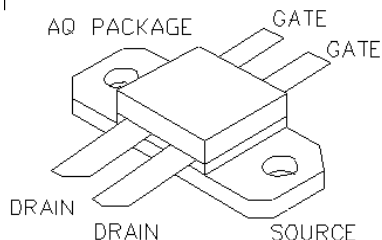




### General Description

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"™ 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

5 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 |
|--------------------------|-------------------------------------|------------------------------|---------------------|------------------|-----------------------|-------------------------|------------------------|
| 30 Watts                 | 6 °C/W                              | 200 °C                       | -65 °C to 150 °C    | 1.6 A            | 70 V                  | 70V                     | 30V                    |

### RF CHARACTERISTICS ( 5WATTS OUTPUT )

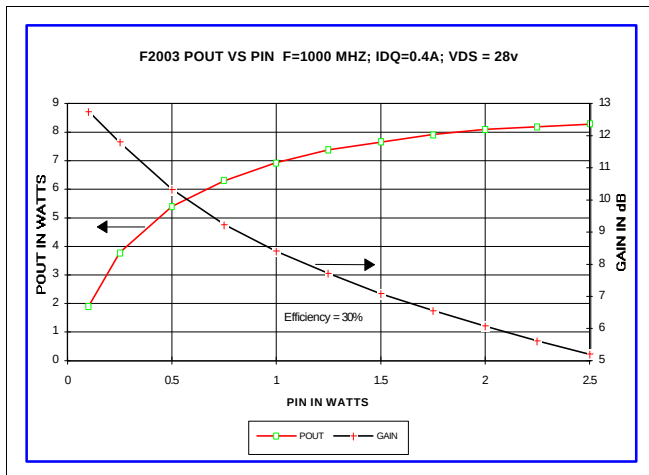
| SYMBOL | PARAMETER                | MIN | TYP | MAX  | UNITS    | TEST CONDITIONS                                                               |
|--------|--------------------------|-----|-----|------|----------|-------------------------------------------------------------------------------|
| Gps    | Common Source Power Gain | 10  |     |      | dB       | $I_{dq} = 0.4 \text{ A}$ , $V_{ds} = 28.0 \text{ V}$ , $F = 1000 \text{ MHz}$ |
| $\eta$ | Drain Efficiency         |     | 45  |      | %        | $I_{dq} = 0.4 \text{ A}$ , $V_{ds} = 28.0 \text{ V}$ , $F = 1000 \text{ MHz}$ |
| VSWR   | Load Mismatch Tolerance  |     |     | 20:1 | Relative | $I_{dq} = 0.4 \text{ A}$ , $V_{ds} = 28.0 \text{ V}$ , $F = 1000 \text{ MHz}$ |

### ELECTRICAL CHARACTERISTICS (EACH SIDE)

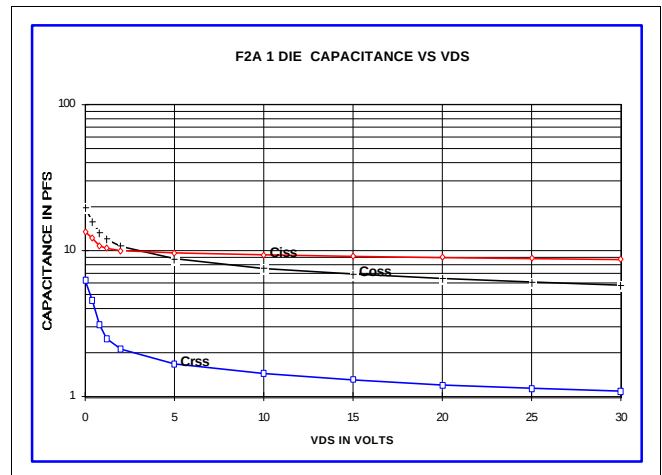
| SYMBOL | PARAMETER                          | MIN | TYP | MAX | UNITS | TEST CONDITIONS                                                          |
|--------|------------------------------------|-----|-----|-----|-------|--------------------------------------------------------------------------|
| Bvdss  | Drain Breakdown Voltage            | 65  |     |     | V     | $I_{ds} = 0.01 \text{ A}$ , $V_{gs} = 0 \text{ V}$                       |
| Idss   | Zero Bias Drain Current            |     |     | 0.2 | mA    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$                       |
| Igss   | Gate Leakage Current               |     |     | 1   | uA    | $V_{ds} = 0 \text{ V}$ , $V_{gs} = 30 \text{ V}$                         |
| Vgs    | Gate Bias for Drain Current        | 1   |     | 7   | V     | $I_{ds} = 0.02 \text{ A}$ , $V_{gs} = V_{ds}$                            |
| gm     | Forward Transconductance           |     | 0.2 |     | Mho   | $V_{ds} = 10 \text{ V}$ , $V_{gs} = 5 \text{ V}$                         |
| Rdson  | Saturation Resistance              |     | 3.5 |     | Ohm   | $V_{gs} = 20 \text{ V}$ , $I_{ds} = 1 \text{ A}$                         |
| Idsat  | Saturation Current                 |     | 1.2 |     | Amp   | $V_{gs} = 20 \text{ V}$ , $V_{ds} = 10 \text{ V}$                        |
| Ciss   | Common Source Input Capacitance    |     | 9   |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |
| Crss   | Common Source Feedback Capacitance |     | 1   |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |
| Coss   | Common Source Output Capacitance   |     | 6   |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |

