# ERA-33SM Performance Data

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

TYPE: MMIC Amplifier
MODEL: ERA-33SM Reference Data: RDF-1079C
S PARAMETERS are presented in dB/deg Format
TEST CONDITIONS: INPUT POWER = -20dBm, Icc = 40mA, Vd = 4.22V @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 | -42.45 | -41.40 | 19.98 | 174.49 | -22.04 | -0.57 | -25.11 | -7.88 | 1.03 | 0.79 | 28.71 | 14.48 | 3.07 |
| 100 | -35.65 | 63.95 | 19.94 | 168.95 | -22.05 | -7.80 | -24.98 | -8.81 | 1.03 | 0.78 | 28.35 | 14.16 | 3.16 |
| 150 | -30.80 | 62.56 | 19.96 | 164.15 | -22.22 | -10.74 | -26.39 | -16.96 | 1.03 | 0.77 | 29.01 | 14.33 | 3.06 |
| 200 | -28.69 | 55.53 | 19.93 | 159.00 | -22.08 | -14.51 | -26.51 | -18.40 | 1.03 | 0.78 | 28.58 | 14.35 | 2.99 |
| 250 | -27.38 | 54.09 | 19.89 | 153.84 | -22.09 | -16.67 | -25.93 | -21.32 | 1.03 | 0.78 | 28.11 | 14.12 | 3.03 |
| 300 | -25.87 | 54.65 | 19.87 | 148.78 | -22.08 | -21.05 | -26.54 | -28.72 | 1.03 | 0.78 | 28.71 | 14.34 | 3.10 |
| 350 | -25.17 | 47.69 | 19.85 | 143.68 | -22.02 | -24.16 | -26.33 | -36.43 | 1.03 | 0.78 | 28.49 | 14.15 | 3.12 |
| 400 | -24.01 | 41.29 | 19.82 | 138.44 | -22.08 | -27.81 | -26.94 | -41.71 | 1.03 | 0.77 | 28.45 | 14.42 | 3.04 |
| 450 | -22.75 | 39.44 | 19.80 | 133.51 | -22.03 | -31.31 | -26.40 | -43.79 | 1.03 | 0.77 | 28.10 | 14.01 | 3.04 |
| 500 | -22.11 | 35.49 | 19.78 | 128.26 | -22.10 | -34.30 | -26.68 | -52.69 | 1.03 | 0.77 | 28.40 | 14.38 | 3.13 |
| 550 | -21.64 | 31.66 | 19.72 | 123.28 | -22.11 | -37.76 | -27.07 | -58.18 | 1.03 | 0.76 | 28.16 | 14.19 | 3.02 |
| 600 | -20.79 | 28.57 | 19.69 | 118.07 | -22.17 | -41.20 | -27.01 | -66.66 | 1.04 | 0.75 | 28.28 | 14.12 | 3.07 |
| 650 | -20.02 | 22.26 | 19.68 | 112.99 | -22.11 | -44.79 | -27.10 | -69.40 | 1.03 | 0.76 | 27.99 | 14.22 | 3.06 |
| 700 | -19.43 | 17.89 | 19.62 | 107.92 | -22.11 | -48.25 | -27.54 | -76.51 | 1.03 | 0.75 | 28.47 | 14.02 | 3.10 |
| 750 | -18.96 | 12.95 | 19.58 | 102.87 | -22.11 | -51.81 | -27.43 | -83.15 | 1.04 | 0.75 | 27.88 | 14.22 | 3.12 |
| 800 | -18.32 | 9.36 | 19.56 | 97.96 | -22.14 | -54.92 | -27.59 | -88.21 | 1.04 | 0.75 | 28.46 | 13.86 | 2.95 |
| 850 | -17.95 | 3.50 | 19.53 | 92.77 | -22.13 | -58.39 | -27.82 | -92.69 | 1.04 | 0.74 | 28.00 | 14.18 | 2.95 |
| 900 | -17.60 | 0.50 | 19.48 | 87.83 | -22.16 | -61.92 | -28.16 | -99.27 | 1.04 | 0.74 | 28.38 | 13.86 | 3.06 |
| 940 | -17.08 | -3.74 | 19.44 | 83.75 | -22.14 | -64.45 | -27.82 | -106.01 | 1.04 | 0.74 | 28.25 | 13.85 | 3.07 |
| 1000 | -16.69 | -10.08 | 19.41 | 77.65 | -22.17 | -68.73 | -28.12 | -114.23 | 1.04 | 0.73 | 28.21 | 13.72 | 2.97 |
| 1100 | -16.06 | -18.11 | 19.30 | 67.74 | -22.15 | -75.38 | -28.50 | -129.36 | 1.04 | 0.72 | 28.13 | 13.77 | 3.02 |
| 1200 | -15.40 | -28.33 | 19.22 | 57.65 | -22.24 | -82.30 | -28.31 | -141.18 | 1.04 | 0.71 | 28.08 | 13.74 | 3.03 |
| 1300 | -15.04 | -37.68 | 19.11 | 47.86 | -22.19 | -89.15 | -28.32 | -154.79 | 1.05 | 0.71 | 27.96 | 13.57 | 3.02 |
| 1400 | -14.54 | -47.74 | 19.03 | 37.96 | -22.24 | -95.85 | -27.81 | -169.05 | 1.05 | 0.70 | 27.80 | 13.53 | 3.04 |
| 1500 | -14.14 | -56.14 | 18.91 | 28.04 | -22.28 | -102.78 | -27.91 | 174.12 | 1.05 | 0.69 | 27.80 | 13.56 | 2.99 |
| 1600 | -13.77 | -66.25 | 18.81 | 18.32 | -22.25 | -109.15 | -27.44 | 163.71 | 1.06 | 0.68 | 28.07 | 13.69 | 3.06 |
| 1700 | -13.52 | -76.10 | 18.68 | 8.56 | -22.33 | -115.97 | -26.91 | 152.30 | 1.06 | 0.67 | 28.32 | 13.60 | 2.97 |
| 1800 | -13.21 | -85.15 | 18.59 | -1.31 | -22.30 | -123.03 | -26.37 | 140.93 | 1.06 | 0.66 | 28.01 | 13.85 | 3.03 |
| 1900 | -12.92 | -95.53 | 18.46 | -10.98 | -22.35 | -129.91 | -26.01 | 131.24 | 1.07 | 0.65 | 27.61 | 13.67 | 2.92 |
| 2000 | -12.77 | -105.31 | 18.36 | -20.68 | -22.36 | -136.53 | -25.62 | 120.23 | 1.08 | 0.64 | 27.35 | 13.56 | 3.07 |
| 2100 | -12.54 | -115.10 | 18.25 | -30.30 | -22.42 | -142.97 | -25.17 | 109.76 | 1.08 | 0.63 | 27.14 | 13.29 | 2.99 |
| 2200 | -12.38 | -125.18 | 18.11 | -39.92 | -22.36 | -149.96 | -24.67 | 99.55 | 1.09 | 0.63 | 26.93 | 13.18 | 3.01 |
| 2300 | -12.17 | -135.32 | 18.02 | -49.41 | -22.44 | -156.62 | -24.22 | 91.26 | 1.09 | 0.62 | 26.75 | 13.09 | 2.94 |
| 2400 | -12.04 | -144.30 | 17.88 | -59.14 | -22.45 | -163.88 | -23.55 | 79.30 | 1.10 | 0.61 | 26.38 | 13.07 | 3.06 |
| 2500 | -11.86 | -153.96 | 17.74 | -68.54 | -22.47 | -170.52 | -22.96 | 68.74 | 1.11 | 0.60 | 26.02 | 13.05 | 3.05 |
| 2600 | -11.75 | -163.84 | 17.64 | -77.80 | -22.47 | -177.26 | -22.77 | 60.31 | 1.11 | 0.59 | 25.67 | 12.93 | 3.12 |
| 2700 | -11.68 | -172.99 | 17.53 | -87.37 | -22.53 | 176.16 | -22.04 | 51.16 | 1.12 | 0.58 | 25.38 | 12.85 | 3.12 |
| 2800 | -11.55 | 177.39 | 17.38 | -96.98 | -22.56 | 169.61 | -21.77 | 41.22 | 1.13 | 0.57 | 24.94 | 12.69 | 3.13 |
| 2900 | -11.48 | 167.79 | 17.26 | -106.22 | -22.54 | 163.10 | -21.42 | 34.18 | 1.14 | 0.56 | 24.66 | 12.51 | 3.10 |
| 3000 | -11.36 | 157.65 | 17.15 | -115.57 | -22.53 | 155.93 | -20.93 | 24.37 | 1.14 | 0.56 | 24.44 | 12.27 | 3.13 |

TYPE: MMIC Amplifier
MODEL: ERA-33SM Reference Data: RDF-1079C
S PARAMETERS are presented in dB/deg Format
TEST CONDITIONS: INPUT POWER = -20dBm, Icc = 32mA, Vd = 4.18V @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 | -30.65 | -16.28 | 19.61 | 174.55 | -21.67 | -3.30 | -21.44 | -6.22 | 1.03 | 0.79 | 24.95 | 11.54 | 3.05 |
| 100 | -28.01 | 12.73 | 19.56 | 169.04 | -21.83 | -8.06 | -21.63 | -8.91 | 1.03 | 0.77 | 24.60 | 11.18 | 3.12 |
| 150 | -26.13 | 17.24 | 19.56 | 164.27 | -21.83 | -10.68 | -22.05 | -16.99 | 1.03 | 0.77 | 25.18 | 11.42 | 3.02 |
