TetraFET

D1011UK

METAL GATE RF SILICON FET

GOLD METALLISED MULTI-PURPOSE SILICON DMOS RF FET 10W – 28V – 500MHz SINGLE ENDED

FEATURES

- SIMPLIFIED AMPLIFIER DESIGN
- SUITABLE FOR BROAD BAND APPLICATIONS
- VERY LOW C_{rss}
- SIMPLE BIAS CIRCUITS
- LOW NOISE
- HIGH GAIN 13 dB MINIMUM

APPLICATIONS

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

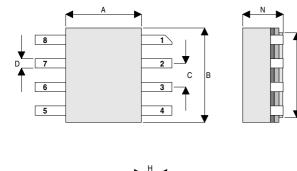
ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

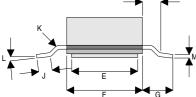
PD	Power Dissipation	30W
BV _{DSS}	Drain – Source Breakdown Voltage	70V
BV _{GSS}	Gate – Source Breakdown Voltage	±20V
I _{D(sat)}	Drain Current	5A
T _{stg}	Storage Temperature	–65 to 150°C
Tj	Maximum Operating Junction Temperature	200°C

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MECHANICAL DATA





SO8 PACKAGE				
PIN 1 – SOURCE	PIN 5 – SOURCE			
PIN 2 – DRAIN	PIN 6 – GATE			
PIN 3 – DRAIN	PIN 7 – GATE			
PIN 4 – SOURCE	PIN 8 – SOURCE			

Dim.	mm	Tol.	Inches	Tol.	
A	4.06	±0.08	0.160	±0.003	
В	5.08	±0.08	0.200	±0.003	
С	1.27	±0.08	0.050	±0.003	
D	0.51	±0.08	0.020	±0.003	
E	3.56	±0.08	0.140	±0.003	
F	4.06	±0.08	0.160	±0.003	
G	1.65	±0.08	0.065	±0.003	
н	0.70	+0.25	0.030	+0.010	
	0.76	-0.00	0.030	-0.000	
J	0.51	Min.	0.020	Min.	
J	1.02	Max.	0.040	Max.	
K	45°	Max.	45°	Max.	
L	0°	Min.	0°	Min.	
	7°	Max.	7°	Max.	
М	0.20	±0.08	0.008	±0.003	
N	2.18	Max.	0.086	Max.	
Р	4.57	±0.08	0.180	±0.003	



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

Parameter		Tes	Min.	Тур.	Max.	Unit	
BV _{DSS}	Drain-Source	V _{GS} = 0	I _D = 100mA	70			V
5.022	Breakdown Voltage	- 65 -		70			
I _{DSS}	Zero Gate Voltage	V _{DS} = 28V	V V _{GS} = 0			1	mA
'DSS	Drain Current	105 - 201				•	
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 = 10W		13			dB
η	Drain Efficiency	V _{DS} = 28V	I _{DQ} = 0.1A	50			%
VSWR	Load Mismatch Tolerance	f = 500MH		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
R _{dson}	Saturation Resistance	$V_{GS} = 20V$	I _{DS} = 2.5A		1		Ω

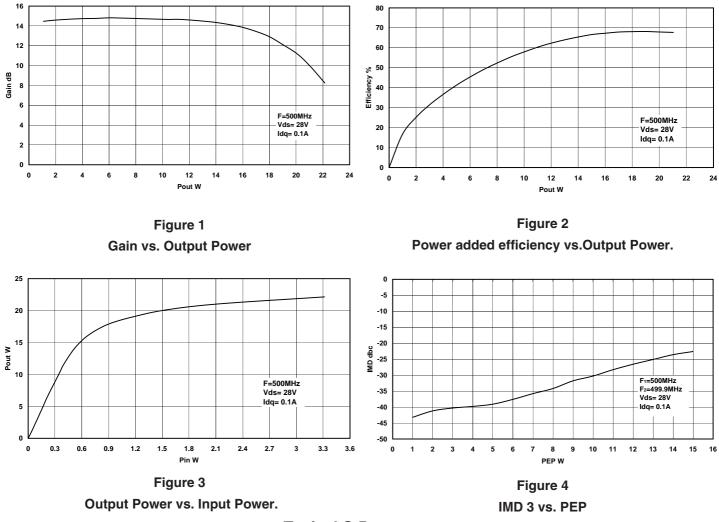
* Pulse Test: Pulse Duration = 300 μs , Duty Cycle $\leq 2\%$

