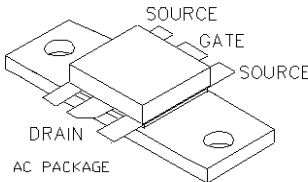




### General Description

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 low feedback and output capacitances resulting in high  $F_t$  transistors with high input impedance and high efficiency.



### SILICON GATE ENHANCEMENT MODE

### RF POWER VDMOS TRANSISTOR

15.0 Watts Single Ended

Package Style AC

HIGH EFFICIENCY, LINEAR  
HIGH GAIN, LOW NOISE

### ABSOLUTE MAXIMUM RATINGS ( $T = 25^{\circ}\text{C}$ )

| 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 |
|--------------------------|-------------------------------------|------------------------------|------------------------------------------------|------------------|-----------------------|-------------------------|------------------------|
| 60 Watts                 | $2.80^{\circ}\text{C/W}$            | $200^{\circ}\text{C}$        | $-65^{\circ}\text{C}$ to $150^{\circ}\text{C}$ | 6.0 A            | 50V                   | 50V                     | 20 V                   |

### RF CHARACTERISTICS ( 15.0 WATTS OUTPUT )

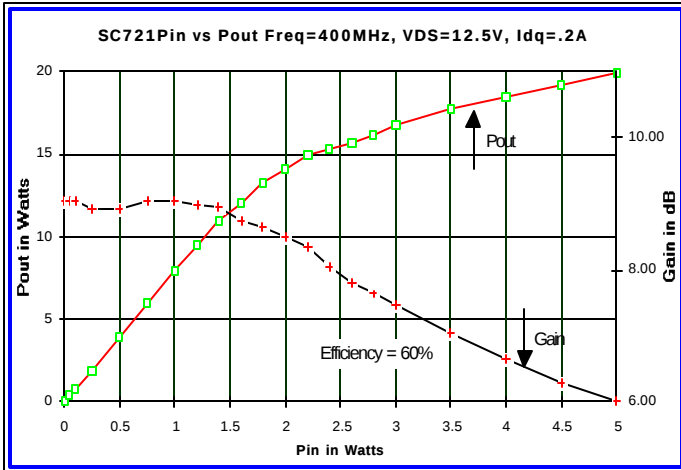
| SYMBOL | PARAMETER                | MIN | TYP | MAX  | UNITS    | TEST CONDITIONS                                                            |
|--------|--------------------------|-----|-----|------|----------|----------------------------------------------------------------------------|
| Gps    | Common Source Power Gain | 8   |     |      | dB       | $I_{dq} = 0.20\text{ A}$ , $V_{ds} = 12.5\text{ V}$ , $F = 400\text{ MHz}$ |
| $\eta$ | Drain Efficiency         |     | 60  |      | %        | $I_{dq} = 0.20\text{ A}$ , $V_{ds} = 12.5\text{ V}$ , $F = 400\text{ MHz}$ |
| VSWR   | Load Mismatch Tolerance  |     |     | 20:1 | Relative | $I_{dq} = 0.20\text{ A}$ , $V_{ds} = 12.5\text{ V}$ , $F = 400\text{ MHz}$ |

### ELECTRICAL CHARACTERISTICS ( EACH SIDE )

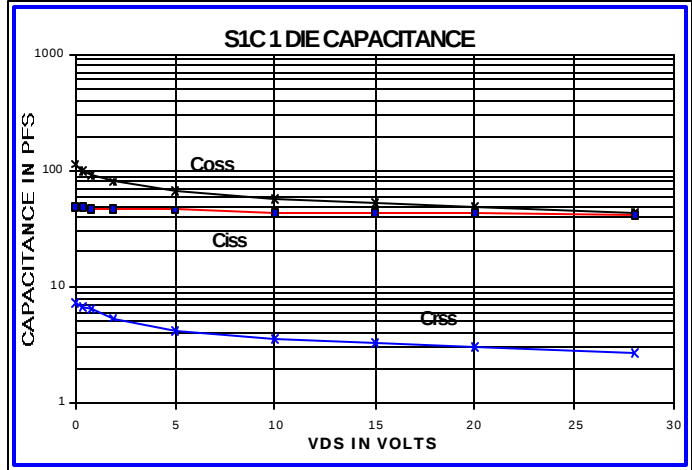
| SYMBOL | PARAMETER                          | MIN | TYP  | MAX | UNITS         | TEST CONDITIONS                                                       |
|--------|------------------------------------|-----|------|-----|---------------|-----------------------------------------------------------------------|
| Bvdss  | Drain Breakdown Voltage            | 40  |      |     | V             | $I_{ds} = 20.00\text{ mA}$ , $V_{gs} = 0\text{ V}$                    |
| Idss   | Zero Bias Drain Current            |     |      | 1.0 | mA            | $V_{ds} = 12.5\text{ V}$ , $V_{gs} = 0\text{ V}$                      |
| Igss   | Gate Leakage Current               |     |      | 1   | $\mu\text{A}$ | $V_{ds} = 0\text{ V}$ , $V_{gs} = 30\text{ V}$                        |
| Vgs    | Gate Bias for Drain Current        | 1   |      | 7   | V             | $I_{ds} = 0.10\text{ A}$ , $V_{gs} = V_{ds}$                          |
| gM     | Forward Transconductance           |     | 1.3  |     | Mho           | $V_{ds} = 10\text{ V}$ , $V_{gs} = 5\text{ V}$                        |
| Rdson  | Saturation Resistance              |     | 0.60 |     | Ohm           | $V_{gs} = 20\text{ V}$ , $I_{ds} = 3.50\text{ A}$                     |
| Idsat  | Saturation Current                 |     | 9.50 |     | Amp           | $V_{gs} = 20\text{ V}$ , $V_{ds} = 10\text{ V}$                       |
| Ciss   | Common Source Input Capacitance    |     | 45.0 |     | pF            | $V_{ds} = 12.5\text{ V}$ , $V_{gs} = 0\text{ V}$ , $F = 1\text{ MHz}$ |
| Crss   | Common Source Feedback Capacitance |     | 3.5  |     | pF            | $V_{ds} = 12.5\text{ V}$ , $V_{gs} = 0\text{ V}$ , $F = 1\text{ MHz}$ |
| Coss   | Common Source Output Capacitance   |     | 55.0 |     | pF            | $V_{ds} = 12.5\text{ V}$ , $V_{gs} = 0\text{ V}$ , $F = 1\text{ MHz}$ |

