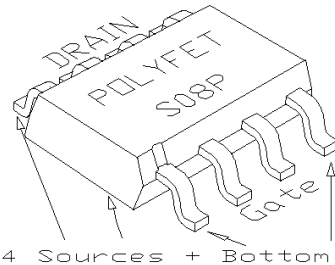




### General Description

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  $F_t$  transistors with high input impedance and high efficiency.



### SILICON GATE ENHANCEMENT MODE

#### RF POWER LDMOS TRANSISTOR

5.0 Watts Single Ended

Package Style S08P

HIGH EFFICIENCY, LINEAR

HIGH GAIN, LOW NOISE

ROHS COMPLIANT

### 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 |
|--------------------------|-------------------------------------|------------------------------|--------------------------------------------------|------------------|-----------------------|-------------------------|------------------------|
| 30 Watts                 | 5.00 $^{\circ}\text{C/W}$           | 150 $^{\circ}\text{C}$       | -65 $^{\circ}\text{C}$ to 150 $^{\circ}\text{C}$ | 5.0 A            | 36 V                  | 36 V                    | 20 V                   |

### RF CHARACTERISTICS ( 5.0 WATTS OUTPUT )

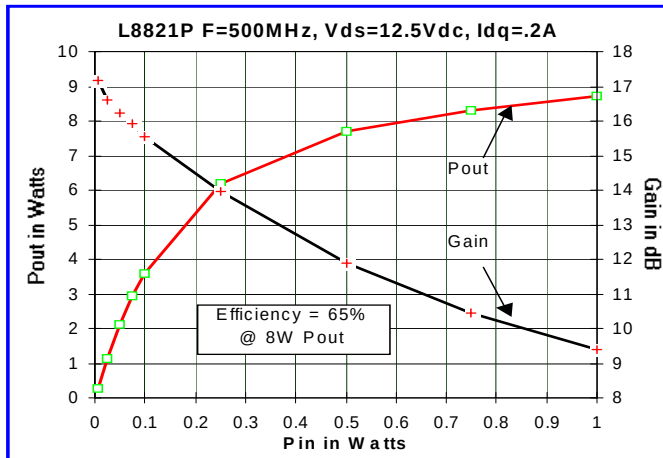
| SYMBOL | PARAMETER                | MIN | TYP | MAX  | UNITS    | TEST CONDITIONS                                                               |
|--------|--------------------------|-----|-----|------|----------|-------------------------------------------------------------------------------|
| Gps    | Common Source Power Gain | 13  |     |      | dB       | $I_{dq} = 0.20 \text{ A}$ , $V_{ds} = 12.5 \text{ V}$ , $F = 500 \text{ MHz}$ |
| $\eta$ | Drain Efficiency         |     | 50  |      | %        | $I_{dq} = 0.20 \text{ A}$ , $V_{ds} = 12.5 \text{ V}$ , $F = 500 \text{ MHz}$ |
| VSWR   | Load Mismatch Tolerance  |     |     | 10:1 | Relative | $I_{dq} = 0.20 \text{ A}$ , $V_{ds} = 12.5 \text{ V}$ , $F = 500 \text{ MHz}$ |

### ELECTRICAL CHARACTERISTICS ( EACH SIDE )

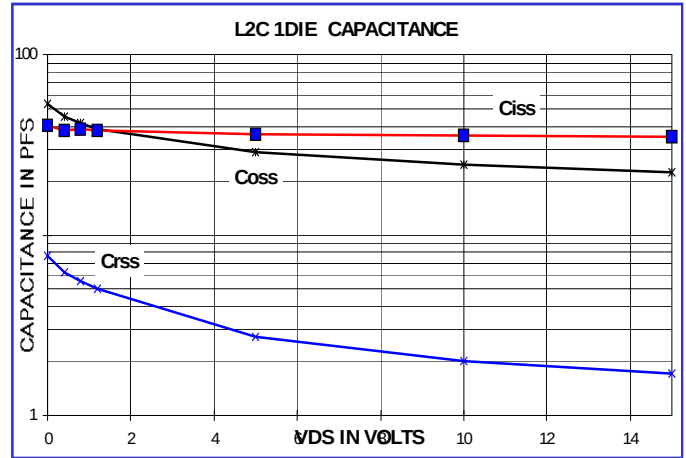
| SYMBOL | PARAMETER                          | MIN | TYP  | MAX | UNITS         | TEST CONDITIONS                                              |
|--------|------------------------------------|-----|------|-----|---------------|--------------------------------------------------------------|
| Bvdss  | 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   | $\mu\text{A}$ | $V_{ds} = 0\text{V}$ , $V_{gs} = 30\text{V}$                 |
| Vgs    | Gate Bias for Drain Current        | 2   |      | 5   | 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            | $V_{ds} = 12.5$ , $V_{gs} = 0\text{V}$ , $F = 1 \text{ MHz}$ |
| Crss   | Common Source Feedback Capacitance |     | 2.0  |     | pF            | $V_{ds} = 12.5$ , $V_{gs} = 0\text{V}$ , $F = 1 \text{ MHz}$ |
| Coss   | Common Source Output Capacitance   |     | 24.0 |     | pF            | $V_{ds} = 12.5$ , $V_{gs} = 0\text{V}$ , $F = 1 \text{ MHz}$ |

