

# Frequency Mixer

# SRA-12+

## Typical Performance Data

| RF (IN) (MHz) | LO (MHz) | CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) |       |      | RF (IN) (MHz) | LO (MHz) | IP3 INPUT (dBm) |       |       | RF (IN) (MHz) | LO (MHz) | COMPRESSION @RF IN=+1dBm (dB) |      |      |
|---------------|----------|--|-------|------|---------------|----------|-----------------|-------|-------|---------------|----------|-------------------------------|------|------|
|               |          | @LO (dBm)                                    |       |      |               |          | @LO (dBm)       |       |       |               |          | @LO (dBm)                     |      |      |
|               |          | +4   | +7    | +10  |               |          | +4              | +7    | +10   |               |          | +4                            | +7   | +10  |
| 40.1          | 10.1     | 6.20   | 5.92  | 5.81 | 40.1          | 10.1     | 20.30           | 20.01 | 20.20 | 40.1          | 10.1     | 1.13                          | 0.89 | 0.68 |
| 100.6         | 70.6     | 6.20   | 5.99  | 5.89 | 100.6         | 70.6     | 11.31           | 9.94  | 9.33  | 100.6         | 70.6     | 1.32                          | 1.09 | 0.83 |
| 161.0         | 131.0    | 6.51   | 6.27  | 6.08 | 161.0         | 131.0    | 6.39            | 7.24  | 9.17  | 161.0         | 131.0    | 1.32                          | 1.07 | 0.84 |
| 221.5         | 191.5    | 7.03   | 6.63  | 6.32 | 221.5         | 191.5    | 5.61            | 7.70  | 10.66 | 221.5         | 191.5    | 1.26                          | 1.07 | 0.92 |
| 282.0         | 252.0    | 7.05   | 6.57  | 6.22 | 282.0         | 252.0    | 6.86            | 9.78  | 13.10 | 282.0         | 252.0    | 1.60                          | 1.38 | 1.26 |
| 342.5         | 312.5    | 7.18   | 6.65  | 6.31 | 342.5         | 312.5    | 8.47            | 11.64 | 14.03 | 342.5         | 312.5    | 1.75                          | 1.60 | 1.38 |
| 402.9         | 372.9    | 7.59   | 6.93  | 6.54 | 402.9         | 372.9    | 7.83            | 10.23 | 11.77 | 402.9         | 372.9    | 1.57                          | 1.48 | 1.33 |
| 463.4         | 433.4    | 7.43   | 6.79  | 6.43 | 463.4         | 433.4    | 8.49            | 10.02 | 11.19 | 463.4         | 433.4    | 1.83                          | 1.68 | 1.47 |
| 523.9         | 493.9    | 7.56   | 6.94  | 6.57 | 523.9         | 493.9    | 7.37            | 9.12  | 10.32 | 523.9         | 493.9    | 1.84                          | 1.68 | 1.47 |
| 584.4         | 554.4    | 7.74   | 7.18  | 6.84 | 584.4         | 554.4    | 7.16            | 9.24  | 10.90 | 584.4         | 554.4    | 1.60                          | 1.47 | 1.30 |
| 644.8         | 614.8    | 7.76   | 7.29  | 6.97 | 644.8         | 614.8    | 5.82            | 7.64  | 9.47  | 644.8         | 614.8    | 1.50                          | 1.30 | 1.11 |
| 705.3         | 675.3    | 7.61   | 7.25  | 7.02 | 705.3         | 675.3    | 5.60            | 6.90  | 8.16  | 705.3         | 675.3    | 1.36                          | 1.13 | 0.99 |
| 765.8         | 735.8    | 7.40   | 7.08  | 6.91 | 765.8         | 735.8    | 6.25            | 7.55  | 8.68  | 765.8         | 735.8    | 1.38                          | 1.14 | 0.95 |
| 826.2         | 796.2    | 7.25   | 6.99  | 6.84 | 826.2         | 796.2    | 6.86            | 7.85  | 8.97  | 826.2         | 796.2    | 1.14                          | 0.96 | 0.79 |
| 886.7         | 856.7    | 7.15   | 6.89  | 6.75 | 886.7         | 856.7    | 7.39            | 8.18  | 9.16  | 886.7         | 856.7    | 0.86                          | 0.71 | 0.59 |
| 947.2         | 917.2    | 7.01   | 6.76  | 6.64 | 947.2         | 917.2    | 8.82            | 9.48  | 10.55 | 947.2         | 917.2    | 0.75                          | 0.58 | 0.47 |
| 1007.7        | 977.7    | 6.92   | 6.69  | 6.58 | 1007.7        | 977.7    | 10.90           | 11.39 | 12.26 | 1007.7        | 977.7    | 0.58                          | 0.41 | 0.32 |
| 1068.1        | 1038.1   | 7.02   | 6.73  | 6.60 | 1068.1        | 1038.1   | 11.52           | 12.92 | 13.90 | 1068.1        | 1038.1   | 0.53                          | 0.32 | 0.22 |
