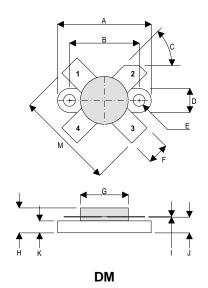


D1203UK

ROHS COMPLIANT METAL GATE RF SILICON FET

MECHANICAL DATA



PIN 1	SOURCE	PIN 2	DRAIN
PIN 3	SOURCE	PIN 4	GATE

mm	Tol.	Inches	Tol.	
24.76	0.13	0.975	0.005	
18.42	0.13	0.725	0.005	
45°	5°	45°	5°	
6.35	0.13	0.25	0.005	
3.17 Dia	0.13	0.125 Dia	0.005	
5.71	0.13	0.225	0.005	
12.7 Dia	0.13	0.500 Dia	0.005	
6.60	REF	0.260	REF	
0.13	0.02	0.005	0.001	
4.32	0.13	0.170	0.005	
3.17	0.13	0.125	0.005	
26.16	0.25	1.03	0.010	
	24.76 18.42 45° 6.35 3.17 Dia 5.71 12.7 Dia 6.60 0.13 4.32 3.17	24.76 0.13 18.42 0.13 45° 5° 6.35 0.13 3.17 Dia 0.13 5.71 0.13 12.7 Dia 0.13 6.60 REF 0.13 0.02 4.32 0.13 3.17 0.13	24.76 0.13 0.975 18.42 0.13 0.725 45° 5° 45° 6.35 0.13 0.25 3.17 Dia 0.13 0.125 Dia 5.71 0.13 0.225 12.7 Dia 0.13 0.500 Dia 6.60 REF 0.260 0.13 0.02 0.005 4.32 0.13 0.170 3.17 0.13 0.125	

GOLD METALLISED MULTI-PURPOSE SILICON DMOS RF FET 30W - 12.5V - 175MHzSINGLE ENDED

FEATURES

- SIMPLIFIED AMPLIFIER DESIGN
- SUITABLE FOR BROAD BAND APPLICATIONS
- LOW C_{rss}
- LOW NOISE
- HIGH GAIN 10 dB MINIMUM

APPLICATIONS

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

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

$\overline{P_D}$	Power Dissipation	117W
BV_DSS	Drain – Source Breakdown Voltage	40V
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

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E-mail: sales@semelab.co.uk

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

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

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

Parameter		Test Co	Min.	Тур.	Max.	Unit	
B\/	Drain-Source	V _{GS} = 0	I _D = 100mA	40			V
BV _{DSS}	Breakdown Voltage	VGS = 0	ID = TOOTHA	40			V
1	Zero Gate Voltage	\/ 12.5\/	5V V _{GS} = 0			1	mA
DSS	Drain Current	$V_{DS} = 12.5V$	VGS – U			ı	ША
I _{GSS}	Gate Leakage Current	V _{GS} = 20V	V _{DS} = 0			1	μΑ
V _{GS(th)}	Gate Threshold Voltage*	I _D = 10mA	$V_{DS} = V_{GS}$	1		7	V
9 _{fs}	Forward Transconductance*	V _{DS} = 10V	I _D = 3A	2.4			S
G _{PS}	Common Source Power Gain	P _O = 30W		10			dB
η	Drain Efficiency	V _{DS} = 12.5V	$I_{DQ} = 0.6A$	50			%
VSWR	Load Mismatch Tolerance	f = 175MHz		20:1			_
C _{iss}	Input Capacitance	$V_{DS} = 0$ V_{G}	S = -5V $f = 1MHz$			180	pF
C _{oss}	Output Capacitance	$V_{DS} = 12.5V V_{G}$	S = 0 $f = 1MHz$			120	pF
C _{rss}	Reverse Transfer Capacitance	$V_{DS} = 12.5V V_{G}$	S = 0 $f = 1MHz$			12	pF

^{*} Pulse Test: Pulse Duration = 300 μs , Duty Cycle $\leq 2\%$

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. 1.5°C / W
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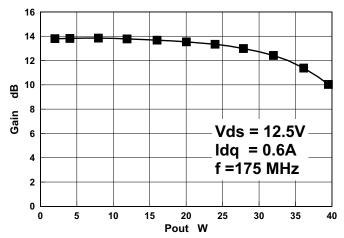
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

