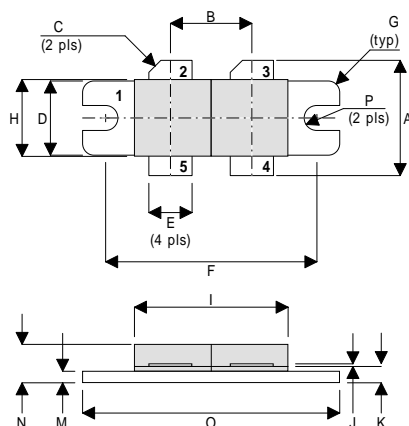


MECHANICAL DATA

GOLD METALLISED MULTI-PURPOSE SILICON DMOS RF FET 350W – 28V – 175MHz PUSH-PULL



DR

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

DIM	Millimetres	Tol.	Inches	Tol.
A	19.05	0.50	0.75	0.020
B	10.77	0.13	0.424	0.005
C	45°	5°	45°	5°
D	9.78	0.13	0.385	0.005
E	5.71	0.13	0.225	0.005
F	27.94	0.13	1.100	0.005
G	1.52R	0.13	0.060R	0.005
H	10.16	0.13	0.400	0.005
I	22.22	MAX	0.875	MAX
J	0.13	0.02	0.005	0.001
K	2.72	0.13	0.107	0.005
M	1.70	0.13	0.067	0.005
N	5.08	0.50	0.200	0.020
O	34.03	0.13	1.340	0.005
P	1.61R	0.08	0.064R	0.003

FEATURES

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

APPLICATIONS

- VHF/UHF COMMUNICATIONS
from 1 MHz to 200 MHz

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

P_D	Power Dissipation	438W
BV_{DSS}	Drain – Source Breakdown Voltage *	70V
BV_{GSS}	Gate – Source Breakdown Voltage *	$\pm 20V$
$I_{D(sat)}$	Drain Current *	35A
T_{stg}	Storage Temperature	-65 to $150^{\circ}C$
T_j	Maximum Operating Junction Temperature	$200^{\circ}C$

* 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			7	mA
I _{GSS}	Gate Leakage Current	V _{GS} = 20V	V _{DS} = 0			7	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 = 7A	5.6			S
TOTAL DEVICE							
G _{PS}	Common Source Power Gain	P _O = 350W		13			dB
η	Drain Efficiency	V _{DS} = 28V I _{DQ} = 2A		65			%
VSWR	Load Mismatch Tolerance	f = 175MHz		20:1			—
PER SIDE							
C _{iss}	Input Capacitance	V _{DS} = 28V	V _{GS} = –5V f = 1MHz			420	pF
C _{oss}	Output Capacitance	V _{DS} = 28V	V _{GS} = 0 f = 1MHz			210	pF
C _{rss}	Reverse Transfer Capacitance	V _{DS} = 28V	V _{GS} = 0 f = 1MHz			17.5	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. 0.4°C / W
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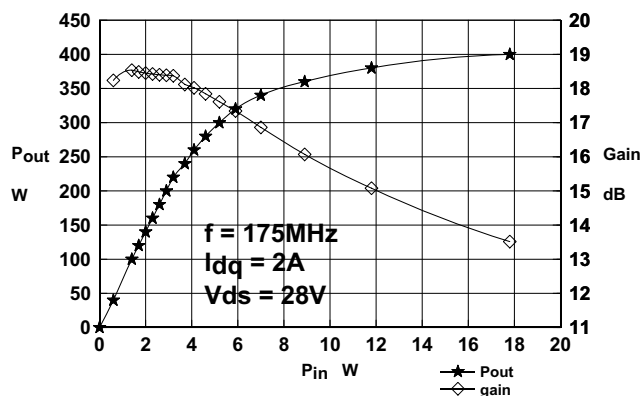


