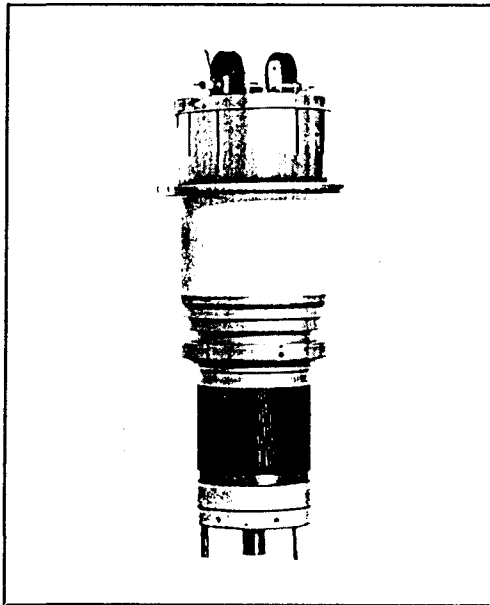




ML-8548

High-Mu Triode

Pulse Power
to 20 Mw



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	140	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 μ s #
Duty Factor	.005 #

Typical Operation

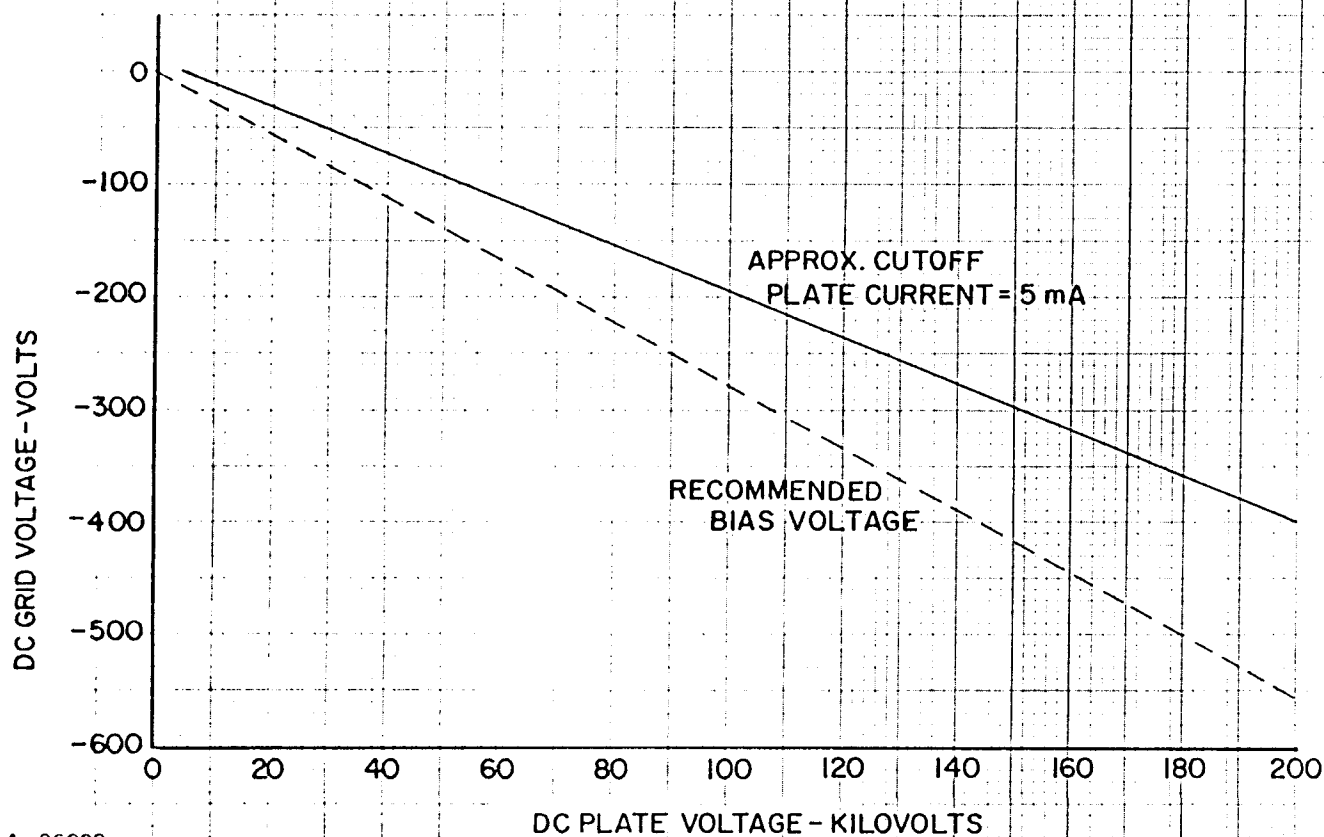
DC Plate Voltage	170 kV
DC Grid Voltage	-500 V
Pulse Positive Grid Voltage	1350 v
Pulse Plate Current	135 a
Pulse Grid Current	50 a
Pulse Driving Power	95 kw
Pulse Power Output	20 Mw
Pulsed Plate Output Voltage	150 kv

