

# ML-8548

**High-Mu Triode**  
Pulse Power  
to 20 Mw

**MACHLETT**

ELECTRON TUBE SPECIALIST

## DESCRIPTION

The ML-8548 is a high-voltage high-mu triode designed primarily to operate as a switch tube in hard-tube pulse modulators, for radar and similar applications. In this service it can deliver pulse output in the order of 20 Mw with plate voltages up to 180 kV.

The cathode consists of sturdy, stress-free thoriated-tungsten filaments. The ML-8548 is designed for operation in oil or equivalent dielectric fluid, which is required for utilization of the maximum plate voltage rating. The anode is capable of dissipating 20 kW when cooled by a forced flow of oil.

*Note: Data contained herein are based on initial design and test criteria. Before using these data in final equipment designs, consult Machlett for possible revisions.*

## GENERAL CHARACTERISTICS

### Electrical

Filament Voltage .....	11.0	V
Filament Current .....	360	A
Filament Starting Current, maximum .....	1200	A
Filament Cold Resistance .....	.0037	ohm
Amplification Factor .....	500	
Interelectrode Capacitance		
Grid-Plate .....	30	pf
Grid-Cathode .....	200	pf
Plate-Cathode .....	50	pf

### Mechanical

Mounting Position .....	Vertical, anode down
Insulating Medium .....	Oil or equivalent
Type of Cooling .....	Forced oil
Oil flow for 20 kW dissipation .....	20 gpm
Maximum bulk oil temperature .....	75 °C
Maximum circulating oil temperature for maximum dissipation .....	75 °C
Maximum Ceramic Temperature .....	165 °C
Net Weight, approximate .....	1.40 lb

ACCESSORIES

Item	Part No.
Oil Jacket Sleeve .....	510267
Oil Jacket Bayonet Base .....	510268

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

Maximum Ratings, Absolute Values

DC Plate Voltage .....	180 kV†
Peak Plate Voltage .....	180 kV†
DC Grid Voltage .....	-1500 V
Peak Negative Grid Voltage .....	-3500 v
Pulse Cathode Current .....	225 a
Grid Dissipation .....	1000 W
Plate Dissipation .....	20 kW
Pulse Duration .....	1000 μs #
Duty Factor .....	.005 #

