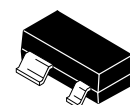


The RF Line
NPN Silicon
High-Frequency Transistor

MRF5811LT1

$I_C = 200$ mA
LOW NOISE
HIGH-FREQUENCY
TRANSISTOR
NPN SILICON

- Designed for high current, low power amplifiers up to 1.0 GHz.
- Low Noise (2.0 dB @ 500 MHz)
 - Low Intermodulation Distortion
 - High Gain
 - State-of-the-Art Technology
 - Fine Line Geometry
 - Arsenic Emitters
 - Gold Top Metallization
 - Nichrome Thin-Film Ballasting Resistors
 - Excellent Dynamic Range
 - Fully Characterized
 - High Current-Gain Bandwidth Product
 - Available in Tape and Reel by Adding T1 Suffix to Part Number.
T1 Suffix = 3,000 Units per 8 mm, 7 inch Reel.



CASE 318A-05, STYLE 1

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|-----------------|--------------|------------------|
| Collector-Emitter Voltage | V_{CEO} | 18 | Vdc |
| Collector-Base Voltage | V_{CBO} | 36 | Vdc |
| Emitter-Base Voltage | V_{EBO} | 2.5 | Vdc |
| Collector Current — Continuous | I_C | 200 | mA _{dc} |
| Thermal Resistance θ_{JC} (1) | $R_{\theta JC}$ | 106 | °C/W |
| Total Device Dissipation @ $T_C = 75^\circ\text{C}$ Derate above $T_C = 75^\circ\text{C}$ | P_D | 0.71 9.4 | Watts mW/°C |
| Storage Junction Temperature Range | T_{stg} | - 55 to +150 | °C |
| Maximum Junction Temperature | T_{Jmax} | 150 | °C |

DEVICE MARKING

MRF5811L = 20

NOTES:

1. Case temperature measured on collector lead immediately adjacent to body of package.

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|---------------|-----|-----|-----|-----------------|
| OFF CHARACTERISTICS | | | | | |
| Collector–Emitter Breakdown Voltage ($I_C = 5.0\text{ mAdc}$, $I_B = 0$) | $V_{(BR)CEO}$ | 18 | — | — | Vdc |
| Collector–Base Breakdown Voltage ($I_C = 1.0\text{ mAdc}$, $I_E = 0$) | $V_{(BR)CBO}$ | 36 | — | — | Vdc |
| Emitter–Base Breakdown Voltage ($I_E = 0.1\text{ mAdc}$, $I_C = 0$) | $V_{(BR)EBO}$ | 2.5 | — | — | Vdc |
| Emitter Cutoff Current ($V_{EB} = 2.0\text{ Vdc}$, $V_{BE} = 0$) | I_{EBO} | — | — | 100 | μAdc |
| Collector Cutoff Current ($V_{CB} = 15\text{ Vdc}$, $I_E = 0$) | I_{CBO} | — | — | 100 | μAdc |

ON CHARACTERISTICS

| | | | | | |
|---|----------|----|---|-----|---|
| DC Current Gain (1) ($I_C = 50\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$) | h_{FE} | 50 | — | 200 | — |
|---|----------|----|---|-----|---|

DYNAMIC CHARACTERISTICS

| | | | | | |
|--|----------|---|-----|-----|-----|
| Collector–Base Capacitance ($V_{CB} = 10\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$) | C_{ob} | — | 2.0 | — | pF |
| Collector–Base Capacitance ($V_{CB} = 10\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$) | C_{cb} | — | 1.2 | 2.0 | pF |
| Current–Gain Bandwidth Product (2) ($I_C = 75\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f = 1.0\text{ GHz}$) | f_T | — | 5.0 | — | GHz |

FUNCTIONAL TESTS

| | | | | | |
|--|-----------------|---|------|-----|----|
| Noise Figure (Minimum), Figure 3 ($I_C = 50\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f = 500\text{ MHz}$) | NF_{min} | — | 2.0 | 3.0 | dB |
| Noise Figure (50 Ohm Insertion) ($I_C = 50\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f = 500\text{ MHz}$) | $NF_{50\Omega}$ | — | 2.5 | — | dB |
| Power Gain at Optimum Noise Figure, Figure 3 ($I_C = 50\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f = 500\text{ MHz}$) | G_{NF} | — | 18.4 | — | dB |
| Insertion Gain ($I_C = 50\text{ mAdc}$, $V_{CE} = 6.0\text{ Vdc}$, $f = 500\text{ MHz}$) | $ S_{21} ^2$ | — | 14.2 | — | dB |
| Maximum Unilateral Gain (2) ($I_C = 50\text{ mAdc}$, $V_{CE} = 6.0\text{ Vdc}$, $f = 500\text{ MHz}$) | G_{Umax} | — | 18 | — | dB |