Figure 1
Output Power and Gain vs. Input Power

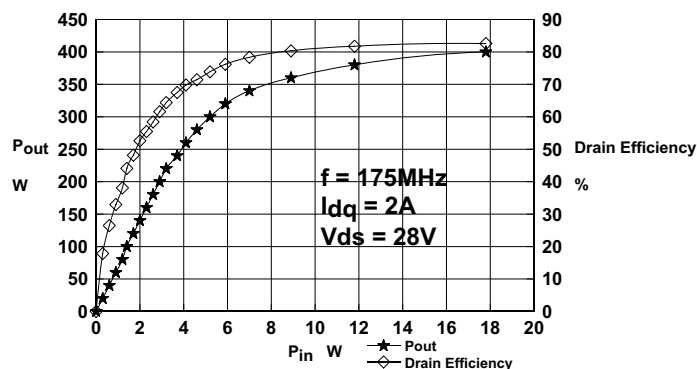


Figure 2
Output Power and Efficiency vs. Input Power

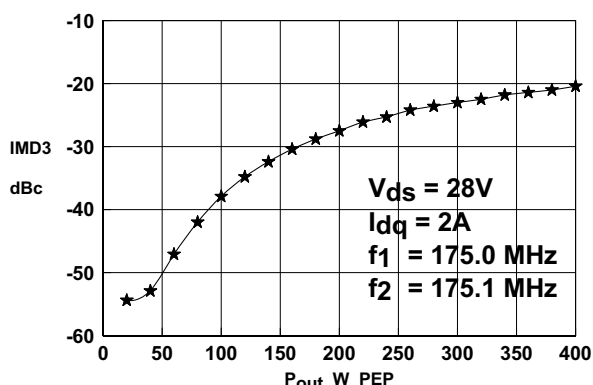


Figure 3
IMD3 vs. Output Power

OPTIMUM SOURCE AND LOAD IMPEDANCE

Frequency MHz	Z_S Ω	Z_L Ω
175	$2.1 + j1.9$	$2.8 + j2.4$
225	$1.8 - j0.5$	$2.9 + j0.7$

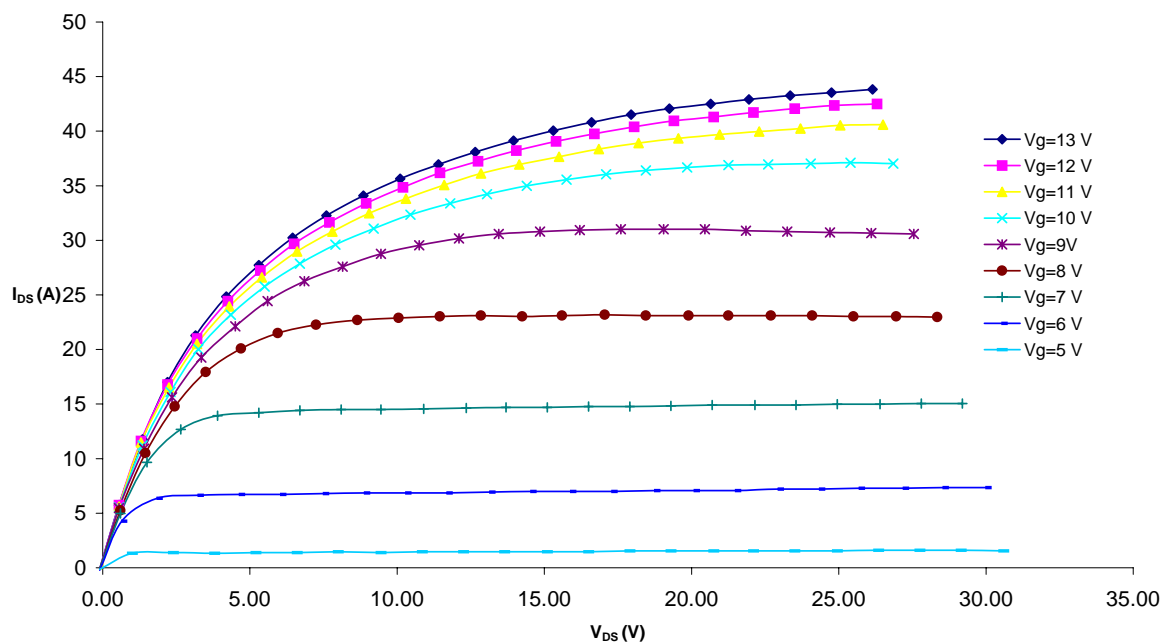


Figure 4 – Typical IV Characteristics.

