0      | 1.26                               | 0.93 | 0.82 |
| 4640.0              | 4670.0      | 9.25                                                  | 7.70  | 7.11  | 4640.0              | 4670.0      | 8.12               | 10.23 | 10.99 | 4640.0              | 4670.0      | 1.09                               | 0.93 | 0.84 |
| 4740.0              | 4770.0      | 10.02                                                 | 8.14  | 7.44  | 4740.0              | 4770.0      | 9.05               | 10.75 | 10.78 | 4740.0              | 4770.0      | 0.85                               | 0.83 | 0.74 |
| 4820.0              | 4850.0      | 11.11                                                 | 8.68  | 7.94  | 4820.0              | 4850.0      | 8.47               | 11.13 | 11.09 | 4820.0              | 4850.0      | 0.51                               | 0.83 | 0.74 |
| 4920.0              | 4950.0      | 12.56                                                 | 9.59  | 8.64  | 4920.0              | 4950.0      | 4.90               | 9.67  | 11.12 | 4920.0              | 4950.0      | -0.25                              | 0.60 | 0.67 |
| 5000.0              | 5030.0      | 13.73                                                 | 10.34 | 9.35  | 5000.0              | 5030.0      | 3.11               | 8.11  | 11.08 | 5000.0              | 5030.0      | -0.77                              | 0.43 | 0.57 |
| 5100.0              | 5130.0      | 15.46                                                 | 11.20 | 10.22 | 5100.0              | 5130.0      | 1.18               | 8.69  | 11.95 | 5100.0              | 5130.0      | -1.54                              | 0.45 | 0.47 |

REV. X3

MBR-EE7756/4

101012

Page 1 of 5



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED • RoHS compliant  
P.O. Box 350186, Brooklyn, New York 11235-0008 (718) 934-4500 Fax (718) 332-4661



The Design Engineers Search Engine finds the model you need, instantly • For detailed performance specs & shopping online see



