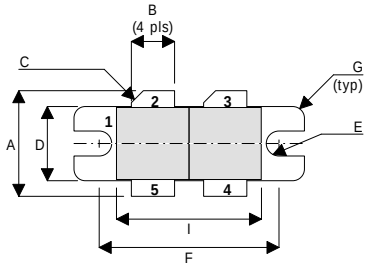
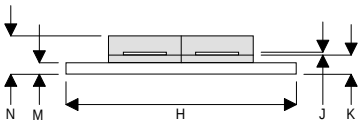
D1015UK

ROHS COMPLIANT 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

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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 = 400MHz		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

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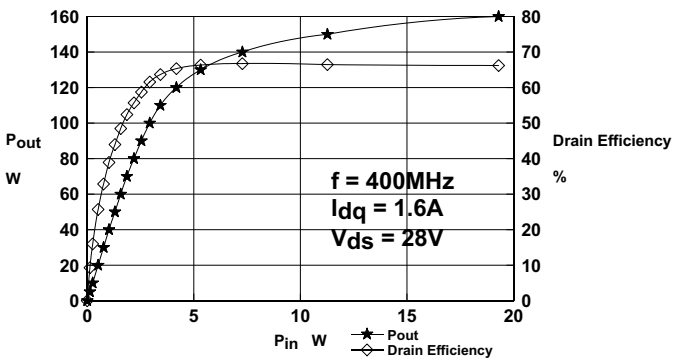

Figure 1
Power Output and Efficiency vs. Input Power

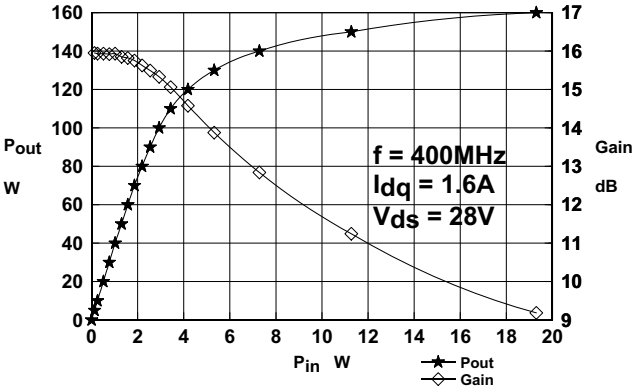

Figure 2
Power Output and Gain vs. Input Power

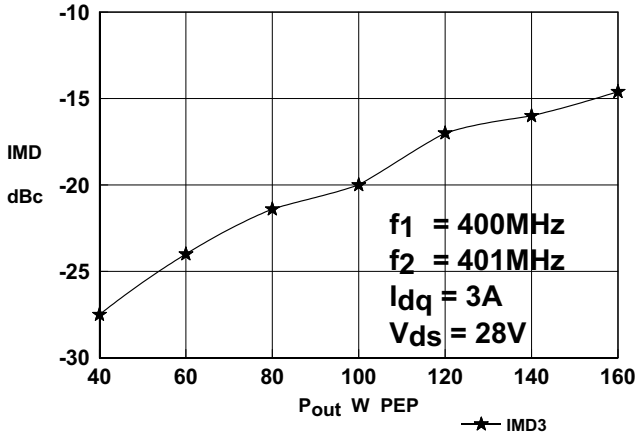

Figure 3
IMD vs. Output Power

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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

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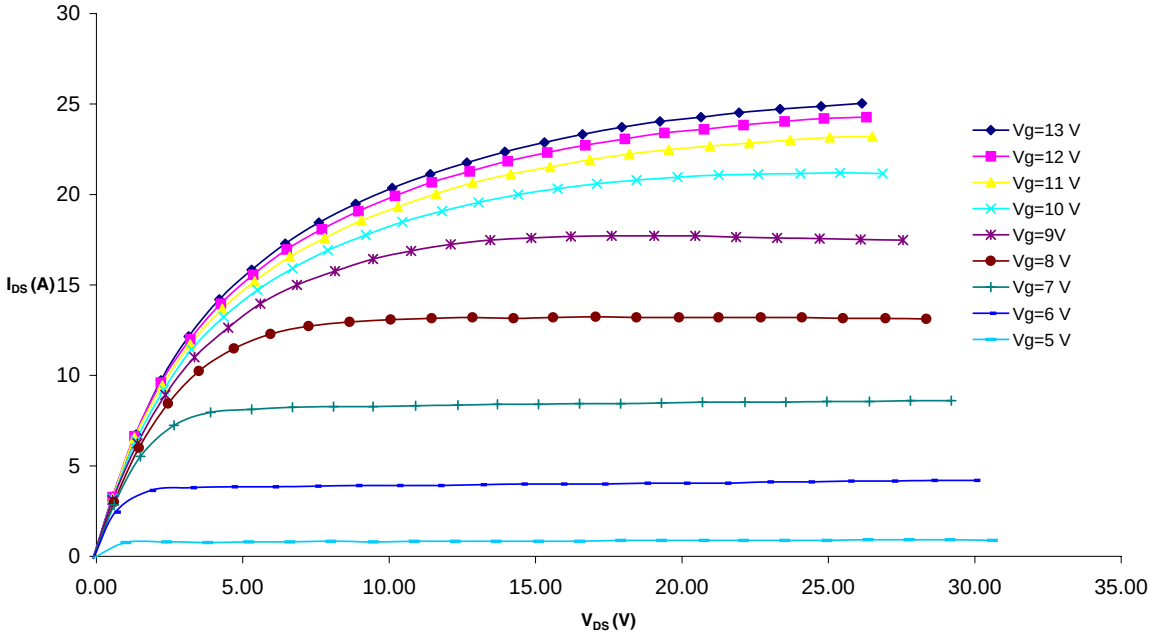

Figure 4 – Typical IV Characteristics.