| 1128.6        | 1098.6   | 7.13   | 6.83  | 6.70 | 1128.6        | 1098.6   | 15.26           | 16.00 | 16.23 | 1128.6        | 1098.6   | 0.60                          | 0.38 | 0.26 |
| 1189.1        | 1159.1   | 7.42   | 7.05  | 6.88 | 1189.1        | 1159.1   | 20.29           | 19.48 | 19.17 | 1189.1        | 1159.1   | 0.65                          | 0.47 | 0.33 |
| 1269.7        | 1239.7   | 7.95   | 7.39  | 7.12 | 1269.7        | 1239.7   | 15.57           | 16.82 | 16.59 | 1269.7        | 1239.7   | 0.71                          | 0.56 | 0.44 |
| 1330.2        | 1300.2   | 8.15   | 7.53  | 7.19 | 1330.2        | 1300.2   | 11.53           | 12.88 | 13.58 | 1330.2        | 1300.2   | 0.74                          | 0.62 | 0.51 |
| 1410.8        | 1380.8   | 8.02   | 7.39  | 7.05 | 1410.8        | 1380.8   | 8.90            | 10.11 | 11.06 | 1410.8        | 1380.8   | 0.89                          | 0.77 | 0.66 |
| 1471.3        | 1441.3   | 7.88   | 7.28  | 6.96 | 1471.3        | 1441.3   | 7.76            | 8.78  | 9.98  | 1471.3        | 1441.3   | 1.02                          | 0.90 | 0.74 |
| 1551.9        | 1521.9   | 7.68   | 7.21  | 6.90 | 1551.9        | 1521.9   | 7.10            | 8.01  | 9.06  | 1551.9        | 1521.9   | 1.16                          | 0.98 | 0.81 |
| 1612.4        | 1582.4   | 7.63   | 7.21  | 6.95 | 1612.4        | 1582.4   | 7.18            | 7.89  | 8.69  | 1612.4        | 1582.4   | 1.15                          | 0.97 | 0.79 |
| 1693.0        | 1663.0   | 7.47   | 7.10  | 6.90 | 1693.0        | 1663.0   | 7.30            | 8.11  | 8.86  | 1693.0        | 1663.0   | 1.24                          | 1.01 | 0.84 |
| 1753.5        | 1723.5   | 7.29   | 6.98  | 6.80 | 1753.5        | 1723.5   | 7.64            | 8.29  | 9.00  | 1753.5        | 1723.5   | 1.35                          | 1.10 | 0.93 |
| 1834.1        | 1804.1   | 7.58   | 7.17  | 6.95 | 1834.1        | 1804.1   | 6.88            | 7.71  | 8.60  | 1834.1        | 1804.1   | 1.46                          | 1.15 | 0.98 |
| 1894.6        | 1864.6   | 7.35   | 7.05  | 6.89 | 1894.6        | 1864.6   | 7.30            | 8.36  | 9.33  | 1894.6        | 1864.6   | 1.16                          | 0.95 | 0.80 |
| 1975.2        | 1945.2   | 7.49   | 7.19  | 7.03 | 1975.2        | 1945.2   | 7.65            | 8.32  | 9.15  | 1975.2        | 1945.2   | 1.09                          | 0.86 | 0.73 |
| 2035.7        | 2005.7   | 7.59   | 7.29  | 7.17 | 2035.7        | 2005.7   | 7.84            | 9.06  | 9.93  | 2035.7        | 2005.7   | 1.03                          | 0.79 | 0.66 |
| 2116.3        | 2086.3   | 7.88   | 7.55  | 7.41 | 2116.3        | 2086.3   | 7.95            | 9.31  | 10.88 | 2116.3        | 2086.3   | 1.00                          | 0.74 | 0.60 |
| 2176.8        | 2146.8   | 8.04   | 7.70  | 7.54 | 2176.8        | 2146.8   | 8.13            | 9.44  | 11.22 | 2176.8        | 2146.8   | 0.88                          | 0.64 | 0.51 |
| 2257.4        | 2227.4   | 8.33   | 7.99  | 7.80 | 2257.4        | 2227.4   | 8.85            | 10.06 | 11.71 | 2257.4        | 2227.4   | 0.80                          | 0.57 | 0.45 |
| 2317.9        | 2287.9   | 8.72   | 8.34  | 8.12 | 2317.9        | 2287.9   | 9.59            | 11.30 | 12.72 | 2317.9        | 2287.9   | 0.69                          | 0.48 | 0.36 |
| 2398.5        | 2368.5   | 9.24   | 8.83  | 8.58 | 2398.5        | 2368.5   | 9.77            | 11.75 | 13.32 | 2398.5        | 2368.5   | 0.68                          | 0.43 | 0.34 |
| 2459.0        | 2429.0   | 9.60   | 9.17  | 8.91 | 2459.0        | 2429.0   | 9.46            | 11.16 | 12.65 | 2459.0        | 2429.0   | 0.67                          | 0.43 | 0.36 |
| 2539.6        | 2509.6   | 10.15  | 9.69  | 9.44 | 2539.6        | 2509.6   | 9.11            | 10.37 | 11.55 | 2539.6        | 2509.6   | 0.56                          | 0.36 | 0.29 |
| 2600.1        | 2570.1   | 10.61  | 10.13 | 9.88 | 2600.1        | 2570.1   | 9.66            | 10.11 | 11.12 | 2600.1        | 2570.1   | 0.45                          | 0.31 | 0.24 |