# Frequency Mixer

MBR-EE7756/4

## Typical Performance Data

| IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=3000MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=1989.9MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=4010MHz<br>(dB) |
|----------------------|-------------|----------------------------------------------------------------|----------------------|-------------|------------------------------------------------------------------|----------------------|-------------|----------------------------------------------------------------|
|                      |             | @LO (dBm)                                                      |                      |             | @LO (dBm)                                                        |                      |             | @LO (dBm)                                                      |
|                      |             | +4                                                             |                      |             | +4                                                               |                      |             | +4                                                             |
| 1000.0               | 2000.0      | 6.96                                                           | 10.1                 | 2000.0      | 7.66                                                             | 1810.0               | 2200.0      | 8.61                                                           |
| 939.4                | 2060.6      | 6.97                                                           | 27.6                 | 2017.5      | 7.41                                                             | 1770.0               | 2240.0      | 8.48                                                           |
| 878.8                | 2121.2      | 7.16                                                           | 45.1                 | 2035.0      | 7.40                                                             | 1730.0               | 2280.0      | 8.17                                                           |
| 818.2                | 2181.8      | 7.42                                                           | 62.6                 | 2052.5      | 7.35                                                             | 1690.0               | 2320.0      | 7.85                                                           |
| 757.6                | 2242.4      | 7.64                                                           | 80.1                 | 2070.0      | 7.32                                                             | 1650.0               | 2360.0      | 7.62                                                           |
| 696.9                | 2303.1      | 7.76                                                           | 97.6                 | 2087.5      | 7.31                                                             | 1610.0               | 2400.0      | 7.40                                                           |
| 656.5                | 2343.5      | 7.76                                                           | 115.1                | 2105.0      | 7.33                                                             | 1570.0               | 2440.0      | 7.33                                                           |
| 595.9                | 2404.1      | 7.70                                                           | 132.6                | 2122.5      | 7.34                                                             | 1530.0               | 2480.0      | 7.21                                                           |
| 555.5                | 2444.5      | 7.54                                                           | 150.1                | 2140.0      | 7.33                                                             | 1490.0               | 2520.0      | 7.25                                                           |
| 494.9                | 2505.1      | 7.29                                                           | 167.6                | 2157.5      | 7.34                                                             | 1450.0               | 2560.0      | 7.30                                                           |
| 454.5                | 2545.5      | 7.04                                                           | 185.1                | 2175.0      | 7.36                                                             | 1410.0               | 2600.0      | 7.50                                                           |
| 393.9                | 2606.1      | 6.74                                                           | 202.6                | 2192.5      | 7.40                                                             | 1370.0               | 2640.0      | 7.83                                                           |
| 353.5                | 2646.5      | 6.53                                                           | 220.1                | 2210.0      | 7.43                                                             | 1330.0               | 2680.0      | 8.15                                                           |
| 292.9                | 2707.1      | 6.28                                                           | 237.6                | 2227.5      | 7.47                                                             | 1290.0               | 2720.0      | 8.52                                                           |
| 252.4                | 2747.6      | 6.18                                                           | 255.1                | 2245.0      | 7.52                                                             | 1250.0               | 2760.0      | 8.72                                                           |
| 191.8                | 2808.2      | 6.04                                                           | 272.6                | 2262.5      | 7.57                                                             | 1210.0               | 2800.0      | 8.89                                                           |
| 151.4                | 2848.6      | 6.07                                                           | 290.1                | 2280.0      | 7.58                                                             | 1170.0               | 2840.0      | 9.11                                                           |
| 90.8                 | 2909.2      | 6.03                                                           | 307.6                | 2297.5      | 7.65                                                             | 1110.0               | 2900.0      | 9.12                                                           |
| 50.4                 | 2949.6      | 6.01                                                           | 325.1                | 2315.0      | 7.66                                                             | 1070.0               | 2940.0      | 9.19                                                           |
| 10.0                 | 3010.0      | 6.44                                                           | 342.6                | 2332.5      | 7.73                                                             | 1010.0               | 3000.0      | 8.95                                                           |
| 49.6                 | 3049.6      | 5.98                                                           | 360.1                | 2350.0      | 7.82                                                             | 970.0                | 3040.0      | 8.85                                                           |
| 109.0                | 3109.0      | 6.02                                                           | 377.6                | 2367.5      | 7.83                                                             | 910.0                | 3100.0      | 8.88                                                           |
| 148.6                | 3148.6      | 6.06                                                           | 395.1                | 2385.0      | 7.92                                                             | 870.0                | 3140.0      | 9.02                                                           |
| 208.0                | 3208.0      | 6.10                                                           | 412.6                | 2402.5      | 7.95                                                             | 810.0                | 3200.0      | 8.96                                                           |
| 247.6                | 3247.6      | 6.01                                                           | 430.1                | 2420.0      | 8.00                                                             | 770.0                | 3240.0      | 8.84                                                           |
| 307.0                | 3307.0      | 6.21                                                           | 447.6                | 2437.5      | 8.23                                                             | 710.0                | 3300.0      | 8.49                                                           |
| 346.6                | 3346.6      | 6.31                                                           | 465.1                | 2455.0      | 8.30                                                             | 670.0                | 3340.0      | 8.31                                                           |
| 406.0                | 3406.0      | 6.50                                                           | 482.6                | 2472.5      | 8.44                                                             | 610.0                | 3400.0      | 8.02                                                           |
| 445.6                | 3445.6      | 6.59                                                           | 500.1                | 2490.0      | 8.53                                                             | 570.0                | 3440.0      | 7.91                                                           |
| 505.0                | 3505.0      | 6.77                                                           | 517.6                | 2507.5      | 8.61                                                             | 510.0                | 3500.0      | 7.58                                                           |
| 544.6                | 3544.6      | 6.90                                                           | 535.1                | 2525.0      | 8.74                                                             | 470.0                | 3540.0      | 7.44                                                           |
| 604.0                | 3604.0      | 7.17                                                           | 552.6                | 2542.5      | 8.85                                                             | 410.0                | 3600.0      | 7.08                                                           |
| 643.6                | 3643.6      | 7.36                                                           | 570.1                | 2560.0      | 8.91                                                             | 370.0                | 3640.0      | 6.98                                                           |
| 703.0                | 3703.0      | 7.74                                                           | 587.6                | 2577.5      | 9.04                                                             | 310.0                | 3700.0      | 6.85                                                           |
| 742.6                | 3742.6      | 7.94                                                           | 605.1                | 2595.0      | 9.13                                                             | 270.0                | 3740.0      | 6.78                                                           |
| 802.0                | 3802.0      | 8.27                                                           | 622.6                | 2612.5      | 9.19                                                             | 210.0                | 3800.0      | 6.73                                                           |
| 841.6                | 3841.6      | 8.39                                                           | 640.1                | 2630.0      | 9.35                                                             | 170.0                | 3840.0      | 6.67                                                           |
| 901.0                | 3901.0      | 8.54                                                           | 657.6                | 2647.5      | 9.38                                                             | 110.0                | 3900.0      | 6.66                                                           |
| 940.6                | 3940.6      | 8.66                                                           | 692.6                | 2682.5      | 9.67                                                             | 70.0                 | 3940.0      | 6.67                                                           |
| 1000.0               | 4000.0      | 8.89                                                           | 710.1                | 2700.0      | 9.66                                                             | 10.0                 | 4000.0      | 6.85                                                           |

