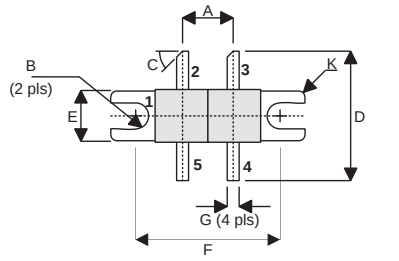
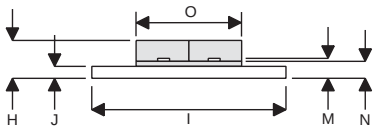
D1209UK

ROHS COMPLIANT METAL GATE RF SILICON FET

MECHANICAL DATA





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

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

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°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_{case} = 25°C unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
PER SIDE							
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
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			%
VSWR	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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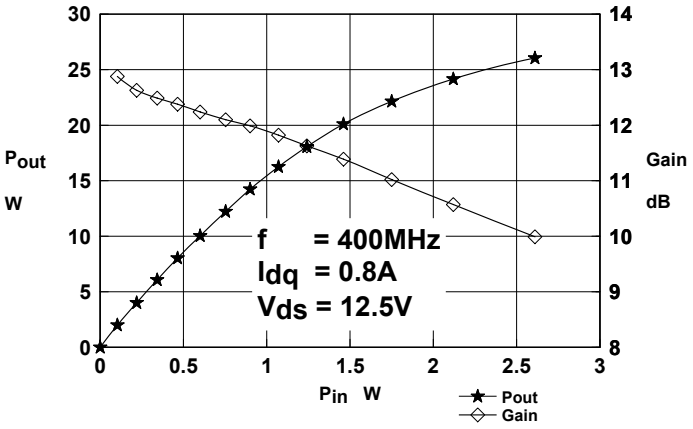

