

RF Power MOSFET Transistor

M/A-COM Products
Released; RoHS Compliant

Features

- N-Channel enhancement mode device
- DMOS structure
- Lower capacitances for broadband operation
- High saturated output power
- Lower noise figure than bipolar devices

ABSOLUTE MAXIMUM RATINGS AT 25° C

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	65	V
Gate-Source Voltage	V_{GS}	20	V
Drain-Source Current	I_{DS}	24	A
Power Dissipation	P_D	62.5	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to +150	°C
Thermal Resistance	θ_{JC}	2.8	°C/W

TYPICAL DEVICE IMPEDANCE

F (MHz)	Z _{IN} (Ω)	Z _{LOAD} (Ω)
30	17.5 - j13.0	16.0 - j2.5
50	15.0 - j15.5	15.0 - j4.0
100	8.0 - j14.0	12.0 - j6.0
200	5.5 - j8.0	9.25 - j6.0

V_{DD} = 28V, I_{DQ} = 100mA, P_{OUT} = 20 W

$$V_{DD} = 28V, I_{DQ} = 100mA, P_{OUT} = 20\text{ W}$$

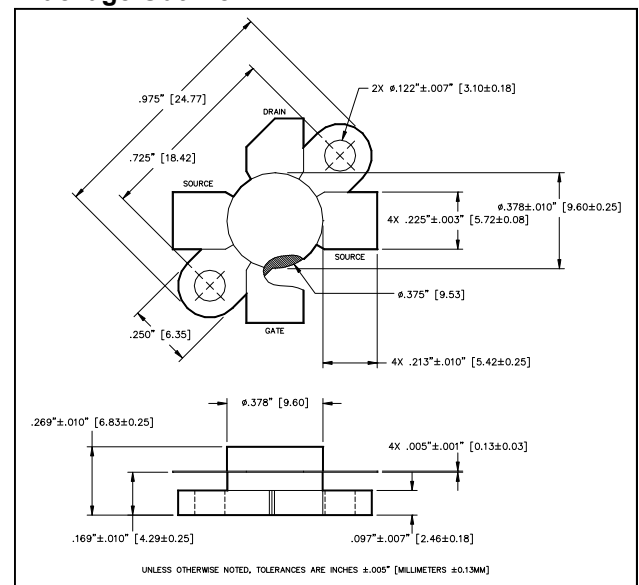
Z_{IN} is the series equivalent input impedance of the device from gate to source.

Z_{LOAD} is the optimum series equivalent load impedance as measured from drain to ground.

ELECTRICAL CHARACTERISTICS AT 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	65	-	V	$V_{GS} = 0.0\text{ V}$, $I_{DS} = 5.0\text{ mA}$
Drain-Source Leakage Current	I_{DSS}	-	1.0	mA	$V_{GS} = 28.0\text{ V}$, $V_{DS} = 0.0\text{ V}$
Gate-Source Leakage Current	I_{GSS}	-	1.0	μA	$V_{GS} = 20.0\text{ V}$, $V_{DS} = 0.0\text{ V}$
Gate Threshold Voltage	$V_{GS(TH)}$	2.0	6.0	V	$V_{DS} = 10.0\text{ V}$, $I_{DS} = 100.0\text{ mA}$
Forward Transconductance	G_M	500	-	S	$V_{DS} = 10.0\text{ V}$, $I_{DS} = 100.0\text{ mA}$, $\Delta V_{GS} = 1.0\text{V}$, 80 μs Pulse
Input Capacitance	C_{ISS}	-	45	pF	$V_{DS} = 28.0\text{ V}$, $F = 1.0\text{ MHz}$
Output Capacitance	C_{OSS}	-	40	pF	$V_{DS} = 28.0\text{ V}$, $F = 1.0\text{ MHz}$
Reverse Capacitance	C_{RSS}	-	8	pF	$V_{DS} = 28.0\text{ V}$, $F = 1.0\text{ MHz}$
Power Gain	G_P	13	-	dB	$V_{DD} = 28.0\text{ V}$, $I_{DQ} = 100\text{ mA}$, $P_{OUT} = 20\text{ W}$ $F = 175\text{ MHz}$
Drain Efficiency	η_D	60	-	%	$V_{DD} = 28.0\text{ V}$, $I_{DQ} = 100\text{ mA}$, $P_{OUT} = 20\text{ W}$ $F = 175\text{ MHz}$
Load Mismatch Tolerance	VSWR-T	-	30:1	-	$V_{DD} = 28.0\text{ V}$, $I_{DQ} = 100\text{ mA}$, $P_{OUT} = 20\text{ W}$ $F = 175\text{ MHz}$

