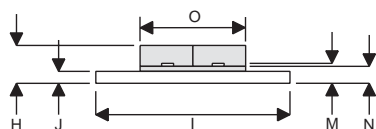
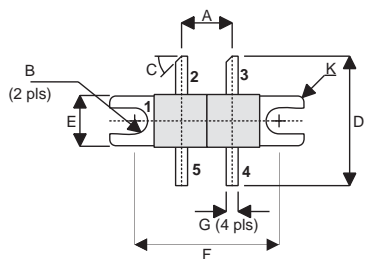


MECHANICAL DATA

**GOLD METALLISED
MULTI-PURPOSE SILICON
DMOS RF FET
20W – 12.5V – 400MHz
PUSH-PULL**



DK

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

DIM	mm	Tol.	Inches	Tol.
A	6.45	0.13	0.254	0.005
B	1.65R	0.13	0.065R	0.005
C	45°	5°	45°	5°
D	16.51	0.76	0.650	0.03
E	6.47	0.13	0.255	0.005
F	18.41	0.13	0.725	0.005
G	1.52	0.13	0.060	0.005
H	4.82	0.25	0.190	0.010
I	24.76	0.13	0.975	0.005
J	1.52	0.13	0.060	0.005
K	0.81R	0.13	0.032R	0.005
M	0.13	0.02	0.005	0.001
N	2.16	0.13	0.085	0.005

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 500 MHz

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

P_D	Power Dissipation	100W
BV_{DSS}	Drain – Source Breakdown Voltage *	40V
BV_{GSS}	Gate – Source Breakdown Voltage *	$\pm 20V$
$I_{D(sat)}$	Drain Current *	10A
T_{stg}	Storage Temperature	-65 to 150°C
T_j	Maximum Operating Junction Temperature	200°C

* Per Side

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.

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 = 10mA	40		V
I _D DSS	Zero Gate Voltage Drain Current	V _{DS} = 12.5V V _{GS} = 0		1	mA
I _G DSS	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
TOTAL DEVICE					
G _{PS}	Common Source Power Gain	P _O = 20W	10		dB
η	Drain Efficiency	V _{DS} = 12.5V I _{DQ} = 0.8A	50		%
V _{SWR}	Load Mismatch Tolerance	f = 400MHz	20:1		—
PER SIDE					
C _{iss}	Input Capacitance	V _{DS} = 0 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 ≤ 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. 1.75°C / W
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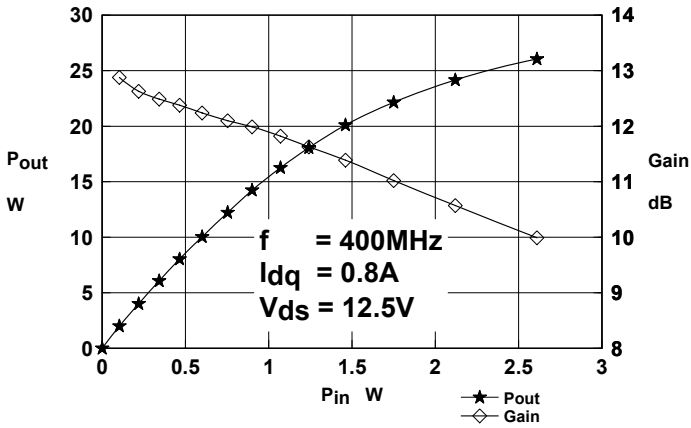


