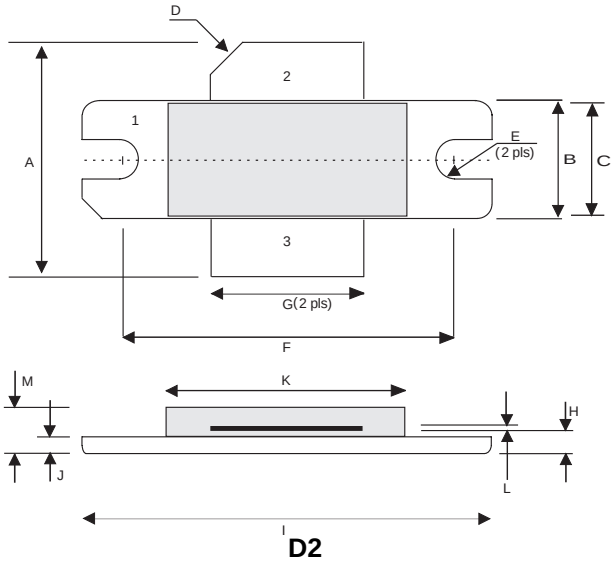
TetraFET

DMD1006
DMD1006-A

ROHS COMPLIANT METAL GATE RF SILICON FET

MECHANICAL DATA



D2

PIN 1 SOURCE PIN 2 DRAIN
PIN 3 GATE

DIM	Millimetres	Tol.	Inches	Tol.
A	19.43	0.13	0.765	0.005
B	9.78	0.13	0.385	0.005
C	9.40	0.10	0.370	0.004
D	45°	5°	45°	5°
E	1.63R	0.13	0.064R	0.005
F	27.94	0.13	1.100	0.005
G	12.70	0.13	0.500	0.005
H	1.57	0.13	0.062	0.005
I	34.04	0.13	1.340	0.005
J	1.01	0.13	0.040	0.005
K	19.94	0.25	0.785	0.009
L	0.10	0.25	0.004	0.002
M	4.24	0.25	0.167	0.01

GOLD METALLISED MULTI-PURPOSE SILICON DMOS RF FET 150W – 28V – 175MHz SINGLE ENDED

FEATURES

- **SUITABLE FOR BROAD BAND APPLICATIONS**
- **SIMPLE BIAS CIRCUITS**
- **ULTRA-LOW THERMAL RESISTANCE**
- **BeO FREE**
- **LOW C_{rss}**
- **HIGH GAIN - 15 dB MINIMUM**

APPLICATIONS

- HF/VHF/UHF COMMUNICATIONS from 1 MHz to 200 MHz

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

P_D	Power Dissipation	438W (219W -A Version)
BV_{DSS}	Drain – Source Breakdown Voltage	70V
BV_{GSS}	Gate – Source Breakdown Voltage	±20V
$I_{D(sat)}$	Drain Current	30A
T_{stg}	Storage Temperature	–65 to 150°C
T_j	Maximum Operating Junction Temperature	200°C

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 6755
Issue 2

DMD1006
DMD1006-A

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

Parameter		Test Conditions			Min.	Typ.	Max.	Unit
BV_{DSS}	Drain–Source Breakdown Voltage	V_{GS} = 0	I_D = 100mA		70			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 28V	V_{GS} = 0				6	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 = 6A		4.8			S
G_{PS}	Common Source Power Gain	P_O = 150W			15			dB
η	Drain Efficiency	V_{DS} = 28V	I_{DQ} = 1.2A		50			%
VSWR	Load Mismatch Tolerance	f = 175MHz			20:1			—
C_{iss}	Input Capacitance	V_{DS} = 0V	V_{GS} = –5V	f = 1MHz			360	pF
C_{oss}	Output Capacitance	V_{DS} = 28V	V_{GS} = 0	f = 1MHz			180	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 28V	V_{GS} = 0	f = 1MHz			15	pF

* Pulse Test: Pulse Duration = 300 µs , Duty Cycle ≤ 2%

THERMAL DATA

$R_{THj–case}$	Thermal Resistance Junction – Case	Max. 0.4°C / W 0.8 °C / W -A Version

