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

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	Α
Power Dissipation	P _D	62.5	W
Junction Temperature	TJ	200	°C
Storage Temperature	T _{STG}	-55 to +150	°C
Thermal Resistance	θ_{JC}	2.8	°C/W

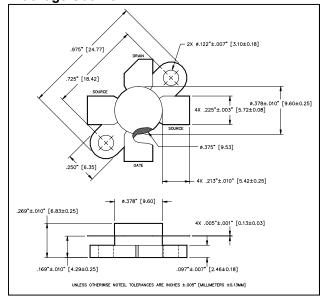
TYPICAL DEVICE IMPEDANCE

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.

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

Package Outline



LETTER	MILLIN	IETERS	INC	HES
DIM	MIN	MAX	MIN	MAX
Α	24.64	24.89	.970	.980
В	18.29	18.54	.720	.730
С	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	2.92 3.30		.130
Н	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

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 V , V _{GS} = 0.0 V
Gate-Source Leakage Current	I _{GSS}	-	1.0	μΑ	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 μ s Pulse
Input Capacitance	C _{ISS}	-	45	pF	V _{DS} = 28.0 V , F = 1.0 MHz
Output Capacitance	Coss	-	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	ŋ _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

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

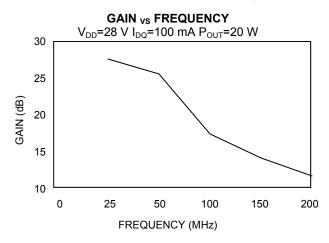
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- Europe Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- Asia/Pacific Tel: 81.44.844.8296 / Fax: 81.44.844.8298
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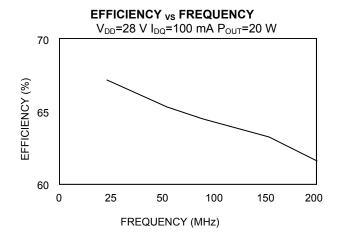


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Typical Broadband Performance Curves





POWER OUTPUT vs POWER INPUT $V_{DD} = 28 \text{ V } I_{DQ} = 100 \text{ mA}$ 30 200MHz 150MHz 100MHz 25 POWER OUTPUT (W) 20 15 10 5 0.2 0.6 0.8 1.2 1.4 0 0.4 1.6 1.7 POWER INPUT (W)

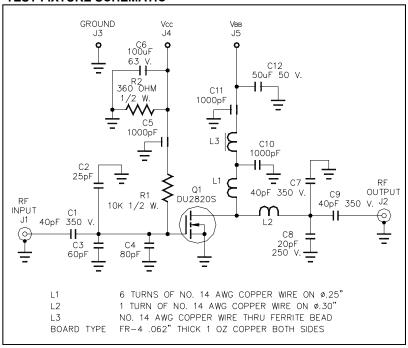
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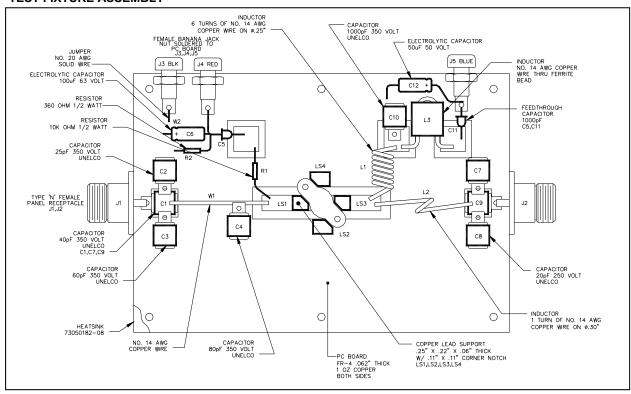
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TEST FIXTURE SCHEMATIC



TEST FIXTURE ASSEMBLY



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