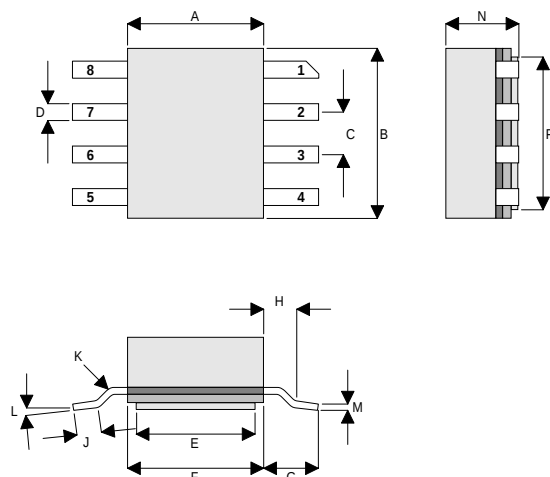


MECHANICAL DATA



SO8 PACKAGE

PIN 1 – SOURCE PIN 5 – SOURCE
PIN 2 – DRAIN PIN 6 – GATE
PIN 3 – DRAIN PIN 7 – GATE
PIN 4 – SOURCE 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 10W – 12.5V – 500MHz SINGLE ENDED

FEATURES

- SIMPLIFIED AMPLIFIER DESIGN
- SUITABLE FOR BROAD BAND APPLICATIONS
- VERY LOW C_{rss}
- SIMPLE BIAS CIRCUITS
- LOW NOISE
- HIGH GAIN – 10 dB MINIMUM

APPLICATIONS

- HF/VHF/UHF COMMUNICATIONS
from 1 MHz to 1 GHz

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

P_D	Power Dissipation	30W
BV_{DSS}	Drain – Source Breakdown Voltage	40V
BV_{GSS}	Gate – Source Breakdown Voltage	±20V
$I_{D(sat)}$	Drain Current	10A
T_{stg}	Storage Temperature	–65 to 150°C
T_j	Maximum Operating Junction Temperature	200°C

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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Document Number 3172

Issue 2

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
BV_{DSS} Drain-Source Breakdown Voltage	$V_{GS} = 0$ $I_D = 10mA$	40			V
I_{DSS} Zero Gate Voltage Drain Current	$V_{DS} = 12.5V$ $V_{GS} = 0$			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*	$V_{DS} = 10V$ $I_D = 1A$	0.8			S
G_{PS} Common Source Power Gain	$P_O = 10W$	10			dB
η Drain Efficiency	$V_{DS} = 12.5V$ $I_{DQ} = 0.4A$	50			%
VSWR Load Mismatch Tolerance	$f = 500MHz$	20:1			—
C_{iss} Input Capacitance	$V_{DS} = 0V$ $V_{GS} = -5V$ $f = 1MHz$			60	pF
C_{oss} Output Capacitance	$V_{DS} = 12.5V$ $V_{GS} = 0$ $f = 1MHz$			40	pF
C_{rss} Reverse Transfer Capacitance	$V_{DS} = 12.5V$ $V_{GS} = 0$ $f = 1MHz$			4	pF

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

THERMAL DATA

$R_{THj-case}$	Thermal Resistance Junction – Case	Max. 6°C / W
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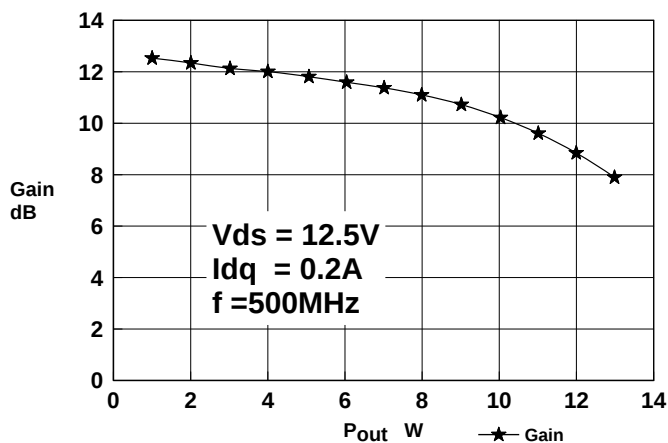


Figure 1 – Gain vs. Power Output.