# Frequency Mixer

MBR-EE7756/4

## Typical Performance Data

| LO<br>(MHz) | LO-RF ISOLATION<br>(dB) |       |       | LO-IF ISOLATION<br>(dB) |       |       |
|-------------|-------------------------|-------|-------|-------------------------|-------|-------|
|             | @LO (dBm)               |       |       | @LO (dBm)               |       |       |
|             | +1                      | +4    | +7    | +1                      | +4    | +7    |
| 1500.0      | 31.79                   | 30.45 | 31.29 | 9.73                    | 10.61 | 11.93 |
| 1600.0      | 32.38                   | 31.83 | 32.81 | 9.85                    | 10.98 | 12.32 |
| 1700.0      | 32.80                   | 33.59 | 35.20 | 10.16                   | 11.29 | 12.28 |
| 1800.0      | 32.96                   | 34.19 | 35.64 | 10.73                   | 11.57 | 11.84 |
| 1900.0      | 33.59                   | 35.46 | 37.49 | 11.15                   | 11.51 | 11.12 |
| 2000.0      | 34.08                   | 37.14 | 41.65 | 11.44                   | 10.89 | 10.16 |
| 2100.0      | 32.97                   | 36.14 | 40.64 | 11.82                   | 10.99 | 10.09 |
| 2200.0      | 32.97                   | 38.43 | 51.38 | 12.94                   | 11.53 | 10.31 |
| 2300.0      | 33.81                   | 43.82 | 44.67 | 13.88                   | 11.96 | 10.46 |
| 2400.0      | 34.06                   | 50.45 | 38.05 | 14.50                   | 12.14 | 10.57 |
| 2480.0      | 32.75                   | 45.77 | 36.85 | 14.89                   | 12.47 | 10.78 |
| 2580.0      | 30.14                   | 40.39 | 40.12 | 15.35                   | 12.93 | 11.32 |
| 2660.0      | 28.47                   | 37.10 | 45.56 | 15.46                   | 13.07 | 11.68 |
| 2760.0      | 28.08                   | 36.57 | 46.71 | 15.89                   | 13.73 | 12.33 |
| 2840.0      | 28.38                   | 37.83 | 42.28 | 16.21                   | 14.30 | 12.97 |
| 2940.0      | 28.31                   | 38.18 | 40.55 | 16.71                   | 15.02 | 13.84 |
| 3020.0      | 29.48                   | 40.86 | 39.02 | 16.81                   | 15.59 | 14.75 |
| 3120.0      | 29.97                   | 41.63 | 38.60 | 17.50                   | 16.63 | 16.10 |
| 3200.0      | 30.39                   | 41.95 | 37.71 | 18.25                   | 17.79 | 17.23 |
| 3300.0      | 30.57                   | 40.40 | 35.51 | 19.21                   | 19.30 | 19.03 |
| 3380.0      | 29.77                   | 37.11 | 46.91 | 20.06                   | 20.45 | 20.62 |
| 3480.0      | 35.54                   | 40.94 | 33.83 | 21.40                   | 22.18 | 22.78 |
| 3560.0      | 38.38                   | 36.77 | 30.63 | 22.71                   | 23.86 | 24.76 |
| 3660.0      | 36.68                   | 32.95 | 28.70 | 24.58                   | 25.94 | 27.04 |
| 3740.0      | 34.22                   | 30.88 | 27.50 | 25.72                   | 27.04 | 28.13 |
| 3840.0      | 30.97                   | 28.75 | 26.12 | 25.37                   | 26.32 | 27.14 |
| 3920.0      | 28.96                   | 27.17 | 25.13 | 23.98                   | 24.40 | 25.17 |
| 4020.0      | 26.92                   | 25.84 | 24.29 | 21.65                   | 21.98 | 22.72 |
| 4100.0      | 25.66                   | 25.25 | 23.98 | 19.80                   | 19.98 | 20.69 |
| 4200.0      | 24.16                   | 24.31 | 23.70 | 18.21                   | 17.97 | 18.27 |
| 4280.0      | 23.32                   | 23.48 | 23.08 | 17.88                   | 17.65 | 17.92 |
| 4380.0      | 22.41                   | 22.68 | 22.22 | 17.28                   | 17.29 | 17.63 |
| 4460.0      | 22.00                   | 22.33 | 22.06 | 16.28                   | 16.22 | 16.77 |
| 4560.0      | 21.99                   | 22.49 | 22.23 | 15.35                   | 14.99 | 15.52 |
| 4640.0      | 22.16                   | 23.14 | 22.86 | 14.59                   | 14.22 | 14.39 |