# SC721

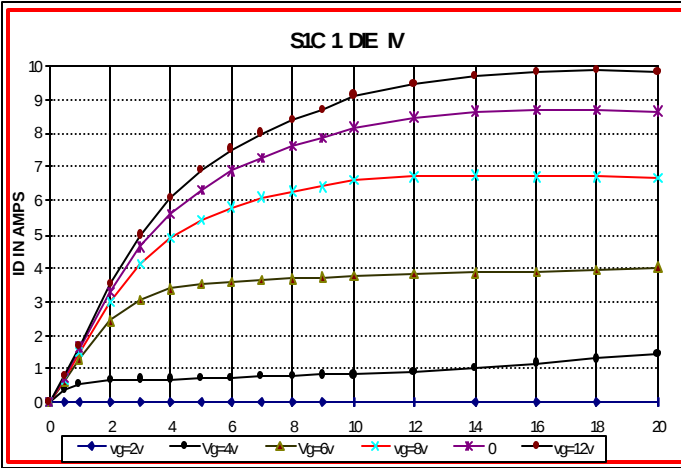
POUT VS PIN GRAPH



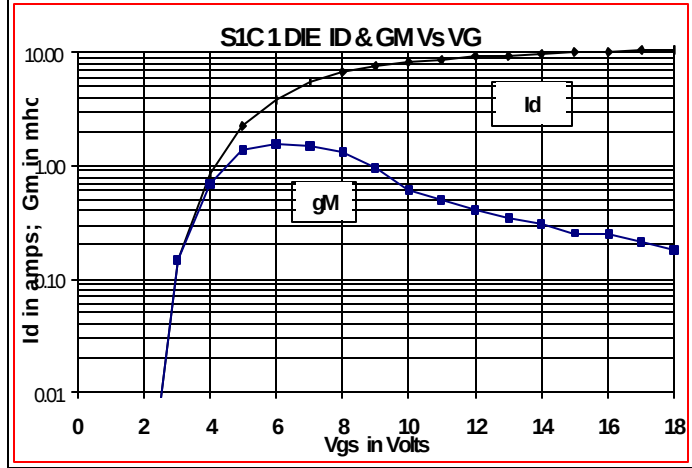
CAPACITANCE VS VOLTAGE



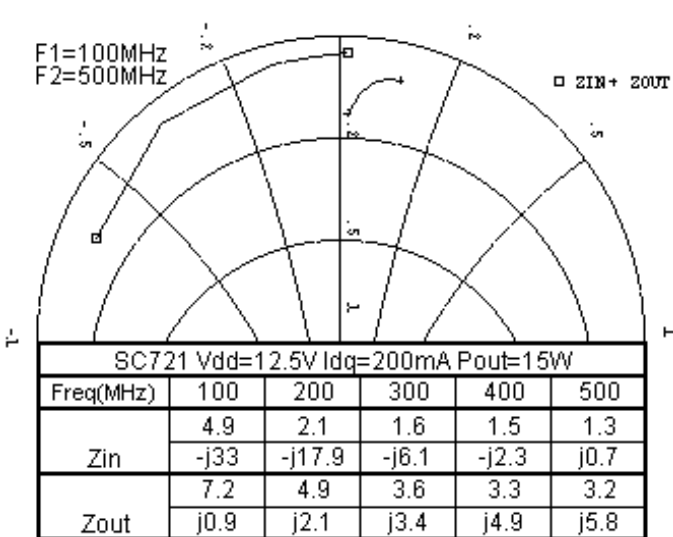
IV CURVE



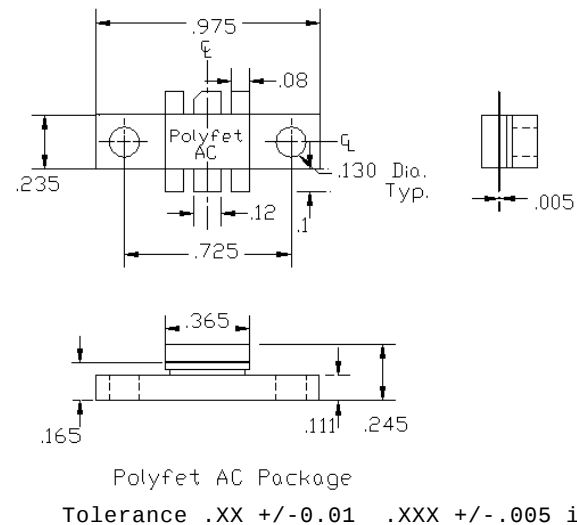
ID & GM VS VGS



Zin Zout



PACKAGE DIMENSIONS IN INCHES



POLYFET RF DEVICES

REVISION 03/28/2001

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