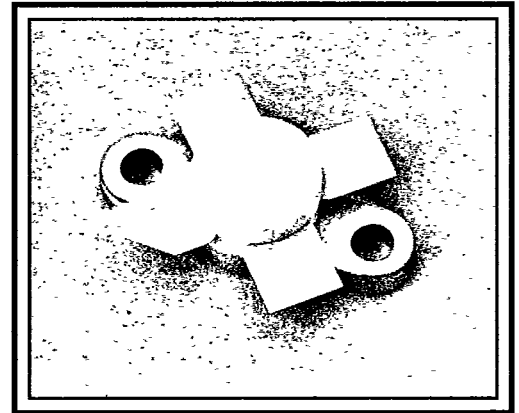


N-CHANNEL RF POWER MOSFET DU1215S



FEATURES

- UNIQUE NEW MOSFET STRUCTURE
- LOWER CAPACITANCES FOR BROADBAND OPERATION
- HIGH SATURATED OUTPUT POWER
- LOWER NOISE FIGURE THAN BIPOLAR DEVICES
- SPECIFICALLY DESIGNED FOR 12 VOLT APPLICATIONS



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{ds}	40	V_{dc}
Gate-Source Voltage	V_{gs}	20	V_{dc}
Drain-Source Current	I_{ds}	4	A
Device Dissipation @ 25°C	P_d	88	W
Junction Temperature	T_j	200	°C
Storage Temperature	T_{stg}	-65 to 150°	°C
Dissipation Derating Above 25°C		.5	W/°C

ELECTRICAL CHARACTERISTICS AT 25°C

Parameter	Symbol	Min.	Max.	Units	Test Conditions
Drain-Source Breakdown Voltage	BV_{dss}	40		V_{dc}	$V_{gs} = 0V, I_{ds} = 5 \text{ mA}$
Drain-Source Leakage Current	I_{dss}		1	mA	$V_{gs} = 0V, V_{ds} = 15V$
Gate-Source Leakage Current	I_{gss}		1	μA	$V_{gs} = 20V, V_{ds} = 0V$
Gate-Source Threshold Voltage	$V_{gs(th)}$	2	6	V	$V_{ds} = 10V, I_{ds} = 100 \text{ mA}$
Forward Transconductance	g_m	500		mho	$V_{ds} = 10V, I_{ds} = 1A, \Delta V_{gs} = 1V$
Input Capacitance	C_{iss}		35	pF	$V_{ds} = 12V, V_{gs} = 0V, f = 1 \text{ MHz}$
Reverse Capacitance	C_{rss}		12	pF	$V_{ds} = 12V, V_{gs} = 0V, f = 1 \text{ MHz}$
Output Capacitance	C_{oss}		45	pF	$V_{ds} = 12V, V_{gs} = 0V, f = 1 \text{ MHz}$
Power Gain	P_G	9.5		dB	$V_{ds} = 12V, I_{dq} = .1A, f = 175 \text{ MHz}, P_0 = 15W$
Input Return Loss	R_L	10		dB	$V_{ds} = 12V, I_{dq} = .1A, f = 175 \text{ MHz}, P_0 = 15W$
Drain Efficiency	η	60		%	$V_{ds} = 12V, I_{dq} = .1A, f = 175 \text{ MHz}, P_0 = 15W$
VSWR	ψ		20:1	---	$V_{ds} = 12V, I_{dq} = .1A, f = 175 \text{ MHz}, P_0 = 15W$
Thermal Resistance	θ_{jc}		2.0	°C/W	$V_{ds} = 12V, I_{dq} = .1A, f = 175 \text{ MHz}, P_0 = 15W, T_F = 50^\circ C$

