

Replaced by MRF35003NT1. There are no form, fit or function changes with this part replacement. N suffix added to part number to indicate transition to lead-free terminations.

MRF35003MT1

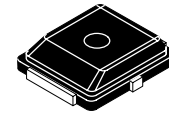
Gallium Arsenide PHEMT

RF Power Field Effect Transistor

Designed for WLL/MMDS/BWA or UMTS driver applications with frequencies from 1.8 to 3.6 GHz. Device is unmatched and is suitable for use in Class AB linear base station applications.

- Typical W-CDMA Performance: -42 dBc ACPR, 3.55 GHz, 12 Volts, $I_{DQ} = 55$ mA, 5 MHz Offset/3.84 MHz BW, 64 DPCH (8.5 dB P/A @ 0.01% Probability)
 Output Power — 300 mWatt
 Power Gain — 11.5 dB
 Efficiency — 25%
- 3 Watts P1dB @ 3.55 GHz
- Excellent Phase Linearity and Group Delay Characteristics
- High Gain, High Efficiency and High Linearity
- In Tape and Reel. T1 Suffix = 1000 Units per 12 mm, 7 inch Reel.

3.5 GHz, 3 W, 12 V
POWER FET
GaAs PHEMT



CASE 466-03, STYLE 1
PLD-1.5
PLASTIC

ARCHIVE INFORMATION

ARCHIVE INFORMATION

Table 1. Maximum Ratings

| Rating | Symbol | Value | Unit |
|--|-----------|---------------------|--------------------------|
| Drain-Source Voltage | V_{DSS} | 15 | Vdc |
| Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C | P_D | 8.1 (2) 0.05 (2) | W W/ $^\circ\text{C}$ |
| Gate-Source Voltage | V_{GS} | -5 | Vdc |
| RF Input Power | P_{in} | 29 | dBm |
| Storage Temperature Range | T_{stg} | -65 to +150 | $^\circ\text{C}$ |
| Channel Temperature (1) | T_{ch} | 175 | $^\circ\text{C}$ |
| Operating Case Temperature Range | T_C | -20 to +85 | $^\circ\text{C}$ |

Table 2. Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------|----------|---------------------------|
| Thermal Resistance, Junction to Case Class AB | $R_{\theta JC}$ | 18.5 (2) | $^\circ\text{C}/\text{W}$ |

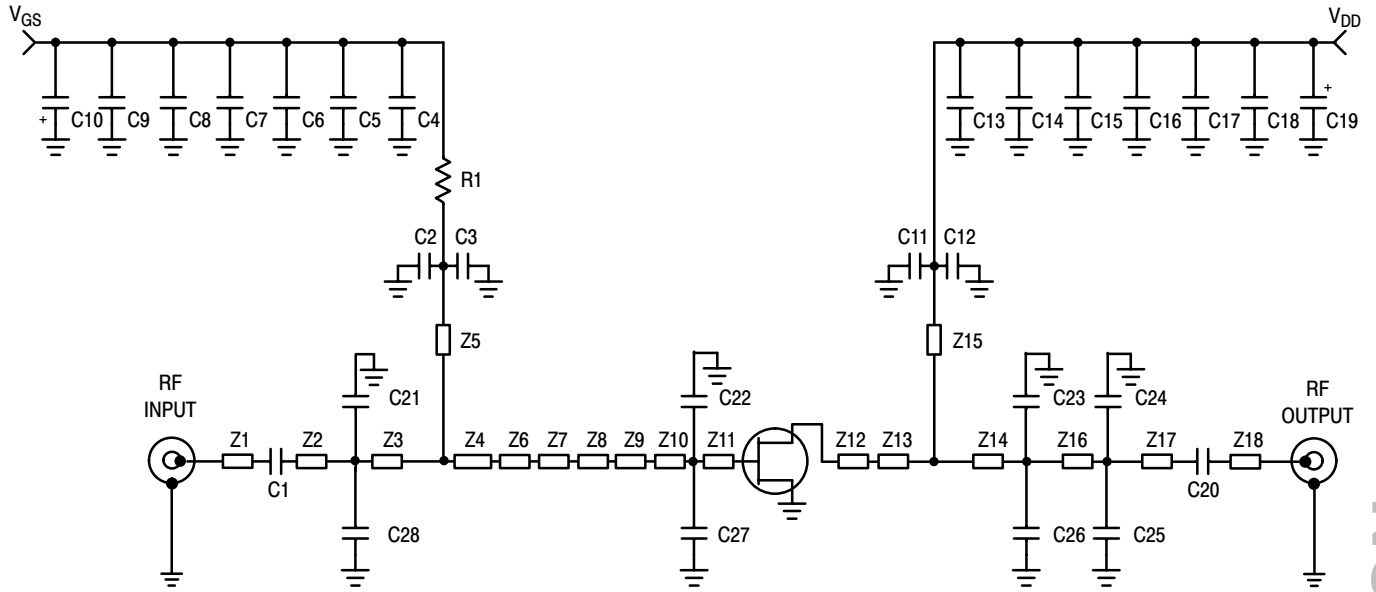
Table 3. Moisture Sensitivity Level

| Test Methodology | Rating | Package Peak Temperature | Unit |
|---------------------------------------|--------|--------------------------|------------------|
| Per JESD 22-A113, IPC/JEDEC J-STD-020 | 1 | 260 | $^\circ\text{C}$ |

