DU1260T

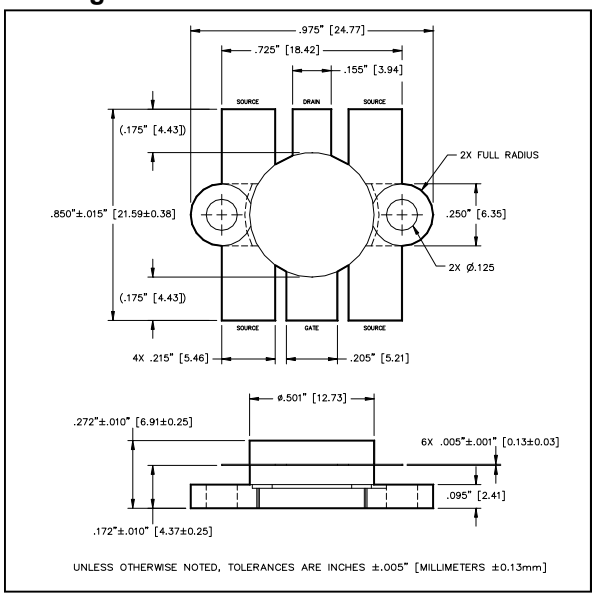
RF Power MOSFET Transistor
60W, 2-175MHz, 12V

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
- Specifically designed for 12 volt applications

Package Outline



ABSOLUTE MAXIMUM RATINGS AT 25° C

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	20	V
Drain-Source Current	I_{DS}	24	A
Power Dissipation	P_D	250	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to +150	°C
Thermal Resistance	θ_{JC}	0.7	°C/W

TYPICAL DEVICE IMPEDANCE

F (MHz)	Z_{IN} (Ω)	Z_{LOAD} (Ω)
30	4.5 - j8.0	4.6 - j3.0
100	1.4 - j4.0	1.4 - j8.0
175	1.0 - j0.5	1.0 - j0.5
V_{DD} = 12V, I_{DQ} = 600mA, P_{OUT} = 60W		

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	24.38	25.15	.960	.990
B	18.29	18.54	.720	.730
C	21.36	21.74	.841	.856
D	12.60	12.85	.496	.506
E	5.33	5.59	.210	.220
F	5.08	5.33	.200	.210
G	3.81	4.06	.150	.160
H	3.10	3.15	.122	.128
J	2.51	2.67	.099	.105
K	4.06	4.57	.160	.180
L	6.68	7.49	.263	.295
M	.10	.15	.004	.006

ELECTRICAL CHARACTERISTICS AT 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	40	-	V	V_{GS} = 0.0 V , I_{DS} = 30.0 mA
Drain-Source Leakage Current	I_{DSS}	-	6.0	mA	V_{GS} = 15.0 V , V_{GS} = 0.0 V
Gate-Source Leakage Current	I_{GSS}	-	6.0	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} = 600 mA
Forward Transconductance	G_M	3.0	-	S	V_{DS} = 10.0 V , I_{DS} = 6000 mA , Δ V_{GS} = 1.0 V
Input Capacitance	C_{ISS}	-	200	pF	V_{DS} = 12.0 V , F = 1.0 MHz
Output Capacitance	C_{OSS}	-	240	pF	V_{DS} = 12.0 V , F = 1.0 MHz
Reverse Capacitance	C_{RSS}	-	48	pF	V_{DS} = 12.0 V , F = 1.0 MHz
Power Gain	G_P	8.0	-	dB	V_{DD} = 12.0 V, I_{DQ} = 600 mA, P_{OUT} = 60 W F =175 MHz
Drain Efficiency	η_D	60	-	%	V_{DD} = 12.0 V, I_{DQ} = 600 mA, P_{OUT} = 60 W F =175 MHz
Load Mismatch	VSWR-T	-	30:1	-	V_{DD} = 12.0 V, I_{DQ} = 600 mA, P_{OUT} = 60 W F =175 MHz

