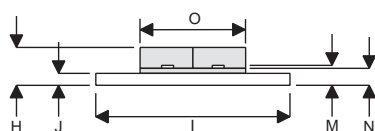
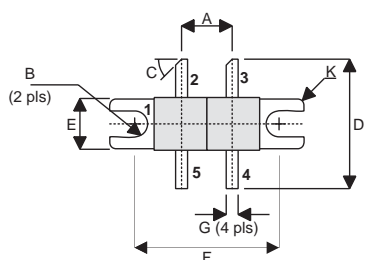


MECHANICAL DATA



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 ($T_{case} = 25^{\circ}C$ 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 $150^{\circ}C$ |
| T_j | Maximum Operating Junction Temperature | $200^{\circ}C$ |

* 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.

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.

Document Number 7164

E-mail: sales@semelab.co.uk

Website: <http://www.semelab.co.uk>

Issue 1

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 | | | % |
| 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 |
|-----------------------|------------------------------------|-----------------|

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.

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.

E-mail: sales@semelab.co.uk Website: <http://www.semelab.co.uk>

Document Number 7164

Issue 1

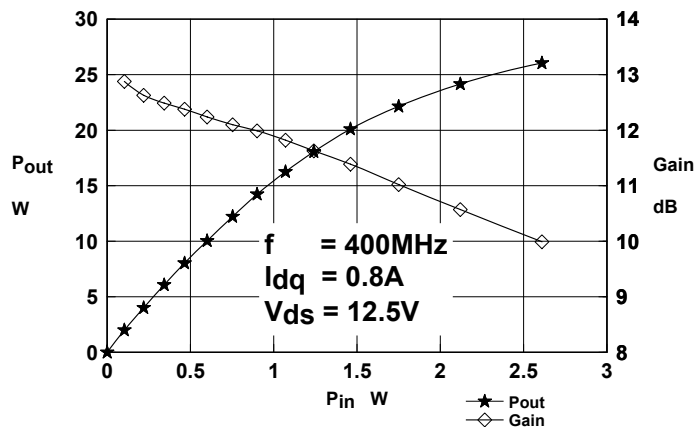


Figure 1- Gain vs. Power Output

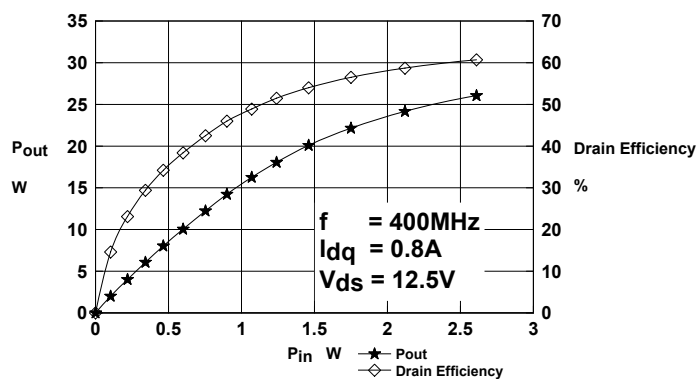


Figure 2 - Efficiency vs Power Output

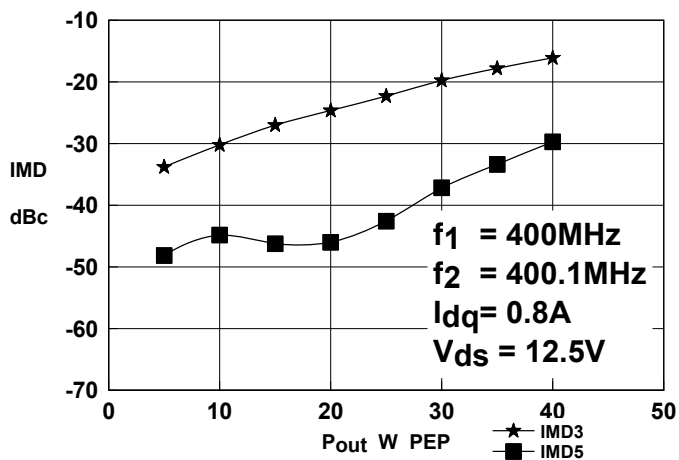


Figure 3 - IMD vs Power Output

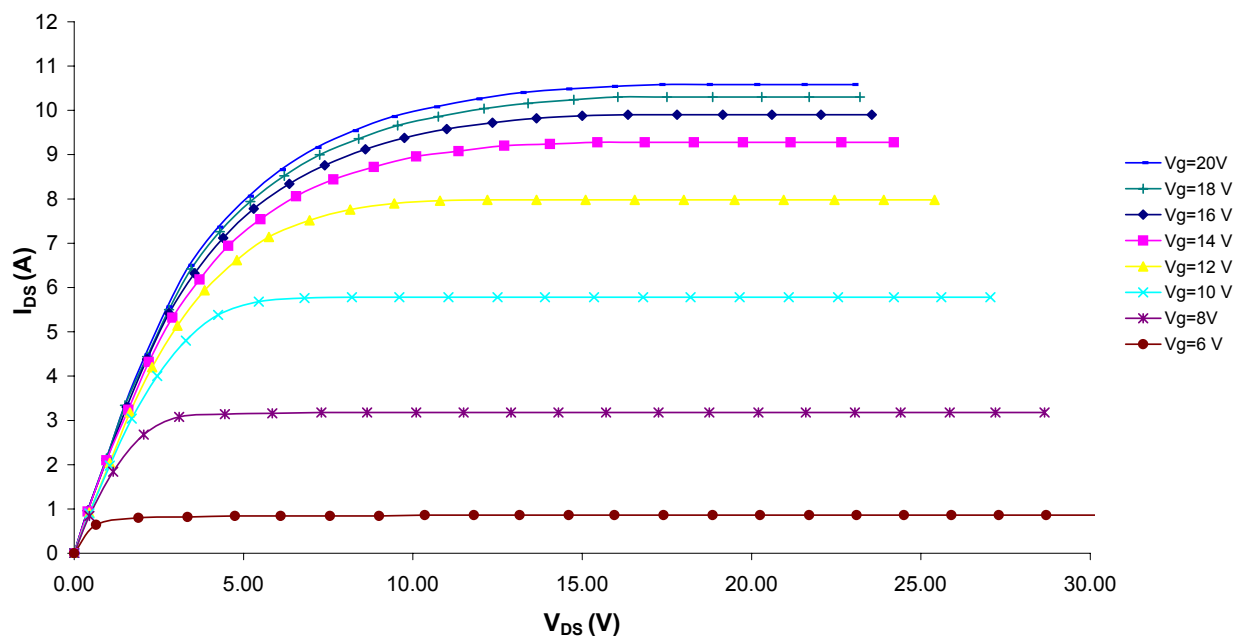


Figure 4 – Typical IV Characteristics.

