

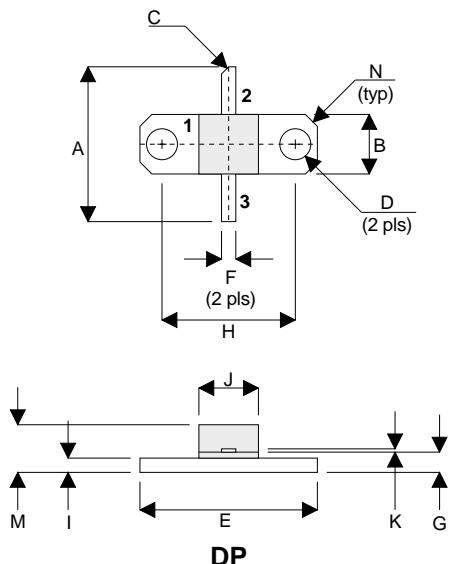
**SEME  
LAB**

TetraFET

D1014UK

## METAL GATE RF SILICON FET

## **MECHANICAL DATA**



PIN 1 SOURCE PIN 2 DRAIN  
PIN 3 GATE

Dim	mm	Tol.	Inches	Tol.
A	16.51	0.25	0.650	0.010
B	6.35	0.13	0.250	0.005
C	45°	5°	45°	5°
D	3.30	0.13	0.130	0.005
E	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
H	14.22	0.08	0.560	0.003
I	1.52	0.13	0.060	0.005
J	6.35	0.13	0.250	0.005
K	0.13	0.03	0.005	0.001
M	5.08	0.51	0.200	0.020
N	1.27 x 45°	0.13	0.050 x 45°	0.005

**GOLD METALLISED  
MULTI-PURPOSE SILICON  
DMOS RF FET  
20W – 28V – 400MHz  
SINGLE ENDED**

## FEATURES

- SIMPLIFIED AMPLIFIER DESIGN
  - SUITABLE FOR BROAD BAND APPLICATIONS
  - LOW  $C_{rss}$
  - USEFUL  $P_o$  AT 1GHz
  - LOW NOISE
  - HIGH GAIN – 13 dB MINIMUM

## APPLICATIONS

- HF/VHF/UHF COMMUNICATIONS from 1 MHz to 400 MHz

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

Parameter		Symbol	Description	Value
P <sub>D</sub>	Power Dissipation			87.5W
BV <sub>DSS</sub>	Drain – Source Breakdown Voltage			70V
BV <sub>GSS</sub>	Gate – Source Breakdown Voltage			±20V
I <sub>D(sat)</sub>	Drain Current			10A
T <sub>stg</sub>	Storage Temperature			–65 to 150°C
T <sub>j</sub>	Maximum Operating Junction Temperature			200°C



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**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^\circ C$  unless otherwise stated)

Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain–Source Breakdown Voltage	$V_{GS} = 0$	$I_D = 100mA$	70		V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 28V$	$V_{GS} = 0$		2	mA
$I_{GSS}$	Gate Leakage Current	$V_{GS} = 20V$	$V_{DS} = 0$		1	$\mu A$
$V_{GS(th)}$	Gate Threshold Voltage*	$I_D = 10mA$	$V_{DS} = V_{GS}$	1	7	V
$g_{fs}$	Forward Transconductance*	$V_{DS} = 10V$	$I_D = 1A$	1.6		S
$G_P S$	Common Source Power Gain	$P_O = 20W$		13		dB
$\eta$	Drain Efficiency	$V_{DS} = 28V$	$I_{DQ} = 0.2A$	60		%
VSWR	Load Mismatch Tolerance	$f = 400MHz$		20:1		—
$C_{iss}$	Input Capacitance	$V_{DS} = 0$	$V_{GS} = -5V$	$f = 1MHz$	120	pF
$C_{oss}$	Output Capacitance	$V_{DS} = 28V$	$V_{GS} = 0$	$f = 1MHz$	50	pF
$C_{rss}$	Reverse Transfer Capacitance	$V_{DS} = 28V$	$V_{GS} = 0$	$f = 1MHz$	5	pF

\* Pulse Test: Pulse Duration = 300  $\mu s$ , 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. 2.0°C / W
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