1. For reliable operation, the operating channel temperature should not exceed 150°C .
2. Simulated.

Table 4. Electrical Characteristics ($T_C = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|--------------|------|-------|------|-----------------|
| Saturated Drain Current ($V_{DS} = 3.5 \text{ Vdc}$, $V_{GS} = 0 \text{ Vdc}$) | I_{DSS} | — | 1.3 | — | Adc |
| Off State Leakage Current ($V_{GS} = -0.4 \text{ Vdc}$, $V_{DS} = 0 \text{ Vdc}$) | I_{GSS} | — | < 1.0 | 100 | μAdc |
| Off State Drain Current ($V_{DS} = 12 \text{ Vdc}$, $V_{GS} = -2.5 \text{ Vdc}$) | I_{DSO} | — | — | 450 | μAdc |
| Off State Current ($V_{DS} = 28.5 \text{ Vdc}$, $V_{GS} = -2.5 \text{ Vdc}$) | I_{DSX} | — | < 1.0 | 7 | mAdc |
| Gate - Source Cut-off Voltage ($V_{DS} = 3.5 \text{ Vdc}$, $I_{DS} = 6.5 \text{ mA}$) | $V_{GS(th)}$ | -1.2 | -0.9 | -0.7 | Vdc |
| Quiescent Gate Voltage ($V_{DS} = 12 \text{ Vdc}$, $I_D = 55 \text{ mA}$) | $V_{GS(Q)}$ | -1.2 | -0.9 | -0.7 | Vdc |
| Power Gain ($V_{DD} = 12 \text{ Vdc}$, $I_{DQ} = 55 \text{ mA}$, $f = 3.55 \text{ GHz}$) | G_{ps} | 10 | 11.5 | — | dB |
| Output Power, 1 dB Compression Point ($V_{DD} = 12 \text{ Vdc}$, $I_{DQ} = 55 \text{ mA}$, $f = 3.55 \text{ GHz}$) | P_{1dB} | — | 3 | — | W |
| Drain Efficiency ($V_{DD} = 12 \text{ Vdc}$, $I_{DQ} = 55 \text{ mA}$, $P_{out} = 0.30 \text{ W Avg.}$, $f = 3.55 \text{ GHz}$) | η_D | 23 | 25 | — | % |
| Adjacent Channel Power Ratio ($V_{DD} = 12 \text{ Vdc}$, $P_{out} = 0.30 \text{ W Avg.}$, $I_{DQ} = 55 \text{ mA}$, $f = 3.55 \text{ GHz}$, W-CDMA, 8.5 P/A @ 0.01% Probability, 64 CH, 3.84 MCPS) | ACPR | — | -42 | -40 | dBc |

