



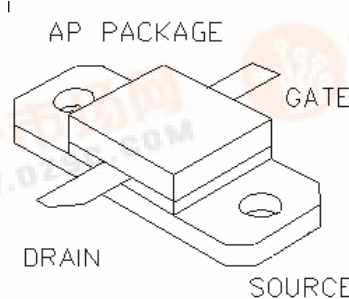
polyfet rf devices

SP701

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_t transistors with high input impedance and high efficiency.



SILICON GATE ENHANCEMENT MODE

RF POWER VDMOS TRANSISTOR

25.0 Watts Single Ended

Package Style AP

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°C/W	200°C	-65°C to 150°C	3.5 A	70V	70V	20 V

RF CHARACTERISTICS (25.0 WATTS OUTPUT)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Gps	Common Source Power Gain	10			dB	$I_{dq} = 0.20 \text{ A}$, $V_{ds} = 28.0 \text{ V}$, $F = 500\text{MHz}$
η	Drain Efficiency		55		%	$I_{dq} = 0.20 \text{ A}$, $V_{ds} = 28.0 \text{ V}$, $F = 500\text{MHz}$
VSWR	Load Mismatch Tolerance			20:1	Relative	$I_{dq} = 0.20 \text{ A}$, $V_{ds} = 28.0 \text{ V}$, $F = 500\text{MHz}$

ELECTRICAL CHARACTERISTICS (EACH SIDE)

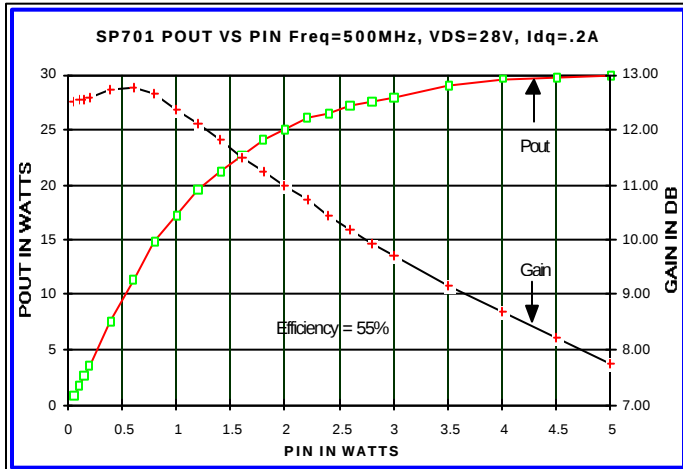
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Bvdss	Drain Breakdown Voltage	65			V	$I_{ds} = 20.00 \text{ mA}$, $V_{gs} = 0\text{V}$
I_{dss}	Zero Bias Drain Current			1.0	mA	$V_{ds} = 28.0 \text{ V}$, $V_{gs} = 0\text{V}$
I_{gss}	Gate Leakage Current			1	μA	$V_{ds} = 0\text{V}$, $V_{gs} = 30\text{V}$
V_{gs}	Gate Bias for Drain Current	1		7	V	$I_{ds} = 0.10 \text{ A}$, $V_{gs} = V_{ds}$
g_M	Forward Transconductance		1.2		Mho	$V_{ds} = 10\text{V}$, $V_{gs} = 5\text{V}$
R_{dson}	Saturation Resistance		0.85		Ohm	$V_{gs} = 20\text{V}$, $I_{ds} = 2.50 \text{ A}$
I_{dsat}	Saturation Current		7.00		Amp	$V_{gs} = 20\text{V}$, $V_{ds} = 10\text{V}$
C_{iss}	Common Source Input Capacitance		50.0		pF	$V_{ds} = 28.0 \text{ V}$, $V_{gs} = 0\text{V}$, $F = 1 \text{ MHz}$
C_{rss}	Common Source Feedback Capacitance		3.0		pF	$V_{ds} = 28.0 \text{ V}$, $V_{gs} = 0\text{V}$, $F = 1 \text{ MHz}$
C_{oss}	Common Source Output Capacitance		32.0		pF	$V_{ds} = 28.0 \text{ V}$, $V_{gs} = 0\text{V}$, $F = 1 \text{ MHz}$