FIGURE 1. Typical Efficiency vs. Frequency

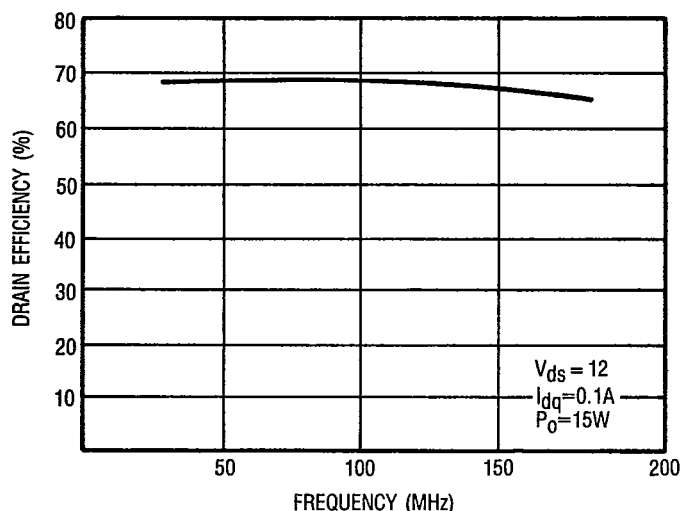


FIGURE 2. Typical Gain vs. Frequency

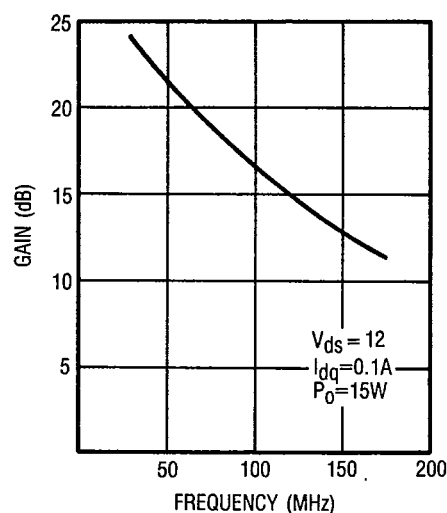


FIGURE 3. Typical Power Out vs. Power In

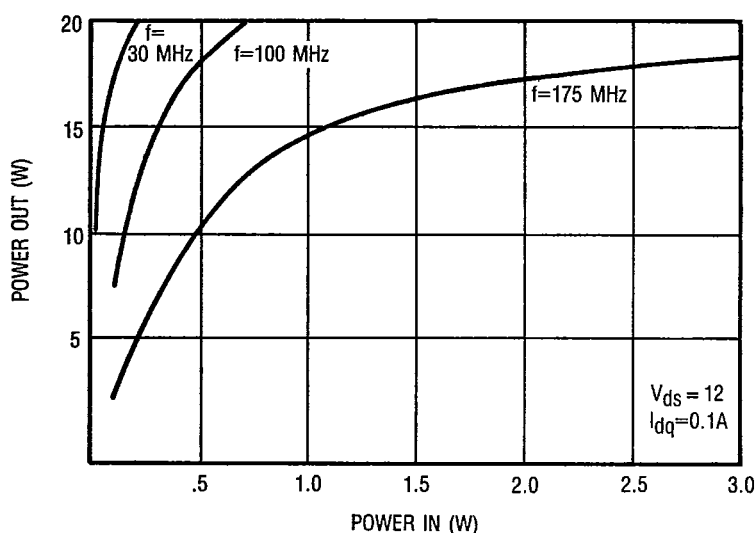


FIGURE 4. Typical Power Out vs. Supply Voltage

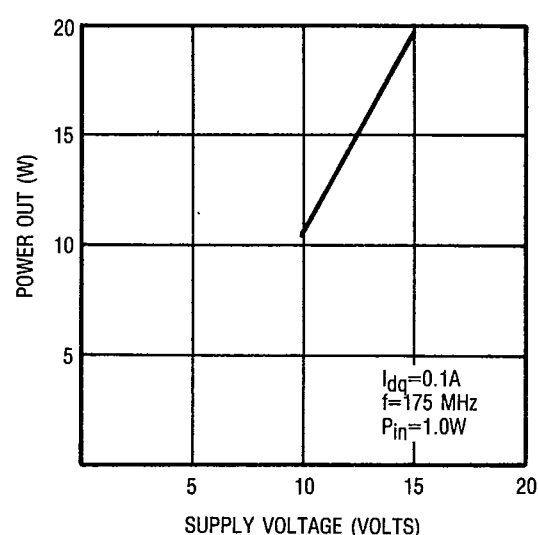


FIGURE 5. 175 MHz Test Fixture

PARTS LIST

- C1, C8 ARCO #462 TRIMMER CAPACITORS, 5-80 pF
