

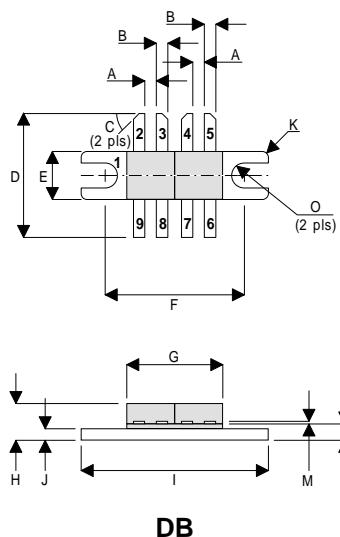
**SEME  
LAB**

TetraFET

**D1053UK**

**ROHS COMPLIANT METAL GATE RF SILICON FET**

### MECHANICAL DATA



PIN 1	SOURCE (COMMON)	PIN 2	DRAIN 1
PIN 3	DRAIN 2	PIN 4	DRAIN 3
PIN 5	DRAIN 4	PIN 6	GATE 4
PIN 7	GATE 3	PIN 8	GATE 2
PIN 9	GATE 1		

DIM.	mm	Tol.	Inches	Tol.
A	1.52	0.13	0.060	0.005
B	1.52	0.13	0.060	0.005
C	45°	5°	45°	5°
D	16.38	0.26	0.645	0.010
E	6.35	0.13	0.250	0.005
F	18.41	0.13	0.725	0.005
G	12.70	0.26	0.500	0.010
H	5.08	0.13	0.200	0.005
I	24.76	0.13	0.975	0.005
J	1.52	0.13	0.060	0.005
K	0.81R	0.13	0.032R	0.005
M	0.13	0.02	0.005	0.001
N	2.16	0.13	0.085	0.005
O	1.65R	0.13	0.065R	0.005

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

$P_D$	Power Dissipation	175W
$BV_{DSS}$	Drain – Source Breakdown Voltage	70V
$BV_{GSS}$	Gate – Source Breakdown Voltage	$\pm 20\text{V}$
$I_{D(sat)}$	Drain Current	5A
$T_{stg}$	Storage Temperature	-65 to 150°C
$T_j$	Maximum Operating Junction Temperature	200°C

**GOLD METALLISED  
MULTI-PURPOSE SILICON  
DMOS RF FET  
50W – 28V – 1GHz  
PUSH–PULL**

### FEATURES

- SIMPLIFIED AMPLIFIER DESIGN
- SUITABLE FOR BROAD BAND APPLICATIONS
- VERY LOW  $C_{rss}$
- SIMPLE BIAS CIRCUITS
- LOW NOISE
- HIGH GAIN – 7.5 dB MINIMUM

### APPLICATIONS

- VHF/UHF COMMUNICATIONS  
from 400 MHz to 1 GHz

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

Parameter	Test Conditions		Min.	Typ.	Max.	Unit
<b>PER SIDE</b>						
$BV_{DSS}$	Drain–Source Breakdown Voltage	$V_{GS} = 0$	$I_D = 100mA$	70		V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 28V$	$V_{GS} = 0$		1	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*	$V_{DS} = 10V$	$I_D = 1A$	0.8		mhos
$V_{GS(th)match}$	Gate Threshold Voltage Matching Between Sides	$I_D = 10mA$	$V_{DS} = V_{GS}$		0.1	V
<b>TOTAL DEVICE</b>						
$G_Ps$	Common Source Power Gain	$P_O = 50W$ $V_{DS} = 28V$ $f = 1GHz$	$I_{DQ} = 0.8A$	7.5		dB
$\eta$	Drain Efficiency			45		%
VSWR	Load Mismatch Tolerance			20:1		—
<b>PER SIDE</b>						
$C_{iss}$	Input Capacitance	$V_{DS} = 0$	$V_{GS} = -5V$ $f = 1MHz$		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 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. 1.0°C / W
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