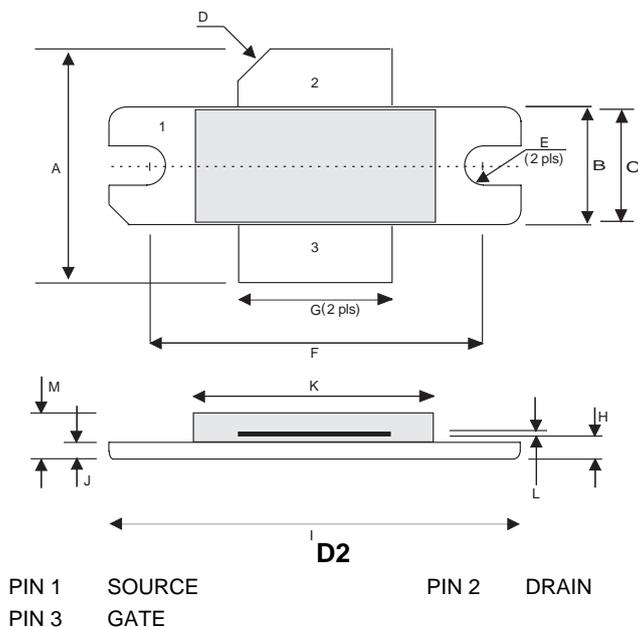


MECHANICAL DATA



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

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

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

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

Semelab Plc 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
B _V 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
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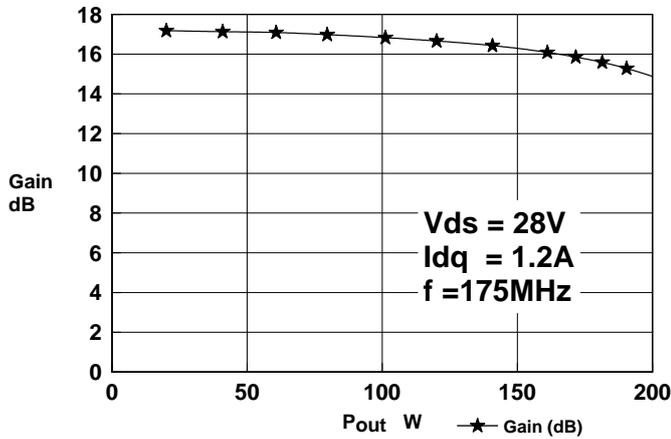


