UF2815B

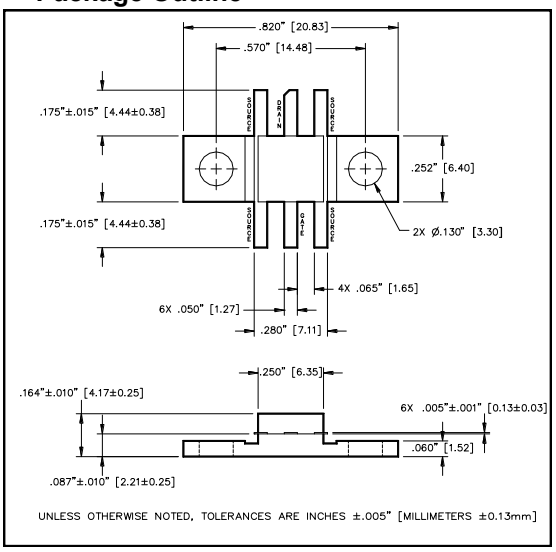
RF Power MOSFET Transistor
15W, 100-500 MHz, 28V

Rev. V1

Features

- N-Channel enhancement mode device
- DMOS structure
- Lower capacitances for broadband operation
- Common source configuration
- Lower noise floor
- RoHS Compliant
- 100 MHz to 500 MHz operation

Package Outline



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}	4.2	A
Power Dissipation	P_D	48.6	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Thermal Resistance	θ_{JC}	3.6	°C/W

TYPICAL DEVICE IMPEDANCES

F (MHz)	Z_{IN} (Ω)	Z_{LOAD} (Ω)
100	6.4-j25.0	22.0+j16.0
300	6.5-j12.0	15.0+j14.0
500	1.7-j10.5	8.0=j10.5
V_{DD}=28V, I_{DQ}=150 mA, P_{OUT} =15.0 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.

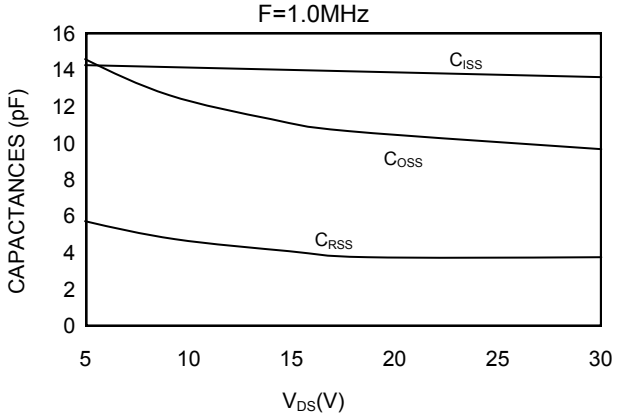
LETTER	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	20.70	20.96	.815	.825
B	14.35	14.61	.565	.575
C	14.73	15.24	.580	.575
D	6.27	6.53	.247	.257
E	6.22	6.48	.245	.255
F	1.14	1.40	.045	.055
G	1.52	1.78	.060	.070
H	2.92	3.17	.115	.125
J	1.40	1.65	.055	.065
K	2.03	2.39	.080	.094
L	3.66	4.32	.144	.170
M	.10	.15	.004	.006