| 200 | -25.26 | 20.20 | 19.52 | 159.18 | -21.76 | -14.23 | -22.39 | -20.10 | 1.03 | 0.78 | 24.79 | 11.36 | 3.00 |
| 250 | -24.90 | 19.23 | 19.49 | 154.07 | -21.81 | -18.20 | -21.70 | -24.12 | 1.03 | 0.77 | 24.39 | 11.13 | 3.02 |
| 300 | -24.11 | 23.88 | 19.45 | 148.95 | -21.82 | -20.60 | -22.21 | -30.58 | 1.03 | 0.76 | 24.88 | 11.44 | 3.05 |
| 350 | -23.36 | 19.22 | 19.45 | 143.88 | -21.78 | -24.10 | -22.18 | -36.00 | 1.03 | 0.77 | 24.67 | 11.20 | 3.10 |
| 400 | -22.68 | 15.45 | 19.43 | 138.68 | -21.78 | -27.73 | -22.29 | -42.53 | 1.03 | 0.77 | 24.68 | 11.38 | 3.03 |
| 450 | -21.93 | 15.73 | 19.41 | 133.83 | -21.93 | -31.19 | -21.91 | -45.81 | 1.04 | 0.75 | 24.33 | 11.10 | 3.04 |
| 500 | -21.42 | 14.07 | 19.39 | 128.64 | -21.82 | -35.15 | -22.17 | -52.80 | 1.03 | 0.76 | 24.67 | 11.36 | 3.10 |
| 550 | -21.07 | 11.18 | 19.34 | 123.63 | -21.84 | -38.39 | -22.14 | -58.08 | 1.04 | 0.75 | 24.41 | 11.19 | 2.99 |
| 600 | -20.36 | 9.82 | 19.32 | 118.49 | -21.87 | -41.77 | -22.16 | -64.87 | 1.04 | 0.75 | 24.53 | 11.23 | 3.06 |
| 650 | -19.63 | 5.18 | 19.30 | 113.46 | -21.87 | -44.86 | -22.13 | -70.13 | 1.04 | 0.75 | 24.26 | 11.28 | 3.06 |
| 700 | -19.19 | 2.18 | 19.26 | 108.48 | -21.85 | -48.55 | -22.46 | -75.51 | 1.04 | 0.75 | 24.73 | 11.22 | 3.06 |
| 750 | -18.67 | -2.43 | 19.24 | 103.34 | -21.90 | -51.79 | -22.69 | -81.66 | 1.04 | 0.74 | 24.15 | 11.40 | 3.09 |
| 800 | -18.11 | -4.90 | 19.23 | 98.41 | -21.90 | -55.45 | -22.77 | -86.88 | 1.04 | 0.74 | 24.74 | 10.92 | 2.95 |
| 850 | -17.86 | -9.46 | 19.20 | 93.17 | -21.90 | -59.21 | -22.92 | -92.28 | 1.04 | 0.74 | 24.29 | 11.31 | 2.95 |
| 900 | -17.53 | -11.99 | 19.16 | 88.28 | -21.89 | -62.26 | -23.19 | -98.21 | 1.04 | 0.74 | 24.67 | 11.02 | 3.06 |
| 940 | -17.02 | -15.72 | 19.11 | 84.18 | -21.93 | -64.83 | -23.03 | -102.73 | 1.04 | 0.73 | 24.57 | 10.99 | 3.03 |
| 1000 | -16.66 | -20.87 | 19.07 | 78.17 | -21.96 | -69.39 | -23.29 | -110.54 | 1.05 | 0.72 | 24.53 | 10.82 | 2.95 |
| 1100 | -16.12 | -28.24 | 18.98 | 68.32 | -22.00 | -76.23 | -23.62 | -123.43 | 1.05 | 0.71 | 24.49 | 11.07 | 3.00 |
| 1200 | -15.43 | -37.64 | 18.89 | 58.33 | -21.99 | -82.71 | -23.60 | -135.00 | 1.05 | 0.71 | 24.51 | 10.95 | 3.00 |
| 1300 | -15.08 | -46.67 | 18.78 | 48.47 | -21.98 | -90.03 | -23.72 | -147.33 | 1.05 | 0.70 | 24.44 | 10.89 | 3.00 |
| 1400 | -14.59 | -55.99 | 18.69 | 38.66 | -22.01 | -96.71 | -23.41 | -160.15 | 1.06 | 0.69 | 24.40 | 10.82 | 3.01 |
| 1500 | -14.24 | -63.80 | 18.59 | 28.76 | -22.10 | -103.50 | -23.18 | -173.42 | 1.06 | 0.68 | 24.50 | 10.76 | 2.98 |
| 1600 | -13.86 | -73.64 | 18.52 | 19.02 | -22.09 | -110.14 | -23.25 | 174.84 | 1.06 | 0.68 | 24.81 | 11.03 | 3.03 |
| 1700 | -13.58 | -83.00 | 18.40 | 9.29 | -22.11 | -116.94 | -23.00 | 163.57 | 1.07 | 0.67 | 25.09 | 10.89 | 2.96 |
| 1800 | -13.29 | -91.90 | 18.32 | -0.60 | -22.16 | -124.54 | -22.68 | 152.13 | 1.08 | 0.66 | 24.93 | 11.16 | 3.00 |
| 1900 | -12.98 | -101.93 | 18.20 | -10.20 | -22.11 | -130.57 | -22.53 | 142.18 | 1.08 | 0.65 | 24.69 | 11.04 | 2.92 |
| 2000 | -12.78 | -111.46 | 18.10 | -19.94 | -22.18 | -137.23 | -22.24 | 130.69 | 1.08 | 0.64 | 24.52 | 10.99 | 3.03 |
| 2100 | -12.60 | -120.42 | 17.98 | -29.53 | -22.23 | -144.30 | -21.92 | 120.77 | 1.09 | 0.63 | 24.46 | 10.66 | 2.99 |
| 2200 | -12.42 | -130.64 | 17.87 | -39.18 | -22.28 | -151.19 | -21.71 | 109.28 | 1.10 | 0.62 | 24.38 | 10.61 | 3.00 |
| 2300 | -12.16 | -140.29 | 17.78 | -48.72 | -22.26 | -157.66 | -21.46 | 99.93 | 1.10 | 0.62 | 24.34 | 10.55 | 2.91 |
| 2400 | -12.04 | -149.31 | 17.65 | -58.47 | -22.35 | -164.70 | -21.02 | 88.17 | 1.11 | 0.60 | 24.15 | 10.63 | 3.01 |
| 2500 | -11.85 | -158.65 | 17.53 | -67.86 | -22.29 | -170.94 | -20.65 | 77.83 | 1.11 | 0.60 | 23.98 | 10.74 | 3.05 |
| 2600 | -11.79 | -168.57 | 17.42 | -77.12 | -22.36 | -178.01 | -20.50 | 67.76 | 1.12 | 0.59 | 23.85 | 10.81 | 3.09 |
| 2700 | -11.66 | -177.44 | 17.30 | -86.73 | -22.32 | 175.05 | -20.00 | 58.49 | 1.13 | 0.58 | 23.76 | 10.90 | 3.09 |
| 2800 | -11.54 | 173.17 | 17.16 | -96.31 | -22.43 | 168.52 | -19.85 | 47.76 | 1.14 | 0.57 | 23.50 | 10.84 | 3.09 |
| 2900 | -11.46 | 163.43 | 17.05 | -105.48 | -22.46 | 161.59 | -19.51 | 40.38 | 1.15 | 0.56 | 23.29 | 10.77 | 3.05 |
| 3000 | -11.32 | 153.41 | 16.92 | -114.91 | -22.49 | 155.39 | -19.09 | 30.32 | 1.16 | 0.55 | 23.15 | 10.62 | 3.11 |

TYPE: MMIC Amplifier
MODEL: ERA-33SM Reference Data: RDF-1079C
S PARAMETERS are presented in dB/deg Format
TEST CONDITIONS: INPUT POWER = -20dBm, Icc = 48mA, Vd = 4.26V @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 | -31.77 | 179.48 | 20.19 | 174.49 | -22.19 | -0.83 | -29.14 | 3.41 | 1.02 | 0.79 | 31.35 | 16.56 | 3.09 |
| 100 | -32.78 | 133.52 | 20.15 | 168.97 | -21.89 | -6.71 | -30.56 | -9.08 | 1.02 | 0.82 | 31.02 | 16.41 | 3.19 |
| 150 | -30.55 | 102.66 | 20.17 | 164.14 | -22.37 | -10.37 | -31.00 | -17.88 | 1.03 | 0.78 | 31.76 | 16.50 | 3.08 |
| 200 | -28.50 | 87.45 | 20.14 | 159.02 | -22.15 | -13.79 | -31.99 | -13.82 | 1.03 | 0.79 | 31.30 | 16.52 | 3.00 |
| 250 | -27.32 | 80.00 | 20.10 | 153.80 | -22.23 | -17.27 | -31.06 | -19.08 | 1.03 | 0.78 | 30.76 | 16.34 | 3.05 |
| 300 | -25.39 | 73.22 | 20.07 | 148.67 | -22.29 | -20.10 | -31.88 | -26.87 | 1.03 | 0.77 | 31.43 | 16.52 | 3.13 |
| 350 | -24.85 | 66.68 | 20.06 | 143.55 | -22.15 | -23.98 | -31.56 | -34.22 | 1.03 | 0.79 | 31.24 | 16.31 | 3.12 |
| 400 | -23.99 | 59.37 | 20.02 | 138.25 | -22.29 | -27.25 | -32.38 | -39.91 | 1.03 | 0.77 | 31.14 | 16.52 | 3.04 |
