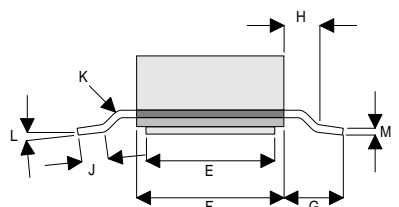
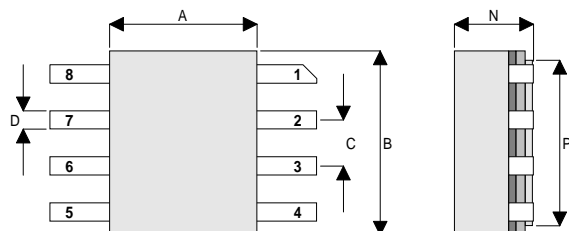


MECHANICAL DATA



SO8 PACKAGE

- PIN 1 – SOURCE
- PIN 2 – DRAIN
- PIN 3 – DRAIN
- PIN 4 – SOURCE
- PIN 5 – SOURCE
- PIN 6 – GATE
- PIN 7 – GATE
- PIN 8 – SOURCE

Dim.	mm	Tol.	Inches	Tol.
A	4.06	±0.08	0.160	±0.003
B	5.08	±0.08	0.200	±0.003
C	1.27	±0.08	0.050	±0.003
D	0.51	±0.08	0.020	±0.003
E	3.56	±0.08	0.140	±0.003
F	4.06	±0.08	0.160	±0.003
G	1.65	±0.08	0.065	±0.003
H	0.76	+0.25 -0.00	0.030	+0.010 -0.000
J	0.51	Min.	0.020	Min.
	1.02	Max.	0.040	Max.
K	45°	Max.	45°	Max.
L	0°	Min.	0°	Min.
	7°	Max.	7°	Max.
M	0.20	±0.08	0.008	±0.003
N	2.18	Max.	0.086	Max.
P	4.57	±0.08	0.180	±0.003

**GOLD METALLISED  
MULTI-PURPOSE SILICON  
DMOS RF FET  
7.5W – 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 DC to 1 GHz

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

$P_D$	Power Dissipation	35W
$BV_{DSS}$	Drain – Source Breakdown Voltage	65V
$BV_{GSS}$	Gate – Source Breakdown Voltage	±20V
$I_{D(sat)}$	Drain Current	3A
$T_{stg}$	Storage Temperature	-65 to 150°C
$T_j$	Maximum Operating Junction Temperature	200°C

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## ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25°C unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
B <sub>V</sub> DSS Drain–Source Breakdown Voltage	V <sub>GS</sub> = 0      I <sub>D</sub> = 10mA	65			V
I <sub>D</sub> DSS Zero Gate Voltage Drain Current	V <sub>DS</sub> = 28V      V <sub>GS</sub> = 0			3	mA
I <sub>G</sub> SS Gate Leakage Current	V <sub>GS</sub> = 20V      V <sub>DS</sub> = 0			1	μA
V <sub>GS(th)</sub> Gate Threshold Voltage*	I <sub>D</sub> = 10mA      V <sub>DS</sub> = V <sub>GS</sub>	1		7	V
g <sub>fs</sub> Forward Transconductance*	V <sub>DS</sub> = 10V      I <sub>D</sub> = 0.6A	0.54			S
G <sub>PS</sub> Common Source Power Gain	P <sub>O</sub> = 7.5W	13			dB
η Drain Efficiency	V <sub>DS</sub> = 28V      I <sub>DQ</sub> = 0.3A	40			%
VSWR Load Mismatch Tolerance	f = 1GHz	20:1			—
C <sub>iss</sub> Input Capacitance	V <sub>DS</sub> = 0      V <sub>GS</sub> = -5V      f = 1MHz			36	pF
C <sub>oss</sub> Output Capacitance	V <sub>DS</sub> = 28V      V <sub>GS</sub> = 0      f = 1MHz			18	pF
C <sub>rss</sub> Reverse Transfer Capacitance	V <sub>DS</sub> = 28V      V <sub>GS</sub> = 0      f = 1MHz			1.5	pF

