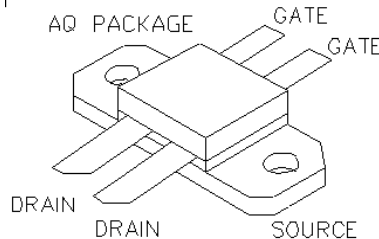




**General Description**

Silicon VDMOS and LDMOS transistors designed specifically for broadband RF applications. Suitable for Military Radios, Cellular and Paging Amplifier Base Stations, Broadcast FM/AM, MRI, Laser Driver and others.

"Polyfet"<sup>TM</sup> process features gold metal for greatly extended lifetime. Low output capacitance and high  $F_t$  enhance broadband performance



**PATENTED GOLD METALIZED SILICON GATE ENHANCEMENT MODE RF POWER VDMOS TRANSISTOR**

**40 Watts Push - Pull**

**Package Style AQ**

**HIGH EFFICIENCY, LINEAR, HIGH GAIN, LOW NOISE**

**ABSOLUTE MAXIMUM RATINGS (TC = 25 °C)**

| Total Device Dissipation | Junction to Case Thermal Resistance | Maximum Junction Temperature | Storage Temperature | DC Drain Current | Drain to Gate Voltage | Drain to Source Voltage | Gate to Source Voltage |
|--------------------------|-------------------------------------|------------------------------|---------------------|------------------|-----------------------|-------------------------|------------------------|
| 170 Watts                | 1.05 °C/W                           | 200 °C                       | -65 °C to 150 °C    | 8 A              | 70 V                  | 70V                     | 30V                    |

**RF CHARACTERISTICS ( 40WATTS OUTPUT )**

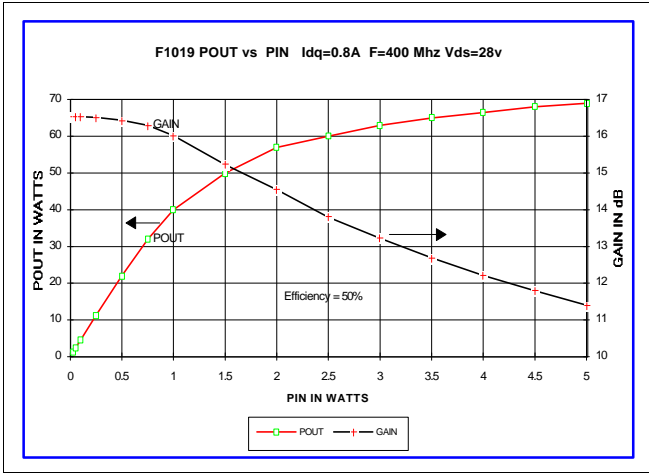
| SYMBOL | PARAMETER                | MIN | TYP | MAX  | UNITS    | TEST CONDITIONS  |
|--------|--------------------------|-----|-----|------|----------|--|
| Gps    | Common Source Power Gain | 13  |     |      | dB       | $I_{dq} = 0.8 \text{ A}$ , $V_{ds} = 28.0 \text{ V}$ , $F = 400 \text{ MHz}$ |
| $\eta$ | Drain Efficiency         |     | 60  |      | %        | $I_{dq} = 0.8 \text{ A}$ , $V_{ds} = 28.0 \text{ V}$ , $F = 400 \text{ MHz}$ |
| VSWR   | Load Mismatch Tolerance  |     |     | 20:1 | Relative | $I_{dq} = 0.8 \text{ A}$ , $V_{ds} = 28.0 \text{ V}$ , $F = 400 \text{ MHz}$ |

