



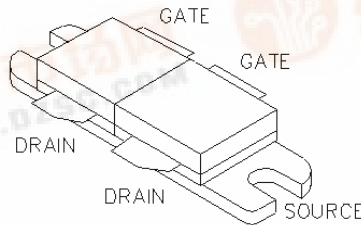
polyfet rf devices

F3002

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 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**

300Watts 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
500Watts	0.35 °C/W	200 °C	-65 °C to 150 °C	36 A	70 V	70V	30V

RF CHARACTERISTICS (300WATTS OUTPUT)

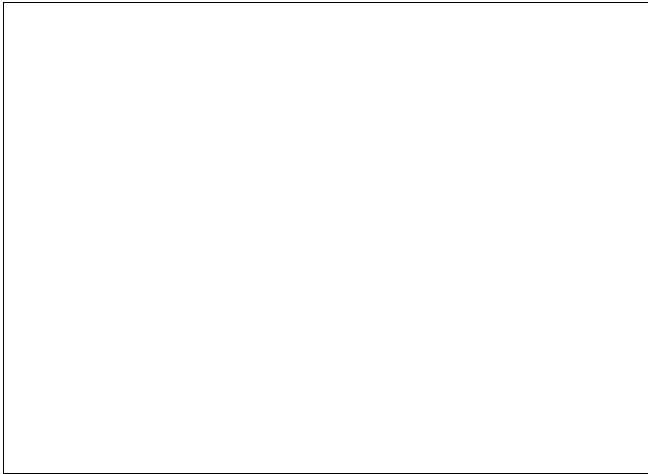
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Gps	Common Source Power Gain	12			dB	$I_{dq} = 4 \text{ A}, V_{ds} = 28.0 \text{ V}, F = 100 \text{ MHz}$
η	Drain Efficiency		60		%	$I_{dq} = 4 \text{ A}, V_{ds} = 28.0 \text{ V}, F = 100 \text{ MHz}$
VSWR	Load Mismatch Tolerance			20:1	Relative	$I_{dq} = 4 \text{ A}, V_{ds} = 28.0 \text{ V}, F = 100 \text{ MHz}$

ELECTRICAL CHARACTERISTICS (EACH SIDE)

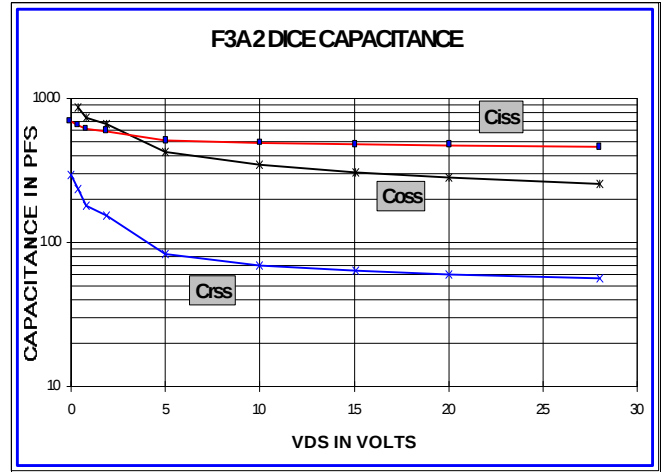
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Bvdss	Drain Breakdown Voltage	65			V	$I_{ds} = 0.2 \text{ A}, V_{gs} = 0 \text{ V}$
Idss	Zero Bias Drain Current			12	mA	$V_{ds} = 28.0 \text{ V}, V_{gs} = 0 \text{ V}$
Igss	Gate Leakage Current			1	uA	$V_{ds} = 0 \text{ V}, V_{gs} = 30 \text{ V}$
Vgs	Gate Bias for Drain Current	1		7	V	$I_{ds} = 0.6 \text{ A}, V_{gs} = V_{ds}$
gM	Forward Transconductance		7		Mho	$V_{ds} = 10 \text{ V}, V_{gs} = 5 \text{ V}$
Rdson	Saturation Resistance		0.1		Ohm	$V_{gs} = 20 \text{ V}, I_{ds} = 20 \text{ A}$
Idsat	Saturation Current		50		Amp	$V_{gs} = 20 \text{ V}, V_{ds} = 10 \text{ V}$
Ciss	Common Source Input Capacitance		400		pF	$V_{ds} = 28.0 \text{ V}, V_{gs} = 0 \text{ V}, F = 1 \text{ MHz}$
Crss	Common Source Feedback Capacitance		40		pF	$V_{ds} = 28.0 \text{ V}, V_{gs} = 0 \text{ V}, F = 1 \text{ MHz}$
Coss	Common Source Output Capacitance		240		pF	$V_{ds} = 28.0 \text{ V}, V_{gs} = 0 \text{ V}, F = 1 \text{ MHz}$