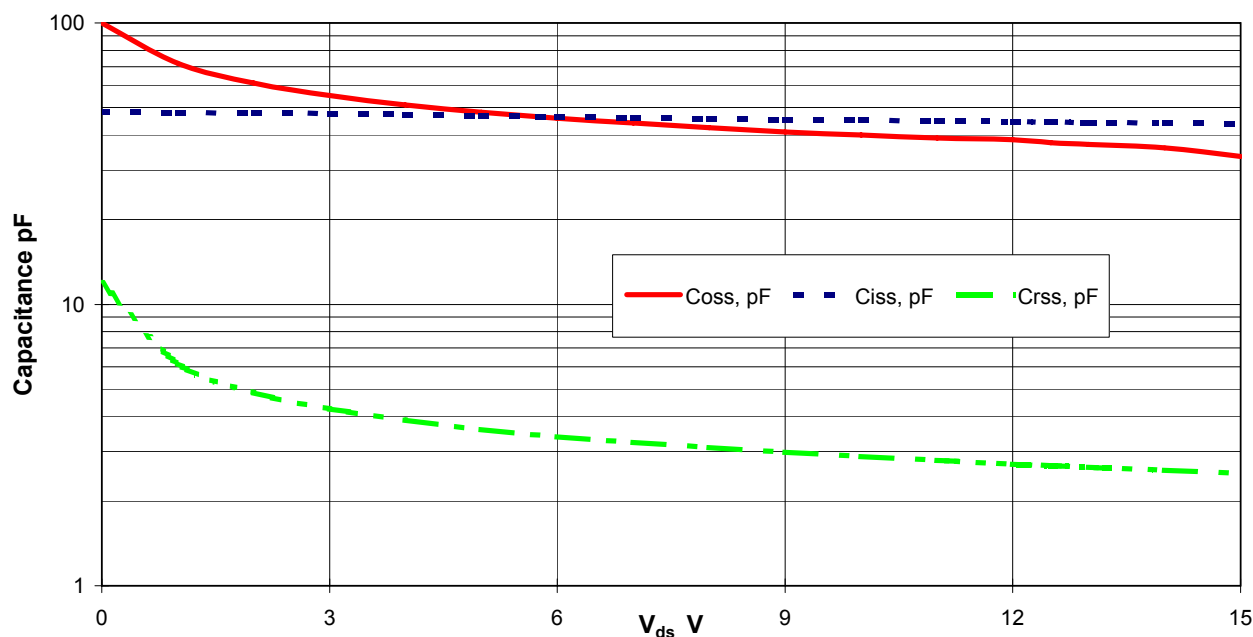
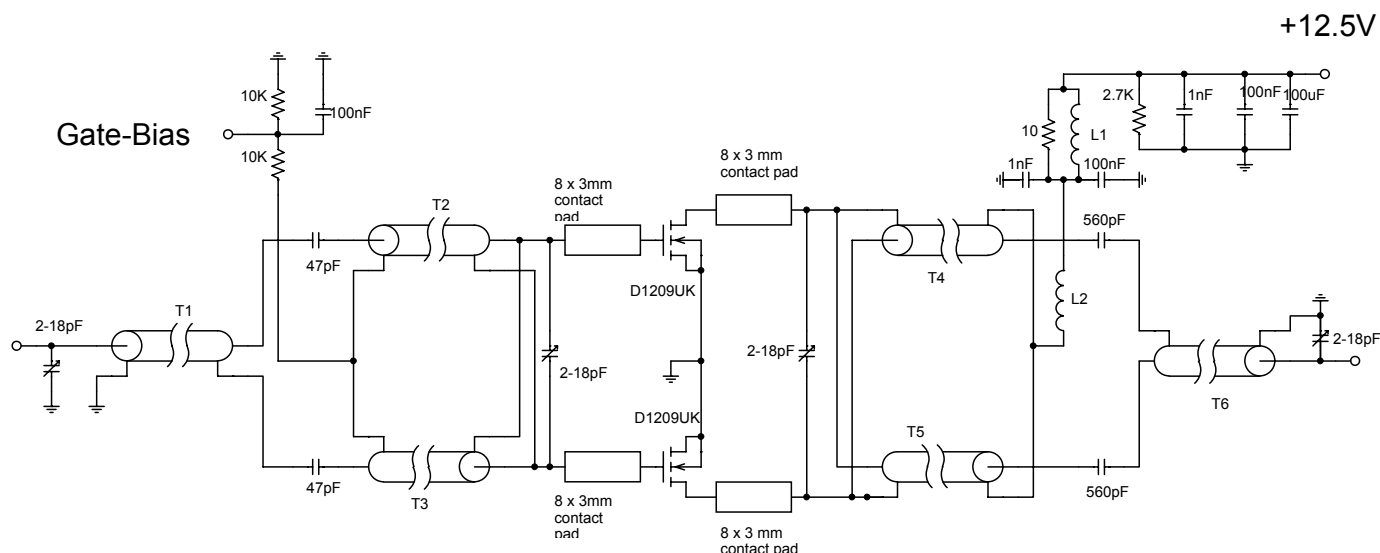


Figure 5 – Typical CV Characteristics.

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.



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