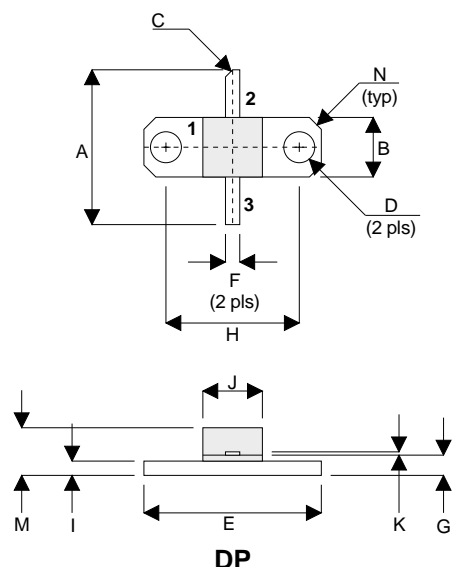


MECHANICAL DATA


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

P_D	Power Dissipation	17.5W
BV_{DSS}	Drain – Source Breakdown Voltage	65V
BV_{GSS}	Gate – Source Breakdown Voltage	$\pm 20V$
$I_{D(sat)}$	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
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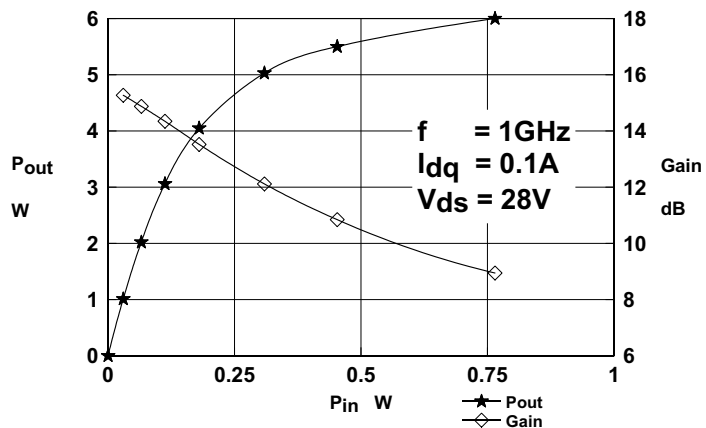


Figure 1

Output Power and Gain vs. Input Power.

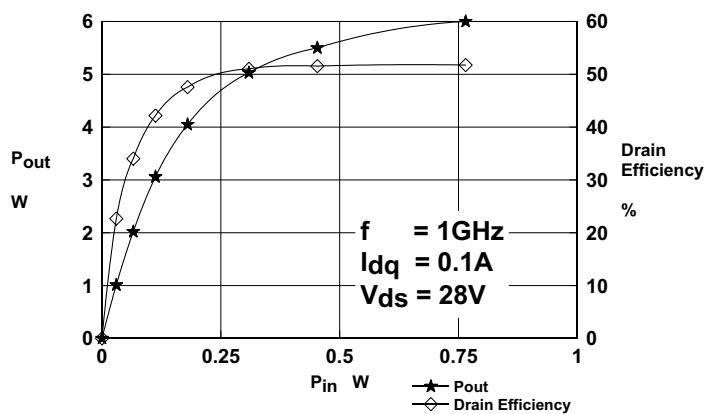


Figure 2

Output Power and Efficiency vs. Input Power .

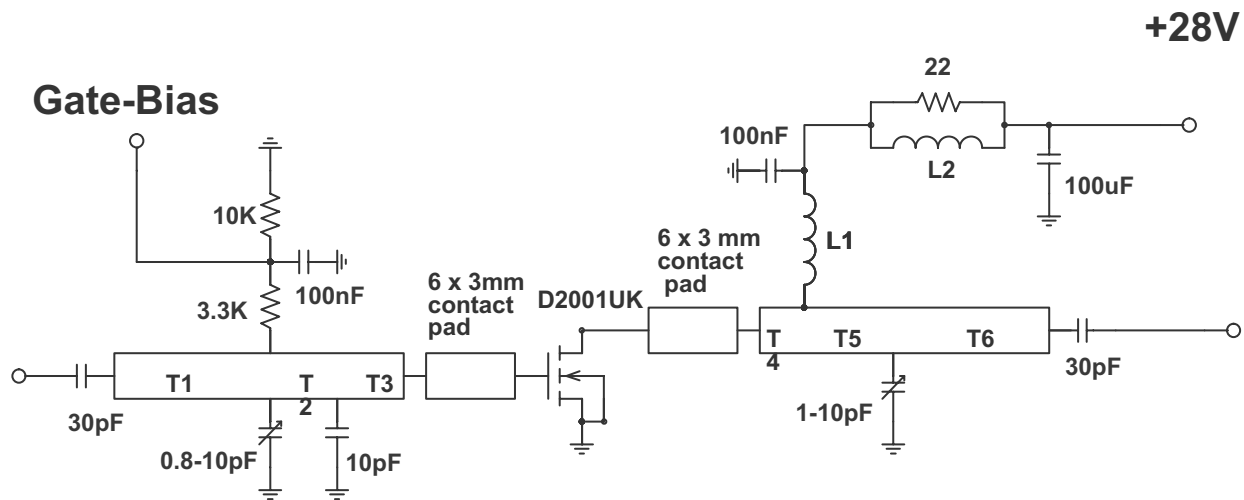
OPTIMUM SOURCE AND LOAD IMPEDANCE

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