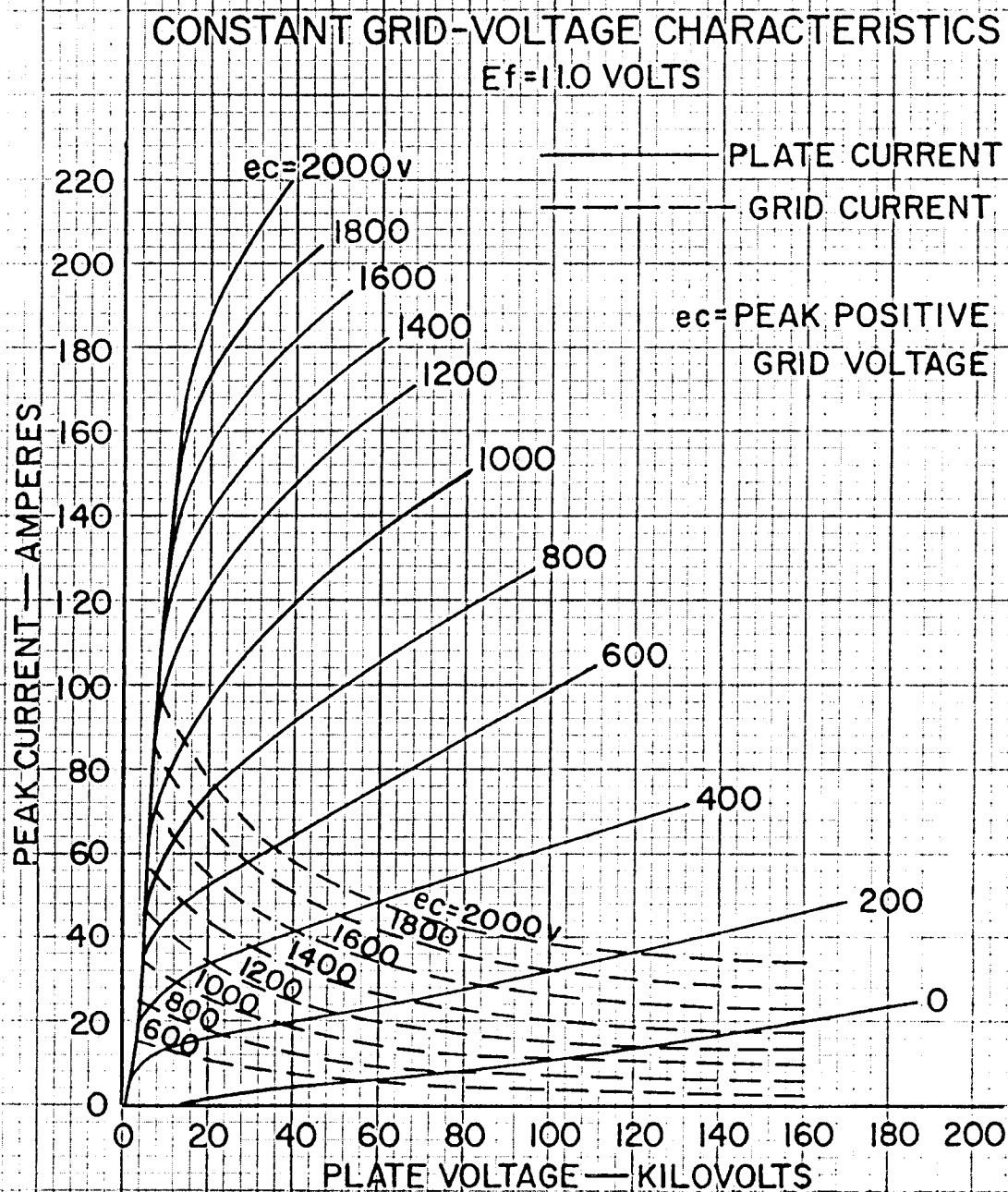
†This voltage may be applied only when the tube is immersed in a suitable dielectric fluid.

