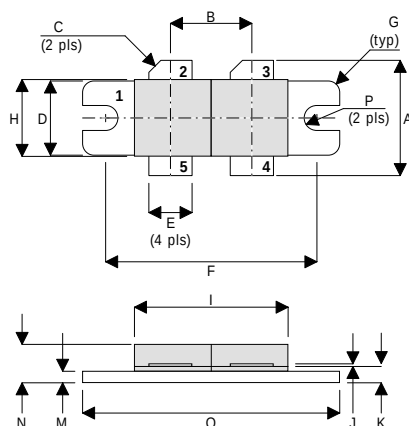


MECHANICAL DATA

GOLD METALLISED MULTI-PURPOSE SILICON DMOS RF FET 400W – 50V – 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 – 16 dB MINIMUM

APPLICATIONS

- VHF/UHF COMMUNICATIONS
from 1 MHz to 250 MHz

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

P_D	Power Dissipation	583W
BV_{DSS}	Drain – Source Breakdown Voltage*	125V
BV_{GSS}	Gate – Source Breakdown Voltage*	$\pm 20V$
$I_{D(sat)}$	Drain Current*	24A
T_{stg}	Storage Temperature	-65 to $150^{\circ}C$
T_j	Maximum Operating Junction Temperature	$200^{\circ}C$

* per side

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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	125			V
I _D DSS	Zero Gate Voltage Drain Current V _{DS} = 50V V _{GS} = 0			8	mA
I _G DSS	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 = 8A	6.4			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 = 400W	16			dB
η	Drain Efficiency V _{DS} = 50V I _{DQ} = 2A	50			%
VSWR	Load Mismatch Tolerance f = 175MHz	20:1			—
PER SIDE					
C _{iss}	Input Capacitance V _{DS} = 50V V _{GS} = –5V f = 1MHz			480	pF
C _{oss}	Output Capacitance V _{DS} = 50V V _{GS} = 0 f = 1MHz			200	pF
C _{rss}	Reverse Transfer Capacitance V _{DS} = 50V V _{GS} = 0 f = 1MHz			12	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. 0.3°C / W
-----------------------	------------------------------------	----------------

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

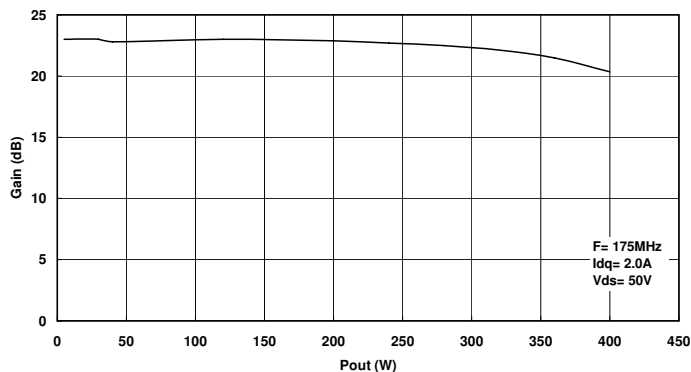


Figure 1
Gain vs. Output Power.

