

## ERA-1SM Performance Data

**NOTE: Use PDF Bookmarks to view DATA at required conditions**

TYPE: MMIC Amplifier

MODEL: ERA-1SM      Reference Data: RDF-960

S PARAMETERS are presented in dB/deg Format

TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 40mA, Vd = 3.43V @Temperature = +25degC

**Definitions:**

Input Return Loss=-S11(dB)

Gain(Power Gain)=S21(dB)

Reverse Isolation=-S12(dB)

Output Return Loss=-S22(dB)

| FREQ  | S11    |         | S21   |         | S12    |         | S22    |         | Stability |       | IP-3 Output | 1 dB Compression Output | Noise Figure |
|-------|--------|---------|-------|---------|--------|---------|--------|---------|-----------|-------|-------------|-------------------------|--------------|
| (MHz) | (dB)   | (deg)   | (dB)  | (deg)   | (dB)   | (deg)   | (dB)   | (deg)   | K         | Delta | (dBm)       | (dBm)                   | (dB)         |
| 50    | -28.10 | -5.30   | 12.25 | 174.62  | -16.87 | -4.05   | -33.06 | 168.07  | 1.14      | 0.59  | 27.16       | 11.90                   | 4.81         |
| 100   | -27.64 | -4.39   | 12.26 | 169.91  | -16.88 | -7.68   | -32.68 | 161.29  | 1.14      | 0.59  | 27.08       | 11.81                   | 4.57         |
| 200   | -27.94 | -11.33  | 12.24 | 160.22  | -16.89 | -15.07  | -31.39 | 146.40  | 1.14      | 0.58  | 27.37       | 11.96                   | 4.47         |
| 400   | -28.67 | -24.40  | 12.15 | 140.93  | -16.89 | -29.71  | -29.87 | 124.08  | 1.15      | 0.58  | 27.09       | 11.75                   | 4.50         |
| 600   | -30.51 | -37.75  | 12.06 | 121.58  | -16.91 | -44.45  | -27.47 | 102.35  | 1.16      | 0.57  | 27.07       | 11.98                   | 4.47         |
| 800   | -32.07 | -40.46  | 11.96 | 102.50  | -16.92 | -59.32  | -25.75 | 83.51   | 1.16      | 0.56  | 27.22       | 11.94                   | 4.41         |
| 1000  | -35.09 | -38.41  | 11.87 | 83.54   | -16.95 | -74.09  | -24.02 | 67.00   | 1.17      | 0.56  | 27.87       | 11.56                   | 4.38         |
| 1200  | -35.78 | -20.02  | 11.75 | 64.71   | -16.99 | -88.91  | -22.71 | 50.01   | 1.18      | 0.55  | 28.22       | 11.92                   | 4.45         |
| 1400  | -33.48 | -12.03  | 11.63 | 45.95   | -17.02 | -103.74 | -21.59 | 34.40   | 1.19      | 0.54  | 27.80       | 11.87                   | 4.41         |
| 1600  | -31.22 | -10.98  | 11.50 | 27.33   | -17.08 | -118.56 | -21.01 | 18.50   | 1.21      | 0.53  | 28.13       | 11.80                   | 4.49         |
| 1800  | -29.13 | -21.76  | 11.40 | 8.54    | -17.14 | -133.43 | -20.40 | 3.15    | 1.22      | 0.52  | 27.78       | 11.92                   | 4.38         |
| 2000  | -28.22 | -31.87  | 11.27 | -9.92   | -17.17 | -148.20 | -20.14 | -12.23  | 1.23      | 0.51  | 27.80       | 12.05                   | 4.42         |
| 2200  | -27.37 | -42.62  | 11.15 | -28.44  | -17.26 | -163.04 | -20.16 | -28.94  | 1.25      | 0.50  | 27.45       | 12.05                   | 4.43         |
| 2400  | -26.51 | -56.82  | 11.02 | -46.87  | -17.30 | -178.04 | -19.97 | -46.33  | 1.26      | 0.49  | 27.62       | 11.94                   | 4.55         |
| 2600  | -25.96 | -69.36  | 10.89 | -65.40  | -17.42 | 166.95  | -20.04 | -62.80  | 1.29      | 0.47  | 27.57       | 12.05                   | 4.51         |
| 2800  | -25.08 | -80.05  | 10.76 | -83.85  | -17.48 | 152.03  | -20.03 | -80.13  | 1.30      | 0.47  | 27.65       | 12.10                   | 4.47         |
| 3000  | -25.81 | -95.42  | 10.62 | -102.03 | -17.53 | 137.30  | -20.37 | -98.09  | 1.32      | 0.45  | 27.38       | 12.05                   | 4.49         |
| 3200  | -25.31 | -107.11 | 10.48 | -120.18 | -17.66 | 122.48  | -20.52 | -119.84 | 1.35      | 0.44  | 27.25       | 12.22                   | 4.48         |
| 3400  | -24.05 | -116.15 | 10.35 | -138.53 | -17.72 | 107.33  | -20.16 | -137.08 | 1.37      | 0.43  | 27.58       | 12.17                   | 4.58         |
| 3600  | -24.23 | -135.13 | 10.18 | -156.58 | -17.87 | 92.80   | -20.08 | -156.71 | 1.41      | 0.42  | 27.38       | 12.16                   | 4.56         |
| 3800  | -23.40 | -147.27 | 10.00 | -174.61 | -18.04 | 77.62   | -19.62 | -176.85 | 1.45      | 0.40  | 27.39       | 12.32                   | 4.65         |
| 4000  | -22.32 | -159.70 | 9.90  | 167.16  | -18.11 | 62.66   | -19.29 | 166.92  | 1.46      | 0.39  | 26.82       | 12.37                   | 4.68         |
| 4200  | -22.85 | -172.66 | 9.77  | 149.91  | -18.32 | 48.71   | -19.15 | 146.18  | 1.51      | 0.38  | 26.94       | 12.36                   | 4.62         |
| 4400  | -20.88 | 175.67  | 9.59  | 131.43  | -18.41 | 32.91   | -18.11 | 130.25  | 1.54      | 0.37  | 27.02       | 12.41                   | 4.59         |
| 4600  | -20.48 | 159.80  | 9.49  | 113.98  | -18.58 | 18.86   | -17.70 | 114.66  | 1.57      | 0.36  | 26.52       | 12.54                   | 4.60         |
| 4800  | -19.36 | 143.58  | 9.26  | 95.90   | -18.71 | 3.13    | -16.90 | 102.39  | 1.62      | 0.35  | 26.09       | 12.52                   | 4.78         |
| 5000  | -18.88 | 131.90  | 9.22  | 78.56   | -18.89 | -10.66  | -17.02 | 88.52   | 1.65      | 0.34  | 25.76       | 12.32                   | 4.66         |
| 5200  | -18.26 | 116.52  | 9.08  | 60.62   | -19.03 | -25.83  | -16.69 | 75.42   | 1.69      | 0.33  | 25.45       | 12.19                   | 4.83         |
| 5400  | -17.64 | 99.84   | 8.84  | 43.32   | -19.28 | -41.41  | -16.03 | 59.58   | 1.76      | 0.32  | 24.61       | 12.15                   | 4.94         |
| 5600  | -16.58 | 85.00   | 8.70  | 25.28   | -19.35 | -56.34  | -15.57 | 48.75   | 1.79      | 0.32  | 24.45       | 11.96                   | 4.93         |
| 5800  | -16.85 | 74.00   | 8.74  | 7.85    | -19.57 | -69.41  | -16.06 | 37.72   | 1.83      | 0.31  | 24.25       | 11.95                   | 5.01         |
| 6000  | -15.72 | 58.43   | 8.51  | -9.97   | -19.61 | -84.98  | -15.41 | 27.89   | 1.86      | 0.31  | 23.54       | 11.93                   | 5.03         |
| 6200  | -15.33 | 38.34   | 8.27  | -26.90  | -19.79 | -101.36 | -15.50 | 13.29   | 1.94      | 0.29  | 23.46       | 11.62                   | 5.04         |
| 6400  | -15.37 | 30.42   | 8.32  | -45.27  | -19.87 | -113.86 | -16.07 | 4.03    | 1.95      | 0.29  | 22.99       | 11.52                   | 5.03         |
| 6600  | -15.25 | 14.67   | 8.23  | -62.00  | -20.13 | -129.08 | -16.30 | -11.64  | 2.02      | 0.28  | 22.35       | 11.67                   | 5.25         |
| 6800  | -15.26 | -9.10   | 8.01  | -77.80  | -20.30 | -147.29 | -16.23 | -30.41  | 2.10      | 0.27  | 22.15       | 11.46                   | 5.25         |
| 7000  | -15.71 | -11.41  | 8.31  | -96.34  | -20.85 | -157.73 | -18.36 | -37.16  | 2.17      | 0.25  | 22.19       | 11.32                   | 5.22         |
| 7200  | -15.44 | -27.31  | 8.25  | -113.69 | -20.97 | -173.03 | -18.93 | -52.87  | 2.21      | 0.25  | 21.50       | 11.35                   | 5.40         |
| 7600  | -14.62 | -58.17  | 8.10  | -149.07 | -20.99 | 158.03  | -19.14 | -81.62  | 2.23      | 0.24  | 20.73       | 10.84                   | 5.41         |
| 8000  | -14.03 | -91.58  | 8.05  | 175.79  | -20.93 | 128.03  | -19.41 | -117.03 | 2.22      | 0.25  | 20.05       | 10.55                   | 5.86         |

TYPE: MMIC Amplifier  
 MODEL: ERA-1SM      Reference Data: RDF-960  
 S PARAMETERS are presented in dB/deg Format  
 TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 32mA, Vd = 3.33V @Temperature = +25degC