| 450 | -22.57 | 54.13 | 20.01 | 133.40 | -22.29 | -31.20 | -31.23 | -41.33 | 1.03 | 0.77 | 30.77 | 16.18 | 3.05 |
| 500 | -22.03 | 49.53 | 19.98 | 128.09 | -22.33 | -34.20 | -31.68 | -51.22 | 1.03 | 0.76 | 31.06 | 16.47 | 3.17 |
| 550 | -21.43 | 44.77 | 19.92 | 123.10 | -22.25 | -38.17 | -32.40 | -56.34 | 1.03 | 0.76 | 30.81 | 16.27 | 3.04 |
| 600 | -20.54 | 39.41 | 19.89 | 117.92 | -22.23 | -41.24 | -32.29 | -67.10 | 1.03 | 0.77 | 30.92 | 16.25 | 3.07 |
| 650 | -19.90 | 31.88 | 19.87 | 112.86 | -22.27 | -44.46 | -31.89 | -68.80 | 1.03 | 0.76 | 30.62 | 16.30 | 3.07 |
| 700 | -19.35 | 27.52 | 19.83 | 107.80 | -22.32 | -47.55 | -32.93 | -78.03 | 1.03 | 0.75 | 31.12 | 16.21 | 3.14 |
| 750 | -18.80 | 22.95 | 19.81 | 102.65 | -22.26 | -50.92 | -32.84 | -84.92 | 1.03 | 0.75 | 30.48 | 16.28 | 3.14 |
| 800 | -18.15 | 18.51 | 19.76 | 97.78 | -22.27 | -54.48 | -33.46 | -90.03 | 1.03 | 0.75 | 31.08 | 15.98 | 2.96 |
| 850 | -17.84 | 12.22 | 19.72 | 92.49 | -22.29 | -57.79 | -33.68 | -95.25 | 1.03 | 0.74 | 30.59 | 16.18 | 2.95 |
| 900 | -17.46 | 8.83 | 19.69 | 87.52 | -22.30 | -61.44 | -34.50 | -103.66 | 1.03 | 0.74 | 30.97 | 15.93 | 3.10 |
| 940 | -16.97 | 3.50 | 19.64 | 83.50 | -22.28 | -63.93 | -33.85 | -109.96 | 1.03 | 0.74 | 30.81 | 15.92 | 3.09 |
| 1000 | -16.56 | -2.96 | 19.60 | 77.38 | -22.30 | -68.19 | -34.43 | -120.68 | 1.04 | 0.73 | 30.75 | 15.83 | 2.97 |
| 1100 | -15.95 | -11.88 | 19.49 | 67.43 | -22.32 | -74.91 | -34.56 | -140.81 | 1.04 | 0.72 | 30.61 | 15.88 | 3.04 |
| 1200 | -15.28 | -22.92 | 19.41 | 57.44 | -22.35 | -81.82 | -34.41 | -155.39 | 1.04 | 0.72 | 30.49 | 15.79 | 3.03 |
| 1300 | -14.96 | -32.42 | 19.30 | 47.56 | -22.40 | -88.34 | -33.98 | -170.39 | 1.04 | 0.70 | 30.26 | 15.64 | 3.05 |
| 1400 | -14.45 | -42.70 | 19.20 | 37.68 | -22.38 | -95.23 | -32.49 | 174.15 | 1.05 | 0.70 | 29.96 | 15.58 | 3.07 |
| 1500 | -14.07 | -51.61 | 19.07 | 27.73 | -22.42 | -102.33 | -31.86 | 157.15 | 1.05 | 0.69 | 29.87 | 15.56 | 3.00 |
| 1600 | -13.71 | -61.44 | 18.99 | 18.03 | -22.38 | -108.77 | -31.15 | 145.43 | 1.05 | 0.68 | 30.08 | 15.57 | 3.08 |
| 1700 | -13.46 | -71.42 | 18.87 | 8.24 | -22.36 | -115.52 | -30.32 | 135.61 | 1.05 | 0.68 | 30.28 | 15.45 | 2.98 |
| 1800 | -13.16 | -80.91 | 18.76 | -1.62 | -22.44 | -122.73 | -29.45 | 126.10 | 1.06 | 0.66 | 29.81 | 15.58 | 3.04 |
| 1900 | -12.86 | -91.25 | 18.64 | -11.27 | -22.45 | -128.99 | -29.08 | 117.06 | 1.06 | 0.65 | 29.28 | 15.43 | 2.93 |
| 2000 | -12.69 | -101.52 | 18.51 | -20.93 | -22.44 | -135.83 | -28.19 | 105.91 | 1.07 | 0.64 | 28.93 | 15.29 | 3.10 |
| 2100 | -12.53 | -111.07 | 18.40 | -30.53 | -22.45 | -142.40 | -27.70 | 98.29 | 1.07 | 0.64 | 28.62 | 15.01 | 3.00 |
| 2200 | -12.35 | -121.59 | 18.28 | -40.20 | -22.42 | -149.37 | -27.12 | 88.18 | 1.08 | 0.63 | 28.29 | 14.88 | 3.07 |
| 2300 | -12.11 | -131.75 | 18.18 | -49.65 | -22.57 | -156.02 | -26.63 | 80.23 | 1.09 | 0.61 | 28.02 | 14.66 | 2.95 |
| 2400 | -12.02 | -141.19 | 18.02 | -59.41 | -22.47 | -162.96 | -25.60 | 70.02 | 1.09 | 0.61 | 27.56 | 14.52 | 3.06 |
| 2500 | -11.85 | -150.72 | 17.88 | -68.78 | -22.51 | -169.84 | -24.89 | 60.36 | 1.10 | 0.60 | 27.11 | 14.31 | 3.10 |
| 2600 | -11.74 | -161.06 | 17.79 | -77.98 | -22.53 | -176.32 | -24.74 | 52.09 | 1.10 | 0.59 | 26.66 | 14.05 | 3.16 |
| 2700 | -11.71 | -170.10 | 17.68 | -87.67 | -22.50 | 176.79 | -23.85 | 44.02 | 1.11 | 0.59 | 26.27 | 13.80 | 3.13 |
| 2800 | -11.57 | -179.65 | 17.50 | -97.25 | -22.56 | 170.02 | -23.44 | 34.37 | 1.12 | 0.57 | 25.75 | 13.61 | 3.13 |
| 2900 | -11.52 | 170.25 | 17.39 | -106.44 | -22.65 | 163.30 | -23.02 | 28.72 | 1.13 | 0.56 | 25.42 | 13.32 | 3.10 |
| 3000 | -11.41 | 160.12 | 17.26 | -115.80 | -22.59 | 156.93 | -22.41 | 18.78 | 1.14 | 0.56 | 25.17 | 13.01 | 3.15 |

TYPE: MMIC Amplifier
MODEL: ERA-33SM Reference Data: RDF-1079C
S PARAMETERS are presented in dB/deg Format
TEST CONDITIONS: INPUT POWER = -20dBm, Icc = 40mA, Vd = 4.45V @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 | -43.58 | -159.07 | 19.99 | 174.45 | -21.83 | -2.20 | -26.55 | -10.37 | 1.02 | 0.81 | 29.17 | 14.26 | 2.72 |
| 100 | -37.63 | 86.69 | 19.97 | 168.91 | -22.10 | -6.75 | -26.49 | -9.95 | 1.03 | 0.78 | 28.83 | 13.99 | 2.77 |
| 150 | -30.93 | 60.80 | 19.98 | 164.12 | -22.10 | -10.94 | -26.79 | -20.65 | 1.03 | 0.78 | 29.54 | 14.16 | 2.63 |
| 200 | -28.43 | 56.47 | 19.95 | 158.92 | -22.25 | -13.99 | -26.97 | -21.03 | 1.03 | 0.77 | 29.14 | 14.19 | 2.54 |
| 250 | -27.42 | 54.62 | 19.93 | 153.66 | -22.01 | -17.86 | -26.53 | -24.13 | 1.03 | 0.79 | 28.77 | 13.96 | 2.58 |
| 300 | -25.88 | 56.72 | 19.89 | 148.48 | -22.00 | -20.52 | -27.23 | -28.27 | 1.03 | 0.79 | 29.31 | 14.19 | 2.60 |
| 350 | -25.18 | 49.75 | 19.89 | 143.34 | -22.04 | -24.83 | -27.32 | -35.54 | 1.03 | 0.78 | 29.13 | 13.93 | 2.62 |
| 400 | -24.30 | 43.41 | 19.84 | 138.02 | -22.12 | -28.83 | -27.98 | -42.56 | 1.03 | 0.77 | 29.14 | 14.26 | 2.55 |
| 450 | -22.85 | 40.47 | 19.83 | 133.10 | -22.04 | -31.79 | -27.02 | -46.38 | 1.03 | 0.78 | 28.79 | 13.92 | 2.62 |
| 500 | -22.19 | 36.30 | 19.81 | 127.84 | -22.01 | -35.40 | -27.58 | -54.60 | 1.03 | 0.78 | 29.13 | 14.18 | 2.63 |
| 550 | -21.55 | 33.09 | 19.75 | 122.78 | -22.04 | -38.89 | -27.62 | -58.65 | 1.03 | 0.77 | 28.89 | 13.98 | 2.52 |
| 600 | -20.74 | 29.80 | 19.74 | 117.57 | -22.06 | -42.74 | -27.76 | -68.05 | 1.03 | 0.77 | 29.05 | 14.01 | 2.53 |
| 650 | -20.02 | 23.33 | 19.72 | 112.41 | -22.11 | -45.86 | -27.74 | -72.13 | 1.03 | 0.76 | 28.74 | 14.08 | 2.54 |