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

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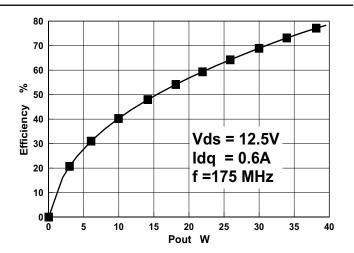


Figure 1- Gain vs. Power Output

Figure 2 - Efficiency vs Power Output

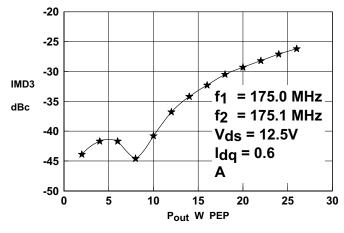


Figure 3 - IMD vs Power Output

Typical S Parameters

- $V_{DS} = 12.5V, I_{DQ} = 0.6A$
- MHZ S MA R 50

Freq	S11		S21		S12		S22	
MHz	mag	ang	mag	ang	mag	ang	mag	ang
50	0.78	-167.2	17.2	76.0	0.011	0.0	0.72	-164.2
100	0.82	-171.7	7.7	57.9	0.008	3.9	0.78	-167.6
150	0.87	-174.9	4.5	44.5	0.006	31.6	0.84	-170.3
200	0.90	-178.2	2.9	34.2	0.008	63.1	0.88	-173.3
250	0.93	178.6	2.0	26.2	0.012	75.9	0.91	-176.2
300	0.94	175.4	1.5	19.9	0.016	79.6	0.93	-178.9
350	0.96	172.5	1.1	14.8	0.020	80.1	0.95	178.5
400	0.96	169.6	0.9	10.5	0.025	79.2	0.96	176.1
450	0.97	166.9	0.7	7.1	0.029	77.7	0.97	173.8
500	0.97	164.3	0.6	4.2	0.033	76.0	0.97	171.7

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

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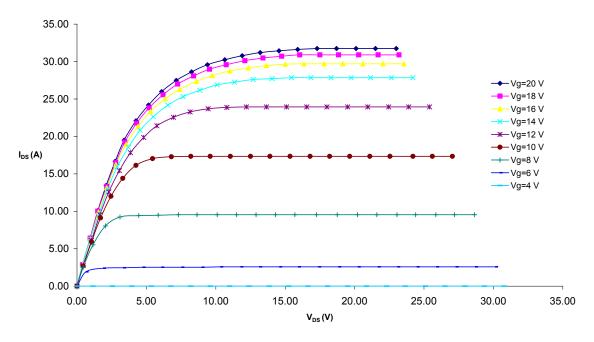


Figure 4 – Typical IV Characteristics.

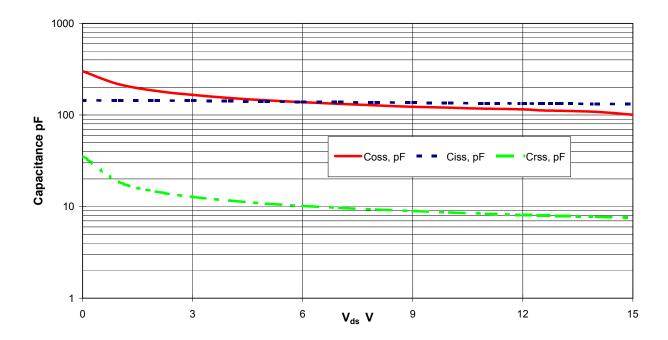


Figure 5 – Typical CV Characteristics.

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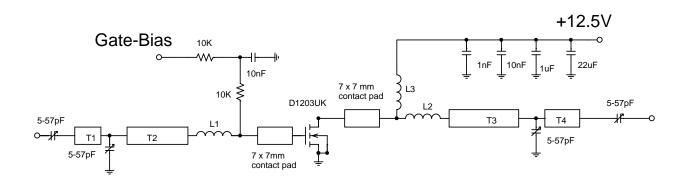
Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612. E-mail: sales@semelab.co.uk

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D1203UK 175MHz TEST FIXTURE

Substrate 1.6mm PTFE/glass, Er=2.5

All microstrip lines W=4.4mm

T1 8mm

T2 22_{mm}

T3 18mm

T4 4.5mm

Hairpin loop 16swg 15.5mm dia

Hairpin loop 16swg 10mm dia

11 turns 18swg enamelled copper wire, 10mm i.d.

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