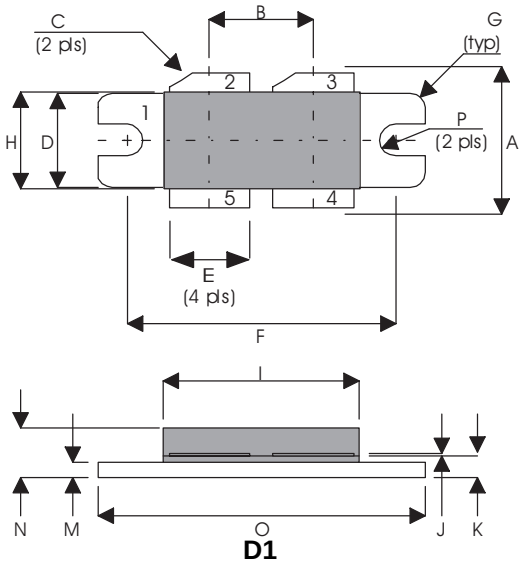
TetraFET

DMD1028
DMD1028-A

ROHS COMPLIANT METAL GATE RF SILICON FET

MECHANICAL DATA



PIN 1	SOURCE (COMMON)	PIN 2	DRAIN 1
PIN 3	DRAIN 2	PIN 4	GATE 2
PIN 5	GATE 1		

DIM	Millimetres	Tol.	Inches	Tol.
A	15.24	0.50	0.600	0.020
B	10.80	0.13	0.425	0.005
C	45°	5°	45°	5°
D	9.78	0.13	0.385	0.005
E	8.38	0.13	0.330	0.005
F	27.94	0.13	1.100	0.005
G	1.52R	0.13	0.060R	0.005
H	10.16	0.15	0.400	0.006
I	21.84	0.23	0.860	0.009
J	0.10	0.02	0.004	0.001
K	1.96	0.13	0.077	0.005
M	1.02	0.13	0.040	0.005
N	4.45	0.38	0.175	0.015
O	34.04	0.13	1.340	0.005
P	1.63R	0.13	0.064R	0.005

GOLD METALLISED MULTI-PURPOSE SILICON DMOS RF FET 300W – 28V – 175MHz PUSH–PULL

FEATURES

- **SUITABLE FOR BROAD BAND APPLICATIONS**
- **SIMPLE BIAS CIRCUITS**
- **ULTRA-LOW THERMAL RESISTANCE**
- **BeO FREE**
- **LOW Crss**
- **HIGH GAIN – 16 dB MINIMUM**

APPLICATIONS

- VHF/UHF COMMUNICATIONS from 1 MHz to 400 MHz

P_D	Power Dissipation	875W (438W -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

* Per Side

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Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
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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 = 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			mhos
$V_{GS(th)match}$	Gate Threshold Voltage Matching Between Sides	I_D = 10mA	V_{DS} = V_{GS}			0.1	V
TOTAL DEVICE							
G_{PS}	Common Source Power Gain	P_O = 300W		16			dB
η	Drain Efficiency	V_{DS} = 28V	I_{DQ} = 2A	60			%
VSWR	Load Mismatch Tolerance	f = 175MHz		20:1			—
PER SIDE							
C_{iss}	Input Capacitance	V_{DS} = 28V	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. 0.2°C / W 0.4 °C / W -A Version

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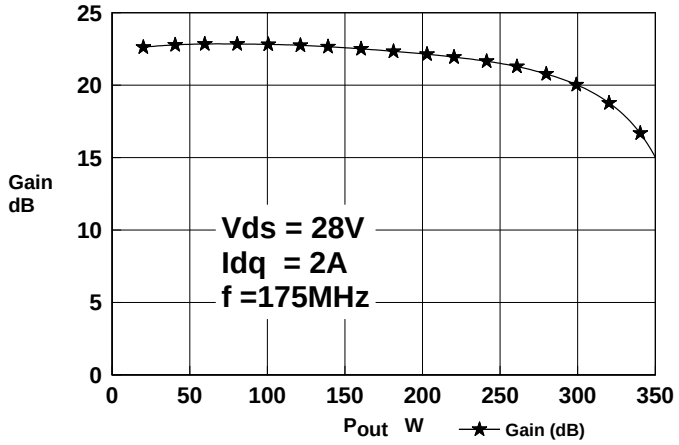

Figure 1 – Gain vs. Power Output.

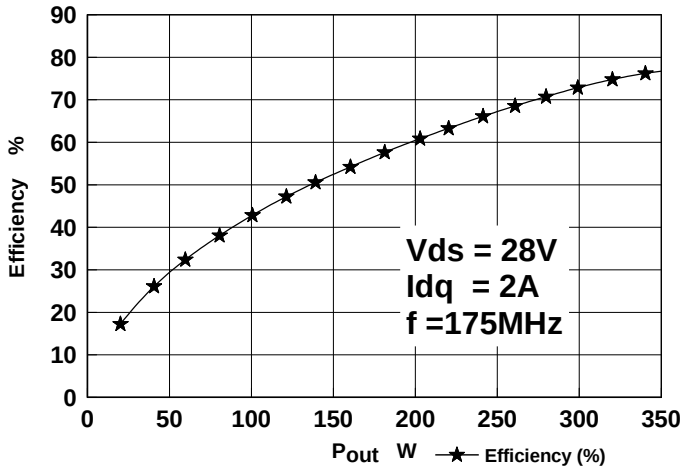

Figure 2 – Efficiency vs. Power Output.

