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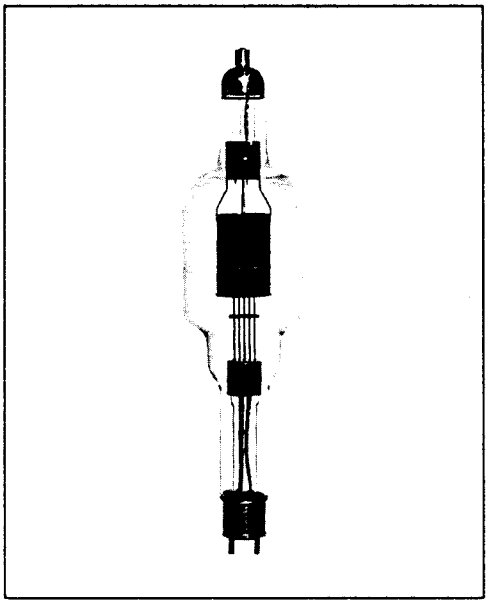

ISSUED 12-68

ML-8094/199

MACHLETT

High-Voltage Rectifier

110 PKV

DESCRIPTION

The ML-8094/199 is a high-vacuum rectifier tube having maximum ratings of 110 PKV inverse voltage and 10 amperes peak anode current. It is especially adaptable to certain pulsing circuits as a hold-off diode and to power supplies in high-power radar units, where insensitivity to low ambient temperatures and high current capacity at high voltages are essential.

This tube incorporates those special features of construction which characterize Machlett high-vacuum rectifiers for high power-level applications. These features insure ruggedness, long life, low internal voltage drop and high average load current capacity. The cathode is a thoriated-tungsten filament of the catenary type, allowing close anode-to-cathode spacing without distortion of the filament by electrostatic forces. The anode is a cylindrical tantalum plate treated to insure a maximum of heat dissipation, providing a high safety factor against accidental overload.

GENERAL CHARACTERISTICS

ELECTRICAL

Filament Voltage	12 Volts
Filament Current, approximate	23 Amps
Filament Heating Time, minimum (Before Applying Plate Voltage)	30 Secs
Tube Voltage Drop, maximum (I_b=10.0 amperes, E_f=12.0 volts)	2500 Volts

MECHANICAL

Mounting Position	Optional
Mounting Socket, Machlett Part No.	P-8835
Type of Cooling	Radiation†
Insulating Medium	Air
Net Weight, approximate	3 lbs

† Forced air cooling of the bulb at 125 cfm through a 6-inch diameter nozzle is required to keep the glass temperature within safe limits at maximum ratings.

MAXIMUM RATINGS

Peak Inverse Anode Voltage	110000	Volts
Peak Anode Current	10.0	Amps
Plate Dissipation	1500	Watts

Load Current (Average D-C)

Circuit Application	Unfiltered*	Filtered**	
Single-phase, two-tube, half-wave	1.3	....	Amps
Single-phase, four-tube, full-wave	2.6	2.9	Amps
Three-phase, double-Y parallel	7.0	7.2	Amps
Three-phase, full-wave	3.5	3.6	Amps

* Unfiltered Load Current Ratings are based on sine-wave voltage input and resistance load without inductive or capacitive effects.

** Filtered Load Current Ratings are based on sine-wave voltage input and infinite inductance choke input filter.

WARNING: This electron tube when operating at peak voltages in excess of 15 kv may give off x-rays, which can be harmful unless adequately shielded by the enclosure within which the tube is used. Instructions for protective installation are given in National Bureau of Standards Handbook 93, "Safety Standards for Non-Medical X-Ray and Sealed Gamma-Ray Sources".

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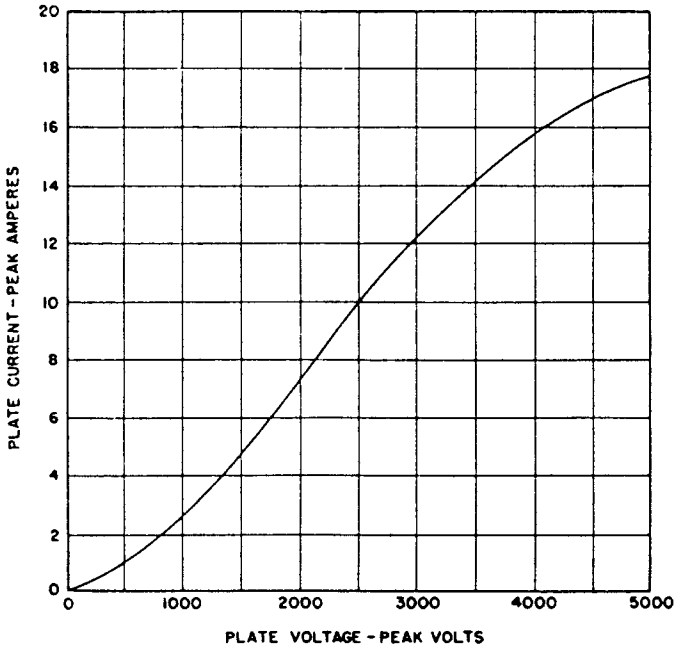