REV. X3

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IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED RoHS compliant  
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## Typical Performance Data

| IF (OUT) (MHz) | LO (MHz) | CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1025MHz (dB) | IF (OUT) (MHz) | LO (MHz) | CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=790MHz (dB) | IF (OUT) (MHz) | LO (MHz) | CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1260.1MHz (dB) |
|----------------|----------|---|----------------|----------|--|----------------|----------|---|
|                |          | @LO (dBm)   |                |          | @LO (dBm)  |                |          | @LO (dBm)   |
|                |          | +7  |                |          | +7   |                |          | +7  |
| 774.9          | 250.1    | 10.46   | 10.1           | 800.1    | 7.29   | 860.0          | 400.1    | 10.99   |
| 734.6          | 290.4    | 10.01   | 30.1           | 820.1    | 6.96   | 839.3          | 420.8    | 10.72   |
| 694.4          | 330.6    | 9.51  | 50.1           | 840.1    | 6.85   | 818.5          | 441.6    | 10.32   |
| 654.1          | 370.9    | 9.16  | 70.1           | 860.1    | 6.78   | 797.8          | 462.3    | 10.12   |
| 613.9          | 411.1    | 8.84  | 90.1           | 880.1    | 6.81   | 777.1          | 483.0    | 9.82  |
| 573.6          | 451.4    | 8.56  | 110.1          | 900.1    | 6.77   | 756.3          | 503.8    | 9.57  |
| 533.4          | 491.6    | 8.40  | 130.1          | 920.1    | 6.69   | 735.6          | 524.5    | 9.19  |
| 493.1          | 531.9    | 7.96  | 150.1          | 940.1    | 6.72   | 714.9          | 545.2    | 8.92  |
| 452.8          | 572.2    | 7.75  | 170.1          | 960.1    | 6.69   | 694.1          | 566.0    | 8.72  |
| 412.6          | 612.4    | 7.55  | 190.1          | 980.1    | 6.65   | 673.4          | 586.7    | 8.67  |
| 372.3          | 652.7    | 7.25  | 210.1          | 1000.1   | 6.66   | 652.7          | 607.4    | 8.59  |
| 332.1          | 692.9    | 6.97  | 230.1          | 1020.1   | 6.62   | 632.0          | 628.1    | 8.53  |
| 291.8          | 733.2    | 6.77  | 250.1          | 1040.1   | 6.71   | 611.2          | 648.9    | 8.27  |
| 251.5          | 773.5    | 6.75  | 270.1          | 1060.1   | 6.61   | 590.5          | 669.6    | 8.09  |
| 211.3          | 813.7    | 6.64  | 290.1          | 1080.1   | 6.62   | 569.8          | 690.3    | 7.95  |
| 171.0          | 854.0    | 6.60  | 310.1          | 1100.1   | 6.68   | 549.0          | 711.1    | 7.84  |
| 130.8          | 894.2    | 6.58  | 330.1          | 1120.1   | 6.67   | 528.3          | 731.8    | 7.75  |
| 90.5           | 934.5    | 6.62  | 350.1          | 1140.1   | 6.67   | 507.6          | 752.5    | 7.58  |
| 50.3           | 974.7    | 6.54  | 370.1          | 1160.1   | 6.70   | 486.8          | 773.3    | 7.35  |
| 10.0           | 1015.0   | 7.07  | 390.1          | 1180.1   | 6.77   | 466.1          | 794.0    | 7.28  |
| 30.1           | 1055.1   | 6.63  | 410.1          | 1200.1   | 6.87   | 445.4          | 814.7    | 7.25  |
| 70.4           | 1095.4   | 6.42  | 430.1          | 1220.1   | 7.01   | 424.6          | 835.5    | 7.16  |
| 110.7          | 1135.7   | 6.46  | 450.1          | 1240.1   | 7.16   | 403.9          | 856.2    | 7.14  |
| 150.9          | 1175.9   | 6.52  | 470.1          | 1260.1   | 7.30   | 383.2          | 876.9    | 7.11  |
| 191.2          | 1216.2   | 6.66  | 490.1          | 1280.1   | 7.31   | 362.4          | 897.7    | 7.12  |
| 231.5          | 1256.5   | 6.88  | 510.1          | 1300.1   | 7.54   | 341.7          | 918.4    | 7.14  |
| 271.7          | 1296.7   | 7.18  | 530.1          | 1320.1   | 7.68   | 321.0          | 939.1    | 7.19  |
| 312.0          | 1337.0   | 7.54  | 550.1          | 1340.1   | 7.80   | 300.2          | 959.9    | 7.22  |
| 352.3          | 1377.3   | 7.81  | 590.1          | 1380.1   | 8.05   | 279.5          | 980.6    | 7.16  |
| 392.6          | 1417.5   | 8.09  | 610.1          | 1400.1   | 8.17   | 258.8          | 1001.3   | 7.23  |
| 432.8          | 1457.8   | 8.35  | 650.1          | 1440.1   | 8.44   | 238.0          | 1022.1   | 7.20  |
| 473.1          | 1498.1   | 8.60  | 670.1          | 1460.1   | 8.49   | 217.3          | 1042.8   | 7.25  |
| 513.4          | 1538.4   | 8.91  | 710.1          | 1500.1   | 8.74   | 196.6          | 1063.5   | 7.29  |
| 553.6          | 1578.6   | 9.10  | 730.1          | 1520.1   | 8.90   | 175.9          | 1084.2   | 7.23  |
| 593.9          | 1618.9   | 9.27  | 770.1          | 1560.1   | 9.31   | 155.1          | 1105.0   | 7.25  |
| 634.2          | 1659.2   | 9.45  | 790.1          | 1580.1   | 9.46   | 134.4          | 1125.7   | 7.28  |
| 674.4          | 1699.4   | 9.59  | 830.1          | 1620.1   | 9.79   | 92.9           | 1167.2   | 7.31  |
| 714.7          | 1739.7   | 9.76  | 850.1          | 1640.1   | 10.05  | 72.2           | 1187.9   | 7.19  |
| 755.0          | 1780.0   | 10.17   | 890.1          | 1680.1   | 10.50  | 30.7           | 1229.4   | 7.23  |
| 775.1          | 1800.1   | 10.32   | 910.1          | 1700.1   | 10.78  | 10.0           | 1250.1   | 7.76  |

