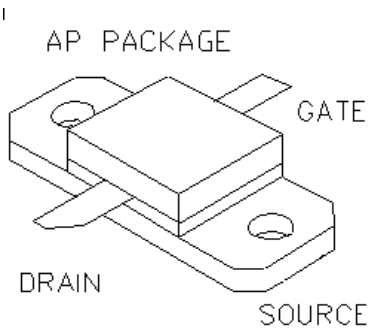
# polyfet rf devices

# F2012

## 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

10 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 |
|---|---|---|---|---|---|---|---|
| 40 Watts | 4.2 °C/W | 200 °C | -65 °C to 150 °C | 3.2 A | 70 V | 70 V | 30V |

## RF CHARACTERISTICS ( 10WATTS OUTPUT )

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|---|---|---|---|---|---|---|
| Gps | Common Source Power Gai | 10 | | | dB | Idq = 0.8 A, Vds = 28.0 V, F = 1000 MHz |
| η | Drain Efficiency | | 45 | | % | Idq = 0.8 A, Vds = 28.0 V, F = 1000 MHz |
| VSWR | Load Mismatch Toleranc | | | 20:1 | Relative | Idq = 0.8 A, Vds = 28.0 V, F = 1000 MHz |

## ELECTRICAL CHARACTERISTICS (EACH SIDE)

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|---|---|---|---|---|---|---|
| Bvdss | Drain Breakdown Voltag | 65 | | | V | Ids = 0.04 A, Vgs = 0V |
| Idss | Zero Bias Drain Curren | | | 0.8 | mA | Vds = 28.0 V, Vgs = 0V |
| Igss | Gate Leakage Curren | | | 1 | uA | Vds = 0 V, Vgs = 30V |
| Vgs | Gate Bias for Drain Curren | 1 | | 7 | V | Ids = 0.08 A, Vgs = Vds |
| gM | Forward Transconductanc | | 0.8 | | Mho | Vds = 10V, Vgs = 5V |
| Rdson | Saturation Resistanc | | 1 | | Ohm | Vgs = 20V, Ids = 4 A |
| Idsat | Saturation Curren | | 4.8 | | Amp | Vgs = 20V, Vds = 10V |
| Ciss | Common Source Input Capacitanc | | 36 | | pF | Vds = 28.0 V, Vgs = 0V, F = 1 MHz |
| Crss | Common Source Feedback Capacitanc | | 4 | | pF | Vds = 28.0 V, Vgs = 0V, F = 1 MHz |
| Coss | Common Source Output Capacitanc | | 24 | | pF | Vds = 28.0 V, Vgs = 0V, F = 1 MHz |



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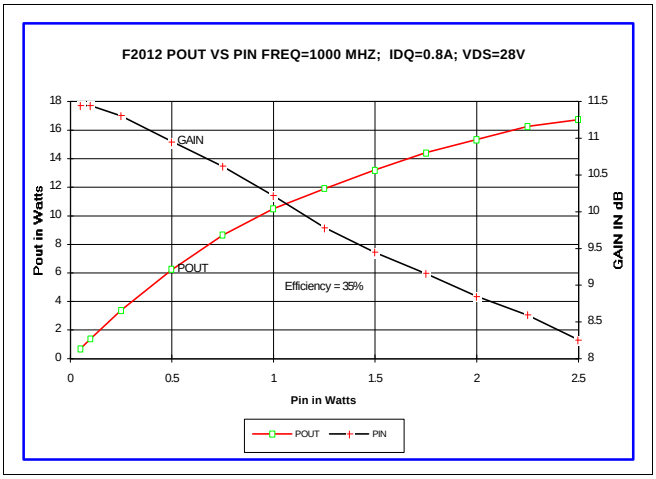
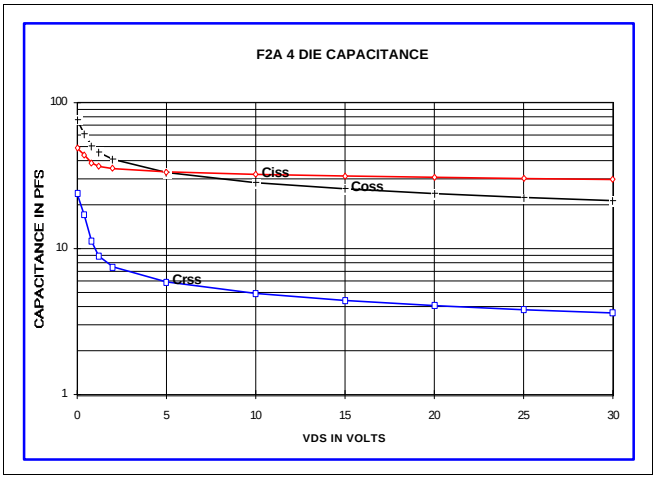
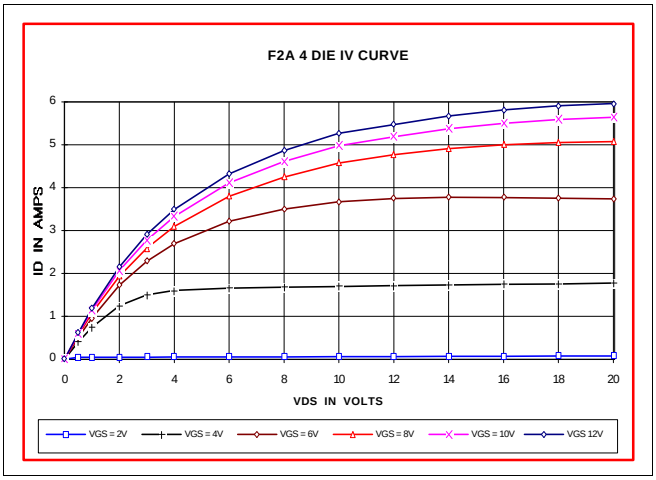
## POUT VS PIN GRAPH



