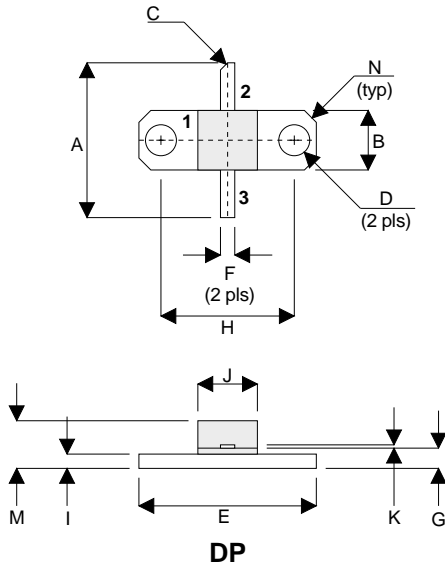


MECHANICAL DATA



PIN 1 SOURCE PIN 2 DRAIN
 PIN 3 GATE

| DIM | mm | Tol. | Inches | Tol. |
|-----|------------|------|-------------|-------|
| A | 16.51 | 0.25 | 0.650 | 0.010 |
| B | 6.35 | 0.13 | 0.250 | 0.005 |
| C | 45° | 5° | 45° | 5° |
| D | 3.30 | 0.13 | 0.130 | 0.005 |
| E | 18.92 | 0.08 | 0.745 | 0.003 |
| F | 1.52 | 0.13 | 0.060 | 0.005 |
| G | 2.16 | 0.13 | 0.085 | 0.005 |
| H | 14.22 | 0.08 | 0.560 | 0.003 |
| I | 1.52 | 0.13 | 0.060 | 0.005 |
| J | 6.35 | 0.13 | 0.250 | 0.005 |
| K | 0.13 | 0.03 | 0.005 | 0.001 |
| M | 5.08 | 0.51 | 0.200 | 0.020 |
| N | 1.27 x 45° | 0.13 | 0.050 x 45° | 0.005 |

**GOLD METALLISED
 MULTI-PURPOSE SILICON
 DMOS RF FET
 2.5W – 28V – 1GHz
 SINGLE ENDED**

FEATURES

- SIMPLIFIED AMPLIFIER DESIGN
- SUITABLE FOR BROAD BAND APPLICATIONS
- LOW C_{rss}
- SIMPLE BIAS CIRCUITS
- LOW NOISE
- HIGH GAIN – 13 dB MINIMUM

APPLICATIONS

- VHF/UHF COMMUNICATIONS
 from 50 MHz to 2 GHz

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise stated)

| | | |
|--------------|--|--------------------------------|
| P_D | Power Dissipation | 17.5W |
| BV_{DSS} | Drain – Source Breakdown Voltage | 65V |
| BV_{GSS} | Gate – Source Breakdown Voltage | $\pm 20\text{V}$ |
| $I_{D(sat)}$ | Drain Current | 1A |
| T_{stg} | Storage Temperature | -65 to 150°C |
| T_j | Maximum Operating Junction Temperature | 200°C |

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

| Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--|---|------|------|------|------|
| BV _{DSS} Drain–Source Breakdown Voltage | V _{GS} = 0 I _D = 10mA | 65 | | | V |
| I _{DSS} Zero Gate Voltage Drain Current | V _{DS} = 28V V _{GS} = 0 | | | 1 | mA |
| I _{GSS} Gate Leakage Current | V _{GS} = 20V V _{DS} = 0 | | | 1 | μA |
| V _{GS(th)} Gate Threshold Voltage* | I _D = 10mA V _{DS} = V _{GS} | 1 | | 7 | V |
| g _{fs} Forward Transconductance* | V _{DS} = 10V I _D = 0.2A | 0.18 | | | S |
| G _{PS} Common Source Power Gain | P _O = 2.5W | 13 | | | dB |
| η Drain Efficiency | V _{DS} = 28V I _{DQ} = 0.1A | 40 | | | % |
| VSWR Load Mismatch Tolerance | f = 1GHz | 20:1 | | | — |
| C _{iss} Input Capacitance | V _{DS} = 28V V _{GS} = -5V f = 1MHz | | | 12 | pF |
| C _{oss} Output Capacitance | V _{DS} = 28V V _{GS} = 0 f = 1MHz | | | 6 | pF |
| C _{rss} Reverse Transfer Capacitance | V _{DS} = 28V V _{GS} = 0 f = 1MHz | | | 0.5 | pF |

* Pulse Test: Pulse Duration = 300 μs , Duty Cycle ≤ 2%

HAZARDOUS MATERIAL WARNING

The ceramic portion of the device between leads and metal flange is beryllium oxide. Beryllium oxide dust is highly toxic and care must be taken during handling and mounting to avoid damage to this area.

THESE DEVICES MUST NEVER BE THROWN AWAY WITH GENERAL INDUSTRIAL OR DOMESTIC WASTE.

THERMAL DATA

| | | |
|-----------------------|------------------------------------|---------------|
| R _{THj-case} | Thermal Resistance Junction – Case | Max. 10°C / W |
|-----------------------|------------------------------------|---------------|

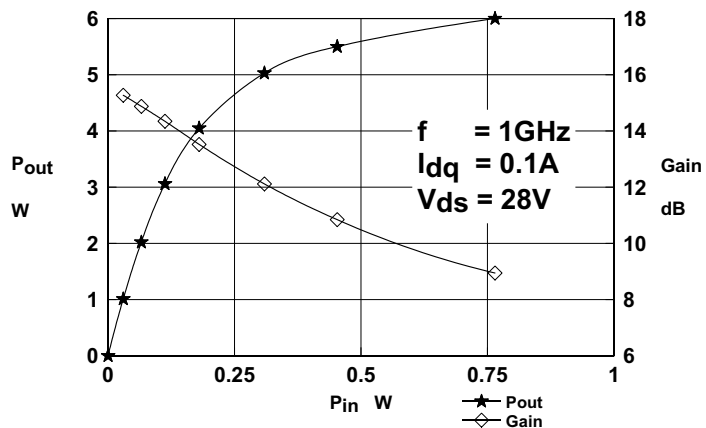


Figure 1

Output Power and Gain vs. Input Power.

