DU28120T



RF Power MOSFET Transistor 120W, 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	269	W
Junction Temperature	T_J	200	°C
Storage Temperature	T _{STG}	-55 to +150	°C
Thermal Resistance	θ_{JC}	0.65	°C/W

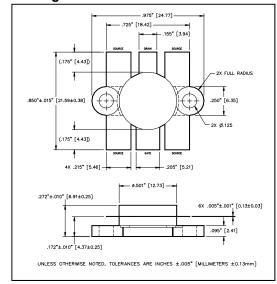
TYPICAL DEVICE IMPEDANCE

F (MHz)	Z _{IN} (Ω)	Z _{LOAD} (Ω)		
30	4.0 - j8.0	3.4 + j2.4		
50	1.0 - j2.5	2.2 +j1.3		
100	1.0 - j0.5 2.2 + j0.0			
V_{DD} = 28V, I_{DQ} = 600mA, P_{OUT} = 120 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.

Package Outline



LETTER	MILLIM	ETERS	INCHES	
DIM	MIN	MAX	MIN	MAX
Α	24.64	24.89	.970	.980
В	18.29	18.54	.720	.730
С	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
Н	5.08	5.33	.200	.210
J	3.05	3.30	.120	.130
К	2.29	2.54	.90	.100
L	4.06	4.57	.160	.180
М	6.68	7.49	.263	.295
N	.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} = 3.0 mA
Drain-Source Leakage Current	I _{DSS}	-	6.0	mA	V _{GS} = 28.0 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} = 600.0 mA
Forward Transconductance	G _M	3.0	-	S	V_{DS} = 10.0 V , I_{DS} = 6000.0 mA , Δ V_{GS} = 1.0V, 80 μ s Pulse
Input Capacitance	C _{ISS}	-	270	pF	V _{DS} = 28.0 V , F = 1.0 MHz
Output Capacitance	Coss	-	240	pF	V _{DS} = 28.0 V , F = 1.0 MHz
Reverse Capacitance	C _{RSS}	-	48	pF	V _{DS} = 28.0 V , F = 1.0 MHz
Power Gain	G _P	13	-	dB	V _{DD} = 28.0 V, I _{DQ} = 600 mA, P _{OUT} = 120.0 W F =175 MHz
Drain Efficiency	ŋ₀	60	-	%	V _{DD} = 28.0 V, I _{DQ} = 600 mA, P _{OUT} = 120.0 W F =175 MHz
Load Mismatch Tolerance	VSWR-T	-	30:1	-	V _{DD} = 28.0 V, I _{DQ} = 600 mA, P _{OUT} = 120.0 W F =175 MHz

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology

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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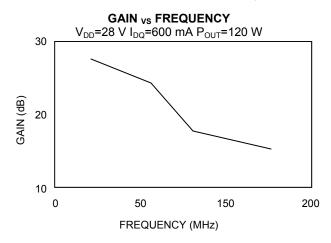
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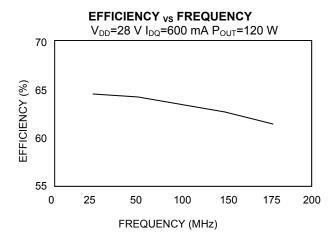


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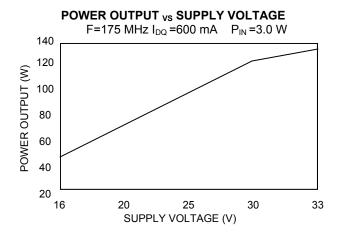
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Typical Broadband Performance Curves





POWER OUTPUT vs POWER INPUT $V_{DD} = 28 \text{ V } I_{DQ} = 50 \text{ mA}$ 200 100MHz POWER OUTPUT (W) 30MHz 175MHz 150 100 50 0 0.2 0.3 7 8 POWER INPUT (W)



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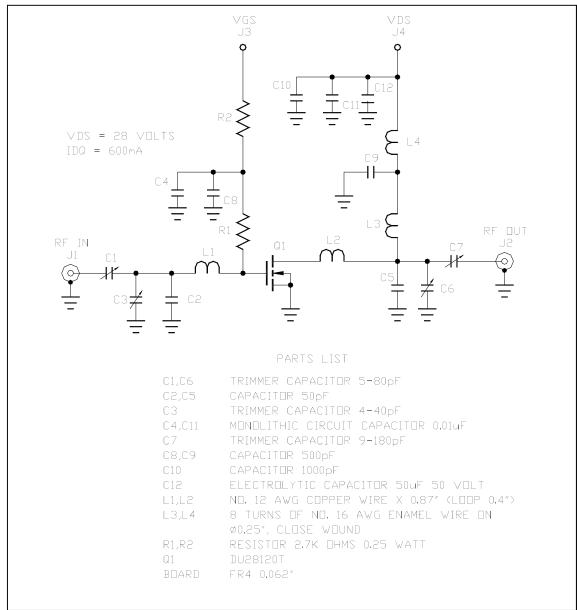
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TEST FIXTURE SCHEMATIC



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