

## 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

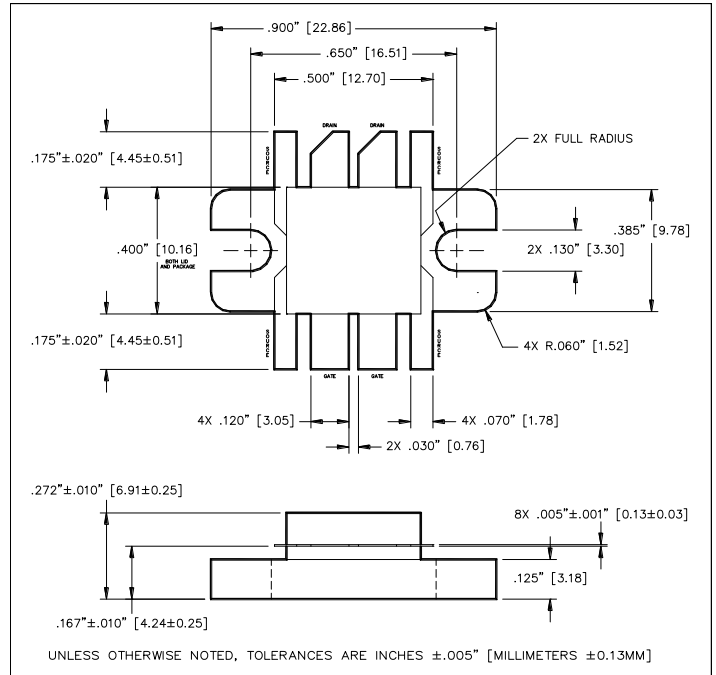
Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	65	V
Gate-Source Voltage	$V_{GS}$	20	V
Drain-Source Current	$I_{DS}$	12	A
Power Dissipation	$P_D$	250	W
Junction Temperature	$T_J$	200	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C
Thermal Resistance	$\theta_{JC}$	0.7	°C/W

### TYPICAL DEVICE IMPEDANCE

F (MHz)	$Z_{IN}$ ( $\Omega$ )	$Z_{LOAD}$ ( $\Omega$ )
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



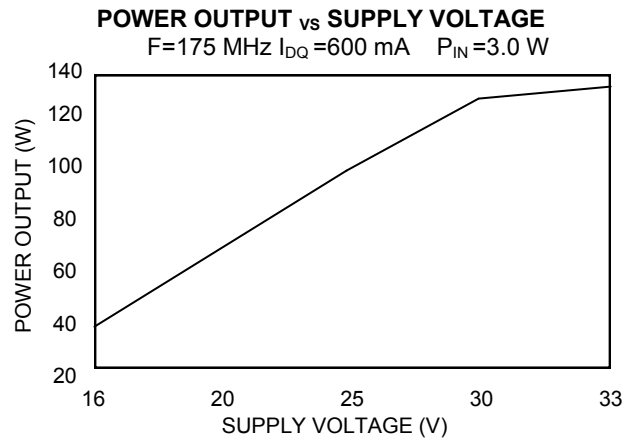
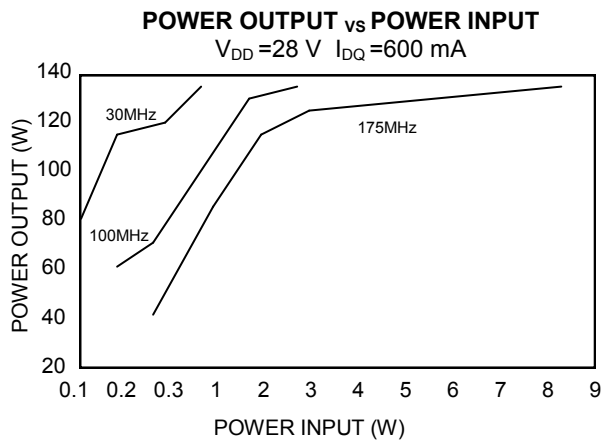
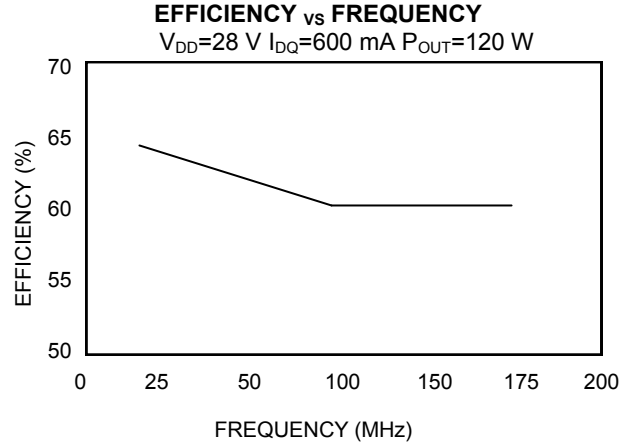
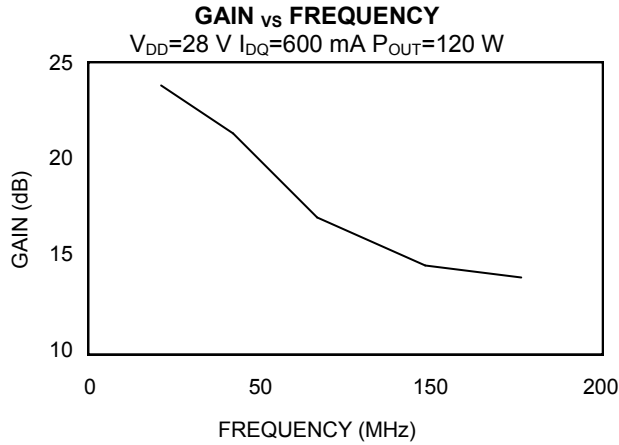
$Z_{IN}$  is the series equivalent input impedance of the device from gate to source.