NOTES:

1. 300 μs pulse on Tektronix 576 or equivalent.

$$2. G_{Umax} = \frac{|S_{21}|^2}{(1-|S_{11}|^2)(1-|S_{22}|^2)}$$

TYPICAL CHARACTERISTICS

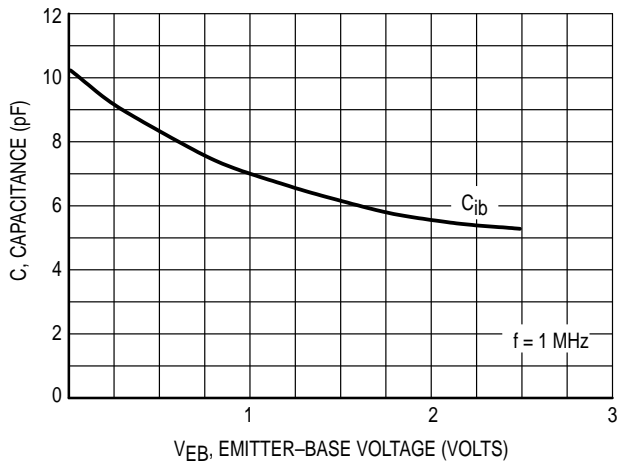


Figure 1. C_{ib} Input Capacitance versus Voltage

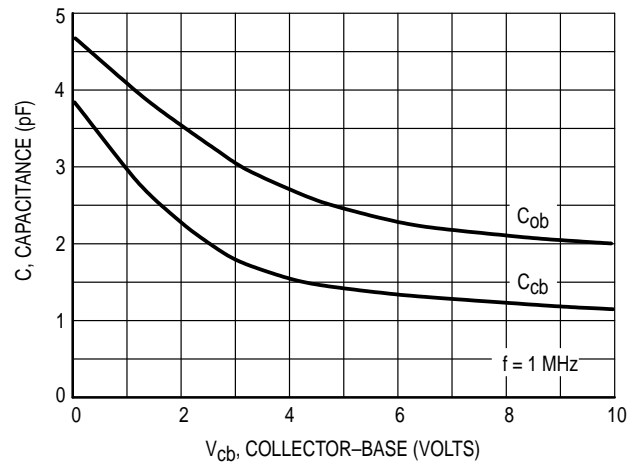


Figure 2. C_{cb} , C_{ob} Collector-Base Capacitance versus Voltage

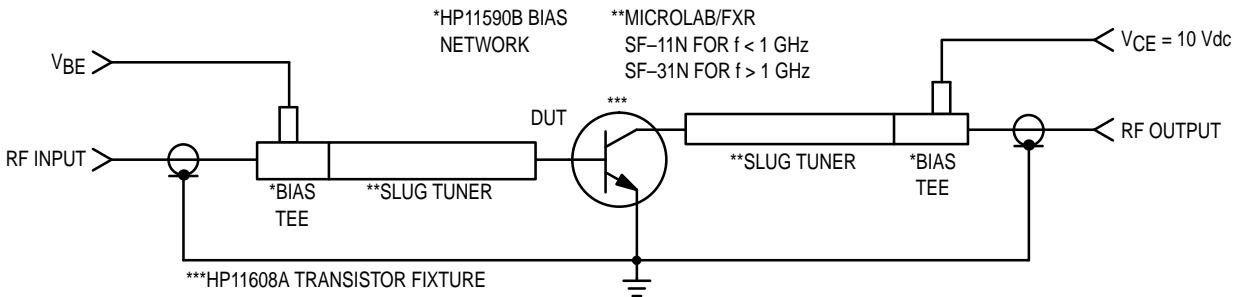


Figure 3. MRF5811L Functional Circuit Schematic

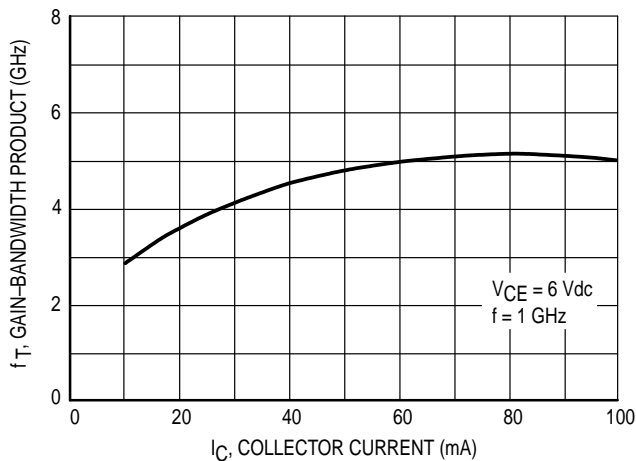


Figure 4. Gain-Bandwidth Product versus Collector Current

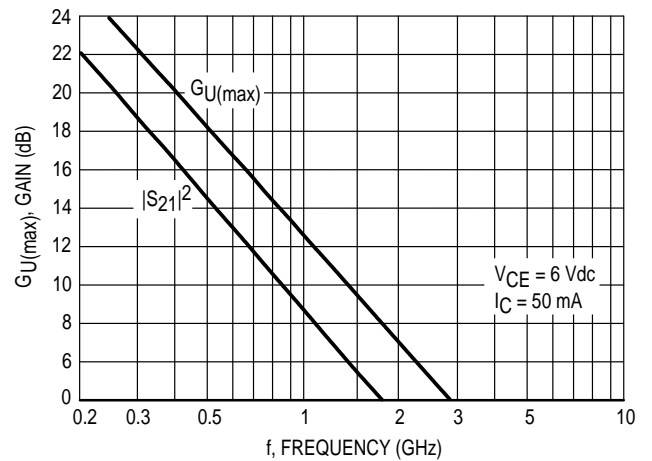


Figure 5. $G_{U(max)}$ Maximum Unilateral Gain, $|S_{21}|^2$ versus Frequency

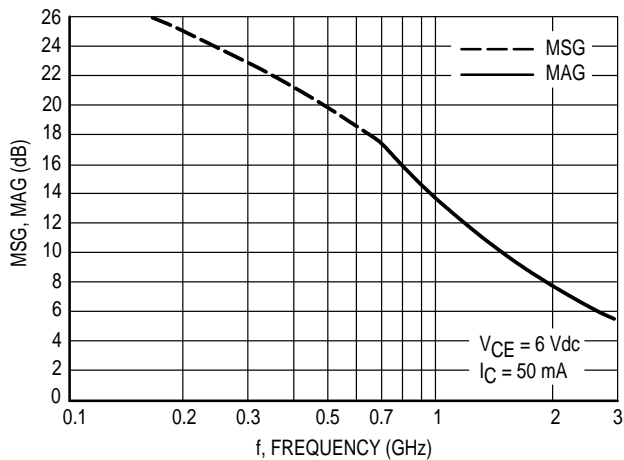


Figure 6. MSG — Maximum Stable Gain, MAG — Maximum Available Gain versus Frequency