Package Outline

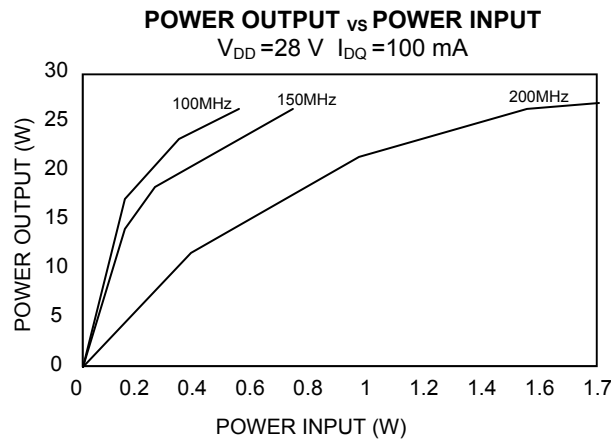
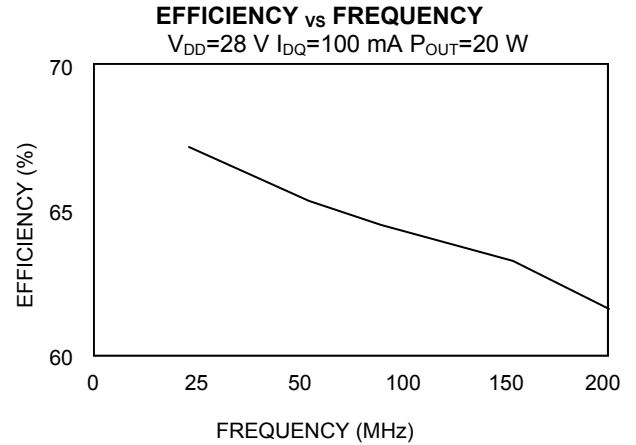
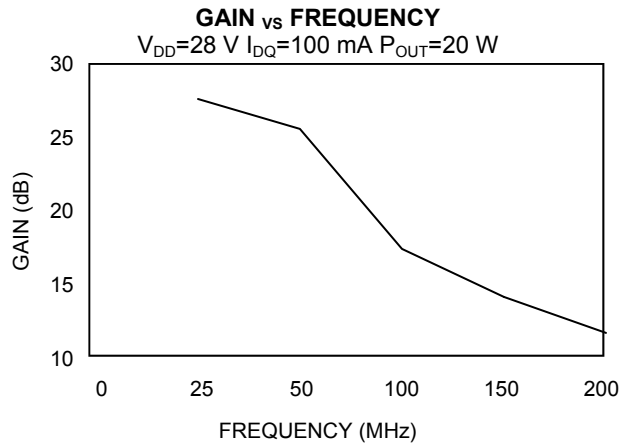


LETTER DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	24.64	24.89	.970	.980
B	18.29	18.54	.720	.730
C	20.07	20.83	.790	.820
D	9.47	9.73	.373	.383
E	6.22	6.48	.245	.255
F	5.64	5.79	.222	.228
G	2.92	3.30	.115	.130
H	2.29	2.67	.090	.105
J	4.04	4.55	.159	.179
K	6.58	7.39	.259	.291
L	.10	.15	.004	.006

