

RF Power MOSFET Transistor

80W, 2-175MHz, 28V

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}	16	A
Power Dissipation	P_D	206	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-65 to +150	°C
Thermal Resistance	θ_{JC}	0.85	°C/W

TYPICAL DEVICE IMPEDANCE

F (MHz)	$Z_{IN} (\Omega)$	$Z_{LOAD} (\Omega)$
30	5.4 - j4.4	5.7 + j4.7
50	2.5 - j4.4	3.4 + j3.5
100	1.6 - j3.4	2.4 + j2.4
175	0.7 - j1.2	1.7 + j0.8

$V_{DD} = 28V$, $I_{DQ} = 400mA$, $P_{OUT} = 80 W$

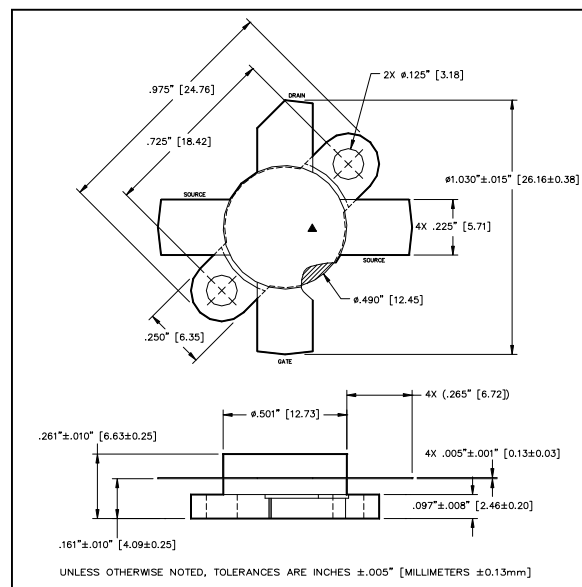
Z_{IN} is the series equivalent input impedance of the device from gate to source.