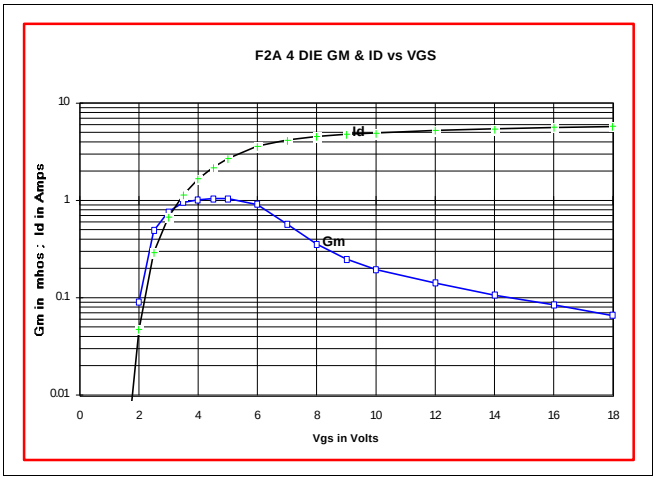

## CAPACITANCE VS VOLTAGE



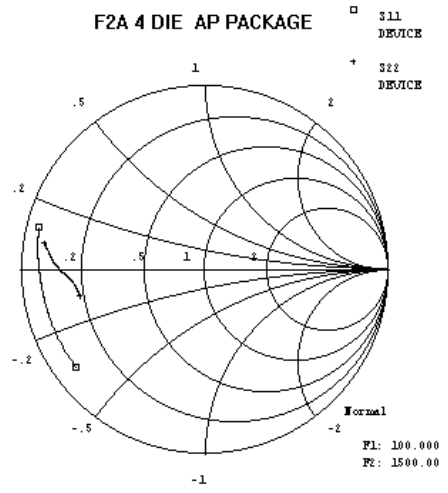

## IV CURVE



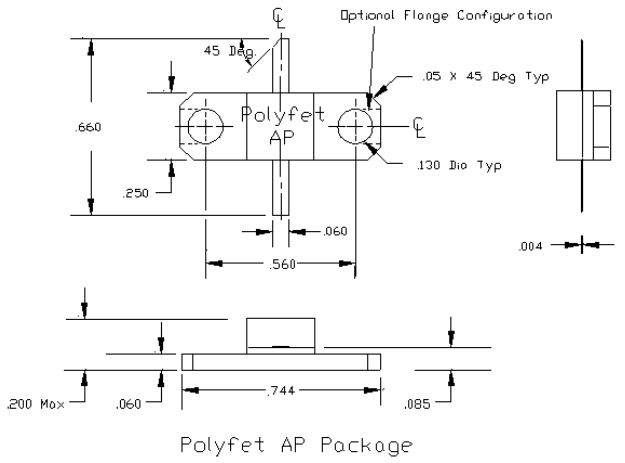

## ID AND GM VS VGS




## S11 AND S22 SMITH CHART




## PACKAGE DIMENSIONS IN INCHES







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