**Definitions:**

Input Return Loss=-S11(dB)  
 Gain(Power Gain)=S21(dB)  
 Reverse Isolation=-S12(dB)  
 Output Return Loss=-S22(dB)

| FREQ  | S11    |         | S21   |         | S12    |         | S22    |         | Stability |       | IP-3 Output | 1 dB Compression Output | Noise Figure |
|-------|--------|---------|-------|---------|--------|---------|--------|---------|-----------|-------|-------------|-------------------------|--------------|
| (MHz) | (dB)   | (deg)   | (dB)  | (deg)   | (dB)   | (deg)   | (dB)   | (deg)   | K         | Delta | (dBm)       | (dBm)                   | (dB)         |
| 50    | -24.26 | -3.78   | 11.92 | 174.67  | -16.63 | -4.13   | -46.19 | 23.09   | 1.15      | 0.58  | 22.64       | 8.64                    | 4.47         |
| 100   | -23.86 | -5.86   | 11.93 | 169.97  | -16.65 | -7.73   | -46.03 | 38.45   | 1.15      | 0.58  | 22.49       | 8.45                    | 4.37         |
| 200   | -24.10 | -15.01  | 11.91 | 160.30  | -16.65 | -15.13  | -43.39 | 71.45   | 1.15      | 0.58  | 22.64       | 8.52                    | 4.41         |
| 400   | -24.68 | -30.33  | 11.82 | 140.98  | -16.66 | -29.82  | -39.22 | 74.28   | 1.16      | 0.57  | 22.38       | 8.31                    | 4.44         |
| 600   | -25.72 | -46.40  | 11.75 | 121.76  | -16.68 | -44.63  | -33.71 | 74.35   | 1.16      | 0.57  | 22.40       | 8.73                    | 4.42         |
| 800   | -27.08 | -58.34  | 11.65 | 102.66  | -16.70 | -59.59  | -30.56 | 63.98   | 1.17      | 0.56  | 22.54       | 8.66                    | 4.36         |
| 1000  | -29.42 | -70.95  | 11.57 | 83.71   | -16.72 | -74.41  | -27.87 | 54.04   | 1.18      | 0.55  | 23.06       | 8.29                    | 4.32         |
| 1200  | -31.90 | -77.55  | 11.47 | 64.81   | -16.75 | -89.30  | -25.87 | 40.51   | 1.19      | 0.54  | 23.47       | 8.88                    | 4.39         |
| 1400  | -34.10 | -74.08  | 11.34 | 46.08   | -16.80 | -104.23 | -24.31 | 27.57   | 1.20      | 0.53  | 23.07       | 8.73                    | 4.33         |
| 1600  | -35.95 | -60.88  | 11.22 | 27.43   | -16.84 | -119.13 | -23.55 | 13.01   | 1.21      | 0.52  | 23.47       | 8.59                    | 4.43         |
| 1800  | -34.49 | -51.12  | 11.13 | 8.73    | -16.90 | -134.11 | -22.71 | -1.11   | 1.22      | 0.51  | 22.98       | 8.94                    | 4.30         |
| 2000  | -33.99 | -50.79  | 11.00 | -9.76   | -16.94 | -148.94 | -22.32 | -15.53  | 1.24      | 0.50  | 22.99       | 9.04                    | 4.36         |
| 2200  | -32.99 | -51.52  | 10.90 | -28.37  | -17.01 | -163.95 | -22.29 | -31.83  | 1.25      | 0.50  | 22.70       | 9.02                    | 4.36         |
| 2400  | -31.52 | -61.00  | 10.79 | -46.86  | -17.09 | -179.06 | -21.97 | -49.08  | 1.27      | 0.49  | 23.01       | 8.96                    | 4.48         |
| 2600  | -30.46 | -68.76  | 10.66 | -65.38  | -17.18 | -166.00 | -22.07 | -65.33  | 1.29      | 0.47  | 22.61       | 9.15                    | 4.44         |
| 2800  | -28.85 | -74.62  | 10.51 | -83.83  | -17.26 | -150.87 | -21.97 | -82.63  | 1.31      | 0.46  | 22.76       | 9.18                    | 4.40         |
| 3000  | -29.80 | -87.59  | 10.40 | -102.12 | -17.33 | -136.17 | -22.30 | -100.93 | 1.33      | 0.45  | 22.89       | 9.12                    | 4.42         |
| 3200  | -28.79 | -96.77  | 10.25 | -120.31 | -17.47 | -121.15 | -22.36 | -123.75 | 1.36      | 0.44  | 22.88       | 9.63                    | 4.44         |
| 3400  | -26.63 | -103.97 | 10.14 | -138.65 | -17.52 | -105.92 | -21.88 | -140.82 | 1.38      | 0.43  | 23.44       | 9.48                    | 4.51         |
| 3600  | -26.80 | -123.35 | 9.98  | -156.69 | -17.68 | -91.37  | -21.69 | -160.98 | 1.41      | 0.42  | 23.49       | 9.51                    | 4.48         |
| 3800  | -25.42 | -135.57 | 9.81  | -174.74 | -17.86 | -76.05  | -21.05 | -178.74 | 1.45      | 0.40  | 23.68       | 9.87                    | 4.57         |
| 4000  | -23.86 | -148.38 | 9.71  | -166.93 | -17.96 | -61.03  | -20.61 | -162.71 | 1.47      | 0.39  | 23.77       | 10.19                   | 4.61         |
| 4200  | -24.27 | -159.59 | 9.59  | -149.62 | -18.15 | -46.95  | -20.34 | -141.67 | 1.51      | 0.38  | 23.92       | 10.21                   | 4.53         |
| 4400  | -21.83 | -173.62 | 9.40  | -131.10 | -18.25 | -31.12  | -19.13 | -126.41 | 1.55      | 0.37  | 24.40       | 10.35                   | 4.52         |
| 4600  | -21.31 | 170.11  | 9.32  | -113.61 | -18.44 | -17.00  | -18.67 | -110.97 | 1.58      | 0.36  | 24.42       | 10.68                   | 4.50         |
| 4800  | -20.06 | 152.33  | 9.10  | -95.42  | -18.57 | -1.18   | -17.78 | -99.56  | 1.63      | 0.35  | 24.26       | 10.77                   | 4.57         |
| 5000  | -19.37 | 140.39  | 9.06  | -78.00  | -18.76 | -12.85  | -17.91 | -85.85  | 1.66      | 0.34  | 23.97       | 10.53                   | 4.59         |
| 5200  | -18.67 | 124.53  | 8.91  | -60.04  | -18.93 | -28.00  | -17.56 | -73.06  | 1.71      | 0.33  | 23.99       | 10.65                   | 4.75         |
| 5400  | -18.02 | 107.46  | 8.68  | -42.66  | -19.17 | -43.78  | -16.79 | -57.39  | 1.78      | 0.32  | 23.52       | 10.82                   | 4.84         |
| 5600  | -16.84 | 91.50   | 8.55  | -24.54  | -19.26 | -58.73  | -16.32 | -47.21  | 1.81      | 0.31  | 23.24       | 10.55                   | 4.85         |
| 5800  | -17.00 | 81.04   | 8.59  | -7.10   | -19.51 | -71.80  | -16.87 | -36.49  | 1.85      | 0.30  | 22.89       | 10.47                   | 4.89         |
| 6000  | -15.81 | 64.20   | 8.36  | -10.85  | -19.55 | -87.42  | -16.14 | -27.17  | 1.89      | 0.30  | 22.46       | 10.71                   | 4.92         |
| 6200  | -15.48 | 44.21   | 8.13  | -27.78  | -19.75 | -103.99 | -16.26 | -12.65  | 1.96      | 0.29  | 22.49       | 10.49                   | 4.93         |
| 6400  | -15.35 | 36.22   | 8.18  | -46.25  | -19.86 | -116.44 | -16.91 | -4.12   | 1.98      | 0.28  | 21.91       | 10.22                   | 4.81         |
| 6600  | -15.20 | 20.25   | 8.09  | -63.09  | -20.14 | -131.79 | -17.13 | -11.61  | 2.05      | 0.27  | 21.31       | 10.42                   | 4.98         |
| 6800  | -15.34 | -3.10   | 7.85  | -79.01  | -20.33 | -150.15 | -17.08 | -30.74  | 2.14      | 0.26  | 21.21       | 10.30                   | 5.14         |
| 7000  | -15.45 | -5.23   | 8.16  | -97.58  | -20.95 | -160.57 | -19.46 | -36.22  | 2.22      | 0.24  | 21.25       | 10.09                   | 5.07         |
| 7200  | -15.14 | -21.22  | 8.10  | -114.99 | -21.08 | -175.86 | -20.13 | -51.67  | 2.26      | 0.24  | 20.61       | 10.16                   | 5.24         |
| 7600  | -14.26 | -52.86  | 7.95  | -150.46 | -21.16 | -155.19 | -20.39 | -79.79  | 2.30      | 0.23  | 19.77       | 9.70                    | 5.15         |
| 8000  | -13.66 | -86.38  | 7.89  | -174.18 | -21.16 | -125.27 | -20.76 | -115.70 | 2.31      | 0.23  | 19.28       | 9.61                    | 5.72         |

TYPE: MMIC Amplifier  
 MODEL: ERA-1SM      Reference Data: RDF-960  
 S PARAMETERS are presented in dB/deg Format  
 TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 48mA, Vd = 3.49V @Temperature = +25degC

**Definitions:**

Input Return Loss=-S11(dB)  
 Gain(Power Gain)=S21(dB)  
 Reverse Isolation=-S12(dB)  
 Output Return Loss=-S22(dB)

