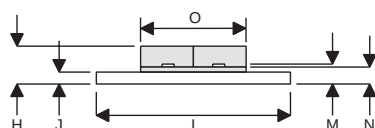
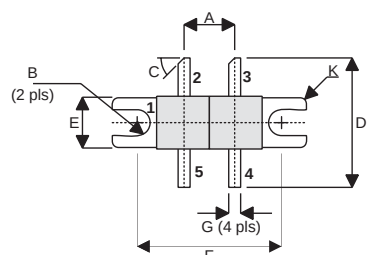


MECHANICAL DATA



DK

PIN 1 SOURCE (COMMON) PIN 2 DRAIN 1
PIN 3 DRAIN 2 PIN 4 PIN 5 GATE 1 GATE 2

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	0.03
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	5.08	max	0.200	max
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	0.10	0.02	0.004	0.001
N	2.16	0.13	0.085	0.005
O	12.80	max	0.504	max

GOLD METALLISED MULTI-PURPOSE SILICON DMOS RF FET 100W – 28V – 500MHz PUSH-PULL

FEATURES

- SIMPLIFIED AMPLIFIER DESIGN
- SUITABLE FOR BROAD BAND APPLICATIONS
- LOW C_{rss}
- SIMPLE BIAS CIRCUITS
- LOW NOISE
- HIGH GAIN – 10 dB MINIMUM

APPLICATIONS

- HF/VHF/UHF COMMUNICATIONS
from 1 MHz to 500 MHz

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

P_D	Power Dissipation	292W
BV_{DSS}	Drain – Source Breakdown Voltage	70V
BV_{GSS}	Gate – Source Breakdown Voltage	$\pm 20V$
$I_{D(sat)}$	Drain Current	15A
T_{stg}	Storage Temperature	-65 to $150^{\circ}C$
T_j	Maximum Operating Junction Temperature	$200^{\circ}C$

* Per Side

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Document Number 3869

Issue 2

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
PER SIDE					
B _V 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			3	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 = 3A	2.4			mhos
V _{GS(th)match}	Gate Threshold Voltage Matching Between Sides I _D = 10mA V _{DS} = V _{GS}			0.1	V
TOTAL DEVICE					
G _{PS}	Common Source Power Gain P _O = 100W	10			dB
η	Drain Efficiency V _{DS} = 28V I _{DQ} = 1.2A	50			%
VSWR	Load Mismatch Tolerance f = 500MHz	20:1			—
PER SIDE					
C _{iss}	Input Capacitance V _{DS} = 28V V _{GS} = –5V f = 1MHz			180	pF
C _{oss}	Output Capacitance V _{DS} = 28V V _{GS} = 0 f = 1MHz			90	pF
C _{rss}	Reverse Transfer Capacitance V _{DS} = 28V V _{GS} = 0 f = 1MHz			7.5	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. 0.6°C / W
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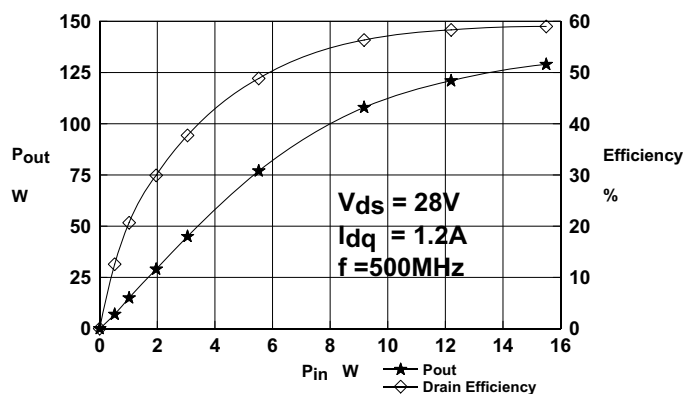