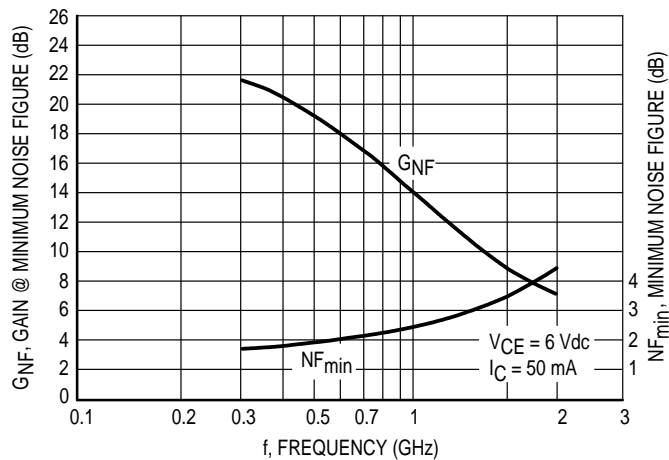


Figure 7. Minimum Noise Figure and Gain @ Minimum Noise Figure versus Frequency

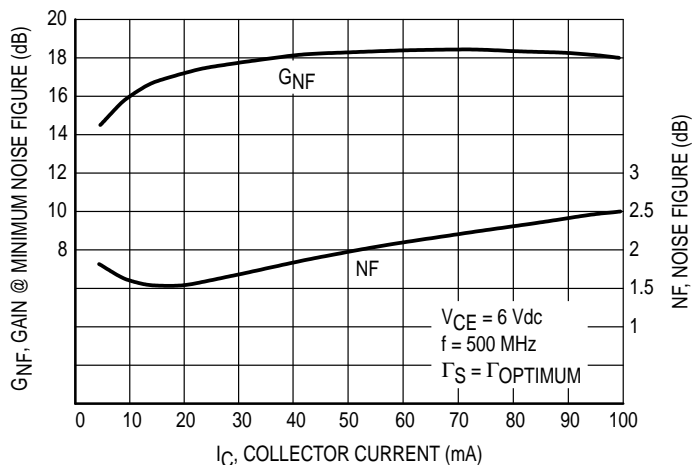


Figure 8. Noise Figure and Gain @ Minimum Noise Figure versus Collector Current

| V _{CE} (Vdc) | I _C (mA) | f (MHz) | NF _{min} (dB) | Gam Opt | < Gam Opt | Rn |
|-----------------------|---------------------|---------|------------------------|---------|-----------|-----|
| 6.0 | 10 | 500 | 1.64 | 0.49 | 164 | 3.5 |
| | | 1000 | 2.81 | 0.68 | -173 | 3.5 |
| | 50 | 500 | 2.0 | 0.51 | 177 | 3.9 |
| | | 1000 | 2.85 | 0.61 | -168 | 4.7 |