| 4740.0      | 22.77                   | 24.01 | 24.09 | 13.65                   | 13.12 | 13.09 |
| 4820.0      | 23.61                   | 24.86 | 25.23 | 12.84                   | 12.38 | 12.31 |
| 4920.0      | 24.96                   | 25.79 | 26.47 | 11.82                   | 11.38 | 11.41 |
| 5000.0      | 25.69                   | 25.91 | 26.70 | 10.94                   | 10.75 | 10.89 |
| 5100.0      | 24.45                   | 23.95 | 25.05 | 10.27                   | 10.31 | 10.80 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF-IF ISOLATION<br>(dB) |       |       |
|---------------------|-------------|-------------------------|-------|-------|
|                     |             | @LO (dBm)               |       |       |
|                     |             | +1                      | +4    | +7    |
| 1500.0              | 1530.0      | 21.47                   | 23.25 | 23.82 |
| 1600.0              | 1630.0      | 22.55                   | 23.29 | 23.53 |
| 1700.0              | 1730.0      | 23.63                   | 23.51 | 23.13 |
| 1800.0              | 1830.0      | 24.74                   | 23.80 | 22.95 |
| 1900.0              | 1930.0      | 25.13                   | 24.13 | 23.75 |
| 2000.0              | 2030.0      | 24.96                   | 24.59 | 24.48 |
| 2100.0              | 2130.0      | 26.20                   | 25.91 | 26.50 |
| 2200.0              | 2230.0      | 31.93                   | 30.97 | 31.71 |
| 2300.0              | 2330.0      | 34.47                   | 34.70 | 34.29 |
| 2400.0              | 2430.0      | 24.60                   | 25.28 | 25.58 |
| 2480.0              | 2510.0      | 20.94                   | 21.52 | 21.92 |
| 2580.0              | 2610.0      | 18.74                   | 19.29 | 19.65 |
| 2660.0              | 2690.0      | 18.00                   | 18.51 | 18.83 |
| 2760.0              | 2790.0      | 17.81                   | 18.30 | 18.62 |
| 2840.0              | 2870.0      | 17.71                   | 18.13 | 18.36 |
| 2940.0              | 2970.0      | 17.72                   | 17.92 | 18.04 |
| 3020.0              | 3050.0      | 17.85                   | 17.89 | 17.77 |
| 3120.0              | 3150.0      | 17.81                   | 17.63 | 17.43 |
| 3200.0              | 3230.0      | 17.48                   | 17.11 | 16.75 |
| 3300.0              | 3330.0      | 16.98                   | 16.45 | 16.03 |
| 3380.0              | 3410.0      | 17.44                   | 16.86 | 16.50 |
| 3480.0              | 3510.0      | 16.54                   | 15.89 | 15.50 |
| 3560.0              | 3590.0      | 15.78                   | 15.21 | 14.76 |
| 3660.0              | 3690.0      | 14.88                   | 14.33 | 13.94 |
| 3740.0              | 3770.0      | 14.18                   | 13.77 | 13.40 |
| 3840.0              | 3870.0      | 13.31                   | 12.93 | 12.66 |
| 3920.0              | 3950.0      | 12.76                   | 12.42 | 12.25 |
| 4020.0              | 4050.0      | 12.00                   | 11.82 | 11.73 |
| 4100.0              | 4130.0      | 11.53                   | 11.40 | 11.38 |
| 4200.0              | 4230.0      | 10.88                   | 10.57 | 10.41 |
| 4280.0              | 4310.0      | 10.35                   | 9.96  | 9.70  |
| 4380.0              | 4410.0      | 10.08                   | 9.81  | 9.67  |
| 4460.0              | 4490.0      | 10.18                   | 10.03 | 9.92  |
| 4560.0              | 4590.0      | 10.55                   | 10.51 | 10.55 |
| 4640.0              | 4670.0      | 10.97                   | 11.14 | 11.10 |
| 4740.0              | 4770.0      | 12.13                   | 12.42 | 12.23 |
| 4820.0              | 4850.0      | 13.54                   | 13.64 | 12.91 |
| 4920.0              | 4950.0      | 15.97                   | 15.29 | 13.19 |
| 5000.0              | 5030.0      | 16.94                   | 15.12 | 12.23 |
| 5100.0              | 5130.0      | 13.99                   | 12.58 | 10.38 |