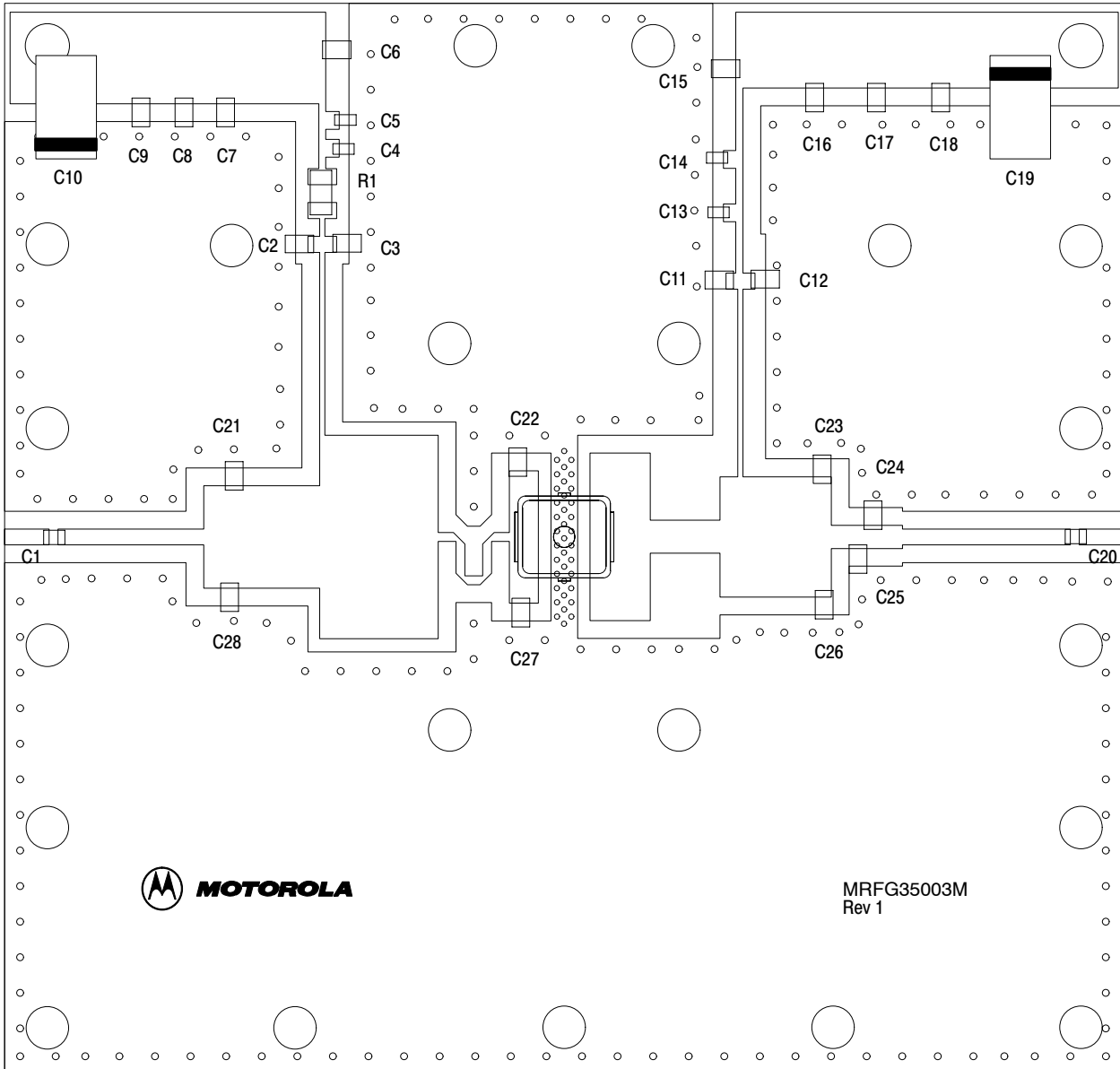


| | | | |
|-------------|----------------------------|-----|---|
| Z1, Z18 | 0.125" x 0.044" Microstrip | Z11 | 0.082" x 0.372" Microstrip |
| Z2 | 0.409" x 0.044" Microstrip | Z12 | 0.169" x 0.471" Microstrip |
| Z3 | 0.326" x 0.288" Microstrip | Z13 | 0.196" x 0.093" Microstrip |
| Z4 | 0.333" x 0.572" Microstrip | Z14 | 0.313" x 0.338" Microstrip |
| Z5, Z15 | 0.527" x 0.015" Microstrip | Z16 | 0.200" x 0.065" Microstrip |
| Z6, Z8, Z10 | 0.050" x 0.025" Microstrip | Z17 | 0.472" x 0.044" Microstrip |
| Z7, Z9 | 0.097" x 0.025" Microstrip | PCB | Rogers 4350, 0.020", $\epsilon_r = 3.5$ |

Figure 1. 3.5 GHz Test Circuit Schematic

Table 5. 3.5 GHz Test Circuit Component Designations and Values

| Part | Description | Part Number | Manufacturer |
|------------------|--|---------------|--------------|
| C1, C20 | 7.5 pF Chip Capacitors | 100A7R5JP150X | ATC |
| C2, C3, C11, C12 | 3.9 pF Chip Capacitors (0805) | 08051J3R9BBT | AVX |
| C4, C13 | 10 pF Chip Capacitors | 100A100JP500X | ATC |
| C5, C14 | 100 pF Chip Capacitors | 100A101JP500X | ATC |
| C6, C15 | 100 pF Chip Capacitors | 100B101JP500X | ATC |
| C7, C16 | 1000 pF Chip Capacitors | 100B102JP500X | ATC |
| C8, C17 | 3.9 μ F Chip Capacitors | | ATC |
| C9, C18 | 0.1 μ F Chip Capacitors | | ATC |
| C10, C19 | 22 μ F, 35 V Tantalum Surface Mount Capacitors | | ATC |
| C21 | 0.7 pF Chip Capacitor (0805) | 08051J0R7BBT | AVX |
| C22, C27 | 0.2 pF Chip Capacitors (0805) | 08051J0R2BBT | AVX |
| C23, C28 | 0.8 pF Chip Capacitors (0805) | 08051J0R8BBT | AVX |
| C24 | 1.0 pF Chip Capacitor | 08051J1R0BBT | AVX |
| C25 | 1.2 pF Chip Capacitor | 08051J1R2BBT | AVX |
| C26 | 0.5 pF Chip Capacitor | 08051J0R5BBT | AVX |
| R1 | 100 Ω Chip Resistor | | Newark |



Freescale has begun the transition of marking Printed Circuit Boards (PCBs) with the Freescale Semiconductor signature/logo. PCBs may have either Motorola or Freescale markings during the transition period. These changes will have no impact on form, fit or function of the current product.

