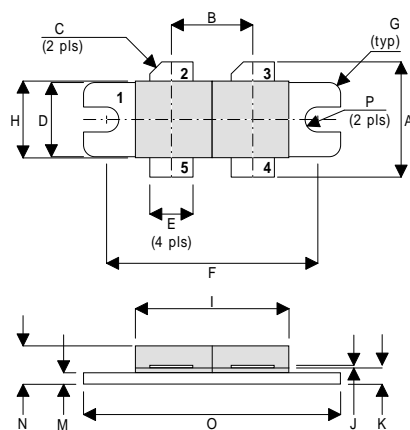


MECHANICAL DATA



DR

PIN 1	SOURCE (COMMON)	PIN 2	DRAIN 1
PIN 3	DRAIN 2	PIN 4	GATE 2
PIN 5	GATE 1		

DIM	Millimetres	Tol.	Inches	Tol.
A	19.05	0.50	0.75	0.020
B	10.77	0.13	0.424	0.005
C	45°	5°	45°	5°
D	9.78	0.13	0.385	0.005
E	5.71	0.13	0.225	0.005
F	27.94	0.13	1.100	0.005
G	1.52R	0.13	0.060R	0.005
H	10.16	0.13	0.400	0.005
I	22.22	MAX	0.875	MAX
J	0.13	0.02	0.005	0.001
K	2.72	0.13	0.107	0.005
M	1.70	0.13	0.067	0.005
N	5.08	0.50	0.200	0.020
O	34.03	0.13	1.340	0.005
P	1.61R	0.08	0.064R	0.003

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

P_D	Power Dissipation	438W
BV_{DSS}	Drain – Source Breakdown Voltage *	70V
BV_{GSS}	Gate – Source Breakdown Voltage *	$\pm 20V$
$I_{D(sat)}$	Drain Current *	35A
T_{stg}	Storage Temperature	-65 to $150^{\circ}C$
T_j	Maximum Operating Junction Temperature	$200^{\circ}C$

* Per Side

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Document Number 5460

Issue 1

GOLD METALLISED MULTI-PURPOSE SILICON DMOS RF FET 400W – 28V – 108MHz PUSH-PULL

FEATURES

- SIMPLIFIED AMPLIFIER DESIGN
- SUITABLE FOR BROAD BAND APPLICATIONS
- LOW C_{rss}
- SIMPLE BIAS CIRCUITS
- LOW NOISE
- HIGH GAIN – 16 dB MINIMUM

APPLICATIONS

- VHF FM COMMUNICATIONS

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
PER SIDE					
B _V DSS	Drain–Source Breakdown Voltage V _{GS} = 0 I _D = 100mA	70			V
I _{DSS}	Zero Gate Voltage Drain Current V _{DS} = 28V V _{GS} = 0			7	mA
I _{GSS}	Gate Leakage Current V _{GS} = 20V V _{DS} = 0			7	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 = 7A	5.6			S
TOTAL DEVICE					
G _{PS}	Common Source Power Gain P _O = 400W	16			dB
η	Drain Efficiency V _{DS} = 28V I _{DQ} = 2A	65			%
VSWR	Load Mismatch Tolerance f = 108MHz	20:1			—
PER SIDE					
C _{iss}	Input Capacitance V _{DS} = 28V V _{GS} = –5V f = 1MHz			380	pF
C _{oss}	Output Capacitance V _{DS} = 28V V _{GS} = 0 f = 1MHz			180	pF
C _{rss}	Reverse Transfer Capacitance V _{DS} = 28V V _{GS} = 0 f = 1MHz			10	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. 0.4°C / W
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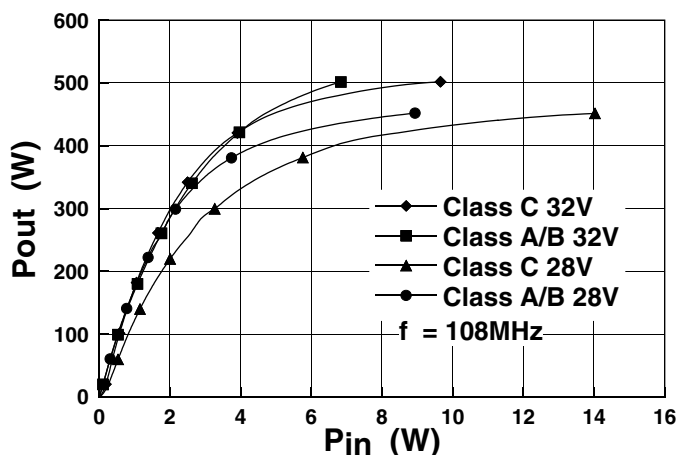