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 6755
Issue 2

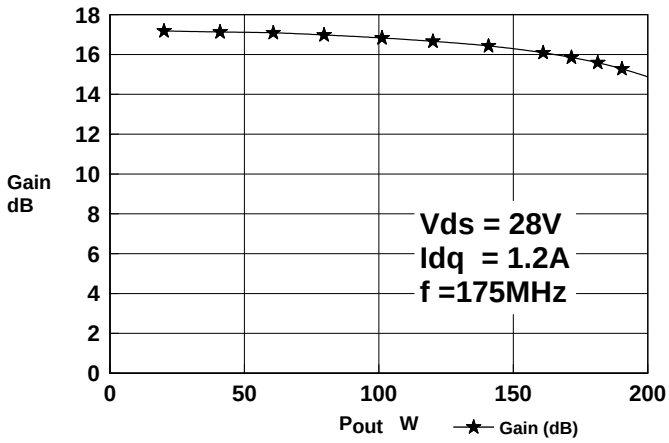


Figure 1.
Gain vs.Output Power

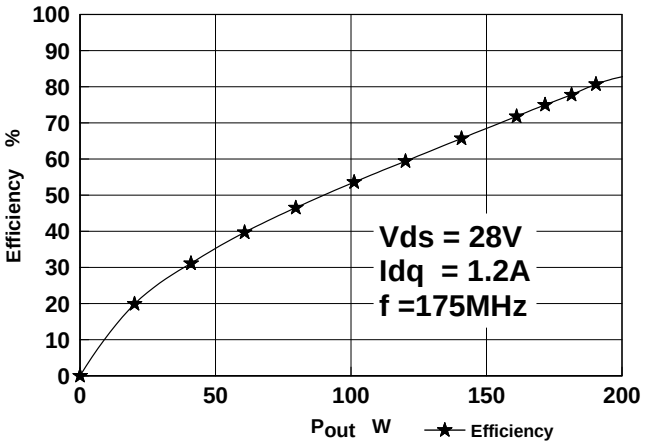


Figure 2.
Efficiency vs. Output Power

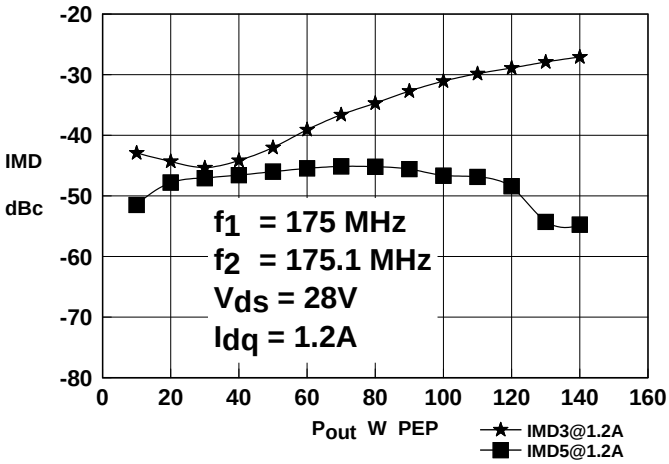


Figure 3.
IMD vs Output Power

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

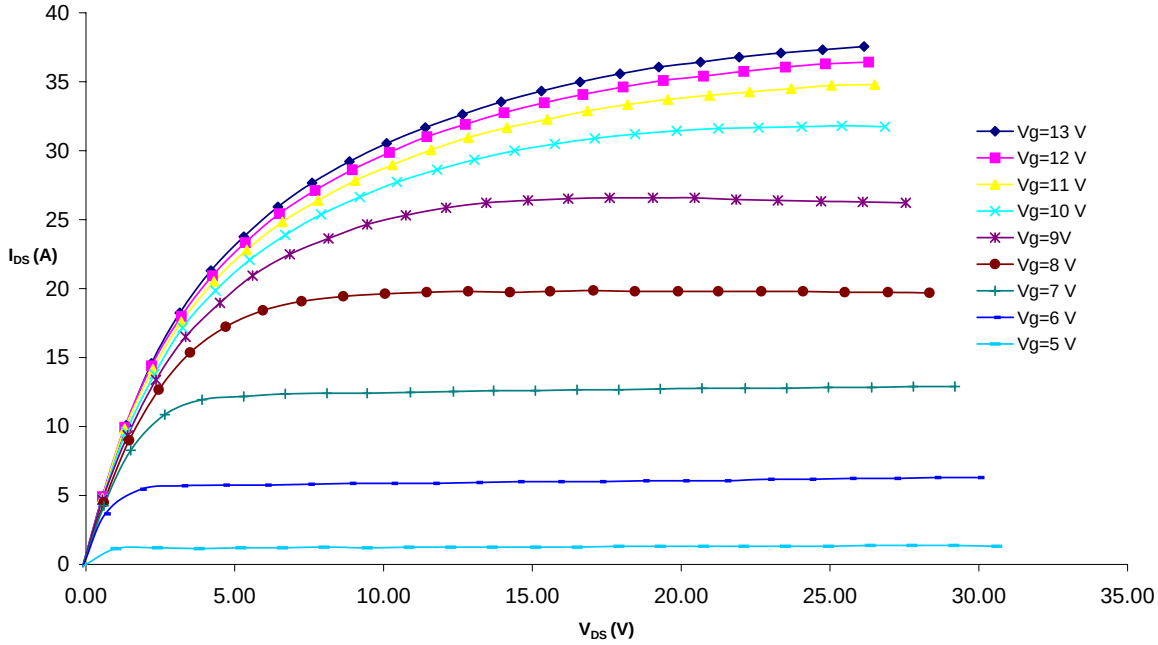


Figure 4 – Typical IV Characteristics.