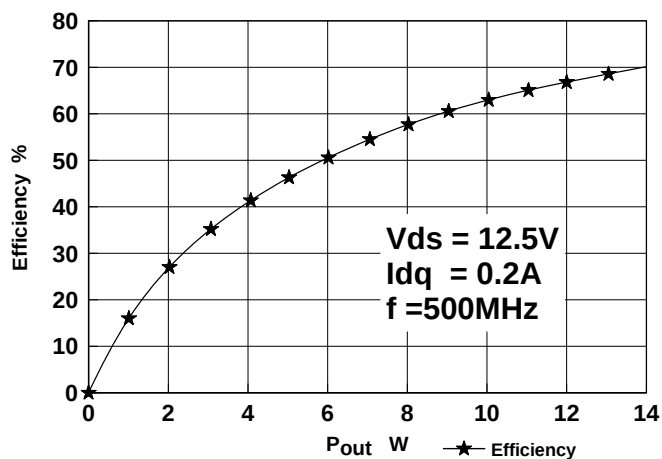


Figure 2 – Efficiency vs. Power Output.

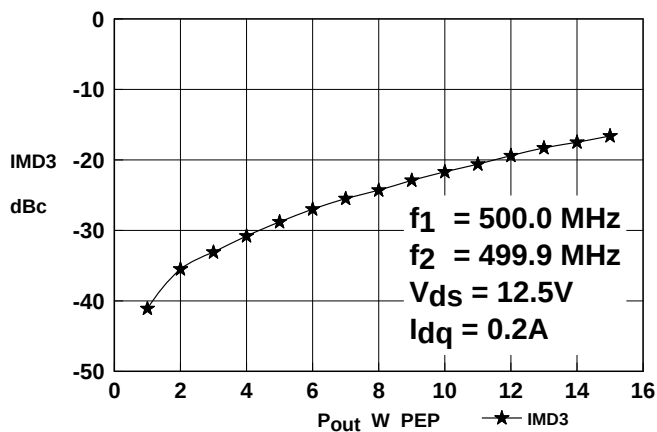


Figure 3 – IMD vs. Output Power.

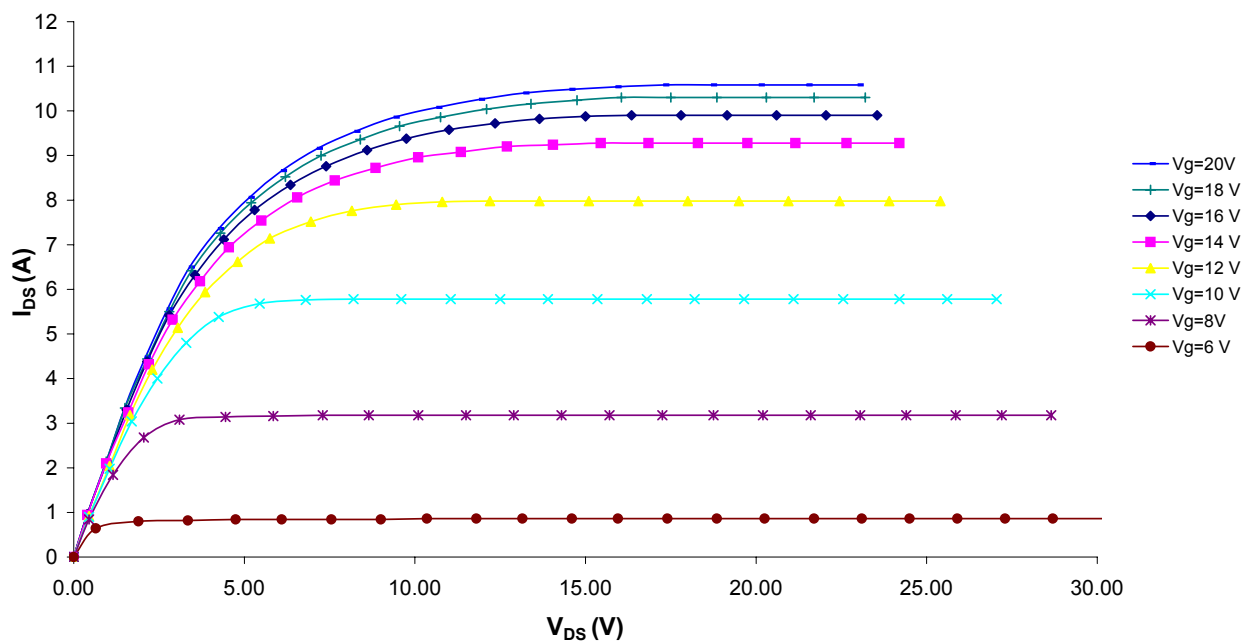


Figure 4 – Typical IV Characteristics.

