# RF Power MOSFET Transistor 20W, 100-500 MHz, 28V

## Features

- N-channel enhancement mode device
- DMOS structure
- Lower capacitances for broadband operation
- High saturated output power
- Lower noise figure than competitive devices

# ABSOLUTE MAXIMUM RATINGS AT 25° C

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{\text{DS}}$	V <sub>DS</sub> 65	
Gate-Source Voltage	$V_{GS}$	20	V
Drain-Source Current	I <sub>DS</sub>	4	А
Power Dissipation	PD	61	W
Junction Temperature	TJ	200	°C
Storage Temperature	T <sub>STG</sub>	-55 to 150	°C
Thermal Resistance	$\theta_{\rm JC}$	2.86	°C/W

# **TYPICAL DEVICE IMPEDANCES**

F (MHz)	Z <sub>IN</sub> (Ω)	Z <sub>LOAD</sub> (Ω)		
100	8.0-j16.0	12.0+j6.0		
300	5.5-j8.0	9.3+j6.0		
500	4.0-j3.8	4.5+j4.5		
V <sub>DD</sub> =28V, I <sub>DQ</sub> =100 mA, P <sub>OUT</sub> =20.0 W				

 $Z_{\ensuremath{\text{IN}}}$  is the series equivalent input impedance of the device from gate to source.

 $Z_{\text{LOAD}}$  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 <sub>DSS</sub>	65	-	V	$V_{GS}$ = 0.0 V , I <sub>DS</sub> = 5.0 mA
Drain-Source Leakage Current	I <sub>DSS</sub>	-	1.0	mA	$V_{GS}$ = 28.0 V , $V_{GS}$ = 0.0 V
Gate-Source Leakage Current	I <sub>GSS</sub>	-	1.0	μA	$V_{GS}$ = 20.0 V , $V_{DS}$ = 0.0 V
Gate Threshold Voltage	V <sub>GS(TH)</sub>	2.0	6.0	V	V <sub>DS</sub> = 10.0 V , I <sub>DS</sub> = 100.0 mA
Forward Transconductance	G <sub>M</sub>	.500	-	S	$V_{\text{DS}}$ = 10.0 V , $I_{\text{DS}}$ 1000.0 mA , $~\Delta~V_{\text{GS}}$ = 1.0V, 80 $\mu s$ Pulse
Input Capacitance	CISS	-	45	pF	V <sub>DS</sub> = 28.0 V , F = 1.0 MHz
Output Capacitance	Coss	-	30	pF	V <sub>DS</sub> = 28.0 V , F = 1.0 MHz
Reverse Capacitance	C <sub>RSS</sub>	-	8	pF	V <sub>DS</sub> = 28.0 V , F = 1.0 MHz
Power Gain	G <sub>P</sub>	10	-	dB	$V_{DD}$ = 28.0 V, $I_{DQ}$ = 100.0 mA, $P_{OUT}$ = 20.0 W F =500 MHz
Drain Efficiency	ŋ₀	50	-	%	$V_{DD}$ = 28.0 V, $I_{DQ}$ = 100.0 mA, $P_{OUT}$ = 20.0 W F =500 MHz
Load Mismatch Tolerance	VSWR-T	-	20:1	-	$V_{DD}$ = 28.0 V, $I_{DQ}$ = 100.0 mA, $P_{OUT}$ = 20.0 W F =500 MHz

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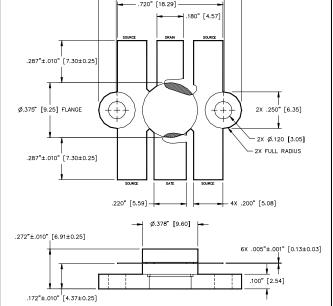
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 Package Outline

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UNLESS OTHERWISE NOTED, TOLERANCES ARE INCHES  $\pm .005"$  [MILLIMETERS  $\pm 0.13$ mm]

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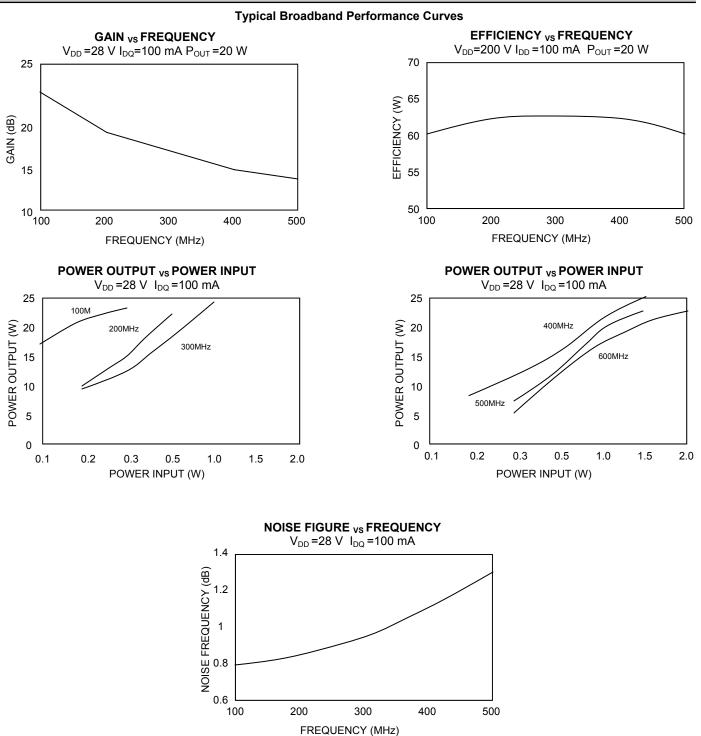
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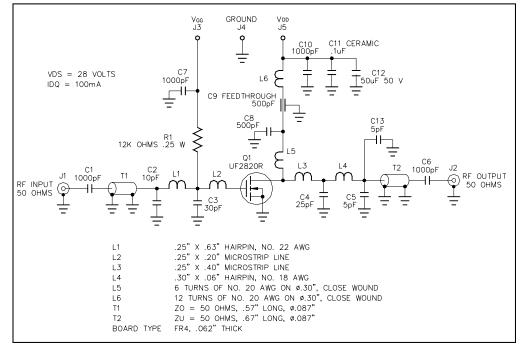
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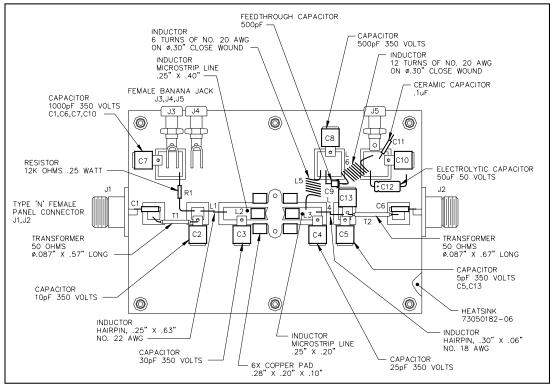


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## TEST FIXTURE SCHEMATIC



#### **TEST FIXTURE ASSEMBLY**



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