Figure 1
Power Output and Efficiency vs. Input

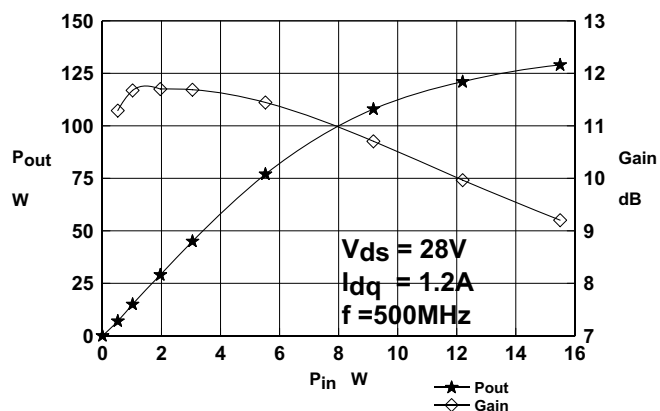


Figure 2
Power Output and Gain vs. Input Power

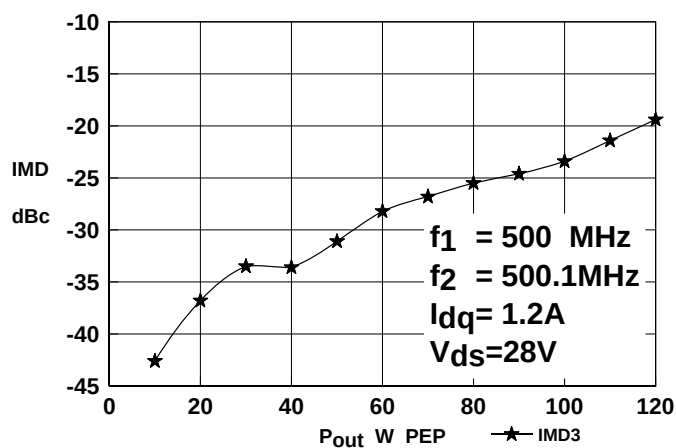


Figure 3
IMD vs Output Power

OPTIMUM SOURCE AND LOAD IMPEDANCE

Frequency MHz	Z_S Ω	Z_L Ω
500	$2.0 - j2.2$	$2.6 - j0.6$

N.B. Impedances measured terminal to terminal

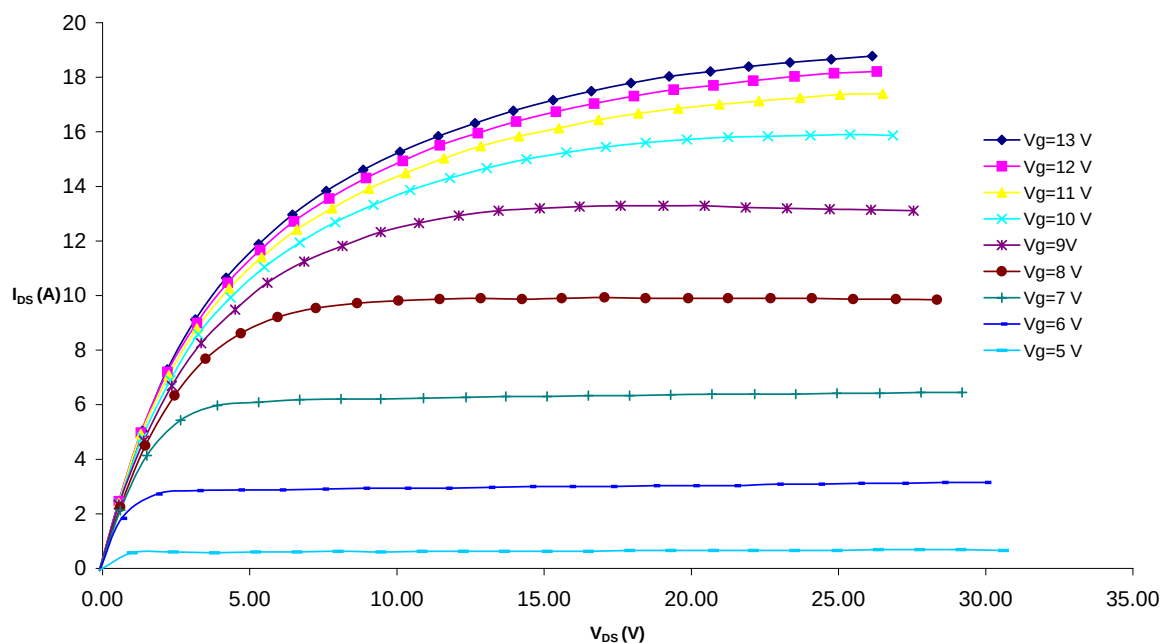


Figure 4 – Typical IV Characteristics.