Figure 1- Gain vs. Power Output

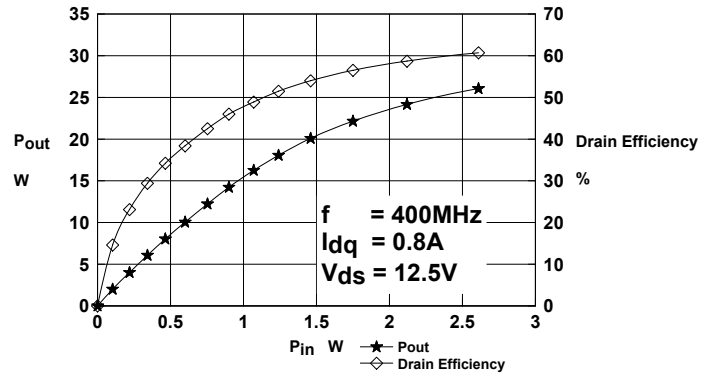


Figure 2 - Efficiency vs. Power Output

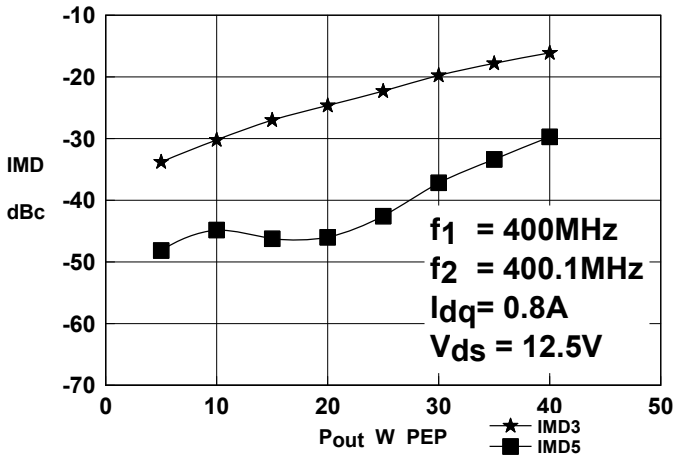


Figure 3 - IMD vs. Power Output

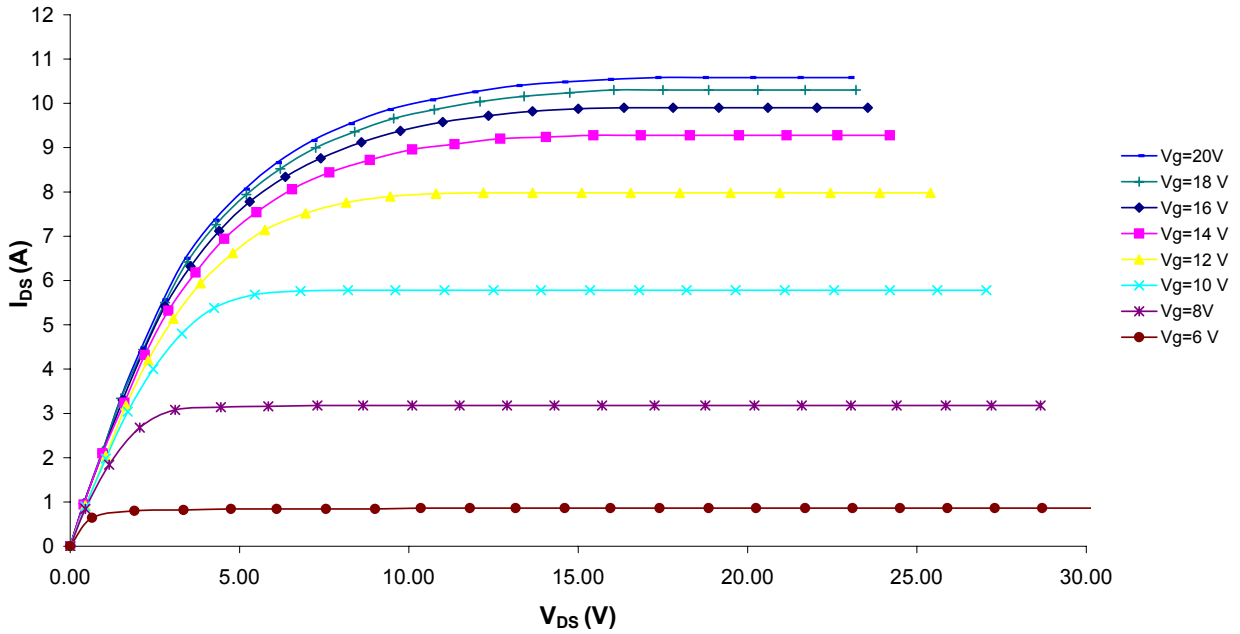


Figure 4 – Typical IV Characteristics.