Figure 1
Output Power vs. Input Power

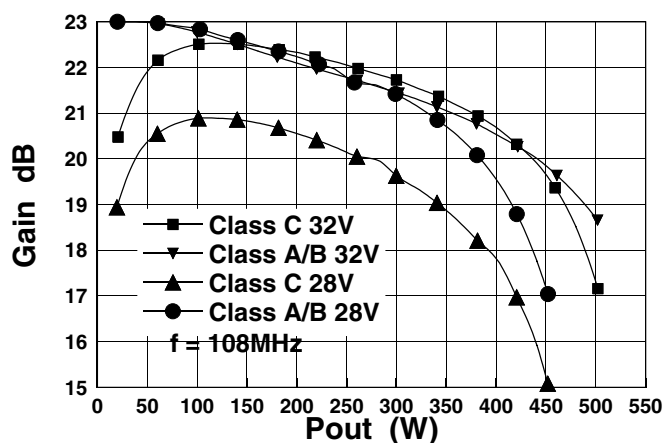


Figure 2
Gain vs. Output Power

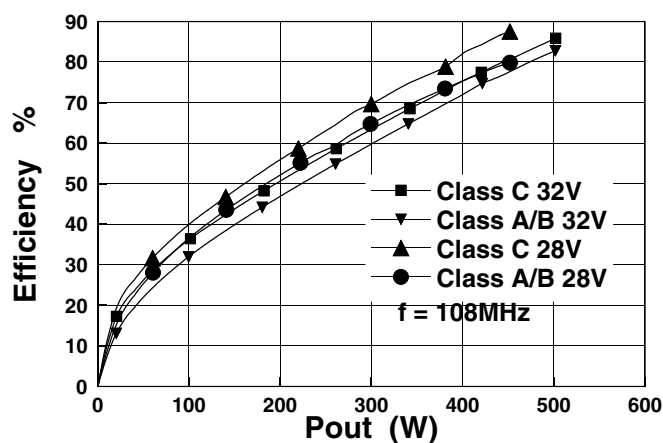
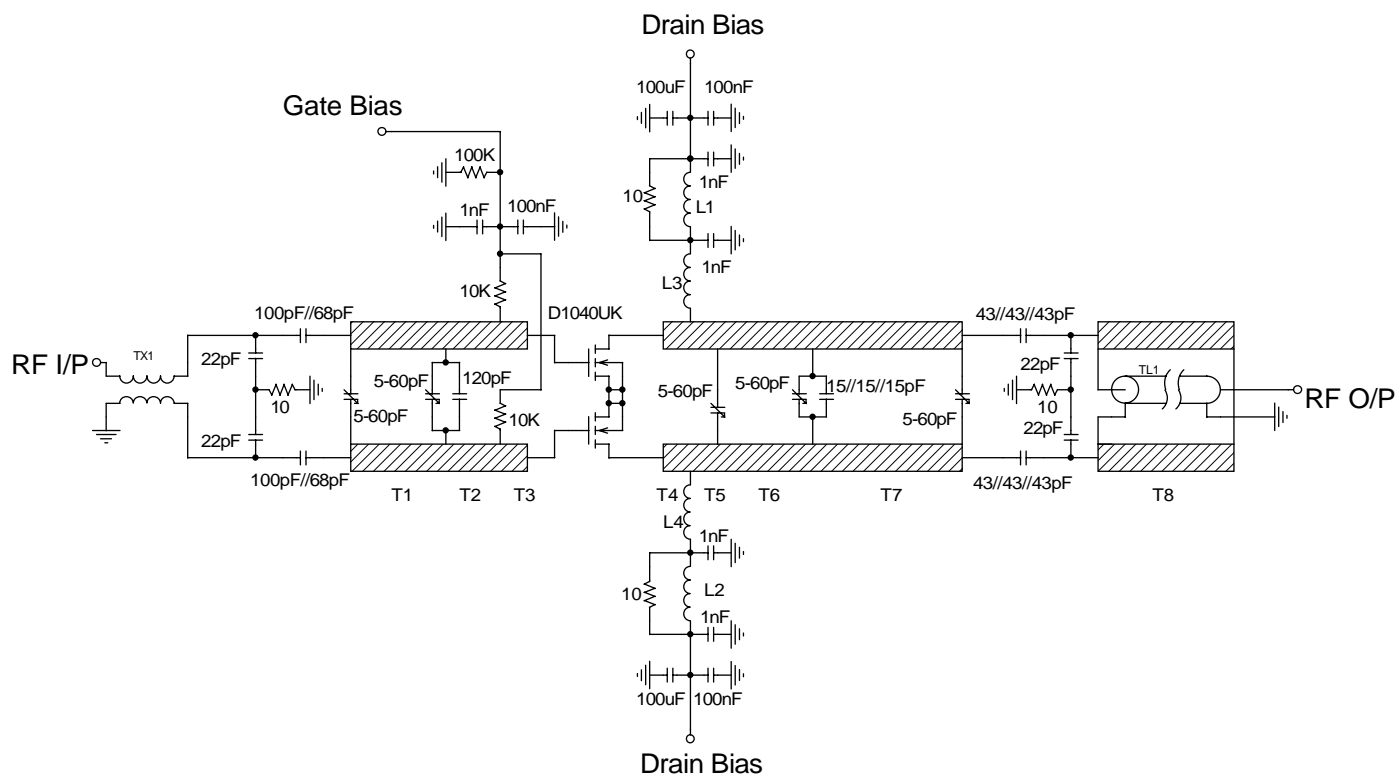


Figure 3
Efficiency vs. Output Power

OPTIMUM SOURCE AND LOAD IMPEDANCE

Frequency MHz	Z_S Ω	Z_L Ω
108	$1.5 + j3.5$	$1.5 - j0.4$



D1040UK 108MHz Test Fixture

Substrate 1.6mm PTFE/glass $\epsilon_r=2.2$

TX1 4 turns 50 Ω coaxial cable wound around toroid

TL1 160mm UT85 semi-rigid coax

L1, L2 1 turn 1.2mm dia wire on Siemens B62152A1X1 2 hole core

L3, L4 4 turns 1.2mm dia wire, 10mm internal dia

T8 4.8mm wide, all other lines 6mm wide

T1 50mm

T2 40mm

T3 10mm

T4 14mm

T5 8mm

T6 40mm

T7 66mm

T8 160mm