

SILICON MOS N-CHANNEL RF POWER TRANSISTOR

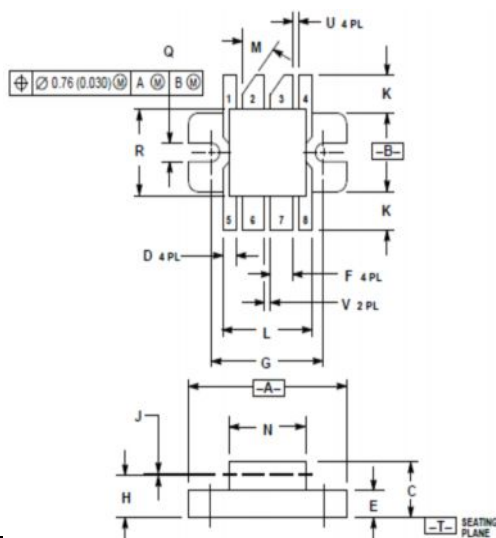
100 W, up to 500 MHz, Enhancement Mode

MRF177

Designed primarily for wideband large-signal output and driver from 30–500 MHz.

Features:

- Performance at 400 MHz, 28 Vdc
- Power Gain: 10 dB Min
- Output Power: 100 W
- Efficiency: 55 % Min



NOTES:
1. DIMENSIONING AND TOLERANCING PER AN Y14.5M, 1992.

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|-------|-----------|-------|
| | MIN | MAX | MIN | MAX |
| A | 22.60 | 23.11 | 0.890 | 0.910 |
| B | 6.52 | 10.03 | 0.257 | 0.394 |
| C | 6.65 | 7.16 | 0.262 | 0.282 |
| D | 1.60 | 1.95 | 0.063 | 0.077 |
| E | 2.94 | 3.45 | 0.116 | 0.134 |
| F | 0.87 | 3.22 | 0.033 | 0.127 |
| G | 16.61 BSC | | 0.650 BSC | |
| H | 4.01 | 4.36 | 0.158 | 0.172 |
| J | 0.07 | 0.15 | 0.003 | 0.006 |
| K | 4.34 | 4.90 | 0.171 | 0.193 |
| L | 12.45 | 12.95 | 0.490 | 0.510 |
| M | 45° NOM | | 45° NOM | |
| N | 1.05 | 11.02 | 0.041 | 0.434 |
| Q | 3.04 | 3.38 | 0.120 | 0.132 |
| R | 0.90 | 10.41 | 0.360 | 0.410 |
| U | 1.02 | 1.27 | 0.040 | 0.050 |
| V | 0.64 | 0.89 | 0.025 | 0.035 |

STYLE 2
PIN 1: SOURCE (COMMON)
2: DRAIN
3: DRAIN
4: SOURCE (COMMON)
5: SOURCE (COMMON)
6: GATE
7: GATE
8: SOURCE (COMMON)

CASE 744A-01

Absolute Maximum Ratings

| Parameters | Sym | Value | Unit |
|---|-----------------|-------------|---------------|
| Drain-Source Voltage | V_{DSS} | 65 | V_{DC} |
| Drain Current-Continuous | I_D | 8.0 | A_{DC} |
| Gate-Source Voltage | V_{GS} | ± 40 | V_{DC} |
| Storage Temperature Range | T_{STG} | -65 tu +150 | $^{\circ}C$ |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 0.65 | $^{\circ}C/W$ |
| Total Power Dissipation @ $T_C=25^{\circ}C$ | P_D | 270 | W |

Parameters

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|--|---------------|------|------|------|--------------|
| Drain-Source Breakdown Voltage ($I_D=5.0$ mA, $V_{GS}=0$ V) | $V_{(BR)DSS}$ | 65 | — | — | V_{DC} |
| Gate-Source Leakage Current ($V_{GS}=20$ V, $V_{DS}=0$ V) (1) | I_{GSS} | — | — | 1.0 | μA_{DC} |
| Zero Gate Voltage Drain Leakage Current ($V_{DS} = 28$ V, $V_{GS}=0$ V) (1) | I_{DSS} | — | — | 2.0 | mA_{DC} |
| Gate Threshold Voltage ($V_{DS} = 10$ V, $I_D = 25$ mA) (1) | $V_{GS(TH)}$ | 1 | — | 6 | V_{DC} |
| Forward Transconductance ($V_{DS} = 10$ V, $I_D = 2$ A) (1) | G_{FS} | 1.8 | 2.2 | — | mhos |
| Input Capacitance ($V_{DS} = 28$ V, $V_{GS}=0$ V, $f = 1$ MHz) (1) | C_{ISS} | — | 100 | — | pF |
| Output Capacitance ($V_{DS} = 28$ V, $V_{GS}=0$ V, $f = 1$ MHz) (1) | C_{OSS} | — | 105 | — | pF |
| Reverse Transfer Capacitance ($V_{DS} = 28$ V, $V_{GS}=0$ V, $f = 1$ MHz) (1) | C_{RSS} | — | 10 | — | pF |
| Power Gain ($V_{DS} = 28$ V, $P_{OUT} = 100W$, $I_{DQ} = 200$ mA, $f = 400$ MHz) | G_p | 10 | 12 | — | dB |
| Drain Efficiency ($V_{DS} = 28$ V, $P_{OUT} = 100$ W, $I_{DQ} = 200$ mA, $f = 400$ MHz) | η_D | 55 | 60 | — | % |

(1) Each transistor chip measured separately.

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Specification is subject to change without notice