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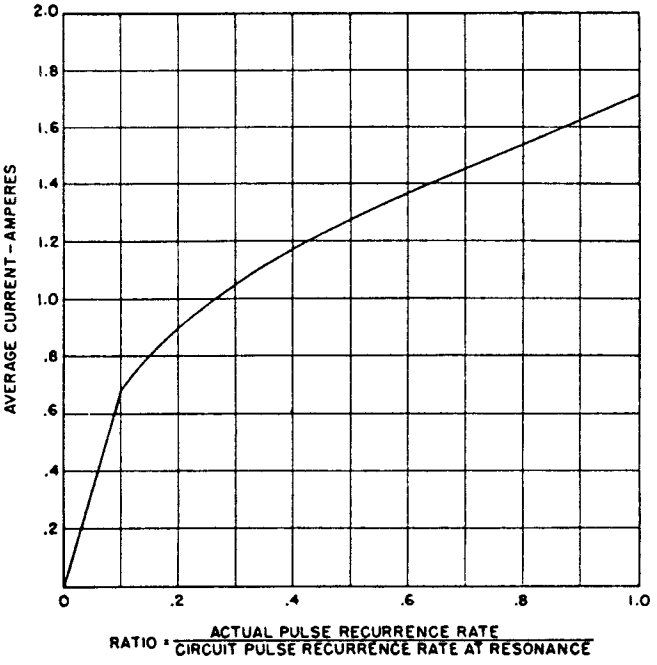
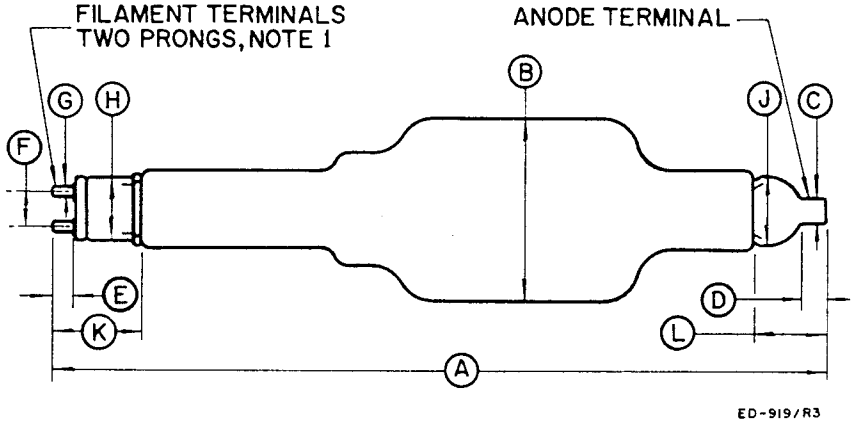


APPLICATION NOTES

When the ML-8094/199 is employed as a rectifier in conventional power supply circuits, the average dc load currents specified under "Maximum Ratings" apply.

When the ML-8094/199 is used as a hold-off diode in connection with resonant charging of line-type pulsers, the average charging current permissible depends on the ratio of actual pulse recurrence rate to circuit pulse recurrence rate at resonance. The right-hand curve above indicates maximum permissible average currents at various values of this ratio.



OUTLINE—ML-8094/199

DIMENSIONS FOR OUTLINE

	INCHES		
Ref.	Minimum	Nominal	Maximum
A	24.7	25.0	25.3
B	—	—	6.2
C	.790	.800	.810
D	.75	.81	—
E	.82	.88	.94
F	1.240	1.250	1.260
G	.292	.312	.332
H	—	2.19	2.22
J	—	2.25	2.29
K	2.81	2.88	2.95
L	2.21	2.28	2.35

NOTE:
1. Cathode base fits Machlett mounting socket part P-8835.

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