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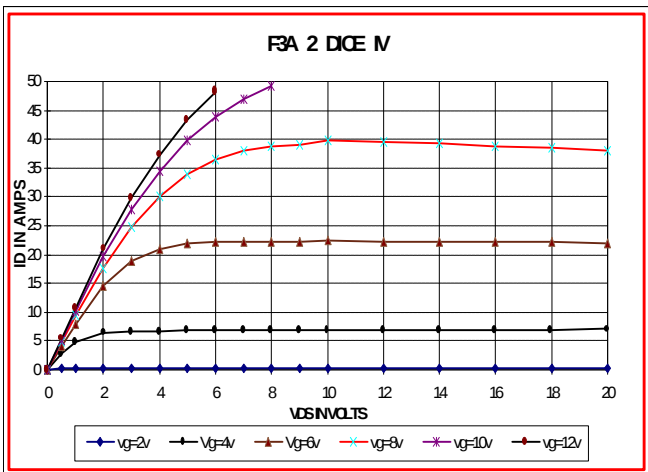
POUT VS PIN GRAPH



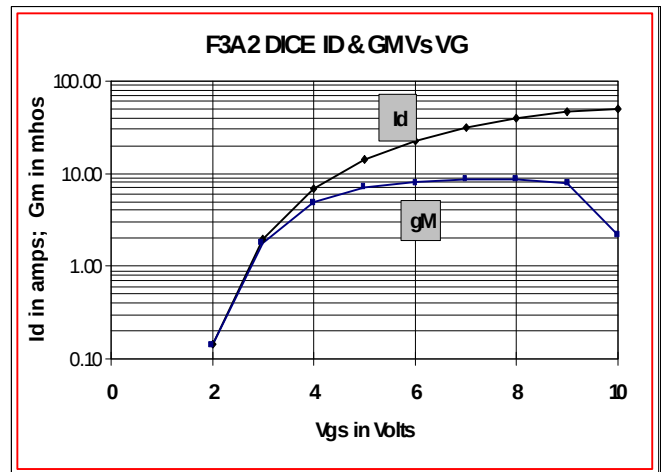
CAPACITANCE VS VOLTAGE



IV CURVE



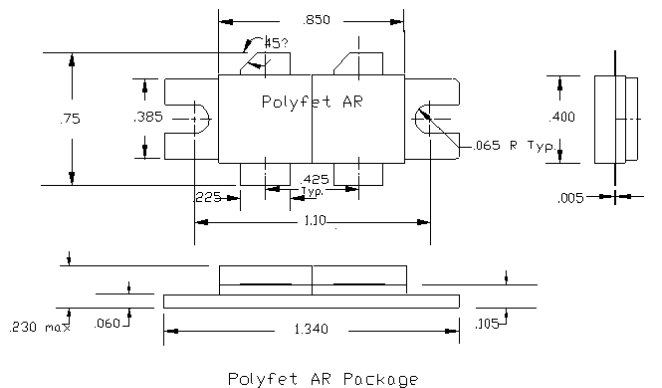
ID AND GM VS VGS



S11 AND S22 SMITH CHART



PACKAGE DIMENSIONS IN INCHES



Tolerance 0.XX +/- 0.01 0.XXX +/- 0.005 inches