



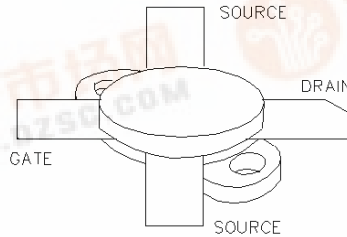
# polyfet rf devices

## SM746

### 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"<sup>TM</sup> 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

175.0 Watts Single Ended

Package Style AM

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
270 Watts	0.65 °C/W	200 °C	-65 °C to 150 °C	11.0 A	125V	125V	20 V

### RF CHARACTERISTICS ( 175.0 WATTS OUTPUT )

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Gps	Common Source Power Gain	13			dB	Idq = 0.60 A, Vds = 50.0 V, F = 175MHz
$\eta$	Drain Efficiency		65		%	Idq = 0.60 A, Vds = 50.0 V, F = 175 MHz
VSWR	Load Mismatch Tolerance			20:1	Relative	Idq = 0.60 A, Vds = 50.0 V, F = 175MHz

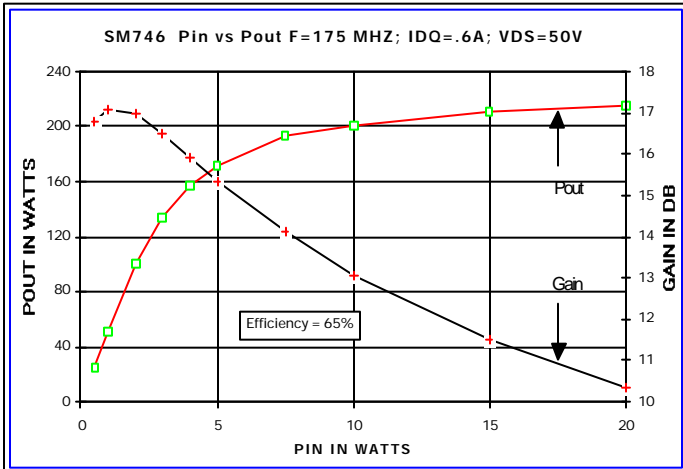
### ELECTRICAL CHARACTERISTICS ( EACH SIDE )

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Bvdss	Drain Breakdown Voltage	125			V	Ids = 60.00 mA, Vgs = 0V
Idss	Zero Bias Drain Current			6.0	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 = 0.30 A, Vgs = Vds
gM	Forward Transconductance		4.8		Mho	Vds = 10V, Vgs = 5V
Rdson	Saturation Resistance		0.50		Ohm	Vgs = 20V, Ids = 6.00 A
Idsat	Saturation Current		21.00		Amp	Vgs = 20V, Vds = 10V
Ciss	Common Source Input Capacitance		288.0		pF	Vds = 50.0 Vgs = 0V, F = 1 MHz
Crss	Common Source Feedback Capacitance		1.2		pF	Vds = 50.0 Vgs = 0V, F = 1 MHz
Coss	Common Source Output Capacitance		102.0		pF	Vds = 50.0 Vgs = 0V, F = 1 MHz