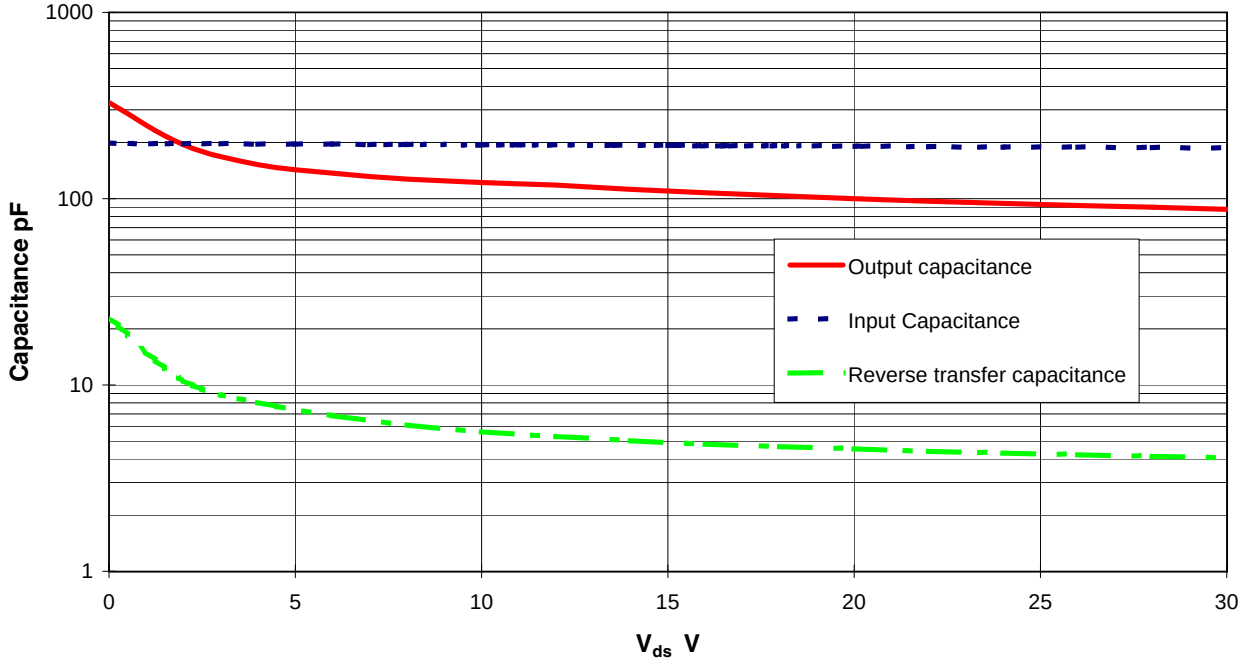

Figure 5 – Typical CV Characteristics.

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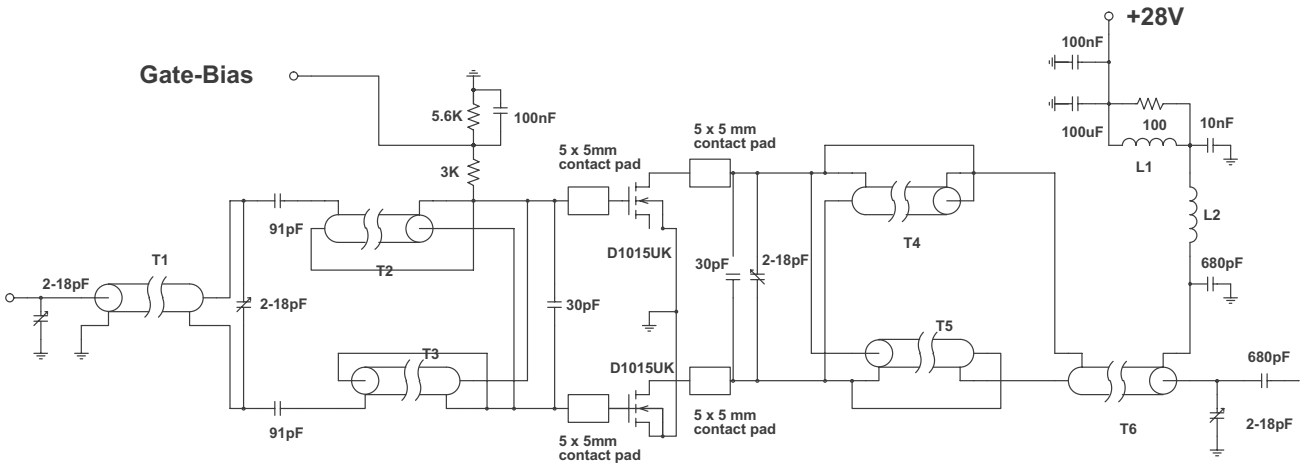

D1015UK Test Fixture

T1	12cm	50 ohm UT85 semi-rigid coax on ferrite core
T2, 3	7.5cm	15 ohm UT85-15 semi-rigid coax
T4,5	7cm	15 ohm UT85-15 semi-rigid coax
T6	11cm	50 ohm UT85 semi-rigid coax on ferrite core

L1	6.5 turns 25swg enamelled copper wire on Fair-Rite FT50B-43 core
L2	6.5 turns 25swg enamelled copper wire, internal diameter

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