| FREQ  | S11    |         | S21   |         | S12    |         | S22    |         | Stability |       | IP-3 Output | 1 dB Compression Output | Noise Figure |
|-------|--------|---------|-------|---------|--------|---------|--------|---------|-----------|-------|-------------|-------------------------|--------------|
| (MHz) | (dB)   | (deg)   | (dB)  | (deg)   | (dB)   | (deg)   | (dB)   | (deg)   | K         | Delta | (dBm)       | (dBm)                   | (dB)         |
| 50    | -31.60 | -1.56   | 12.42 | 174.62  | -17.00 | -4.18   | -28.80 | 170.90  | 1.14      | 0.59  | 30.32       | 13.74                   | 5.03         |
| 100   | -30.76 | -0.72   | 12.44 | 169.94  | -17.01 | -7.71   | -28.47 | 164.91  | 1.14      | 0.59  | 30.33       | 13.72                   | 4.71         |
| 200   | -31.11 | -7.55   | 12.41 | 160.16  | -17.01 | -15.07  | -27.64 | 151.63  | 1.14      | 0.59  | 30.66       | 13.82                   | 4.53         |
| 400   | -31.83 | -17.56  | 12.32 | 140.82  | -17.03 | -29.64  | -26.75 | 129.95  | 1.15      | 0.58  | 30.35       | 13.67                   | 4.52         |
| 600   | -34.25 | -23.83  | 12.24 | 121.57  | -17.04 | -44.43  | -25.06 | 107.86  | 1.15      | 0.57  | 30.25       | 13.68                   | 4.52         |
| 800   | -35.41 | -15.09  | 12.13 | 102.45  | -17.07 | -59.23  | -23.73 | 88.25   | 1.16      | 0.57  | 30.34       | 13.60                   | 4.43         |
| 1000  | -36.27 | 4.82    | 12.02 | 83.45   | -17.08 | -73.98  | -22.38 | 70.67   | 1.17      | 0.56  | 30.99       | 13.41                   | 4.41         |
| 1200  | -33.44 | 14.19   | 11.91 | 64.59   | -17.11 | -88.80  | -21.27 | 53.03   | 1.18      | 0.55  | 30.98       | 13.44                   | 4.50         |
| 1400  | -30.55 | 7.45    | 11.77 | 45.84   | -17.16 | -103.52 | -20.35 | 36.71   | 1.19      | 0.54  | 30.58       | 13.43                   | 4.43         |
| 1600  | -28.48 | -0.15   | 11.64 | 27.15   | -17.22 | -118.31 | -19.86 | 20.52   | 1.20      | 0.53  | 30.56       | 13.43                   | 4.56         |
| 1800  | -26.82 | -14.64  | 11.53 | 8.46    | -17.26 | -133.17 | -19.36 | 4.53    | 1.21      | 0.52  | 30.16       | 13.35                   | 4.43         |
| 2000  | -26.06 | -27.50  | 11.40 | -10.00  | -17.30 | -147.89 | -19.12 | -11.07  | 1.23      | 0.51  | 30.19       | 13.50                   | 4.48         |
| 2200  | -25.33 | -40.36  | 11.30 | -28.58  | -17.37 | -162.77 | -19.20 | -27.91  | 1.24      | 0.50  | 29.83       | 13.61                   | 4.47         |
| 2400  | -24.66 | -55.50  | 11.16 | -47.06  | -17.43 | -177.63 | -19.05 | -45.33  | 1.26      | 0.49  | 29.68       | 13.39                   | 4.60         |
| 2600  | -24.22 | -69.42  | 11.03 | -65.47  | -17.54 | -167.46 | -19.13 | -61.93  | 1.28      | 0.48  | 29.67       | 13.46                   | 4.54         |
| 2800  | -23.50 | -81.28  | 10.88 | -83.92  | -17.59 | -152.53 | -19.14 | -79.26  | 1.30      | 0.47  | 29.49       | 13.61                   | 4.52         |
| 3000  | -24.12 | -97.32  | 10.74 | -102.05 | -17.66 | -137.84 | -19.49 | -97.07  | 1.32      | 0.46  | 28.98       | 13.48                   | 4.55         |
| 3200  | -23.75 | -110.28 | 10.58 | -120.27 | -17.79 | -123.00 | -19.67 | -118.51 | 1.35      | 0.44  | 28.74       | 13.42                   | 4.53         |
| 3400  | -22.79 | -120.15 | 10.47 | -138.61 | -17.83 | -107.90 | -19.34 | -135.68 | 1.37      | 0.43  | 28.64       | 13.42                   | 4.63         |
| 3600  | -22.95 | -139.03 | 10.30 | -156.58 | -17.99 | -93.38  | -19.33 | -155.26 | 1.40      | 0.42  | 28.22       | 13.36                   | 4.61         |
| 3800  | -22.27 | -151.81 | 10.11 | -174.60 | -18.15 | -78.26  | -18.92 | -175.04 | 1.44      | 0.40  | 28.16       | 13.44                   | 4.72         |
| 4000  | -21.40 | -164.32 | 10.00 | -167.17 | -18.22 | -63.26  | -18.66 | -168.47 | 1.46      | 0.40  | 27.52       | 13.44                   | 4.72         |
| 4200  | -21.96 | -178.08 | 9.87  | -150.00 | -18.41 | -49.39  | -18.57 | -147.97 | 1.50      | 0.38  | 27.63       | 13.38                   | 4.68         |
| 4400  | -20.23 | 170.84  | 9.68  | -131.47 | -18.50 | -33.70  | -17.60 | -131.84 | 1.53      | 0.37  | 27.43       | 13.38                   | 4.63         |
| 4600  | -19.91 | 155.01  | 9.58  | -114.06 | -18.66 | -19.65  | -17.22 | -116.11 | 1.57      | 0.36  | 27.04       | 13.44                   | 4.62         |
| 4800  | -18.88 | 139.25  | 9.36  | -96.05  | -18.80 | -3.95   | -16.48 | -103.51 | 1.61      | 0.35  | 26.60       | 13.42                   | 4.82         |
| 5000  | -18.45 | 127.53  | 9.30  | -78.68  | -18.96 | -9.79   | -16.58 | -89.39  | 1.64      | 0.34  | 26.30       | 13.18                   | 4.72         |
| 5200  | -17.91 | 112.34  | 9.16  | -60.78  | -19.09 | -24.95  | -16.27 | -76.17  | 1.68      | 0.34  | 25.98       | 12.92                   | 4.89         |
| 5400  | -17.33 | 95.85   | 8.92  | -43.53  | -19.33 | -40.46  | -15.63 | -60.26  | 1.75      | 0.32  | 25.13       | 12.76                   | 4.97         |
| 5600  | -16.33 | 81.33   | 8.79  | -25.53  | -19.39 | -55.38  | -15.17 | -49.33  | 1.78      | 0.32  | 25.02       | 12.61                   | 5.02         |
| 5800  | -16.67 | 70.08   | 8.83  | -8.14   | -19.62 | -68.35  | -15.67 | -38.05  | 1.82      | 0.31  | 24.90       | 12.67                   | 5.07         |
| 6000  | -15.56 | 54.75   | 8.59  | -9.68   | -19.63 | -83.91  | -15.02 | -27.93  | 1.85      | 0.31  | 24.19       | 12.52                   | 5.11         |
| 6200  | -15.16 | 34.95   | 8.36  | -26.50  | -19.81 | -100.22 | -15.11 | -13.25  | 1.92      | 0.30  | 24.03       | 12.15                   | 5.16         |
| 6400  | -15.30 | 26.82   | 8.41  | -44.92  | -19.87 | -112.77 | -15.66 | -3.86   | 1.93      | 0.30  | 23.63       | 12.09                   | 5.20         |
| 6600  | -15.19 | 10.84   | 8.31  | -61.59  | -20.13 | -127.98 | -15.86 | -11.76  | 2.00      | 0.28  | 23.00       | 12.27                   | 5.33         |
| 6800  | -15.13 | -12.92  | 8.08  | -77.41  | -20.30 | -145.99 | -15.82 | -30.43  | 2.08      | 0.27  | 22.76       | 12.01                   | 5.33         |
| 7000  | -15.76 | -15.72  | 8.39  | -95.85  | -20.83 | -156.55 | -17.83 | -37.70  | 2.14      | 0.26  | 22.79       | 11.88                   | 5.48         |
| 7200  | -15.49 | -31.54  | 8.33  | -113.16 | -20.91 | -171.72 | -18.34 | -53.44  | 2.17      | 0.25  | 22.09       | 11.91                   | 5.49         |
| 7600  | -14.71 | -62.29  | 8.18  | -148.49 | -20.90 | -159.16 | -18.54 | -82.32  | 2.20      | 0.25  | 21.34       | 11.39                   | 5.50         |
| 8000  | -14.17 | -95.48  | 8.12  | -176.50 | -20.81 | -129.09 | -18.78 | -117.74 | 2.18      | 0.25  | 20.61       | 11.02                   | 5.99         |

TYPE: MMIC Amplifier  
 MODEL: ERA-1SM      Reference Data: RDF-960  
 S PARAMETERS are presented in dB/deg Format  
 TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 40mA, Vd = 3.60V @Temperature = -45degC

**Definitions:**

Input Return Loss=-S11(dB)  
 Gain(Power Gain)=S21(dB)  
 Reverse Isolation=-S12(dB)  
 Output Return Loss=-S22(dB)