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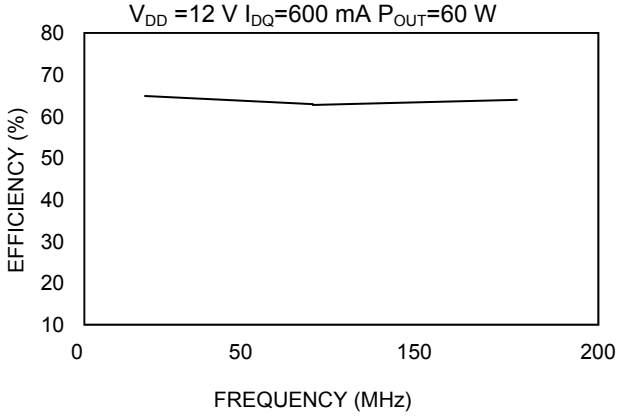
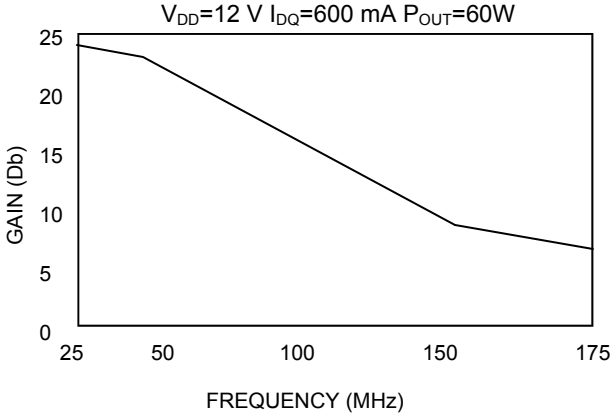
Typical Broadband Performance Curves

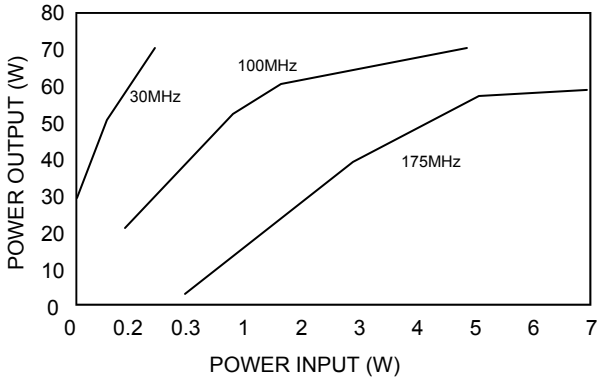
DRAIN EFFICIENCY vs FREQUENCY
V_{DD} =12 V I_{DQ}=600 mA P_{OUT}=60 W



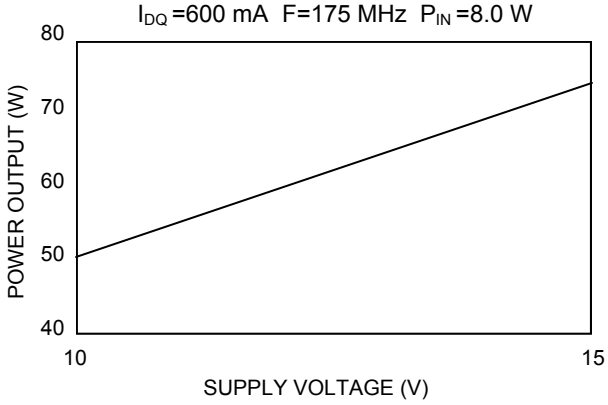
GAIN vs FREQUENCY
V_{DD}=12 V I_{DQ}=600 mA P_{OUT}=60W



