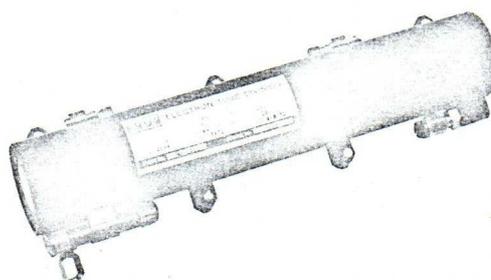


**ELECTRON TUBE DIVISION**  
 P.O. Box 100  
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# TRAVELING WAVE TUBE

### DESCRIPTION

The tube type 2099 is a 1 kilowatt grid pulsed traveling wave amplifier having a minimum gain of 28 db over the frequency range of 4.0 to 8.0 GHz. The tube is a helix type TWT, PPM focused and of metal ceramic designed for rugged environmental applications. The tube is liquid cooled and may be mounted in any position. The maximum operating duty cycle is 4 percent at a maximum pulse width of 30 microseconds. The 2099 has type TNC coaxial RF connectors and operates normally with collector voltage depression.

### RF PERFORMANCE

	Typical Values	Performance Limits
Frequency .....	4.0-8.0 GHz	4.0-8.0 GHz
Pk Power Output .....	1500 Watts	1000 Watts Min.
Gain at 1.0 KW Pk Pwr (Note 2) .....	30 db	28 db Min.
Small Signal Gain (Note 3) .....	36 db	34 db Min.
Duty Cycle .....	.04	.04

### ELECTRICAL REQUIREMENTS

	Typical Values	Performance Limits	
		Min.	Max. Units
Cathode Voltage .....	-9.75	-9.25	-9.75 KV
Cathode Current .....	1.7		1.8 Amp Pk
Heater Volts .....	6.15	6.0	6.3 Volts
Heater Current .....	3.1	2.4	3.5 Amp
Grid Bias Voltage (Notes 1, 2) .....	-150	-150	-250 Volts
Grid Pulse Voltage (Note 1) .....	150	100	200 Volts
Grid to Anode .....	15		20 uuf
Grid to Cathode .....	17		25 uuf
Grid Current .....	.300		.400 Amp Pk
Collector Voltage (Note 1) .....	6.4	5.7	6.9 KV

### MECHANICAL

RF Connections .....	TNC
DC Connections .....	Individual Socket Type
Coolant Connections .....	Parker-Hannifin No. 4F5X
Cooling .....	Coolanol 35-1 gal/min
Weight w/o Oil .....	10 lbs.
Mounting Position .....	Any
Construction .....	Metal-Ceramic
Focusing .....	PPM

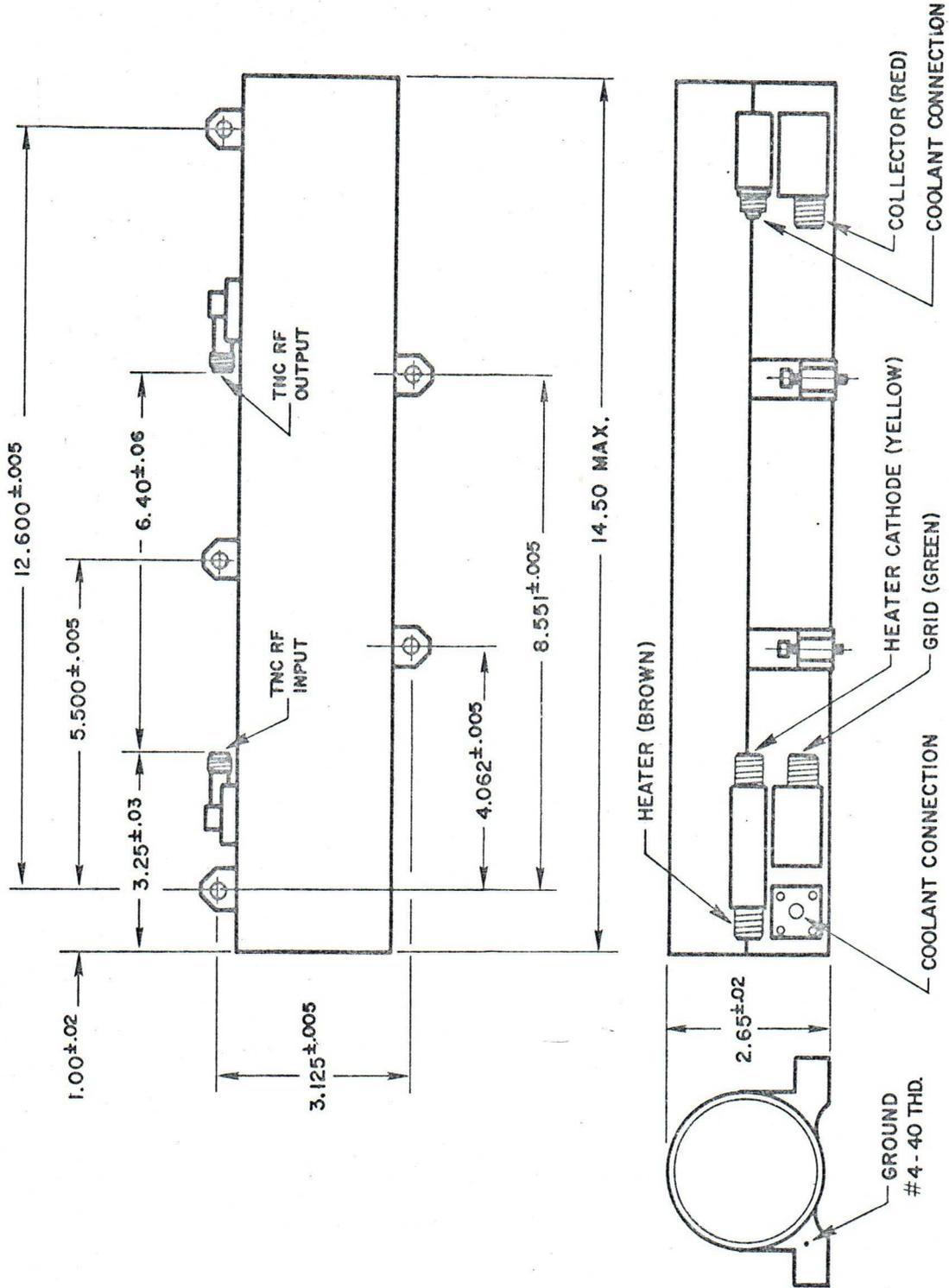
### ENVIRONMENTAL

Shock .....	15G, 5½ millisecc pulse
Vibration .....	As per MIL-T-5422, Part 1 Para. 4.2
Operating Temperature .....	-40°C to +90°C
Non-Operating Temperature .....	-60°C to +120°C
Altitude .....	Any

NOTE 1. Voltages with respect to cathode.

NOTE 2. High voltage must NOT be applied in the absence of proper Grid Bias.

NOTE 3. Modified tubes with small signal and power gains flat to within ± 2 db can be provided upon special request.



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