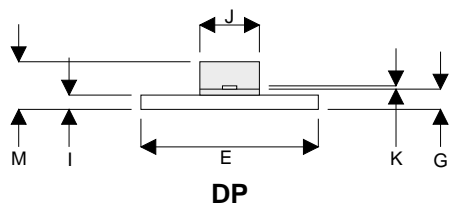
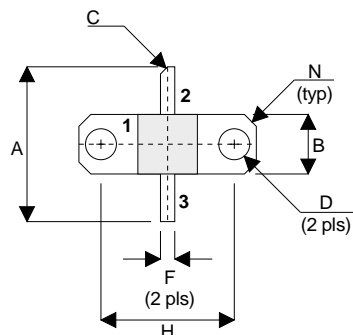


MECHANICAL DATA


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 10W – 28V – 1GHz SINGLE ENDED

FEATURES

- SIMPLIFIED AMPLIFIER DESIGN
- SUITABLE FOR BROAD BAND APPLICATIONS
- LOW C_{rss}
- SIMPLE BIAS CIRCUITS
- LOW NOISE
- HIGH GAIN – 10 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	42W
BV_{DSS}	Drain – Source Breakdown Voltage	65V
BV_{GSS}	Gate – Source Breakdown Voltage	$\pm 20V$
$I_{D(sat)}$	Drain Current	4A
T_{stg}	Storage Temperature	-65 to 150°C
T_j	Maximum Operating Junction Temperature	200°C

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
BV_{DSS} Drain–Source Breakdown Voltage	$V_{\text{GS}} = 0$ $I_{\text{D}} = 10\text{mA}$	65			V
I_{DSS} Zero Gate Voltage Drain Current	$V_{\text{DS}} = 28\text{V}$ $V_{\text{GS}} = 0$			0.8	mA
I_{GSS} Gate Leakage Current	$V_{\text{GS}} = 20\text{V}$ $V_{\text{DS}} = 0$			1	μA
$V_{\text{GS(th)}}$ Gate Threshold Voltage*	$I_{\text{D}} = 10\text{mA}$ $V_{\text{DS}} = V_{\text{GS}}$	1		7	V
g_{fs} Forward Transconductance*	$V_{\text{DS}} = 10\text{V}$ $I_{\text{D}} = 0.8\text{A}$	0.72			S
G_{PS} Common Source Power Gain	$P_{\text{O}} = 10\text{W}$	10			dB
η Drain Efficiency	$V_{\text{DS}} = 28\text{V}$ $I_{\text{DQ}} = 0.4\text{A}$	40			%
VSWR Load Mismatch Tolerance	$f = 1\text{GHz}$	20:1			—
C_{iss} Input Capacitance	$V_{\text{DS}} = 0$ $V_{\text{GS}} = -5\text{V}$ $f = 1\text{MHz}$			48	pF
C_{oss} Output Capacitance	$V_{\text{DS}} = 28\text{V}$ $V_{\text{GS}} = 0$ $f = 1\text{MHz}$			24	pF
C_{rss} Reverse Transfer Capacitance	$V_{\text{DS}} = 28\text{V}$ $V_{\text{GS}} = 0$ $f = 1\text{MHz}$			2	pF

* Pulse Test: Pulse Duration = 300 μs , Duty Cycle $\leq 2\%$

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

$R_{\text{THj-case}}$	Thermal Resistance Junction – Case	Max. 4.2°C / W
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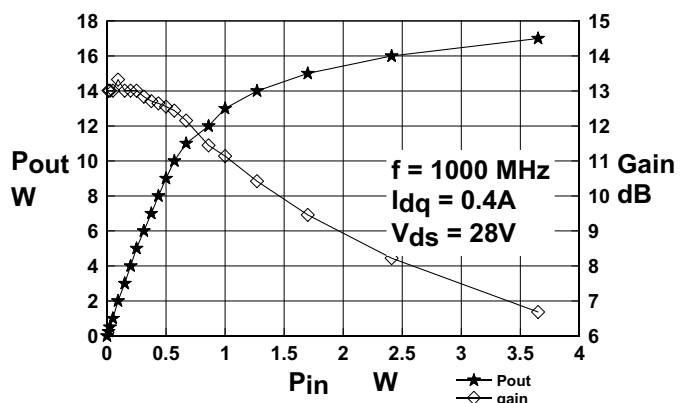


