DU2820S

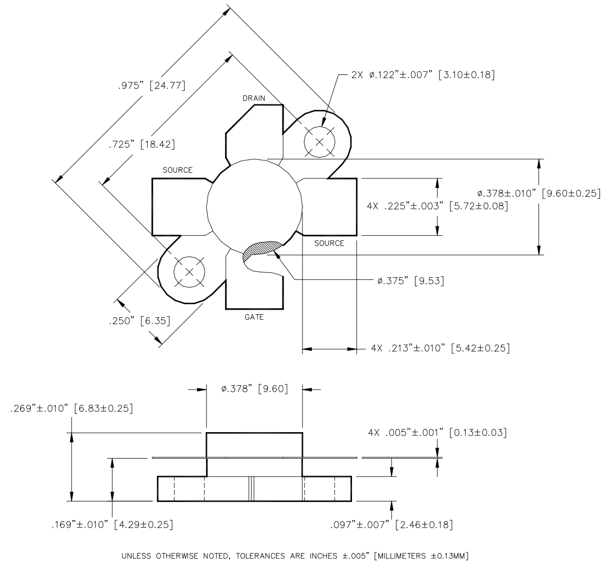
RF Power MOSFET Transistor
200W, 2-175MHz, 28V

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

Package Outline



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		

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

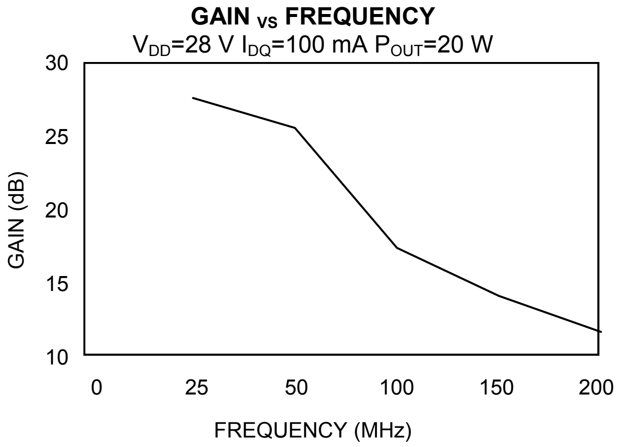
Z_{LOAD} is the optimum series equivalent load impedance as measured from drain to ground.

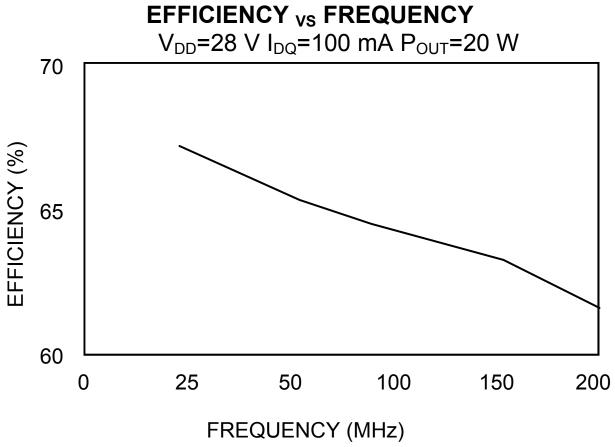
LETTER	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	24.64	24.89	.970	.980
B	18.29	18.54	.720	.730
C	20.07	20.83	.790	.820
D	9.47	9.73	.373	.383
E	6.22	6.48	.245	.255
F	5.64	5.79	.222	.228
G	2.92	3.30	.115	.130
H	2.29	2.67	.090	.105
J	4.04	4.55	.159	.179
K	6.58	7.39	.259	.291
L	.10	.15	.004	.006