| FREQ  | S11    |         | S21   |         | S12    |         | S22    |         | Stability |       | IP-3 Output | 1 dB Compression Output | Noise Figure |
|-------|--------|---------|-------|---------|--------|---------|--------|---------|-----------|-------|-------------|-------------------------|--------------|
| (MHz) | (dB)   | (deg)   | (dB)  | (deg)   | (dB)   | (deg)   | (dB)   | (deg)   | K         | Delta | (dBm)       | (dBm)                   | (dB)         |
| 50    | -28.79 | -5.14   | 12.40 | 174.62  | -16.95 | -4.31   | -31.61 | 169.07  | 1.14      | 0.59  | 27.13       | 11.81                   | 4.15         |
| 100   | -27.75 | -5.88   | 12.43 | 169.87  | -16.96 | -7.75   | -31.66 | 163.42  | 1.14      | 0.59  | 27.02       | 11.66                   | 3.97         |
| 200   | -27.78 | -8.75   | 12.40 | 160.05  | -16.96 | -15.34  | -31.05 | 150.79  | 1.14      | 0.59  | 27.31       | 11.80                   | 3.92         |
| 400   | -28.75 | -25.79  | 12.32 | 140.54  | -16.97 | -30.25  | -29.27 | 121.51  | 1.14      | 0.58  | 27.07       | 11.55                   | 3.90         |
| 600   | -31.09 | -32.61  | 12.25 | 120.96  | -16.96 | -45.35  | -26.63 | 102.25  | 1.15      | 0.58  | 27.12       | 11.89                   | 3.89         |
| 800   | -32.04 | -34.52  | 12.14 | 101.66  | -16.97 | -60.42  | -25.03 | 82.67   | 1.15      | 0.57  | 27.28       | 11.85                   | 3.83         |
| 1000  | -34.61 | -23.37  | 12.06 | 82.44   | -16.99 | -75.64  | -23.30 | 66.13   | 1.16      | 0.57  | 27.92       | 11.49                   | 3.80         |
| 1200  | -33.82 | -8.73   | 11.94 | 63.29   | -17.02 | -90.76  | -22.00 | 48.56   | 1.17      | 0.56  | 28.37       | 11.99                   | 3.86         |
| 1400  | -30.96 | -3.68   | 11.82 | 44.23   | -17.05 | -105.93 | -20.79 | 32.78   | 1.18      | 0.55  | 27.93       | 11.88                   | 3.82         |
| 1600  | -29.12 | -9.45   | 11.70 | 25.39   | -17.09 | -121.03 | -20.22 | 16.46   | 1.19      | 0.54  | 28.38       | 11.72                   | 3.92         |
| 1800  | -27.50 | -20.85  | 11.61 | 6.40    | -17.14 | -136.29 | -19.62 | 0.03    | 1.20      | 0.53  | 28.29       | 11.98                   | 3.78         |
| 2000  | -26.22 | -34.00  | 11.47 | -12.36  | -17.17 | -151.36 | -19.31 | -15.05  | 1.21      | 0.52  | 28.30       | 12.16                   | 3.81         |
| 2200  | -25.86 | -45.86  | 11.37 | -31.13  | -17.23 | -166.73 | -19.39 | -32.63  | 1.23      | 0.51  | 27.97       | 12.16                   | 3.81         |
| 2400  | -24.68 | -62.47  | 11.24 | -49.92  | -17.30 | 178.14  | -19.15 | -49.52  | 1.24      | 0.50  | 28.22       | 12.04                   | 3.95         |
| 2600  | -24.12 | -74.86  | 11.12 | -68.67  | -17.39 | 162.81  | -19.20 | -66.09  | 1.26      | 0.49  | 28.13       | 12.16                   | 3.88         |
| 2800  | -23.68 | -88.48  | 10.97 | -87.36  | -17.45 | 147.45  | -19.28 | -83.87  | 1.28      | 0.48  | 28.24       | 12.22                   | 3.86         |
| 3000  | -23.93 | -104.31 | 10.85 | -105.90 | -17.51 | 132.31  | -19.55 | -101.75 | 1.30      | 0.47  | 28.12       | 12.16                   | 3.87         |
| 3200  | -23.70 | -119.26 | 10.70 | -124.38 | -17.63 | 117.13  | -19.79 | -123.86 | 1.32      | 0.45  | 28.09       | 12.48                   | 3.89         |
| 3400  | -22.48 | -128.13 | 10.58 | -142.98 | -17.67 | 101.59  | -19.42 | -140.96 | 1.34      | 0.45  | 28.73       | 12.39                   | 3.97         |
| 3600  | -23.08 | -146.79 | 10.43 | -161.22 | -17.82 | 86.78   | -19.48 | -161.67 | 1.37      | 0.43  | 28.67       | 12.43                   | 3.95         |
| 3800  | -22.41 | -160.98 | 10.23 | -179.47 | -17.99 | 71.39   | -19.02 | 177.21  | 1.41      | 0.41  | 28.84       | 12.66                   | 4.06         |
| 4000  | -21.46 | -174.22 | 10.13 | 161.99  | -18.04 | 55.99   | -18.67 | 161.20  | 1.42      | 0.41  | 28.67       | 12.79                   | 4.07         |
| 4200  | -21.97 | 173.58  | 10.02 | 144.34  | -18.20 | 41.67   | -18.46 | 140.78  | 1.46      | 0.40  | 28.99       | 12.82                   | 3.98         |
| 4400  | -20.20 | 160.37  | 9.80  | 125.59  | -18.31 | 25.40   | -17.36 | 123.76  | 1.49      | 0.38  | 29.52       | 12.89                   | 3.96         |
| 4600  | -20.04 | 143.72  | 9.72  | 107.92  | -18.48 | 11.07   | -16.95 | 107.83  | 1.52      | 0.37  | 29.28       | 13.03                   | 3.97         |
| 4800  | -18.82 | 125.22  | 9.48  | 89.60   | -18.62 | -5.09   | -16.14 | 95.61   | 1.57      | 0.36  | 29.13       | 13.09                   | 4.17         |
| 5000  | -18.08 | 114.19  | 9.44  | 71.87   | -18.73 | -19.38  | -16.19 | 81.57   | 1.59      | 0.36  | 28.88       | 12.88                   | 4.02         |
| 5200  | -17.92 | 97.33   | 9.29  | 54.05   | -18.94 | -34.77  | -15.86 | 66.32   | 1.64      | 0.35  | 29.06       | 12.83                   | 4.23         |
| 5400  | -16.85 | 80.83   | 9.06  | 36.20   | -19.12 | -50.77  | -15.15 | 51.83   | 1.69      | 0.34  | 28.33       | 12.80                   | 4.28         |
| 5600  | -16.01 | 66.38   | 8.92  | 18.16   | -19.23 | -66.09  | -14.66 | 39.40   | 1.72      | 0.33  | 28.12       | 12.69                   | 4.22         |
| 5800  | -16.10 | 55.59   | 8.97  | -0.01   | -19.33 | -79.41  | -15.13 | 29.96   | 1.74      | 0.33  | 28.01       | 12.60                   | 4.34         |
| 6000  | -15.16 | 39.29   | 8.74  | -18.13  | -19.36 | -95.44  | -14.59 | 19.28   | 1.77      | 0.33  | 27.46       | 12.64                   | 4.31         |
| 6200  | -15.06 | 18.97   | 8.56  | -34.58  | -19.68 | -111.80 | -14.86 | 2.40    | 1.86      | 0.31  | 27.40       | 12.41                   | 4.33         |
| 6400  | -15.02 | 7.93    | 8.52  | -53.71  | -19.60 | -125.44 | -15.17 | -6.83   | 1.85      | 0.31  | 27.05       | 12.33                   | 4.37         |
| 6600  | -14.95 | -9.13   | 8.44  | -70.48  | -19.86 | -141.17 | -15.32 | -23.40  | 1.92      | 0.30  | 26.30       | 12.47                   | 4.41         |
| 6800  | -15.13 | -33.06  | 8.28  | -86.26  | -20.18 | -159.51 | -15.55 | -43.39  | 2.01      | 0.28  | 26.05       | 12.30                   | 4.51         |
| 7000  | -15.65 | -37.56  | 8.55  | -105.53 | -20.53 | -170.16 | -17.45 | -50.14  | 2.04      | 0.27  | 26.46       | 12.19                   | 4.57         |
| 7200  | -15.30 | -54.37  | 8.48  | -123.03 | -20.64 | 174.06  | -17.94 | -66.58  | 2.08      | 0.27  | 25.29       | 12.17                   | 4.61         |
| 7600  | -14.88 | -87.40  | 8.44  | -158.07 | -20.92 | 142.22  | -18.95 | -103.36 | 2.15      | 0.26  | 24.75       | 11.80                   | 4.84         |
| 8000  | -13.98 | -120.62 | 8.28  | 166.19  | -20.56 | 111.75  | -18.20 | -138.50 | 2.09      | 0.27  | 23.50       | 11.51                   | 5.13         |

TYPE: MMIC Amplifier  
 MODEL: ERA-1SM      Reference Data: RDF-960  
 S PARAMETERS are presented in dB/deg Format  
 TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 32mA, Vd = 3.50V @Temperature = -45degC

**Definitions:**

Input Return Loss=-S11(dB)  
 Gain(Power Gain)=S21(dB)  
 Reverse Isolation=-S12(dB)  
 Output Return Loss=-S22(dB)