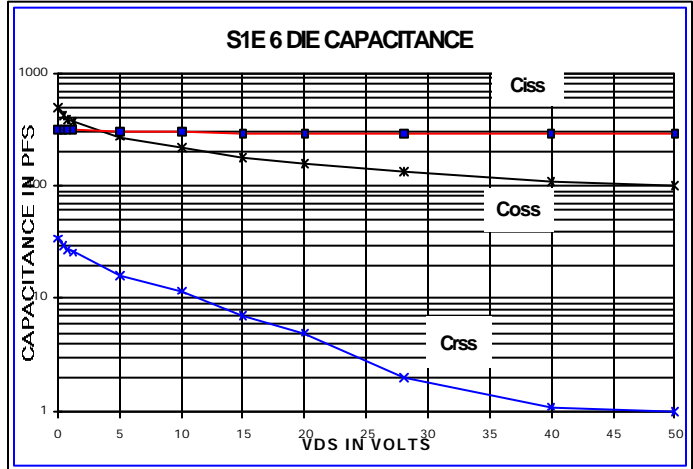


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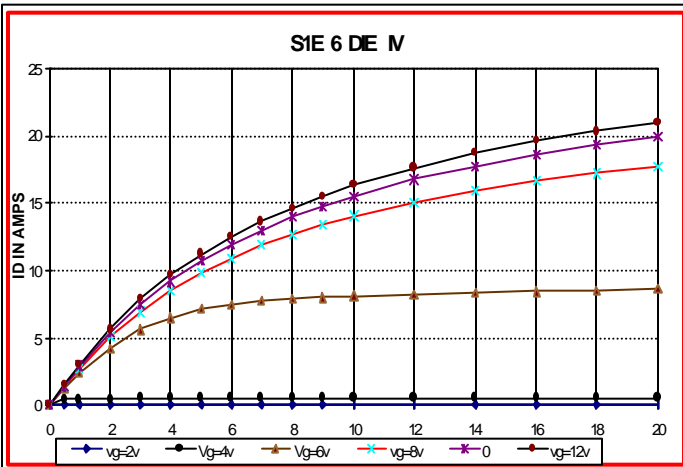
POUT VS PIN GRAPH



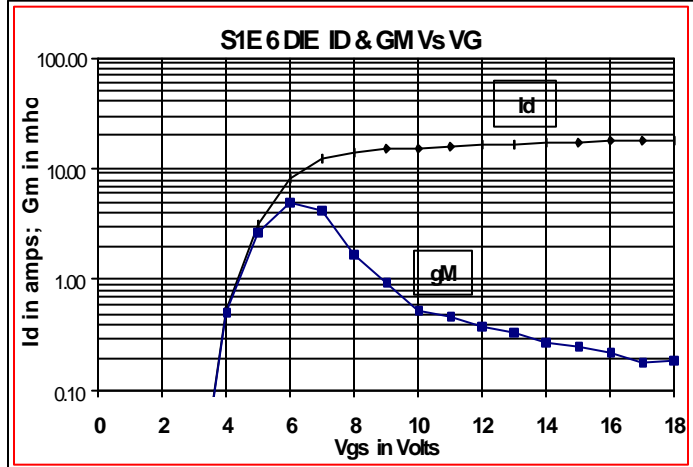
CAPACITANCE VS VOLTAGE



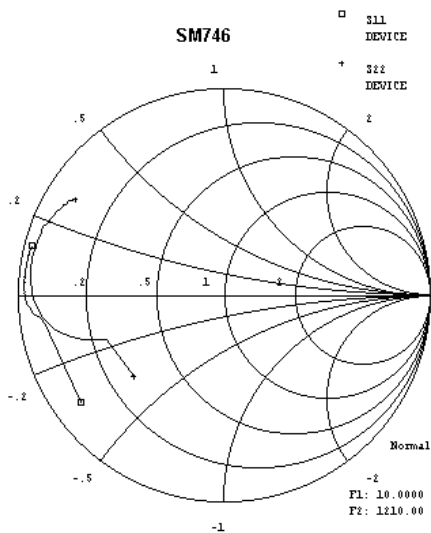
IV CURVE



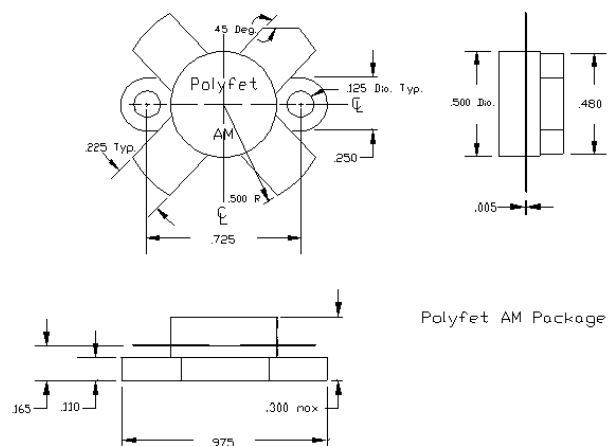
ID & GM VS VGS



S11 & S22 SMITH CHART



PACKAGE DIMENSIONS IN INCHES



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