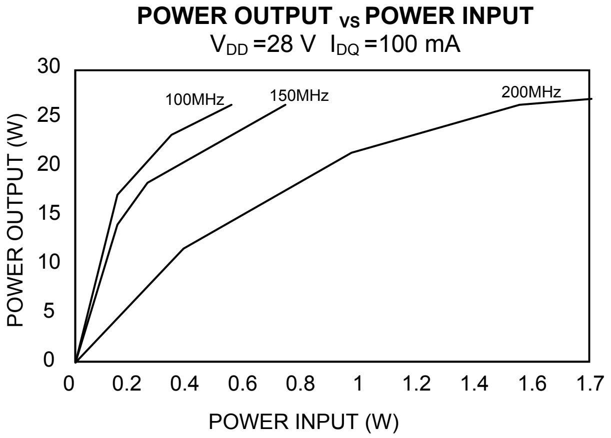
ELECTRICAL CHARACTERISTICS AT 25°C

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

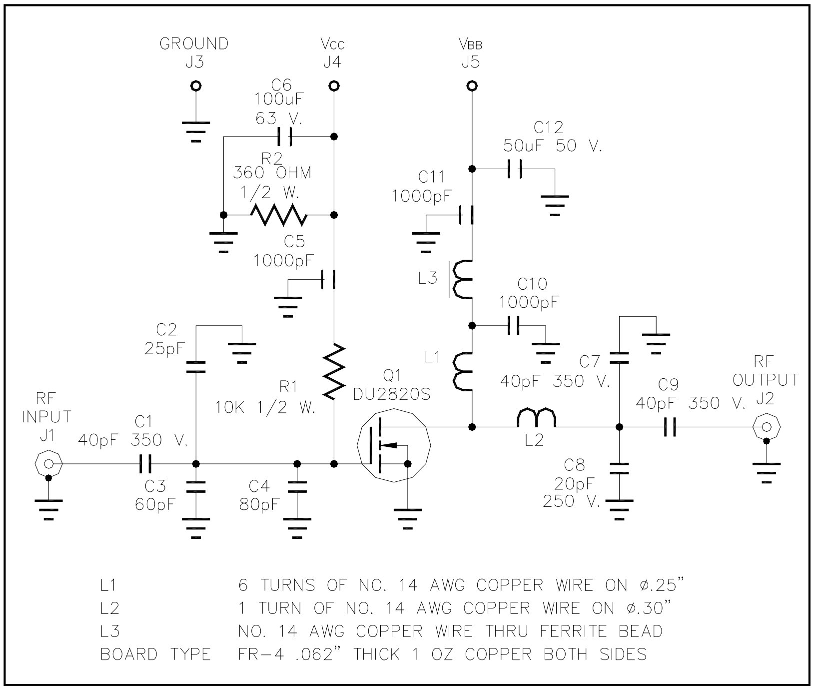
Typical Broadband Performance Curves



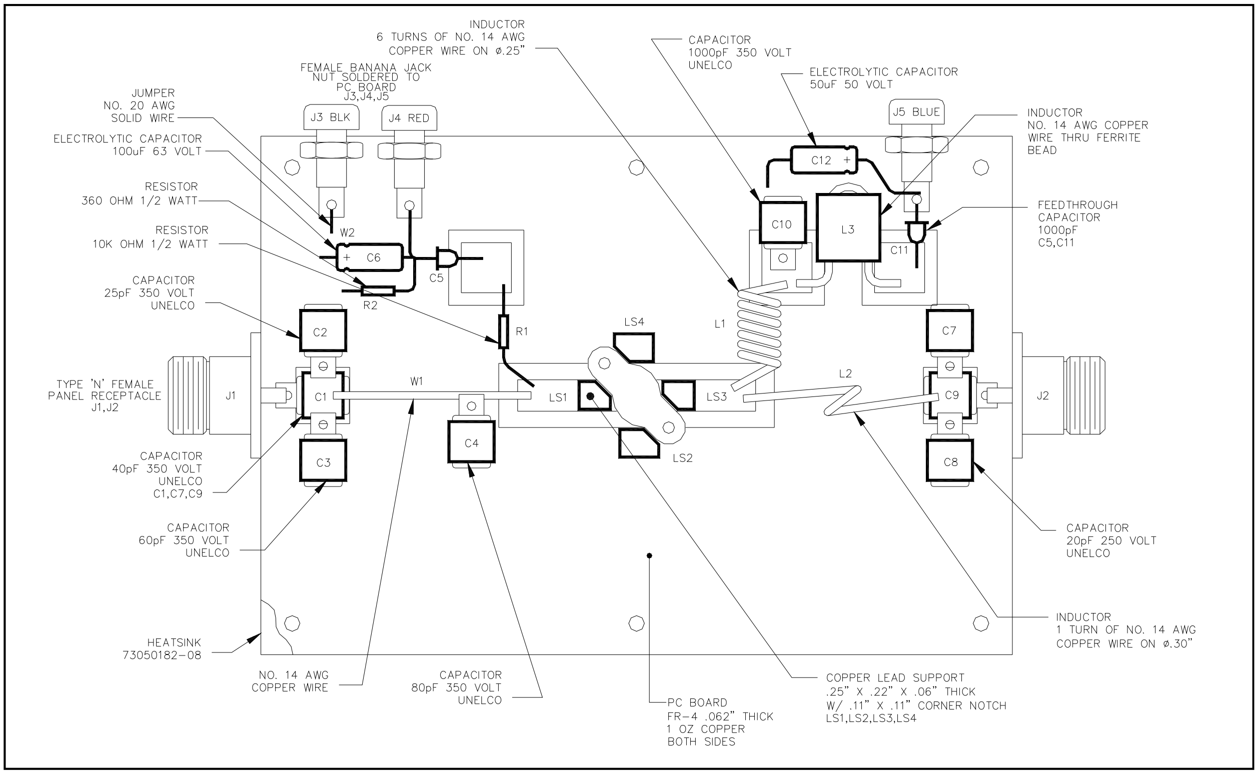




TEST FIXTURE SCHEMATIC



TEST FIXTURE ASSEMBLY



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