Table 1. Common Emitter Noise Parameters

| V _{CE} (Volts) | I _C (mA) | f (GHz) | S ₁₁ | | S ₂₁ | | S ₁₂ | | S ₂₂ | | |
|----------------------------|------------------------|------------|-----------------|-------|-----------------|-------|-----------------|-------|-----------------|-------|------|
| | | | S ₁₁ | ∠ φ | S ₂₁ | ∠ φ | S ₁₂ | ∠ φ | S ₂₂ | ∠ φ | |
| 3.0 | 25 | 0.10 | 0.734 | -132 | 17.54 | 115 | 0.045 | 37 | 0.544 | -89 | |
| | | 0.20 | 0.765 | -157 | 9.66 | 99 | 0.051 | 30 | 0.395 | -120 | |
| | | 0.30 | 0.771 | -168 | 6.59 | 90 | 0.056 | 32 | 0.354 | -135 | |
| | | 0.40 | 0.773 | -174 | 4.98 | 84 | 0.060 | 34 | 0.340 | -143 | |
| | | 0.50 | 0.768 | -180 | 4.01 | 81 | 0.065 | 38 | 0.319 | -150 | |
| | | 0.60 | 0.768 | 176 | 3.36 | 76 | 0.070 | 41 | 0.319 | -153 | |
| | | 0.70 | 0.769 | 173 | 2.89 | 73 | 0.076 | 43 | 0.321 | -155 | |
| | | 0.80 | 0.771 | 170 | 2.55 | 69 | 0.081 | 44 | 0.325 | -157 | |
| | | 0.90 | 0.770 | 167 | 2.27 | 65 | 0.088 | 46 | 0.329 | -158 | |
| | | 1.00 | 0.771 | 165 | 2.06 | 62 | 0.094 | 47 | 0.335 | -159 | |
| | | 1.50 | 0.773 | 152 | 1.41 | 47 | 0.127 | 49 | 0.367 | -163 | |
| | | 2.00 | 0.777 | 140 | 1.08 | 33 | 0.162 | 48 | 0.408 | -167 | |
| | | 2.50 | 0.786 | 129 | 0.87 | 22 | 0.194 | 45 | 0.461 | -171 | |
| | | 3.00 | 0.793 | 118 | 0.75 | 12 | 0.229 | 40 | 0.498 | -177 | |
| | | 3.50 | 0.803 | 108 | 0.65 | 4 | 0.262 | 35 | 0.530 | 177 | |
| | 4.00 | 0.812 | 100 | 0.58 | -2 | 0.294 | 30 | 0.563 | 169 | | |
| | 4.50 | 0.811 | 91 | 0.53 | -7 | 0.328 | 24 | 0.587 | 162 | | |
| | 5.00 | 0.816 | 83 | 0.50 | -11 | 0.355 | 18 | 0.616 | 154 | | |
| | 50 | 50 | 0.10 | 0.732 | -141 | 19.19 | 112 | 0.039 | 36 | 0.542 | -105 |
| | | | 0.20 | 0.764 | -163 | 10.33 | 97 | 0.045 | 34 | 0.44 | -136 |
| | | | 0.30 | 0.771 | -172 | 7.01 | 90 | 0.050 | 37 | 0.416 | -149 |
| | | | 0.40 | 0.772 | -177 | 5.29 | 84 | 0.056 | 40 | 0.408 | -156 |
| | | | 0.50 | 0.768 | 178 | 4.26 | 81 | 0.062 | 44 | 0.392 | -162 |
| | | | 0.60 | 0.768 | 174 | 3.57 | 77 | 0.069 | 47 | 0.392 | -165 |
