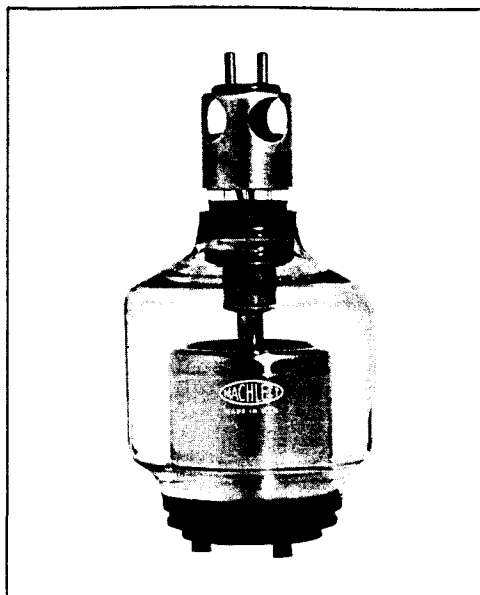


The Machlett Laboratories, Inc.
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ISSUED 4-68



ML-8495



**High-Voltage
 Triode**
 Plate Voltage
 to 160 kV

DESCRIPTION

The ML-8495 is a high-voltage triode designed for use as a switch tube in pulse modulators for radar and in other high-voltage switching applications. In this service the ML-8495 can deliver pulse power output in the order of 2 to 3 Mw. The cathode of this tube consists of sturdy, self-supporting, stress-

free thoriated tungsten filaments. The anode, when cooled by a forced flow of oil, is capable of dissipating 2500 W. The tube is designed for operation immersed in oil or equivalent dielectric liquid, which is required for utilization of the maximum plate-voltage rating of 160 kVdc.

GENERAL CHARACTERISTICS

Electrical

Filament Voltage	12.6	V
Filament Current	29	A
Filament Starting Current, maximum	120	A
Filament Cold Resistance	.0053	Ohms
Amplification Factor	250	
Interelectrode Capacitances		
Grid-Plate	7.0	pf
Grid-Filament	30	pf
Plate-Filament	.2	pf

Mechanical

Mounting Position	Vertical, anode down	
Insulating Medium	Oil or equivalent	
Type of Cooling	Forced oil	
Oil Flow for 2500 Watts Plate Dissipation	10 to 12	gpm†
Maximum Bulk Oil Temperature	75	°C
Maximum Circulating Oil Temperature for Maximum Dissipation	75	°C
Maximum Glass Temperature	165	°C
Net Weight, with oil jacket, approximate	20	lb

†When using Machlett oil jacket part number F-27548. (Order separately.)

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".

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Pulse Modulator or Pulse Amplifier