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

## THERMAL DATA

R <sub>THj-case</sub>	Thermal Resistance Junction – Case	Max. 5°C / W
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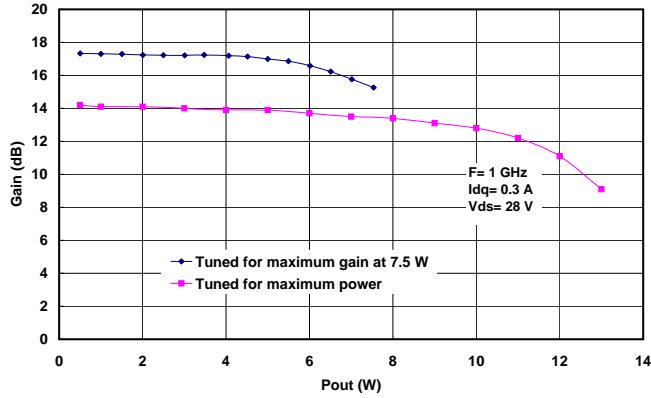
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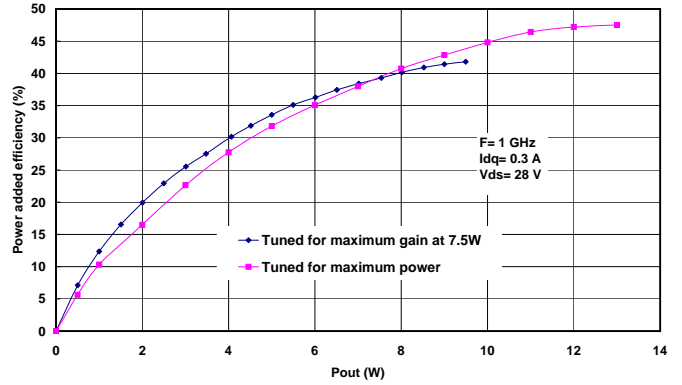
E-mail: [sales@semelab.co.uk](mailto:sales@semelab.co.uk) Website: <http://www.semelab.co.uk>

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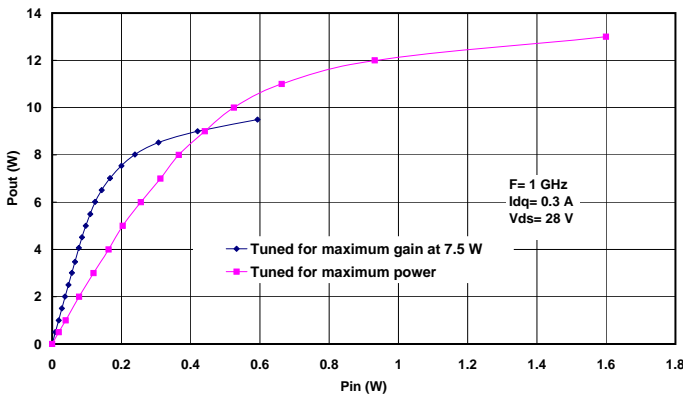
Issue 1



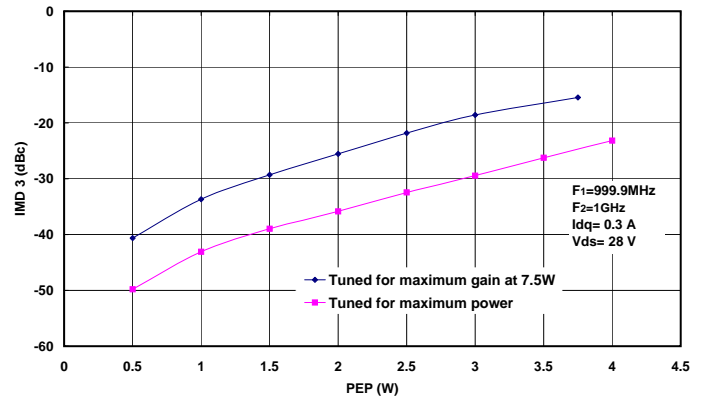
**Figure 1**  
Gain vs. Output Power.