| | | | 0.70 | 0.769 | 171 | 3.08 | 74 | 0.076 | 49 | 0.393 | -167 |
| | | | 0.80 | 0.770 | 168 | 2.71 | 70 | 0.083 | 50 | 0.395 | -169 |
| | | | 0.90 | 0.769 | 166 | 2.42 | 67 | 0.090 | 51 | 0.396 | -170 |
| | | | 1.00 | 0.769 | 163 | 2.19 | 64 | 0.098 | 51 | 0.399 | -172 |
| | | | 1.50 | 0.769 | 151 | 1.51 | 50 | 0.135 | 51 | 0.414 | -176 |
| | | | 2.00 | 0.771 | 139 | 1.17 | 37 | 0.171 | 48 | 0.434 | -180 |
| | | | 2.50 | 0.778 | 128 | 0.96 | 26 | 0.204 | 44 | 0.467 | 178 |
| | | | 3.00 | 0.783 | 118 | 0.83 | 16 | 0.237 | 39 | 0.487 | 173 |
| | | | 3.50 | 0.792 | 108 | 0.73 | 7 | 0.268 | 33 | 0.506 | 168 |
| 4.00 | 0.802 | 100 | 0.66 | 0 | 0.297 | 28 | 0.53 | 162 | | | |
| 4.50 | 0.800 | 91 | 0.60 | -6 | 0.328 | 22 | 0.546 | 156 | | | |
| 5.00 | 0.808 | 83 | 0.56 | -12 | 0.353 | 16 | 0.572 | 149 | | | |
| 75 | 75 | 0.10 | 0.738 | -145 | 19.35 | 110 | 0.036 | 35 | 0.54 | -112 | |
| | | 0.20 | 0.769 | -165 | 10.31 | 96 | 0.042 | 35 | 0.458 | -142 | |
| | | 0.30 | 0.774 | -173 | 6.98 | 89 | 0.048 | 39 | 0.44 | -153 | |
| | | 0.40 | 0.776 | -178 | 5.26 | 84 | 0.054 | 43 | 0.434 | -160 | |
| | | 0.50 | 0.772 | 177 | 4.24 | 81 | 0.061 | 47 | 0.42 | -166 | |
| | | 0.60 | 0.772 | 173 | 3.55 | 77 | 0.068 | 49 | 0.42 | -169 | |
| | | 0.70 | 0.773 | 170 | 3.06 | 74 | 0.076 | 51 | 0.421 | -171 | |
| | | 0.80 | 0.773 | 168 | 2.69 | 71 | 0.084 | 52 | 0.422 | -172 | |
| | | 0.90 | 0.772 | 165 | 2.41 | 67 | 0.091 | 53 | 0.423 | -174 | |
| | | 1.00 | 0.772 | 162 | 2.18 | 65 | 0.099 | 53 | 0.426 | -175 | |
| | | 1.50 | 0.771 | 150 | 1.50 | 50 | 0.138 | 52 | 0.436 | -180 | |
| | | 2.00 | 0.772 | 139 | 1.17 | 38 | 0.175 | 48 | 0.451 | 176 | |
| | | 2.50 | 0.778 | 128 | 0.96 | 27 | 0.208 | 44 | 0.478 | 174 | |
| | | 3.00 | 0.783 | 117 | 0.83 | 17 | 0.241 | 38 | 0.493 | 169 | |
| | | 3.50 | 0.790 | 108 | 0.74 | 8 | 0.271 | 33 | 0.507 | 165 | |
| 4.00 | 0.800 | 99 | 0.67 | 1 | 0.299 | 27 | 0.526 | 158 | | | |
| 4.50 | 0.798 | 91 | 0.62 | -5 | 0.329 | 21 | 0.538 | 153 | | | |
| 5.00 | 0.806 | 83 | 0.57 | -11 | 0.353 | 15 | 0.561 | 147 | | | |

