

RF Power MOSFET Transistor 120 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

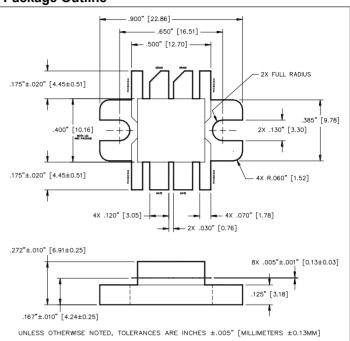
ABSOLUTE MAXIMUM RATINGS AT 25° C

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	65	V
Gate-Source Voltage	V _{GS}	20	V
Drain-Source Current	I _{DS}	12	Α
Power Dissipation	P_D	250	W
Junction Temperature	TJ	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	3.0 - j12.5	8.0 + j6.0		
50	1.5 - j8.5	7.0 +j6.5		
100	1.0 - j6.0	6.5 + j5.0		
V_{DD} = 28V, I_{DQ} = 600mA, P_{OUT} = 120 W				

Package Outline



 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	$V_{GS} = 0.0 \text{ V}$, $I_{DS} = 3.0 \text{ mA}$
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	ŋ _D	60	-	%	V _{DD} = 28.0 V, I _{DQ} = 600 mA, P _{OUT} = 120.0 W F =175 MHz
Return Loss	R_L	10	-	%	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

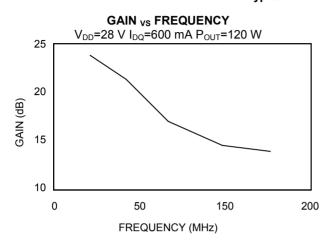
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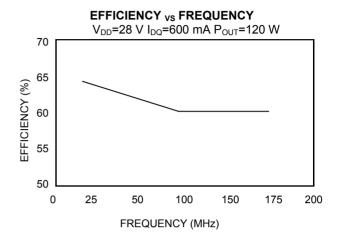


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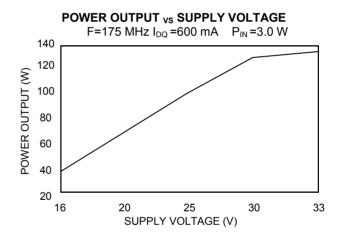
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Typical Broadband Performance Curves





POWER OUTPUT vs POWER INPUT VDD = 28 V IDQ = 600 mA 140 140 140 175MHz 175MHz 100MHz 40 20 0.1 0.2 0.3 1 2 3 4 5 6 7 8 9 POWER INPUT (W)

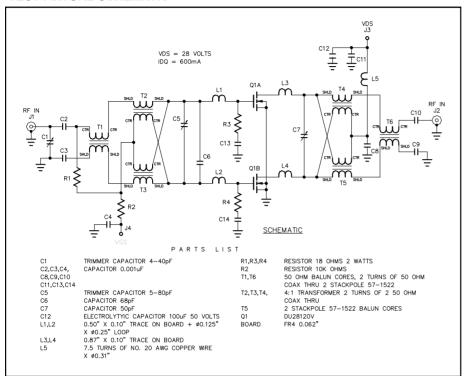




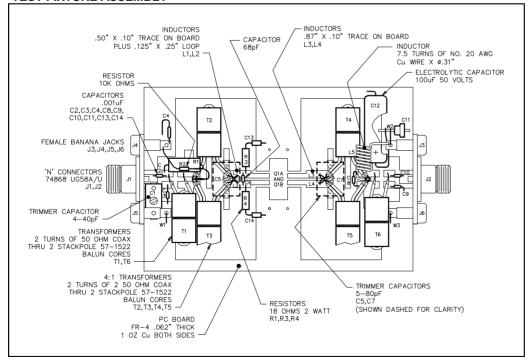
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TEST FIXTURE SCHEMATIC



TEST FIXTURE ASSEMBLY



DU28120V



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