



# ML-7668

**High Voltage  
High-Mu Triode**  
Plate Voltage  
to 125 kV



ELECTRON TUBE SPECIALIST

## DESCRIPTION

The ML-7668 is a high-voltage, high-mu triode designed primarily to operate as a switch tube in hard-tube pulse modulators for radar and in other electronic switching applications. In this service, the tube can deliver pulse

power output up to 1.75 megawatts. It is designed for operation immersed in oil or an equivalent dielectric fluid. The cathode of the tube is a thoriated-tungsten filament. The anode is capable of dissipating up to 750 watts.

## GENERAL CHARACTERISTICS

### Electrical

|                                                            |             |
|------------------------------------------------------------|-------------|
| Filament Voltage .....                                     | 12.6 Volts  |
| Filament Current, approximate .....                        | 29 Amperes  |
| Grid Cutoff Voltage at 150 kV Plate Voltage, minimum ..... | —1000 Volts |
| Amplification Factor .....                                 | 180         |
| Interelectrode Capacitances, approximate:                  |             |
| Grid-Plate .....                                           | 7.5 pf      |
| Grid-Cathode .....                                         | 20.0 pf     |
| Plate-Cathode .....                                        | 0.2 pf      |

### Mechanical

|                         |                  |
|-------------------------|------------------|
| Mounting Position ..... | Vertical *       |
| Type of Cooling .....   | Oil Convection * |

\* When the tube is mounted with the cathode down, forced circulation of the oil in the cathode-end re-entrant cavity will be required.

# **MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS** **Pulse Modulator or Pulse Amplifier**

## Maximum Ratings, Absolute Values†

|                             |       |                 |
|-----------------------------|-------|-----------------|
| D-C Plate Voltage           | 150   | kV <sup>Δ</sup> |
| D-C Grid Voltage            | -1500 | Volts           |
| Peak Cathode Current        | 15    | amps            |
| Peak Positive Grid Voltage  | 1000  | volts           |
| Peak Negative Grid Voltage  | -2000 | volts           |
| Peak Positive Plate Voltage | 160   | kV <sup>Δ</sup> |
| Average Grid Dissipation    | 50    | Watts           |
| Average Plate Dissipation   | 750   | Watts           |
| Pulse Duration              | †     |                 |
| Duty Factor                 | †     |                 |

## Typical Operation

|                             |       |       |
|-----------------------------|-------|-------|
| D-C Plate Voltage           | 125   | kV    |
| D-C Grid Voltage            | -1000 | Volts |
| Pulse Positive Grid Voltage | 700   | volts |
| Pulse Plate Current         | 11    | amps  |
| Pulse Grid Current          | 2.7   | amps  |
| Pulse Driving Power         | 4.6   | kw    |
| Pulse Power Output          | 1.3   | Mw    |
| Pulse Duration              | 500   | μsec  |
| Duty Factor                 | .005  |       |