# Frequency Mixer

# SRA-12+

## Typical Performance Data

| LO<br>(MHz) | LO-RF ISOLATION<br>(dB) |       |       | LO-IF ISOLATION<br>(dB) |       |       |
|-------------|-------------------------|-------|-------|-------------------------|-------|-------|
|             | @LO (dBm)               |       |       | @LO (dBm)               |       |       |
|             | +4                      | +7    | +10   | +4                      | +7    | +10   |
| 10.1        | 61.08                   | 66.80 | 70.01 | 70.96                   | 69.96 | 69.29 |
| 70.6        | 55.41                   | 56.98 | 58.15 | 54.55                   | 53.17 | 52.20 |
| 131.0       | 50.63                   | 51.90 | 52.93 | 49.78                   | 48.21 | 47.10 |
| 191.5       | 47.33                   | 48.77 | 49.92 | 47.31                   | 45.65 | 44.17 |
| 252.0       | 45.17                   | 46.54 | 47.79 | 45.32                   | 43.02 | 41.48 |
| 312.5       | 43.26                   | 44.82 | 46.18 | 42.72                   | 40.74 | 39.32 |
| 372.9       | 41.76                   | 43.14 | 44.32 | 41.31                   | 39.09 | 37.77 |
| 433.4       | 41.20                   | 42.71 | 43.89 | 40.69                   | 38.15 | 36.40 |
| 493.9       | 40.01                   | 41.50 | 42.64 | 39.62                   | 37.03 | 35.38 |
| 554.4       | 38.96                   | 40.26 | 41.53 | 38.07                   | 35.81 | 34.29 |
| 614.8       | 38.66                   | 39.94 | 41.11 | 36.54                   | 34.40 | 33.08 |
| 675.3       | 38.18                   | 39.36 | 40.32 | 35.82                   | 33.57 | 32.23 |
| 735.8       | 38.18                   | 39.09 | 40.01 | 35.71                   | 32.98 | 31.68 |
| 796.2       | 38.10                   | 38.96 | 39.66 | 34.88                   | 32.37 | 30.78 |
| 856.7       | 37.98                   | 38.88 | 39.58 | 33.88                   | 31.40 | 29.80 |
| 917.2       | 37.77                   | 38.47 | 38.95 | 32.91                   | 30.26 | 28.75 |
| 977.7       | 38.11                   | 38.86 | 39.31 | 31.75                   | 29.14 | 27.45 |
| 1038.1      | 38.82                   | 39.64 | 40.39 | 30.93                   | 27.99 | 26.51 |
| 1098.6      | 39.41                   | 40.32 | 41.20 | 29.63                   | 26.52 | 24.99 |
| 1159.1      | 40.79                   | 41.85 | 42.98 | 27.86                   | 24.74 | 23.06 |
| 1239.7      | 42.02                   | 40.73 | 39.47 | 25.79                   | 22.75 | 21.01 |
| 1300.2      | 37.28                   | 37.56 | 37.45 | 28.51                   | 25.68 | 23.88 |
| 1380.8      | 34.84                   | 35.59 | 35.79 | 38.77                   | 36.31 | 34.77 |
| 1441.3      | 34.51                   | 35.39 | 35.66 | 43.21                   | 41.32 | 40.46 |
| 1521.9      | 33.94                   | 34.90 | 35.23 | 37.00                   | 34.94 | 33.32 |
| 1582.4      | 33.67                   | 34.54 | 35.00 | 34.54                   | 32.43 | 30.78 |
| 1663.0      | 33.66                   | 34.40 | 34.69 | 32.79                   | 30.46 | 28.71 |
| 1723.5      | 33.59                   | 34.35 | 34.59 | 31.69                   | 29.40 | 27.50 |
| 1804.1      | 32.96                   | 33.98 | 34.56 | 32.03                   | 29.46 | 27.74 |
| 1864.6      | 33.49                   | 34.55 | 34.83 | 29.49                   | 27.52 | 25.89 |
| 1945.2      | 33.32                   | 34.49 | 35.02 | 28.64                   | 26.67 | 25.05 |
| 2005.7      | 33.40                   | 34.56 | 35.41 | 28.35                   | 26.20 | 24.91 |
| 2086.3      | 33.50                   | 34.40 | 35.26 | 28.38                   | 26.10 | 24.72 |
| 2146.8      | 33.45                   | 34.23 | 34.76 | 28.46                   | 26.30 | 24.64 |
| 2227.4      | 33.59                   | 34.46 | 34.96 | 28.65                   | 26.84 | 25.22 |