 C2, C7 ARCO #422 TRIMMER CAPACITORS, 4-40 pF
 C3 SEMCO 30 pF CAPACITOR
 C4, C5 0.001 μ F FEED-THRU CAPACITORS
 C6 SEMCO 30 pF CAPACITORS
 C9 SEMCO 1000 pF
 C10 .01 μ F MONOLITHIC CERAMIC
 C11 50 μ F, 50V, ELECTROLYTIC
 L1, L3 1" LENGTH OF #12 AWG COPPER WIRE
 L2 8 TURNS OF #20 AWG ENAMELED WIRE ON 1/4" DIAMETER, CLOSE WOUND
 L4 12 TURNS OF #20 AWG ON 0.25" ID, CLOSE WOUND.

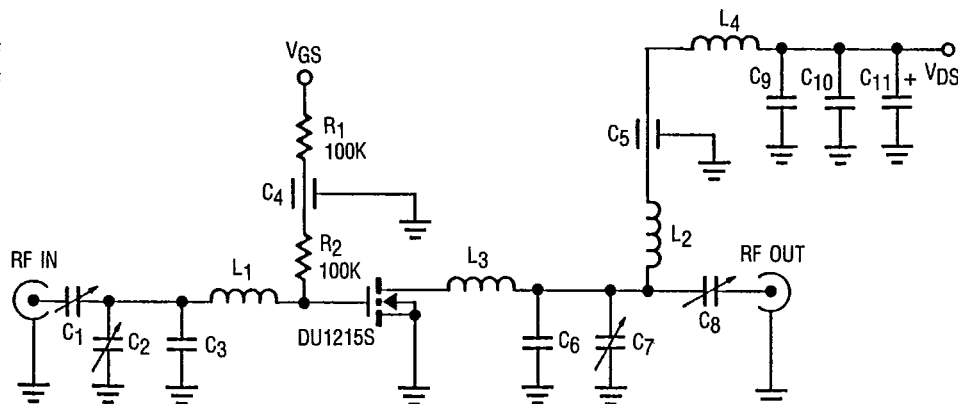
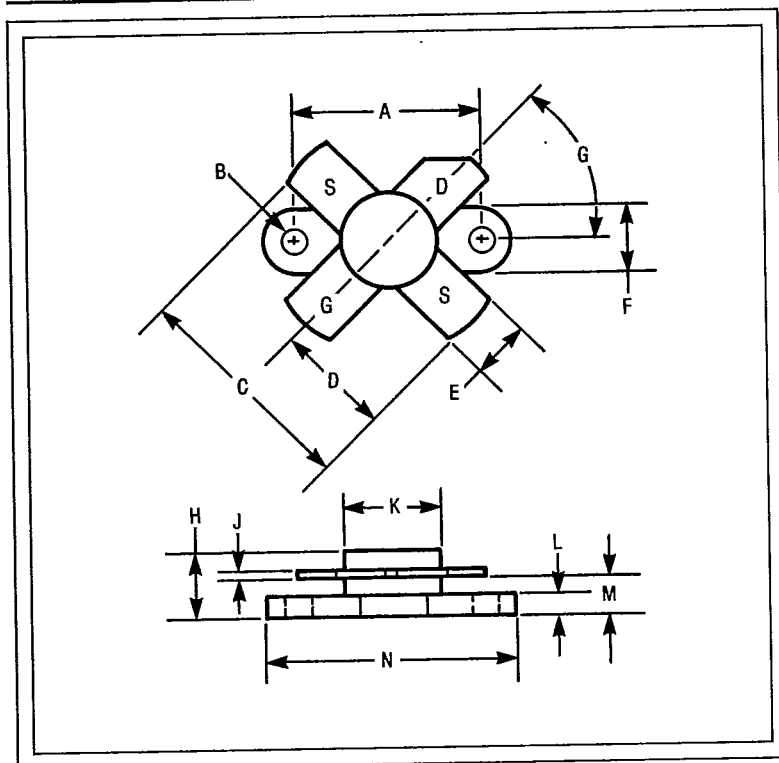