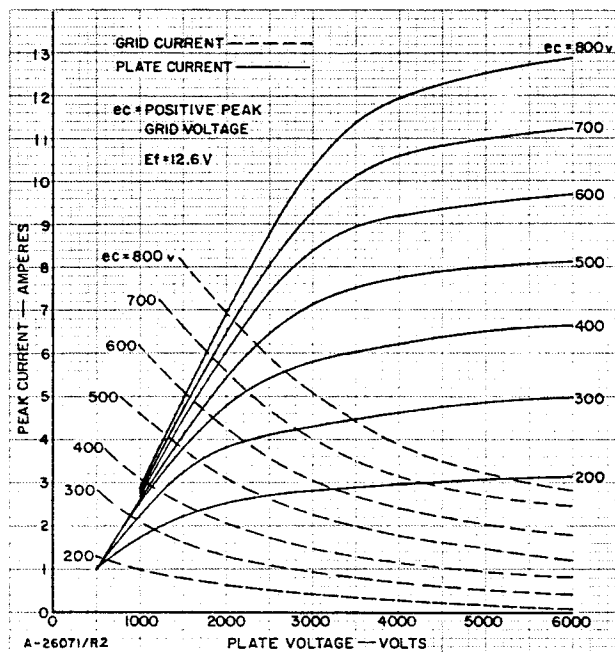
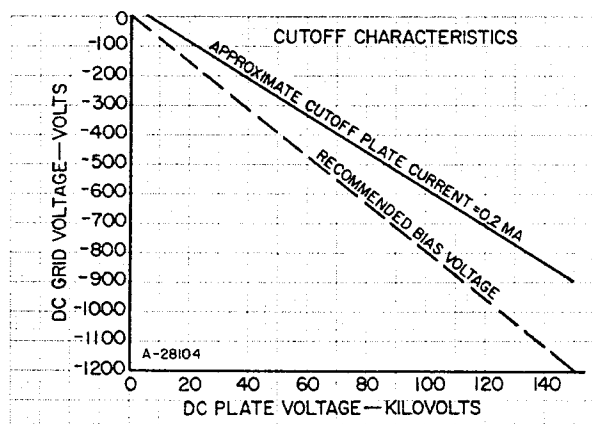
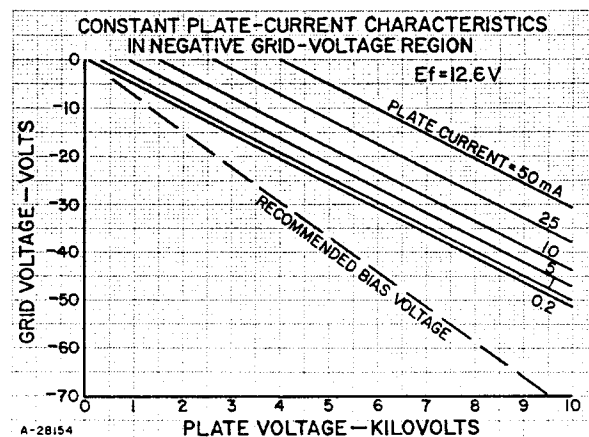
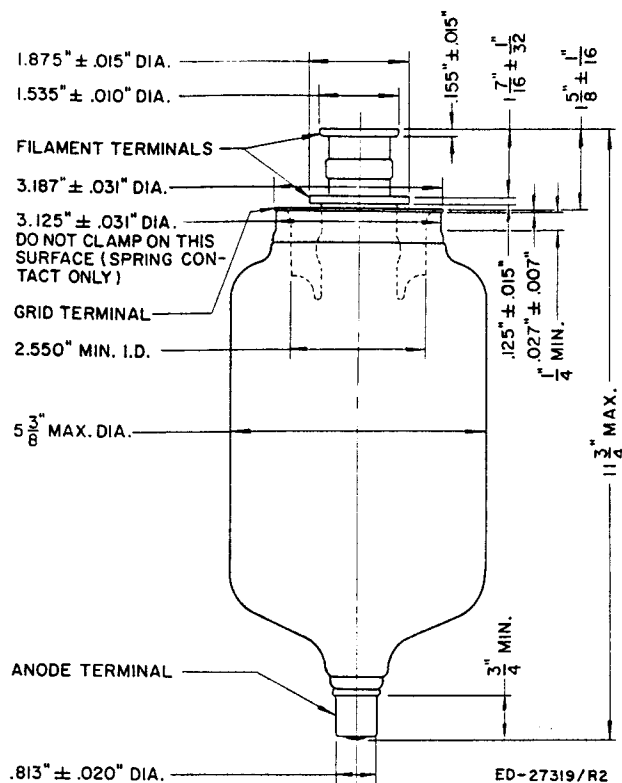
†Ratings apply only when the tube is immersed in insulating oil or an equivalent dielectric fluid.

<sup>Δ</sup>For operation above 125 kV, consult the Machlett Laboratories, Engineering Department.

‡The duration of the pulse may be several milliseconds long. The maximum average grid and plate dissipations will determine the duty factor.

Note: For operation under conditions not covered by the above ratings, consult the Machlett Engineering Department.

**WARNING:** Operation of this tube may produce x-rays. Adequate rayproof shielding must therefore be provided in the equipment.



CONSTANT GRID-VOLTAGE CHARACTERISTICS

**THE MACHLETT LABORATORIES, INC.**

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