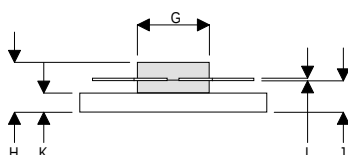
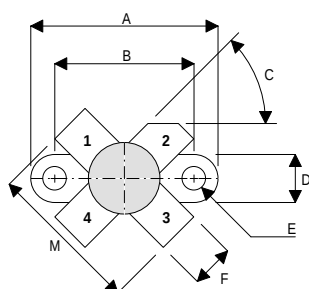


MECHANICAL DATA



DA

PIN 1 SOURCE PIN 2 DRAIN
PIN 3 SOURCE PIN 4 GATE

DIM	mm	Tol.	Inches	Tol.
A	24.76	0.13	0.975	0.005
B	18.42	0.13	0.725	0.005
C	45°	5°	45°	5°
D	6.35	0.13	0.25	0.005
E	3.17	0.13	0.125 DIA	0.005
F	5.71	0.13	0.225	0.005
G	9.52	0.13	0.375	0.005
H	6.60	REF	0.260	REF
I	0.13	0.02	0.005	0.001
J	4.32	0.13	0.170	0.005
K	2.54	0.13	0.100	0.005
M	20.32	0.25	0.800	0.010

GOLD METALLISED MULTI-PURPOSE SILICON DMOS RF FET 20W – 50V – 175MHz SINGLE ENDED

FEATURES

- SIMPLIFIED AMPLIFIER DESIGN
- SUITABLE FOR BROAD BAND APPLICATIONS
- LOW C_{rss}
- SIMPLE BIAS CIRCUITS
- LOW NOISE
- HIGH GAIN – 16 dB MINIMUM

APPLICATIONS

- HF/VHF COMMUNICATIONS
from 1 MHz to 175 MHz

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

P_D	Power Dissipation	50W
BV_{DSS}	Drain – Source Breakdown Voltage	125V
BV_{GSS}	Gate – Source Breakdown Voltage	$\pm 20V$
$I_{D(sat)}$	Drain Current	3A
T_{stg}	Storage Temperature	-65 to $150^{\circ}C$
T_j	Maximum Operating Junction Temperature	$200^{\circ}C$

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
BV _{DSS} Drain–Source Breakdown Voltage	V _{GS} = 0 I _D = 100mA	125			V
I _{DSS} Zero Gate Voltage Drain Current	V _{DS} = 50V V _{GS} = 0			1	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 = 0.5A	0.8			S
G _{PS} Common Source Power Gain	P _O = 20W	16			dB
η Drain Efficiency	V _{DS} = 50V I _{DQ} = 0.1A	50			%
VSWR Load Mismatch Tolerance	f = 175MHz	20:1			—
C _{iss} Input Capacitance	V _{DS} = 50V V _{GS} = –5V f = 1MHz			60	pF
C _{oss} Output Capacitance	V _{DS} = 50V V _{GS} = 0 f = 1MHz			25	pF
C _{rss} Reverse Transfer Capacitance	V _{DS} = 50V V _{GS} = 0 f = 1MHz			1.5	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. 3.5°C / W
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Document Number 3142
Issue 2