| 700 | -19.40 | 19.58 | 19.66 | 107.24 | -22.08 | -49.21 | -28.35 | -78.59 | 1.03 | 0.76 | 29.29 | 13.94 | 2.58 |
| 750 | -18.90 | 15.11 | 19.63 | 102.17 | -22.14 | -53.25 | -29.07 | -85.51 | 1.03 | 0.75 | 28.64 | 14.01 | 2.62 |
| 800 | -18.21 | 12.36 | 19.61 | 97.08 | -22.07 | -56.95 | -29.45 | -90.68 | 1.03 | 0.75 | 29.34 | 13.80 | 2.45 |
| 850 | -17.94 | 6.06 | 19.57 | 91.88 | -22.16 | -59.91 | -29.25 | -96.23 | 1.04 | 0.74 | 28.82 | 14.04 | 2.41 |
| 900 | -17.52 | 2.95 | 19.54 | 86.89 | -22.09 | -63.44 | -29.70 | -104.04 | 1.03 | 0.75 | 29.26 | 13.73 | 2.55 |
| 940 | -17.05 | -1.74 | 19.50 | 82.77 | -22.11 | -66.70 | -29.26 | -111.62 | 1.03 | 0.74 | 29.15 | 13.74 | 2.53 |
| 1000 | -16.61 | -8.05 | 19.45 | 76.61 | -22.13 | -70.45 | -29.79 | -120.37 | 1.04 | 0.74 | 29.12 | 13.58 | 2.44 |
| 1100 | -15.99 | -16.71 | 19.36 | 66.55 | -22.20 | -77.87 | -30.06 | -135.40 | 1.04 | 0.72 | 29.09 | 13.80 | 2.52 |
| 1200 | -15.32 | -27.46 | 19.28 | 56.40 | -22.16 | -84.66 | -30.38 | -149.09 | 1.04 | 0.72 | 29.11 | 13.64 | 2.48 |
| 1300 | -14.97 | -36.37 | 19.17 | 46.43 | -22.14 | -91.88 | -30.49 | -164.67 | 1.04 | 0.72 | 29.02 | 13.59 | 2.51 |
| 1400 | -14.48 | -46.33 | 19.09 | 36.49 | -22.14 | -98.59 | -29.69 | 177.07 | 1.04 | 0.71 | 28.96 | 13.54 | 2.49 |
| 1500 | -14.15 | -54.83 | 18.96 | 26.45 | -22.16 | -105.72 | -29.08 | 160.35 | 1.05 | 0.70 | 29.06 | 13.55 | 2.45 |
| 1600 | -13.77 | -65.10 | 18.87 | 16.49 | -22.15 | -112.46 | -29.56 | 147.23 | 1.05 | 0.69 | 29.42 | 13.72 | 2.51 |
| 1700 | -13.50 | -74.78 | 18.75 | 6.62 | -22.26 | -119.89 | -28.69 | 134.05 | 1.06 | 0.68 | 29.73 | 13.61 | 2.43 |
| 1800 | -13.17 | -83.32 | 18.65 | -3.36 | -22.22 | -126.82 | -27.89 | 120.08 | 1.06 | 0.67 | 29.51 | 13.91 | 2.46 |
| 1900 | -12.84 | -93.95 | 18.54 | -13.09 | -22.23 | -133.72 | -27.17 | 111.23 | 1.06 | 0.66 | 29.17 | 13.75 | 2.37 |
| 2000 | -12.63 | -104.10 | 18.43 | -22.90 | -22.21 | -140.45 | -26.42 | 102.50 | 1.06 | 0.66 | 28.95 | 13.67 | 2.51 |
| 2100 | -12.42 | -113.62 | 18.31 | -32.63 | -22.29 | -148.13 | -25.74 | 93.73 | 1.07 | 0.64 | 28.82 | 13.42 | 2.46 |
| 2200 | -12.18 | -124.19 | 18.17 | -42.41 | -22.36 | -154.35 | -25.65 | 85.77 | 1.08 | 0.63 | 28.67 | 13.31 | 2.46 |
| 2300 | -12.06 | -134.34 | 18.09 | -52.02 | -22.32 | -161.80 | -24.89 | 75.67 | 1.08 | 0.63 | 28.58 | 13.19 | 2.39 |
| 2400 | -11.93 | -143.77 | 17.96 | -61.89 | -22.25 | -168.97 | -23.96 | 64.39 | 1.08 | 0.62 | 28.30 | 13.22 | 2.47 |
| 2500 | -11.70 | -153.99 | 17.82 | -71.25 | -22.32 | -175.48 | -23.48 | 57.85 | 1.09 | 0.61 | 28.02 | 13.27 | 2.42 |
| 2600 | -11.57 | -164.18 | 17.70 | -80.68 | -22.35 | 177.69 | -23.87 | 48.58 | 1.10 | 0.60 | 27.80 | 13.27 | 2.57 |
| 2700 | -11.57 | -173.09 | 17.62 | -90.59 | -22.35 | 169.89 | -22.74 | 38.51 | 1.10 | 0.60 | 27.60 | 13.34 | 2.54 |
| 2800 | -11.35 | 176.89 | 17.44 | -100.01 | -22.47 | 163.44 | -22.35 | 29.28 | 1.12 | 0.58 | 27.26 | 13.23 | 2.56 |
| 2900 | -11.29 | 167.42 | 17.34 | -109.50 | -22.46 | 156.28 | -22.15 | 22.21 | 1.12 | 0.57 | 26.96 | 13.17 | 2.50 |
| 3000 | -11.16 | 157.09 | 17.19 | -119.02 | -22.49 | 149.51 | -21.88 | 13.34 | 1.13 | 0.56 | 26.78 | 12.95 | 2.58 |

TYPE: MMIC Amplifier
MODEL: ERA-33SM Reference Data: RDF-1079C
S PARAMETERS are presented in dB/deg Format
TEST CONDITIONS: INPUT POWER = -20dBm, Icc = 32mA, Vd = 4.41V @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 | -33.20 | -20.70 | 19.67 | 174.52 | -21.44 | -0.12 | -23.08 | -7.10 | 1.02 | 0.82 | 25.14 | 11.36 | 2.68 |
| 100 | -29.24 | 13.83 | 19.63 | 169.02 | -21.77 | -6.35 | -22.35 | -10.17 | 1.03 | 0.78 | 24.75 | 10.96 | 2.71 |
| 150 | -26.60 | 20.07 | 19.66 | 164.16 | -21.84 | -10.66 | -22.55 | -17.54 | 1.03 | 0.78 | 25.35 | 11.21 | 2.58 |
| 200 | -25.48 | 22.64 | 19.62 | 159.07 | -21.94 | -15.24 | -22.90 | -22.40 | 1.03 | 0.77 | 24.98 | 11.12 | 2.55 |
| 250 | -25.32 | 23.75 | 19.60 | 153.78 | -21.83 | -17.46 | -22.37 | -25.24 | 1.03 | 0.78 | 24.66 | 10.98 | 2.56 |
| 300 | -24.40 | 26.23 | 19.57 | 148.63 | -21.82 | -21.11 | -22.95 | -30.50 | 1.03 | 0.78 | 25.09 | 11.14 | 2.56 |
| 350 | -24.01 | 22.36 | 19.57 | 143.54 | -21.82 | -24.86 | -23.00 | -36.16 | 1.03 | 0.77 | 24.90 | 11.00 | 2.58 |
| 400 | -23.07 | 19.37 | 19.54 | 138.28 | -21.79 | -28.19 | -23.17 | -42.65 | 1.03 | 0.78 | 24.95 | 11.33 | 2.55 |
| 450 | -22.08 | 19.57 | 19.53 | 133.33 | -21.87 | -31.72 | -22.84 | -46.81 | 1.03 | 0.77 | 24.62 | 10.93 | 2.61 |
| 500 | -21.63 | 16.50 | 19.51 | 128.05 | -21.83 | -35.96 | -22.99 | -53.73 | 1.03 | 0.77 | 24.99 | 11.30 | 2.58 |
| 550 | -21.21 | 14.76 | 19.47 | 123.05 | -21.88 | -39.13 | -23.19 | -58.72 | 1.03 | 0.76 | 24.74 | 11.05 | 2.48 |
| 600 | -20.60 | 13.40 | 19.44 | 117.84 | -21.86 | -42.40 | -23.27 | -66.39 | 1.03 | 0.76 | 24.88 | 11.05 | 2.52 |
| 650 | -19.82 | 8.47 | 19.42 | 112.70 | -21.84 | -46.41 | -23.26 | -70.71 | 1.03 | 0.76 | 24.61 | 11.09 | 2.54 |
| 700 | -19.34 | 5.62 | 19.37 | 107.59 | -21.82 | -49.95 | -23.72 | -76.97 | 1.03 | 0.76 | 25.10 | 10.89 | 2.54 |
| 750 | -18.87 | 1.50 | 19.31 | 102.49 | -21.90 | -53.29 | -24.02 | -83.51 | 1.04 | 0.75 | 24.50 | 11.22 | 2.56 |
| 800 | -18.22 | -0.53 | 19.31 | 97.47 | -21.92 | -56.88 | -24.37 | -88.68 | 1.04 | 0.75 | 25.14 | 10.74 | 2.43 |
| 850 | -17.96 | -6.26 | 19.28 | 92.30 | -21.83 | -60.40 | -24.37 | -94.43 | 1.04 | 0.75 | 24.67 | 11.08 | 2.42 |
| 900 | -17.61 | -8.87 | 19.24 | 87.35 | -21.88 | -64.09 | -24.75 | -100.72 | 1.04 | 0.74 | 25.08 | 10.87 | 2.54 |
| 940 | -17.08 | -12.74 | 19.22 | 83.19 | -21.91 | -66.73 | -24.54 | -106.24 | 1.04 | 0.74 | 24.98 | 10.84 | 2.49 |
