DU2860T

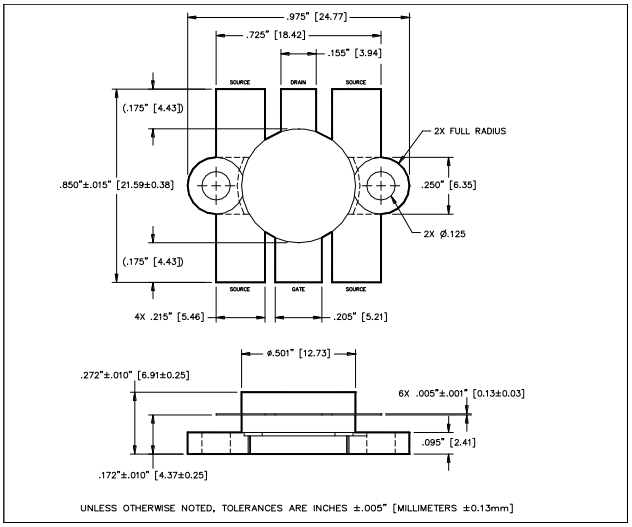
RF Power MOSFET Transistor
60 W, 2 - 175 MHz, 28 V

Rev. V1

Features

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

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	21.21	21.97	.835	.865
D	12.60	12.85	.496	.506
E	6.22	6.48	.245	.255
F	3.81	4.06	.150	.160
G	5.33	5.59	.210	.220
H	5.08	5.33	.200	.210
J	3.05	3.30	.120	.130
K	2.29	2.54	.090	.100
L	4.06	4.57	.160	.180
M	6.68	7.49	.263	.295
N	.10	.15	.004	.006

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}	12	A
Power Dissipation	P_D	159	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-65 to +150	°C
Thermal Resistance	θ_{JC}	1.1	°C/W

TYPICAL DEVICE IMPEDANCE

F (MHz)	Z_{IN} (Ω)	Z_{LOAD} (Ω)
30	9.0 - j4.0	6.0 +j0.0
50	10.0 - j6.5	5.0 + j2.0
100	6.0 - j5.5	4.0 + j3.0
200	1.1 - j3.0	2.0 + j1.9
V_{DD} = 28V, I_{DQ} = 300mA, P_{OUT} = 60 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} = 15.0 mA
Drain-Source Leakage Current	I_{DSS}	-	3.0	mA	V_{GS} = 28.0 V , V_{GS} = 0.0 V
Gate-Source Leakage Current	I_{GSS}	-	3.0	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} = 300.0 mA
Forward Transconductance	G_M	1.5	-	S	V_{DS} = 10.0 V , I_{DS} = 3.0 A , Δ V_{GS} = 1.0V, 80 µs Pulse
Input Capacitance	C_{ISS}	-	135	pF	V_{DS} = 28.0 V , F = 1.0 MHz
Output Capacitance	C_{OSS}	-	120	pF	V_{DS} = 28.0 V , F = 1.0 MHz
Reverse Capacitance	C_{RSS}	-	24	pF	V_{DS} = 28.0 V , F = 1.0 MHz
Power Gain	G_P	13	-	dB	V_{DD} = 28.0 V, I_{DQ} = 300 mA, P_{OUT} = 60 W F =175 MHz
Drain Efficiency	η_D	60	-	%	V_{DD} = 28.0 V, I_{DQ} = 300 mA, P_{OUT} = 60 W F =175 MHz
Load Mismatch Tolerance	VSWR-T	-	30:1	-	V_{DD} = 28.0 V, I_{DQ} = 300 mA, P_{OUT} = 60 W F =175 MHz

