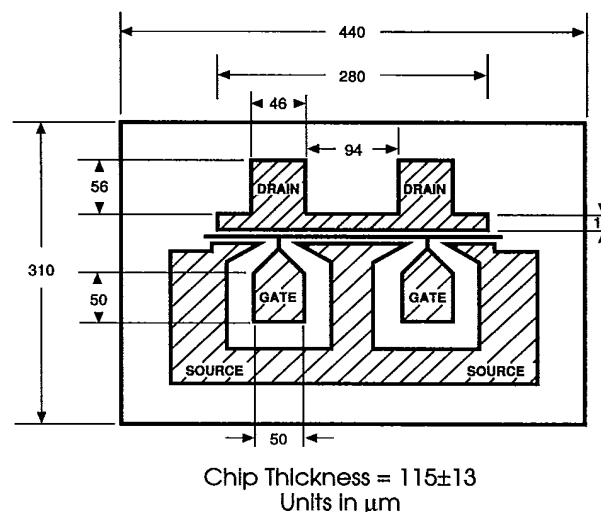


Litton**Low Noise/Medium Power Microwave GaAs FET****Electron Devices****D-2503****Preliminary Specifications****FEATURES**

- Noise Figure 3.5 dB @ 18 GHz
- Gain at NF 6.5 dB @ 18 GHz
- 0.50 X 280 μm Ti/Pt/Au Gate
- Passivated

**DESCRIPTION AND APPLICATIONS**

The D-2503 is a Gallium Arsenide (GaAs) n-channel Field Effect Transistor (FET) utilizing a 0.50 micron long Schottky-barrier. The device offers low noise figure and high associated gain, which makes it ideal for microwave integrated circuits, operating up to 26 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-STD19500 and MIL-STD-750.

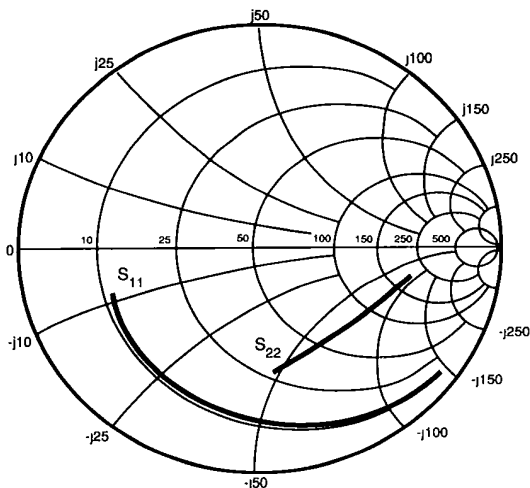
The 2503 is a device for industrial, military, and space applications. Typical uses would be in low noise, wide band, small signal receiver, telecommunication, and EW systems.

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

SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	D-2503		
			MIN	TYP	MAX
NF	Minimum Noise Figure $V_{DS}=3.5\text{V}$, $I_{DS}=15\text{mA}$	•f= 4 GHz dB •f=12 GHz dB •f=18 GHz dB		1.0 2.4 3.5	4.0
G_{NF}	Associated Gain at NF $V_{DS}=3.5\text{V}$, $I_{DS}=15\text{mA}$	•f= 4 GHz dB •f=12 GHz dB •f=18 GHz dB	5.5	13.5 8.5 6.5	
M.A.G.	Maximum Available Gain $V_{DS}=4.0\text{V}$, $I_{DS}=0.5 I_{DSS}$	•f= 4 GHz dB •f=12 GHz dB •f=18 GHz dB		17 10 7.5	
P_{1dB}	Output Power at 1dB Compression Point $V_{DS}=4\text{V}$, $I_{DS}=0.5 I_{DSS}$	•f=18 GHz dBm		15	

Litton**Preliminary Specifications****DC PERFORMANCE SPECIFICATIONS ($T_a = 25^\circ\text{C}$)****D-2503**

SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	D-2503		
			MIN	TYP	MAX
I_{DSS}	Saturated drain current $V_{DS}=3V, V_{GS}=0V$	mA	40	60	80
V_P	Pinch-off voltage $V_{DS}=3V, I_{DS}=1mA$	V		-2.0	
G_M	Transconductance $V_{DS}=3V, V_{GS}=0V$	mmho	25	35	
I_{GS}	Gate to Source Leakage Current $V_{GS}=-3V$	μA		1	10
I_{GD}	Gate to Drain Leakage Current $V_{GD}=-5V$	μA		1	10
θ_J	Thermal Resistance (AuSn Eutectic Die Attach)	$^\circ\text{C/W}$		180	

**ABSOLUTE MAXIMUM RATINGS at 25°C**

SYMBOLS	PARAMETERS	UNITS	RATINGS**
V_{DS}	Drain-Source Voltage	V	10
V_{GS}	Gate-Source Voltage	V	-6
I_{DS}	Drain Current	mA	I_{DSS}
I_{GSF}	Forward Gate Current	mA	50
P_{IN}	RF Input Power	mW	200
T_{CH}	Channel Temperature	$^\circ\text{C}$	175
T_{STG}	Storage Temperature	$^\circ\text{C}$	-65 to +175
P_T	Power Dissipation	mW	500

S-PARAMETERS:* **$V_{DS}=3.5$ volts, $I_{DS}=15$ mA**

FREQUENCY (GHZ)	S11		S21			S12			S22	
	MAG	ANG	MAG	ANG	dB	MAG	ANG	dB	MAG	ANG
2	.92	-21	2.18	145	6.77	.03	53	-30	.70	-15
4	.88	-41	2.16	132	6.70	.04	52	-28	.68	-26
6	.82	-59	2.09	120	6.40	.05	51	-26	.64	-35
8	.76	-76	2.00	109	6.02	.05	49	-26	.63	-44
10	.73	-92	1.85	99	5.34	.05	70	-26	.62	-53
12	.71	-107	1.77	89	4.96	.06	88	-24	.63	-61
14	.70	-123	1.68	79	4.51	.06	98	-24	.64	-69
16	.69	-137	1.55	69	3.81	.07	105	-23	.65	-77
18	.68	-152	1.34	60	2.54	.08	112	-22	.70	-85

NOTE: * Measurements include 0.7 mil diameter Au bonding wire
 ** Operation of this device above any one of these parameters may cause permanent damage