| 1000 | -16.68 | -18.55 | 19.17 | 77.06 | -21.92 | -71.31 | -24.86 | -114.07 | 1.04 | 0.74 | 24.97 | 10.80 | 2.43 |
| 1100 | -16.09 | -26.26 | 19.08 | 67.03 | -21.96 | -78.03 | -25.13 | -127.48 | 1.04 | 0.72 | 24.96 | 10.91 | 2.49 |
| 1200 | -15.41 | -35.95 | 18.99 | 56.87 | -21.97 | -85.26 | -25.30 | -138.62 | 1.04 | 0.72 | 25.01 | 10.88 | 2.46 |
| 1300 | -15.09 | -44.55 | 18.90 | 46.96 | -21.95 | -92.52 | -25.35 | -152.69 | 1.05 | 0.71 | 24.96 | 10.71 | 2.47 |
| 1400 | -14.63 | -53.76 | 18.81 | 37.01 | -21.98 | -99.39 | -24.98 | -167.62 | 1.05 | 0.70 | 24.97 | 10.73 | 2.45 |
| 1500 | -14.25 | -61.94 | 18.72 | 26.91 | -22.03 | -106.53 | -24.90 | 177.45 | 1.05 | 0.69 | 25.12 | 10.75 | 2.45 |
| 1600 | -13.87 | -71.49 | 18.61 | 17.10 | -22.01 | -113.53 | -25.14 | 166.18 | 1.06 | 0.69 | 25.46 | 10.94 | 2.48 |
| 1700 | -13.59 | -81.06 | 18.49 | 7.19 | -22.07 | -120.76 | -24.80 | 152.79 | 1.06 | 0.67 | 25.76 | 10.86 | 2.43 |
| 1800 | -13.25 | -89.22 | 18.41 | -2.80 | -22.09 | -127.69 | -24.50 | 138.73 | 1.07 | 0.67 | 25.67 | 11.13 | 2.45 |
| 1900 | -12.94 | -99.51 | 18.29 | -12.52 | -22.08 | -134.63 | -24.04 | 127.96 | 1.07 | 0.66 | 25.50 | 11.05 | 2.37 |
| 2000 | -12.69 | -109.58 | 18.19 | -22.31 | -22.09 | -141.07 | -23.57 | 117.37 | 1.07 | 0.65 | 25.37 | 10.94 | 2.46 |
| 2100 | -12.49 | -118.65 | 18.09 | -32.11 | -22.18 | -148.72 | -23.06 | 107.45 | 1.08 | 0.64 | 25.36 | 10.67 | 2.42 |
| 2200 | -12.28 | -128.80 | 17.96 | -41.81 | -22.19 | -155.62 | -23.12 | 99.03 | 1.09 | 0.63 | 25.35 | 10.61 | 2.43 |
| 2300 | -12.10 | -139.09 | 17.88 | -51.42 | -22.25 | -162.59 | -22.62 | 87.81 | 1.09 | 0.62 | 25.39 | 10.50 | 2.38 |
| 2400 | -12.00 | -148.47 | 17.74 | -61.32 | -22.14 | -169.93 | -21.92 | 76.02 | 1.09 | 0.62 | 25.27 | 10.65 | 2.43 |
| 2500 | -11.77 | -158.39 | 17.63 | -70.65 | -22.29 | -176.67 | -21.56 | 67.06 | 1.10 | 0.60 | 25.18 | 10.75 | 2.42 |
| 2600 | -11.57 | -168.23 | 17.49 | -80.12 | -22.26 | 176.70 | -21.81 | 57.97 | 1.11 | 0.60 | 25.31 | 10.86 | 2.53 |
| 2700 | -11.56 | -177.33 | 17.42 | -90.06 | -22.29 | 169.35 | -20.93 | 47.30 | 1.11 | 0.59 | 25.32 | 10.99 | 2.52 |
| 2800 | -11.36 | 172.82 | 17.25 | -99.66 | -22.27 | 161.92 | -20.59 | 37.76 | 1.12 | 0.58 | 25.22 | 11.00 | 2.55 |
| 2900 | -11.32 | 163.75 | 17.14 | -108.94 | -22.38 | 155.39 | -20.43 | 29.52 | 1.13 | 0.57 | 25.06 | 11.02 | 2.48 |
| 3000 | -11.14 | 153.58 | 17.01 | -118.49 | -22.39 | 148.63 | -20.10 | 21.09 | 1.14 | 0.56 | 24.98 | 10.89 | 2.56 |

TYPE: MMIC Amplifier
MODEL: ERA-33SM Reference Data: RDF-1079C
S PARAMETERS are presented in dB/deg Format
TEST CONDITIONS: INPUT POWER = -20dBm, Icc = 48mA, Vd = 4.49V @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 | -32.88 | 172.33 | 20.18 | 174.47 | -21.93 | -2.93 | -30.49 | -11.87 | 1.02 | 0.82 | 32.02 | 16.51 | 2.76 |
| 100 | -33.35 | 133.70 | 20.15 | 168.85 | -22.50 | -5.64 | -30.27 | -9.12 | 1.04 | 0.76 | 31.72 | 16.17 | 2.81 |
| 150 | -30.71 | 96.80 | 20.16 | 163.96 | -22.19 | -9.20 | -30.37 | -19.26 | 1.03 | 0.79 | 32.53 | 16.32 | 2.65 |
| 200 | -28.82 | 81.17 | 20.14 | 158.91 | -22.07 | -14.57 | -31.43 | -21.39 | 1.02 | 0.80 | 32.16 | 16.40 | 2.57 |
| 250 | -27.34 | 78.07 | 20.10 | 153.54 | -22.07 | -17.59 | -30.55 | -19.87 | 1.02 | 0.80 | 31.70 | 16.22 | 2.58 |
| 300 | -25.47 | 74.18 | 20.06 | 148.39 | -22.26 | -21.09 | -32.13 | -24.63 | 1.03 | 0.78 | 32.38 | 16.44 | 2.64 |
| 350 | -24.84 | 67.35 | 20.07 | 143.20 | -22.20 | -25.30 | -31.87 | -33.69 | 1.03 | 0.78 | 32.18 | 16.14 | 2.65 |
| 400 | -24.15 | 59.08 | 20.03 | 137.94 | -22.19 | -28.59 | -32.72 | -40.36 | 1.03 | 0.78 | 32.19 | 16.43 | 2.56 |
| 450 | -22.64 | 53.45 | 20.01 | 133.02 | -22.29 | -31.21 | -31.43 | -42.09 | 1.03 | 0.77 | 31.81 | 16.09 | 2.62 |
| 500 | -21.90 | 49.05 | 20.00 | 127.73 | -22.25 | -35.01 | -31.97 | -54.13 | 1.03 | 0.77 | 32.20 | 16.32 | 2.66 |
| 550 | -21.35 | 44.30 | 19.95 | 122.61 | -22.26 | -38.57 | -32.61 | -59.27 | 1.03 | 0.77 | 31.94 | 16.19 | 2.55 |
| 600 | -20.53 | 39.87 | 19.91 | 117.38 | -22.28 | -42.18 | -32.85 | -69.05 | 1.03 | 0.76 | 32.11 | 16.16 | 2.56 |
| 650 | -19.88 | 32.80 | 19.90 | 112.19 | -22.25 | -45.46 | -32.59 | -72.15 | 1.03 | 0.76 | 31.76 | 16.17 | 2.55 |
| 700 | -19.26 | 28.20 | 19.86 | 107.08 | -22.19 | -49.09 | -34.10 | -81.02 | 1.03 | 0.77 | 32.41 | 16.09 | 2.61 |
| 750 | -18.74 | 23.45 | 19.82 | 101.97 | -22.23 | -52.73 | -34.31 | -87.73 | 1.03 | 0.76 | 31.68 | 16.23 | 2.63 |
| 800 | -17.99 | 19.07 | 19.78 | 96.89 | -22.18 | -55.62 | -35.90 | -94.38 | 1.03 | 0.76 | 32.43 | 15.92 | 2.47 |
| 850 | -17.81 | 12.81 | 19.74 | 91.72 | -22.25 | -59.54 | -35.49 | -102.26 | 1.03 | 0.75 | 31.87 | 16.13 | 2.44 |
| 900 | -17.39 | 9.17 | 19.71 | 86.77 | -22.21 | -62.93 | -36.72 | -111.48 | 1.03 | 0.75 | 32.35 | 15.86 | 2.57 |
| 940 | -16.92 | 4.25 | 19.66 | 82.54 | -22.22 | -65.97 | -36.01 | -121.03 | 1.03 | 0.75 | 32.17 | 15.89 | 2.55 |
| 1000 | -16.51 | -2.70 | 19.61 | 76.42 | -22.25 | -69.72 | -36.18 | -133.75 | 1.03 | 0.74 | 32.14 | 15.83 | 2.46 |
| 1100 | -15.87 | -11.75 | 19.52 | 66.28 | -22.23 | -77.34 | -36.29 | -155.43 | 1.03 | 0.73 | 32.09 | 15.85 | 2.55 |
| 1200 | -15.19 | -22.52 | 19.43 | 56.11 | -22.29 | -84.35 | -36.42 | -167.66 | 1.04 | 0.72 | 32.04 | 15.80 | 2.52 |
| 1300 | -14.86 | -32.01 | 19.32 | 46.18 | -22.32 | -91.15 | -35.79 | 170.74 | 1.04 | 0.71 | 31.88 | 15.66 | 2.53 |
| 1400 | -14.43 | -41.94 | 19.24 | 36.29 | -22.28 | -98.24 | -33.60 | 153.89 | 1.04 | 0.71 | 31.69 | 15.63 | 2.51 |