POLYFET RF DEVICES

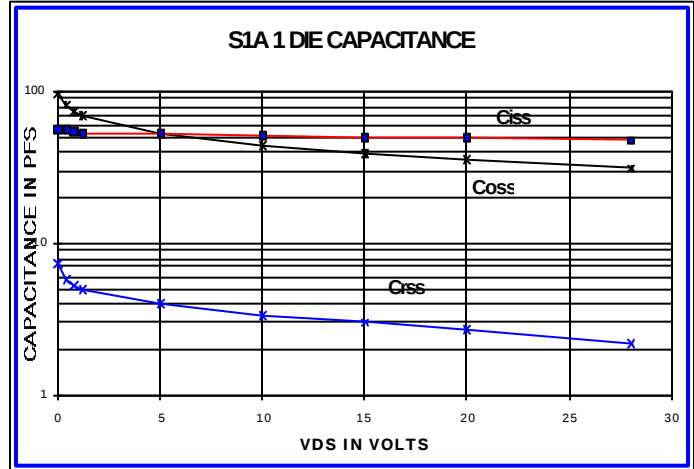
REVISION 03/28/2001

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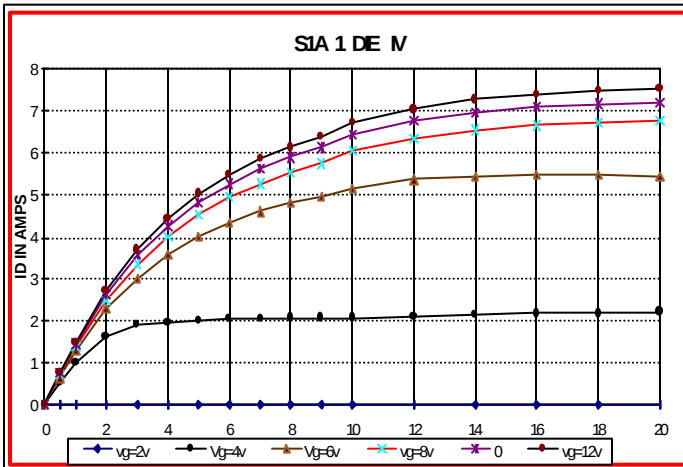
POUT VS PIN GRAPH



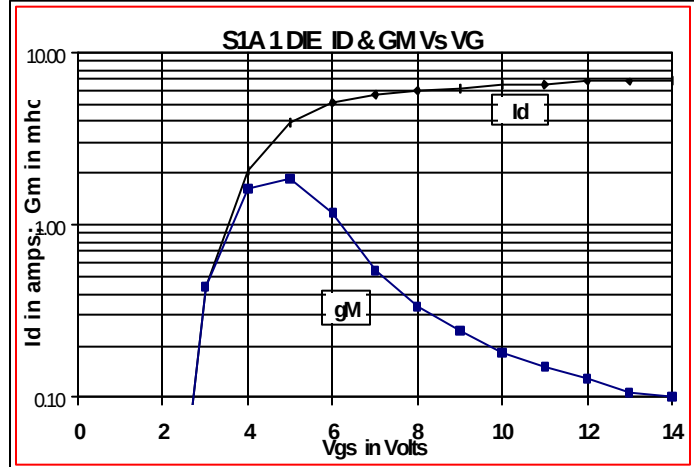
CAPACITANCE VS VOLTAGE



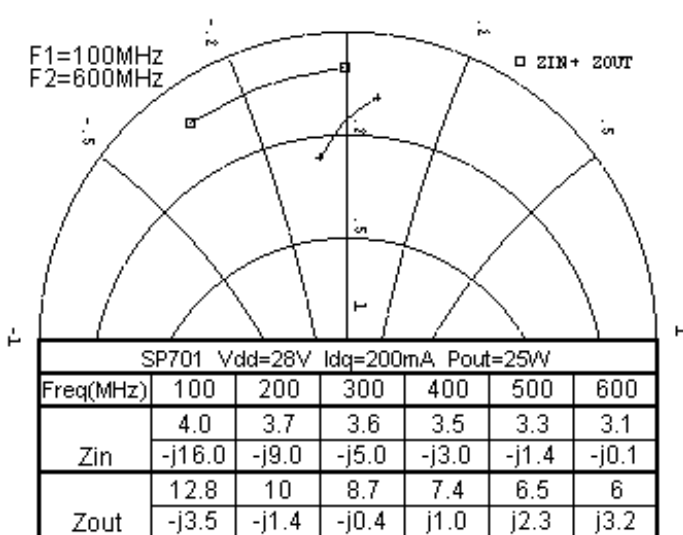
IV CURVE



ID & GM VS VGS



Zin Zout



PACKAGE DIMENSIONS IN INCHES