Figure 1- Gain vs. Power Output

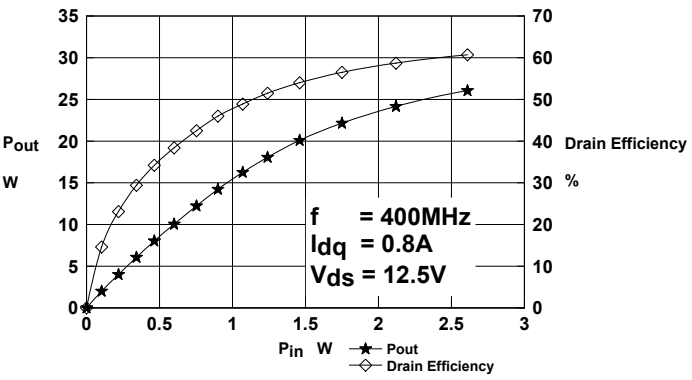

Figure 2 - Efficiency vs Power Output

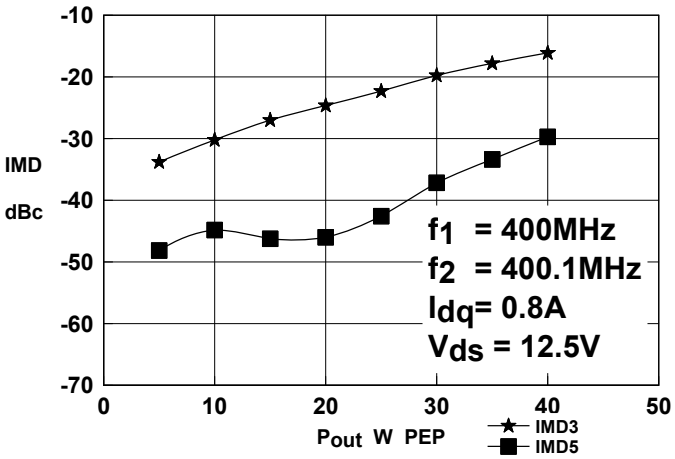

Figure 3 - IMD vs Power Output

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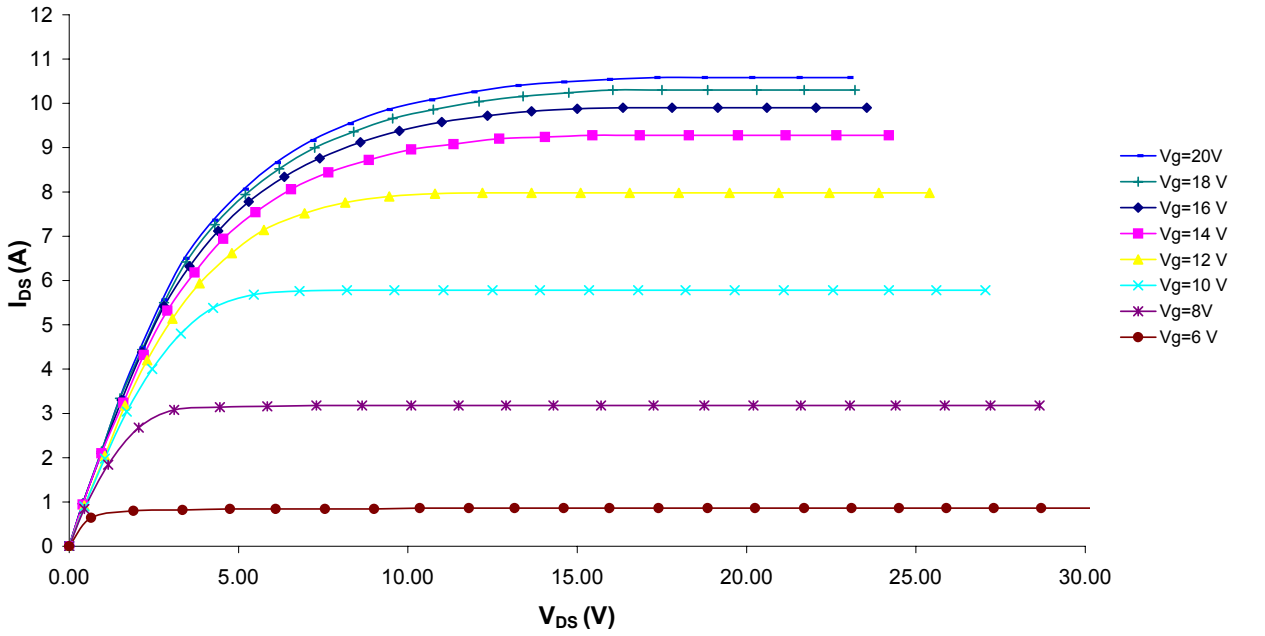

Figure 4 – Typical IV Characteristics.