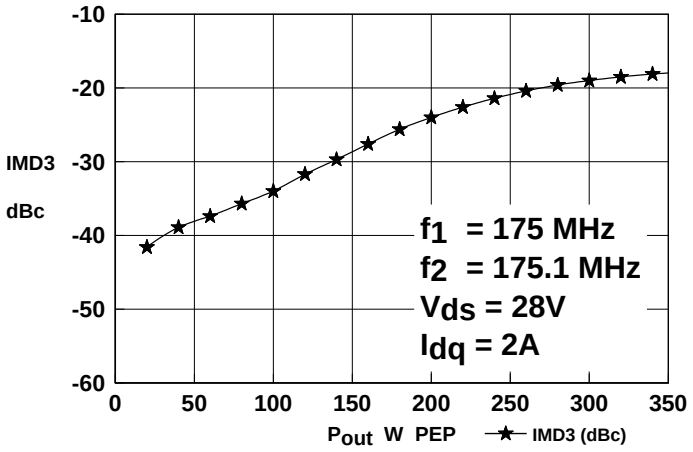

Figure 3 – IMD vs. Power Output

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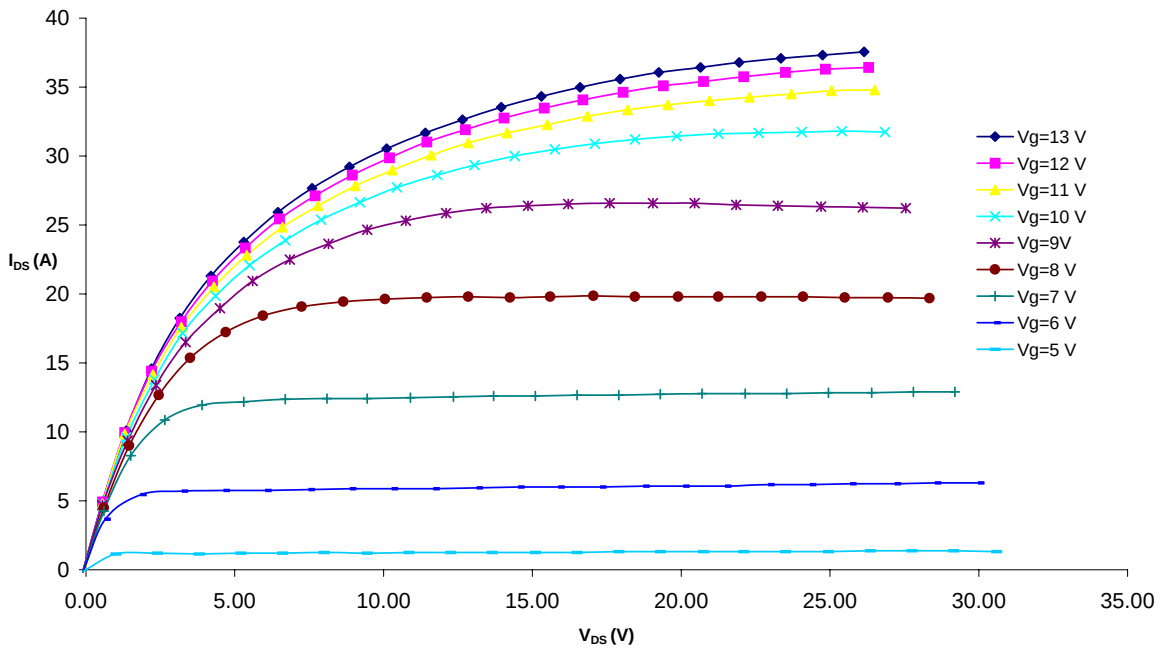

Figure 4 – Typical IV Characteristics.