Figure 1
Output Power and Gain vs. Input Power

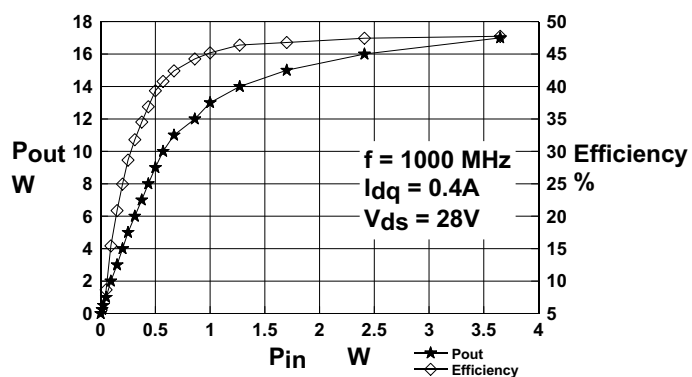


Figure 2
Output Power and Efficiency vs. Input Power

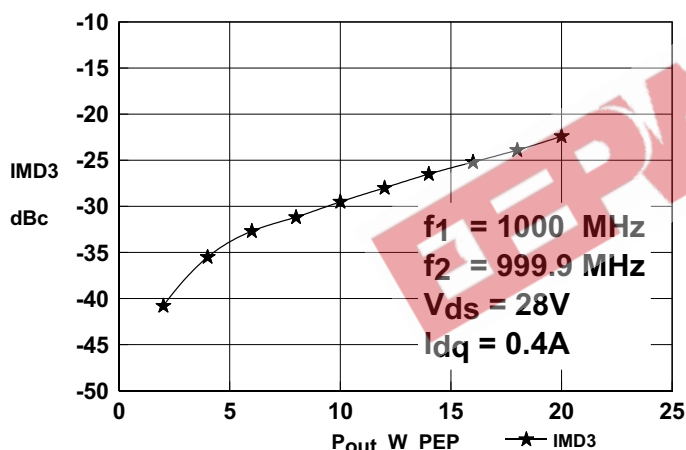


Figure 3
Output Power and Efficiency vs. Input Power

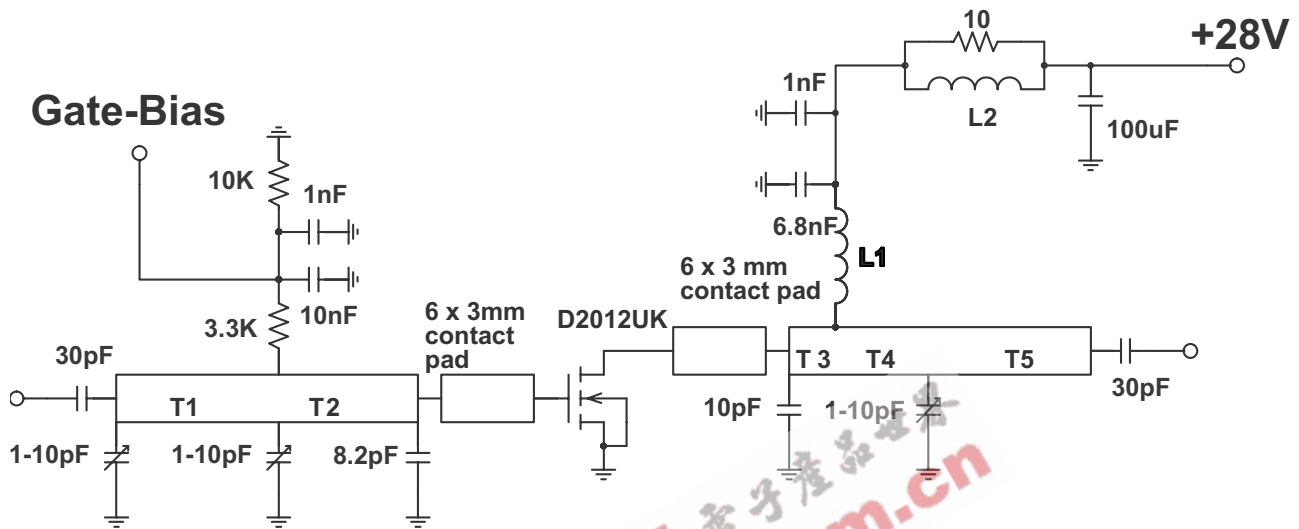
OPTIMUM SOURCE AND LOAD IMPEDANCE

Frequency MHz	Z _S Ω	Z _L Ω
1000	5.0 - j7.2	2.4 - j7.1

Typical S Parameters

! Vds=28V, Idq=0.8A
MHz S MA R 50

!Freq !MHz	S11		S21		S12		S22	
	mag	ang	mag	ang	mag	ang	mag	ang
100	0.841	-122	24.547	98	0.01318	13	0.49	-94
200	0.871	-146	11.482	69	0.01	0	0.61	-125
300	0.891	-156	6.683	52	0.00653	10	0.708	-137
400	0.902	-163	4.365	40	0.00596	49	0.767	-146
500	0.923	-170	3.055	27	0.00891	71	0.813	-155
600	0.933	-174	2.113	22	0.01349	79	0.851	-165
700	0.955	-175	1.758	19	0.01862	85	0.881	-166
800	0.955	-177	1.413	12	0.02344	82	0.902	-170
900	0.966	179	1.161	5	0.02851	80	0.902	-177
1000	0.955	177	0.944	3	0.03236	80	0.902	-179



1GHz Test Fixture

Substrate 0.8mm PTFE/glass, Er = 2.5

All microstrip lines W = 2.2mm

T1 35mm

T2 15mm

T3 4mm

T4 14mm

T5 32mm

L1 7.5 turns 24swg enamelled copper wire, 3mm i.d.

L2 1.5 turns 24swg enamelled copper wire on ferrite core