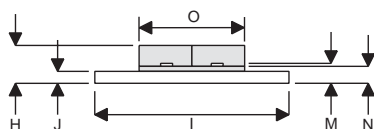
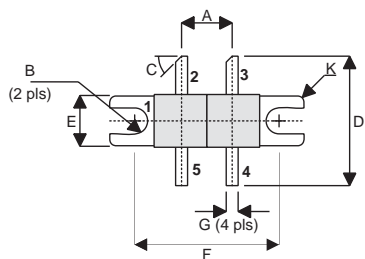


MECHANICAL DATA

**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 *	±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

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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
<b>PER SIDE</b>							
B <sub>V</sub> DSS	Drain–Source Breakdown Voltage	V <sub>GS</sub> = 0	I <sub>D</sub> = 10mA	40			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 12.5V	V <sub>GS</sub> = 0			1	mA
I <sub>GSS</sub>	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> = 1A	0.8			S
<b>TOTAL DEVICE</b>							
G <sub>PS</sub>	Common Source Power Gain	P <sub>O</sub> = 20W		10			dB
η	Drain Efficiency	V <sub>DS</sub> = 12.5V	I <sub>DQ</sub> = 0.8A	50			%
V <sub>SWR</sub>	Load Mismatch Tolerance	f = 400MHz		20:1			—
<b>PER SIDE</b>							
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = 0	V <sub>GS</sub> = -5V f = 1MHz			60	pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> = 12.5V	V <sub>GS</sub> = 0 f = 1MHz			40	pF
C <sub>rss</sub>	Reverse Transfer Capacitance	V <sub>DS</sub> = 12.5V	V <sub>GS</sub> = 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 <sub>THj-case</sub>	Thermal Resistance Junction – Case	Max. 1.75°C / W
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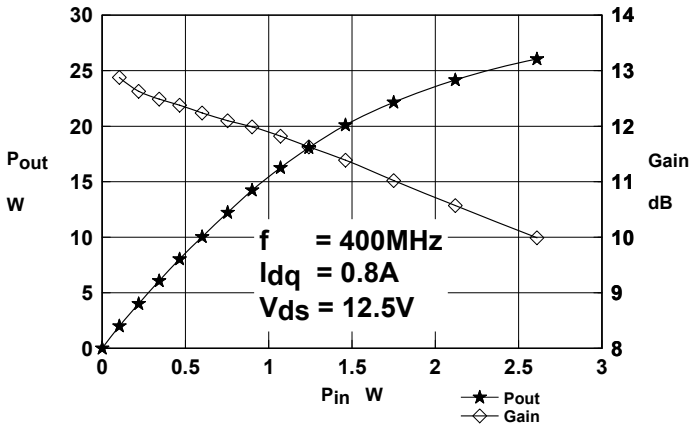