| 1500 | -14.04 | -50.89 | 19.12 | 26.26 | -22.30 | -105.29 | -32.24 | 135.83 | 1.04 | 0.70 | 31.71 | 15.64 | 2.47 |
| 1600 | -13.67 | -61.16 | 19.03 | 16.33 | -22.29 | -112.10 | -32.31 | 124.98 | 1.04 | 0.69 | 32.07 | 15.71 | 2.55 |
| 1700 | -13.39 | -71.02 | 18.90 | 6.48 | -22.31 | -119.23 | -31.20 | 111.35 | 1.05 | 0.68 | 32.36 | 15.60 | 2.45 |
| 1800 | -13.06 | -80.09 | 18.81 | -3.60 | -22.36 | -125.92 | -29.80 | 100.68 | 1.05 | 0.67 | 31.96 | 15.77 | 2.52 |
| 1900 | -12.77 | -90.88 | 18.69 | -13.32 | -22.35 | -133.20 | -29.02 | 93.65 | 1.06 | 0.66 | 31.43 | 15.66 | 2.39 |
| 2000 | -12.53 | -101.11 | 18.57 | -23.09 | -22.30 | -140.20 | -28.17 | 86.06 | 1.06 | 0.66 | 31.08 | 15.55 | 2.54 |
| 2100 | -12.36 | -110.73 | 18.45 | -32.86 | -22.30 | -147.37 | -27.56 | 78.51 | 1.06 | 0.65 | 30.82 | 15.27 | 2.47 |
| 2200 | -12.18 | -121.19 | 18.30 | -42.58 | -22.37 | -154.12 | -27.64 | 71.86 | 1.07 | 0.64 | 30.53 | 15.16 | 2.49 |
| 2300 | -12.03 | -131.62 | 18.23 | -52.18 | -22.34 | -161.18 | -26.87 | 63.60 | 1.07 | 0.63 | 30.31 | 14.97 | 2.41 |
| 2400 | -11.94 | -141.32 | 18.10 | -62.03 | -22.35 | -167.93 | -25.54 | 53.69 | 1.08 | 0.62 | 29.90 | 14.94 | 2.50 |
| 2500 | -11.67 | -151.55 | 17.96 | -71.49 | -22.48 | -175.33 | -25.09 | 47.91 | 1.09 | 0.61 | 29.45 | 14.86 | 2.46 |
| 2600 | -11.54 | -161.57 | 17.82 | -80.86 | -22.51 | 177.83 | -25.56 | 39.03 | 1.10 | 0.59 | 28.86 | 14.72 | 2.62 |
| 2700 | -11.54 | -170.83 | 17.73 | -90.74 | -22.39 | 170.94 | -24.10 | 30.37 | 1.10 | 0.60 | 28.52 | 14.61 | 2.56 |
| 2800 | -11.31 | 179.34 | 17.57 | -100.15 | -22.53 | 164.32 | -23.63 | 21.84 | 1.11 | 0.58 | 28.07 | 14.42 | 2.59 |
| 2900 | -11.29 | 169.79 | 17.45 | -109.62 | -22.51 | 156.89 | -23.54 | 15.18 | 1.12 | 0.57 | 27.74 | 14.22 | 2.53 |
| 3000 | -11.15 | 159.68 | 17.31 | -119.17 | -22.55 | 150.26 | -23.18 | 7.46 | 1.13 | 0.56 | 27.51 | 13.92 | 2.62 |

TYPE: MMIC Amplifier
MODEL: ERA-33SM Reference Data: RDF-1079C
S PARAMETERS are presented in dB/deg Format
TEST CONDITIONS: INPUT POWER = -20dBm, Icc = 40mA, Vd = 4.04V @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 | -37.10 | -15.90 | 19.86 | 174.51 | -21.96 | -0.51 | -23.45 | -5.96 | 1.03 | 0.79 | 28.54 | 14.63 | 3.44 |
| 100 | -33.91 | 44.10 | 19.84 | 168.88 | -21.88 | -7.20 | -24.34 | -8.56 | 1.03 | 0.79 | 28.24 | 14.29 | 3.57 |
| 150 | -30.14 | 48.34 | 19.84 | 164.00 | -22.06 | -11.62 | -24.69 | -14.01 | 1.03 | 0.78 | 28.86 | 14.46 | 3.50 |
| 200 | -28.12 | 45.82 | 19.81 | 159.00 | -21.80 | -12.89 | -25.32 | -19.27 | 1.02 | 0.80 | 28.42 | 14.55 | 3.43 |
| 250 | -26.73 | 46.45 | 19.77 | 153.71 | -22.03 | -16.89 | -24.52 | -23.78 | 1.03 | 0.77 | 27.90 | 14.28 | 3.46 |
| 300 | -25.35 | 44.99 | 19.73 | 148.69 | -22.07 | -20.45 | -24.99 | -30.29 | 1.03 | 0.76 | 28.57 | 14.47 | 3.54 |
| 350 | -24.45 | 38.77 | 19.73 | 143.61 | -22.05 | -24.77 | -24.77 | -36.54 | 1.03 | 0.77 | 28.32 | 14.29 | 3.55 |
| 400 | -23.42 | 33.46 | 19.69 | 138.35 | -22.04 | -27.40 | -24.77 | -42.93 | 1.03 | 0.77 | 28.27 | 14.60 | 3.49 |
| 450 | -22.18 | 31.31 | 19.67 | 133.52 | -22.09 | -31.12 | -24.46 | -47.22 | 1.03 | 0.76 | 27.88 | 14.12 | 3.51 |
| 500 | -21.65 | 27.45 | 19.66 | 128.33 | -22.04 | -34.52 | -24.44 | -54.30 | 1.03 | 0.76 | 28.16 | 14.50 | 3.59 |
| 550 | -21.10 | 23.80 | 19.59 | 123.31 | -22.09 | -37.42 | -24.80 | -59.75 | 1.04 | 0.75 | 27.89 | 14.30 | 3.47 |
| 600 | -20.40 | 21.06 | 19.58 | 118.13 | -22.03 | -40.73 | -24.76 | -66.88 | 1.03 | 0.76 | 28.00 | 14.22 | 3.49 |
| 650 | -19.64 | 15.08 | 19.55 | 113.01 | -22.01 | -43.76 | -24.69 | -70.37 | 1.03 | 0.76 | 27.72 | 14.32 | 3.51 |
| 700 | -19.15 | 11.09 | 19.50 | 108.01 | -22.05 | -47.31 | -25.02 | -77.31 | 1.04 | 0.75 | 28.14 | 14.13 | 3.54 |
| 750 | -18.59 | 7.70 | 19.43 | 103.02 | -22.14 | -50.72 | -25.32 | -82.94 | 1.04 | 0.74 | 27.57 | 14.32 | 3.59 |
| 800 | -18.00 | 5.03 | 19.43 | 97.96 | -22.07 | -54.57 | -25.72 | -87.39 | 1.04 | 0.74 | 28.13 | 13.98 | 3.41 |
| 850 | -17.72 | -1.52 | 19.39 | 92.85 | -22.11 | -57.46 | -25.57 | -93.47 | 1.04 | 0.74 | 27.68 | 14.21 | 3.38 |
| 900 | -17.34 | -4.31 | 19.35 | 87.96 | -22.08 | -61.05 | -25.91 | -99.69 | 1.04 | 0.73 | 28.05 | 13.95 | 3.55 |
| 940 | -16.84 | -8.66 | 19.32 | 83.85 | -22.15 | -63.88 | -25.46 | -105.65 | 1.04 | 0.73 | 27.91 | 13.94 | 3.52 |
| 1000 | -16.43 | -14.71 | 19.28 | 77.77 | -22.14 | -67.90 | -25.62 | -112.91 | 1.04 | 0.72 | 27.84 | 13.85 | 3.42 |
| 1100 | -15.87 | -23.05 | 19.17 | 67.83 | -22.16 | -74.52 | -25.66 | -125.42 | 1.05 | 0.71 | 27.71 | 13.91 | 3.50 |
| 1200 | -15.15 | -33.04 | 19.07 | 57.85 | -22.18 | -81.28 | -25.41 | -136.44 | 1.05 | 0.71 | 27.64 | 13.85 | 3.50 |
| 1300 | -14.86 | -42.52 | 18.97 | 48.02 | -22.20 | -87.93 | -25.36 | -147.92 | 1.05 | 0.70 | 27.48 | 13.63 | 3.45 |
| 1400 | -14.34 | -52.75 | 18.88 | 38.19 | -22.20 | -94.66 | -24.85 | -160.79 | 1.06 | 0.69 | 27.24 | 13.61 | 3.51 |
| 1500 | -13.95 | -61.62 | 18.76 | 28.30 | -22.22 | -101.47 | -24.62 | -175.80 | 1.06 | 0.68 | 27.20 | 13.65 | 3.46 |
| 1600 | -13.54 | -70.89 | 18.64 | 18.56 | -22.26 | -107.77 | -24.70 | 173.51 | 1.06 | 0.67 | 27.45 | 13.73 | 3.52 |
| 1700 | -13.25 | -80.61 | 18.52 | 8.85 | -22.28 | -114.28 | -24.30 | 162.20 | 1.07 | 0.66 | 27.70 | 13.57 | 3.47 |
| 1800 | -12.97 | -89.36 | 18.43 | -1.07 | -22.33 | -121.24 | -24.06 | 150.85 | 1.07 | 0.65 | 27.32 | 13.76 | 3.48 |
| 1900 | -12.66 | -99.48 | 18.30 | -10.55 | -22.39 | -127.81 | -23.93 | 141.29 | 1.08 | 0.64 | 26.85 | 13.60 | 3.42 |
| 2000 | -12.51 | -109.09 | 18.20 | -20.27 | -22.38 | -134.48 | -23.71 | 129.90 | 1.08 | 0.63 | 26.58 | 13.48 | 3.55 |