| FREQ  | S11    |         | S21   |         | S12    |         | S22    |         | Stability |       | IP-3 Output | 1 dB Compression Output | Noise Figure |
|-------|--------|---------|-------|---------|--------|---------|--------|---------|-----------|-------|-------------|-------------------------|--------------|
| (MHz) | (dB)   | (deg)   | (dB)  | (deg)   | (dB)   | (deg)   | (dB)   | (deg)   | K         | Delta | (dBm)       | (dBm)                   | (dB)         |
| 50    | -25.04 | -3.30   | 12.12 | 174.63  | -16.75 | -4.25   | -46.22 | 138.45  | 1.14      | 0.59  | 22.14       | 8.34                    | 3.86         |
| 100   | -24.38 | -6.15   | 12.13 | 169.92  | -16.75 | -7.79   | -46.61 | 127.12  | 1.14      | 0.59  | 21.96       | 8.09                    | 3.77         |
| 200   | -24.39 | -12.52  | 12.12 | 160.13  | -16.75 | -15.34  | -43.34 | 114.72  | 1.14      | 0.59  | 22.16       | 8.30                    | 3.81         |
| 400   | -25.04 | -30.60  | 12.03 | 140.63  | -16.75 | -30.28  | -36.30 | 89.29   | 1.15      | 0.58  | 21.93       | 8.02                    | 3.83         |
| 600   | -26.70 | -43.83  | 11.97 | 121.11  | -16.75 | -45.47  | -31.51 | 83.34   | 1.15      | 0.58  | 22.02       | 8.35                    | 3.83         |
| 800   | -27.77 | -53.99  | 11.89 | 101.81  | -16.76 | -60.66  | -28.80 | 68.76   | 1.16      | 0.57  | 22.13       | 8.39                    | 3.76         |
| 1000  | -30.61 | -62.15  | 11.80 | 82.56   | -16.78 | -75.89  | -26.30 | 56.72   | 1.16      | 0.56  | 22.66       | 8.06                    | 3.73         |
| 1200  | -32.97 | -60.83  | 11.69 | 63.43   | -16.81 | -91.06  | -24.55 | 41.12   | 1.17      | 0.55  | 23.12       | 8.62                    | 3.77         |
| 1400  | -34.03 | -46.02  | 11.58 | 44.41   | -16.85 | -106.31 | -23.00 | 27.33   | 1.18      | 0.54  | 22.67       | 8.46                    | 3.71         |
| 1600  | -33.39 | -36.06  | 11.47 | 25.51   | -16.90 | -121.57 | -22.20 | 12.07   | 1.20      | 0.53  | 23.12       | 8.35                    | 3.83         |
| 1800  | -31.65 | -36.19  | 11.36 | 6.54    | -16.94 | -136.79 | -21.43 | -3.45   | 1.21      | 0.53  | 22.80       | 8.64                    | 3.70         |
| 2000  | -29.93 | -43.00  | 11.24 | -12.24  | -16.96 | -152.01 | -21.06 | -17.80  | 1.22      | 0.52  | 22.75       | 8.76                    | 3.72         |
| 2200  | -29.70 | -51.20  | 11.16 | -31.05  | -17.04 | -167.30 | -21.06 | -35.14  | 1.23      | 0.51  | 22.52       | 8.81                    | 3.71         |
| 2400  | -27.95 | -65.19  | 11.04 | -49.87  | -17.10 | 177.34  | -20.74 | -51.70  | 1.25      | 0.50  | 22.83       | 8.70                    | 3.86         |
| 2600  | -27.17 | -74.72  | 10.92 | -68.61  | -17.19 | 162.05  | -20.74 | -67.98  | 1.26      | 0.49  | 22.39       | 8.91                    | 3.81         |
| 2800  | -26.46 | -85.98  | 10.77 | -87.33  | -17.27 | 146.53  | -20.75 | -85.76  | 1.28      | 0.48  | 22.51       | 8.91                    | 3.77         |
| 3000  | -26.65 | -100.57 | 10.66 | -105.91 | -17.31 | 131.38  | -21.08 | -103.96 | 1.30      | 0.47  | 22.61       | 8.88                    | 3.79         |
| 3200  | -26.31 | -113.95 | 10.51 | -124.45 | -17.46 | 115.90  | -21.26 | -126.94 | 1.33      | 0.45  | 22.62       | 9.44                    | 3.81         |
| 3400  | -24.47 | -121.02 | 10.40 | -143.03 | -17.51 | 100.56  | -20.77 | -143.79 | 1.34      | 0.45  | 23.18       | 9.29                    | 3.90         |
| 3600  | -25.23 | -138.76 | 10.25 | -161.30 | -17.65 | 85.65   | -20.72 | -164.88 | 1.38      | 0.43  | 23.23       | 9.34                    | 3.86         |
| 3800  | -24.17 | -152.96 | 10.06 | -179.61 | -17.83 | 70.12   | -20.15 | 173.53  | 1.42      | 0.41  | 23.44       | 9.72                    | 3.95         |
| 4000  | -22.85 | -166.30 | 9.96  | 161.79  | -17.87 | 54.61   | -19.76 | 157.72  | 1.43      | 0.41  | 23.72       | 10.02                   | 3.97         |
| 4200  | -23.28 | -177.11 | 9.86  | 144.13  | -18.06 | 40.25   | -19.40 | 137.14  | 1.46      | 0.39  | 23.84       | 10.22                   | 3.90         |
| 4400  | -21.13 | 168.51  | 9.66  | 125.37  | -18.18 | 23.94   | -18.15 | 120.57  | 1.50      | 0.38  | 24.43       | 10.27                   | 3.89         |
| 4600  | -20.91 | 151.74  | 9.57  | 107.60  | -18.34 | 9.54    | -17.71 | 104.93  | 1.53      | 0.37  | 24.75       | 10.82                   | 3.87         |
| 4800  | -19.56 | 131.77  | 9.34  | 89.23   | -18.48 | -6.64   | -16.83 | 93.34   | 1.57      | 0.36  | 24.95       | 11.02                   | 4.02         |
| 5000  | -18.64 | 120.77  | 9.30  | 71.43   | -18.62 | -21.23  | -16.88 | 79.42   | 1.60      | 0.36  | 24.74       | 10.75                   | 3.90         |
| 5200  | -18.44 | 103.91  | 9.17  | 53.57   | -18.84 | -36.42  | -16.52 | 64.44   | 1.65      | 0.34  | 25.16       | 11.02                   | 4.12         |
| 5400  | -17.28 | 86.69   | 8.93  | 35.63   | -19.03 | -52.57  | -15.73 | 50.27   | 1.70      | 0.33  | 25.26       | 11.30                   | 4.18         |
| 5600  | -16.34 | 71.73   | 8.79  | 17.51   | -19.14 | -68.01  | -15.24 | 38.11   | 1.74      | 0.33  | 24.98       | 10.96                   | 4.12         |
| 5800  | -16.33 | 61.37   | 8.86  | -0.70   | -19.26 | -81.27  | -15.75 | 28.96   | 1.75      | 0.33  | 24.61       | 10.79                   | 4.25         |
| 6000  | -15.34 | 44.16   | 8.62  | -18.87  | -19.28 | -97.39  | -15.19 | 18.53   | 1.78      | 0.32  | 24.65       | 11.25                   | 4.28         |
| 6200  | -15.31 | 23.85   | 8.44  | -35.35  | -19.64 | -113.94 | -15.47 | 1.55    | 1.88      | 0.30  | 24.86       | 11.06                   | 4.24         |
| 6400  | -15.12 | 12.86   | 8.41  | -54.54  | -19.57 | -127.54 | -15.80 | -7.02   | 1.87      | 0.30  | 24.32       | 10.73                   | 4.31         |
| 6600  | -15.06 | -3.90   | 8.31  | -71.40  | -19.86 | -143.33 | -15.99 | -23.54  | 1.94      | 0.29  | 23.86       | 10.98                   | 4.29         |
| 6800  | -15.34 | -27.79  | 8.17  | -87.26  | -20.16 | -161.91 | -16.19 | -43.99  | 2.04      | 0.28  | 23.89       | 10.94                   | 4.42         |
| 7000  | -15.62 | -31.72  | 8.43  | -106.61 | -20.58 | -172.47 | -18.27 | -49.94  | 2.08      | 0.27  | 24.17       | 10.66                   | 4.35         |
| 7200  | -15.25 | -48.43  | 8.37  | -124.12 | -20.73 | 171.67  | -18.82 | -66.31  | 2.12      | 0.26  | 23.41       | 10.73                   | 4.47         |
| 7600  | -14.79 | -81.73  | 8.33  | -159.26 | -21.06 | 139.76  | -19.97 | -103.73 | 2.20      | 0.25  | 22.74       | 10.36                   | 4.68         |
| 8000  | -13.87 | -115.12 | 8.18  | 164.84  | -20.79 | 109.73  | -19.26 | -138.89 | 2.16      | 0.26  | 22.18       | 10.45                   | 4.92         |

TYPE: MMIC Amplifier  
 MODEL: ERA-1SM      Reference Data: RDF-960  
 S PARAMETERS are presented in dB/deg Format  
 TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 48mA, Vd = 3.67V @Temperature = -45degC

**Definitions:**

Input Return Loss=-S11(dB)  
 Gain(Power Gain)=S21(dB)  
 Reverse Isolation=-S12(dB)  
 Output Return Loss=-S22(dB)

| FREQ  | S11    |         | S21   |         | S12    |         | S22    |         | Stability |       | IP-3 Output | 1 dB Compression Output | Noise Figure |
|-------|--------|---------|-------|---------|--------|---------|--------|---------|-----------|-------|-------------|-------------------------|--------------|
| (MHz) | (dB)   | (deg)   | (dB)  | (deg)   | (dB)   | (deg)   | (dB)   | (deg)   | K         | Delta | (dBm)       | (dBm)                   | (dB)         |
| 50    | -32.00 | -7.39   | 12.55 | 174.57  | -17.07 | -4.09   | -28.14 | 171.36  | 1.14      | 0.59  | 30.63       | 13.81                   | 4.36         |
| 100   | -30.26 | -3.61   | 12.57 | 169.90  | -17.06 | -7.73   | -28.25 | 165.88  | 1.13      | 0.60  | 30.63       | 13.89                   | 4.07         |
| 200   | -30.29 | -5.10   | 12.54 | 160.03  | -17.06 | -15.26  | -27.87 | 153.97  | 1.13      | 0.59  | 31.02       | 14.00                   | 3.96         |
| 400   | -31.53 | -20.17  | 12.46 | 140.47  | -17.07 | -30.16  | -26.71 | 127.01  | 1.14      | 0.59  | 30.74       | 13.86                   | 3.95         |
| 600   | -34.27 | -18.57  | 12.39 | 121.00  | -17.08 | -45.21  | -24.73 | 106.55  | 1.14      | 0.58  | 30.77       | 14.00                   | 3.94         |
| 800   | -34.44 | -11.25  | 12.30 | 101.61  | -17.09 | -60.37  | -23.41 | 86.62   | 1.15      | 0.58  | 30.95       | 13.91                   | 3.86         |
| 1000  | -34.42 | 9.26    | 12.19 | 82.41   | -17.11 | -75.44  | -21.96 | 69.33   | 1.16      | 0.57  | 31.72       | 13.66                   | 3.85         |
| 1200  | -31.78 | 13.71   | 12.08 | 63.20   | -17.13 | -90.61  | -20.88 | 51.03   | 1.17      | 0.56  | 32.02       | 13.80                   | 3.89         |
| 1400  | -28.83 | 7.88    | 11.95 | 44.22   | -17.17 | -105.72 | -19.82 | 34.70   | 1.18      | 0.55  | 31.63       | 13.77                   | 3.86         |
| 1600  | -27.10 | -2.47   | 11.83 | 25.33   | -17.22 | -120.92 | -19.31 | 18.13   | 1.19      | 0.54  | 31.91       | 13.76                   | 3.97         |
| 1800  | -25.73 | -16.07  | 11.72 | 6.36    | -17.26 | -136.07 | -18.77 | 1.39    | 1.20      | 0.53  | 31.78       | 13.74                   | 3.86         |
| 2000  | -24.62 | -30.97  | 11.59 | -12.40  | -17.29 | -151.12 | -18.53 | -14.06  | 1.21      | 0.52  | 31.93       | 13.89                   | 3.88         |
| 2200  | -24.33 | -44.26  | 11.48 | -31.20  | -17.35 | -166.37 | -18.60 | -31.59  | 1.22      | 0.51  | 31.56       | 13.98                   | 3.89         |
| 2400  | -23.35 | -61.59  | 11.35 | -49.96  | -17.40 | 178.43  | -18.43 | -48.60  | 1.24      | 0.50  | 31.65       | 13.81                   | 3.99         |
| 2600  | -22.84 | -74.94  | 11.22 | -68.70  | -17.49 | 163.17  | -18.47 | -65.19  | 1.26      | 0.49  | 31.86       | 13.87                   | 3.95         |
| 2800  | -22.42 | -89.16  | 11.07 | -87.37  | -17.55 | 147.91  | -18.54 | -82.99  | 1.28      | 0.48  | 31.81       | 13.99                   | 3.92         |
| 3000  | -22.71 | -105.47 | 10.94 | -105.86 | -17.60 | 132.68  | -18.84 | -100.87 | 1.29      | 0.47  | 31.36       | 13.94                   | 3.93         |
| 3200  | -22.51 | -120.84 | 10.79 | -124.33 | -17.74 | 117.62  | -19.08 | -122.44 | 1.32      | 0.45  | 31.34       | 13.93                   | 3.93         |
| 3400  | -21.50 | -130.87 | 10.68 | -142.89 | -17.77 | 102.09  | -18.77 | -139.72 | 1.34      | 0.45  | 31.76       | 13.93                   | 4.03         |
| 3600  | -22.02 | -149.60 | 10.51 | -161.12 | -17.90 | 87.32   | -18.83 | -160.09 | 1.37      | 0.43  | 31.55       | 13.91                   | 4.00         |
| 3800  | -21.40 | -163.92 | 10.32 | -179.37 | -18.09 | 71.90   | -18.46 | 178.89  | 1.41      | 0.41  | 31.62       | 14.01                   | 4.09         |
| 4000  | -20.64 | -177.75 | 10.22 | 162.10  | -18.13 | 56.56   | -18.17 | 162.62  | 1.42      | 0.41  | 31.01       | 14.05                   | 4.13         |
| 4200  | -21.15 | 169.28  | 10.10 | 144.51  | -18.28 | 42.17   | -17.97 | 142.35  | 1.45      | 0.40  | 31.57       | 13.99                   | 4.06         |
| 4400  | -19.60 | 156.44  | 9.88  | 125.80  | -18.38 | 26.08   | -16.94 | 125.17  | 1.49      | 0.39  | 31.61       | 14.02                   | 4.01         |
| 4600  | -19.45 | 139.77  | 9.80  | 108.10  | -18.54 | 11.71   | -16.57 | 109.09  | 1.52      | 0.38  | 31.15       | 14.10                   | 4.02         |
| 4800  | -18.32 | 121.59  | 9.56  | 89.85   | -18.68 | -4.30   | -15.79 | 96.60   | 1.56      | 0.36  | 30.85       | 14.09                   | 4.14         |
| 5000  | -17.69 | 110.64  | 9.51  | 72.08   | -18.79 | -18.67  | -15.83 | 82.56   | 1.58      | 0.36  | 30.66       | 13.89                   | 4.05         |
| 5200  | -17.53 | 93.86   | 9.36  | 54.32   | -19.00 | -33.91  | -15.54 | 67.22   | 1.63      | 0.35  | 30.64       | 13.69                   | 4.24         |
| 5400  | -16.52 | 77.73   | 9.12  | 36.50   | -19.17 | -49.93  | -14.84 | 52.69   | 1.68      | 0.34  | 29.61       | 13.58                   | 4.37         |
| 5600  | -15.72 | 63.41   | 8.98  | 18.47   | -19.27 | -65.27  | -14.38 | 40.10   | 1.71      | 0.33  | 29.48       | 13.51                   | 4.33         |
| 5800  | -15.89 | 52.23   | 9.03  | 0.36    | -19.36 | -78.46  | -14.82 | 30.38   | 1.73      | 0.33  | 29.61       | 13.51                   | 4.45         |
| 6000  | -14.98 | 36.16   | 8.80  | -17.74  | -19.38 | -94.38  | -14.28 | 19.52   | 1.76      | 0.33  | 28.90       | 13.35                   | 4.41         |
| 6200  | -14.86 | 15.76   | 8.61  | -34.05  | -19.70 | -110.94 | -14.54 | 2.58    | 1.84      | 0.31  | 28.56       | 13.07                   | 4.44         |
| 6400  | -14.87 | 4.59    | 8.57  | -53.25  | -19.60 | -124.51 | -14.85 | -6.74   | 1.84      | 0.31  | 28.43       | 13.06                   | 4.52         |
| 6600  | -14.81 | -12.38  | 8.50  | -70.00  | -19.87 | -140.12 | -15.00 | -23.18  | 1.90      | 0.30  | 27.66       | 13.18                   | 4.57         |
| 6800  | -14.87 | -36.58  | 8.34  | -85.71  | -20.15 | -158.39 | -15.17 | -42.99  | 1.99      | 0.29  | 27.26       | 12.94                   | 4.66         |
| 7000  | -15.55 | -41.70  | 8.60  | -104.86 | -20.51 | -169.05 | -17.00 | -50.23  | 2.03      | 0.28  | 27.56       | 12.89                   | 4.63         |
| 7200  | -15.20 | -58.53  | 8.54  | -122.37 | -20.60 | 175.11  | -17.44 | -66.81  | 2.06      | 0.27  | 26.28       | 12.84                   | 4.68         |
| 7600  | -14.88 | -92.04  | 8.48  | -157.28 | -20.84 | 143.14  | -18.38 | -103.73 | 2.12      | 0.26  | 25.84       | 12.42                   | 5.12         |
| 8000  | -13.97 | -124.33 | 8.34  | 167.00  | -20.54 | 112.86  | -17.79 | -137.56 | 2.07      | 0.27  | 24.22       | 12.01                   | 5.20         |