Figure 1- Gain vs. Power Output

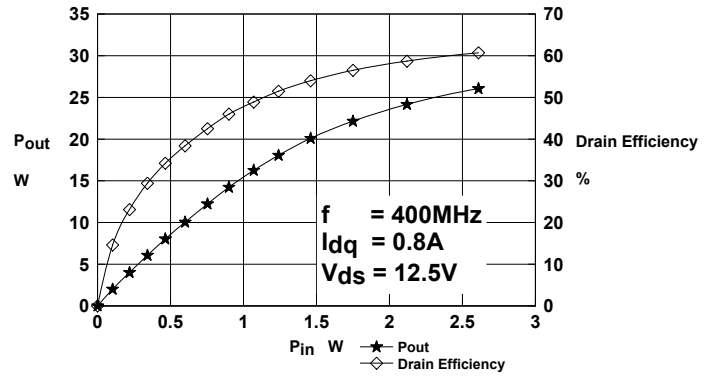


Figure 2 - Efficiency vs. Power Output

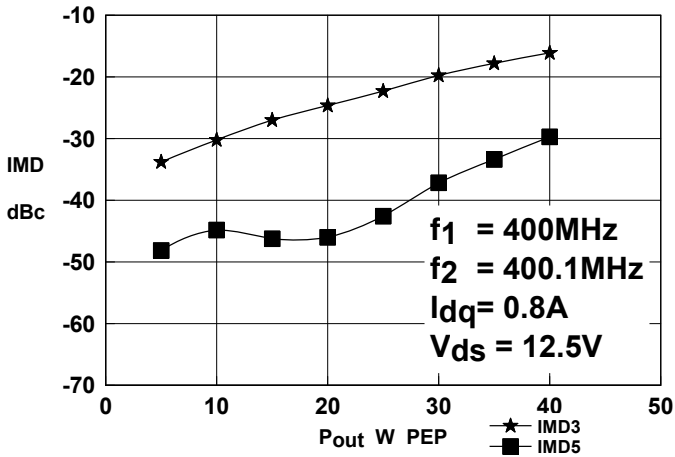


Figure 3 - IMD vs. Power Output

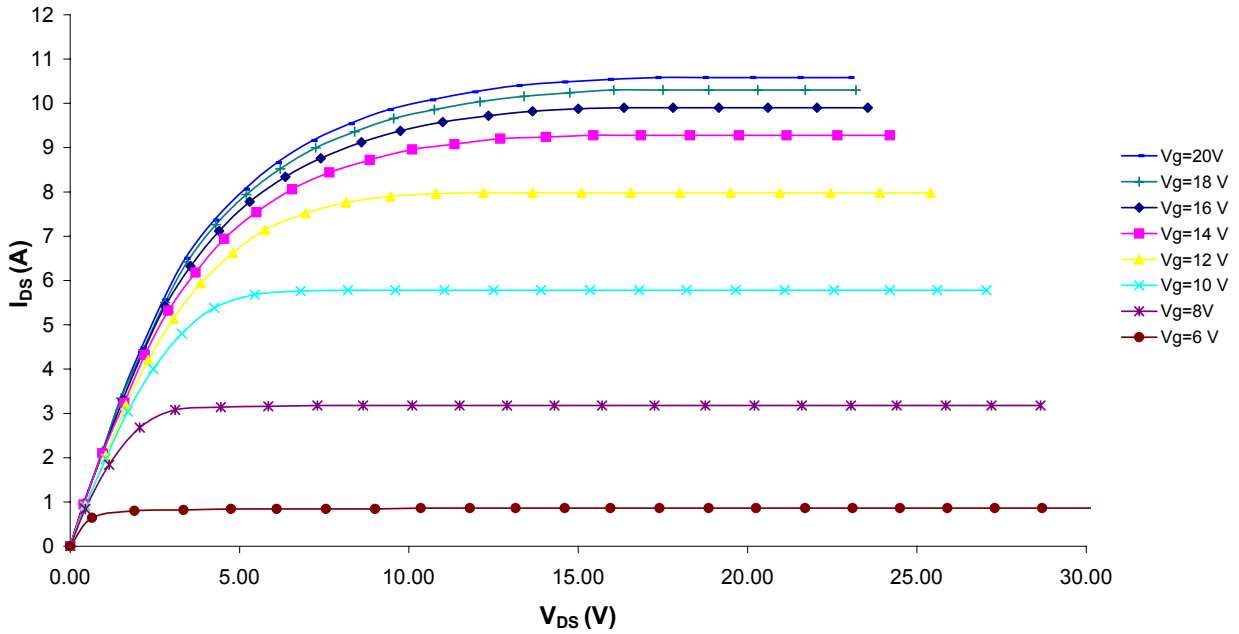


Figure 4 – Typical IV Characteristics.