| 2100 | -12.40 | -118.58 | 18.08 | -29.91 | -22.41 | -141.14 | -23.42 | 119.48 | 1.09 | 0.62 | 26.35 | 13.21 | 3.45 |
| 2200 | -12.14 | -128.91 | 17.93 | -39.53 | -22.45 | -147.62 | -23.22 | 110.55 | 1.10 | 0.61 | 26.13 | 13.07 | 3.49 |
| 2300 | -11.94 | -138.76 | 17.85 | -49.03 | -22.46 | -154.13 | -22.57 | 98.90 | 1.10 | 0.61 | 25.93 | 12.94 | 3.42 |
| 2400 | -11.86 | -147.42 | 17.71 | -58.65 | -22.48 | -161.34 | -21.90 | 85.81 | 1.11 | 0.60 | 25.51 | 12.85 | 3.53 |
| 2500 | -11.62 | -156.88 | 17.58 | -67.92 | -22.47 | -167.66 | -21.37 | 77.04 | 1.12 | 0.59 | 25.13 | 12.76 | 3.47 |
| 2600 | -11.55 | -166.72 | 17.44 | -77.23 | -22.53 | -174.21 | -21.50 | 68.02 | 1.13 | 0.58 | 24.76 | 12.53 | 3.58 |
| 2700 | -11.63 | -175.64 | 17.34 | -87.02 | -22.46 | 178.96 | -20.72 | 56.42 | 1.13 | 0.58 | 24.43 | 12.38 | 3.61 |
| 2800 | -11.41 | 174.27 | 17.17 | -96.23 | -22.56 | 172.41 | -20.40 | 48.86 | 1.14 | 0.56 | 23.96 | 12.17 | 3.58 |
| 2900 | -11.39 | 164.81 | 17.06 | -105.59 | -22.59 | 165.83 | -20.20 | 40.27 | 1.15 | 0.55 | 23.65 | 11.96 | 3.56 |
| 3000 | -11.25 | 154.81 | 16.93 | -115.15 | -22.61 | 159.18 | -19.89 | 29.54 | 1.16 | 0.54 | 23.44 | 11.67 | 3.58 |

TYPE: MMIC Amplifier
MODEL: ERA-33SM Reference Data: RDF-1079C
S PARAMETERS are presented in dB/deg Format
TEST CONDITIONS: INPUT POWER = -20dBm, Icc = 32mA, Vd = 4V @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 | -25.59 | -12.70 | 19.45 | 174.56 | -21.42 | -1.60 | -19.97 | -4.03 | 1.02 | 0.80 | 25.07 | 11.71 | 3.43 |
| 100 | -25.79 | 9.57 | 19.42 | 168.99 | -21.44 | -7.63 | -20.23 | -9.03 | 1.02 | 0.80 | 24.74 | 11.40 | 3.53 |
| 150 | -24.92 | 13.05 | 19.42 | 164.26 | -21.54 | -10.96 | -20.57 | -15.60 | 1.03 | 0.79 | 25.33 | 11.52 | 3.46 |
| 200 | -23.93 | 14.86 | 19.37 | 159.23 | -21.81 | -14.39 | -20.73 | -19.58 | 1.04 | 0.76 | 24.91 | 11.65 | 3.44 |
| 250 | -23.71 | 12.96 | 19.35 | 154.03 | -21.73 | -17.78 | -20.48 | -24.51 | 1.03 | 0.77 | 24.42 | 11.43 | 3.45 |
| 300 | -23.09 | 15.93 | 19.30 | 148.92 | -21.76 | -20.31 | -20.68 | -30.63 | 1.04 | 0.76 | 24.99 | 11.60 | 3.48 |
| 350 | -22.40 | 12.55 | 19.29 | 143.90 | -21.63 | -24.08 | -20.54 | -36.94 | 1.03 | 0.77 | 24.79 | 11.44 | 3.53 |
| 400 | -21.65 | 9.16 | 19.26 | 138.74 | -21.66 | -27.64 | -20.64 | -42.76 | 1.03 | 0.76 | 24.76 | 11.62 | 3.48 |
| 450 | -20.90 | 10.39 | 19.24 | 133.88 | -21.78 | -31.17 | -20.35 | -47.60 | 1.04 | 0.75 | 24.38 | 11.22 | 3.50 |
| 500 | -20.57 | 7.64 | 19.21 | 128.68 | -21.84 | -34.68 | -20.52 | -54.07 | 1.04 | 0.75 | 24.70 | 11.66 | 3.55 |
| 550 | -20.21 | 5.17 | 19.19 | 123.73 | -21.83 | -38.30 | -20.66 | -59.13 | 1.04 | 0.74 | 24.43 | 11.46 | 3.45 |
| 600 | -19.77 | 3.63 | 19.15 | 118.55 | -21.84 | -40.89 | -20.65 | -65.38 | 1.04 | 0.74 | 24.55 | 11.51 | 3.49 |
| 650 | -19.09 | -0.87 | 19.13 | 113.48 | -21.80 | -44.48 | -20.62 | -70.13 | 1.04 | 0.74 | 24.28 | 11.42 | 3.49 |
| 700 | -18.64 | -3.76 | 19.08 | 108.55 | -21.80 | -47.89 | -20.84 | -76.07 | 1.04 | 0.74 | 24.72 | 11.31 | 3.50 |
| 750 | -18.17 | -9.06 | 19.07 | 103.44 | -21.82 | -51.57 | -21.00 | -81.84 | 1.04 | 0.74 | 24.14 | 11.50 | 3.54 |
| 800 | -17.67 | -10.06 | 19.05 | 98.48 | -21.84 | -54.76 | -21.38 | -86.90 | 1.04 | 0.73 | 24.72 | 11.21 | 3.41 |
| 850 | -17.35 | -15.43 | 19.02 | 93.41 | -21.85 | -58.50 | -21.36 | -92.15 | 1.04 | 0.73 | 24.29 | 11.33 | 3.38 |
| 900 | -17.12 | -17.74 | 18.99 | 88.46 | -21.88 | -61.72 | -21.49 | -97.90 | 1.05 | 0.73 | 24.65 | 11.16 | 3.51 |
| 940 | -16.66 | -21.11 | 18.95 | 84.43 | -21.86 | -64.55 | -21.29 | -103.14 | 1.05 | 0.73 | 24.54 | 11.13 | 3.47 |
| 1000 | -16.23 | -26.50 | 18.91 | 78.33 | -21.86 | -68.40 | -21.45 | -110.24 | 1.05 | 0.72 | 24.49 | 11.10 | 3.40 |
| 1100 | -15.73 | -33.94 | 18.82 | 68.48 | -21.95 | -75.35 | -21.45 | -122.18 | 1.05 | 0.71 | 24.42 | 11.12 | 3.47 |
| 1200 | -15.09 | -43.18 | 18.73 | 58.51 | -21.99 | -82.02 | -21.25 | -132.80 | 1.06 | 0.70 | 24.41 | 11.15 | 3.45 |
| 1300 | -14.77 | -52.43 | 18.62 | 48.72 | -22.01 | -88.70 | -21.26 | -143.92 | 1.06 | 0.69 | 24.33 | 10.93 | 3.43 |
| 1400 | -14.27 | -61.38 | 18.52 | 38.97 | -22.00 | -95.46 | -20.99 | -156.26 | 1.06 | 0.69 | 24.22 | 10.89 | 3.47 |
| 1500 | -13.92 | -69.21 | 18.41 | 29.09 | -22.00 | -102.24 | -20.91 | -169.18 | 1.07 | 0.68 | 24.29 | 10.86 | 3.45 |
| 1600 | -13.48 | -78.97 | 18.34 | 19.35 | -22.05 | -108.55 | -21.00 | -179.76 | 1.07 | 0.67 | 24.55 | 11.15 | 3.49 |
| 1700 | -13.25 | -88.27 | 18.23 | 9.62 | -22.17 | -115.72 | -20.86 | 169.03 | 1.08 | 0.65 | 24.85 | 10.99 | 3.48 |
| 1800 | -12.96 | -96.59 | 18.13 | -0.20 | -22.05 | -122.57 | -20.70 | 158.02 | 1.08 | 0.66 | 24.62 | 11.28 | 3.43 |
| 1900 | -12.61 | -106.18 | 18.01 | -9.88 | -22.12 | -129.03 | -20.56 | 147.75 | 1.09 | 0.64 | 24.31 | 11.13 | 3.40 |
| 2000 | -12.48 | -115.41 | 17.90 | -19.42 | -22.17 | -135.65 | -20.58 | 136.64 | 1.09 | 0.63 | 24.11 | 10.96 | 3.49 |
| 2100 | -12.39 | -124.45 | 17.81 | -29.04 | -22.24 | -142.01 | -20.39 | 125.75 | 1.10 | 0.62 | 24.00 | 10.82 | 3.45 |
| 2200 | -12.10 | -134.38 | 17.67 | -38.65 | -22.23 | -148.77 | -20.26 | 116.73 | 1.11 | 0.62 | 23.92 | 10.58 | 3.46 |
| 2300 | -11.88 | -144.20 | 17.60 | -48.23 | -22.23 | -155.36 | -19.88 | 105.44 | 1.11 | 0.61 | 23.83 | 10.58 | 3.40 |
| 2400 | -11.81 | -152.62 | 17.46 | -57.95 | -22.25 | -162.44 | -19.41 | 92.95 | 1.12 | 0.60 | 23.56 | 10.68 | 3.48 |
| 2500 | -11.63 | -161.67 | 17.31 | -67.20 | -22.36 | -168.54 | -19.08 | 83.48 | 1.13 | 0.59 | 23.33 | 10.76 | 3.45 |