POWER OUTPUT vs POWER INPUT
V_{DD} =12 V I_{DD} =600 mA



POWER OUTPUT vs SUPPLY VOLTAGE
I_{DQ} =600 mA F=175 MHz P_{IN} =8.0 W



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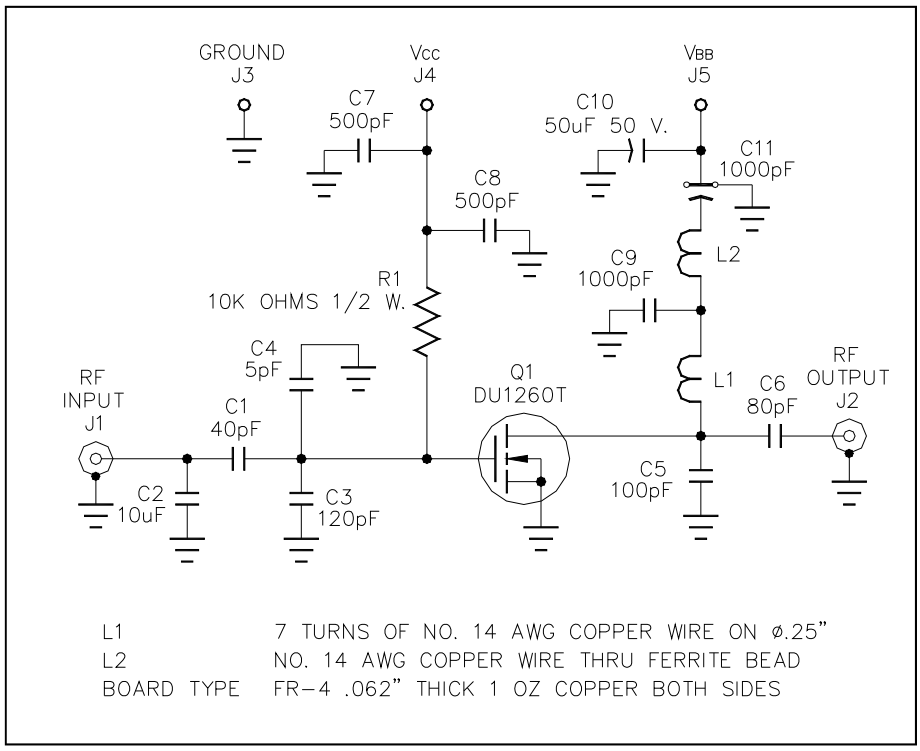
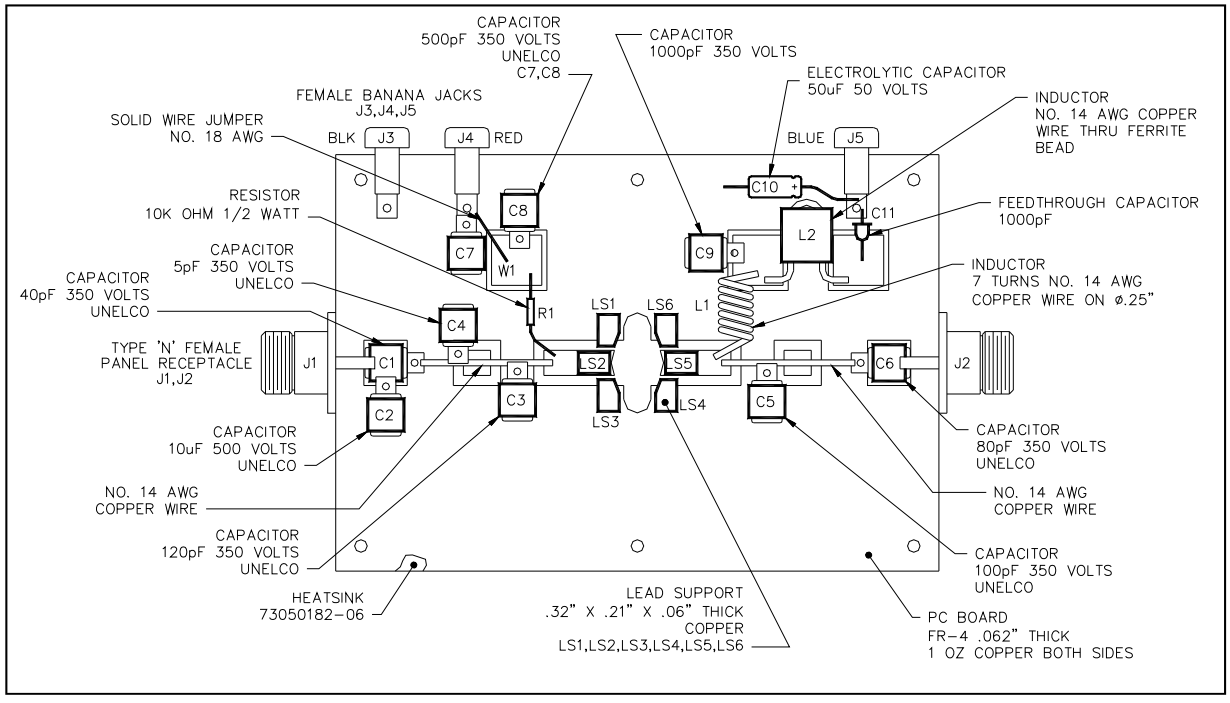
TEST FIXTURE SCHEMATIC



TEST FIXTURE ASSEMBLY



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