RF Power MOSFET Transistor 200W, 2-175MHz, 28V

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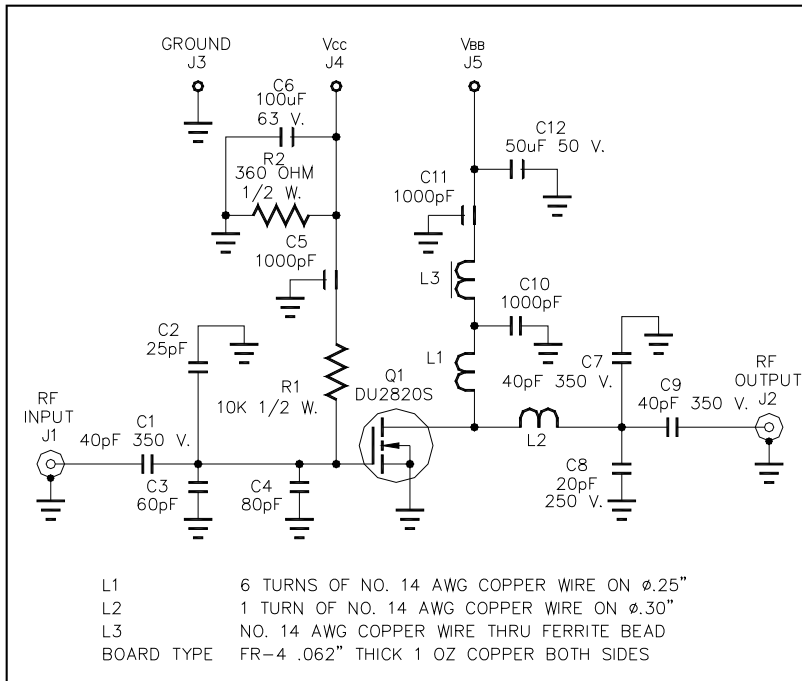
Typical Broadband Performance Curves



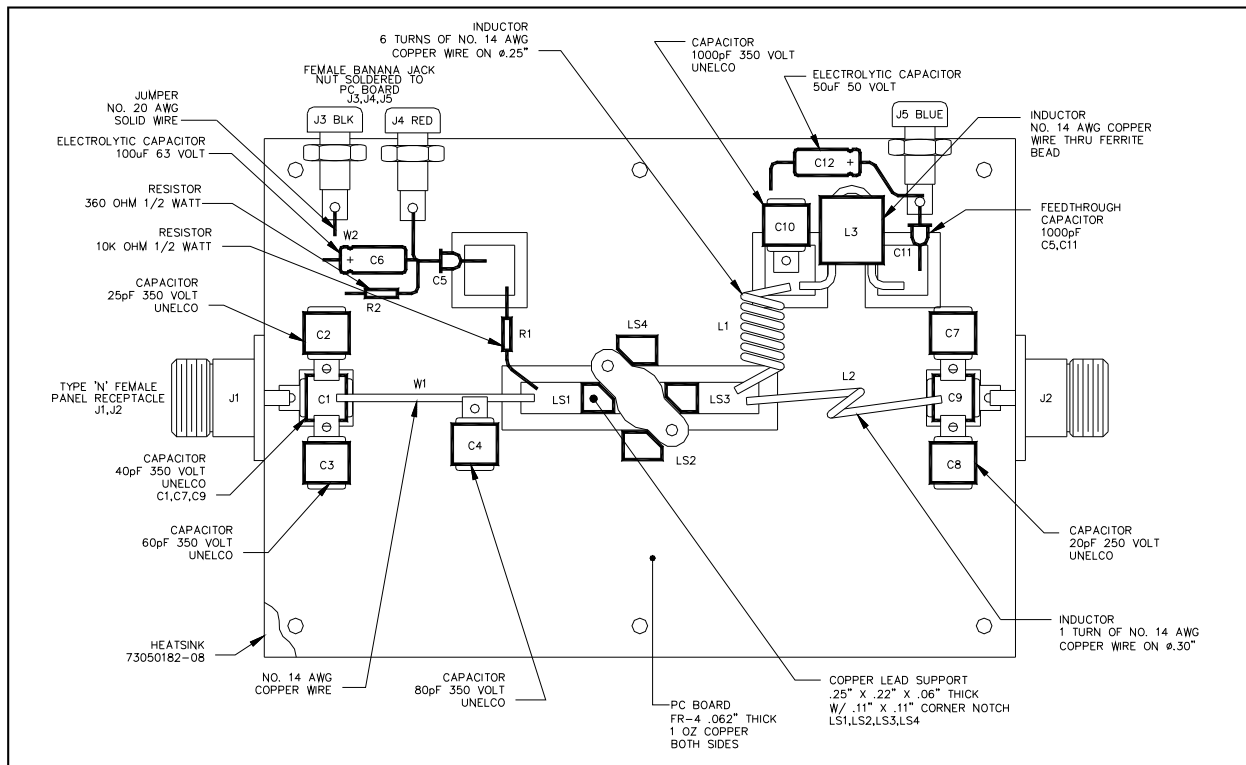
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TEST FIXTURE SCHEMATIC



TEST FIXTURE ASSEMBLY



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