ELECTRICAL CHARACTERISTICS AT 25°C

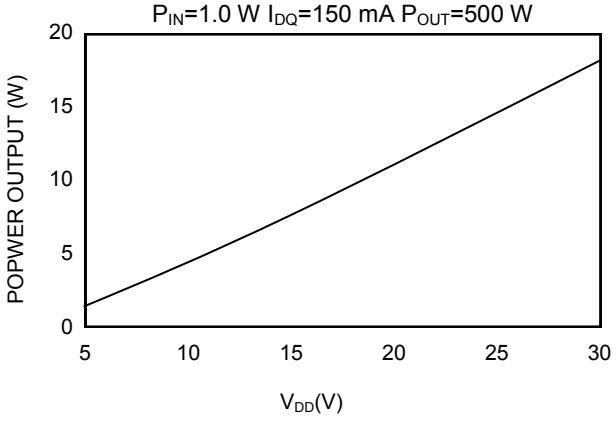
Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	65	-	V	V_{GS} = 0.0 V , I_{DS} = 6.0 mA
Drain-Source Leakage Current	I_{DSS}	-	3.0	mA	V_{GS} = 28.0 V , V_{GS} = 0.0 V
Gate-Source Leakage Current	I_{GSS}	-	3.0	µA	V_{GS} = 20.0 V , V_{DS} = 0.0 V
Gate Threshold Voltage	$V_{GS(TH)}$	2.0	6.0	V	V_{DS} = 10.0 V , I_{DS} = 30.0 mA
Forward Transconductance	G_M	.240	-	S	V_{DS} = 10.0 V , I_{DS} 300.0 mA , Δ V_{GS} = 1.0V, 80 µs Pulse
Input Capacitance	C_{ISS}	-	21	pF	V_{DS} = 28.0 V , F = 1.0 MHz
Output Capacitance	C_{OSS}	-	15	pF	V_{DS} = 28.0 V , F = 1.0 MHz
Reverse Capacitance	C_{RSS}	-	7.2	pF	V_{DS} = 28.0 V , F = 1.0 MHz
Power Gain	G_P	10	-	dB	V_{DD} = 28.0 V, I_{DQ} = 150.0 mA, P_{OUT} = 15.0 W F =500 MHz
Drain Efficiency	η_D	50	-	%	V_{DD} = 28.0 V, I_{DQ} = 150.0 mA, P_{OUT} = 15.0 W F =500 MHz
Load Mismatch Tolerance	VSWR-T	-	20:1	-	V_{DD} = 28.0 V, I_{DQ} = 150.0 mA, P_{OUT} = 15.0 W F =500 MHz

Typical Broadband Performance Curves

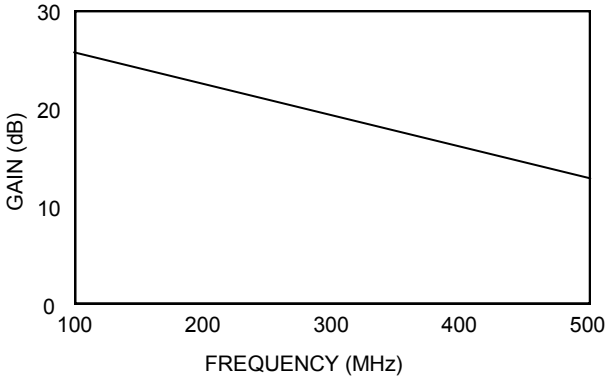
CAPACITANCES vs VOLTAGE
F=1.0MHz



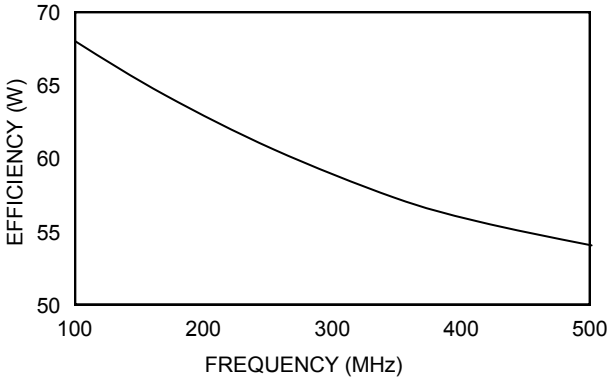
POWER OUTPUT vs VOLTAGE
P_{IN}=1.0 W I_{DQ}=150 mA P_{OUT}=500 W