| 2287.9      | 34.00                   | 34.93 | 35.26 | 29.19                   | 27.59 | 25.80 |
| 2368.5      | 34.22                   | 35.32 | 35.80 | 29.81                   | 28.26 | 27.09 |
| 2429.0      | 34.35                   | 35.63 | 36.28 | 29.92                   | 28.69 | 27.77 |
| 2509.6      | 34.44                   | 35.66 | 36.52 | 30.24                   | 29.24 | 28.52 |
| 2570.1      | 34.70                   | 35.88 | 36.75 | 30.33                   | 29.51 | 28.88 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF-IF ISOLATION<br>(dB) |       |       |
|---------------------|-------------|-------------------------|-------|-------|
|                     |             | @LO (dBm)               |       |       |
|                     |             | +4                      | +7    | +10   |
| 40.1                | 10.1        | 23.87                   | 24.31 | 24.40 |
| 100.6               | 70.6        | 23.73                   | 24.41 | 24.30 |
| 161.0               | 131.0       | 24.11                   | 24.34 | 24.75 |
| 221.5               | 191.5       | 24.68                   | 25.19 | 25.32 |
| 282.0               | 252.0       | 25.64                   | 25.86 | 26.31 |
| 342.5               | 312.5       | 27.02                   | 27.39 | 27.84 |
| 402.9               | 372.9       | 29.00                   | 29.39 | 29.52 |
| 463.4               | 433.4       | 31.62                   | 31.78 | 31.73 |
| 523.9               | 493.9       | 34.85                   | 33.85 | 33.38 |
| 584.4               | 554.4       | 38.78                   | 37.02 | 35.81 |
| 644.8               | 614.8       | 42.06                   | 40.41 | 39.17 |
| 705.3               | 675.3       | 37.16                   | 36.99 | 36.94 |
| 765.8               | 735.8       | 34.49                   | 34.06 | 33.87 |
| 826.2               | 796.2       | 33.56                   | 32.81 | 32.44 |
| 886.7               | 856.7       | 33.07                   | 32.37 | 31.83 |
| 947.2               | 917.2       | 33.02                   | 32.11 | 31.50 |
| 1007.7              | 977.7       | 33.93                   | 32.93 | 32.11 |
| 1068.1              | 1038.1      | 35.36                   | 34.79 | 34.17 |
| 1128.6              | 1098.6      | 33.94                   | 34.91 | 35.19 |
| 1189.1              | 1159.1      | 29.77                   | 30.76 | 31.30 |
| 1269.7              | 1239.7      | 27.22                   | 27.54 | 27.69 |
| 1330.2              | 1300.2      | 33.59                   | 33.01 | 32.43 |
| 1410.8              | 1380.8      | 49.09                   | 46.20 | 42.98 |
| 1471.3              | 1441.3      | 38.63                   | 39.93 | 40.07 |
| 1551.9              | 1521.9      | 35.85                   | 36.72 | 37.06 |
| 1612.4              | 1582.4      | 35.62                   | 36.29 | 36.27 |
| 1693.0              | 1663.0      | 35.46                   | 35.50 | 35.09 |
| 1753.5              | 1723.5      | 34.70                   | 34.26 | 33.52 |
| 1834.1              | 1804.1      | 33.98                   | 32.80 | 31.80 |
| 1894.6              | 1864.6      | 32.00                   | 30.90 | 29.92 |
| 1975.2              | 1945.2      | 30.61                   | 29.50 | 28.46 |
| 2035.7              | 2005.7      | 29.88                   | 28.98 | 28.04 |
| 2116.3              | 2086.3      | 28.98                   | 28.37 | 27.74 |
| 2176.8              | 2146.8      | 28.78                   | 28.16 | 27.60 |
| 2257.4              | 2227.4      | 28.92                   | 28.31 | 27.88 |
| 2317.9              | 2287.9      | 30.52                   | 29.72 | 29.27 |
| 2398.5              | 2368.5      | 34.18                   | 33.42 | 32.67 |
| 2459.0              | 2429.0      | 34.57                   | 34.32 | 33.92 |
| 2539.6              | 2509.6      | 32.86                   | 32.66 | 32.47 |
| 2600.1              | 2570.1      | 33.44                   | 33.39 | 33.26 |

