TetraFET

D1013UK

METAL GATE RF SILICON FET

GOLD METALLISED **MULTI-PURPOSE SILICON DMOS RF FET** 20W – 28V – 500MHz SINGLE ENDED

FEATURES

- SIMPLIFIED AMPLIFIER DESIGN
- SUITABLE FOR BROAD BAND APPLICATIONS
- LOW Cree
- USEFUL Po AT 1GHz
- LOW NOISE
- HIGH GAIN 13 dB MINIMUM

APPLICATIONS

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

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

P _D	Power Dissipation	50W
BV _{DSS}	Drain – Source Breakdown Voltage	70V
BV _{GSS}	Gate – Source Breakdown Voltage	±20V
I _{D(sat)}	Drain Current	5A
T _{stg}	Storage Temperature	–65 to 150°C
Тj	Maximum Operating Junction Temperature	200°C

Semelab Ltd 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.

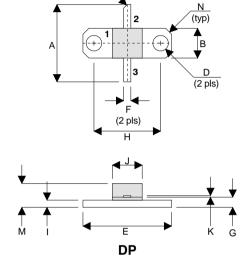
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Website: http://www.semelab.co.uk



MECHANICAL DATA

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PIN 1	SOURCE	PIN 2	DRAIN
	CATE		

DIM	mm	Tol.	Inches	Tol.
Α	16.51	0.25	0.650	0.010
В	6.35	0.13	0.250	0.005
С	45°	5°	45°	5°
D	3.30	0.13	0.130	0.005
Е	18.92	0.08	0.745	0.003
F	1.52	0.13	0.060	0.005
G	2.16	0.13	0.085	0.005
н	14.22	0.08	0.560	0.003
1	1.52	0.13	0.060	0.005
J	6.35	0.13	0.250	0.005
к	0.13	0.03	0.005	0.001
М	5.08	0.51	0.200	0.020
N	1.27 x 45°	0.13	0.050 x 45°	0.005



ELECTRICAL CHARACTERISTICS (T	$c_{ase} = 25^{\circ}C$ unless otherwise stated)
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Parameter		Test Conditions			Min.	Тур.	Max.	Unit
BV	Drain-Source	$V_{GS} = 0$	I	100mA	70			V
BV _{DSS}	Breakdown Voltage	VGS – 0	- D	TUUIIIA	70			V
1	Zero Gate Voltage	<u> </u>	V V _{GS} = 0			1	mA	
IDSS	Drain Current	V _{DS} = 28V		= 0			I	
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
9 _{fs}	Forward Transconductance*	V _{DS} = 10V	I _D =	1A	0.8			S
G _{PS}	Common Source Power Gain	P _O = 20W			13			dB
η	Drain Efficiency	V _{DS} = 28V	I _{DQ}	= 0.2A	50			%
VSWR	Load Mismatch Tolerance	f = 500MHz	Z		20:1			_
C _{iss}	Input Capacitance	V _{DS} = 28V	$V_{GS} = -5V$	f = 1MHz			60	pF
C _{oss}	Output Capacitance	V _{DS} = 28V	$V_{GS} = 0$	f = 1MHz			30	pF
C _{rss}	Reverse Transfer Capacitance	V _{DS} = 28V	$V_{GS} = 0$	f = 1MHz			2.5	pF

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

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. 3.5°C / W
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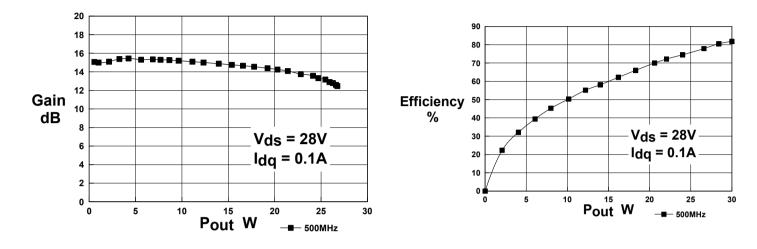
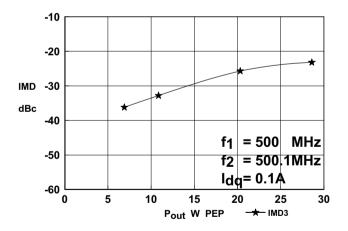


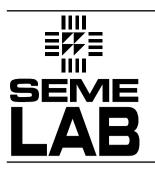
Figure 1 Gain vs. Output Power

Figure 2 Efficiency vs. Output Power

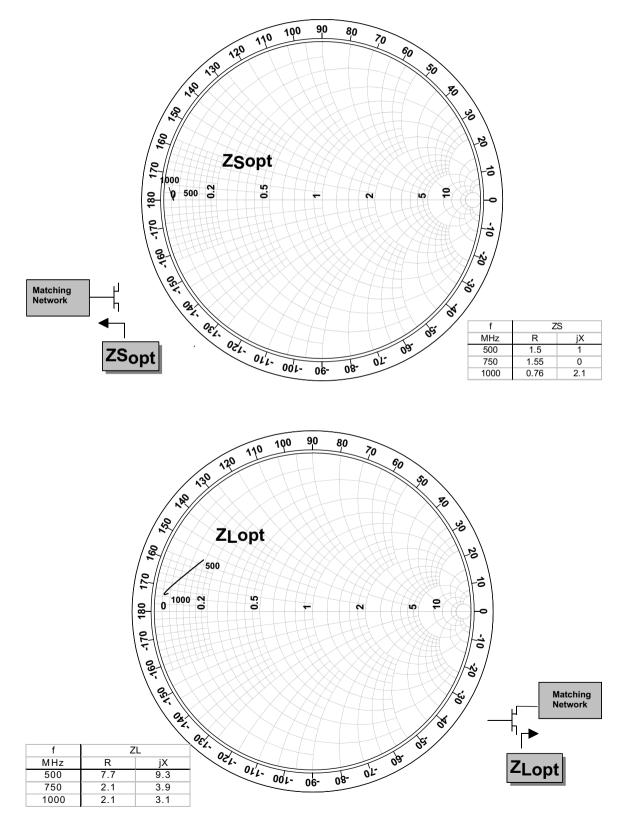




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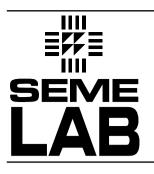
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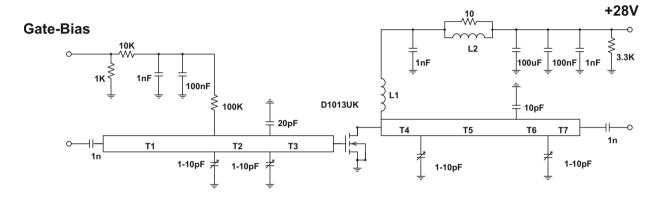
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500MHz Test Fixture

Substrate 0.8 mm FR4, Er = 2.2All microstrip lines W = 2.2mm

- T1 35mm
- T2 15mm
- T3 10mm
- T4 14mm
- T5 30mm
- T6 6mm
- T7 12.5mm
- L1 5.5 turns 20swg enamelled copper wire 7mm i.d.
- L2 1.5 turns 24swg enamelled copper wire on Siemens B62152A7X 2 hole

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