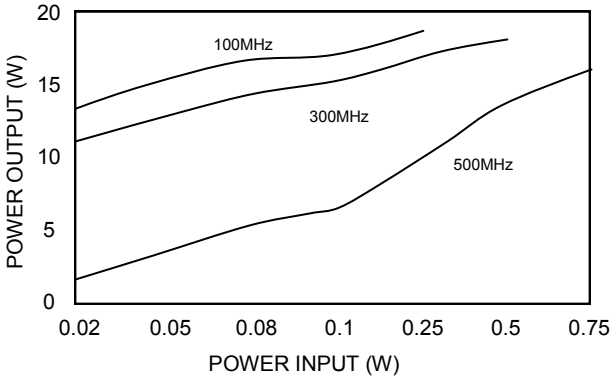
GAIN vs FREQUENCY
V_{DD} =28 V P_{OUT}=15 W I_{DQ} =100 mA



EFFICIENCY vs FREQUENCY
V_{DD}=28V I_{DQ} =150 mA P_{OUT} =15 W



POWER OUTPUT vs POWER INPUT
V_{DD} =28 V I_{DQ} =150 mA



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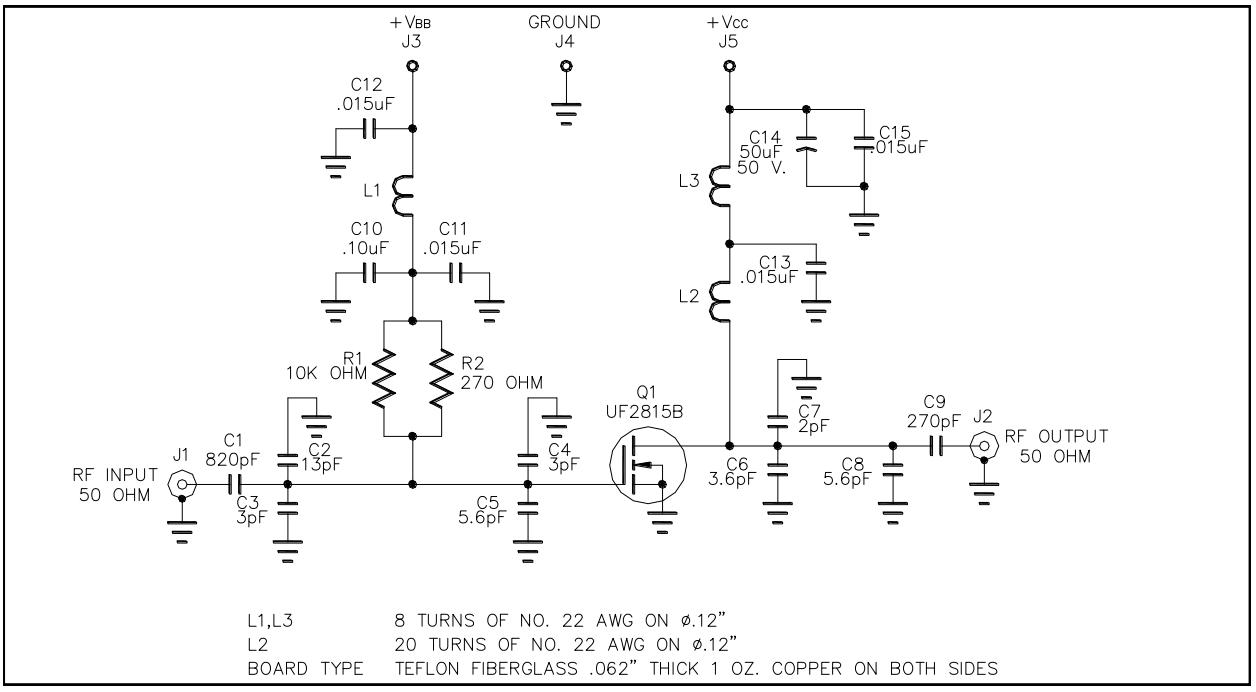
TEST FIXTURE SCHEMATIC



TEST FIXTURE ASSEMBLY