# Frequency Mixer

# SRA-12+

## Typical Performance Data

| RF (IN) (MHz) | LO (MHz) | RF VSWR (:1) |      |      |
|---------------|----------|--------------|------|------|
|               |          | @LO (dBm)    |      |      |
|               |          | +4           | +7   | +10  |
| 40.1          | 10.1     | 1.23         | 1.18 | 1.12 |
| 100.6         | 70.6     | 1.28         | 1.18 | 1.14 |
| 161.0         | 131.0    | 1.32         | 1.25 | 1.21 |
| 221.5         | 191.5    | 1.52         | 1.43 | 1.37 |
| 282.0         | 252.0    | 1.74         | 1.63 | 1.56 |
| 342.5         | 312.5    | 1.93         | 1.81 | 1.72 |
| 402.9         | 372.9    | 2.22         | 2.06 | 1.95 |
| 463.4         | 433.4    | 2.46         | 2.28 | 2.15 |
| 523.9         | 493.9    | 2.69         | 2.48 | 2.33 |
| 584.4         | 554.4    | 2.82         | 2.63 | 2.51 |
| 644.8         | 614.8    | 2.95         | 2.82 | 2.71 |
| 705.3         | 675.3    | 2.90         | 2.81 | 2.74 |
| 765.8         | 735.8    | 2.65         | 2.59 | 2.54 |
| 826.2         | 796.2    | 2.52         | 2.47 | 2.43 |
| 886.7         | 856.7    | 2.36         | 2.30 | 2.27 |
| 947.2         | 917.2    | 2.13         | 2.05 | 2.01 |
| 1007.7        | 977.7    | 2.03         | 1.92 | 1.87 |
| 1068.1        | 1038.1   | 1.92         | 1.78 | 1.71 |
| 1128.6        | 1098.6   | 1.85         | 1.69 | 1.60 |
| 1189.1        | 1159.1   | 2.01         | 1.83 | 1.73 |
| 1269.7        | 1239.7   | 2.29         | 2.11 | 1.99 |
| 1330.2        | 1300.2   | 2.34         | 2.17 | 2.04 |
| 1410.8        | 1380.8   | 2.32         | 2.15 | 2.03 |
| 1471.3        | 1441.3   | 2.28         | 2.11 | 2.00 |
| 1551.9        | 1521.9   | 2.10         | 1.98 | 1.88 |
| 1612.4        | 1582.4   | 1.92         | 1.82 | 1.73 |
| 1693.0        | 1663.0   | 1.71         | 1.62 | 1.55 |
| 1753.5        | 1723.5   | 1.59         | 1.51 | 1.45 |
| 1834.1        | 1804.1   | 1.55         | 1.45 | 1.39 |
| 1894.6        | 1864.6   | 1.43         | 1.38 | 1.34 |
| 1975.2        | 1945.2   | 1.36         | 1.33 | 1.32 |
| 2035.7        | 2005.7   | 1.31         | 1.29 | 1.30 |
| 2116.3        | 2086.3   | 1.33         | 1.33 | 1.35 |
| 2176.8        | 2146.8   | 1.42         | 1.43 | 1.46 |
| 2257.4        | 2227.4   | 1.48         | 1.51 | 1.55 |
| 2317.9        | 2287.9   | 1.48         | 1.51 | 1.56 |
| 2398.5        | 2368.5   | 1.54         | 1.58 | 1.60 |
| 2459.0        | 2429.0   | 1.66         | 1.69 | 1.71 |
| 2539.6        | 2509.6   | 1.84         | 1.88 | 1.90 |
| 2600.1        | 2570.1   | 1.95         | 2.00 | 2.04 |