Maximum Ratings, Absolute Values

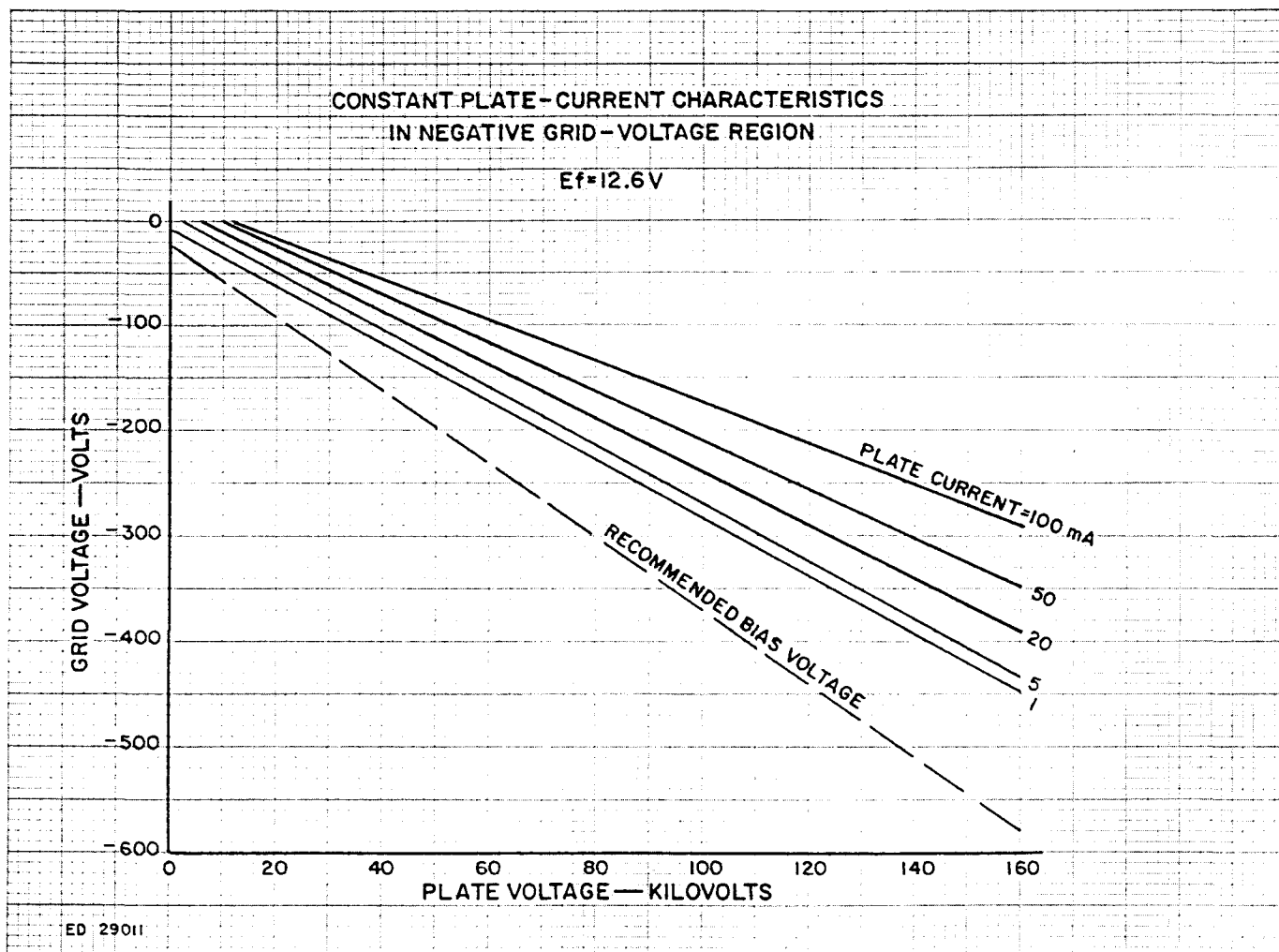
DC Plate Voltage	160	kV‡
Peak Plate Voltage	165	kV‡
DC Grid Voltage	-1000	V
Peak Negative Grid Voltage	-2500	v
Pulse Cathode Current	22	a
Grid Dissipation	50	W
Plate Dissipation	2500	W
Pulse Duration	1000	μs#
Duty Factor	.008#	

Typical Operation

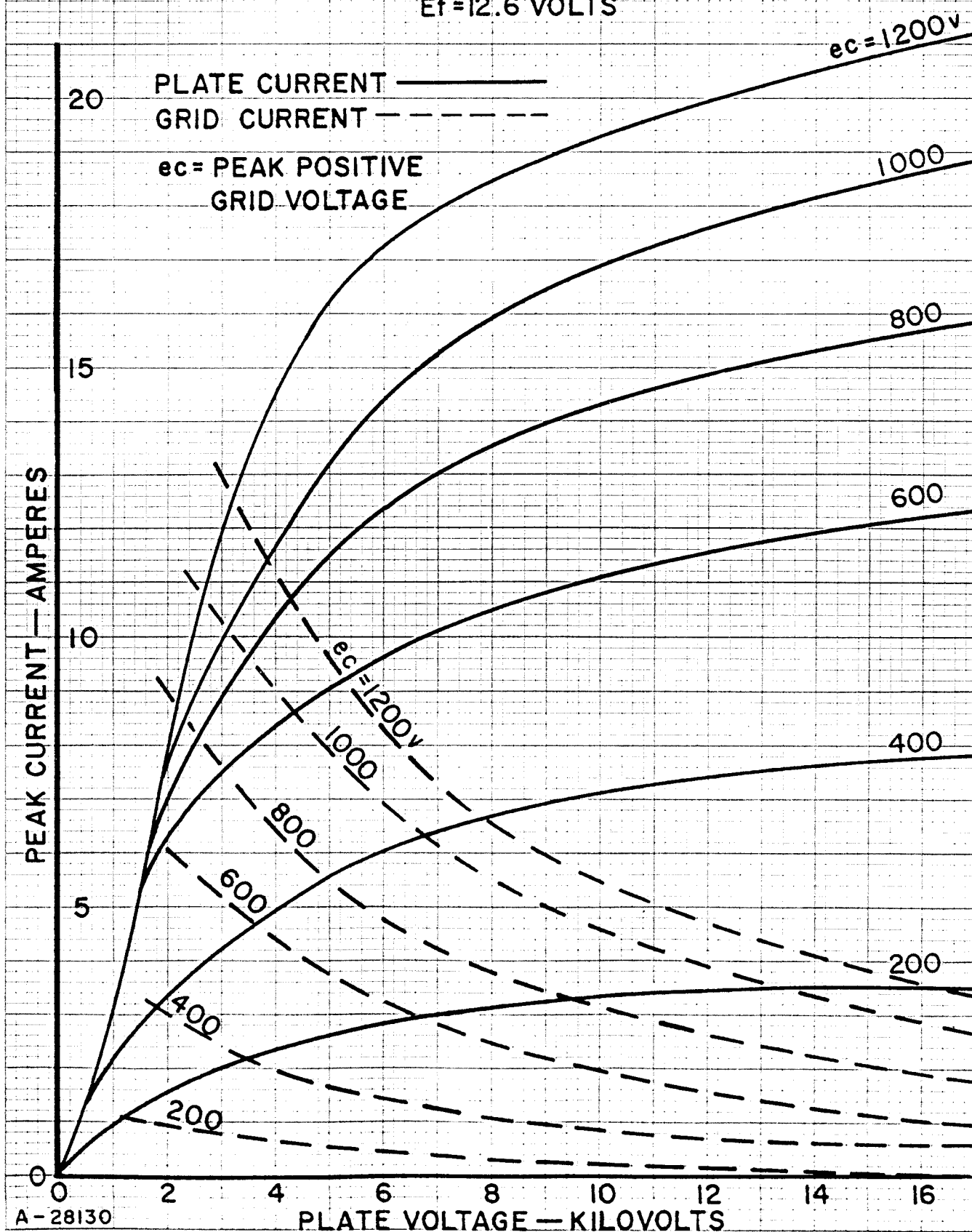
DC Plate Voltage	150	kV
DC Grid Voltage	-550	V
Pulse Positive Grid Voltage	1000	v
Pulse Plate Current	18	a
Pulse Grid Current	3	a
Pulse Driving Power	6	kw
Pulse Power Output	2.4	Mw
Pulsed Plate Output Voltage	135	kv