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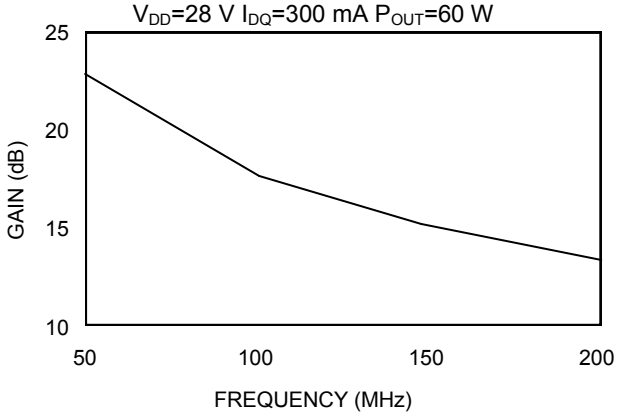
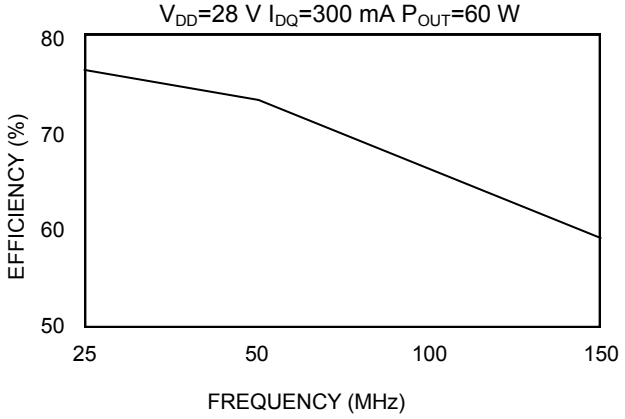
Typical Broadband Performance Curves

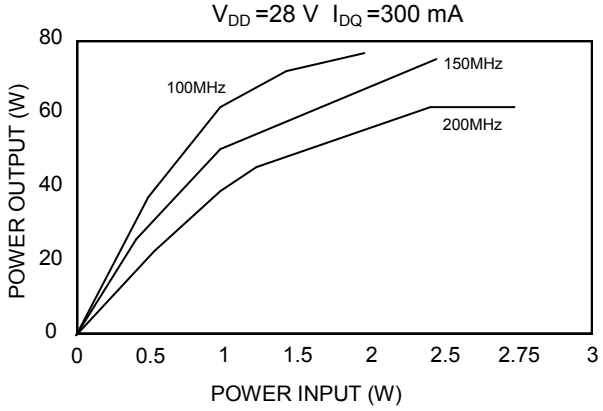
GAIN vs FREQUENCY
V_{DD}=28 V I_{DQ}=300 mA P_{OUT}=60 W