# L8821P

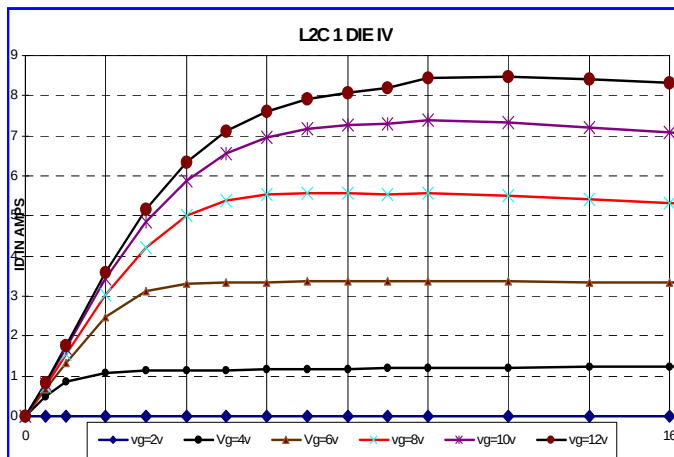
POUT VS PIN GRAPH



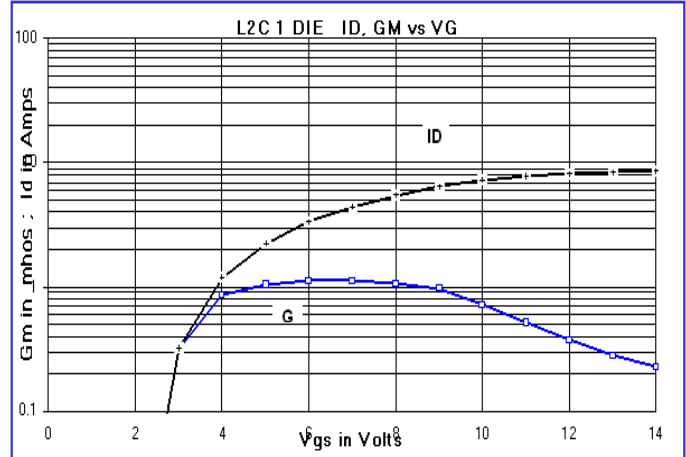
CAPACITANCE VS VOLTAGE



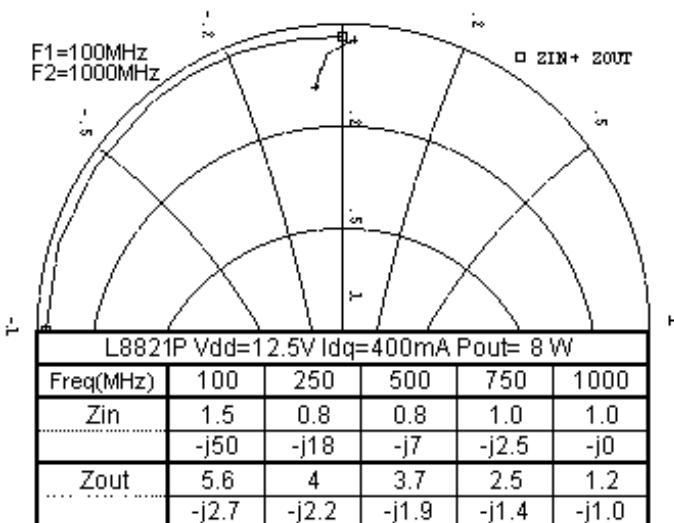
IV CURVE



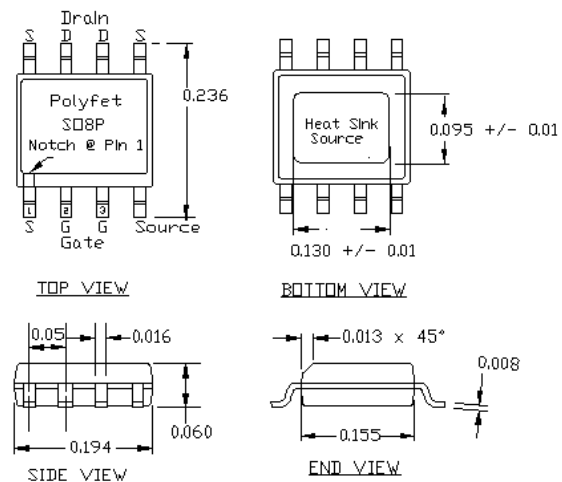
ID & GM VS VGS



Zin Zout



PACKAGE DIMENSIONS IN INCHES



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

POLYFET RF DEVICES

REVISION 10/11/2011

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