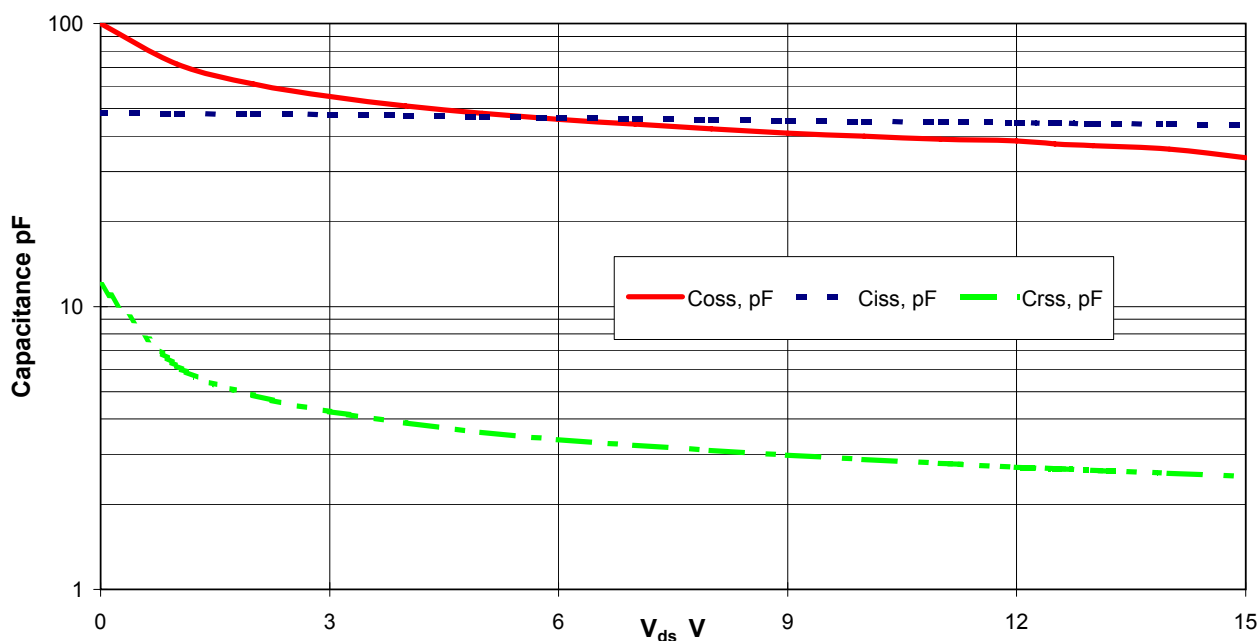
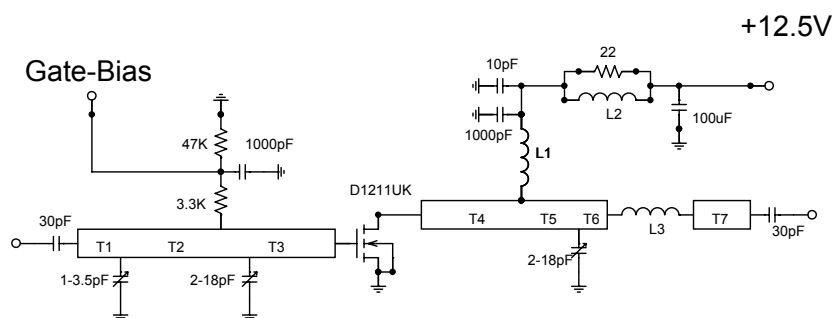


Figure 5 – Typical CV Characteristics.



D1211UK 500MHz TEST FIXTURE

Substrate 0.8mm PTFE/glass, Er=2.5

All microstrip lines W=1.5mm

T1 6mm

T2 35mm

T3 16mm

T4 11mm

T5 7mm

T6 7mm

T7 23mm

L1 6 turns 0.5mm dia enamelled copper wire, 4mm i.d.

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

L3 1/16" dia wire hairpin loop 15mm long