YU-191B HIGH-MU WATER COOLED POWER TRIODE

The YU-191B is a ceramic and metal, water cooled, high mu triode intended for use as an RF amplifier. The YU-191B is capable of outputting over 6000 watts with a power gain greater that 20 when used in a grounded grid configuration.

Electrical Characteristics

Filament Voltage	7.5 ± 0.37	Volts
Filament Current @ 7.5 volts	51.5	Amperes
Maximum Filament Surge Current	75	Amperes
Amplification Factor	160	
Direct Interelectrode Capacitances (grounded filament)		
Cin	38.1	pF
Cout	0.6	pF
Cgp	24.0	pF
Direct Interelectrode Capacitances (grounded grid)		
Cin	38.1	pF
Cout	24.0	pF
Cpk	0.6	pF
Frequency of Maximum Ratings	75	MHz

Mechanical Characteristics

Maximum Overall Dimensions		
Length	249	mm
Width	185	mm
Net Weight	2.3	kg
Operating Position	Vertical, Base Up or Down	
Maximum Operating Temperature (at any point on tube)	250	℃
Cooling	Water	
Base	Special Coaxial	

Maximum Ratings

DC Plate Voltage	5000	Volts
DC Plate Current	2.5	Amperes
Plate Dissipation	7000	Watts
Grid Dissipation	225	Watts

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Typical Operation as Radio Frequency Amplifier
Class AB2, Cathode Driven

Plate Voltage	4800	4900 VDC
Zero-Signal Plate Current[1]	0.35	0.36 ADC
Single-Tone Plate Current[2]	1.68	2.25 ADC
Driving Power2	293	535 Watts
Single-Tone Plate Output Power	6000	8250 Watts
Resonant Load Impedance	1720	1308 Ohms
Driving Impedance	50.0	49.2 Ohms

1. Bias voltage may be required.
2. Approximate value.

Range Values For Equipment Design

	Min.	Max.	
Filament Current @ 7.5 Volts	49.0	54.0	Amperes
Interelectrode Capacitances1 (grounded filament connection)			
Cin	30.0	45.0	pF
Cout	—	1.0	pF
Cgp	20.0	28.0	pF
Interelectrode Capacitances1 (grounded grid connection)			
Cin	30.0	45.0	pF
Cout	20.0	28.0	pF
Cpk	—	1.0	pF
Zero Bias Plate Current (Eb = 5000 volts)	0.36	0.52	Amperes
Cut-Off Bas (Eb = 5000 volts, Ib = 1.0 mADC)	—	-45.0	Volts

Cooling

Cooling air and water should be applied before any electrode voltage, including filament voltage. Cooling air and water may be removed simultaneously with electrode voltages.

The filament stem structure requires forced air-cooling. A minimum of 1.9 m^3/minute of airflow that is less than 40 ℃ at the i nlet must be directed at the area between the inner and outer filament connections. If the tube is operated at high elevation, near maximum dissipation ratings, or if the inlet air temperature is higher than 40℃, the airflow must be increased acc ordingly.

The anode requires cooling water as a minimum flow rate of 14 liters/minute, with a pressure drop between 2.0 and 2.5 kg/cm2. The cooling water temperature at the inlet should be between 20℃ and 65℃. The cool ing water temperature at the outlet should be between 5℃ and 10 ℃ higher than the inlet temperature.

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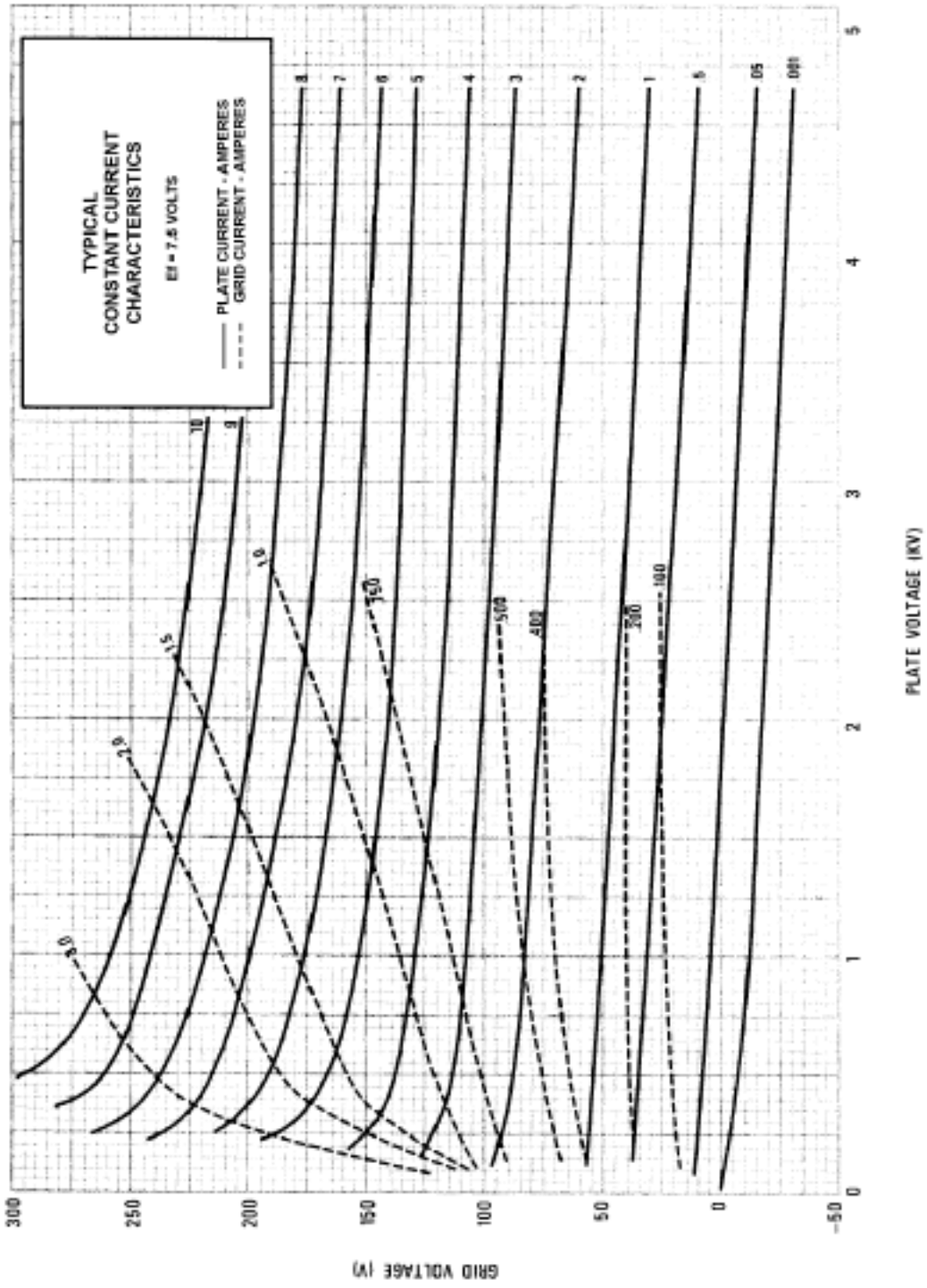

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OUTLINE DRAWING