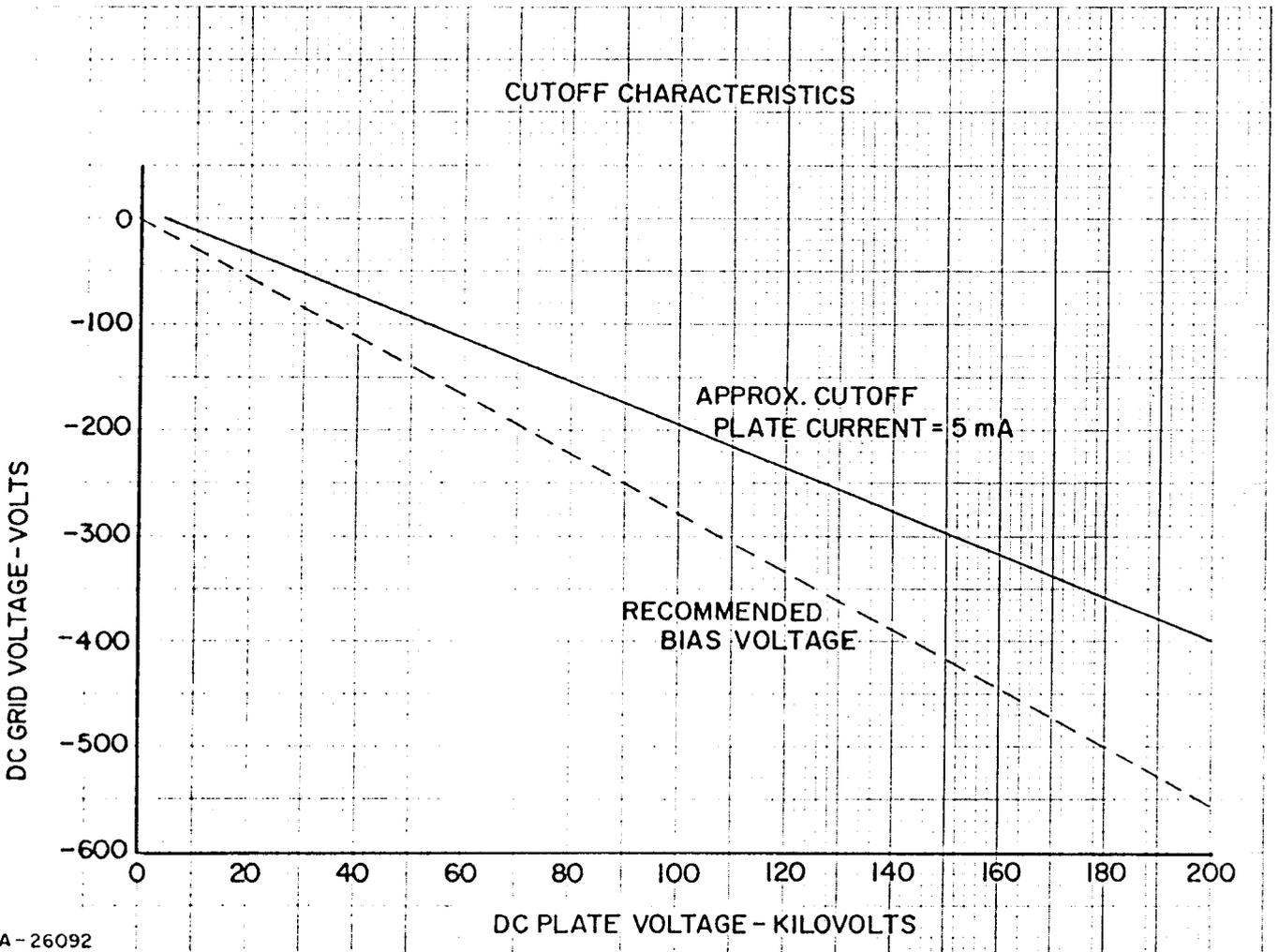
Typical Operation

DC Plate Voltage .....	170 kV
DC Grid Voltage .....	-500 V
Pulse Positive Grid Voltage .....	1350 v
Pulse Plate Current .....	135 a
Pulse Grid Current .....	50 a
Pulse Driving Power .....	95 kw
Pulse Power Output .....	20 Mw
Pulsed Plate Output Voltage .....	150 kv

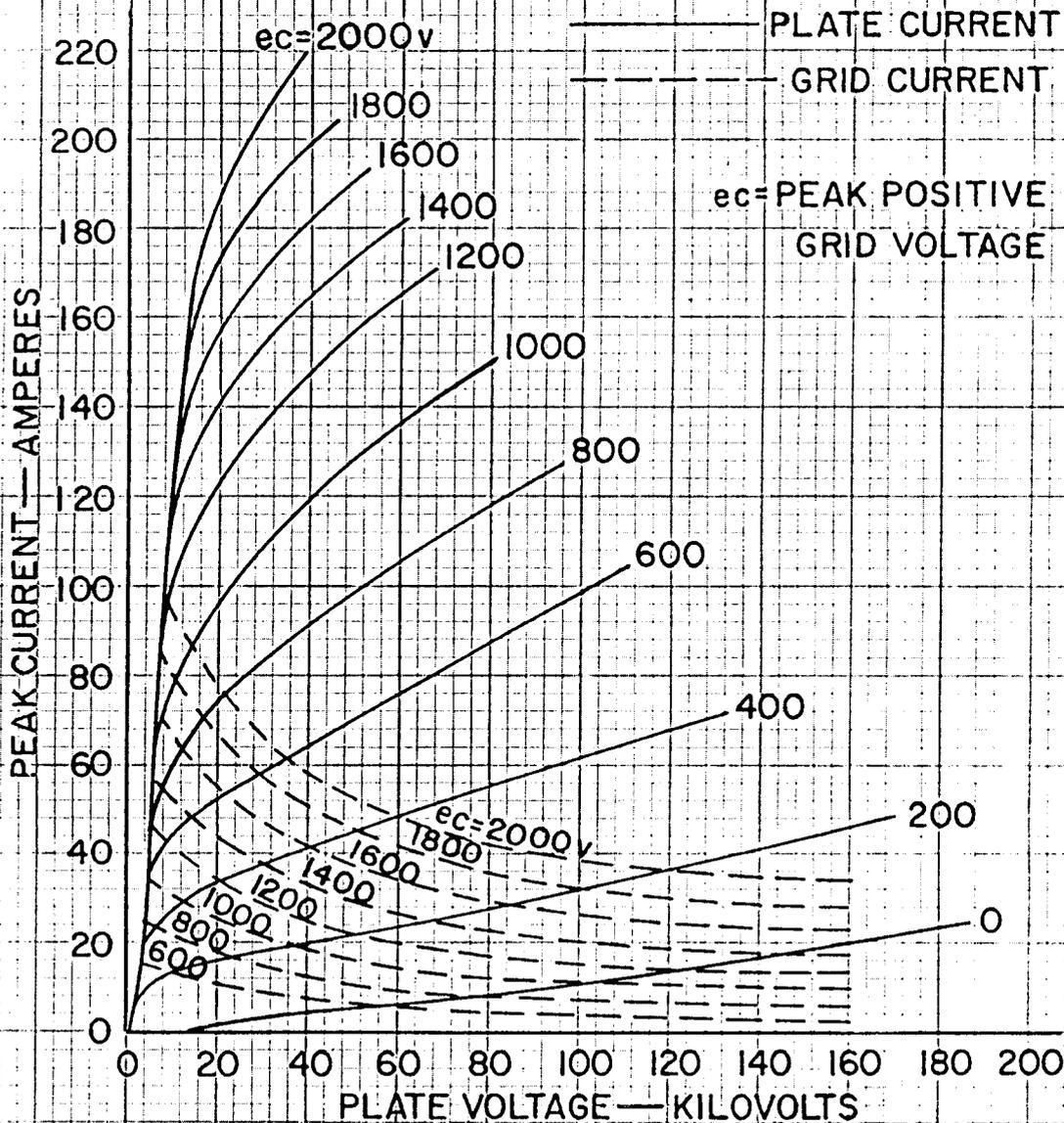
†This voltage may be applied only when the tube is immersed in a suitable dielectric fluid.