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

ELECTRICAL CHARACTERISTICS AT 25°C

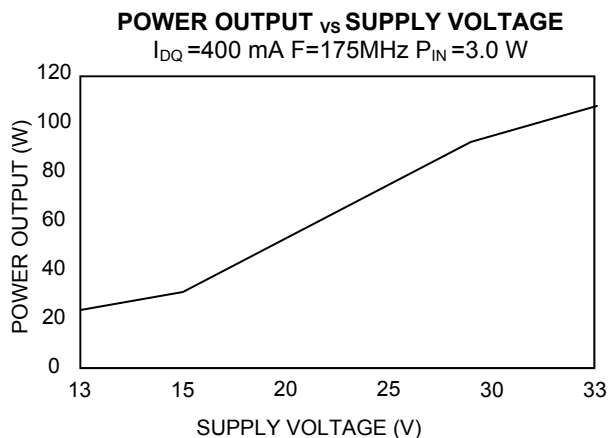
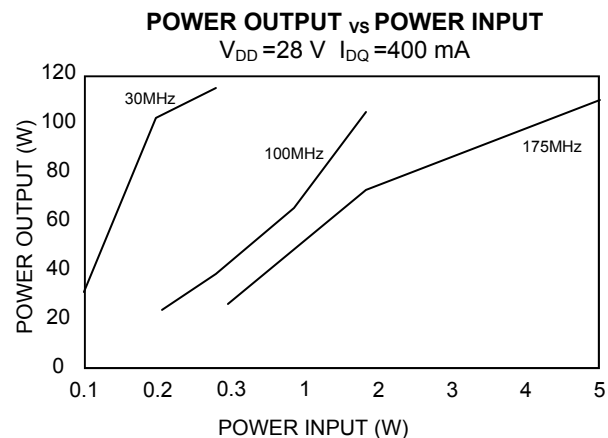
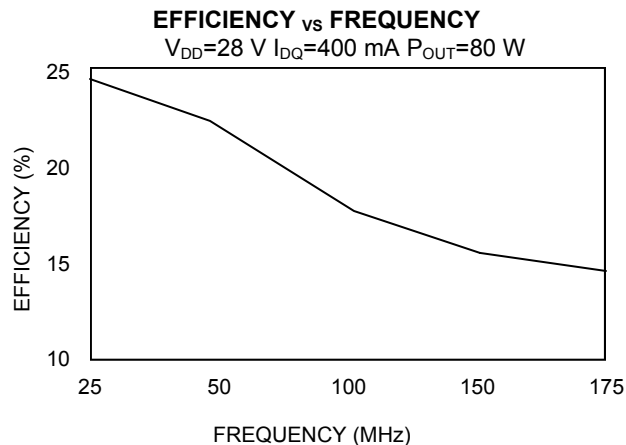
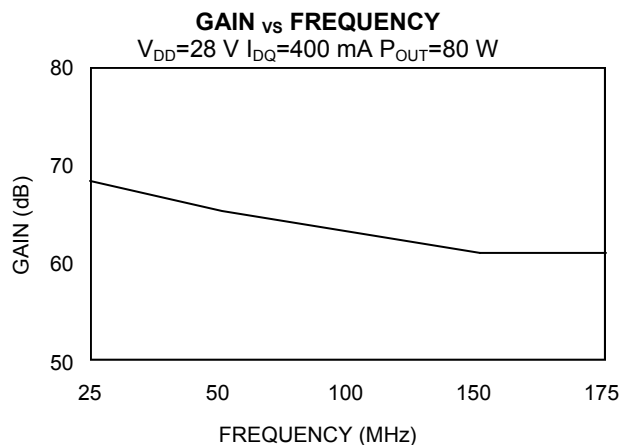
Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	65	-	V	$V_{GS} = 0.0 V$, $I_{DS} = 20.0 mA$
Drain-Source Leakage Current	I_{DSS}	-	4.0	mA	$V_{GS} = 28.0 V$, $V_{DS} = 0.0 V$
Gate-Source Leakage Current	I_{GSS}	-	4.0	μA	$V_{GS} = 20.0 V$, $V_{DS} = 0.0 V$
Gate Threshold Voltage	$V_{GS(TH)}$	2.0	6.0	V	$V_{DS} = 10.0 V$, $I_{DS} = 400.0 mA$
Forward Transconductance	G_M	2.0	-	S	$V_{DS} = 10.0 V$, $I_{DS} = 4.0 A$, $\Delta V_{GS} = 1.0V$, 80 μs Pulse
Input Capacitance	C_{ISS}	-	180	pF	$V_{DS} = 28.0 V$, $F = 1.0 MHz$
Output Capacitance	C_{OSS}	-	160	pF	$V_{DS} = 28.0 V$, $F = 1.0 MHz$
Reverse Capacitance	C_{RSS}	-	32	pF	$V_{DS} = 28.0 V$, $F = 1.0 MHz$
Power Gain	G_P	13	-	dB	$V_{DD} = 28.0 V$, $I_{DQ} = 400 mA$, $P_{OUT} = 80.0 W$ $F = 175 MHz$
Drain Efficiency	η_D	60	-	%	$V_{DD} = 28.0 V$, $I_{DQ} = 400 mA$, $P_{OUT} = 80.0 W$ $F = 175 MHz$
Load Mismatch Tolerance	VSWR-T	-	30:1	-	$V_{DD} = 28.0 V$, $I_{DQ} = 400 mA$, $P_{OUT} = 80.0 W$ $F = 175 MHz$

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	25.91	26.42	1.020	1.040
D	12.60	12.85	.496	.506
E	6.22	6.48	.245	.255
F	5.59	5.84	.220	.230
G	3.05	3.30	.120	.130
H	2.21	2.59	.087	.102
J	3.91	4.42	.154	.174
K	6.53	7.34	.257	.289
L	.10	.15	.004	.006