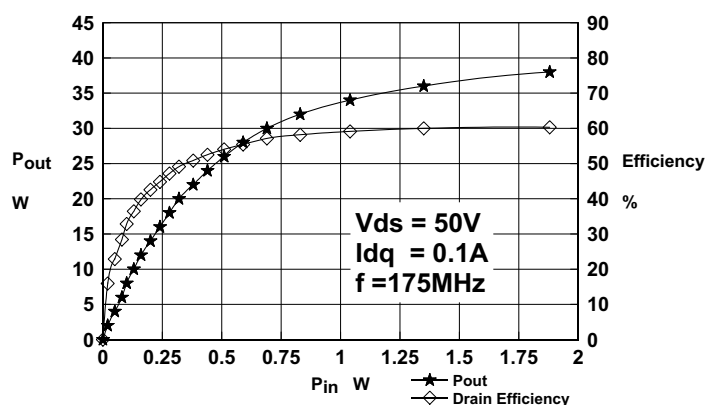


Figure 1

Power Output and Efficiency vs. Power input

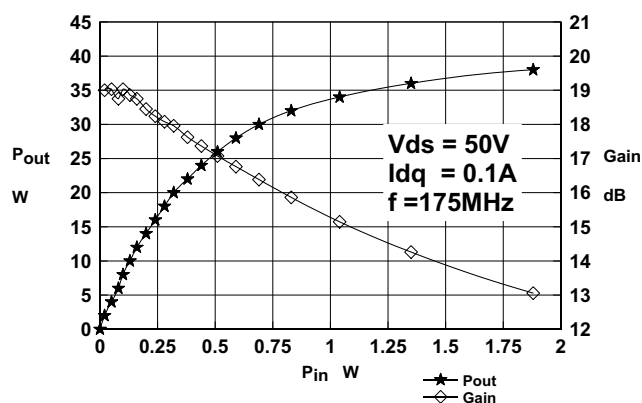


Figure 2

Power Output and Gain vs Power Input

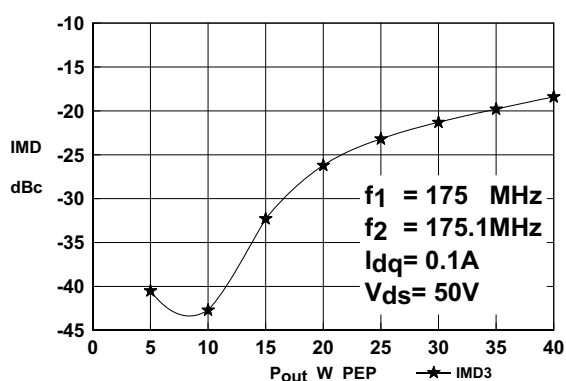


Figure 3

IMD3 vs Power Output

OPTIMUM SOURCE AND LOAD IMPEDANCE

Frequency MHz	Z_S Ω	Z_L Ω
175	$9.5 + j14.1$	$12.3 + j10.2$

Typical S Parameters

! Vds=50V Idq=0.1A
MHZ S MA R 50

!Freq !Mhz	S11 mag ang	S21 mag ang	S12 mag ang	S22 mag ang
30	0.85 -108.7	9.765 172.5	0.018 69.9	0.726 -69.2
40	0.846 -109.8	9.588 163.6	0.019 65.8	0.718 -70.1
50	0.84 -111.2	9.473 154.9	0.019 60.2	0.709 -71.2
60	0.837 -113.1	8.991 146.1	0.02 55.2	0.699 -72.6
70	0.835 -116	8.521 139.2	0.021 50.7	0.689 -74.4
80	0.833 -118	8.104 134.4	0.022 47.6	0.678 -78.1
90	0.831 -120	7.662 127.9	0.023 44.6	0.673 -80.6
100	0.829 -123.3	7.304 122.9	0.023 42.7	0.671 -83.6
110	0.828 -125.2	6.991 117.8	0.023 40.5	0.671 -85.3
120	0.825 -127.4	6.732 114.6	0.023 40.2	0.669 -87.9
130	0.823 -130	6.406 109.6	0.023 39.8	0.665 -88.6
140	0.82 -131.9	6.155 105	0.022 39.9	0.664 -89.6
150	0.816 -135	5.868 100.7	0.021 40.6	0.663 -91.4
160	0.81 -137.6	5.644 96.3	0.021 41.9	0.664 -92.6
170	0.807 -139.8	5.305 91.2	0.02 44.2	0.665 -94.2
180	0.803 -142.8	4.989 87.4	0.019 48	0.665 -96.8
190	0.804 -144.7	4.656 83.5	0.019 52	0.667 -98.6
200	0.806 -147.3	4.402 81.1	0.019 57.2	0.671 -101.2
210	0.803 -149.2	4.09 79.8	0.019 62.2	0.672 -103
220	0.808 -151.5	3.989 78.7	0.02 68.2	0.671 -103.5
230	0.802 -153.1	3.859 76.5	0.02 71.6	0.677 -105.6
240	0.807 -155.2	3.717 74	0.021 76.1	0.685 -107.9
250	0.811 -156.7	3.57 71.3	0.022 79.4	0.687 -109.9
260	0.812 -158.9	3.435 68.4	0.023 84.1	0.698 -111.9
270	0.814 -160.4	3.336 65.9	0.025 87.4	0.706 -113.7
280	0.818 -161.7	3.227 63.2	0.027 91.3	0.716 -116.2
290	0.823 -164	3.1 61.1	0.029 95.1	0.722 -119.2
300	0.828 -165.4	2.986 58.9	0.032 97	0.724 -120
310	0.828 -166.3	2.935 57.3	0.035 98.2	0.726 -122.1
320	0.829 -168.2	2.879 54.3	0.038 97.5	0.735 -123.7
330	0.832 -169.5	2.71 50	0.04 96.9	0.743 -125.4
340	0.835 -170.9	2.536 46.9	0.042 97.3	0.747 -127.4
350	0.838 -171.9	2.395 45.7	0.044 97.7	0.756 -130
360	0.843 -173.6	2.266 44	0.045 98.3	0.761 -130.8
370	0.843 -174.9	2.117 43.2	0.048 100.3	0.767 -133.3
380	0.845 -175.5	2.027 42.7	0.051 100.7	0.772 -134.4
390	0.852 -176.8	1.986 43.3	0.055 101.6	0.779 -137
400	0.857 -178.2	1.969 42.8	0.059 102.6	0.788 -138.4
410	0.862 -178.9	1.938 41.7	0.062 101.6	0.793 -139.8
420	0.862 179.2	1.91 39.4	0.066 99.6	0.797 -141.6
430	0.861 178.7	1.895 37.1	0.068 98.7	0.801 -143.8
440	0.873 177.3	1.844 33.7	0.07 97.2	0.809 -145.3
450	0.868 176.3	1.73 30.5	0.072 96.9	0.814 -147
460	0.871 174.9	1.644 27.8	0.074 96.8	0.822 -148
470	0.875 175.2	1.558 26.8	0.077 97.3	0.821 -149.6
480	0.875 174.4	1.485 26.3	0.08 96.9	0.83 -150.6
490	0.878 172.8	1.394 25.7	0.083 97.1	0.829 -152.2
500	0.882 171.6	1.332 26.2	0.086 96.5	0.841 -153.6

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Issue 2



T4 4mm

B64920A618x830 ferrite core