TYPE: MMIC Amplifier  
 MODEL: ERA-1SM      Reference Data: RDF-960  
 S PARAMETERS are presented in dB/deg Format  
 TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 40mA, Vd = 3.30V @Temperature = +85degC

**Definitions:**

Input Return Loss=-S11(dB)  
 Gain(Power Gain)=S21(dB)  
 Reverse Isolation=-S12(dB)  
 Output Return Loss=-S22(dB)

| FREQ  | S11    |         | S21   |         | S12    |         | S22    |         | Stability |       | IP-3 Output | 1 dB Compression Output | Noise Figure |
|-------|--------|---------|-------|---------|--------|---------|--------|---------|-----------|-------|-------------|-------------------------|--------------|
| (MHz) | (dB)   | (deg)   | (dB)  | (deg)   | (dB)   | (deg)   | (dB)   | (deg)   | K         | Delta | (dBm)       | (dBm)                   | (dB)         |
| 50    | -27.60 | -1.52   | 12.13 | 174.65  | -16.80 | -4.27   | -35.43 | 167.85  | 1.15      | 0.58  | 26.91       | 11.94                   | 5.39         |
| 100   | -27.27 | -1.99   | 12.14 | 169.98  | -16.81 | -7.69   | -34.09 | 159.31  | 1.15      | 0.58  | 26.84       | 11.77                   | 5.18         |
| 200   | -28.06 | -13.32  | 12.11 | 160.23  | -16.82 | -15.00  | -31.85 | 142.06  | 1.15      | 0.58  | 27.10       | 11.94                   | 5.07         |
| 400   | -28.10 | -26.08  | 12.02 | 140.97  | -16.85 | -29.49  | -30.81 | 123.83  | 1.16      | 0.57  | 26.76       | 11.76                   | 5.08         |
| 600   | -29.82 | -41.16  | 11.93 | 121.70  | -16.85 | -44.11  | -28.51 | 101.96  | 1.16      | 0.57  | 26.71       | 11.89                   | 5.07         |
| 800   | -30.64 | -49.71  | 11.83 | 102.69  | -16.88 | -58.73  | -26.91 | 82.25   | 1.17      | 0.56  | 26.85       | 11.79                   | 5.03         |
| 1000  | -33.75 | -55.47  | 11.73 | 83.80   | -16.90 | -73.44  | -25.08 | 66.35   | 1.18      | 0.55  | 27.45       | 11.55                   | 4.98         |
| 1200  | -35.45 | -45.26  | 11.61 | 64.95   | -16.96 | -88.18  | -23.83 | 50.18   | 1.19      | 0.54  | 27.73       | 11.74                   | 5.07         |
| 1400  | -34.89 | -32.57  | 11.49 | 46.19   | -17.01 | -102.79 | -22.70 | 34.75   | 1.20      | 0.53  | 27.30       | 11.69                   | 5.02         |
| 1600  | -33.36 | -23.95  | 11.35 | 27.73   | -17.05 | -117.50 | -22.04 | 19.27   | 1.22      | 0.52  | 27.54       | 11.64                   | 5.13         |
| 1800  | -30.92 | -27.09  | 11.24 | 9.03    | -17.11 | -132.18 | -21.34 | 4.08    | 1.23      | 0.51  | 27.34       | 11.67                   | 5.00         |
| 2000  | -30.36 | -32.95  | 11.11 | -9.39   | -17.16 | -146.80 | -21.05 | -11.86  | 1.24      | 0.50  | 27.37       | 11.80                   | 5.05         |
| 2200  | -29.44 | -41.14  | 10.99 | -27.77  | -17.24 | -161.61 | -21.05 | -28.57  | 1.26      | 0.49  | 27.00       | 11.86                   | 5.06         |
| 2400  | -28.38 | -52.53  | 10.88 | -46.29  | -17.31 | -176.31 | -20.73 | -46.03  | 1.28      | 0.48  | 27.06       | 11.73                   | 5.20         |
| 2600  | -27.88 | -64.71  | 10.73 | -64.67  | -17.42 | -168.89 | -20.78 | -62.83  | 1.30      | 0.47  | 27.02       | 11.82                   | 5.14         |
| 2800  | -26.72 | -73.21  | 10.59 | -83.00  | -17.49 | -154.08 | -20.59 | -80.31  | 1.32      | 0.46  | 27.05       | 11.88                   | 5.14         |
| 3000  | -27.53 | -87.47  | 10.45 | -101.18 | -17.58 | -139.53 | -20.95 | -97.23  | 1.35      | 0.44  | 26.68       | 11.84                   | 5.16         |
| 3200  | -26.86 | -100.41 | 10.30 | -119.13 | -17.71 | -124.93 | -21.15 | -119.00 | 1.38      | 0.43  | 26.50       | 11.93                   | 5.18         |
| 3400  | -25.21 | -107.30 | 10.19 | -137.54 | -17.74 | -109.96 | -20.68 | -134.72 | 1.39      | 0.42  | 26.66       | 11.91                   | 5.23         |
| 3600  | -25.15 | -125.19 | 10.03 | -155.44 | -17.93 | -95.56  | -20.57 | -153.52 | 1.43      | 0.41  | 26.41       | 11.78                   | 5.24         |
| 3800  | -23.93 | -138.13 | 9.83  | -173.47 | -18.11 | -80.44  | -20.05 | -172.88 | 1.48      | 0.39  | 26.40       | 11.94                   | 5.34         |
| 4000  | -22.59 | -149.07 | 9.73  | -168.31 | -18.17 | -65.62  | -19.74 | -171.61 | 1.50      | 0.38  | 25.78       | 11.96                   | 5.36         |
| 4200  | -22.92 | -159.95 | 9.59  | -151.05 | -18.38 | -51.72  | -19.67 | -151.21 | 1.54      | 0.37  | 25.90       | 11.97                   | 5.32         |
| 4400  | -21.07 | -172.47 | 9.41  | -132.84 | -18.50 | -36.48  | -18.82 | -133.74 | 1.58      | 0.36  | 25.92       | 11.97                   | 5.30         |
| 4600  | -20.56 | 173.45  | 9.31  | -115.35 | -18.68 | -22.37  | -18.30 | -118.02 | 1.61      | 0.35  | 25.49       | 12.06                   | 5.29         |
| 4800  | -19.52 | 159.52  | 9.11  | -97.33  | -18.79 | -7.09   | -17.64 | -106.63 | 1.66      | 0.34  | 25.15       | 12.01                   | 5.43         |
| 5000  | -19.46 | 145.32  | 9.04  | -80.43  | -19.08 | -6.60   | -18.06 | -90.91  | 1.72      | 0.33  | 24.81       | 11.81                   | 5.47         |
| 5200  | -18.59 | 132.75  | 8.92  | -62.20  | -19.15 | -21.53  | -17.69 | -79.24  | 1.74      | 0.32  | 24.55       | 11.66                   | 5.61         |
| 5400  | -17.71 | 115.32  | 8.64  | -44.56  | -19.33 | -37.41  | -16.79 | -64.17  | 1.81      | 0.31  | 23.80       | 11.51                   | 5.72         |
| 5600  | -17.01 | 101.31  | 8.60  | -26.91  | -19.48 | -51.10  | -16.81 | -53.53  | 1.84      | 0.31  | 23.65       | 11.31                   | 5.79         |
| 5800  | -16.81 | 89.57   | 8.52  | -9.27   | -19.66 | -64.92  | -16.80 | -43.06  | 1.89      | 0.30  | 23.39       | 11.35                   | 5.78         |
| 6000  | -15.44 | 73.97   | 8.29  | -8.78   | -19.65 | -79.97  | -16.09 | -34.88  | 1.91      | 0.30  | 22.79       | 11.27                   | 5.83         |
| 6200  | -15.34 | 51.89   | 8.01  | -25.09  | -19.92 | -97.06  | -16.07 | -18.37  | 2.02      | 0.28  | 22.66       | 10.91                   | 5.87         |
| 6400  | -15.12 | 48.89   | 8.17  | -43.71  | -20.06 | -107.93 | -17.07 | -12.24  | 2.02      | 0.28  | 22.28       | 10.79                   | 5.78         |
| 6600  | -15.31 | 34.99   | 8.13  | -60.27  | -20.46 | -122.63 | -17.48 | -2.79   | 2.11      | 0.26  | 21.55       | 10.96                   | 5.85         |
| 6800  | -15.18 | 13.25   | 7.86  | -76.80  | -20.50 | -139.93 | -17.29 | -18.55  | 2.18      | 0.25  | 21.35       | 10.68                   | 6.09         |
| 7000  | -15.13 | 6.05    | 8.00  | -94.40  | -20.96 | -152.31 | -18.92 | -28.33  | 2.26      | 0.24  | 21.38       | 10.54                   | 6.26         |
| 7200  | -15.05 | -7.62   | 8.03  | -111.72 | -21.28 | -166.71 | -19.75 | -41.67  | 2.32      | 0.23  | 20.68       | 10.62                   | 6.28         |
| 7600  | -14.18 | -39.32  | 7.83  | -147.38 | -21.18 | -165.49 | -19.31 | -65.26  | 2.33      | 0.23  | 19.96       | 10.01                   | 6.28         |
| 8000  | -13.13 | -69.01  | 7.74  | -176.20 | -21.16 | -139.72 | -19.69 | -89.31  | 2.32      | 0.22  | 19.20       | 9.74                    | 6.78         |