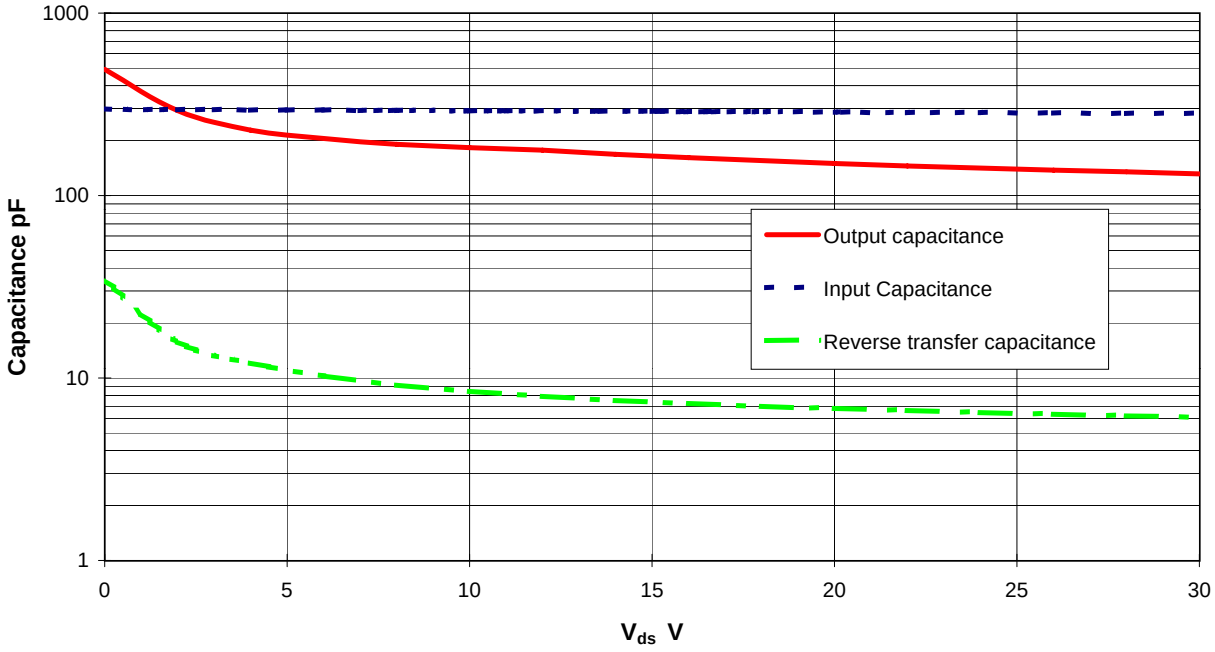
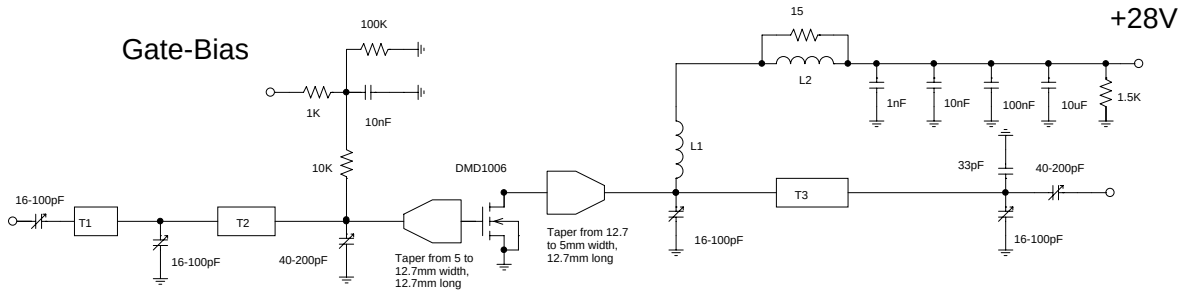


Figure 5 – Typical CV Characteristics.

DMD1006
DMD1006-A



175 MHz Test Fixture

Substrate 1.6mm PTFE/glass, Er = 2.5
All microstrip lines W = 5mm

T1	7.5mm
T2	16mm
T3	20mm

L1	9 turns 20swg encamelled copper wire, 6mm i.d.
L2	11 turns 19swg enamelled copper wire on Fair-Rite FT82 ferrite core

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 6755
Issue 2