

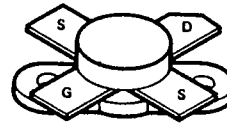
DVD020S

85 DE 5642205 0000478 2

100V^{RF} Power FET
175MHz **20W**
80-120V **10dB**
FEATURES

- 20:1 VSWR
- No Thermal Runaway
- Broadband Capability
- Class A, B, C, D, E
- Low Noise Figure
- High Dynamic Range
- Simple Bias Circuitry
- Lower I²R Losses

Package Type S



.380 SOE Flange

ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

Gate-Source Voltage	40V	Total Device Dissipation	40W
Drain-Source Voltage	220V	Thermal Resistance, Junction to Case ...	4.4 °C/W
Drain-Gate Voltage	220V	Junction Temperature	200°C
Drain Current (DC)	0.8A	Storage Temperature	-55°C to +150°C

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Symbol	Characteristics	Min	Max	Unit	Test Conditions
BV _{DSS}	Drain-Source Breakdown Voltage	220		V	V _{GS} = 0V, I _D = 5mA
I _{DSS}	Drain-Source Leakage Current		1.0	mA	V _{GS} = 0V, V _{DS} = 100V
I _{GSS}	Gate-Source Leakage Current		100	nA	V _{GS} = 40V, V _{DS} = 0V
g _m	D.C. Forward Transconductance	0.15		Mho	V _{DS} = 50V, I _D = 0.5A
I _{D(on)}	On-State Drain Current	0.25		A	V _{DS} = 50V, V _{GS} = 5V
V _{GS(th)}	Gate Threshold Voltage	2.0	6.0	V	V _{GS} = V _{DS} , I _D = 0.2A
C _{iss}	Common-Source Input Capacitance		65	pF	V _{DS} = 30V, V _{GS} = 0V, f = 1.0MHz
C _{oss}	Common-Source Output Capacitance		20	pF	V _{DS} = 30V, V _{GS} = 0V, f = 1.0MHz
C _{rss}	Reverse Transfer Capacitance		2.5	pF	V _{DS} = 30V, V _{GS} = 0V, f = 1.0MHz
G _{ps}	Common-Source Power Gain	10		dB	V _{DD} = 100V, V _{GS} = 0V, P _o = 20W, f = 175MHz
η	Drain Efficiency	55		%	V _{DD} = 100V, P _o = 20W, V _{GS} = 0V, f = 175MHz
VSWR	Load Mismatch Tolerance	20:1			V _{DD} = 100V, P _o = 20W, V _{GS} = 0V, f = 175MHz

TYPICAL PERFORMANCE CURVES (25°C unless otherwise specified)