**ELECTRICAL CHARACTERISTICS (EACH SIDE)**

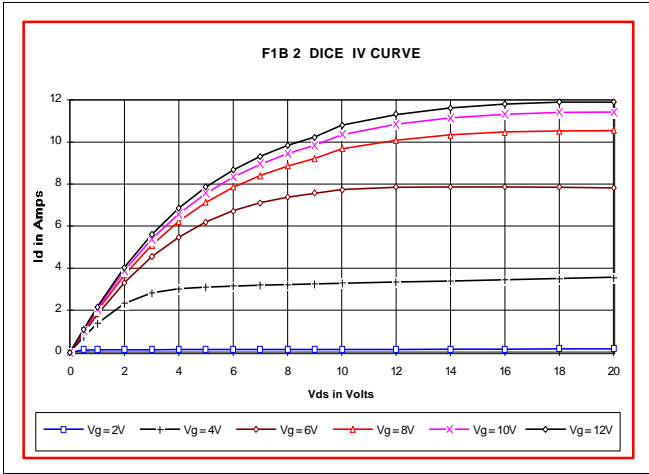
| SYMBOL     | PARAMETER                          | MIN | TYP | MAX | UNITS | TEST CONDITIONS  |
|------------|------------------------------------|-----|-----|-----|-------|--|
| Bvdss      | Drain Breakdown Voltage            | 65  |     |     | V     | $I_{ds} = 0.1 \text{ A}$ , $V_{gs} = 0 \text{ V}$                        |
| $I_{dss}$  | Zero Bias Drain Current            |     |     | 2   | mA    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$                       |
| $I_{gss}$  | Gate Leakage Current               |     |     | 1   | uA    | $V_{ds} = 0 \text{ V}$ , $V_{gs} = 30 \text{ V}$                         |
| $V_{gs}$   | Gate Bias for Drain Current        | 1   |     | 7   | V     | $I_{ds} = 0.2 \text{ A}$ , $V_{gs} = V_{ds}$                             |
| gM         | Forward Transconductance           |     | 1.6 |     | Mho   | $V_{ds} = 10 \text{ V}$ , $V_{gs} = 5 \text{ V}$                         |
| Rdson      | Saturation Resistance              |     | 0.7 |     | Ohm   | $V_{gs} = 20 \text{ V}$ , $I_{ds} = 8 \text{ A}$                         |
| $I_{dsat}$ | Saturation Current                 |     | 11  |     | Amp   | $V_{gs} = 20 \text{ V}$ , $V_{ds} = 10 \text{ V}$                        |
| Ciss       | Common Source Input Capacitance    |     | 66  |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |
| Crss       | Common Source Feedback Capacitance |     | 8   |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |
| Coss       | Common Source Output Capacitance   |     | 40  |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |

# F1019

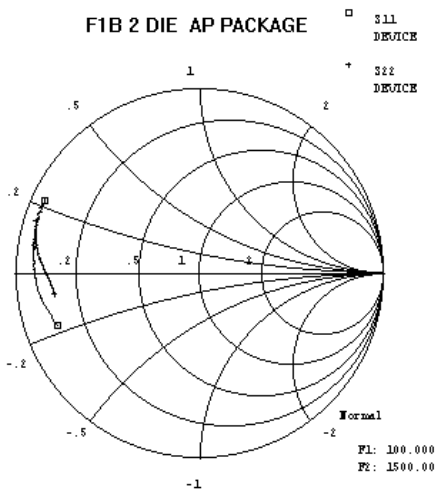
POUT VS PIN GRAPH



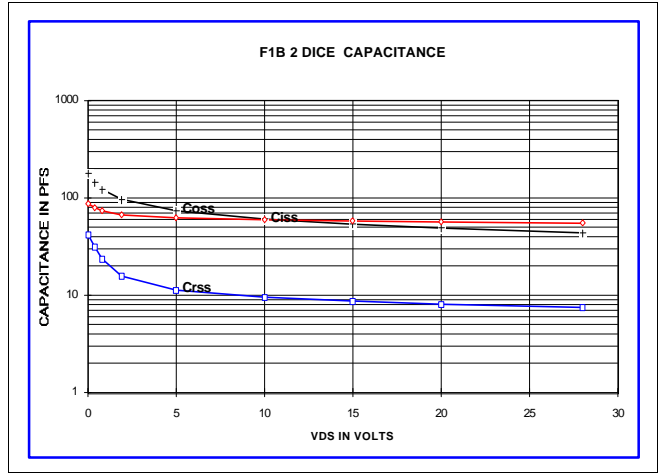
IV CURVE



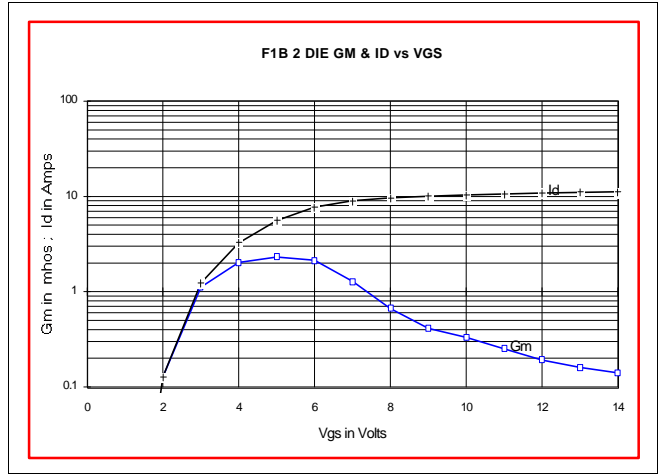
S11 AND S22 SMITH CHART



CAPACITANCE VS VOLTAGE



ID AND GM VS VGS



PACKAGE DIMENSIONS IN INCHES

