

RF Power MOSFET Transistor 80 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 competitive 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}	8*	Α
Power Dissipation	P_D	206	W
Junction Temperature	TJ	200	°C
Storage Temperature	T _{STG}	-55 to +150	°C
Thermal Resistance	θ_{JC}	0.85	°C/W

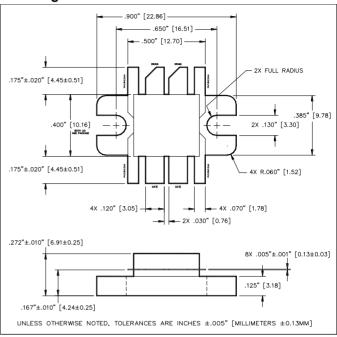
TYPICAL DEVICE IMPEDANCE

F (MHz)	Z _{IN} (Ω)	Z _{LOAD} (Ω)			
30	4.5 - j14.5	13.5 +j4.5			
100	3.0 - j10.5	13.5 + j6.0			
175	2.0 - j7.5	12.0 + j4.5			
V _{DD} = 28V, I _{DQ} = 400mA, P _{OUT} = 80 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



ELECTRICAL CHARACTERISTICS AT 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	BV _{DSS}	65	-	٧	$V_{GS} = 0.0 \text{ V}$, $I_{DS} = 10.0 \text{ mA}$
Drain-Source Leakage Current	I _{DSS}	-	2.0	mA	V _{GS} = 28.0 V , V _{GS} = 0.0 V
Gate-Source Leakage Current	I _{GSS}	-	2.0	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} = 200.0 mA
Forward Transconductance	G_{M}	1.0	-	S	V_{DS} = 10.0 V , I_{DS} = 2000.00 mA , Δ V_{GS} = 1.0V, 80 μ s Pulse
Input Capacitance	C _{ISS}	-	90	pF	V _{DS} = 28.0 V , F = 1.0 MHz
Output Capacitance	Coss	-	80	pF	V _{DS} = 28.0 V , F = 1.0 MHz
Reverse Capacitance	C _{RSS}	-	16	pF	V _{DS} = 28.0 V , F = 1.0 MHz
Power Gain	G _P	13	-	dB	V _{DD} = 28.0 V, I _{DQ} = 400 mA, P _{OUT} = 80.0 W F =175 MHz
Drain Efficiency	ŊD	60	-	%	V _{DD} = 28.0 V, I _{DQ} = 400 mA, P _{OUT} = 80.0 W F =175 MHz
Load Mismatch Tolerance	VSWR-T	-	30:1	-	V _{DD} = 28.0 V, I _{DQ} = 400 mA, P _{OUT} = 80.0 W F =175 MHz

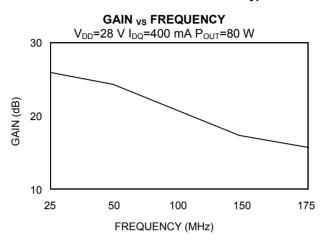
^{*}Per side

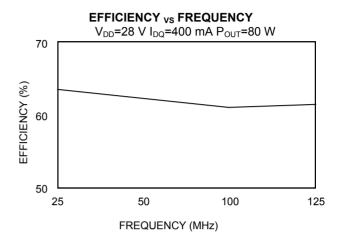


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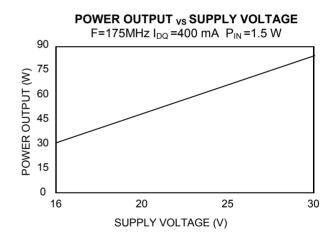
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Typical Broadband Performance Curves





POWER OUTPUT vs POWER INPUT $V_{DD} = 28 \text{ V } I_{DQ} = 400 \text{ mA}$ 120 POWER OUTPUT (W) 100MHz 30MHz 175MHz 0 0.2 0.4 0.6 1 1.5 2 2.5 3 3.5 POWER INPUT (W)





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TEST FIXTURE ASSEMBLY a Ī Ī VDS = 28 VOLTS IDQ = 400mATRIMMER CAPACITOR 1.5-20pF C2,C3,C4, TRIMMER CAPACITOR 5-80pF 0.50" X 0.10" TRACE ON BOARD + 00.125" X 00.25" LOOP 0.87" X 0.10" TRACE ON BOARD 7.5 TURNS OF NO. 20 AWG COPPER WIRE X Ø0.31" RESISTOR 18 DHMS 2 WATTS 50 DHM BALUN CORES, 2 TURNS OF 50 DHM COAX THRU 2 STACKPOLE 57-1522 41 TRANSFORMER 1 TURN OF 2 50 OHM COAX IN T2,T3,T4

FR4 0.062"

PARALLEL THRU 2 STACKPOLE 57-1522 BALUN CORES

DU2880V



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