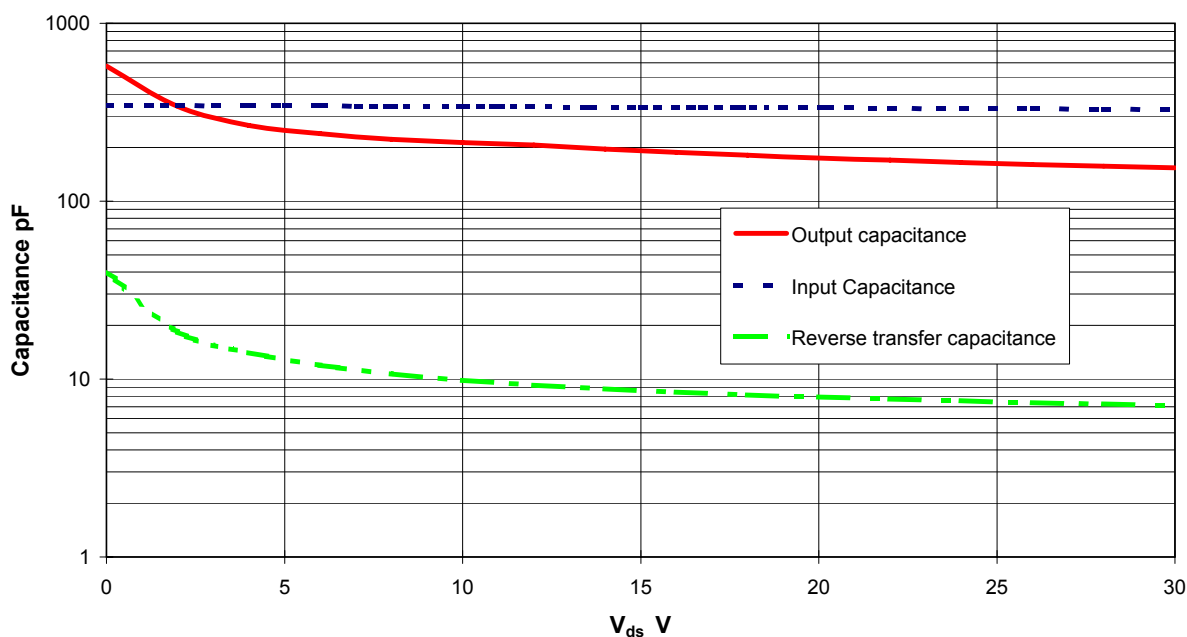
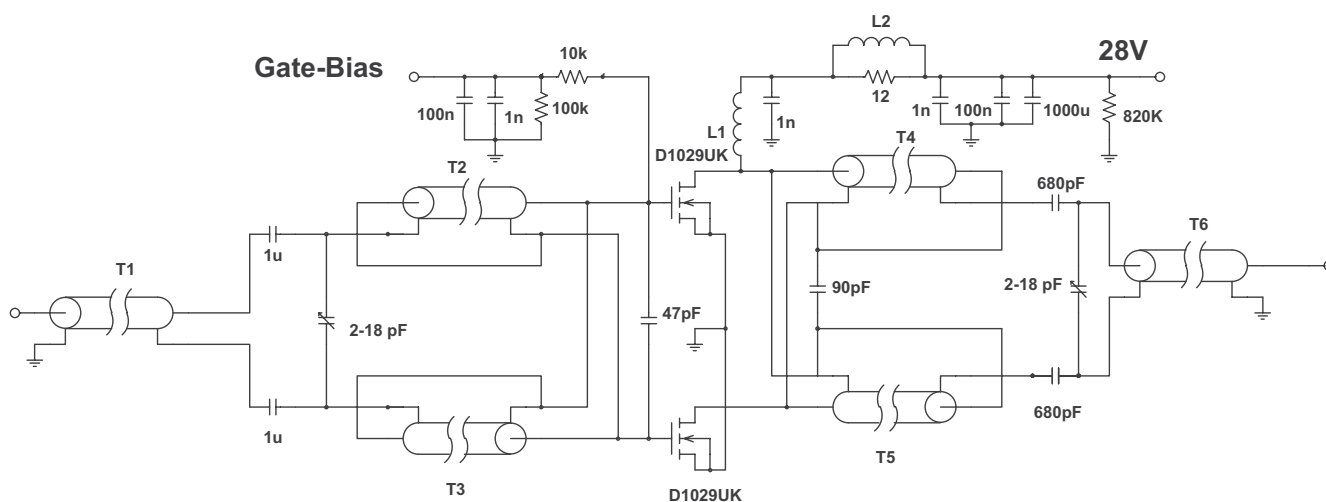


Figure 5 – Typical CV Characteristics.

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175MHz Test Fixture

T1, 2, 3,	7cm Storm Products EXE18 19/30 S1TW coaxial cable on Siemens B62152A1X1 2 hole core
T4,5	14cm Storm Products EXE18 19/30 S1TW coaxial cable
T6	11cm Storm Products EXE18 19/30 S1TW coaxial cable
L1	6 turns 1.2mm dia wire, 5mm internal diameter
L2	1.5 turns 0.9mm dia wire on Siemens A1 x 1 2 hole core

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