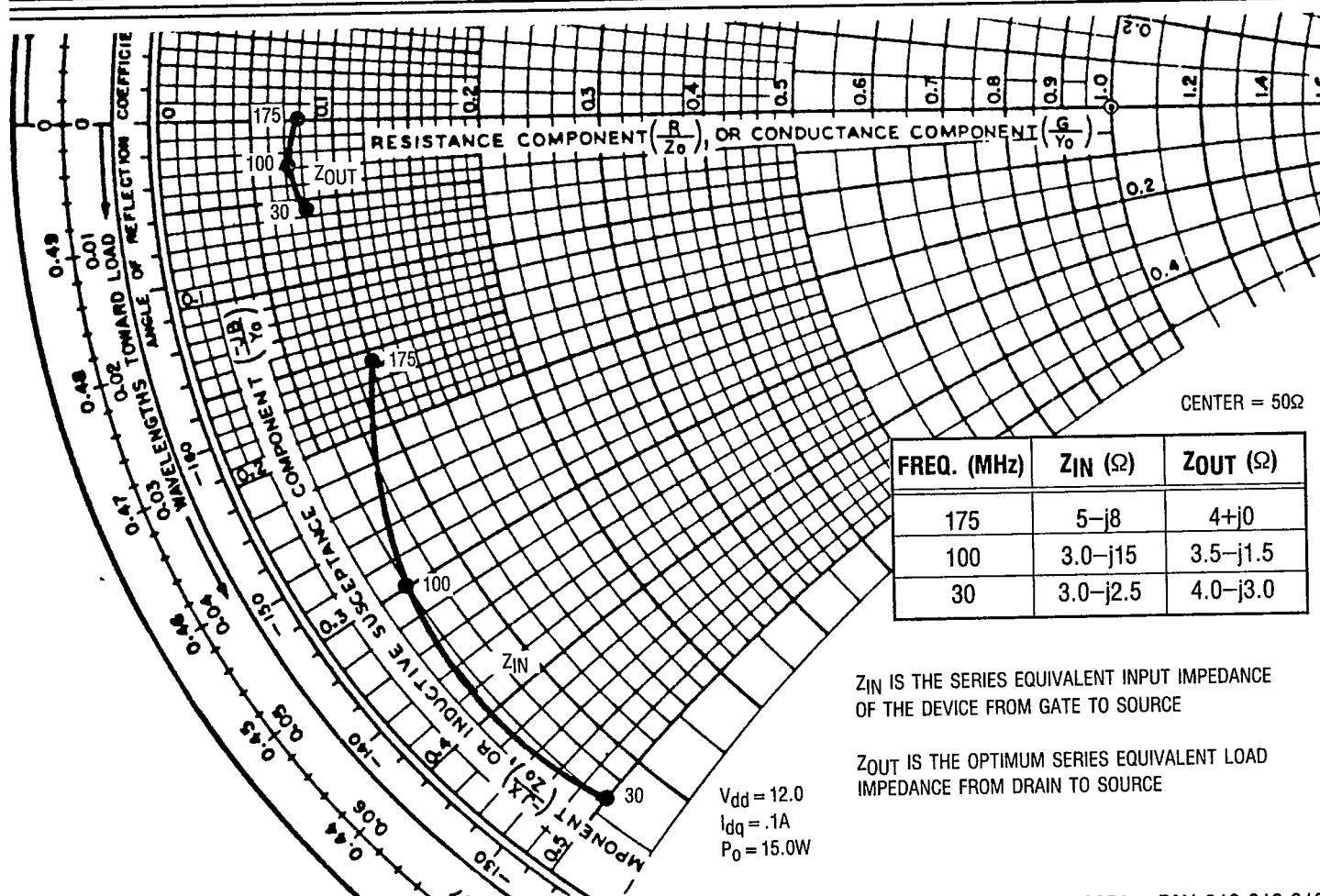
FIGURE 6. Package Outline Drawing

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DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.720	0.730	18,30	18,50
B	0.113	0.130	2,87	3,30
C	0.790	0.810	20,07	20,57
D	0.390	0.410	9,91	10,41
E	0.215	0.235	5,46	5,97
F	0.245	0.255	6,22	6,48
G	40°	50°	—	—
H	0.299	0.281	5,82	7,14
J	0.004	0.006	0,10	0,15
K	0.360	0.400	9,14	10,16
L	0.085	0.105	2,16	2,67
M	0.150	0.190	3,81	4,83
N	0.970	0.980	24,60	24,90

FIGURE 7. Typical Device Impedances



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