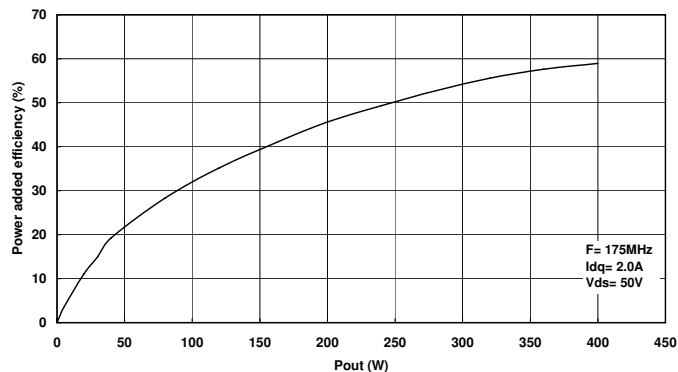


Figure 2
Power added efficiency vs. Output Power

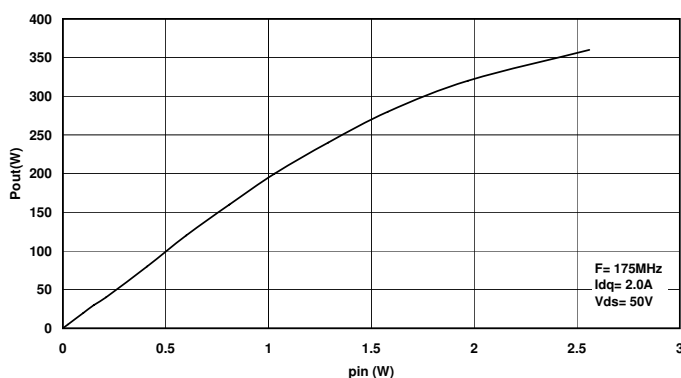


Figure 3
Output Power vs. Input Power.

Typical S Parameters

! $V_{DS} 50V, I_{DQ} = 1.4A$
MHz S MA R 50

!Freq !MHz	S11 mag	ang	S21 mag	ang	S12 mag	ang	S22 mag	ang
50	0.83	-165.3	20.29	69.4	0.007	-9.2	0.63	-150.7
100	0.89	-170	8.28	48.6	0.004	-6	0.78	-156.6
150	0.93	-173.2	4.42	35.6	0.003	50	0.86	-162
200	0.95	-175.7	2.71	27.2	0.005	82.4	0.91	-166.2
250	0.97	-177.8	1.82	21.3	0.008	88.8	0.94	-169.4
300	0.98	-179.7	1.3	17	0.011	90	0.95	-171.9
350	0.98	-178.7	0.97	13.8	0.014	89.6	0.97	-174
400	0.98	-177.3	0.76	11.4	0.017	88.9	0.97	-175.7
450	0.99	-175.9	0.61	9.5	0.02	87.9	0.98	-177.3
500	0.99	-174.7	0.5	8.1	0.023	86.9	0.98	-178.6
550	0.99	-173.5	0.42	7.1	0.026	85.9	0.98	-179.8
600	0.99	-172.3	0.35	6.5	0.028	84.9	0.99	-179

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

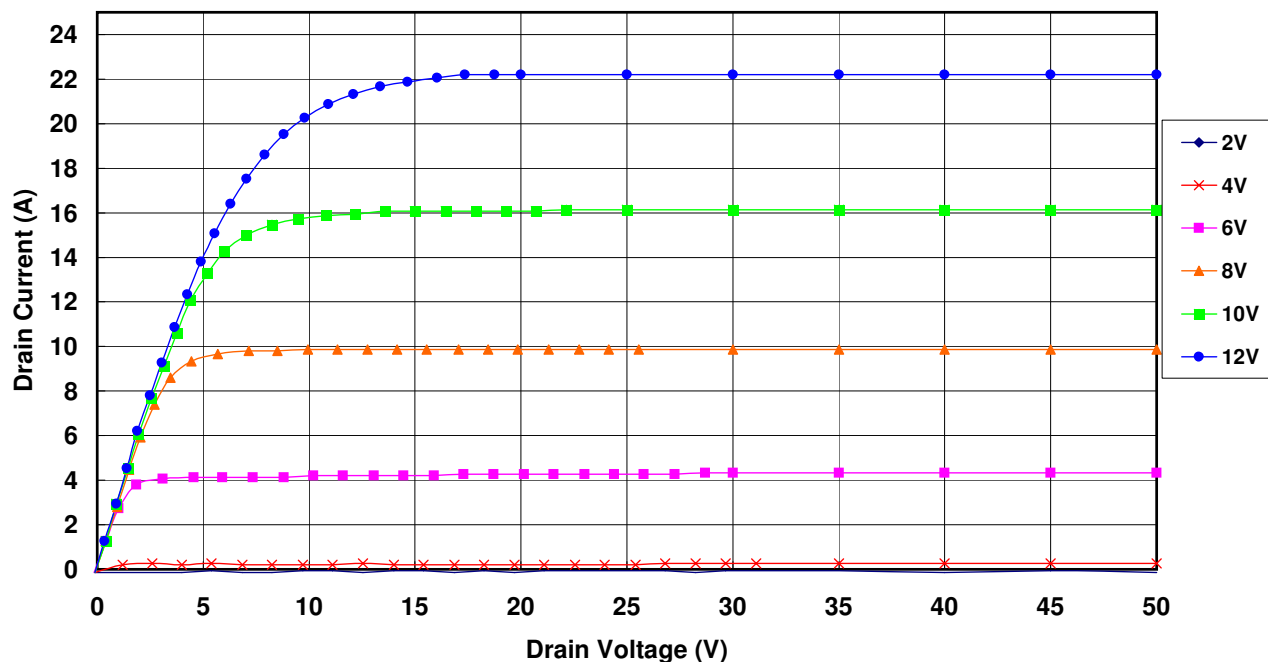


Figure 5 – Typical IV Characteristics.

