

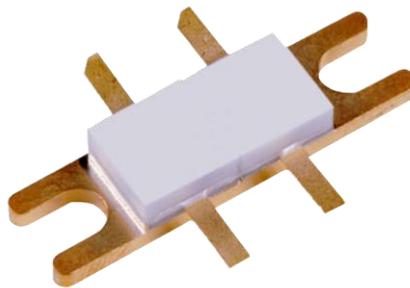
# RF POWER MOSFET



## D2213UK

### Features:

- Gold metallised
- Simplified amplifier design
- Low  $C_{rss}$
- Low noise
- High gain – 10dB minimum
- RoHS compliant



### Description:

Multi-Purpose Silicon DMOS RF MOSFET  
20W – 12.5V – 1GHz – Push Pull

### Applications:

Suitable for HF, VHF & UHF broadband applications

### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

$P_D$	Power Dissipation	83W
$BV_{DSS}^{(1)}$	Drain – Source Breakdown Voltage	40V
$BV_{GSS}^{(1)}$	Gate – Source Breakdown Voltage	$\pm 20\text{V}$
$I_D(\text{sat})^{(1)}$	Drain Current	8A
$T_{Jstg}$	Storage Temperature	-65 to +150°C
$T_j$	Maximum Operating Junction Temperature	200°C

### Thermal Properties

SYMBOL	PARAMETER	MAX	UNITS
$R_{THj\text{-case}}$	Thermal Resistance, Junction to Case	2.1	°C/W

#### General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

## Electrical Specifications

**Electrical Characteristics** ( $T_A = 25^\circ C$  unless otherwise noted)

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
PER SIDE						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0$	$I_D = 10mA$	40		V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 12.5V$	$V_{GS} = 0$		4	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	$V_{DS} = 10V$	$I_D = 0.8A$	0.72		S
TOTAL DEVICE						
$G_{PS}$	Common Source Power Gain	$P_O = 20W$ $V_{DS} = 12.5V$ $f = 1GHz$	$I_{DQ} = 0.8A$	10		dB
$\eta$	Drain Efficiency			40		%
VSWR <sup>(2)</sup>	Load Mismatch Tolerance			20:1		-

**Dynamic Characteristics** ( $T_A = 25^\circ C$  unless otherwise noted)

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
PER SIDE						
$C_{iss}^{(2)}$	Input Capacitance	$V_{DS} = 12.5V$ $f = 1MHz$	$V_{GS} = -5V$			48 pF
$C_{oss}^{(2)}$	Output Capacitance	$V_{DS} = 12.5V$ $f = 1MHz$	$V_{GS} = 0V$		40	pF
$C_{rss}^{(2)}$	Reverse Transfer Capacitance	$V_{DS} = 12.5V$ $f = 1MHz$	$V_{GS} = 0V$		4	pF

Notes:

- (1) Per side
- (2) By design only, not a production 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**

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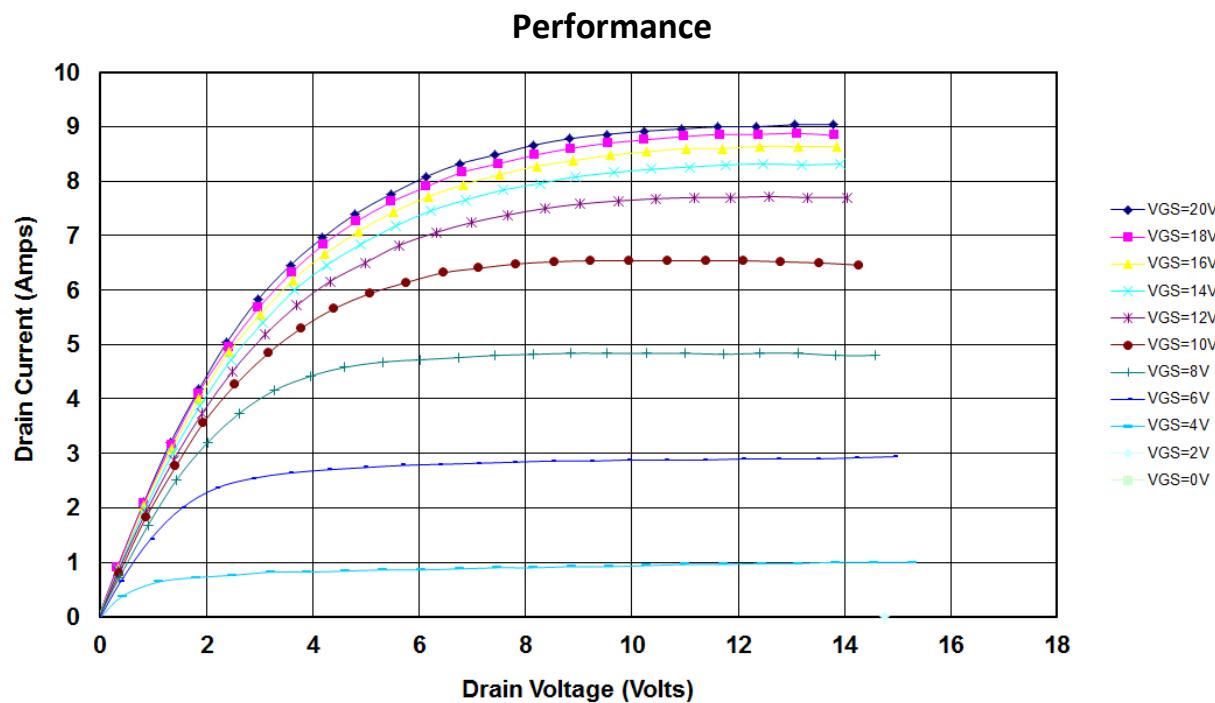


