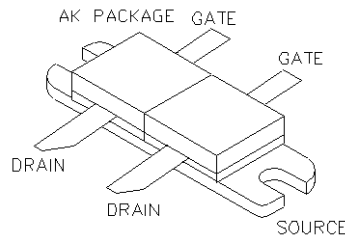




### General Description

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

35.0 Watts Push - Pull

Package Style AK

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 |
|--------------------------|-------------------------------------|------------------------------|--------------------------------------------------|------------------|-----------------------|-------------------------|------------------------|
| 150 Watts                | 1.00 $^{\circ}\text{C/W}$           | 200 $^{\circ}\text{C}$       | -65 $^{\circ}\text{C}$ to 150 $^{\circ}\text{C}$ | 15.0 A           | 50V                   | 50V                     | 20 V                   |

### RF CHARACTERISTICS ( 35.0 WATTS OUTPUT )

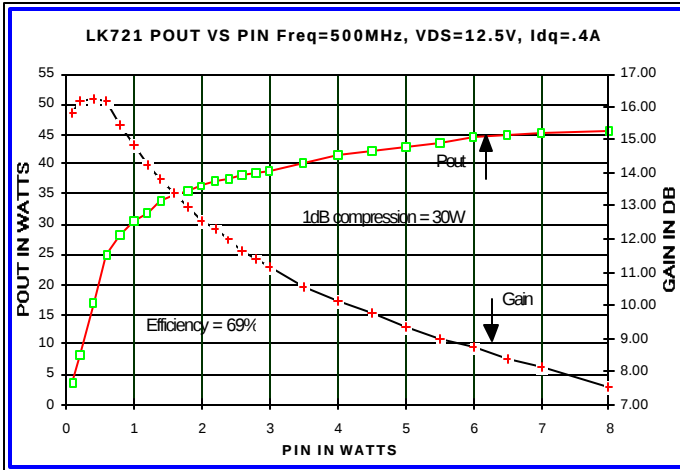
| SYMBOL | PARAMETER                | MIN | TYP | MAX  | UNITS    | TEST CONDITIONS                                                               |
|--------|--------------------------|-----|-----|------|----------|-------------------------------------------------------------------------------|
| Gps    | Common Source Power Gain | 10  |     |      | dB       | $I_{dq} = 0.40 \text{ A}$ , $V_{ds} = 12.5 \text{ V}$ , $F = 500 \text{ MHz}$ |
| $\eta$ | Drain Efficiency         |     | 65  |      | %        | $I_{dq} = 0.40 \text{ A}$ , $V_{ds} = 12.5 \text{ V}$ , $F = 500 \text{ MHz}$ |
| VSWR   | Load Mismatch Tolerance  |     |     | 20:1 | Relative | $I_{dq} = 0.40 \text{ A}$ , $V_{ds} = 12.5 \text{ V}$ , $F = 500 \text{ MHz}$ |

### ELECTRICAL CHARACTERISTICS ( EACH SIDE )

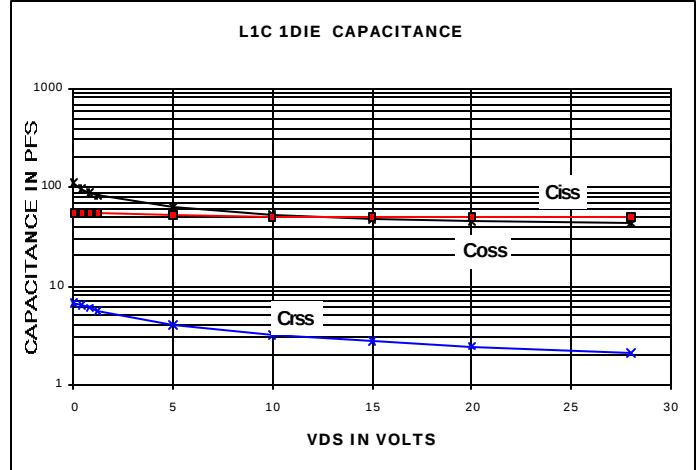
| SYMBOL | PARAMETER                          | MIN | TYP   | MAX | UNITS         | TEST CONDITIONS                                                        |
|--------|------------------------------------|-----|-------|-----|---------------|------------------------------------------------------------------------|
| Bvdss  | Drain Breakdown Voltage            | 40  |       |     | V             | $I_{ds} = 0.20 \text{ mA}$ , $V_{gs} = 0\text{V}$                      |
| Idss   | Zero Bias Drain Current            |     |       | 2.0 | 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        | 1   |       | 7   | V             | $I_{ds} = 0.20 \text{ A}$ , $V_{gs} = V_{ds}$                          |
| gM     | Forward Transconductance           |     | 1.7   |     | Mho           | $V_{ds} = 10\text{V}$ , $V_{gs} = 5\text{V}$                           |
| Rdson  | Saturation Resistance              |     | 0.40  |     | Ohm           | $V_{gs} = 20\text{V}$ , $I_{ds} = 8.00 \text{ A}$                      |
| Idsat  | Saturation Current                 |     | 13.00 |     | Amp           | $V_{gs} = 20\text{V}$ , $V_{ds} = 10\text{V}$                          |
| Ciss   | Common Source Input Capacitance    |     | 50.0  |     | 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   |     | 40.0  |     | pF            | $V_{ds} = 12.5 \text{ V}$ , $V_{gs} = 0\text{V}$ , $F = 1 \text{ MHz}$ |