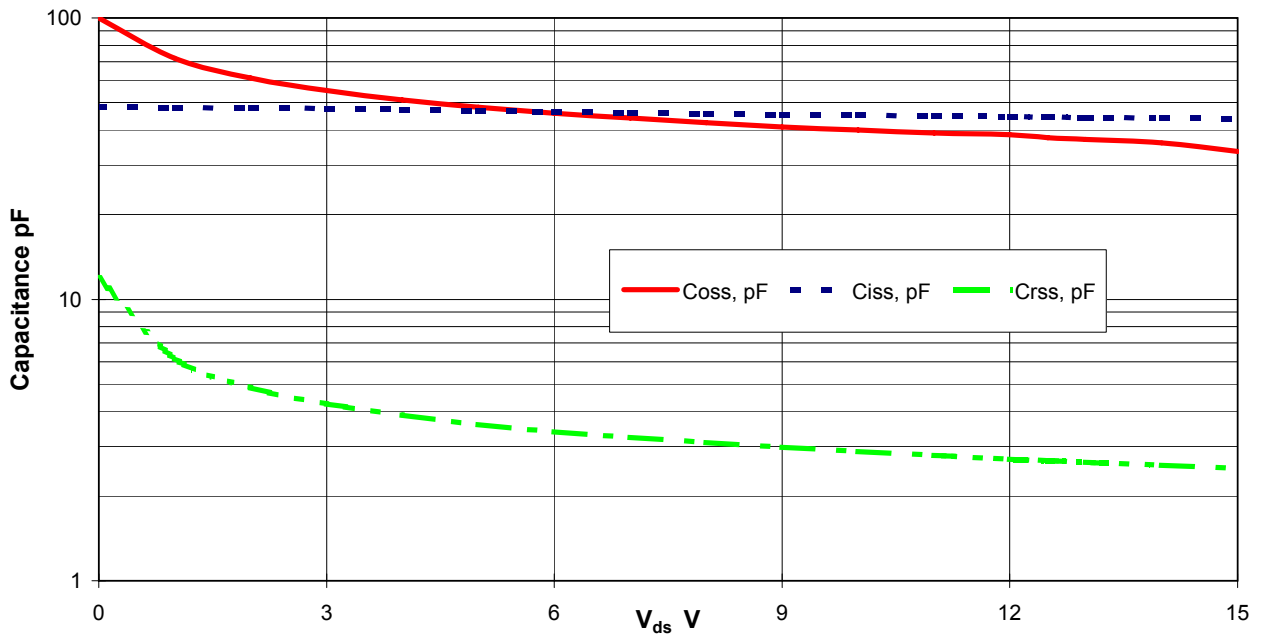
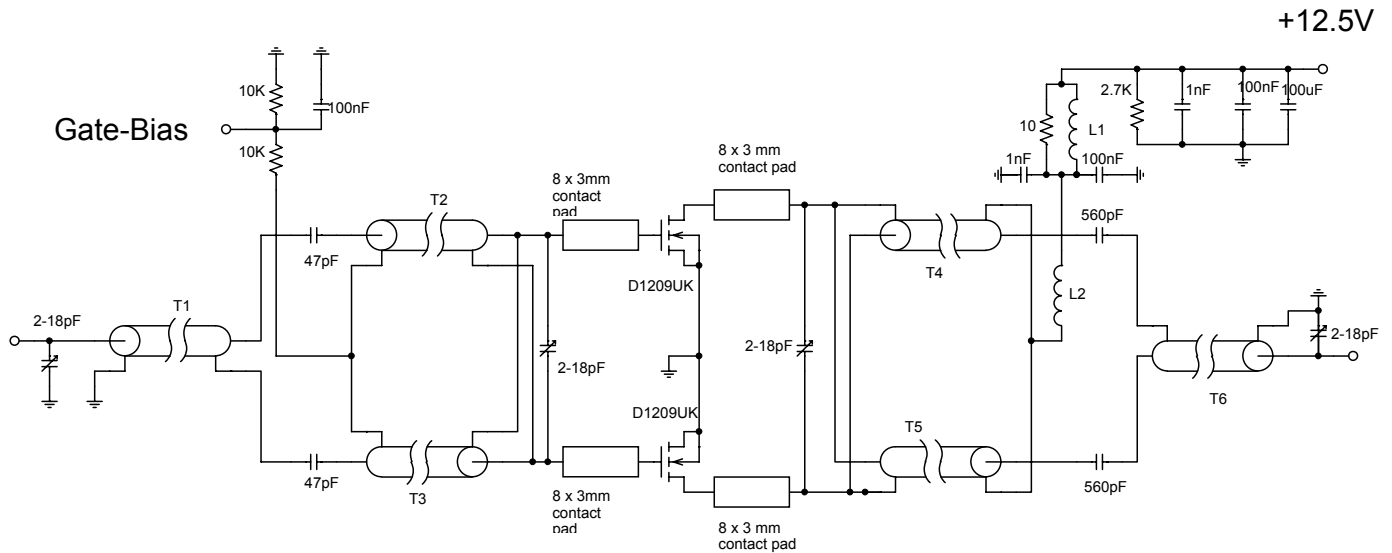


Figure 5 – Typical CV Characteristics.

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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