Figure 1 – Typical IV Characteristics

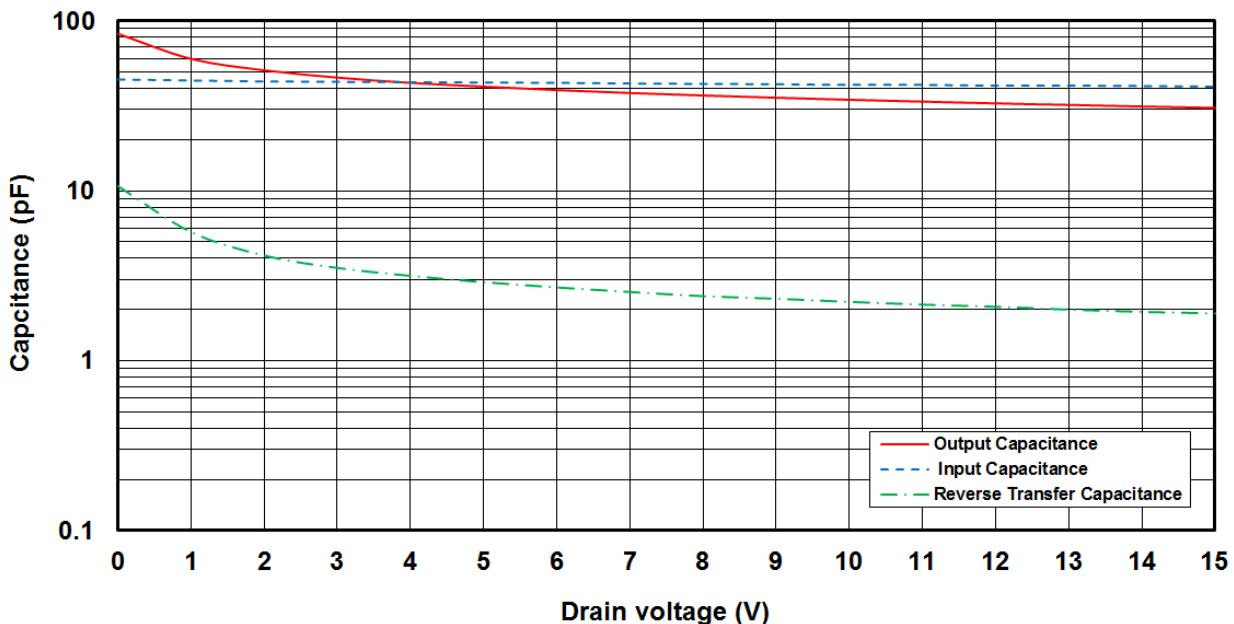


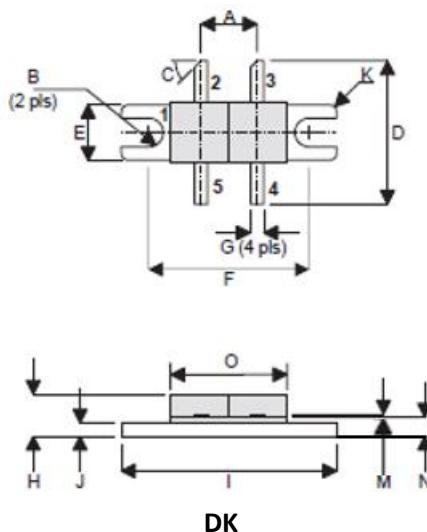
Figure 2 – Typical CV Characteristics

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## Packaging

## Mechanical Data



Pin 1 – Source (Common)      Pin 2 – Drain 1  
 Pin 3 – Drain 2      Pin 4 – Gate 2  
 Pin 5 – Gate 1

DIM	mm	Tol.	Inches	Tol.
A	6.45	0.13	0.254	0.005
B	1.65R	0.13	0.065R	0.005
C	45°	5°	45°	5°
D	16.51	0.76	0.650	0.030
E	6.47	0.13	0.255	0.005
F	18.41	0.13	0.725	0.005
G	1.52	0.13	0.060	0.005
H	4.19	0.50	0.165	0.020
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	12.70	0.50	0.500	0.020

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