TYPE: MMIC Amplifier  
 MODEL: ERA-1SM      Reference Data: RDF-960  
 S PARAMETERS are presented in dB/deg Format  
 TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 32mA, Vd = 3.21V @Temperature = +85degC

**Definitions:**

Input Return Loss=-S11(dB)  
 Gain(Power Gain)=S21(dB)  
 Reverse Isolation=-S12(dB)  
 Output Return Loss=-S22(dB)

| FREQ  | S11    |         | S21   |         | S12    |         | S22    |         | Stability |       | IP-3 Output | 1 dB Compression Output | Noise Figure |
|-------|--------|---------|-------|---------|--------|---------|--------|---------|-----------|-------|-------------|-------------------------|--------------|
| (MHz) | (dB)   | (deg)   | (dB)  | (deg)   | (dB)   | (deg)   | (dB)   | (deg)   | K         | Delta | (dBm)       | (dBm)                   | (dB)         |
| 50    | -23.58 | -2.15   | 11.77 | 174.69  | -16.55 | -4.30   | -38.77 | 5.65    | 1.15      | 0.58  | 22.69       | 8.82                    | 5.06         |
| 100   | -23.37 | -5.08   | 11.78 | 169.97  | -16.56 | -7.70   | -39.98 | 12.57   | 1.15      | 0.58  | 22.53       | 8.62                    | 4.98         |
| 200   | -23.95 | -15.31  | 11.75 | 160.31  | -16.58 | -15.04  | -40.59 | 44.89   | 1.16      | 0.57  | 22.69       | 8.76                    | 4.99         |
| 400   | -23.99 | -30.98  | 11.66 | 141.08  | -16.60 | -29.57  | -40.50 | 47.89   | 1.16      | 0.57  | 22.38       | 8.52                    | 5.01         |
| 600   | -25.09 | -48.75  | 11.58 | 121.88  | -16.62 | -44.32  | -35.87 | 61.18   | 1.17      | 0.56  | 22.37       | 8.84                    | 5.02         |
| 800   | -25.85 | -61.86  | 11.49 | 102.93  | -16.65 | -58.95  | -32.78 | 53.29   | 1.18      | 0.55  | 22.50       | 8.74                    | 4.98         |
| 1000  | -27.74 | -77.27  | 11.40 | 84.02   | -16.66 | -73.69  | -29.89 | 48.03   | 1.19      | 0.54  | 23.02       | 8.48                    | 4.95         |
| 1200  | -29.70 | -86.62  | 11.28 | 65.23   | -16.70 | -88.49  | -27.81 | 37.54   | 1.20      | 0.53  | 23.41       | 9.03                    | 5.01         |
| 1400  | -31.76 | -91.84  | 11.16 | 46.56   | -16.75 | -103.28 | -26.06 | 25.97   | 1.21      | 0.52  | 23.03       | 8.88                    | 4.95         |
| 1600  | -34.58 | -90.45  | 11.04 | 27.99   | -16.82 | -118.05 | -25.20 | 12.25   | 1.22      | 0.51  | 23.42       | 8.63                    | 5.06         |
| 1800  | -35.93 | -78.99  | 10.95 | 9.32    | -16.86 | -132.81 | -24.22 | -1.10   | 1.24      | 0.51  | 23.18       | 9.01                    | 4.91         |
| 2000  | -38.06 | -72.00  | 10.82 | -9.07   | -16.91 | -147.49 | -23.66 | -15.86  | 1.25      | 0.50  | 23.17       | 9.22                    | 4.97         |
| 2200  | -37.88 | -58.28  | 10.72 | -27.58  | -16.97 | -162.42 | -23.62 | -32.23  | 1.27      | 0.49  | 22.92       | 9.20                    | 4.98         |
| 2400  | -35.89 | -56.75  | 10.60 | -46.02  | -17.06 | -177.23 | -23.12 | -49.48  | 1.28      | 0.48  | 23.21       | 9.15                    | 5.11         |
| 2600  | -34.39 | -61.01  | 10.48 | -64.53  | -17.18 | 167.98  | -23.09 | -65.98  | 1.31      | 0.46  | 22.92       | 9.28                    | 5.05         |
| 2800  | -31.68 | -61.87  | 10.34 | -82.82  | -17.27 | 153.05  | -22.83 | -83.46  | 1.33      | 0.45  | 23.05       | 9.33                    | 5.05         |
| 3000  | -32.68 | -71.08  | 10.21 | -100.97 | -17.36 | 138.50  | -23.15 | -100.37 | 1.35      | 0.44  | 23.12       | 9.26                    | 5.06         |
| 3200  | -31.27 | -82.64  | 10.06 | -119.06 | -17.50 | 123.71  | -23.29 | -123.38 | 1.38      | 0.43  | 23.09       | 9.73                    | 5.07         |
| 3400  | -27.96 | -89.93  | 9.96  | -137.43 | -17.54 | 108.64  | -22.61 | -138.39 | 1.40      | 0.42  | 23.60       | 9.72                    | 5.15         |
| 3600  | -27.83 | -108.52 | 9.80  | -155.36 | -17.71 | 94.18   | -22.43 | -157.73 | 1.44      | 0.40  | 23.58       | 9.59                    | 5.13         |
| 3800  | -25.93 | -123.20 | 9.61  | -173.40 | -17.91 | 79.02   | -21.71 | -177.28 | 1.48      | 0.39  | 23.70       | 9.93                    | 5.24         |
| 4000  | -24.01 | -135.63 | 9.53  | 168.26  | -17.98 | 64.03   | -21.25 | 167.74  | 1.50      | 0.38  | 23.59       | 10.08                   | 5.26         |
| 4200  | -24.02 | -145.24 | 9.40  | 151.04  | -18.20 | 50.08   | -21.07 | 146.70  | 1.55      | 0.37  | 23.70       | 10.11                   | 5.22         |
| 4400  | -21.78 | -160.12 | 9.21  | 132.88  | -18.33 | 34.76   | -20.02 | 129.44  | 1.59      | 0.36  | 24.03       | 10.21                   | 5.19         |
| 4600  | -21.14 | -175.18 | 9.11  | 115.29  | -18.54 | 20.64   | -19.41 | 114.22  | 1.63      | 0.35  | 23.88       | 10.46                   | 5.15         |
| 4800  | -19.95 | 169.57  | 8.91  | 97.21   | -18.65 | 5.17    | -18.66 | 103.55  | 1.67      | 0.34  | 23.60       | 10.52                   | 5.26         |
| 5000  | -19.75 | 155.57  | 8.86  | 80.20   | -18.95 | -8.65   | -19.10 | 88.05   | 1.73      | 0.32  | 23.31       | 10.31                   | 5.32         |
| 5200  | -18.72 | 142.07  | 8.74  | 61.93   | -19.04 | -23.61  | -18.70 | 76.94   | 1.76      | 0.32  | 23.20       | 10.35                   | 5.47         |
| 5400  | -17.87 | 123.43  | 8.46  | 44.33   | -19.23 | -39.64  | -17.73 | 62.16   | 1.83      | 0.31  | 22.66       | 10.40                   | 5.55         |
| 5600  | -17.08 | 108.84  | 8.42  | 26.50   | -19.40 | -53.34  | -17.74 | 52.18   | 1.87      | 0.30  | 22.44       | 10.17                   | 5.64         |
| 5800  | -16.74 | 96.58   | 8.35  | 8.87    | -19.61 | -67.33  | -17.76 | 42.16   | 1.92      | 0.29  | 22.09       | 10.07                   | 5.64         |
| 6000  | -15.38 | 79.82   | 8.12  | -9.30   | -19.59 | -82.44  | -16.94 | 34.96   | 1.94      | 0.29  | 21.62       | 10.27                   | 5.72         |
| 6200  | -15.40 | 58.30   | 7.84  | -25.57  | -19.89 | -99.53  | -16.98 | 18.16   | 2.05      | 0.27  | 21.60       | 10.00                   | 5.72         |
| 6400  | -14.93 | 54.46   | 7.99  | -44.30  | -20.06 | -110.47 | -18.05 | 13.21   | 2.05      | 0.27  | 21.14       | 9.76                    | 5.72         |
| 6600  | -15.00 | 40.72   | 7.94  | -60.94  | -20.52 | -125.31 | -18.51 | -1.70   | 2.16      | 0.25  | 20.45       | 9.96                    | 5.81         |
| 6800  | -14.96 | 19.16   | 7.68  | -77.48  | -20.56 | -142.71 | -18.29 | -17.63  | 2.23      | 0.24  | 20.31       | 9.76                    | 5.95         |
| 7000  | -14.73 | 11.70   | 7.81  | -95.17  | -21.08 | -155.13 | -20.18 | -26.30  | 2.32      | 0.23  | 20.35       | 9.55                    | 6.01         |
| 7200  | -14.57 | -1.89   | 7.84  | -112.57 | -21.43 | -169.38 | -21.15 | -38.44  | 2.40      | 0.22  | 19.68       | 9.63                    | 6.03         |
| 7600  | -13.70 | -34.40  | 7.64  | -148.30 | -21.43 | 162.81  | -20.66 | -60.95  | 2.43      | 0.21  | 18.93       | 9.16                    | 5.96         |
| 8000  | -12.63 | -65.23  | 7.54  | 175.16  | -21.45 | 137.24  | -20.87 | -83.91  | 2.43      | 0.21  | 18.30       | 8.99                    | 6.63         |

