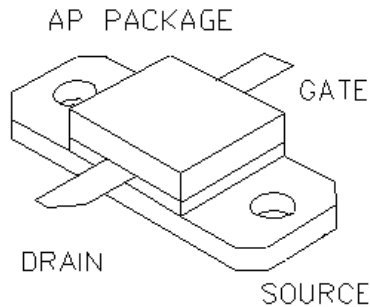




### General Description

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 Single Ended**

**Package Style AP**

**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 )

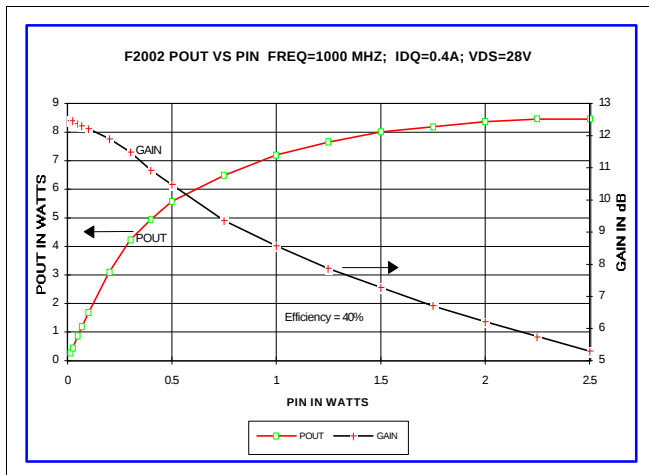
| SYMBOL | PARAMETER                | MIN | TYP | MAX  | UNITS    | TEST CONDITIONS                                                               |
|--------|--------------------------|-----|-----|------|----------|-------------------------------------------------------------------------------|
| Gps    | 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)

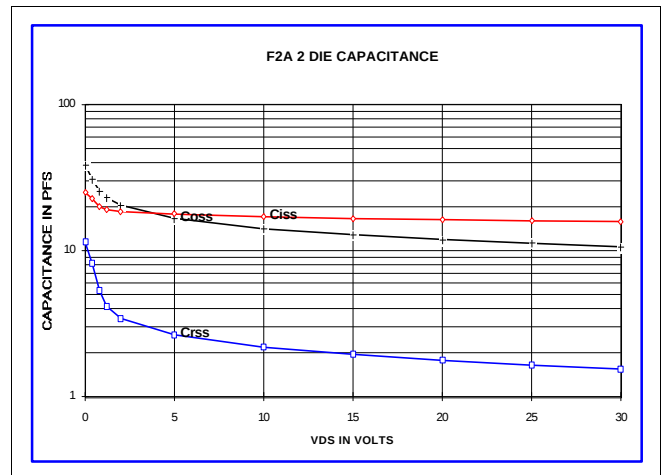
| SYMBOL     | PARAMETER                          | MIN | TYP | MAX | UNITS | TEST CONDITIONS                                                          |
|------------|------------------------------------|-----|-----|-----|-------|--------------------------------------------------------------------------|
| Bvdss      | Drain Breakdown Voltage            | 65  |     |     | V     | $I_{ds} = 0.02 \text{ A}$ , $V_{gs} = 0 \text{ V}$                       |
| $I_{dss}$  | Zero Bias Drain Current            |     |     | 0.4 | 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     | $I_{ds} = 0.04 \text{ A}$ , $V_{gs} = V_{ds}$                            |
| $g_m$      | Forward Transconductance           |     | 0.4 |     | Mho   | $V_{ds} = 10 \text{ V}$ , $V_{gs} = 5 \text{ V}$                         |
| $R_{dson}$ | Saturation Resistance              |     | 2.1 |     | Ohm   | $V_{gs} = 20 \text{ V}$ , $I_{ds} = 2 \text{ A}$                         |
| $I_{dsat}$ | Saturation Current                 |     | 2.4 |     | Amp   | $V_{gs} = 20 \text{ V}$ , $V_{ds} = 10 \text{ V}$                        |
| $C_{iss}$  | Common Source Input Capacitance    |     | 18  |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |
| $C_{rss}$  | Common Source Feedback Capacitance |     | 2   |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |
| $C_{oss}$  | Common Source Output Capacitance   |     | 12  |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |

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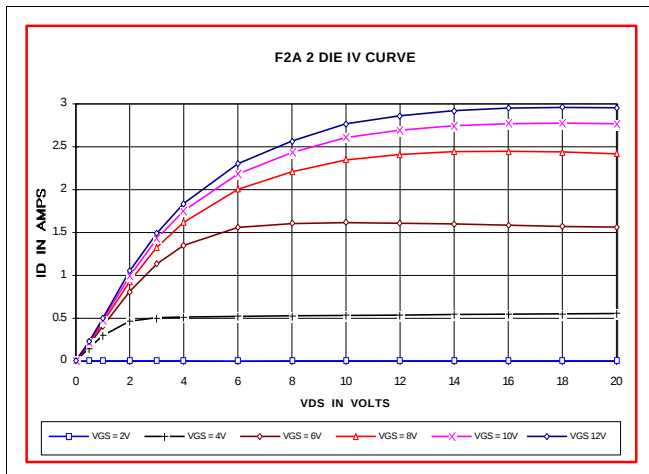
POUT VS PIN GRAPH



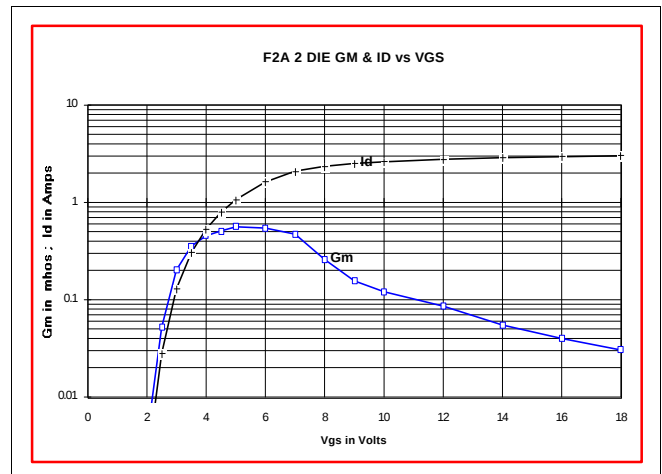
CAPACITANCE VS VOLTAGE



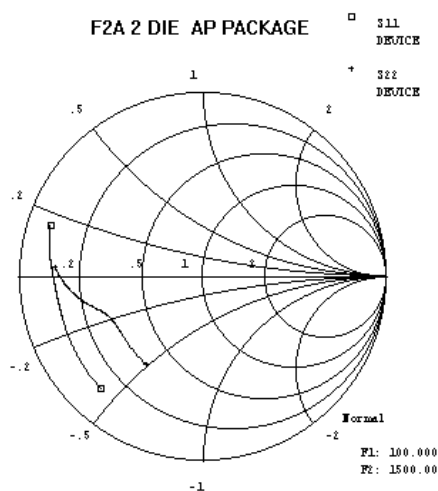
IV CURVE



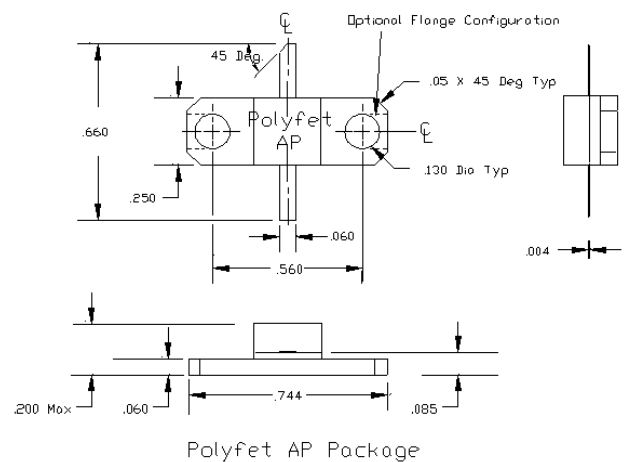
ID AND GM VS VGS



S11 AND S22 SMITH CHART



PACKAGE DIMENSIONS IN INCHES



POLYFET RF DEVICES

REVISION 8/1/97