| LO (MHz) | LO VSWR (:1) |      |      |
|----------|--------------|------|------|
|          | @LO (dBm)    |      |      |
|          | +4           | +7   | +10  |
| 10.1     | 1.60         | 2.28 | 3.11 |
| 70.6     | 1.72         | 2.45 | 3.38 |
| 131.0    | 1.75         | 2.53 | 3.50 |
| 191.5    | 1.68         | 2.37 | 3.22 |
| 252.0    | 1.71         | 2.40 | 3.26 |
| 312.5    | 1.73         | 2.40 | 3.26 |
| 372.9    | 1.71         | 2.32 | 3.11 |
| 433.4    | 1.71         | 2.31 | 3.09 |
| 493.9    | 1.69         | 2.26 | 3.02 |
| 554.4    | 1.65         | 2.16 | 2.86 |
| 614.8    | 1.68         | 2.14 | 2.81 |
| 675.3    | 1.67         | 2.06 | 2.68 |
| 735.8    | 1.69         | 1.99 | 2.55 |
| 796.2    | 1.68         | 1.93 | 2.45 |
| 856.7    | 1.65         | 1.83 | 2.31 |
| 917.2    | 1.62         | 1.74 | 2.18 |
| 977.7    | 1.59         | 1.66 | 2.06 |
| 1038.1   | 1.58         | 1.57 | 1.95 |
| 1098.6   | 1.56         | 1.51 | 1.86 |
| 1159.1   | 1.53         | 1.43 | 1.75 |
| 1239.7   | 1.51         | 1.35 | 1.59 |
| 1300.2   | 1.43         | 1.34 | 1.60 |
| 1380.8   | 1.27         | 1.29 | 1.66 |
| 1441.3   | 1.18         | 1.27 | 1.67 |
| 1521.9   | 1.09         | 1.28 | 1.70 |
| 1582.4   | 1.05         | 1.31 | 1.73 |
| 1663.0   | 1.03         | 1.40 | 1.81 |
| 1723.5   | 1.09         | 1.47 | 1.89 |
| 1804.1   | 1.03         | 1.32 | 1.71 |
| 1864.6   | 1.24         | 1.64 | 2.05 |
| 1945.2   | 1.34         | 1.74 | 2.17 |
| 2005.7   | 1.42         | 1.82 | 2.25 |
| 2086.3   | 1.49         | 1.87 | 2.29 |
| 2146.8   | 1.53         | 1.89 | 2.28 |
| 2227.4   | 1.61         | 1.95 | 2.32 |
| 2287.9   | 1.66         | 1.99 | 2.37 |
| 2368.5   | 1.69         | 2.00 | 2.35 |
| 2429.0   | 1.71         | 2.00 | 2.34 |
| 2509.6   | 1.79         | 2.07 | 2.40 |
| 2570.1   | 1.84         | 2.12 | 2.45 |

