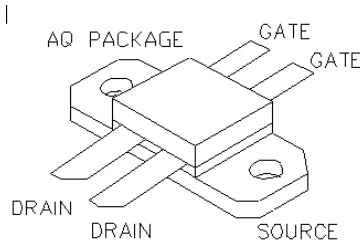




### General Description

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 low feedback and output capacitances resulting in high  $F_t$  transistors with high input impedance and high efficiency.



### SILICON GATE ENHANCEMENT MODE

### RF POWER LDMOS TRANSISTOR

20.0 Watts Push - Pull

Package Style AQ

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
80 Watts	$1.80^{\circ}\text{C/W}$	$200^{\circ}\text{C}$	$-65^{\circ}\text{C}$ to $150^{\circ}\text{C}$	8.0 A	36V	36V	20 V

### RF CHARACTERISTICS ( 20.0 WATTS OUTPUT )

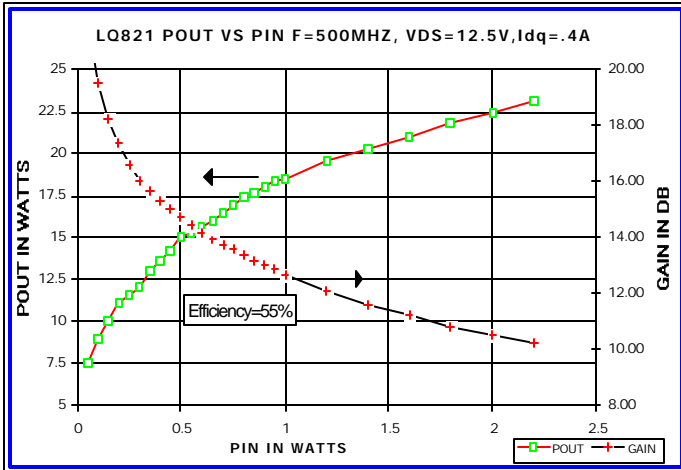
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Gps	Common Source Power Gain	12			dB	$I_{dq} = 0.80\text{ A}$ , $V_{ds} = 12.5\text{ V}$ , $F = 500\text{ MHz}$
$\eta$	Drain Efficiency		55		%	$I_{dq} = 0.80\text{ A}$ , $V_{ds} = 12.5\text{ V}$ , $F = 500\text{ MHz}$
VSWR	Load Mismatch Tolerance			20:1	Relative	$I_{dq} = 0.80\text{ A}$ , $V_{ds} = 12.5\text{ V}$ , $F = 500\text{ MHz}$

### ELECTRICAL CHARACTERISTICS ( EACH SIDE )

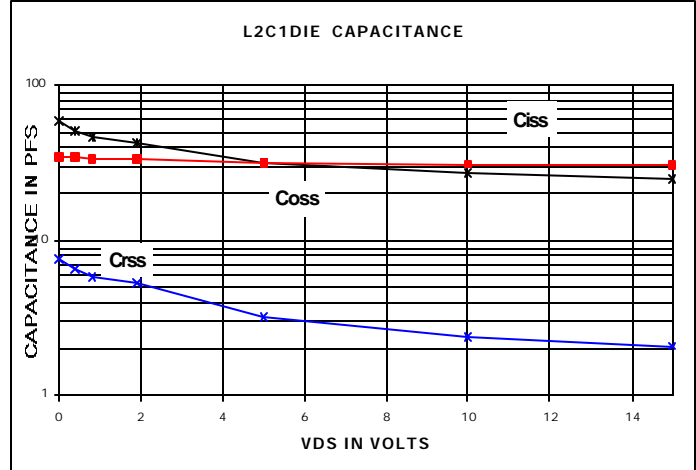
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Bvdss	Drain Breakdown Voltage	36			V	$I_{ds} = 0.10\text{ mA}$ , $V_{gs} = 0\text{ V}$
Idss	Zero Bias Drain Current			1.0	mA	$V_{ds} = 12.5\text{ V}$ , $V_{gs} = 0\text{ V}$
Igss	Gate Leakage Current			1	uA	$V_{ds} = 0\text{ V}$ , $V_{gs} = 30\text{ V}$
Vgs	Gate Bias for Drain Current	1		7	V	$I_{ds} = 0.10\text{ A}$ , $V_{gs} = V_{ds}$
gM	Forward Transconductance		1.0		Mho	$V_{ds} = 10\text{ V}$ , $V_{gs} = 5\text{ V}$
Rdson	Saturation Resistance		0.60		Ohm	$V_{gs} = 20\text{ V}$ , $I_{ds} = 3.00\text{ A}$
Idsat	Saturation Current		7.50		Amp	$V_{gs} = 20\text{ V}$ , $V_{ds} = 10\text{ V}$
Ciss	Common Source Input Capacitance		33.0		pF	$V_{ds} = 12.5\text{ V}$ , $V_{gs} = 0\text{ V}$ , $F = 1\text{ MHz}$
Crss	Common Source Feedback Capacitance		2.0		pF	$V_{ds} = 12.5\text{ V}$ , $V_{gs} = 0\text{ V}$ , $F = 1\text{ MHz}$
Coss	Common Source Output Capacitance		24.0		pF	$V_{ds} = 12.5\text{ V}$ , $V_{gs} = 0\text{ V}$ , $F = 1\text{ MHz}$