$Z_{LOAD}$  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	$V_{GS} = 0.0 V, I_{DS} = 3.0 mA$
Drain-Source Leakage Current	$I_{DSS}$	-	6.0	mA	$V_{GS} = 28.0 V, V_{DS} = 0.0 V$
Gate-Source Leakage Current	$I_{GSS}$	-	6.0	$\mu A$	$V_{GS} = 20.0 V, V_{DS} = 0.0 V$
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	$V_{DS} = 10.0 V, I_{DS} = 6000.0 mA, \Delta V_{GS} = 1.0V, 80 \mu s$ Pulse
Input Capacitance	$C_{ISS}$	-	270	pF	$V_{DS} = 28.0 V, F = 1.0 MHz$
Output Capacitance	$C_{OSS}$	-	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	$\eta_D$	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	-	$V_{DD} = 28.0 V, I_{DQ} = 600 mA, P_{OUT} = 120.0 W F = 175 MHz$

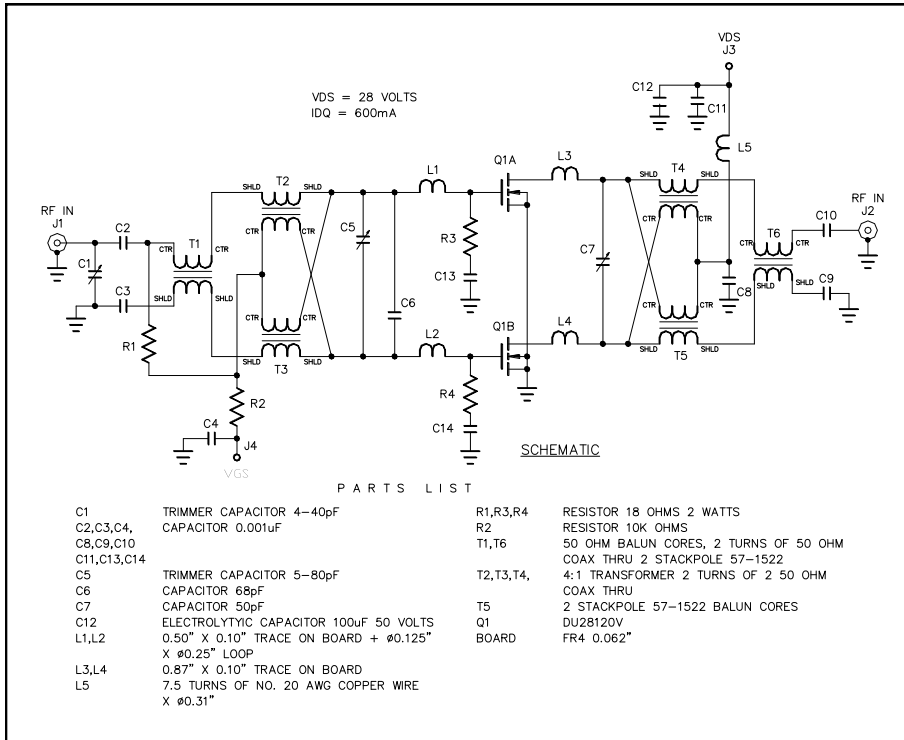
**Typical Broadband Performance Curves**



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### TEST FIXTURE SCHEMATIC



### TEST FIXTURE ASSEMBLY