Figure 2. 3.5 GHz Test Circuit Component Layout

TYPICAL CHARACTERISTICS

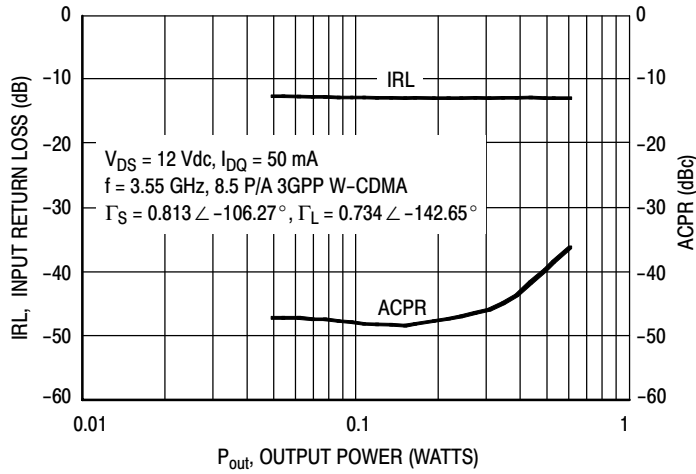


Figure 3. W-CDMA ACPR and Input Return Loss versus Output Power

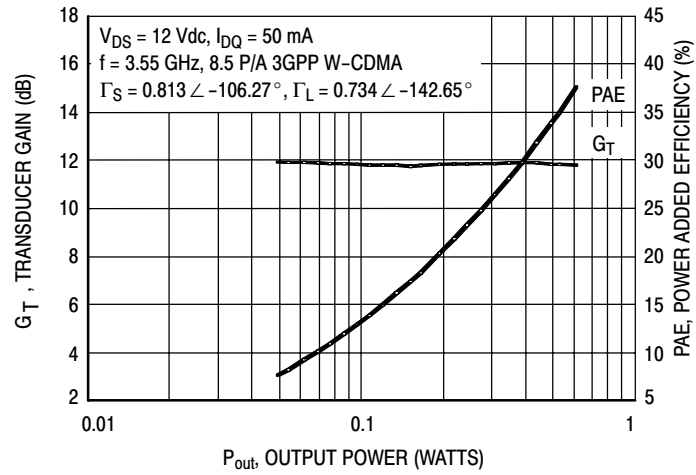


Figure 4. Transducer Gain and Power Added Efficiency versus Output Power

NOTE: All data is referenced to package lead interface. Γ_S and Γ_L are the impedances presented to the DUT. All data is generated from load pull, not from the test circuit shown.

Table 6. Class AB Common Source S-Parameters at $V_{DS} = 12$ Vdc, $I_{DQ} = 50$ mA