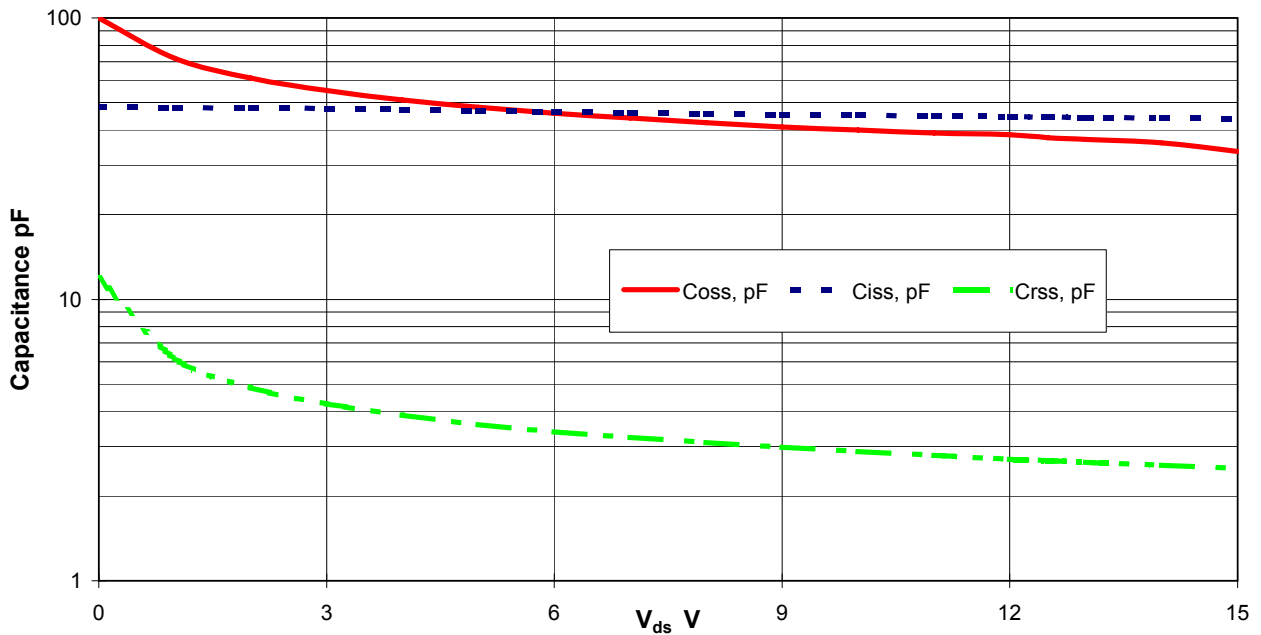
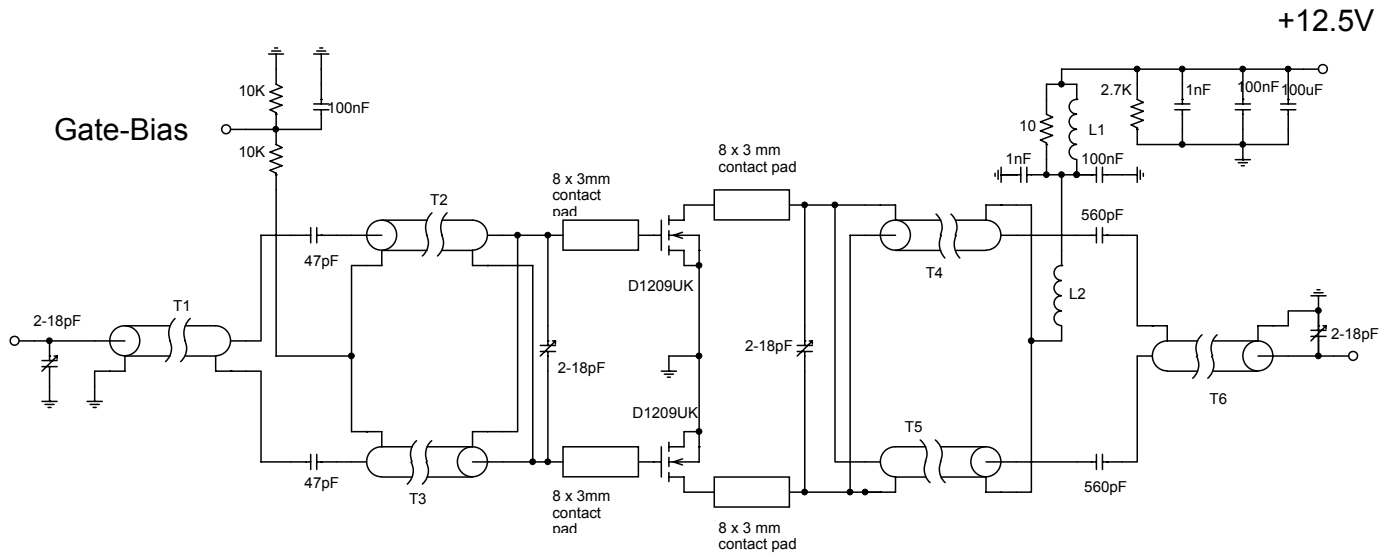


Figure 5 – Typical CV Characteristics.

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D1209UK TEST FIXTURE

- T1 50 Ohm semi-rigid coax 0.034" dia, 7cm long
- T2,3 25 Ohm semi-rigid coax 0.034" dia, 10cm long on Siemens B62152A1X1 ferrite core
- T4,5 25 Ohm semi-rigid coax 0.034" dia, 10cm long
- T6 50 Ohm semi-rigid coax 0.034" dia, 7cm long
- L1 2.5 turns 1mm dia enamelled copper wire on Siemens B62152A1X1 ferrite core
- L2 6 turns 2 mm dia enamelled copper wire, 3.5mm internal diameter