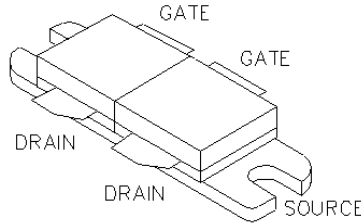




General Description

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

130 Watts Gemini

Package Style AR

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 |
|--------------------------|-------------------------------------|------------------------------|---------------------|------------------|-----------------------|-------------------------|------------------------|
| 390 Watts | 0.45 °C/W | 200 °C | -65 °C to 150 °C | 20 A | 70 V | 70V | 30V |

RF CHARACTERISTICS (130 WATTS OUTPUT)

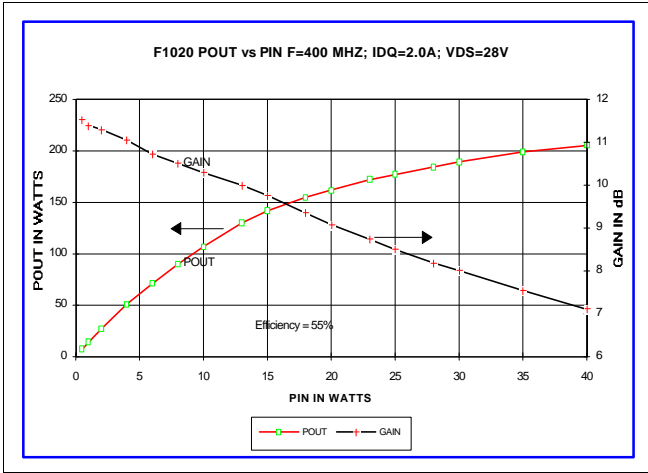
| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|--------|--------------------------|-----|-----|------|----------|--|
| Gps | Common Source Power Gain | 10 | | | dB | $I_{dq} = 2 A, V_{ds} = 28.0 V, F = 400 MHz$ |
| n | Drain Efficiency | | 60 | | % | $I_{dq} = 2 A, V_{ds} = 28.0 V, F = 400 MHz$ |
| VSWR | Load Mismatch Tolerance | | | 20:1 | Relative | $I_{dq} = 2 A, V_{ds} = 28.0 V, F = 400 MHz$ |

ELECTRICAL CHARACTERISTICS (EACH SIDE)

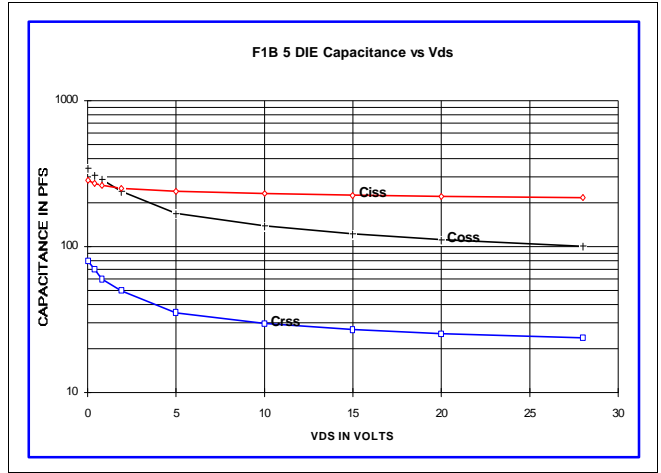
| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|--------|------------------------------------|-----|------|-----|-------|---|
| Bvdss | Drain Breakdown Voltage | 65 | | | V | $I_{ds} = 0.25 A, V_{gs} = 0V$ |
| Idss | Zero Bias Drain Current | | | 5 | mA | $V_{ds} = 28.0 V, V_{gs} = 0V$ |
| Igss | Gate Leakage Current | | | 1 | uA | $V_{ds} = 0 V, V_{gs} = 30V$ |
| Vgs | Gate Bias for Drain Current | 1 | | 7 | V | $I_{ds} = 0.5 A, V_{gs} = V_{ds}$ |
| gM | Forward Transconductance | | 4 | | Mho | $V_{ds} = 10V, V_{gs} = 5V$ |
| Rdson | Saturation Resistance | | 0.25 | | Ohm | $V_{gs} = 20V, I_{ds} = 20 A$ |
| Idsat | Saturation Current | | 27.5 | | Amp | $V_{gs} = 20V, V_{ds} = 10V$ |
| Ciss | Common Source Input Capacitance | | 165 | | pF | $V_{ds} = 28.0 V, V_{as} = 0V, F = 1 MHz$ |
| Crss | Common Source Feedback Capacitance | | 20 | | pF | $V_{ds} = 28.0 V, V_{as} = 0V, F = 1 MHz$ |
| Coss | Common Source Output Capacitance | | 100 | | pF | $V_{ds} = 28.0 V, V_{as} = 0V, F = 1 MHz$ |