Table 2. Common Emitter S-Parameters

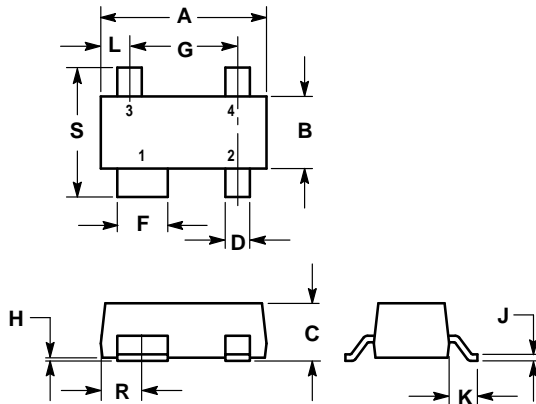
| V _{CE} (Volts) | I _C (mA) | f (GHz) | S ₁₁ | | S ₂₁ | | S ₁₂ | | S ₂₂ | |
|----------------------------|------------------------|------------|-----------------|------|-----------------|-----|-----------------|-----|-----------------|------|
| | | | S ₁₁ | ∠φ | S ₂₁ | ∠φ | S ₁₂ | ∠φ | S ₂₂ | ∠φ |
| 3.0 | 100 | 0.10 | 0.747 | -149 | 18.83 | 109 | 0.035 | 35 | 0.531 | -117 |
| | | 0.20 | 0.775 | -167 | 9.95 | 95 | 0.041 | 35 | 0.463 | -145 |
| | | 0.30 | 0.781 | -175 | 6.72 | 88 | 0.047 | 40 | 0.448 | -156 |
| | | 0.40 | 0.782 | -179 | 5.07 | 83 | 0.053 | 44 | 0.444 | -162 |
| | | 0.50 | 0.779 | 176 | 4.08 | 81 | 0.061 | 48 | 0.431 | -168 |
| | | 0.60 | 0.778 | 173 | 3.42 | 77 | 0.068 | 50 | 0.431 | -170 |
| | | 0.70 | 0.779 | 170 | 2.95 | 74 | 0.076 | 52 | 0.432 | -172 |
| | | 0.80 | 0.779 | 167 | 2.60 | 70 | 0.084 | 53 | 0.434 | -174 |
| | | 0.90 | 0.778 | 164 | 2.32 | 67 | 0.092 | 53 | 0.434 | -175 |
| | | 1.00 | 0.778 | 162 | 2.10 | 64 | 0.100 | 54 | 0.436 | -177 |
| | | 1.50 | 0.776 | 150 | 1.45 | 50 | 0.139 | 52 | 0.445 | 179 |
| | | 2.00 | 0.777 | 138 | 1.13 | 38 | 0.177 | 48 | 0.46 | 175 |
| | | 2.50 | 0.782 | 127 | 0.93 | 27 | 0.209 | 44 | 0.485 | 173 |
| | | 3.00 | 0.786 | 117 | 0.81 | 17 | 0.243 | 38 | 0.498 | 168 |
| | | 3.50 | 0.794 | 107 | 0.72 | 9 | 0.273 | 32 | 0.51 | 163 |
| | | 4.00 | 0.802 | 99 | 0.65 | 1 | 0.301 | 27 | 0.528 | 157 |
| | | 4.50 | 0.800 | 91 | 0.60 | -5 | 0.330 | 21 | 0.539 | 152 |
| 5.00 | 0.807 | 83 | 0.56 | -11 | 0.354 | 15 | 0.56 | 145 | | |
| 6.0 | 25 | 0.10 | 0.715 | -122 | 19.96 | 119 | 0.039 | 40 | 0.562 | -72 |
| | | 0.20 | 0.742 | -151 | 11.31 | 101 | 0.046 | 33 | 0.364 | -98 |
| | | 0.30 | 0.748 | -164 | 7.76 | 92 | 0.050 | 33 | 0.298 | -112 |
| | | 0.40 | 0.750 | -171 | 5.89 | 86 | 0.054 | 36 | 0.271 | -120 |
| | | 0.50 | 0.743 | -177 | 4.73 | 82 | 0.058 | 39 | 0.24 | -127 |
| | | 0.60 | 0.744 | 179 | 3.97 | 78 | 0.063 | 42 | 0.237 | -131 |