Figure 1.
Gain vs. Output Power

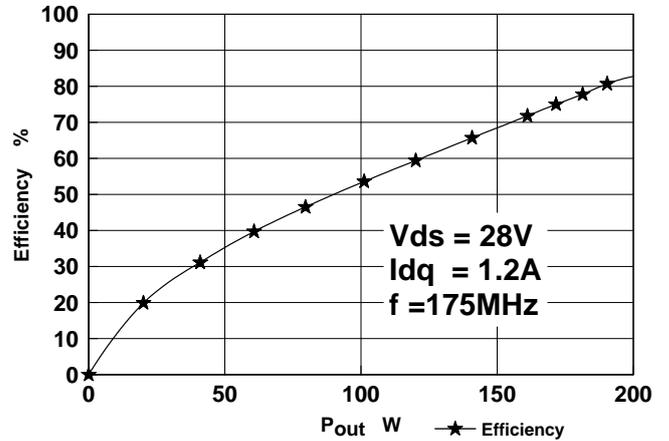


Figure 2.
Efficiency vs. Output Power

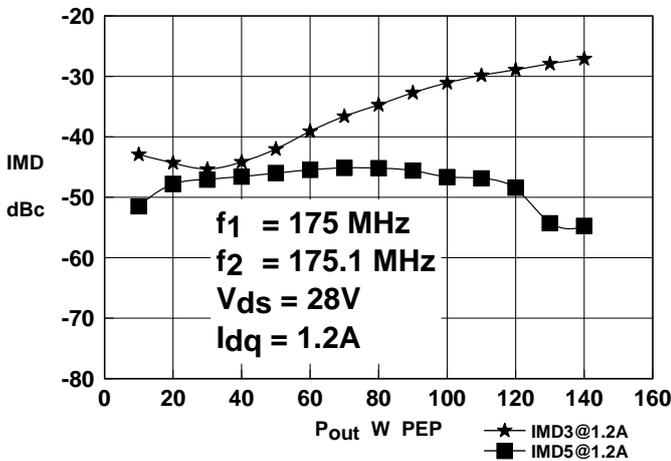


Figure 3.
IMD vs Output Power

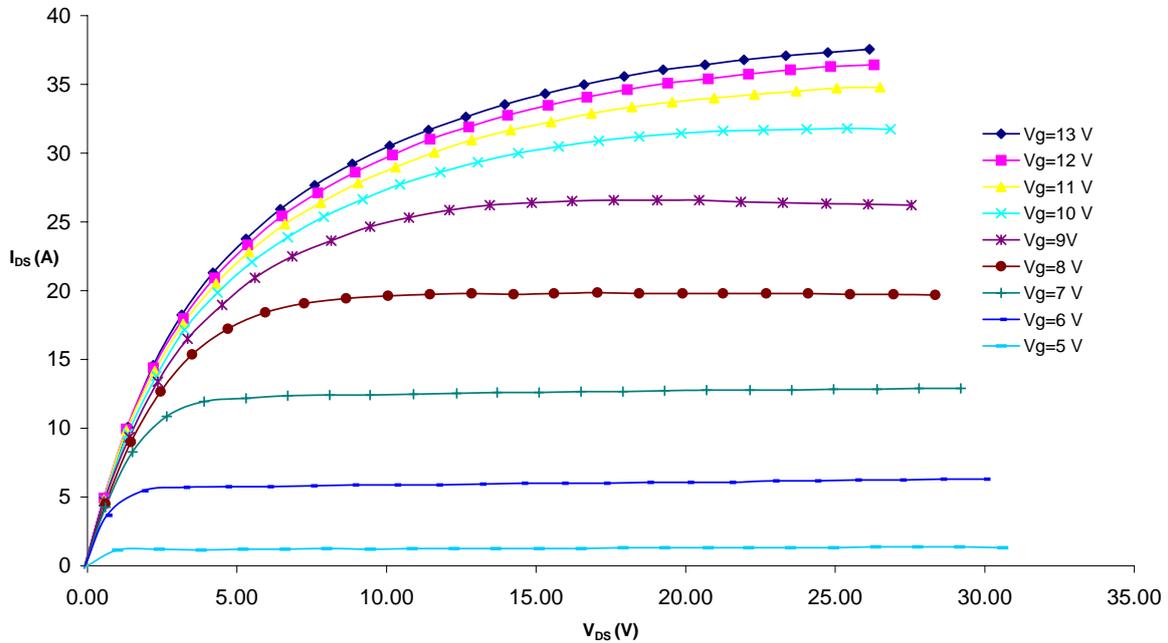


Figure 4 – Typical IV Characteristics.

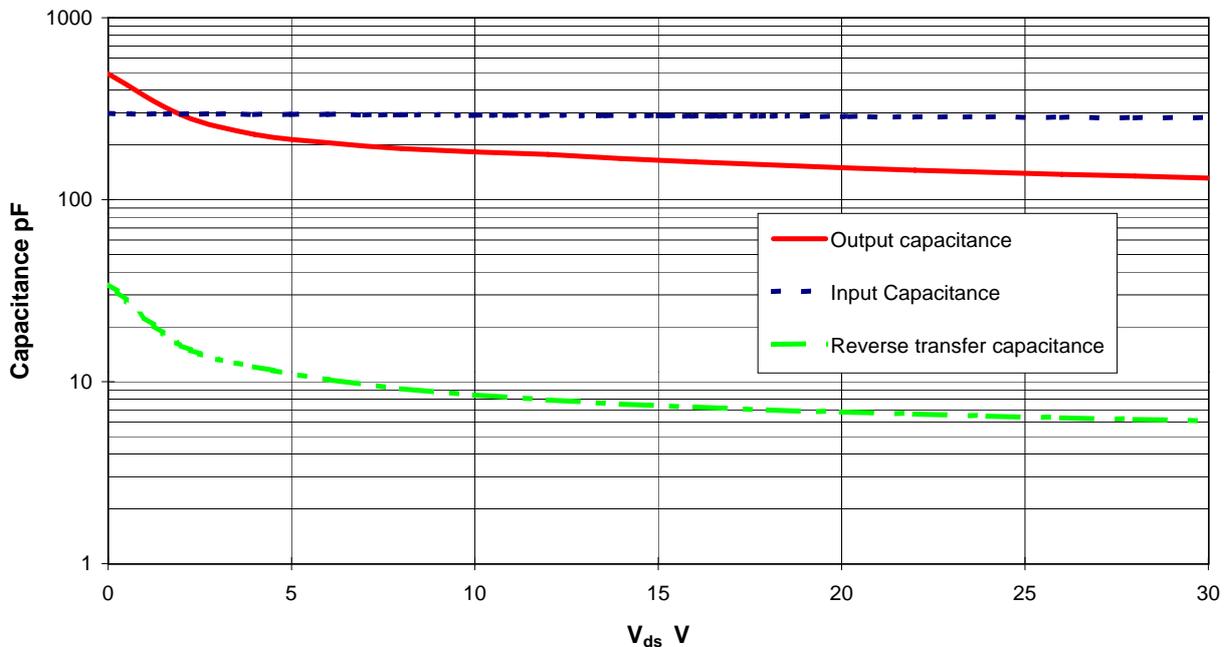
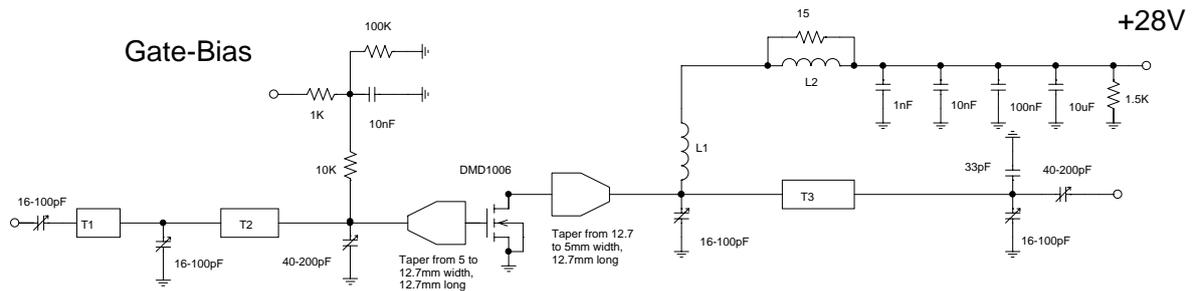


Figure 5 – Typical CV Characteristics.

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175 MHz Test Fixture

Substrate 1.6mm PTFE/glass, $\epsilon_r = 2.5$

All microstrip lines $W = 5\text{mm}$

T1 7.5mm

T2 16mm

T3 20mm

L1 9 turns 20swg enamelled copper wire, 6mm i.d.

L2 11 turns 19swg enamelled copper wire on Fair-Rite
FT82 ferrite core