THERMAL DATA

R _{THj-case}	Thermal Resistance Junction – Case	Max. 6°C / W
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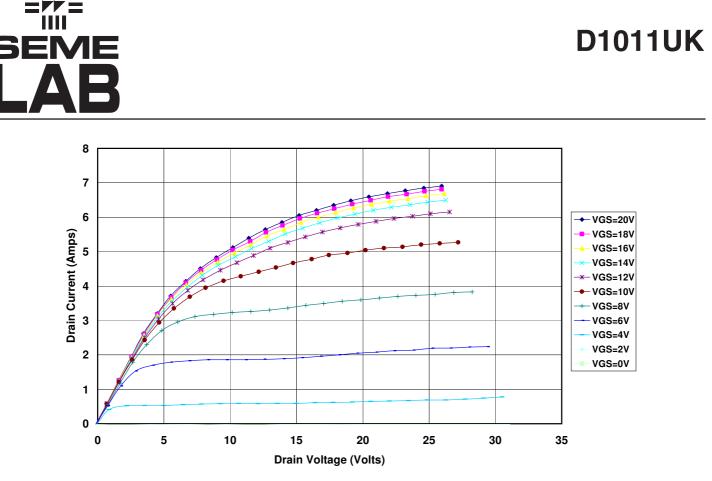
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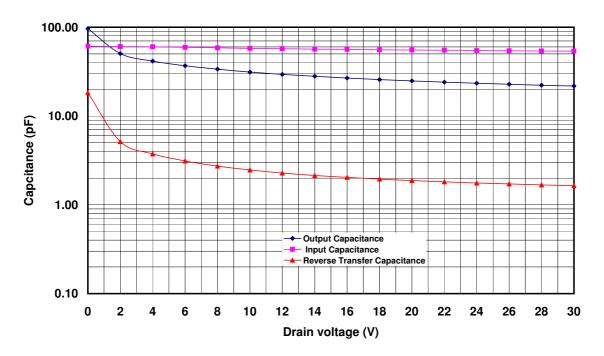
Typical S Parameters

!D1011UK.s2p !Vds=28V,Idq=0.1A # MHZ S MA R 50

Freq	S11		S21		S12		S22	
MHz	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
100	0.75	-114.9	12.22	61.1	0.007	108.3	0.81	-139.4
200	0.89	-147.6	3.94	32.2	0.038	111.4	0.92	-158.7
300	0.93	-161.9	2.08	20.9	0.065	102.5	0.95	-166.8
400	0.95	-173.3	1.17	14.0	0.095	94.7	0.97	-173.1
500	0.96	179.4	0.81	11.8	0.120	89.5	0.98	-177.0
600	0.96	172.0	0.57	12.5	0.150	84.2	0.98	179.2
700	0.96	166.5	0.46	15.4	0.176	80.3	0.98	176.5
800	0.96	161.3	0.39	19.7	0.202	76.6	0.97	174.0
900	0.95	155.4	0.35	25.5	0.233	72.3	0.97	171.2
1000	0.95	150.6	0.34	30.0	0.260	68.9	0.96	168.9



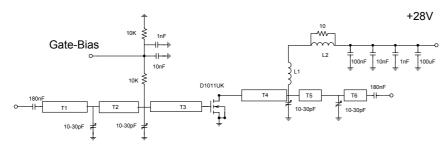








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D1011UK 500MHz TEST FIXTURE

Substrate 1.6mm PTFE/glass, Er=2.5

- All microstrip lines W=1.5mm
- T1 22mm
- T2 18mm
- T3 18mm
- T4 21mm
- T5 22mm
- T6 13mm
- L1 6 turns 24swg enamelled copper wire, 6mm i.d.
- L2 1.5 turns 24swg enamelled copper wire on a ferrite

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