# LQ821

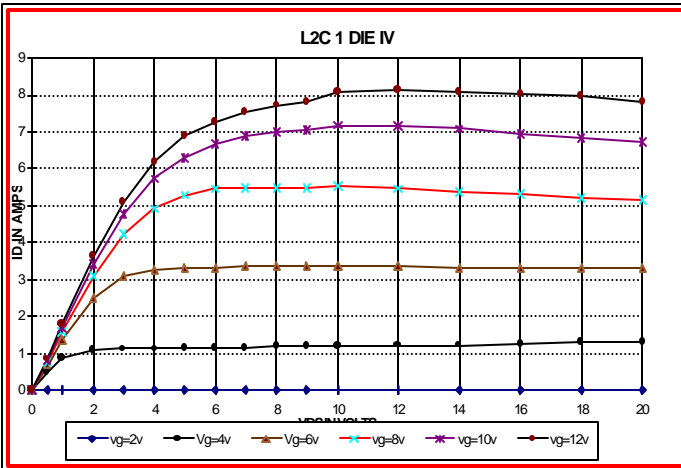
POUT VS PIN GRAPH



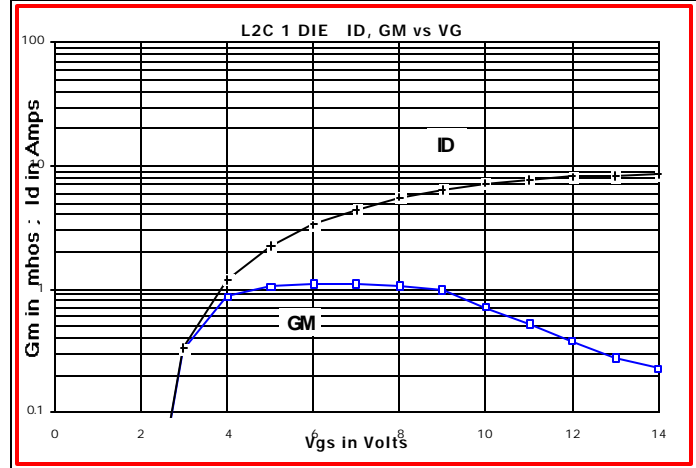
CAPACITANCE VS VOLTAGE



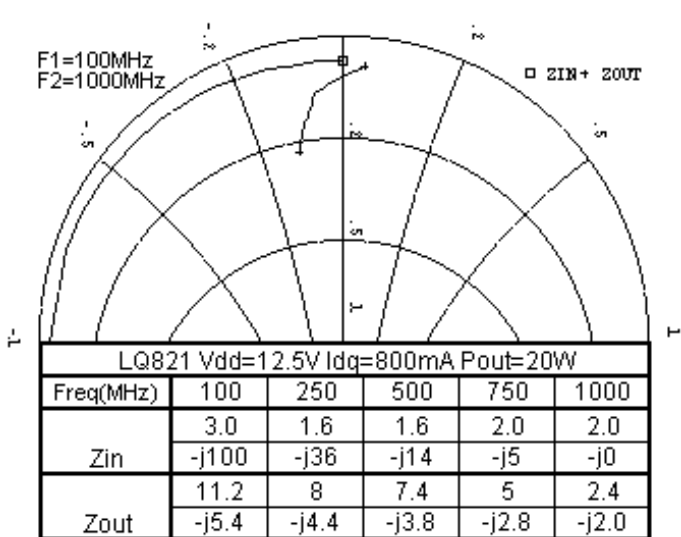
IV CURVE



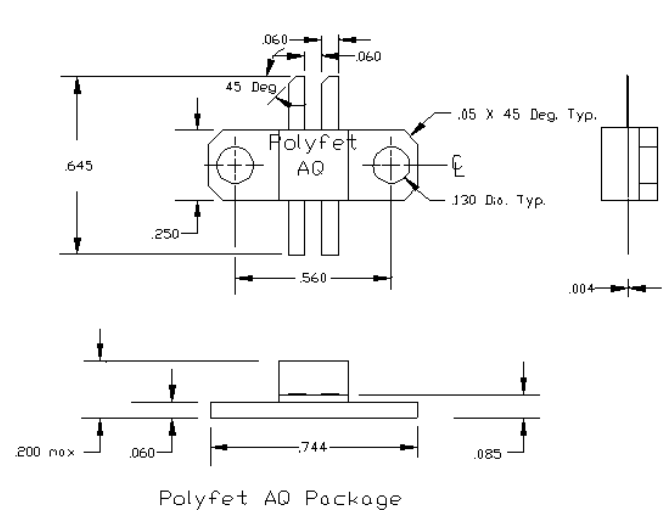
ID & GM VS VGS



Zin Zout



PACKAGE DIMENSIONS IN INCHES



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

POLYFET RF DEVICES

REVISION 04/27/2001

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