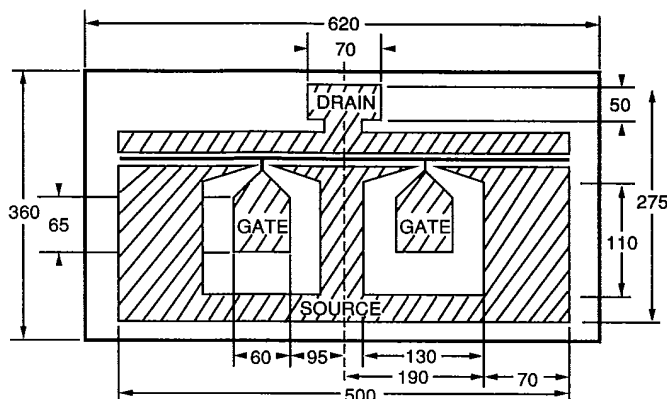


Litton**Medium Power Microwave GaAs FET****Electron Devices****Preliminary Specifications****D-3501****FEATURES**

- Output Power 23 dBm @ 8 GHz
- 1 dB Power Gain 8 dB @ 8 GHz
- 0.8 x 500 μm Ti/Pt/Au Gate
- Passivated



Chip Thickness = 115 ± 13
Units in μm

DESCRIPTION AND APPLICATIONS

The D-3501 is a Gallium Arsenide (GaAs) n-channel Field Effect Transistor utilizing a 0.8 micron long Schottky-barrier gate. The device provides excellent power in multi octave and narrow-band amplifiers. The device offers class A power, making it ideal for microwave integrated circuits, operating up to 12 GHz. Litton uses the latest design and production techniques to manufacture devices for Electronic Warfare applications.

Quality is assured by quality control and test procedures patterned after MIL-STD 19500 and MIL-STD-750.

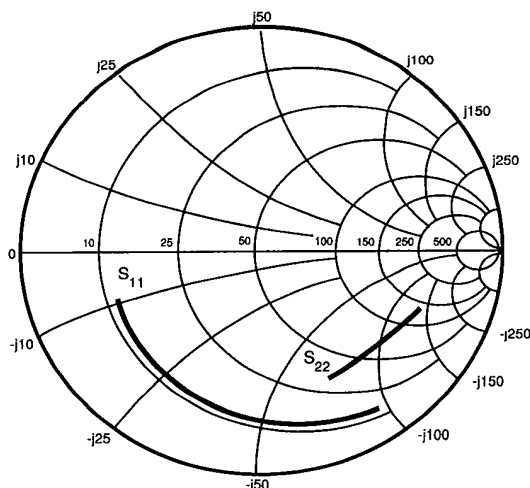
The D-3501 is a device for industrial, military, and space applications. Typical uses would be in medium power, wide band, linear driver amplifiers or oscillators for telecommunication, EW, and radar systems.

RF PERFORMANCE SPECIFICATIONS ($T_a = 25^\circ\text{C}$)

SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	D-3501		
			MIN	TYP	MAX
P_{1dB}	Output Power at 1dB Compression Point $V_{DS}=8V$, $I_{DS}=65mA$	•f= 4 GHz		23	
		•f= 8 GHz	20	23	
		•f=12 GHz		22	
G_{1dB}	Associated Gain at P_{1dB} $V_{DS}=8V$, $I_{DS}=65mA$	•f= 4 GHz		12	
		•f= 8 GHz	8	9	
		•f=12 GHz		6	

Litton**Preliminary Specifications****DC PERFORMANCE SPECIFICATIONS ($T_a = 25^\circ\text{C}$)****D-3501**

SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	D-3501		
			MIN	TYP	MAX
I_{DSS}	Saturated Drain Current $V_{DS}=3V, V_{GS}=0V$	mA	100	130	160
V_P	Pinch-Off Voltage $V_{DS}=3V, I_{DS}=1mA$	V		-4	
G_M	Transconductance $V_{DS}=3V, V_{GS}=0V$	mmho	35	45	
BV_{GS}	Gate to Source Breakdown Voltage $I_{GS}=1mA$	V	-10	-17	
BV_{GD}	Gate to Drain Breakdown Voltage $I_{GD}=1mA$	V	-14	-17	
θ_J	Thermal Resistance (AuSn Eutectic Die Attach)	$^\circ\text{C}/\text{W}$		100	

**ABSOLUTE MAXIMUM RATINGS at 25°C**

SYMBOLS	PARAMETERS	UNITS	RATINGS**
V_{DS}	Drain-Source Voltage	V	12
V_{GS}	Gate-Source Voltage	V	-8
I_{DS}	Drain Current	mA	I_{DSS}
I_{GSF}	Forward Gate Current	mA	100
P_{IN}	RF Input Power	mW	300
T_{CH}	Channel Temperature	$^\circ\text{C}$	175
T_{STG}	Storage Temperature	$^\circ\text{C}$	-65 to +175
P_T	Power Dissipation	mW	800

S-PARAMETERS:* $V_{DS}=8$ volts, $I_{DS}=65$ mA

FREQUENCY (GHZ)	S11		S21			S12			S22	
	MAG	ANG	MAG	ANG	dB	MAG	ANG	dB	MAG	ANG
2	.91	-43	2.52	140	8.03	.02	74	-34	.81	-13
4	.79	-77	2.06	111	6.28	.02	73	-34	.78	-20
6	.69	-107	1.72	85	4.71	.03	85	-30	.75	-30
8	.65	-129	1.56	64	3.86	.03	102	-30	.73	-45
10	.66	-143	1.48	46	3.41	.04	117	-28	.74	-59
12	.65	-157	1.40	25	2.92	.05	120	-26	.76	-75

NOTE: * Measurements include 0.7 mil diameter Au bonding wire.

** Operation of this device above any one of these parameters may cause permanent damage.