**Figure 2**  
Power added efficiency vs. Output Power.



**Figure 3**  
Output Power vs. Input Power.



**Figure 4**  
IMD 3 vs. PEP

**Typical S Parameters**

! Vds=28V Idq=0.3A  
# MHz S MA R 50

!Freq !MHz	S11		S21		S12		S22	
	mag	ang	mag	ang	mag	ang	mag	ang
100	0.79	-113	16	108	0.027	21	0.6	-73
200	0.76	-141	8.1	77	0.022	8	0.59	-102
300	0.78	-153	5.3	62	0.016	19	0.66	-118
400	0.8	-162	3.6	49	0.014	56	0.71	-130
500	0.84	-169	2.8	38	0.023	84	0.75	-139
600	0.87	-175	2.1	24	0.036	87	0.79	-147
700	0.89	-180	1.6	16	0.047	86	0.82	-154
800	0.9	176	1.2	17	0.058	91	0.83	-164
900	0.9	172	1.1	16	0.083	93	0.84	-168
1000	0.89	165	1	8	0.111	86	0.86	-172

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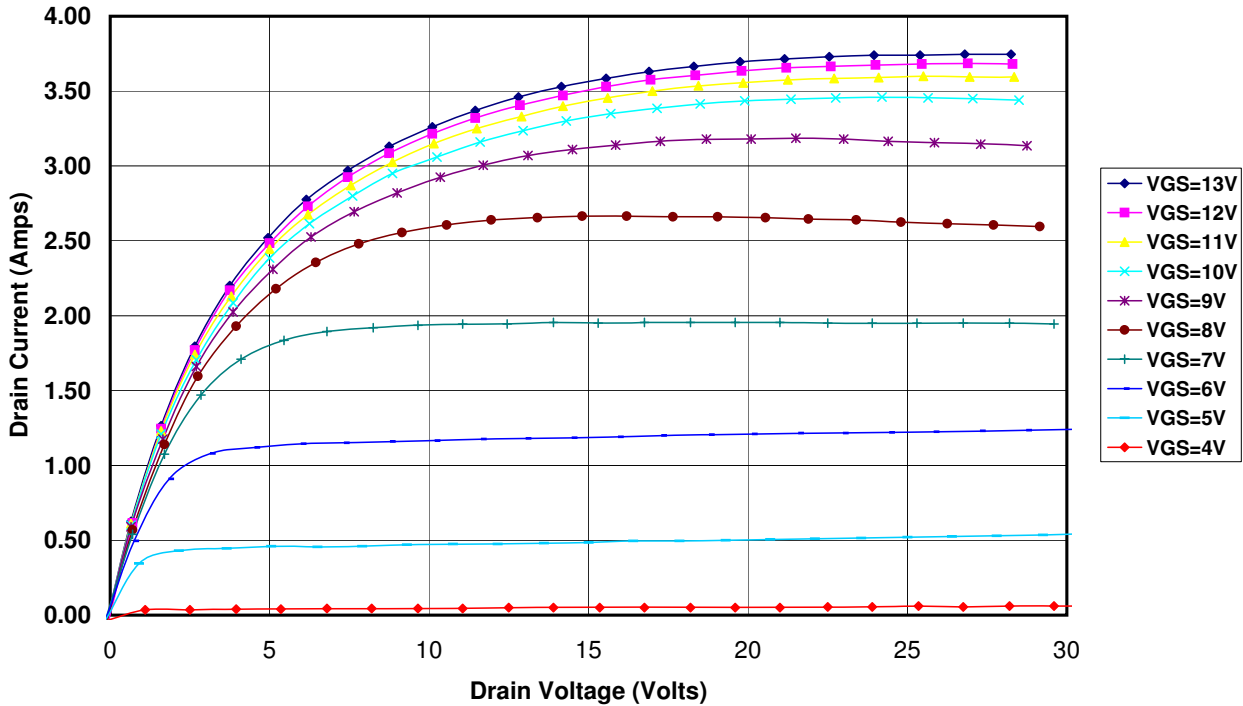


Figure 5 – Typical IV Characteristics.