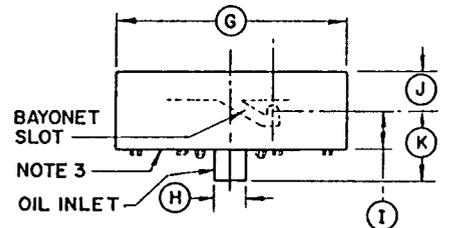
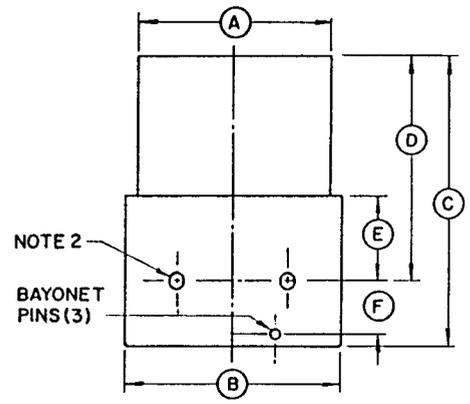
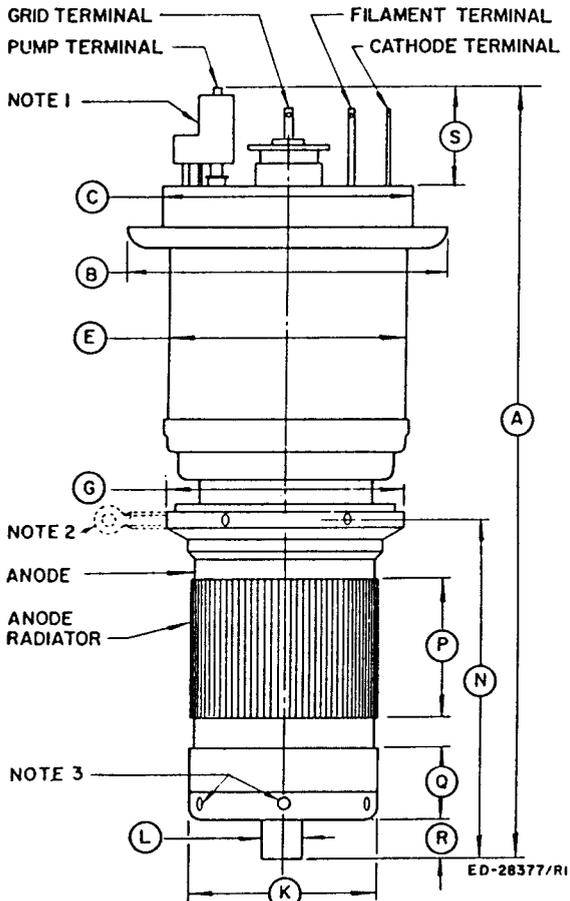
#For applications requiring longer pulse duration or higher duty factors, consult the Machlett Engineering Department.

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



### CONSTANT GRID-VOLTAGE CHARACTERISTICS E<sub>f</sub>=110 VOLTS





ED-510273

DIMENSIONS FOR OUTLINE OF ML-8548

Ref.	Inches*			Notes
	Minimum	Nominal	Maximum	
A		38		
B		16.25		
C		12.75		
E		12		
G		12		
K		9.45		
L		2		
N		16.25		
P		7.06		
Q		3.75		
R		2		
S		5		

- NOTES:**
1. One-liter-per-second ion-type vacuum pump.
  2. Three removable eyebolts supplied with tube for lifting.
  3. Six holes for attaching oil jacket.
- \*Limits to be determined.

DIMENSIONS FOR OUTLINE OF OIL JACKET

Ref.	Inches*			Notes
	Minimum	Nominal	Maximum	
A		9.75		
B		11.01		
C		16.25		
D		11.56		
E		4.38		
F		2.75		
G		11.76		
H		1.66		
I		2.00		
J		2.00		
K		3.50		

- NOTES:**
1. Oil Jacket Bayonet Base is mounted permanently in equipment. Oil Jacket Sleeve is attached to tube and assembly is locked in base by means of bayonet pins.
  2. Six 1/2"-13 hexagon-head screws for attaching oil jacket sleeve to tube.
  3. Flat annular surface, 4.0 in. ID, 9.6 in. OD, available for attaching stand-off insulators.
- \*Limits to be determined.

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