# LK721

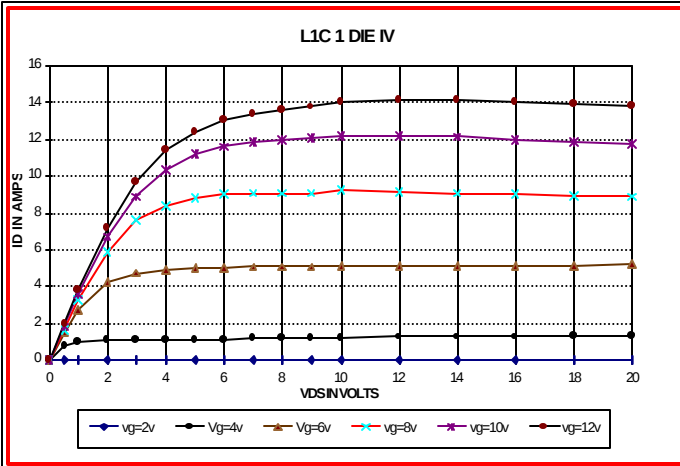
POUT VS PIN GRAPH



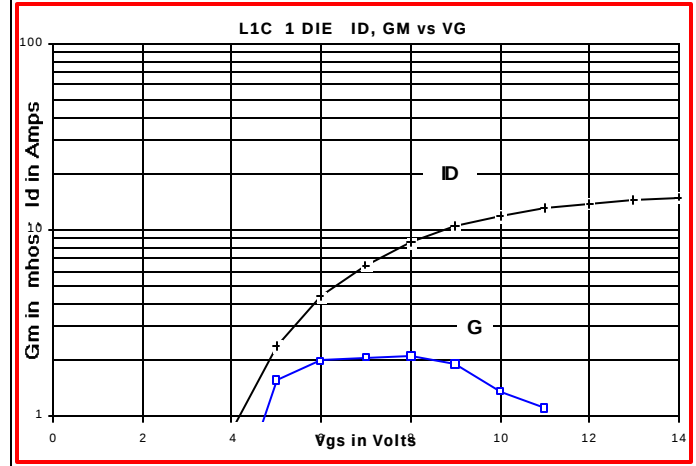
CAPACITANCE VS VOLTAGE



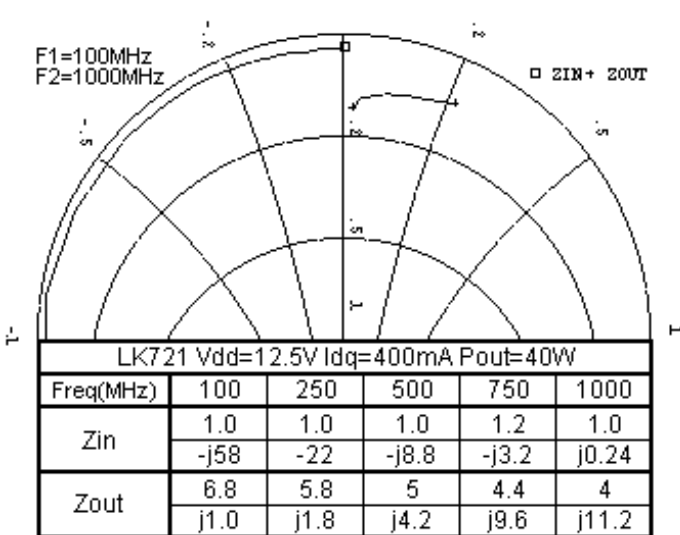
IV CURVE



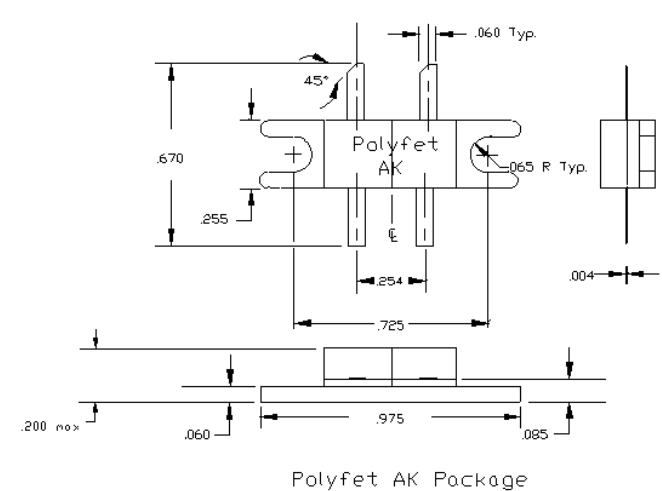
ID & GM VS VGS



Zin Zout



PACKAGE DIMENSIONS IN INCHES



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

POLYFET RF DEVICES

REVISION 10/30/2001

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