# Frequency Mixer

MBR-EE7756/4

## Typical Performance Data

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF VSWR<br>(:1) |      |      | LO<br>(MHz) | LO VSWR<br>(:1) |      |      | IF<br>(OUT)<br>(MHz) | IF VSWR<br>@LO=4000MHz<br>(:1) |      |      |
|---------------------|-------------|-----------------|------|------|-------------|-----------------|------|------|----------------------|--------------------------------|------|------|
|                     |             | @LO (dBm)       |      |      |             | @LO (dBm)       |      |      |                      | @LO (dBm)                      |      |      |
|                     |             | +1              | +4   | +7   |             | +1              | +4   | +7   |                      | +1                             | +4   | +7   |
| 1500.0              | 1530.0      | 11.53           | 9.79 | 8.68 | 1500.0      | 5.39            | 3.69 | 3.55 | 10.0                 | 1.25                           | 1.06 | 1.08 |
| 1600.0              | 1630.0      | 8.99            | 7.56 | 6.44 | 1600.0      | 3.38            | 2.73 | 2.98 | 30.2                 | 1.26                           | 1.07 | 1.09 |
| 1700.0              | 1730.0      | 7.02            | 5.97 | 5.04 | 1700.0      | 2.37            | 2.19 | 2.59 | 50.4                 | 1.26                           | 1.07 | 1.10 |
| 1800.0              | 1830.0      | 5.61            | 4.87 | 4.16 | 1800.0      | 1.80            | 1.84 | 2.29 | 70.6                 | 1.29                           | 1.11 | 1.10 |
| 1900.0              | 1930.0      | 4.46            | 3.92 | 3.50 | 1900.0      | 1.49            | 1.61 | 2.07 | 90.8                 | 1.30                           | 1.12 | 1.12 |
| 2000.0              | 2030.0      | 3.54            | 3.22 | 3.02 | 2000.0      | 1.34            | 1.41 | 1.85 | 111.0                | 1.33                           | 1.15 | 1.13 |
| 2100.0              | 2130.0      | 2.94            | 2.78 | 2.69 | 2100.0      | 1.32            | 1.21 | 1.69 | 131.2                | 1.35                           | 1.18 | 1.15 |
| 2200.0              | 2230.0      | 2.53            | 2.49 | 2.51 | 2200.0      | 1.42            | 1.11 | 1.58 | 151.4                | 1.37                           | 1.19 | 1.15 |
| 2300.0              | 2330.0      | 2.19            | 2.24 | 2.34 | 2300.0      | 1.56            | 1.13 | 1.49 | 171.6                | 1.41                           | 1.24 | 1.19 |
| 2400.0              | 2430.0      | 2.02            | 2.18 | 2.35 | 2400.0      | 1.68            | 1.18 | 1.42 | 191.8                | 1.45                           | 1.26 | 1.20 |
| 2480.0              | 2510.0      | 1.86            | 2.04 | 2.21 | 2480.0      | 1.79            | 1.21 | 1.38 | 212.0                | 1.50                           | 1.31 | 1.24 |
| 2580.0              | 2610.0      | 1.63            | 1.77 | 1.90 | 2580.0      | 1.85            | 1.22 | 1.33 | 232.2                | 1.51                           | 1.33 | 1.25 |
| 2660.0              | 2690.0      | 1.32            | 1.44 | 1.55 | 2660.0      | 1.89            | 1.21 | 1.30 | 252.4                | 1.58                           | 1.37 | 1.28 |
| 2760.0              | 2790.0      | 1.08            | 1.27 | 1.41 | 2760.0      | 1.88            | 1.19 | 1.27 | 272.7                | 1.63                           | 1.42 | 1.32 |
| 2840.0              | 2870.0      | 1.15            | 1.30 | 1.46 | 2840.0      | 1.83            | 1.15 | 1.28 | 292.9                | 1.69                           | 1.48 | 1.37 |
| 2940.0              | 2970.0      | 1.39            | 1.44 | 1.54 | 2940.0      | 1.78            | 1.10 | 1.35 | 313.1                | 1.73                           | 1.51 | 1.40 |
| 3020.0              | 3050.0      | 1.55            | 1.59 | 1.66 | 3020.0      | 1.67            | 1.08 | 1.43 | 333.3                | 1.77                           | 1.55 | 1.42 |
| 3120.0              | 3150.0      | 1.73            | 1.75 | 1.80 | 3120.0      | 1.54            | 1.14 | 1.57 | 353.5                | 1.86                           | 1.62 | 1.48 |