| 2600 | -11.50 | -171.37 | 17.20 | -76.41 | -22.41 | -175.44 | -19.15 | 74.17 | 1.14 | 0.58 | 23.22 | 10.72 | 3.55 |
| 2700 | -11.55 | 179.51 | 17.12 | -86.22 | -22.33 | 177.91 | -18.56 | 62.24 | 1.14 | 0.58 | 23.04 | 10.73 | 3.58 |
| 2800 | -11.31 | 169.74 | 16.94 | -95.58 | -22.45 | 171.64 | -18.29 | 54.22 | 1.15 | 0.56 | 22.70 | 10.66 | 3.53 |
| 2900 | -11.32 | 160.29 | 16.83 | -104.97 | -22.48 | 165.08 | -18.16 | 45.17 | 1.16 | 0.55 | 22.45 | 10.57 | 3.54 |
| 3000 | -11.20 | 150.62 | 16.70 | -114.30 | -22.48 | 158.27 | -17.96 | 34.57 | 1.17 | 0.54 | 22.31 | 10.34 | 3.56 |

TYPE: MMIC Amplifier
MODEL: ERA-33SM Reference Data: RDF-1079C
S PARAMETERS are presented in dB/deg Format
TEST CONDITIONS: INPUT POWER = -20dBm, Icc = 48mA, Vd = 4.08V @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 | -39.46 | -175.78 | 20.13 | 174.46 | -22.40 | -2.21 | -27.24 | -1.19 | 1.03 | 0.77 | 31.03 | 16.56 | 3.49 |
| 100 | -34.66 | 109.76 | 20.07 | 168.93 | -22.24 | -7.20 | -27.96 | -9.20 | 1.03 | 0.78 | 30.70 | 16.45 | 3.64 |
| 150 | -30.63 | 88.53 | 20.09 | 164.15 | -21.95 | -10.27 | -29.35 | -16.97 | 1.02 | 0.81 | 31.45 | 16.53 | 3.51 |
| 200 | -28.86 | 77.30 | 20.06 | 158.99 | -22.14 | -13.29 | -30.29 | -14.57 | 1.03 | 0.79 | 30.98 | 16.55 | 3.44 |
| 250 | -27.43 | 72.23 | 20.02 | 153.69 | -22.17 | -16.33 | -28.74 | -20.05 | 1.03 | 0.78 | 30.37 | 16.32 | 3.49 |
| 300 | -25.58 | 66.18 | 19.98 | 148.59 | -22.18 | -20.60 | -29.40 | -27.90 | 1.03 | 0.78 | 31.10 | 16.52 | 3.59 |
| 350 | -24.72 | 58.16 | 19.98 | 143.50 | -22.18 | -23.97 | -29.12 | -36.10 | 1.03 | 0.78 | 30.86 | 16.39 | 3.59 |
| 400 | -23.67 | 50.63 | 19.92 | 138.20 | -22.27 | -27.36 | -29.35 | -42.21 | 1.03 | 0.76 | 30.77 | 16.53 | 3.50 |
| 450 | -22.32 | 47.04 | 19.91 | 133.27 | -22.20 | -31.03 | -28.47 | -45.65 | 1.03 | 0.77 | 30.37 | 16.27 | 3.53 |
| 500 | -21.76 | 42.30 | 19.88 | 128.05 | -22.28 | -33.90 | -28.50 | -55.17 | 1.03 | 0.76 | 30.62 | 16.46 | 3.64 |
| 550 | -21.15 | 37.45 | 19.83 | 123.19 | -22.29 | -37.16 | -29.12 | -58.97 | 1.04 | 0.75 | 30.35 | 16.29 | 3.52 |
| 600 | -20.34 | 33.09 | 19.81 | 117.97 | -22.28 | -40.57 | -28.95 | -67.30 | 1.03 | 0.75 | 30.44 | 16.32 | 3.53 |
| 650 | -19.66 | 26.67 | 19.78 | 112.86 | -22.26 | -43.70 | -28.75 | -71.18 | 1.03 | 0.75 | 30.14 | 16.24 | 3.53 |
| 700 | -19.11 | 22.16 | 19.73 | 107.83 | -22.32 | -47.22 | -29.25 | -78.81 | 1.04 | 0.74 | 30.56 | 16.23 | 3.59 |
| 750 | -18.64 | 17.09 | 19.69 | 102.77 | -22.29 | -50.18 | -29.62 | -82.85 | 1.04 | 0.74 | 29.97 | 16.27 | 3.64 |
| 800 | -17.92 | 14.22 | 19.66 | 97.73 | -22.33 | -53.17 | -30.17 | -88.38 | 1.04 | 0.74 | 30.52 | 16.02 | 3.44 |
| 850 | -17.66 | 7.25 | 19.63 | 92.53 | -22.32 | -57.10 | -29.71 | -93.95 | 1.04 | 0.74 | 30.05 | 16.17 | 3.40 |
| 900 | -17.29 | 4.03 | 19.58 | 87.65 | -22.23 | -60.84 | -30.25 | -101.96 | 1.04 | 0.74 | 30.40 | 15.94 | 3.57 |
| 940 | -16.83 | -0.74 | 19.54 | 83.57 | -22.30 | -63.25 | -29.90 | -108.09 | 1.04 | 0.73 | 30.24 | 15.95 | 3.57 |
| 1000 | -16.41 | -7.37 | 19.49 | 77.52 | -22.28 | -67.37 | -30.09 | -117.42 | 1.04 | 0.73 | 30.16 | 15.82 | 3.44 |
| 1100 | -15.77 | -16.31 | 19.39 | 67.59 | -22.29 | -73.73 | -30.35 | -131.75 | 1.04 | 0.72 | 29.96 | 15.91 | 3.52 |
| 1200 | -15.12 | -27.24 | 19.29 | 57.49 | -22.32 | -80.55 | -29.93 | -142.40 | 1.04 | 0.71 | 29.78 | 15.69 | 3.52 |
| 1300 | -14.81 | -37.17 | 19.17 | 47.67 | -22.34 | -87.47 | -29.78 | -153.73 | 1.05 | 0.70 | 29.53 | 15.61 | 3.50 |
| 1400 | -14.32 | -47.66 | 19.07 | 37.83 | -22.35 | -93.95 | -28.66 | -168.34 | 1.05 | 0.69 | 29.18 | 15.53 | 3.56 |
| 1500 | -13.93 | -56.67 | 18.95 | 27.96 | -22.39 | -100.34 | -27.87 | 176.00 | 1.06 | 0.68 | 29.02 | 15.46 | 3.47 |
| 1600 | -13.47 | -66.18 | 18.86 | 18.22 | -22.41 | -107.28 | -27.98 | 165.37 | 1.06 | 0.67 | 29.23 | 15.45 | 3.57 |
| 1700 | -13.26 | -76.16 | 18.72 | 8.55 | -22.44 | -114.19 | -27.37 | 153.80 | 1.06 | 0.66 | 29.38 | 15.31 | 3.51 |
| 1800 | -12.94 | -85.20 | 18.62 | -1.39 | -22.44 | -120.49 | -26.93 | 143.83 | 1.07 | 0.65 | 28.89 | 15.37 | 3.52 |
| 1900 | -12.69 | -95.30 | 18.50 | -11.00 | -22.48 | -127.03 | -26.47 | 133.36 | 1.07 | 0.64 | 28.35 | 15.20 | 3.44 |
| 2000 | -12.54 | -105.18 | 18.38 | -20.65 | -22.46 | -134.19 | -26.21 | 122.09 | 1.08 | 0.64 | 27.97 | 15.07 | 3.56 |
| 2100 | -12.40 | -114.80 | 18.26 | -30.22 | -22.49 | -139.96 | -25.75 | 111.95 | 1.08 | 0.63 | 27.64 | 14.77 | 3.51 |
| 2200 | -12.17 | -125.44 | 18.11 | -39.83 | -22.56 | -146.58 | -25.55 | 103.68 | 1.09 | 0.61 | 27.35 | 14.63 | 3.56 |
| 2300 | -12.00 | -135.28 | 18.04 | -49.33 | -22.51 | -154.02 | -24.69 | 92.95 | 1.09 | 0.61 | 27.06 | 14.32 | 3.42 |
| 2400 | -11.88 | -144.16 | 17.88 | -59.08 | -22.51 | -160.12 | -23.76 | 78.81 | 1.10 | 0.60 | 26.61 | 14.08 | 3.55 |
| 2500 | -11.70 | -153.67 | 17.74 | -68.23 | -22.58 | -166.85 | -23.27 | 71.21 | 1.11 | 0.59 | 26.12 | 13.80 | 3.49 |
| 2600 | -11.58 | -163.53 | 17.60 | -77.43 | -22.64 | -173.73 | -23.39 | 62.30 | 1.12 | 0.58 | 25.74 | 13.43 | 3.63 |
| 2700 | -11.65 | -172.92 | 17.51 | -87.31 | -22.61 | 179.70 | -22.48 | 50.73 | 1.13 | 0.57 | 25.34 | 13.20 | 3.62 |
| 2800 | -11.44 | 177.09 | 17.34 | -96.60 | -22.69 | 173.42 | -22.07 | 44.18 | 1.14 | 0.56 | 24.81 | 12.98 | 3.63 |
| 2900 | -11.47 | 167.65 | 17.21 | -105.91 | -22.59 | 166.53 | -21.81 | 35.83 | 1.14 | 0.56 | 24.47 | 12.69 | 3.62 |
| 3000 | -11.32 | 157.65 | 17.07 | -115.34 | -22.69 | 159.90 | -21.32 | 26.32 | 1.16 | 0.54 | 24.24 | 12.36 | 3.63 |