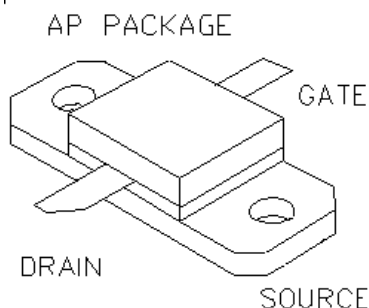




### General Description

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

0.5 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 |
|--------------------------|-------------------------------------|------------------------------|---------------------|------------------|-----------------------|-------------------------|------------------------|
| 10 Watts                 | 13 °C/W                             | 200 °C                       | -65 °C to 150 °C    | 0.4 A            | 70 V                  | 70V                     | 30V                    |

### RF CHARACTERISTICS ( 0.5WATTS OUTPUT )

| SYMBOL | PARAMETER                | MIN | TYP | MAX  | UNITS    | TEST CONDITIONS                                                               |
|--------|--------------------------|-----|-----|------|----------|-------------------------------------------------------------------------------|
| Gps    | Common Source Power Gain | 8   |     |      | dB       | $I_{dq} = 0.1 \text{ A}$ , $V_{ds} = 28.0 \text{ V}$ , $F = 2000 \text{ MHz}$ |
| $\eta$ | Drain Efficiency         |     | 35  |      | %        | $I_{dq} = 0.1 \text{ A}$ , $V_{ds} = 28.0 \text{ V}$ , $F = 2000 \text{ MHz}$ |
| VSWR   | Load Mismatch Tolerance  |     |     | 20:1 | Relative | $I_{dq} = 0.1 \text{ A}$ , $V_{ds} = 28.0 \text{ V}$ , $F = 2000 \text{ MHz}$ |

### ELECTRICAL CHARACTERISTICS (EACH SIDE)

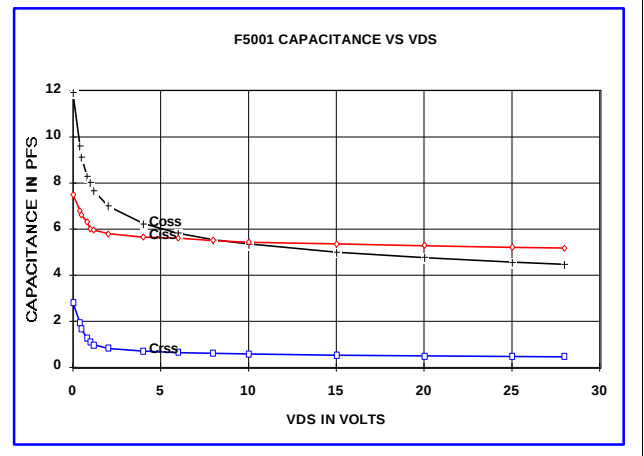
| SYMBOL     | PARAMETER                          | MIN | TYP | MAX | UNITS | TEST CONDITIONS                                                          |
|------------|------------------------------------|-----|-----|-----|-------|--------------------------------------------------------------------------|
| Bvdss      | Drain Breakdown Voltage            | 65  |     |     | V     | $I_{ds} = 0.01 \text{ A}$ , $V_{gs} = 0 \text{ V}$                       |
| $I_{dss}$  | Zero Bias Drain Current            |     |     | 0.2 | 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     | $I_{ds} = 0.02 \text{ A}$ , $V_{gs} = V_{ds}$                            |
| $g_m$      | Forward Transconductance           |     | 0.1 |     | Mho   | $V_{ds} = 10 \text{ V}$ , $V_{gs} = 5 \text{ V}$                         |
| $R_{dson}$ | Saturation Resistance              |     | 4.5 |     | Ohm   | $V_{gs} = 20 \text{ V}$ , $I_{ds} = 1 \text{ A}$                         |
| $I_{dsat}$ | Saturation Current                 |     | 0.6 |     | Amp   | $V_{gs} = 20 \text{ V}$ , $V_{ds} = 10 \text{ V}$                        |
| $C_{iss}$  | Common Source Input Capacitance    |     | 4   |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |
| $C_{rss}$  | Common Source Feedback Capacitance |     | 0.4 |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |
| $C_{oss}$  | Common Source Output Capacitance   |     | 3   |     | pF    | $V_{ds} = 28.0 \text{ V}$ , $V_{gs} = 0 \text{ V}$ , $F = 1 \text{ MHz}$ |

