



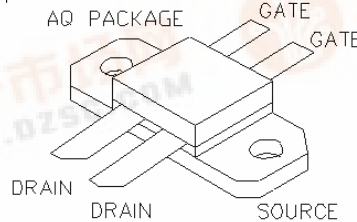
polyfet rf devices

SQ742

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"TM process features low feedback and output capacitances resulting in high F_{\uparrow} transistors with high input impedance and high efficiency.



SILICON GATE ENHANCEMENT MODE

RF POWER VDMOS TRANSISTOR

90.0 Watts Push - Pull

Package Style AQ

HIGH EFFICIENCY, LINEAR

HIGH GAIN, LOW NOISE

ABSOLUTE MAXIMUM RATINGS (T = 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 |
|--------------------------|-------------------------------------|------------------------------|---------------------|------------------|-----------------------|-------------------------|------------------------|
| 190 Watts | 0.85 °C/W | 200 °C | -65 °C to 150 °C | 7.5 A | 125V | 125V | 20 V |

RF CHARACTERISTICS (90.0 WATTS OUTPUT)

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|--------|--------------------------|-----|-----|------|----------|--|
| Gps | Common Source Power Gain | 11 | | | dB | Idq = 0.60 A, Vds = 50.0 V, F = 400MHz |
| η | Drain Efficiency | | 50 | | % | Idq = 0.60 A, Vds = 50.0 V, F = 400MHz |
| VSWR | Load Mismatch Tolerance | | | 20:1 | Relative | Idq = 0.60 A, Vds = 50.0 V, F = 400MHz |

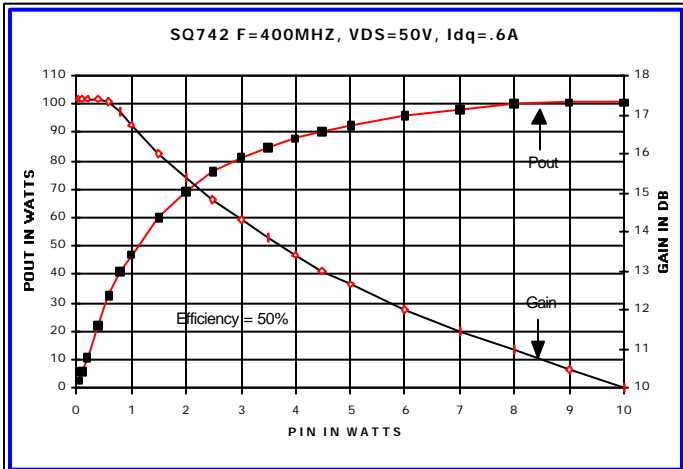
ELECTRICAL CHARACTERISTICS (EACH SIDE)

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|--------|------------------------------------|-----|------|-----|-------|--------------------------------|
| Bvdss | Drain Breakdown Voltage | 125 | | | V | Ids = 20.00 mA, Vgs = 0V |
| Idss | Zero Bias Drain Current | | | 2.0 | mA | Vds = 50.0 V, Vgs = 0V |
| Igss | Gate Leakage Current | | | 1 | uA | Vds = 0V Vgs = 30V |
| Vgs | Gate Bias for Drain Current | 1 | | 7 | V | Ids = 0.10 A, Vgs = Vds |
| gM | Forward Transconductance | | 1.6 | | Mho | Vds = 10V, Vgs = 5V |
| Rdson | Saturation Resistance | | 1.50 | | Ohm | Vgs = 20V, Ids = 2.00 A |
| Idsat | Saturation Current | | 7.00 | | Amp | Vgs = 20V, Vds = 10V |
| Ciss | Common Source Input Capacitance | | 96.0 | | pF | Vds = 50.0 Vgs = 0V, F = 1 MHz |
| Crss | Common Source Feedback Capacitance | | 0.4 | | pF | Vds = 50.0 Vgs = 0V, F = 1 MHz |
| Coss | Common Source Output Capacitance | | 34.0 | | pF | Vds = 50.0 Vgs = 0V, F = 1 MHz |