| f GHz | S ₁₁ | | S ₂₁ | | S ₁₂ | | S ₂₂ | |
|----------|-----------------|---------|-----------------|-------|-----------------|--------|-----------------|---------|
| | S ₁₁ | ∠φ | S ₂₁ | ∠φ | S ₁₂ | ∠φ | S ₂₂ | ∠φ |
| 0.50 | 0.879 | -160.58 | 8.644 | 88.22 | 0.038 | 6.94 | 0.520 | -161.47 |
| 0.55 | 0.879 | -163.33 | 7.924 | 85.88 | 0.039 | 5.42 | 0.520 | -163.29 |
| 0.60 | 0.877 | -166.03 | 7.317 | 83.57 | 0.039 | 3.80 | 0.520 | -165.21 |
| 0.65 | 0.876 | -168.54 | 6.811 | 81.29 | 0.039 | 2.37 | 0.520 | -167.01 |
| 0.70 | 0.877 | -170.64 | 6.380 | 79.13 | 0.039 | 0.94 | 0.521 | -168.58 |
| 0.75 | 0.875 | -172.68 | 5.988 | 77.06 | 0.039 | -0.41 | 0.520 | -170.13 |
| 0.80 | 0.877 | -174.56 | 5.653 | 75.00 | 0.040 | -1.67 | 0.520 | -171.60 |
| 0.85 | 0.876 | -176.25 | 5.310 | 72.83 | 0.040 | -2.81 | 0.520 | -172.89 |
| 0.90 | 0.874 | -177.90 | 5.058 | 71.00 | 0.040 | -4.01 | 0.519 | -174.37 |
| 0.95 | 0.875 | -179.54 | 4.825 | 69.08 | 0.040 | -5.15 | 0.520 | -175.84 |
| 1.00 | 0.876 | 179.00 | 4.608 | 67.27 | 0.040 | -6.31 | 0.520 | -177.05 |
| 1.05 | 0.875 | 177.53 | 4.411 | 65.38 | 0.040 | -7.28 | 0.519 | -178.37 |
| 1.10 | 0.874 | 176.04 | 4.224 | 63.51 | 0.040 | -8.43 | 0.520 | -179.67 |
| 1.15 | 0.875 | 174.55 | 4.056 | 61.69 | 0.040 | -9.47 | 0.521 | 179.15 |
| 1.20 | 0.874 | 173.13 | 3.894 | 59.88 | 0.040 | -10.47 | 0.520 | 177.91 |
| 1.25 | 0.873 | 171.63 | 3.743 | 58.01 | 0.040 | -11.78 | 0.521 | 176.52 |
| 1.30 | 0.876 | 170.20 | 3.609 | 56.26 | 0.040 | -12.79 | 0.522 | 175.56 |
| 1.35 | 0.871 | 168.97 | 3.479 | 54.57 | 0.040 | -13.72 | 0.520 | 174.80 |
| 1.40 | 0.878 | 167.17 | 3.355 | 52.76 | 0.040 | -14.65 | 0.526 | 173.34 |
| 1.45 | 0.876 | 165.98 | 3.237 | 51.14 | 0.040 | -15.48 | 0.526 | 172.88 |
| 1.50 | 0.874 | 162.45 | 3.118 | 49.25 | 0.040 | -16.80 | 0.528 | 174.64 |
| 1.55 | 0.874 | 161.17 | 3.024 | 47.67 | 0.040 | -17.76 | 0.529 | 173.65 |