# F5001

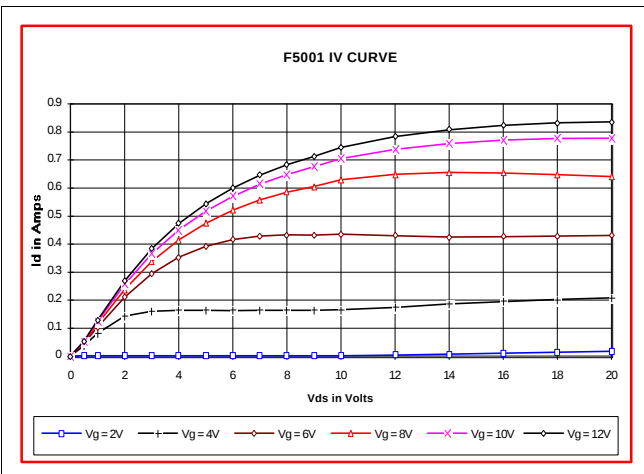
POUT VS PIN GRAPH

PLEASE CALL OFFICE FOR UPDATE

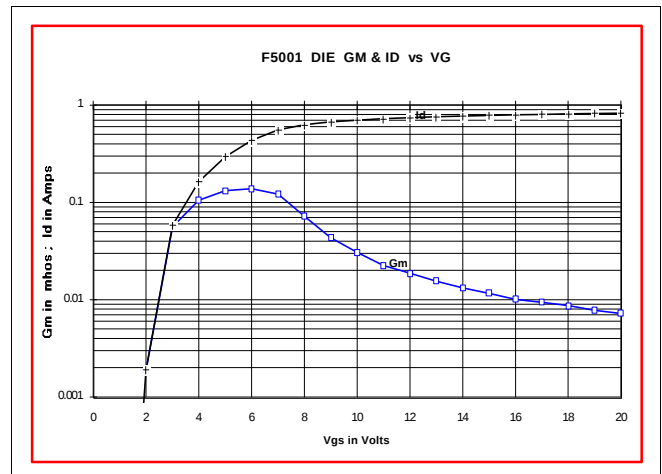
CAPACITANCE VS VOLTAGE



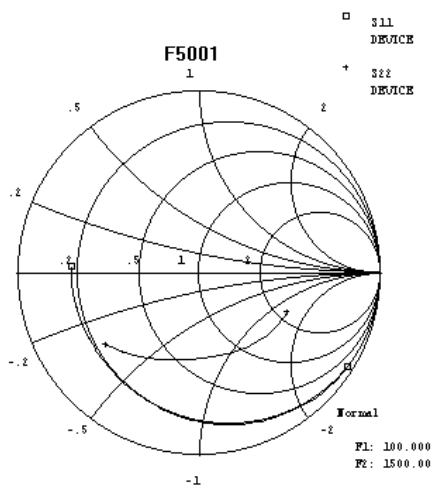
IV CURVE



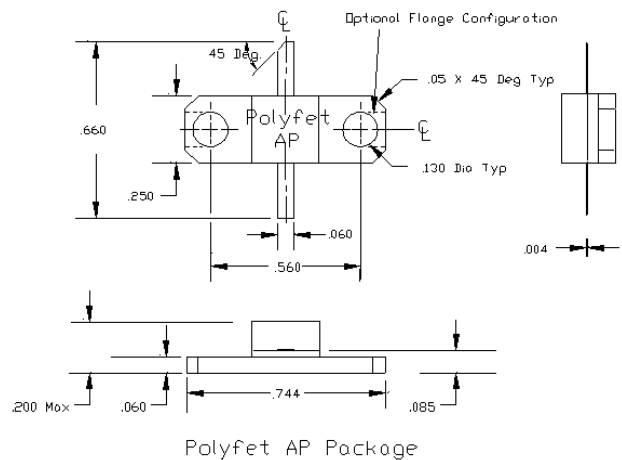
ID AND GM VS VG



S11 AND S22 SMITH CHART



PACKAGE DIMENSIONS IN INCHES



POLYFET RF DEVICES

REVISION 8/1/97