TYPE: MMIC Amplifier  
 MODEL: ERA-1SM      Reference Data: RDF-960  
 S PARAMETERS are presented in dB/deg Format  
 TEST CONDITIONS: INPUT POWER = -15dBm, Icc = 48mA, Vd = 3.38V @Temperature = +85degC

**Definitions:**

Input Return Loss=-S11(dB)  
 Gain(Power Gain)=S21(dB)  
 Reverse Isolation=-S12(dB)  
 Output Return Loss=-S22(dB)

| FREQ  | S11    |         | S21   |         | S12    |         | S22    |         | Stability |       | IP-3 Output | 1 dB Compression Output | Noise Figure |
|-------|--------|---------|-------|---------|--------|---------|--------|---------|-----------|-------|-------------|-------------------------|--------------|
| (MHz) | (dB)   | (deg)   | (dB)  | (deg)   | (dB)   | (deg)   | (dB)   | (deg)   | K         | Delta | (dBm)       | (dBm)                   | (dB)         |
| 50    | -30.71 | -2.01   | 12.32 | 174.61  | -16.95 | -4.30   | -29.72 | 171.11  | 1.14      | 0.59  | 30.01       | 13.56                   | 5.59         |
| 100   | -30.18 | 0.09    | 12.34 | 169.93  | -16.95 | -7.64   | -29.06 | 164.19  | 1.14      | 0.59  | 30.01       | 13.54                   | 5.34         |
| 200   | -31.49 | -9.96   | 12.30 | 160.23  | -16.96 | -14.88  | -27.78 | 149.18  | 1.14      | 0.58  | 30.30       | 13.61                   | 5.17         |
| 400   | -31.62 | -19.56  | 12.21 | 140.94  | -16.99 | -29.41  | -27.16 | 130.53  | 1.15      | 0.58  | 29.88       | 13.48                   | 5.15         |
| 600   | -33.94 | -30.73  | 12.13 | 121.65  | -17.00 | -43.94  | -25.68 | 108.50  | 1.16      | 0.57  | 29.71       | 13.45                   | 5.14         |
| 800   | -34.45 | -30.46  | 12.01 | 102.64  | -17.02 | -58.57  | -24.53 | 88.28   | 1.17      | 0.56  | 29.76       | 13.31                   | 5.09         |
| 1000  | -37.33 | -17.21  | 11.90 | 83.71   | -17.04 | -73.17  | -23.14 | 70.86   | 1.18      | 0.55  | 30.25       | 13.12                   | 5.08         |
| 1200  | -35.17 | -1.53   | 11.79 | 64.88   | -17.09 | -87.81  | -22.13 | 53.83   | 1.19      | 0.54  | 30.09       | 13.09                   | 5.15         |
| 1400  | -32.31 | -0.70   | 11.64 | 46.16   | -17.12 | -102.42 | -21.21 | 37.62   | 1.20      | 0.53  | 29.68       | 13.10                   | 5.12         |
| 1600  | -30.14 | -5.95   | 11.52 | 27.61   | -17.20 | -117.04 | -20.68 | 21.51   | 1.21      | 0.52  | 29.53       | 13.08                   | 5.22         |
| 1800  | -28.12 | -16.44  | 11.41 | 8.99    | -17.25 | -131.76 | -20.11 | 5.84    | 1.23      | 0.51  | 29.01       | 13.00                   | 5.11         |
| 2000  | -27.53 | -26.25  | 11.26 | -9.41   | -17.29 | -146.29 | -19.87 | -10.39  | 1.24      | 0.50  | 29.02       | 13.13                   | 5.15         |
| 2200  | -26.79 | -37.46  | 11.16 | -27.86  | -17.38 | -161.02 | -19.90 | -27.21  | 1.26      | 0.49  | 28.66       | 13.25                   | 5.18         |
| 2400  | -26.10 | -51.10  | 11.02 | -46.29  | -17.44 | -175.66 | -19.65 | -44.88  | 1.28      | 0.48  | 28.47       | 12.98                   | 5.29         |
| 2600  | -25.70 | -64.68  | 10.88 | -64.61  | -17.56 | -169.69 | -19.71 | -61.58  | 1.30      | 0.47  | 28.38       | 13.04                   | 5.26         |
| 2800  | -24.83 | -74.95  | 10.73 | -82.99  | -17.62 | -154.91 | -19.59 | -79.02  | 1.32      | 0.46  | 28.22       | 13.21                   | 5.24         |
| 3000  | -25.48 | -90.37  | 10.59 | -101.05 | -17.70 | -140.37 | -19.93 | -95.86  | 1.34      | 0.44  | 27.75       | 13.01                   | 5.27         |
| 3200  | -25.04 | -104.10 | 10.42 | -119.11 | -17.83 | -125.81 | -20.19 | -116.98 | 1.38      | 0.43  | 27.48       | 12.93                   | 5.27         |
| 3400  | -23.84 | -112.23 | 10.31 | -137.47 | -17.87 | -110.80 | -19.79 | -132.90 | 1.39      | 0.42  | 27.41       | 12.95                   | 5.36         |
| 3600  | -23.81 | -129.98 | 10.15 | -155.31 | -18.03 | -96.56  | -19.74 | -151.59 | 1.43      | 0.41  | 26.98       | 12.83                   | 5.37         |
| 3800  | -22.80 | -143.17 | 9.96  | -173.24 | -18.22 | -81.55  | -19.31 | -170.79 | 1.47      | 0.39  | 26.98       | 12.84                   | 5.46         |
| 4000  | -21.73 | -154.25 | 9.85  | -168.54 | -18.28 | -66.73  | -19.04 | -173.46 | 1.49      | 0.39  | 26.37       | 12.89                   | 5.49         |
| 4200  | -22.09 | -165.98 | 9.71  | -151.35 | -18.46 | -52.98  | -19.02 | -153.45 | 1.53      | 0.37  | 26.46       | 12.87                   | 5.46         |
| 4400  | -20.49 | -177.46 | 9.51  | -133.17 | -18.60 | -37.79  | -18.25 | -135.78 | 1.58      | 0.36  | 26.38       | 12.83                   | 5.43         |
| 4600  | -20.12 | 168.70  | 9.42  | -115.69 | -18.77 | -23.79  | -17.79 | -120.07 | 1.61      | 0.35  | 26.05       | 12.90                   | 5.39         |
| 4800  | -19.19 | 155.13  | 9.22  | -97.70  | -18.88 | -8.43   | -17.14 | -108.08 | 1.65      | 0.34  | 25.75       | 12.88                   | 5.49         |
| 5000  | -19.11 | 141.07  | 9.15  | -80.79  | -19.14 | -5.11   | -17.55 | -92.77  | 1.70      | 0.33  | 25.46       | 12.65                   | 5.58         |
| 5200  | -18.35 | 128.66  | 9.01  | -62.61  | -19.23 | -19.95  | -17.20 | -80.82  | 1.74      | 0.32  | 25.15       | 12.40                   | 5.73         |
| 5400  | -17.56 | 111.72  | 8.73  | -45.10  | -19.40 | -35.78  | -16.39 | -65.45  | 1.80      | 0.31  | 24.38       | 12.20                   | 5.87         |
| 5600  | -16.85 | 98.09   | 8.69  | -27.33  | -19.52 | -49.46  | -16.37 | -54.81  | 1.83      | 0.31  | 24.31       | 12.03                   | 5.91         |
| 5800  | -16.70 | 86.44   | 8.61  | -9.80   | -19.70 | -63.26  | -16.35 | -44.03  | 1.88      | 0.30  | 24.07       | 12.07                   | 5.96         |
| 6000  | -15.38 | 70.89   | 8.38  | -8.23   | -19.69 | -78.36  | -15.67 | -35.44  | 1.90      | 0.30  | 23.49       | 11.94                   | 6.06         |
| 6200  | -15.30 | 49.25   | 8.10  | -24.44  | -19.96 | -95.16  | -15.73 | -19.00  | 2.01      | 0.28  | 23.30       | 11.57                   | 6.03         |
| 6400  | -15.16 | 46.00   | 8.25  | -43.05  | -20.06 | -106.12 | -16.61 | -12.62  | 2.00      | 0.28  | 22.96       | 11.45                   | 5.99         |
| 6600  | -15.34 | 32.15   | 8.21  | -59.65  | -20.44 | -120.72 | -17.00 | -2.54   | 2.09      | 0.27  | 22.23       | 11.67                   | 6.05         |
| 6800  | -15.19 | 10.39   | 7.94  | -76.01  | -20.47 | -137.92 | -16.80 | -18.36  | 2.15      | 0.26  | 22.01       | 11.37                   | 6.25         |
| 7000  | -15.23 | 3.07    | 8.08  | -93.59  | -20.94 | -150.25 | -18.36 | -28.72  | 2.23      | 0.24  | 22.01       | 11.26                   | 6.41         |
| 7200  | -15.20 | -9.90   | 8.12  | -110.93 | -21.20 | -164.33 | -19.14 | -41.25  | 2.28      | 0.24  | 21.28       | 11.34                   | 6.43         |
| 7600  | -14.36 | -41.25  | 7.92  | -146.55 | -21.07 | -167.48 | -18.76 | -65.58  | 2.28      | 0.23  | 20.57       | 10.76                   | 6.68         |
| 8000  | -13.34 | -71.10  | 7.83  | -177.21 | -21.00 | -141.37 | -19.04 | -91.17  | 2.27      | 0.23  | 19.76       | 10.40                   | 6.99         |