| 1.60 | 0.874 | 160.09 | 2.929 | 46.14 | 0.040 | -18.51 | 0.530 | 172.88 |
| 1.65 | 0.876 | 159.00 | 2.848 | 44.54 | 0.040 | -19.27 | 0.530 | 172.31 |
| 1.70 | 0.878 | 157.85 | 2.767 | 42.99 | 0.039 | -20.03 | 0.531 | 171.29 |
| 1.75 | 0.878 | 156.84 | 2.690 | 41.32 | 0.039 | -20.89 | 0.533 | 170.58 |
| 1.80 | 0.878 | 155.94 | 2.625 | 39.82 | 0.039 | -21.53 | 0.533 | 170.03 |
| 1.85 | 0.880 | 154.93 | 2.557 | 38.21 | 0.039 | -22.22 | 0.533 | 168.95 |
| 1.90 | 0.879 | 154.05 | 2.492 | 36.74 | 0.039 | -23.01 | 0.536 | 168.19 |
| 1.95 | 0.879 | 153.24 | 2.434 | 35.28 | 0.039 | -23.74 | 0.535 | 167.63 |
| 2.00 | 0.881 | 152.32 | 2.379 | 33.68 | 0.039 | -24.55 | 0.535 | 166.68 |
| 2.05 | 0.881 | 151.56 | 2.325 | 32.27 | 0.040 | -25.32 | 0.538 | 165.91 |
| 2.10 | 0.880 | 150.85 | 2.279 | 30.90 | 0.040 | -25.97 | 0.539 | 165.46 |
| 2.15 | 0.881 | 149.96 | 2.236 | 29.41 | 0.040 | -26.76 | 0.537 | 164.56 |
| 2.20 | 0.881 | 149.27 | 2.191 | 27.93 | 0.040 | -27.75 | 0.539 | 163.66 |
| 2.25 | 0.880 | 148.61 | 2.151 | 26.53 | 0.040 | -28.56 | 0.541 | 163.24 |
| 2.30 | 0.880 | 147.74 | 2.121 | 24.99 | 0.040 | -29.32 | 0.539 | 162.46 |
| 2.35 | 0.881 | 146.91 | 2.084 | 23.54 | 0.040 | -29.95 | 0.539 | 161.41 |
| 2.40 | 0.879 | 146.12 | 2.051 | 22.12 | 0.040 | -30.72 | 0.540 | 160.97 |
| 2.45 | 0.877 | 145.07 | 2.023 | 20.46 | 0.040 | -31.44 | 0.539 | 160.26 |
| 2.50 | 0.876 | 144.07 | 1.992 | 18.93 | 0.040 | -32.36 | 0.539 | 159.16 |
| 2.55 | 0.876 | 143.15 | 1.971 | 17.38 | 0.040 | -32.95 | 0.541 | 158.56 |
| 2.60 | 0.873 | 142.10 | 1.948 | 15.95 | 0.041 | -33.58 | 0.538 | 157.90 |
| 2.65 | 0.872 | 140.88 | 1.924 | 14.31 | 0.041 | -34.41 | 0.538 | 156.83 |
| 2.70 | 0.872 | 139.83 | 1.901 | 12.69 | 0.041 | -35.22 | 0.538 | 156.16 |
| 2.75 | 0.867 | 138.60 | 1.882 | 11.19 | 0.042 | -36.04 | 0.537 | 155.70 |
| 2.80 | 0.868 | 137.26 | 1.864 | 9.40 | 0.042 | -37.16 | 0.535 | 154.59 |