| | | 0.70 | 0.746 | 175 | 3.42 | 74 | 0.068 | 44 | 0.239 | -134 |
| | | 0.80 | 0.748 | 172 | 3.00 | 70 | 0.074 | 46 | 0.243 | -135 |
| | | 0.90 | 0.747 | 169 | 2.68 | 66 | 0.079 | 47 | 0.248 | -137 |
| | | 1.00 | 0.748 | 166 | 2.42 | 63 | 0.085 | 49 | 0.255 | -139 |
| | | 1.50 | 0.753 | 153 | 1.64 | 47 | 0.115 | 52 | 0.3 | -144 |
| | | 2.00 | 0.760 | 141 | 1.25 | 33 | 0.148 | 51 | 0.352 | -150 |
| | | 2.50 | 0.772 | 130 | 1.00 | 21 | 0.180 | 49 | 0.417 | -155 |
| | | 3.00 | 0.783 | 119 | 0.84 | 11 | 0.215 | 44 | 0.464 | -163 |
| | | 3.50 | 0.795 | 109 | 0.72 | 2 | 0.249 | 40 | 0.505 | -170 |
| | | 4.00 | 0.807 | 101 | 0.63 | -5 | 0.283 | 34 | 0.545 | -179 |
| | | 4.50 | 0.808 | 92 | 0.56 | -10 | 0.319 | 28 | 0.576 | 173 |
| 5.00 | 0.815 | 84 | 0.51 | -14 | 0.349 | 22 | 0.609 | 164 | | |
| 6.0 | 50 | 0.10 | 0.706 | -131 | 22.47 | 116 | 0.034 | 40 | 0.527 | -86 |
| | | 0.20 | 0.734 | -157 | 12.38 | 99 | 0.041 | 36 | 0.37 | -117 |
| | | 0.30 | 0.740 | -168 | 8.44 | 91 | 0.046 | 38 | 0.325 | -132 |
| | | 0.40 | 0.742 | -174 | 6.38 | 86 | 0.051 | 42 | 0.308 | -140 |
| | | 0.50 | 0.736 | -179 | 5.13 | 82 | 0.057 | 46 | 0.283 | -147 |
| | | 0.60 | 0.737 | 177 | 4.30 | 78 | 0.063 | 48 | 0.281 | -151 |
| | | 0.70 | 0.738 | 173 | 3.70 | 74 | 0.069 | 50 | 0.282 | -154 |
| | | 0.80 | 0.740 | 170 | 3.26 | 71 | 0.075 | 51 | 0.285 | -155 |
| | | 0.90 | 0.739 | 168 | 2.90 | 68 | 0.082 | 52 | 0.287 | -157 |
| | | 1.00 | 0.740 | 165 | 2.63 | 65 | 0.089 | 53 | 0.291 | -158 |
| | | 1.50 | 0.742 | 152 | 1.79 | 50 | 0.123 | 53 | 0.315 | -162 |
| | | 2.00 | 0.748 | 141 | 1.37 | 36 | 0.158 | 50 | 0.348 | -165 |
| | | 2.50 | 0.758 | 129 | 1.11 | 25 | 0.189 | 47 | 0.395 | -168 |
| | | 3.00 | 0.768 | 119 | 0.94 | 14 | 0.222 | 42 | 0.427 | -173 |
| | | 3.50 | 0.780 | 109 | 0.81 | 5 | 0.253 | 37 | 0.458 | -178 |
| | | 4.00 | 0.793 | 101 | 0.72 | -3 | 0.283 | 32 | 0.491 | 175 |
| | | 4.50 | 0.795 | 92 | 0.65 | -9 | 0.316 | 26 | 0.518 | 169 |
| 5.00 | 0.805 | 84 | 0.58 | -15 | 0.343 | 20 | 0.552 | 161 | | |