| IF (OUT) (MHz) | IF VSWR @LO=1250MHz (:1) |      |      |
|----------------|--------------------------|------|------|
|                | @LO (dBm)                |      |      |
|                | +4                       | +7   | +10  |
| 10.0           | 1.13                     | 1.31 | 1.45 |
| 50.3           | 1.13                     | 1.30 | 1.44 |
| 90.7           | 1.19                     | 1.35 | 1.49 |
| 131.0          | 1.26                     | 1.42 | 1.55 |
| 171.3          | 1.31                     | 1.46 | 1.60 |
| 211.6          | 1.41                     | 1.58 | 1.71 |
| 252.0          | 1.49                     | 1.65 | 1.79 |
| 272.1          | 1.55                     | 1.71 | 1.84 |
| 312.5          | 1.65                     | 1.82 | 1.95 |
| 332.6          | 1.70                     | 1.88 | 2.02 |
| 373.0          | 1.78                     | 1.96 | 2.11 |
| 393.1          | 1.80                     | 1.99 | 2.13 |
| 433.4          | 1.84                     | 2.03 | 2.18 |
| 453.6          | 1.92                     | 2.11 | 2.26 |
| 493.9          | 2.01                     | 2.20 | 2.35 |
| 514.1          | 2.03                     | 2.24 | 2.39 |
| 554.4          | 2.15                     | 2.37 | 2.52 |
| 574.6          | 2.15                     | 2.36 | 2.52 |
| 614.9          | 2.21                     | 2.43 | 2.58 |
| 635.1          | 2.31                     | 2.53 | 2.69 |
| 675.4          | 2.38                     | 2.59 | 2.75 |
| 695.6          | 2.44                     | 2.66 | 2.82 |
| 735.9          | 2.60                     | 2.83 | 3.00 |
| 756.1          | 2.58                     | 2.80 | 2.96 |
| 796.4          | 2.68                     | 2.89 | 3.05 |
| 816.6          | 2.82                     | 3.04 | 3.20 |
| 856.9          | 2.87                     | 3.09 | 3.24 |
| 877.0          | 2.95                     | 3.16 | 3.30 |
| 917.4          | 3.17                     | 3.37 | 3.50 |
| 937.5          | 3.18                     | 3.37 | 3.50 |
| 977.9          | 3.33                     | 3.49 | 3.60 |
| 998.0          | 3.42                     | 3.58 | 3.69 |
| 1038.4         | 3.50                     | 3.62 | 3.72 |
| 1058.5         | 3.55                     | 3.65 | 3.73 |
| 1098.9         | 3.55                     | 3.62 | 3.67 |
| 1119.0         | 3.40                     | 3.46 | 3.50 |
| 1159.3         | 3.14                     | 3.16 | 3.18 |
| 1179.5         | 2.90                     | 2.91 | 2.92 |
| 1219.8         | 2.32                     | 2.33 | 2.33 |
| 1240.0         | 2.15                     | 2.16 | 2.17 |

## Harmonics Tables

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | +0  | 33  | 19  | 38  | 38  | 46  | 42  | 48  | 51  | 56  |
| 1  | -      | 27     | +0  | 47  | 14  | 42  | 35  | 45  | 46  | 54  | 55  | 53  |
| 2  | 89     | 61     | 69  | 59  | 57  | 64  | >69 | >69 | >69 | >69 | >69 | >69 |
| 3  | >90    | >69    | 64  | >69 | 65  | >69 | >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  | >90    | >69    | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 9  | >90    | >69    | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 10 | >90    | >69    | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
|    | RF CAL | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

Test conditions: RF IN: 1025 MHz; -14.00 dBm.  
 LO IN: 1055 MHz; +7.00 dBm  
 IF OUT: 30 MHz; -20.78 dBm

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | 10  | 44  | 30  | 50  | 49  | 61  | 55  | 64  | 69  | 79  |
| 1  | -      | 26     | +0  | 44  | 14  | 45  | 35  | 50  | 48  | 59  | 60  | 60  |
| 2  | 70     | 58     | 59  | 54  | 49  | 62  | 65  | 63  | 67  | 71  | 69  | 71  |
| 3  | >90    | 64     | 44  | 58  | 45  | 59  | 52  | 64  | 63  | 65  | 67  | 71  |
| 4  | >90    | >79    | 73  | 71  | 68  | 69  | 66  | 75  | 77  | >79 | 79  | >79 |
| 5  | >90    | >79    | >79 | >79 | 71  | >79 | 65  | >79 | 66  | >79 | >79 | >79 |
| 6  | >90    | >79    | >79 | >79 | >79 | >79 | 78  | >79 | >79 | >79 | >79 | >79 |
| 7  | >90    | >79    | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| 8  | >90    | >79    | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| 9  | >90    | >79    | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| 10 | >90    | >79    | >79 | >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: 1025 MHz; -4.00 dBm.  
 LO IN: 1055 MHz; +7.00 dBm  
 IF OUT: 30 MHz; -10.87 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.