| 3200.0              | 3230.0      | 1.82            | 1.85 | 1.91 | 3200.0      | 1.44            | 1.24 | 1.69 | 373.7                | 1.94                           | 1.69 | 1.54 |
| 3300.0              | 3330.0      | 1.64            | 1.62 | 1.65 | 3300.0      | 1.34            | 1.32 | 1.84 | 393.9                | 2.02                           | 1.77 | 1.61 |
| 3380.0              | 3410.0      | 2.04            | 1.90 | 1.81 | 3380.0      | 1.17            | 1.39 | 1.96 | 434.3                | 2.12                           | 1.86 | 1.69 |
| 3480.0              | 3510.0      | 2.33            | 2.22 | 2.15 | 3480.0      | 1.06            | 1.54 | 2.17 | 454.5                | 2.25                           | 1.97 | 1.79 |
| 3560.0              | 3590.0      | 2.36            | 2.27 | 2.21 | 3560.0      | 1.16            | 1.69 | 2.34 | 494.9                | 2.44                           | 2.15 | 1.95 |
| 3660.0              | 3690.0      | 2.39            | 2.29 | 2.22 | 3660.0      | 1.36            | 1.89 | 2.57 | 515.1                | 2.45                           | 2.17 | 1.97 |
| 3740.0              | 3770.0      | 2.40            | 2.30 | 2.23 | 3740.0      | 1.56            | 2.11 | 2.83 | 555.5                | 2.73                           | 2.42 | 2.19 |
| 3840.0              | 3870.0      | 2.35            | 2.24 | 2.18 | 3840.0      | 1.84            | 2.36 | 3.08 | 575.7                | 2.87                           | 2.56 | 2.32 |
| 3920.0              | 3950.0      | 2.28            | 2.17 | 2.11 | 3920.0      | 2.10            | 2.61 | 3.34 | 616.1                | 3.07                           | 2.73 | 2.47 |
| 4020.0              | 4050.0      | 2.19            | 2.07 | 2.00 | 4020.0      | 2.50            | 2.92 | 3.62 | 636.3                | 3.11                           | 2.78 | 2.54 |
| 4100.0              | 4130.0      | 2.14            | 1.99 | 1.91 | 4100.0      | 2.86            | 3.20 | 3.86 | 676.7                | 3.37                           | 3.04 | 2.78 |
| 4200.0              | 4230.0      | 2.08            | 1.93 | 1.84 | 4200.0      | 3.35            | 3.56 | 4.15 | 696.9                | 3.42                           | 3.07 | 2.81 |
| 4280.0              | 4310.0      | 2.04            | 1.91 | 1.86 | 4280.0      | 3.85            | 3.83 | 4.35 | 737.3                | 3.74                           | 3.38 | 3.10 |
| 4380.0              | 4410.0      | 2.08            | 1.95 | 1.91 | 4380.0      | 4.72            | 4.35 | 4.67 | 757.6                | 3.79                           | 3.45 | 3.19 |
| 4460.0              | 4490.0      | 2.11            | 1.98 | 1.97 | 4460.0      | 5.49            | 4.75 | 4.86 | 798.0                | 3.85                           | 3.52 | 3.26 |
| 4560.0              | 4590.0      | 2.33            | 2.17 | 2.16 | 4560.0      | 6.42            | 5.33 | 5.13 | 818.2                | 4.09                           | 3.74 | 3.46 |
| 4640.0              | 4670.0      | 2.54            | 2.35 | 2.33 | 4640.0      | 7.22            | 5.77 | 5.31 | 858.6                | 4.37                           | 4.01 | 3.73 |
| 4740.0              | 4770.0      | 2.99            | 2.71 | 2.66 | 4740.0      | 8.08            | 6.30 | 5.58 | 878.8                | 4.23                           | 3.91 | 3.67 |
| 4820.0              | 4850.0      | 3.55            | 3.11 | 2.99 | 4820.0      | 8.72            | 6.71 | 5.85 | 919.2                | 4.38                           | 4.08 | 3.84 |
| 4920.0              | 4950.0      | 4.38            | 3.72 | 3.44 | 4920.0      | 8.99            | 6.83 | 5.87 | 939.4                | 4.73                           | 4.39 | 4.09 |
| 5000.0              | 5030.0      | 4.92            | 4.09 | 3.69 | 5000.0      | 9.28            | 6.97 | 5.74 | 979.8                | 4.83                           | 4.48 | 4.22 |
| 5100.0              | 5130.0      | 5.61            | 4.48 | 4.00 | 5100.0      | 8.90            | 7.08 | 5.66 | 1000.0               | 4.68                           | 4.40 | 4.17 |