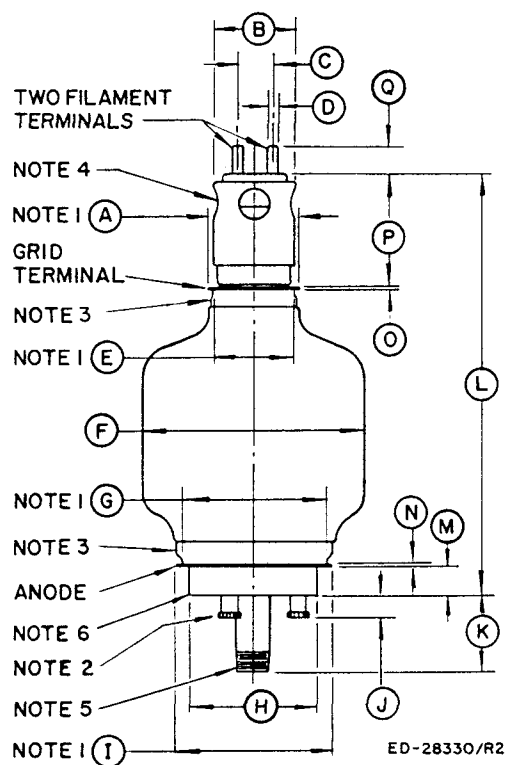
#For applications requiring longer pulse duration or higher duty factors, consult the Machlett Engineering Department.

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



CONSTANT GRID-VOLTAGE CHARACTERISTICS

 $E_f = 12.6$ VOLTS



ED-28330/R2

DIMENSIONS FOR OUTLINE OF ML-8495

Ref.	Inches			Notes
	Minimum	Nominal	Maximum	
A	3.16	3.19	3.21	1
B		2.88	2.92	
C	1.240	1.250	1.260	
D	.368	.372	.376	
E	3.12	3.13	3.14	1, 3
F		8.00	8.18	
G	5.36	5.38	5.39	1, 3
H		4.72	4.76	
I	5.450	5.455	5.470	1
J		.75	.85	
K	2.94	3.00	3.06	
L	15.00	15.22	15.47	
M	1.01	1.19	1.38	
N	.05	.08	.12	
O	.03	.04	.05	
P	3.4	3.9	4.2	
Q		1.00	1.15	

NOTES:

1. Allow additional $\pm .01''$ for out of roundness.
2. Three thumb screws for retaining oil-cooling jacket.
3. Do not clamp on this surface (spring contact only).
4. Allow clearance for circulation of oil through holes.
5. Oil inlet connection, 1" IPT. Oil discharges into enclosure.
6. Tube is shown with oil cooling jacket, which is optional item at extra cost.

RAYTHEON

THE MACHLETT LABORATORIES, INC.

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