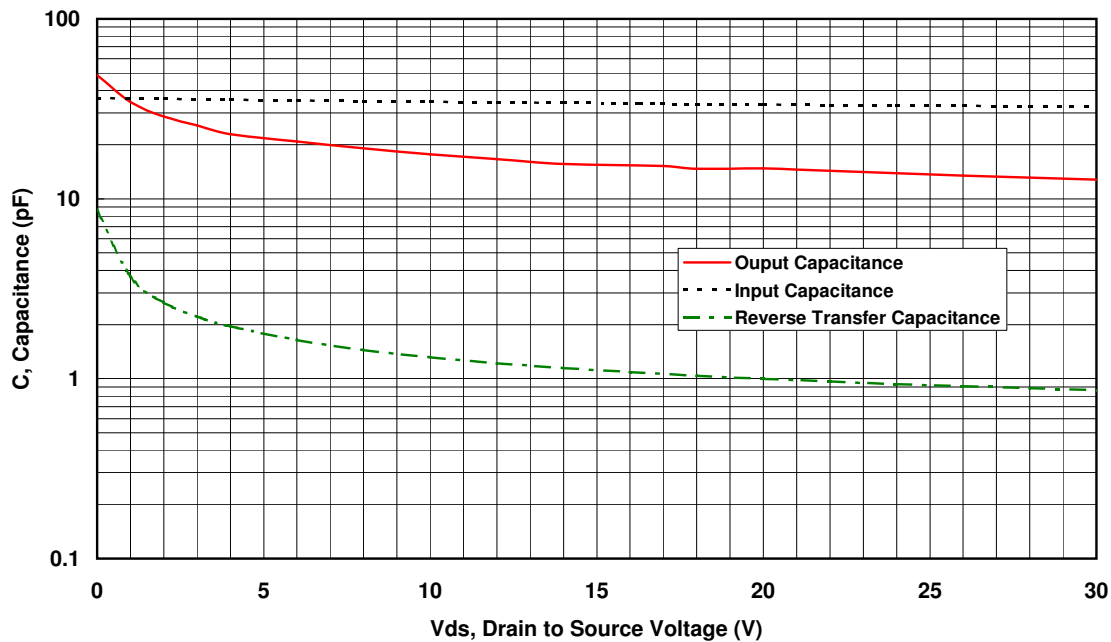
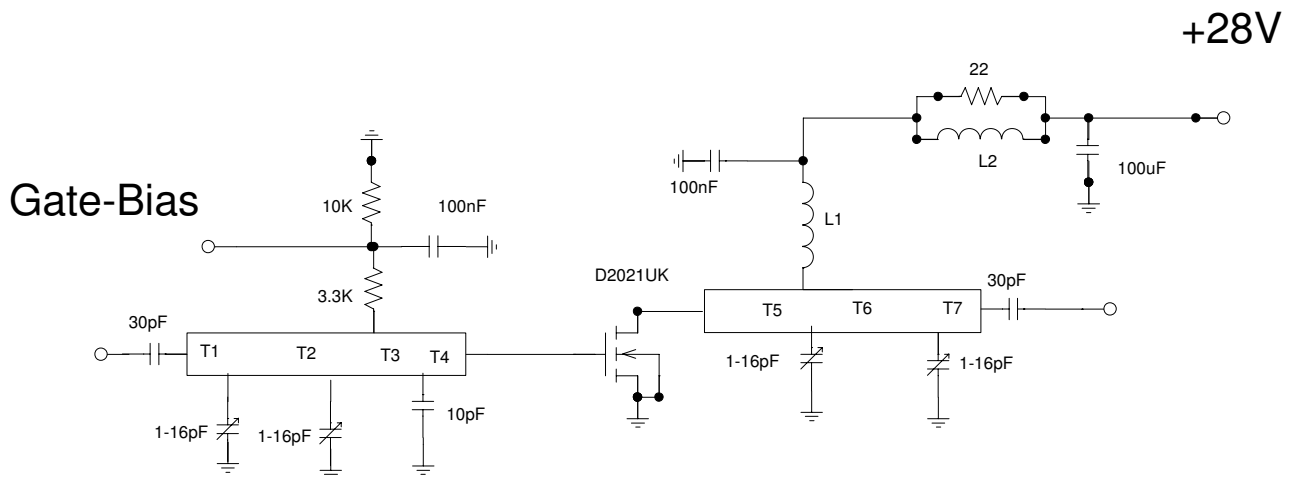


Figure 6 – Typical CV Characteristics.

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## D2021UK 1GHz TEST FIXTURE

Substrate 0.8mm PTFE/glass, Er=2.5

All microstrip lines W=2.2mm

T1 3mm

T2 28mm

T3 18mm

T4 6mm

T5 10mm

T6 14mm

T7 35mm

L1 8 turns 0.5mm dia enamelled copper wire, 3mm i.d.

L2 1.5 turns 0.5mm enamelled copper wire on Siemens B62152A7 2 hole ferrite core

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