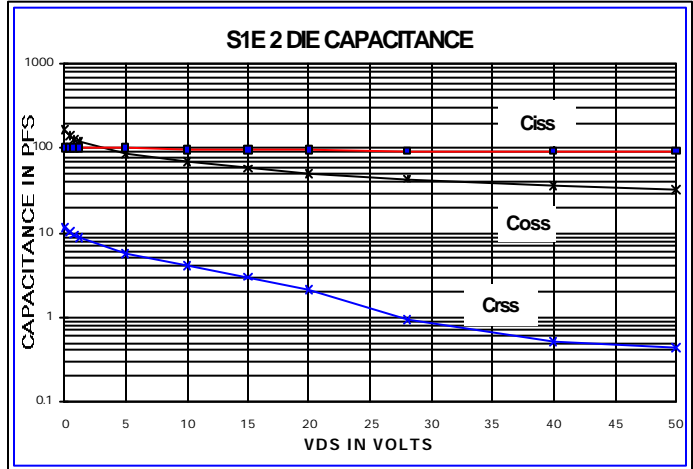


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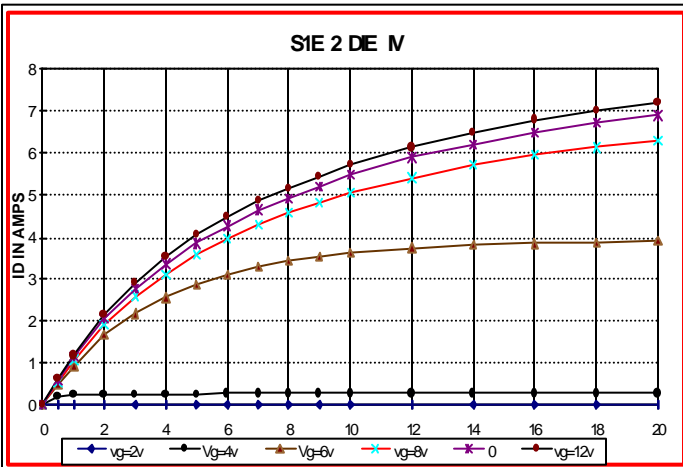
POUT VS PIN GRAPH



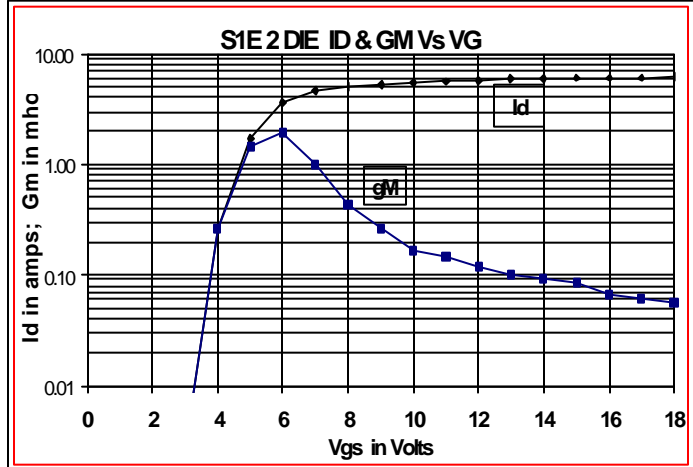
CAPACITANCE VS VOLTAGE



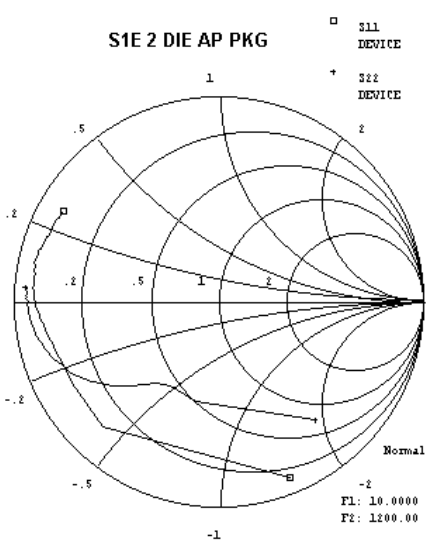
IV CURVE



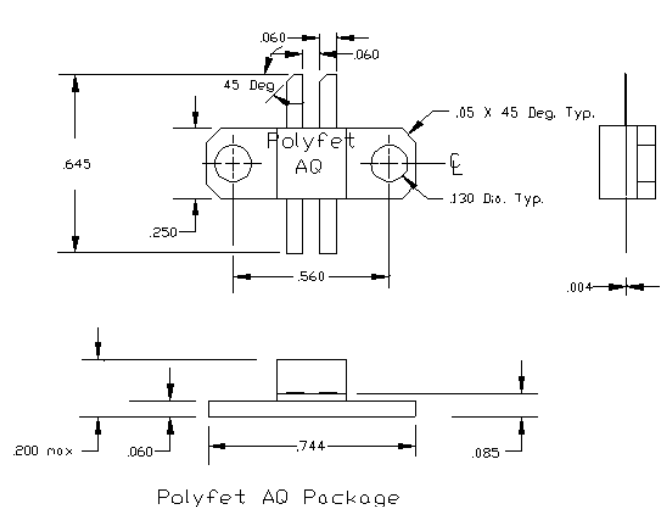
ID & GM VS VGS



S11 & S22 SMITH CHART



PACKAGE DIMENSIONS IN INCHES



Tolerance .XX +/-0.01 .XXX +/- .005 inches