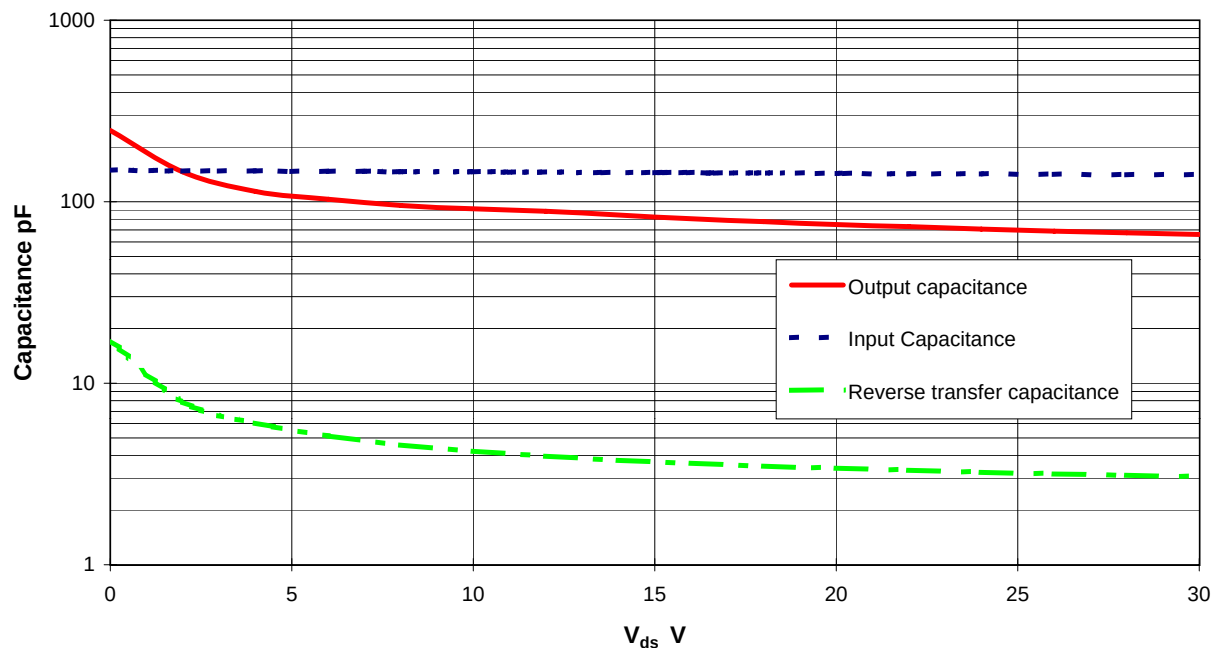
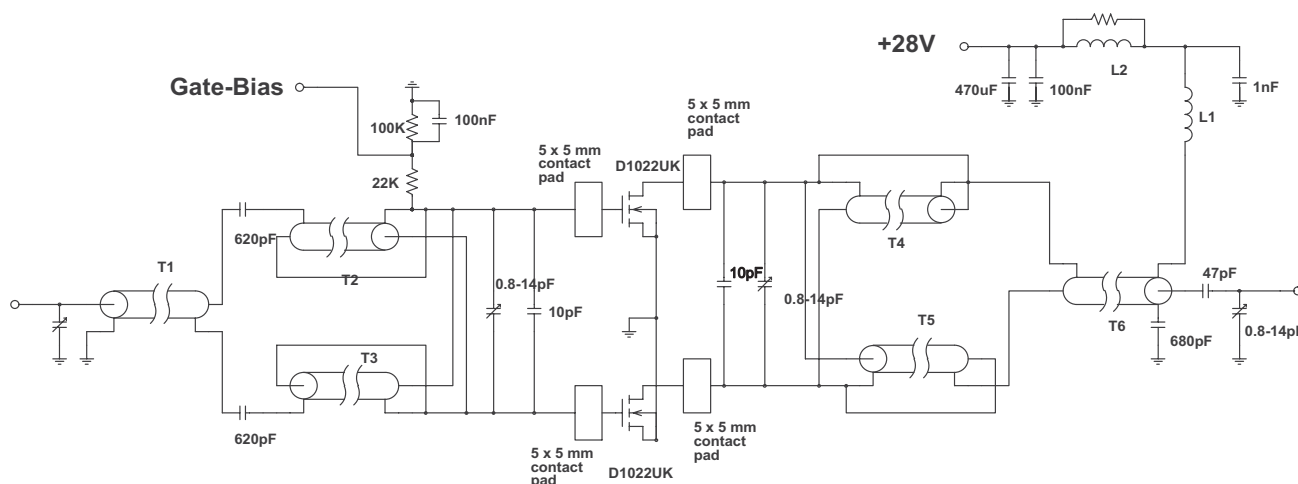


Figure 5 – Typical CV Characteristics.



D1022UK 500MHz TEST FIXTURE

T1, 6	7cm UT85 50 Ohm semi-rigid coax on Siemens B62152A1x1 2 hole ferrite core
T2, 3,4, 5	7.7 cm UT85-15 15 ohm semi-rigid coax
L1	6 turns 19swg enamelled copper wire, 3.5mm internal diameter
L2	8.5 turns 19swg enamelled copper wire on Fair-rite FT82 ferrite core

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