F1020

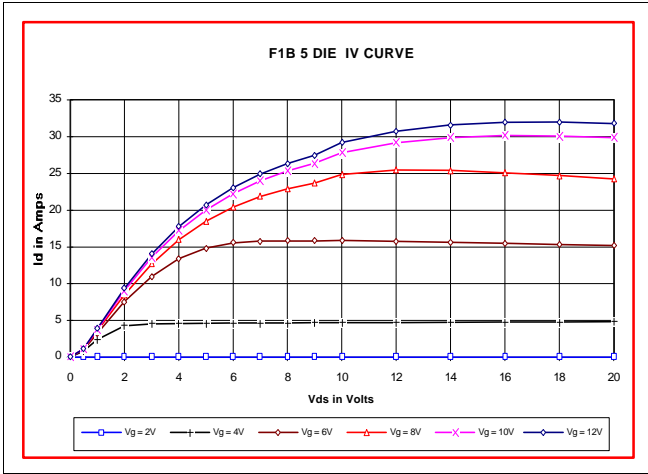
POUT VS PIN GRAPH



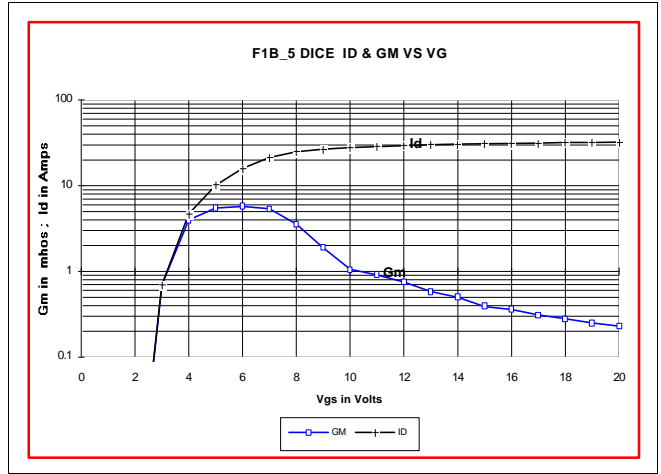
CAPACITANCE VS VOLTAGE



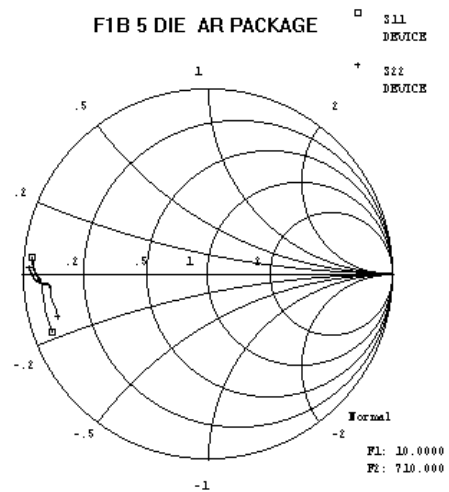
IV CURVE



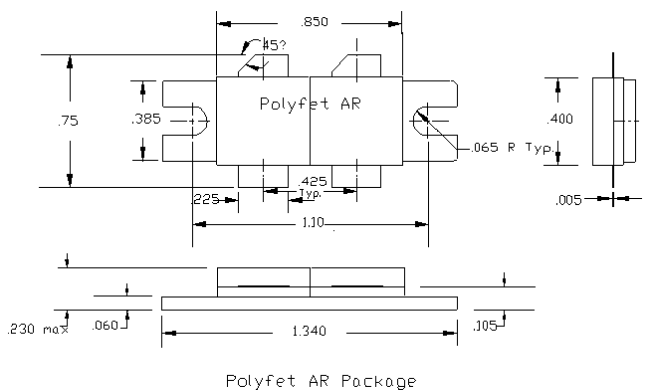
ID AND GM VS VGS



S11 AND S22 SMITH CHART



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