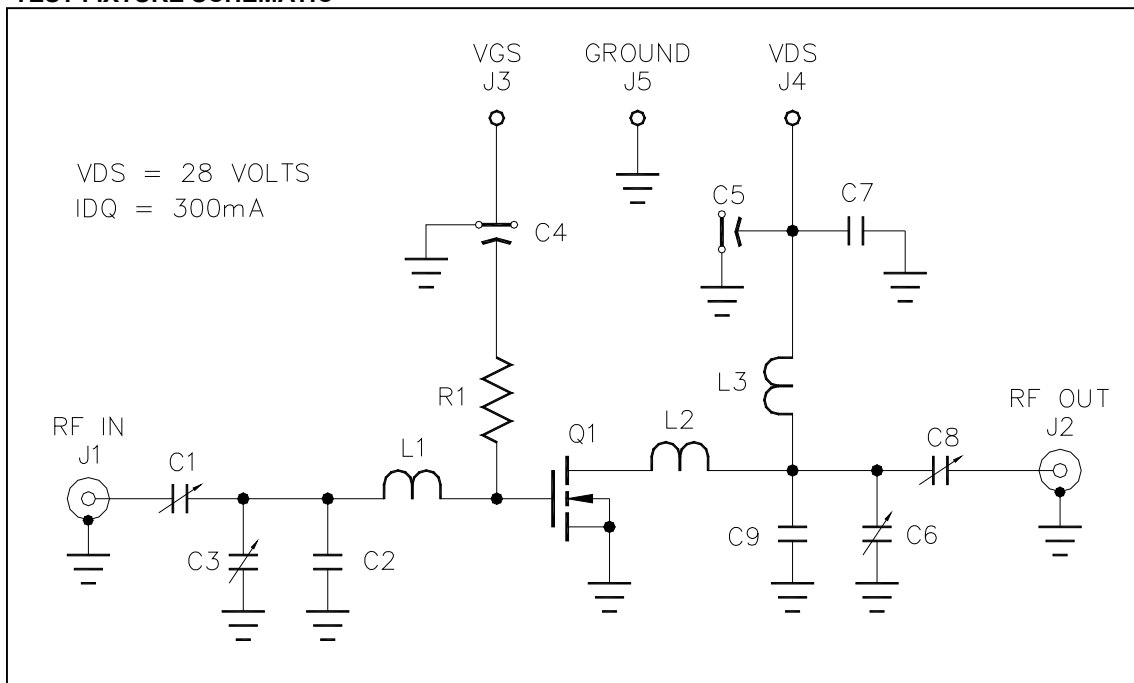
Typical Broadband Performance Curves



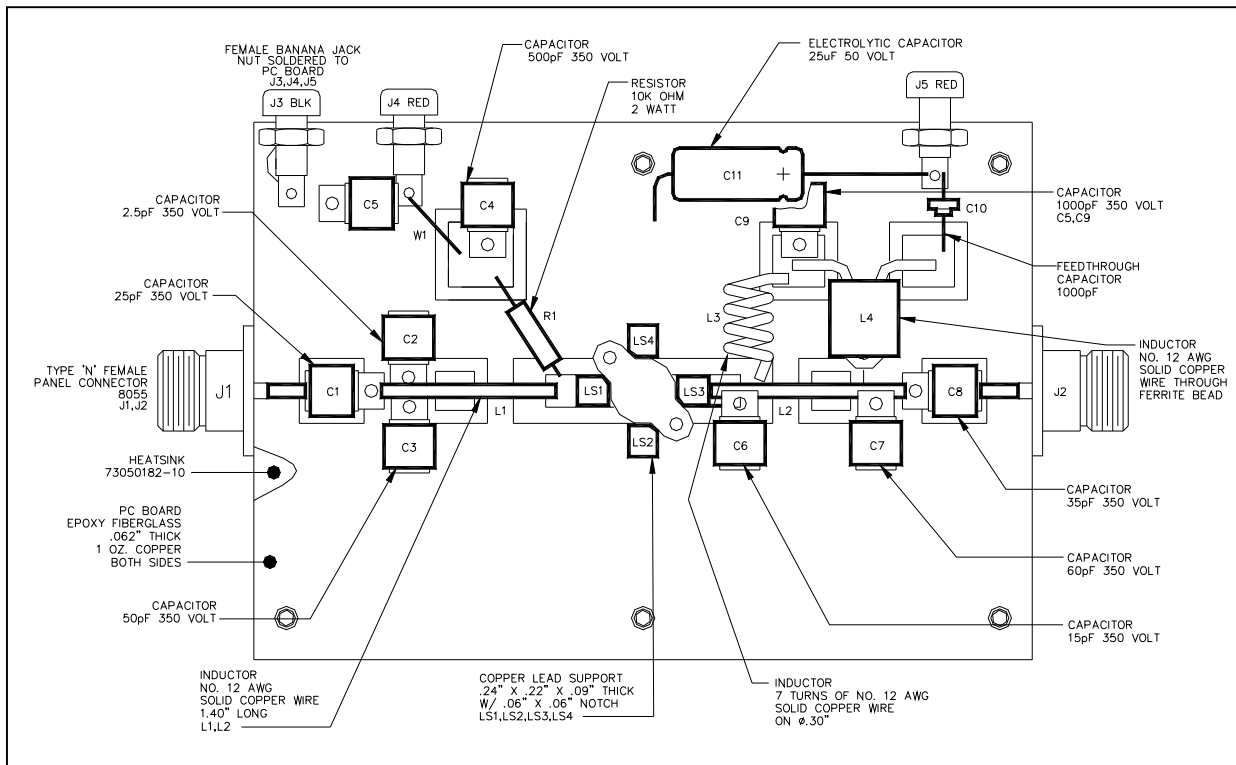
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TEST FIXTURE SCHEMATIC



TEST FIXTURE ASSEMBLY



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