Table 2. Common Emitter S-Parameters (continued)

| V _{CE} (Volts) | I _C (mA) | f (GHz) | S ₁₁ | | S ₂₁ | | S ₁₂ | | S ₂₂ | | |
|----------------------------|------------------------|------------|-----------------|-------|-----------------|-------|-----------------|-------|-----------------|-------|------|
| | | | S ₁₁ | ∠ φ | S ₂₁ | ∠ φ | S ₁₂ | ∠ φ | S ₂₂ | ∠ φ | |
| 6.0 | 75 | 0.10 | 0.710 | -135 | 22.99 | 114 | 0.033 | 39 | 0.505 | -93 | |
| | | 0.20 | 0.735 | -159 | 12.49 | 98 | 0.039 | 37 | 0.367 | -123 | |
| | | 0.30 | 0.741 | -169 | 8.49 | 90 | 0.044 | 40 | 0.33 | -137 | |
| | | 0.40 | 0.742 | -175 | 6.42 | 85 | 0.050 | 44 | 0.317 | -145 | |
| | | 0.50 | 0.737 | 180 | 5.16 | 82 | 0.056 | 48 | 0.295 | -153 | |
| | | 0.60 | 0.737 | 176 | 4.32 | 78 | 0.062 | 50 | 0.294 | -156 | |
| | | 0.70 | 0.739 | 173 | 3.72 | 74 | 0.069 | 52 | 0.295 | -158 | |
| | | 0.80 | 0.740 | 170 | 3.27 | 71 | 0.076 | 53 | 0.297 | -160 | |
| | | 0.90 | 0.739 | 167 | 2.92 | 68 | 0.083 | 54 | 0.298 | -161 | |
| | | 1.00 | 0.740 | 164 | 2.64 | 65 | 0.090 | 54 | 0.302 | -162 | |
| | | 1.50 | 0.742 | 152 | 1.80 | 50 | 0.125 | 53 | 0.322 | -166 | |
| | | 2.00 | 0.747 | 140 | 1.38 | 37 | 0.160 | 50 | 0.349 | -169 | |
| | | 2.50 | 0.757 | 129 | 1.12 | 25 | 0.191 | 47 | 0.392 | -171 | |
| | | 3.00 | 0.766 | 119 | 0.95 | 15 | 0.224 | 42 | 0.42 | -176 | |
| | | 3.50 | 0.778 | 109 | 0.82 | 5 | 0.254 | 36 | 0.448 | 180 | |
| | 4.00 | 0.791 | 100 | 0.73 | -3 | 0.284 | 31 | 0.479 | 173 | | |
| | 4.50 | 0.793 | 92 | 0.66 | -9 | 0.315 | 26 | 0.504 | 167 | | |
| | 5.00 | 0.803 | 84 | 0.60 | -15 | 0.342 | 20 | 0.536 | 160 | | |
| | 100 | 100 | 0.10 | 0.718 | -138 | 22.70 | 112 | 0.032 | 38 | 0.481 | -96 |
| | | | 0.20 | 0.740 | -161 | 12.22 | 97 | 0.038 | 37 | 0.354 | -126 |
| 0.30 | | | 0.745 | -170 | 8.28 | 90 | 0.043 | 41 | 0.321 | -140 | |
| 0.40 | | | 0.746 | -176 | 6.25 | 84 | 0.049 | 45 | 0.309 | -147 | |
| 0.50 | | | 0.741 | 179 | 5.03 | 81 | 0.055 | 49 | 0.29 | -154 | |
| 0.60 | | | 0.741 | 175 | 4.21 | 77 | 0.062 | 51 | 0.289 | -157 | |
| 0.70 | | | 0.743 | 172 | 3.62 | 74 | 0.069 | 53 | 0.29 | -159 | |
| 0.80 | | | 0.744 | 169 | 3.19 | 70 | 0.076 | 54 | 0.293 | -161 | |
| 0.90 | | | 0.743 | 166 | 2.84 | 67 | 0.083 | 54 | 0.294 | -162 | |
| 1.00 | | | 0.744 | 164 | 2.57 | 64 | 0.090 | 55 | 0.298 | -163 | |
| 1.50 | | | 0.745 | 151 | 1.75 | 49 | 0.126 | 54 | 0.318 | -166 | |
| 2.00 | | | 0.750 | 140 | 1.35 | 36 | 0.160 | 51 | 0.347 | -169 | |
| 2.50 | | | 0.760 | 129 | 1.09 | 25 | 0.192 | 47 | 0.39 | -171 | |
| 3.00 | | | 0.769 | 118 | 0.93 | 14 | 0.224 | 42 | 0.418 | -175 | |
| 3.50 | | | 0.781 | 109 | 0.80 | 5 | 0.255 | 37 | 0.447 | 180 | |
| 4.00 | 0.793 | 100 | 0.71 | -3 | 0.284 | 31 | 0.478 | 173 | | | |
| 4.50 | 0.794 | 91 | 0.64 | -9 | 0.316 | 26 | 0.502 | 167 | | | |
| 5.00 | 0.804 | 84 | 0.58 | -15 | 0.342 | 20 | 0.534 | 160 | | | |

Table 2. Common Emitter S-Parameters (continued)

PACKAGE DIMENSIONS



NOTES:


3. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
4. CONTROLLING DIMENSION: MILLIMETER.

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 2.80 | 3.04 | 0.110 | 0.120 |
| B | 1.20 | 1.39 | 0.047 | 0.055 |
| C | 0.84 | 1.14 | 0.033 | 0.045 |
| D | 0.39 | 0.50 | 0.015 | 0.020 |
| F | 0.79 | 0.93 | 0.031 | 0.037 |
| G | 1.78 | 2.03 | 0.070 | 0.080 |
| H | 0.013 | 0.10 | 0.0005 | 0.004 |
| J | 0.08 | 0.15 | 0.003 | 0.006 |
| K | 0.46 | 0.60 | 0.018 | 0.024 |
| L | 0.445 | 0.60 | 0.0175 | 0.024 |
| R | 0.72 | 0.83 | 0.028 | 0.033 |
| S | 2.11 | 2.48 | 0.083 | 0.098 |

STYLE 1:

- PIN 1. COLLECTOR
2. EMITTER
3. EMITTER
4. BASE

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