EFFICIENCY vs FREQUENCY
V_{DD}=28 V I_{DQ}=300 mA P_{OUT}=60 W



POWER OUTPUT vs POWER INPUT
V_{DD} =28 V I_{DQ} =300 mA



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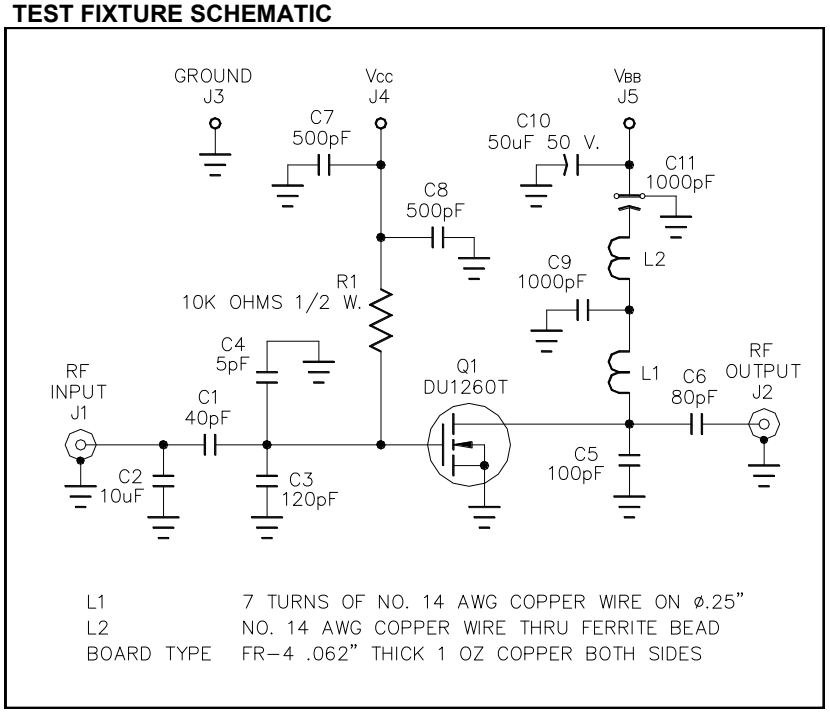
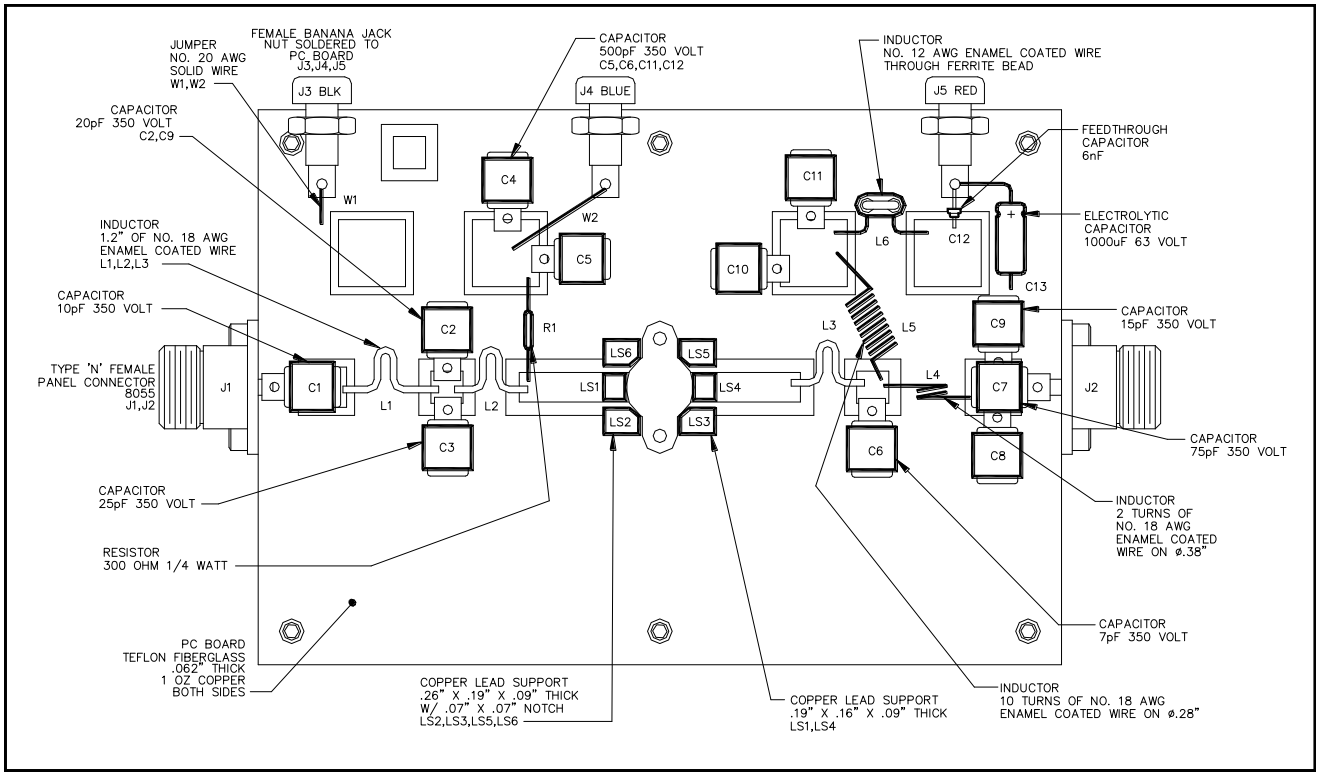
TEST FIXTURE SCHEMATIC



TEST FIXTURE ASSEMBLY



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