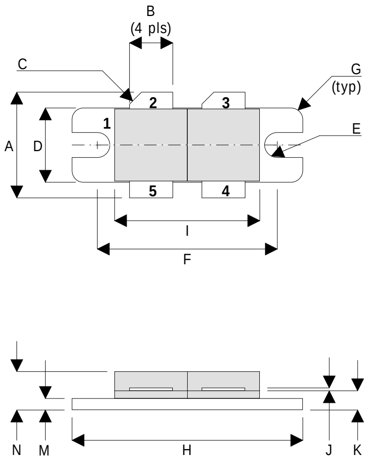
TetraFET

D1015UK

METAL GATE RF SILICON FET

MECHANICAL DATA



DH

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	13.97	0.26	0.550	0.010
B	5.72	0.13	0.225	0.005
C	45°	5°	45°	5°
D	9.78	0.13	0.385	0.005
E	1.65R	0.13	0.065R	0.005
F	23.75	0.13	0.935	0.005
G	1.52R	0.13	0.060R	0.005
H	30.48	0.13	1.200	0.005
I	19.17	0.26	0.755	0.010
J	0.13	0.02	0.005	0.001
K	2.54	0.13	0.100	0.005
M	1.52	0.13	0.060	0.005
N	5.08	0.50	0.200	0.020

GOLD METALLISED MULTI-PURPOSE SILICON DMOS RF FET
125W – 28V – 400MHz
PUSH–PULL

FEATURES

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

APPLICATIONS

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

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

P_D	Power Dissipation	350W
BV_{DSS}	Drain – Source Breakdown Voltage *	70V
BV_{GSS}	Gate – Source Breakdown Voltage *	±20V
$I_{D(sat)}$	Drain Current *	20A
T_{stg}	Storage Temperature	–65 to 150°C
T_j	Maximum Operating Junction Temperature	200°C

* Per Side

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

Parameter		Test Conditions			Min.	Typ.	Max.	Unit
PER SIDE								
BV_{DSS}	Drain–Source Breakdown Voltage	$V_{GS} = 0$	$I_D = 100mA$		70			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 28V$	$V_{GS} = 0$				4	mA
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
g_{fs}	Forward Transconductance*	$V_{DS} = 10V$	$I_D = 4A$		3.2			S
TOTAL DEVICE								
G_{PS}	Common Source Power Gain	$P_O = 125W$			13			dB
η	Drain Efficiency	$V_{DS} = 28V$	$I_{DQ} = 1.6A$		50			%
VSWR	Load Mismatch Tolerance	f = 500MHz			20:1			—
PER SIDE								
C_{iss}	Input Capacitance	$V_{DS} = 28V$	$V_{GS} = -5V$	f = 1MHz			240	pF
C_{oss}	Output Capacitance	$V_{DS} = 28V$	$V_{GS} = 0$	f = 1MHz			120	pF
C_{rss}	Reverse Transfer Capacitance	$V_{DS} = 28V$	$V_{GS} = 0$	f = 1MHz			10	pF

* Pulse Test: Pulse Duration = 300 µs , Duty Cycle ≤ 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. 0.5°C / W

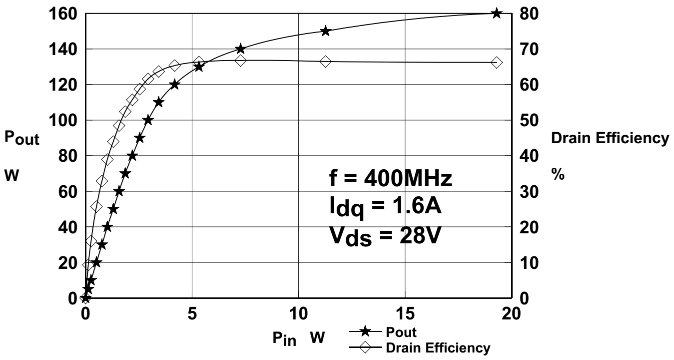


Figure 1
Power Output and Efficiency vs. Input Power

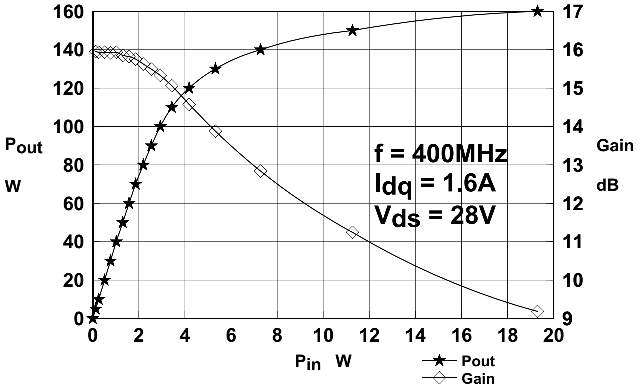


Figure 2
Power Output and Gain vs. Input Power

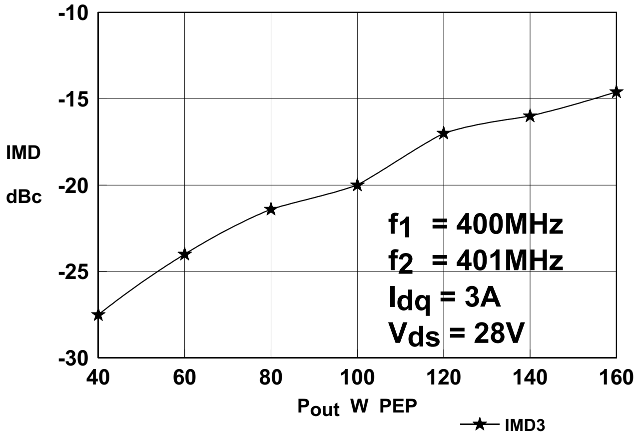


Figure 3
IMD vs. Output Power

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OPTIMUM SOURCE AND LOAD IMPEDANCE

Frequency	Z_S	Z_L
MHz	Ω	Ω
400	1.7 - j0.1	2.7 - j1