# F2003

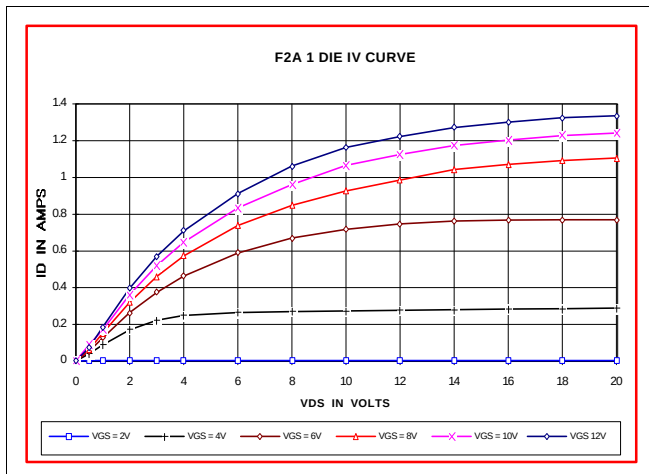
POUT VS PIN GRAPH



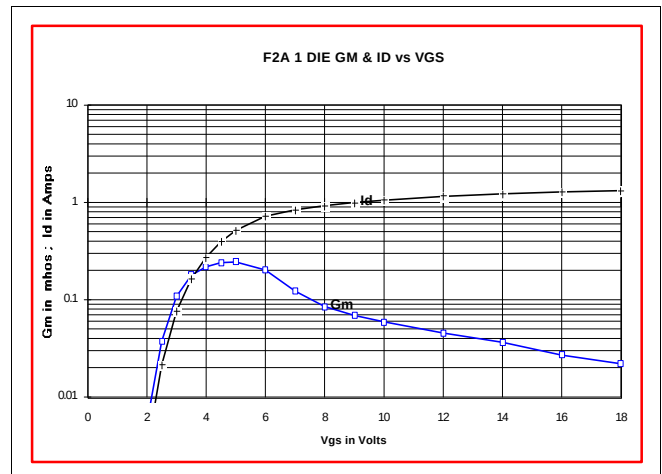
CAPACITANCE VS VOLTAGE



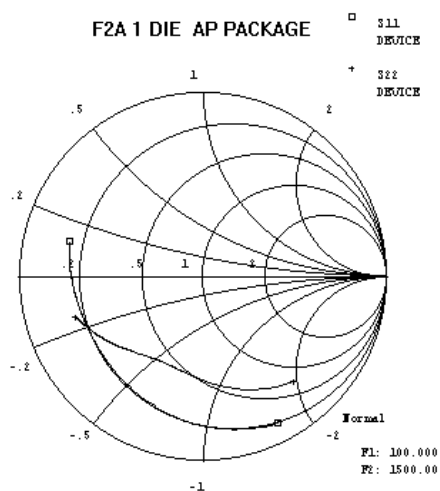
IV CURVE



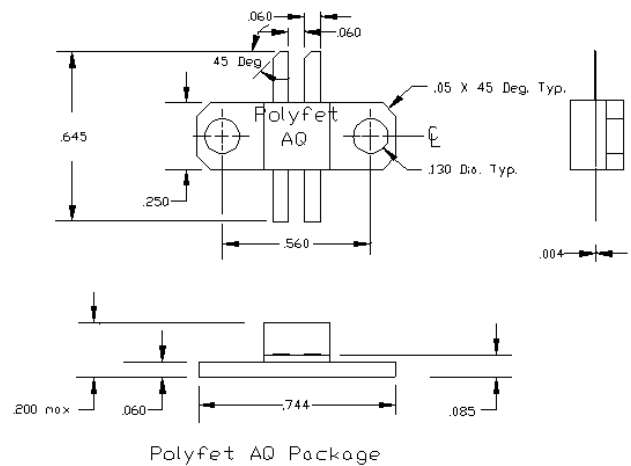
ID AND GM VS VGS



S11 AND S22 SMITH CHART



PACKAGE DIMENSIONS IN INCHES



POLYFET RF DEVICES

REVISION 8/1/97