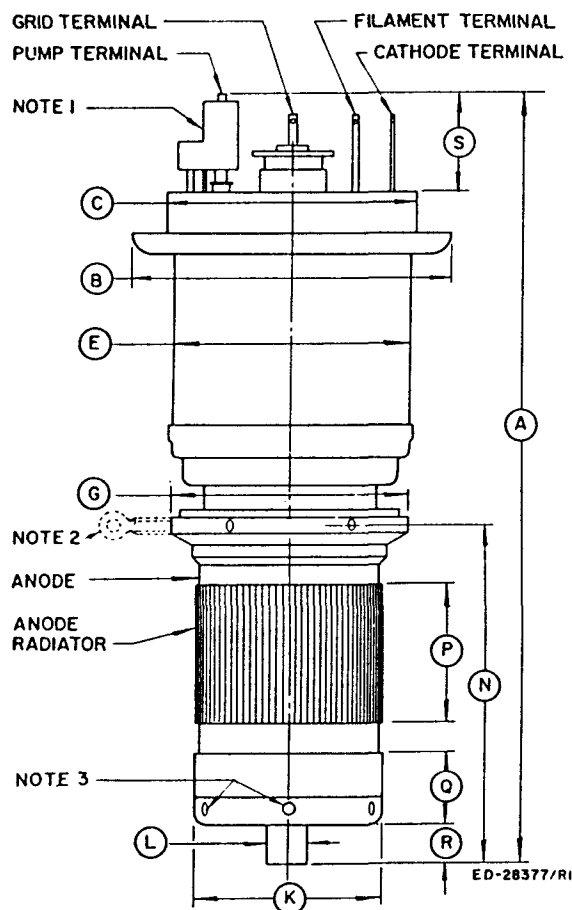
#For applications requiring longer pulse duration or higher duty factors, consult the Machlett Engineering Department.

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

CUTOFF CHARACTERISTICS







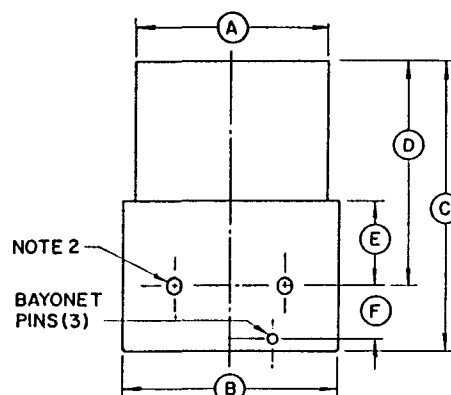
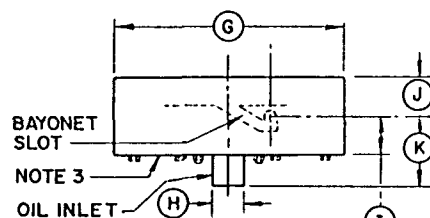
DIMENSIONS FOR OUTLINE OF ML-8548

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.

OIL JACKET SLEEVE
PART NO. 510267 (NOTE 1)OIL JACKET BAYONET BASE
PART NO. 510268 (NOTE 1)

ED-510273

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.

THE MACHLETT LABORATORIES, INC.

An Affiliate of Raytheon Company

SPRINGDALE



CONNECTICUT