ARCHIVE INFORMATION

ARCHIVE INFORMATION

Table 6. Class AB Common Source S-Parameters at $V_{DS} = 12 \text{ Vdc}$, $I_{DQ} = 50 \text{ mA}$ (continued)

| f GHz | S ₁₁ | | S ₂₁ | | S ₁₂ | | S ₂₂ | |
|----------|-----------------|--------|-----------------|--------|-----------------|--------|-----------------|--------|
| | S ₁₁ | ∠φ | S ₂₁ | ∠φ | S ₁₂ | ∠φ | S ₂₂ | ∠φ |
| 2.85 | 0.868 | 136.03 | 1.845 | 7.80 | 0.043 | -38.56 | 0.537 | 153.86 |
| 2.90 | 0.866 | 134.67 | 1.828 | 6.20 | 0.043 | -39.94 | 0.536 | 153.32 |
| 2.95 | 0.866 | 133.02 | 1.812 | 4.39 | 0.043 | -41.41 | 0.534 | 152.08 |
| 3.00 | 0.868 | 131.47 | 1.795 | 2.53 | 0.043 | -42.49 | 0.536 | 151.08 |
| 3.05 | 0.865 | 129.99 | 1.780 | 0.80 | 0.043 | -43.57 | 0.535 | 150.49 |
| 3.10 | 0.864 | 128.11 | 1.766 | -1.00 | 0.043 | -44.68 | 0.532 | 149.20 |
| 3.15 | 0.865 | 126.39 | 1.745 | -2.87 | 0.043 | -45.67 | 0.533 | 148.09 |
| 3.20 | 0.864 | 124.86 | 1.728 | -4.58 | 0.043 | -46.62 | 0.533 | 147.42 |
| 3.25 | 0.861 | 122.97 | 1.714 | -6.48 | 0.043 | -47.78 | 0.531 | 146.29 |
| 3.30 | 0.863 | 121.30 | 1.697 | -8.33 | 0.043 | -49.02 | 0.532 | 145.13 |
| 3.35 | 0.862 | 119.77 | 1.681 | -9.97 | 0.043 | -49.91 | 0.532 | 144.52 |
| 3.40 | 0.860 | 117.84 | 1.665 | -11.83 | 0.043 | -50.93 | 0.529 | 143.46 |
| 3.45 | 0.862 | 116.26 | 1.648 | -13.70 | 0.043 | -51.73 | 0.529 | 142.35 |
| 3.50 | 0.861 | 114.65 | 1.630 | -15.43 | 0.043 | -52.55 | 0.530 | 141.50 |
| 3.55 | 0.860 | 112.77 | 1.620 | -17.24 | 0.044 | -53.64 | 0.527 | 140.51 |
| 3.60 | 0.862 | 111.19 | 1.602 | -18.99 | 0.044 | -54.74 | 0.525 | 139.19 |
| 3.65 | 0.861 | 109.76 | 1.584 | -20.65 | 0.044 | -55.56 | 0.525 | 138.23 |
| 3.70 | 0.860 | 108.08 | 1.572 | -22.49 | 0.044 | -56.84 | 0.524 | 137.30 |
| 3.75 | 0.861 | 106.70 | 1.557 | -24.18 | 0.044 | -58.11 | 0.523 | 136.00 |
| 3.80 | 0.862 | 105.31 | 1.544 | -25.86 | 0.044 | -59.31 | 0.524 | 134.95 |
| 3.85 | 0.862 | 103.85 | 1.533 | -27.47 | 0.044 | -60.49 | 0.523 | 134.13 |
| 3.90 | 0.861 | 102.50 | 1.519 | -29.14 | 0.044 | -61.50 | 0.521 | 132.71 |
| 3.95 | 0.862 | 101.16 | 1.508 | -30.97 | 0.044 | -62.41 | 0.522 | 131.61 |
| 4.00 | 0.861 | 99.84 | 1.499 | -32.49 | 0.044 | -63.14 | 0.520 | 130.97 |
| 4.05 | 0.861 | 98.44 | 1.494 | -34.26 | 0.044 | -64.07 | 0.518 | 129.57 |
| 4.10 | 0.861 | 97.12 | 1.482 | -35.96 | 0.044 | -64.91 | 0.518 | 128.23 |
| 4.15 | 0.859 | 96.07 | 1.474 | -37.51 | 0.045 | -65.77 | 0.515 | 127.49 |
| 4.20 | 0.858 | 94.61 | 1.471 | -39.42 | 0.045 | -67.06 | 0.512 | 125.93 |
| 4.25 | 0.859 | 93.26 | 1.463 | -41.19 | 0.045 | -68.21 | 0.512 | 124.32 |
| 4.30 | 0.859 | 92.06 | 1.458 | -42.86 | 0.045 | -69.40 | 0.511 | 123.47 |
| 4.35 | 0.857 | 90.72 | 1.457 | -44.58 | 0.046 | -70.54 | 0.507 | 122.03 |
| 4.40 | 0.857 | 89.22 | 1.450 | -46.51 | 0.046 | -71.95 | 0.508 | 120.25 |
| 4.45 | 0.855 | 87.99 | 1.446 | -48.27 | 0.046 | -73.34 | 0.508 | 119.27 |
| 4.50 | 0.855 | 86.49 | 1.453 | -50.09 | 0.047 | -74.58 | 0.504 | 117.72 |
| 4.55 | 0.855 | 84.61 | 1.448 | -52.14 | 0.046 | -75.92 | 0.503 | 115.65 |
| 4.60 | 0.854 | 83.10 | 1.449 | -53.98 | 0.047 | -76.82 | 0.501 | 114.46 |
| 4.65 | 0.853 | 81.10 | 1.454 | -56.16 | 0.047 | -78.14 | 0.495 | 112.83 |
| 4.70 | 0.851 | 78.94 | 1.450 | -58.44 | 0.048 | -79.84 | 0.492 | 110.59 |
| 4.75 | 0.851 | 77.09 | 1.450 | -60.56 | 0.048 | -81.55 | 0.491 | 109.01 |
| 4.80 | 0.848 | 74.85 | 1.450 | -62.75 | 0.048 | -83.28 | 0.486 | 107.24 |
| 4.85 | 0.849 | 72.60 | 1.448 | -65.03 | 0.048 | -84.88 | 0.483 | 105.01 |
| 4.90 | 0.845 | 70.48 | 1.443 | -67.33 | 0.048 | -86.30 | 0.482 | 103.27 |
| 4.95 | 0.841 | 68.09 | 1.443 | -69.60 | 0.048 | -87.72 | 0.477 | 101.51 |
| 5.00 | 0.841 | 65.50 | 1.442 | -72.12 | 0.048 | -89.22 | 0.474 | 99.28 |