FIGURE 1. Transfer Characteristics

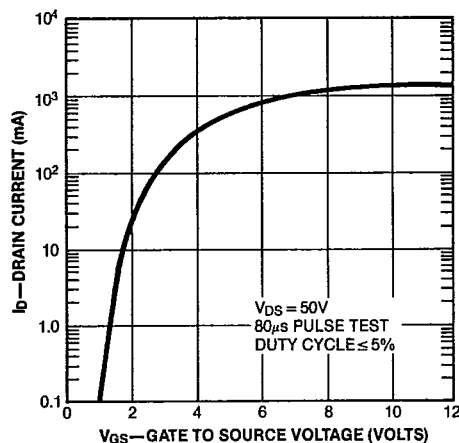


FIGURE 2. Output Characteristics

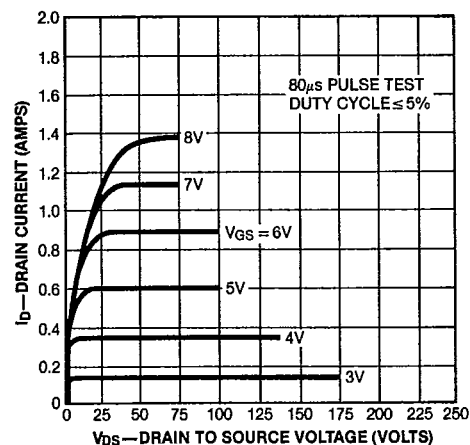


FIGURE 3. Transconductance vs Drain Current

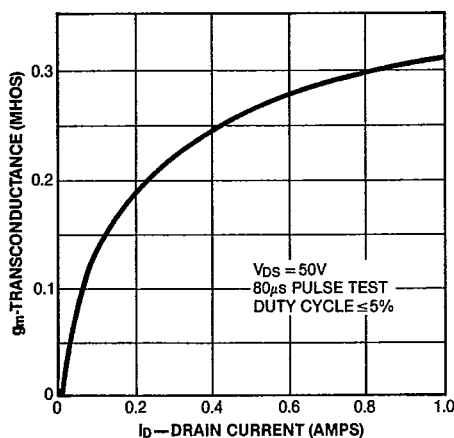


FIGURE 4. MTTF vs Junction Temperature

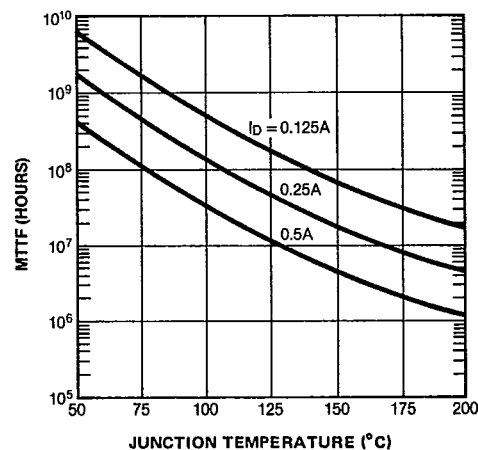
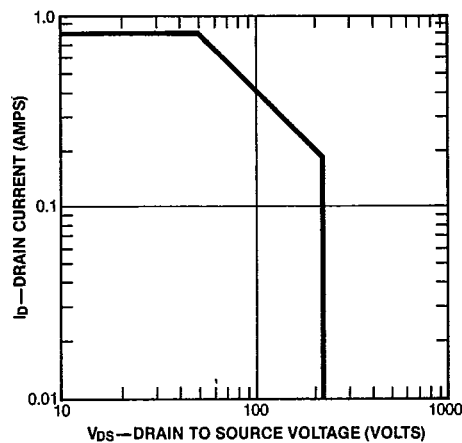


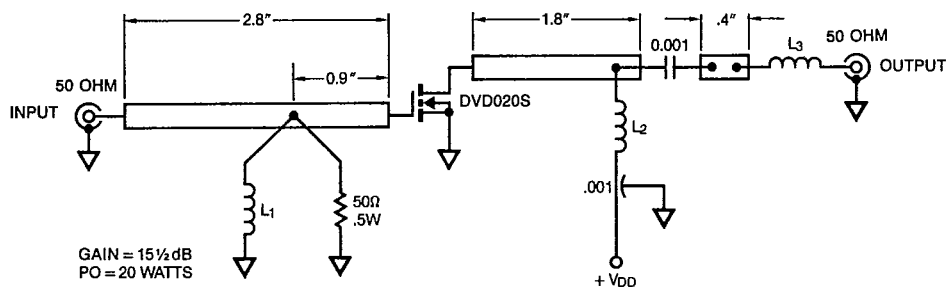
FIGURE 5. DC Safe Operating Region



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APPLICATIONS DATA

FIGURE 10. 88-108MHz Amplifier

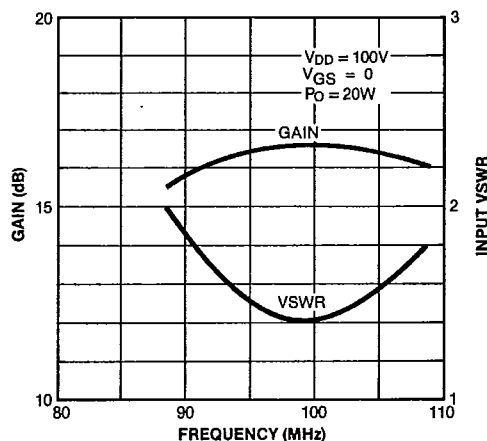


PARTS LIST

- L1 1 1/2 Turns #18 AWG 1/4" I.D., .2" Long
L2 8 1/2 Turns #18 AWG 1/4" I.D., .9" Long
L3 5 1/2 Turns #18 AWG 1/4" I.D., .45" Long

All microstrip lines, W = 1/4" (Z₀ = 30Ω)
Board = 1/16" Epoxy-Glass (ε_r = 2.55)

FIGURE 11. Gain and Input VSWR vs Frequency



CAUTION: Beryllium Oxide — The top cap of this device is alumina which is harmless. However the ceramic portion between the leads and the metal flange is Beryllium Oxide, the dust of which is toxic. Care must therefore be taken during handling and mounting the device to prevent any damage to this area.

Steps must be taken to ensure that all those who may handle, use, or dispose of this device are aware of its nature and of these necessary safety precautions. In particular the transistor should never be thrown out with general industrial or domestic waste.