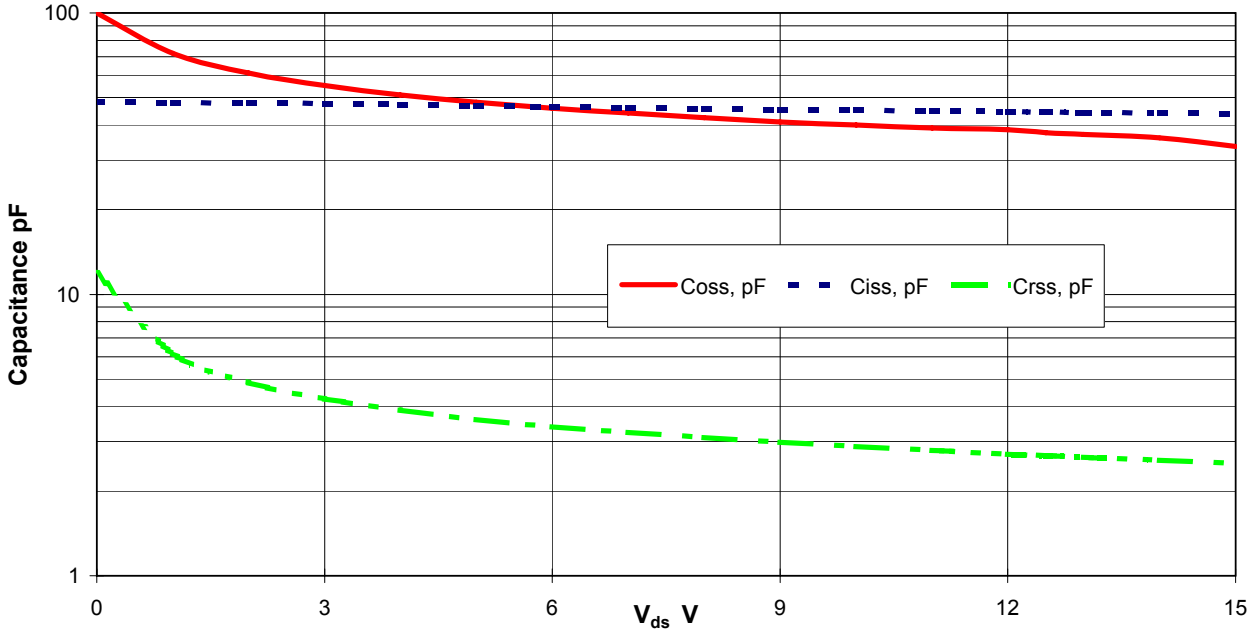

Figure 5 – Typical CV Characteristics.

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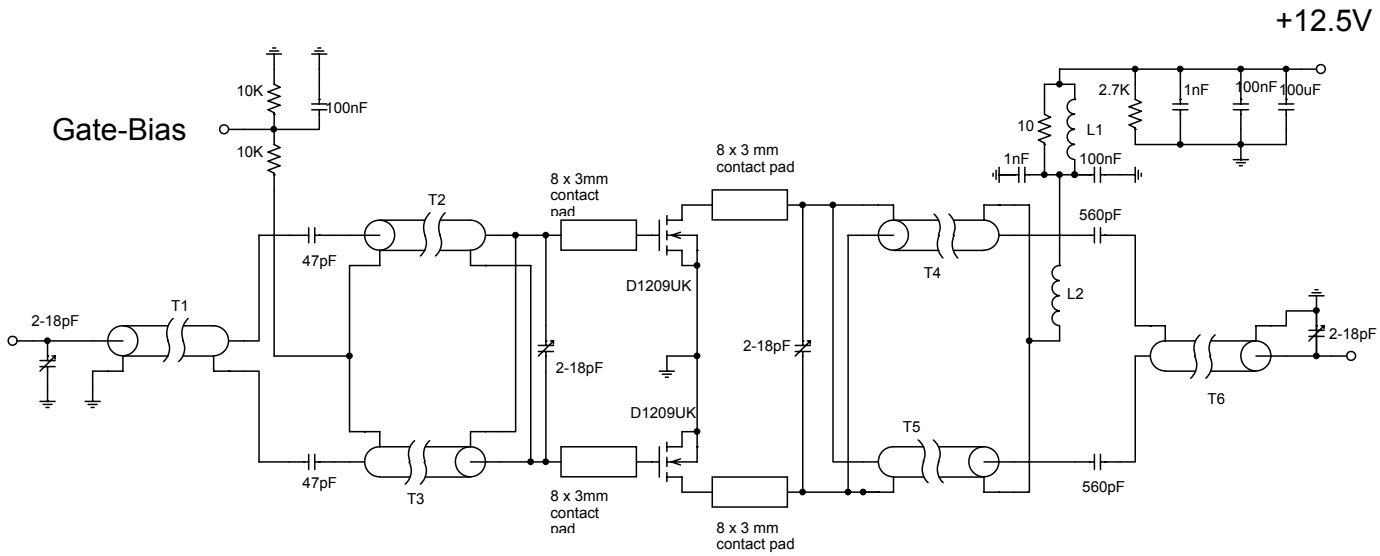

D1209UK TEST FIXTURE

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

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