ARCHIVE INFORMATION

ARCHIVE INFORMATION

NOTES

ARCHIVE INFORMATION

ARCHIVE INFORMATION

NOTES

ARCHIVE INFORMATION

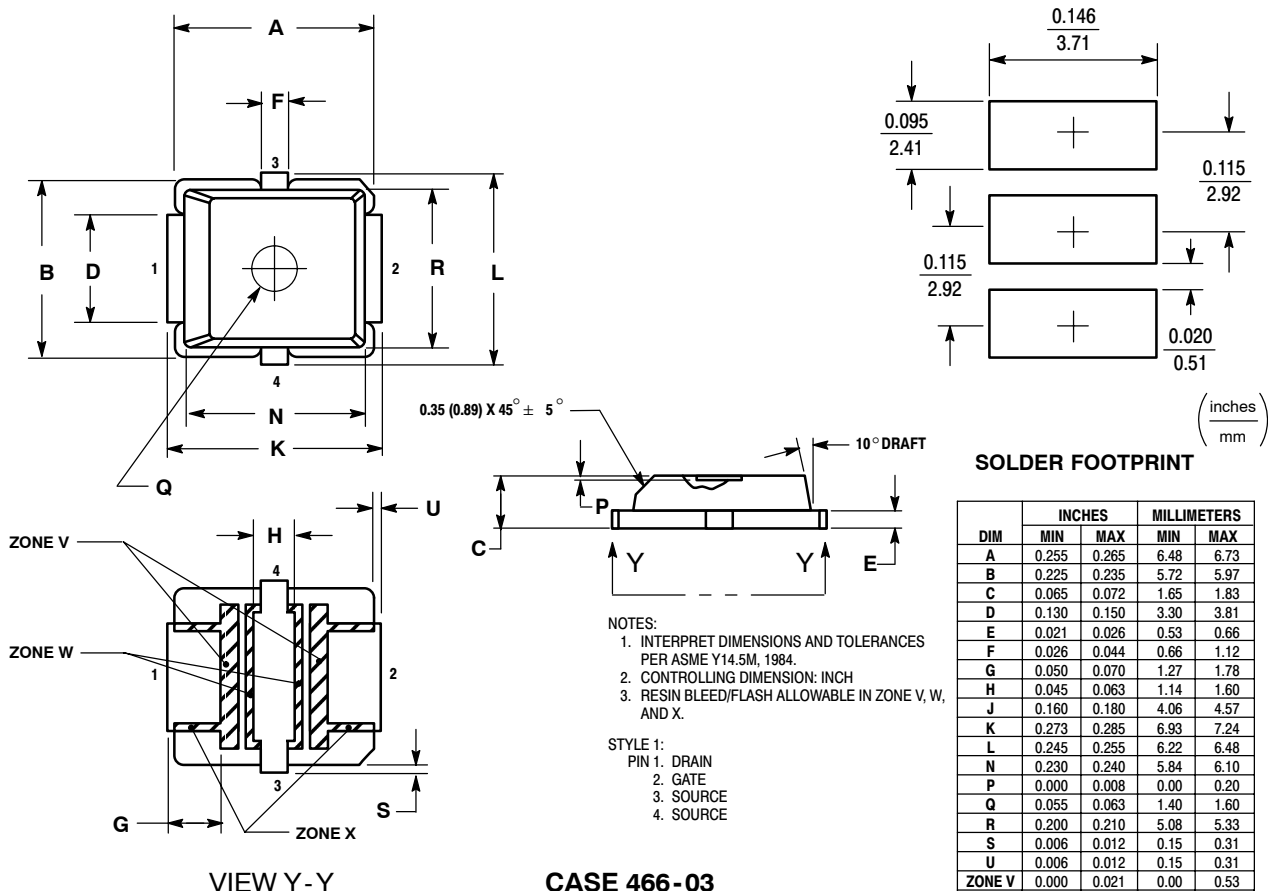
ARCHIVE INFORMATION

NOTES

ARCHIVE INFORMATION

ARCHIVE INFORMATION

PACKAGE DIMENSIONS



**CASE 466-03
 ISSUE D
 PLD-1.5
 PLASTIC**

How to Reach Us:

Home Page:
www.freescale.com

E-mail:
support@freescale.com

USA/Europe or Locations Not Listed:
Freescale Semiconductor
Technical Information Center, CH370
1300 N. Alma School Road
Chandler, Arizona 85224
+1-800-521-6274 or +1-480-768-2130
support@freescale.com

Europe, Middle East, and Africa:
Freescale Halbleiter Deutschland GmbH
Technical Information Center
Schatzbogen 7
81829 Muenchen, Germany
+44 1296 380 456 (English)
+46 8 52200080 (English)
+49 89 92103 559 (German)
+33 1 69 35 48 48 (French)
support@freescale.com

Japan:
Freescale Semiconductor Japan Ltd.
Headquarters
ARCO Tower 15F
1-8-1, Shimo-Meguro, Meguro-ku,
Tokyo 153-0064
Japan
0120 191014 or +81 3 5437 9125
support.japan@freescale.com

Asia/Pacific:
Freescale Semiconductor Hong Kong Ltd.
Technical Information Center
2 Dai King Street
Tai Po Industrial Estate
Tai Po, N.T., Hong Kong
+800 2666 8080
support.asia@freescale.com

For Literature Requests Only:
Freescale Semiconductor Literature Distribution Center
P.O. Box 5405
Denver, Colorado 80217
1-800-441-2447 or 303-675-2140
Fax: 303-675-2150
LDCForFreescaleSemiconductor@hibbertgroup.com

Information in this document is provided solely to enable system and software implementers to use Freescale Semiconductor products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits or integrated circuits based on the information in this document.

Freescale Semiconductor reserves the right to make changes without further notice to any products herein. Freescale Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Freescale Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters that may be provided in Freescale Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals", must be validated for each customer application by customer's technical experts. Freescale Semiconductor does not convey any license under its patent rights nor the rights of others. Freescale Semiconductor products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Freescale Semiconductor product could create a situation where personal injury or death may occur. Should Buyer purchase or use Freescale Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold Freescale Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Freescale Semiconductor was negligent regarding the design or manufacture of the part.

Freescale™ and the Freescale logo are trademarks of Freescale Semiconductor, Inc. All other product or service names are the property of their respective owners.
© Freescale Semiconductor, Inc. 2006. All rights reserved.

RoHS-compliant and/or Pb-free versions of Freescale products have the functionality and electrical characteristics of their non-RoHS-compliant and/or non-Pb-free counterparts. For further information, see <http://www.freescale.com> or contact your Freescale sales representative.

For information on Freescale's Environmental Products program, go to <http://www.freescale.com/epp>.