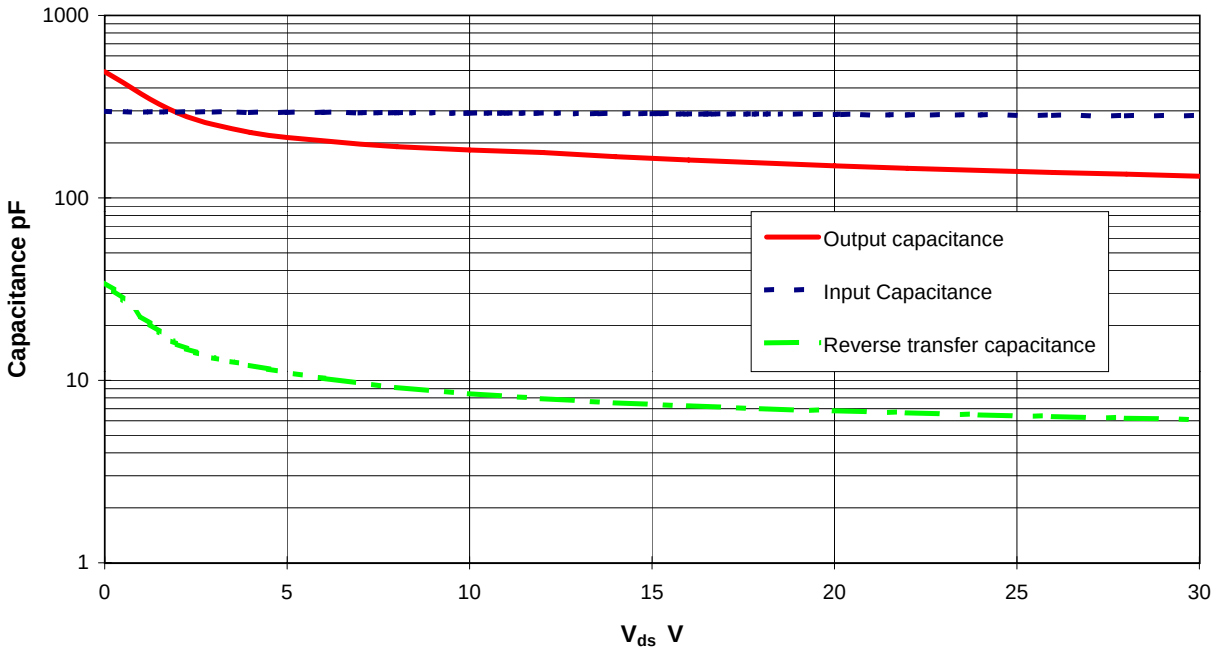

Figure 5 – Typical CV Characteristics.

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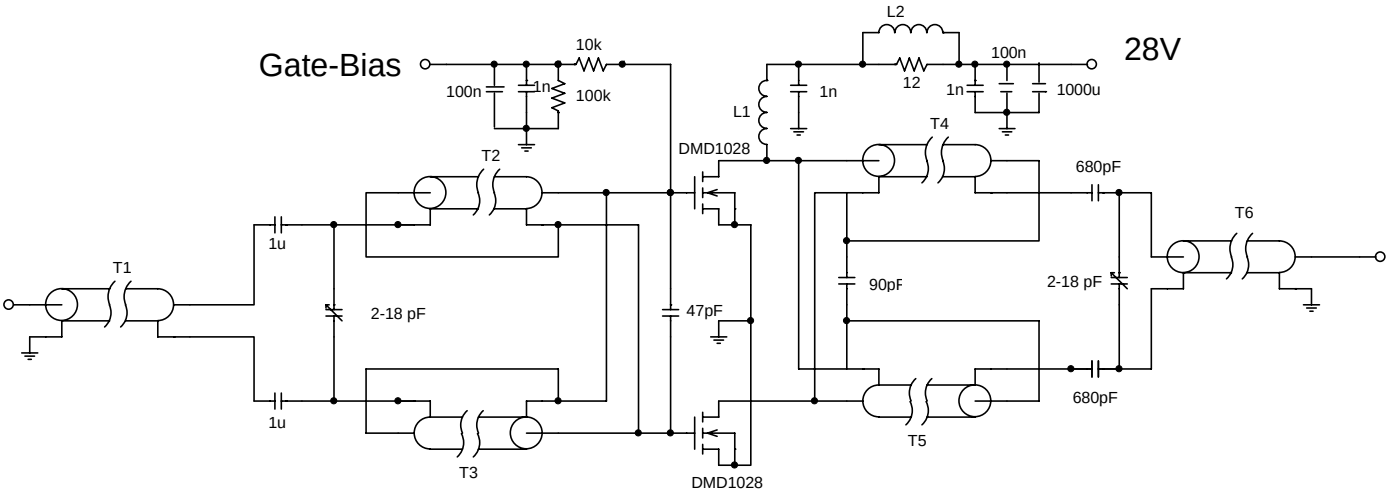

DMD1028 175MHz TEST FIXTURE

Substrate 1.6mm PTFE/glass, Er=2.5
All microstrip lines W=4.4mm

T1,2,3	**7cm Storm Products EXE18 19/30 S1TW coaxial cable on Siemens B62152A1X1 2-hole core.**
T4,5	**14cm Storm Products EXE18 19/30 S1TW coaxial cable.**
T6	**11cm Storm Products EXE18 19/30 S1TW coaxial cable**
L1	**6 turns 1.2mm dia wire, 5mm internal diameter**
L2	**1.5 turns 0.9mm dia wire on Siemens A1 x 1 2 hole core**

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