## Harmonics Tables

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | +9  | 11  | 11  | 40  | 28  | 61  | 29  | --- | --- | --- |
| 1  | -      | 12     | +0  | 29  | 18  | 40  | 44  | 37  | 55  | 53  | --- | --- |
| 2  | >90    | 50     | 50  | 45  | 53  | 65  | 52  | 57  | 56  | 59  | 54  | --- |
| 3  | >90    | 66     | 63  | >69 | 64  | 64  | >69 | >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  | >90    | >69    | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 8  | ---    | ---    | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 9  | ---    | ---    | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 10 | ---    | ---    | --- | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
|    | RF CAL | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

## LO HARMONICS ORDER

Test conditions: RF IN: 3000 MHz; -15.00 dBm.  
 LO IN: 3030 MHz; +4.00 dBm  
 IF OUT: 30 MHz; -21.16 dBm

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | +0  | 22  | 22  | 57  | 42  | 52  | 45  | --- | --- | --- |
| 1  | -      | 12     | +0  | 33  | 19  | 46  | 45  | 43  | 65  | 59  | --- | --- |
| 2  | 75     | 40     | 41  | 39  | 45  | 74  | 46  | 55  | 53  | 61  | 54  | --- |
| 3  | >90    | 47     | 43  | 50  | 44  | 46  | 47  | 56  | 68  | 59  | 66  | 73  |
| 4  | >90    | 69     | 69  | 70  | 61  | 55  | 65  | 66  | 63  | 64  | 65  | 65  |
| 5  | >90    | 75     | 76  | 75  | >79 | 78  | 60  | 65  | >79 | 71  | 77  | 70  |
| 6  | 90     | >79    | >79 | >79 | >79 | >79 | >79 | 72  | >79 | 77  | >79 | 75  |
| 7  | >90    | >79    | >79 | >79 | >79 | >79 | >79 | >79 | 76  | >79 | >79 | >79 |
| 8  | ---    | ---    | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| 9  | ---    | ---    | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| 10 | ---    | ---    | --- | >79 | >79 | >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: 3000 MHz; -5.00 dBm.  
 LO IN: 3030 MHz; +4.00 dBm  
 IF OUT: 30 MHz; -11.25 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.