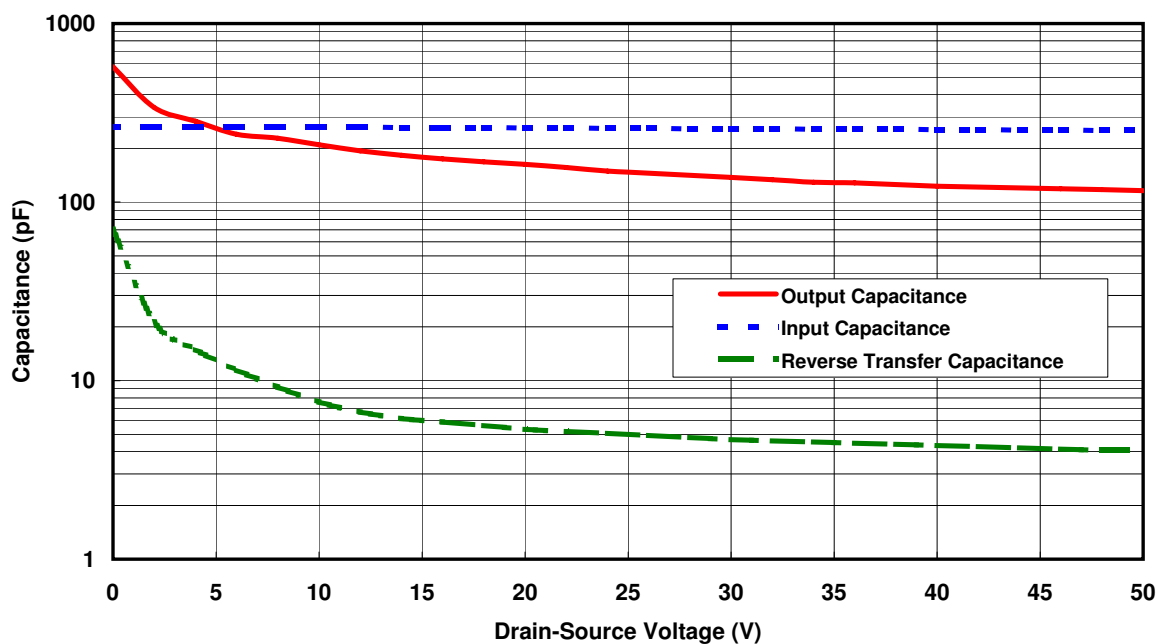
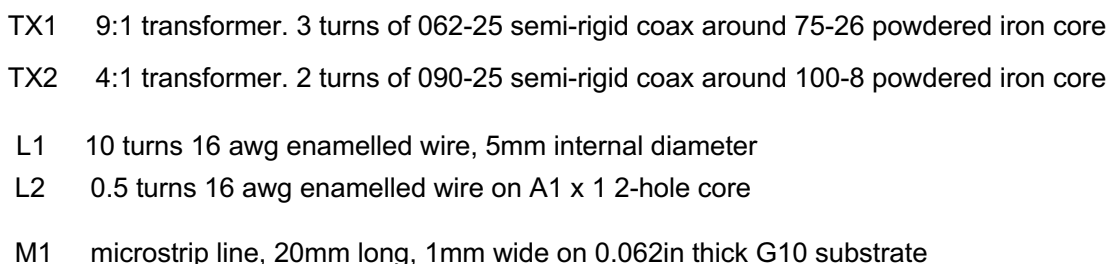


Figure 6 – Typical CV Characteristics.

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.



Document Number 6581
Issue 3

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[TT Electronics:](#)

[D5030UK](#)