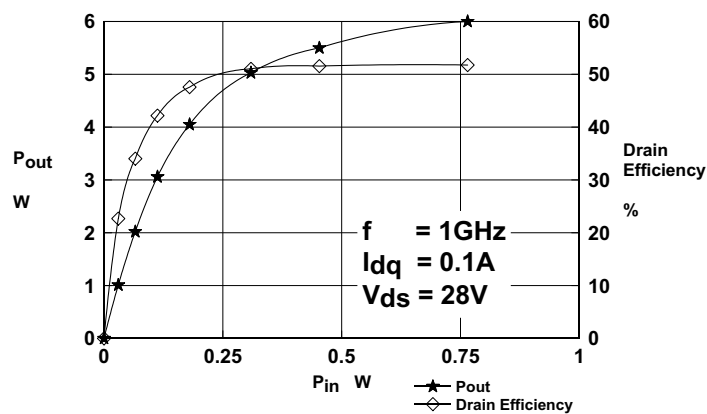


Figure 2

Output Power and Efficiency vs. Input Power .

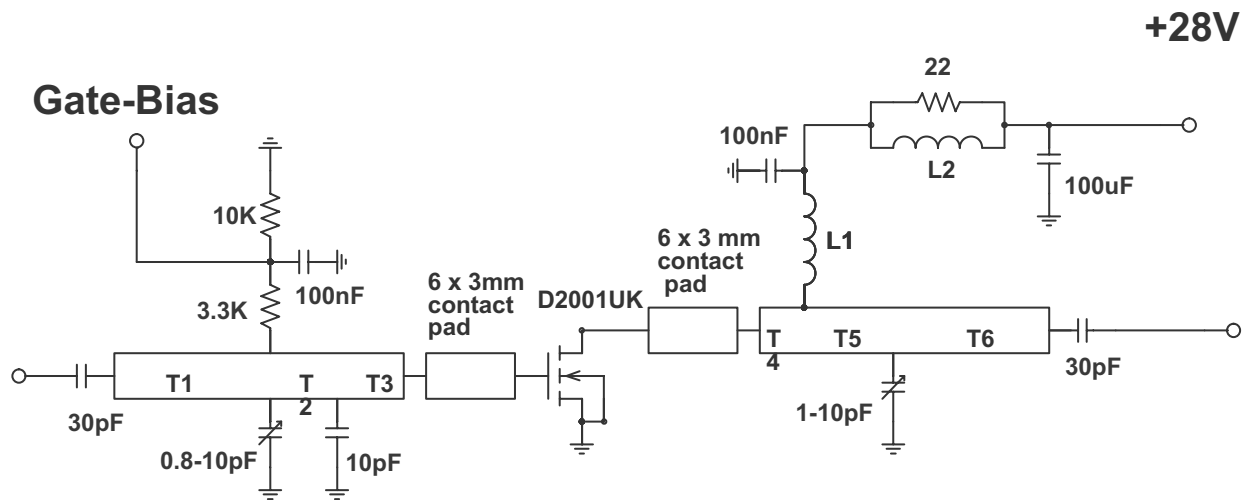
OPTIMUM SOURCE AND LOAD IMPEDANCE

| Frequency MHz | Z _S Ω | Z _L Ω |
|------------------|---------------------|---------------------|
| 1000MHZ | 3.64 - j2.07 | 6.31 + j10.45 |

Typical S Parameters

! Vds=28V, Idq=0.2A
MHz S MA R 50

| !Freq !MHz | S11 mag ang | S21 mag ang | S12 mag ang | S22 mag ang |
|---------------|----------------|----------------|----------------|----------------|
| 100 | 0.966 -47 | 16.778 144 | 0.01479 56 | 0.923 -28 |
| 200 | 0.891 -81 | 12.882 118 | 0.02114 34 | 0.841 -48 |
| 300 | 0.841 -103 | 9.772 99 | 0.02213 20 | 0.794 -62 |
| 400 | 0.804 -120 | 7.674 84 | 0.01995 11 | 0.759 -73 |
| 500 | 0.804 -134 | 6.237 69 | 0.01641 6 | 0.75 -86 |
| 600 | 0.804 -143 | 4.955 59 | 0.01175 9 | 0.767 -97 |
| 700 | 0.822 -147 | 4.121 54 | 0.00906 41 | 0.776 -101 |
| 800 | 0.822 -154 | 3.631 45 | 0.01109 73 | 0.813 -107 |
| 900 | 0.841 -162 | 3.162 36 | 0.01718 88 | 0.813 -116 |
| 1000 | 0.832 -168 | 2.6 30 | 0.02344 94 | 0.804 -122 |



D2001UK 1GHz TEST FIXTURE

Substrate 0.8mm PTFE/glass, $\epsilon_r = 2.5$
 All microstrip lines $W = 2.4\text{mm}$

| | |
|--------|-------|
| T1 | 35 mm |
| T2, T5 | 15 mm |
| T3 | 3 mm |
| T4 | 4 mm |
| T6 | 32 mm |

| | |
|----|---|
| L1 | 7 turns 24swg enamelled copper wire, 3mm i.d. |
| L2 | 1.5 turns 24swg enamelled copper wire on ferrite core |