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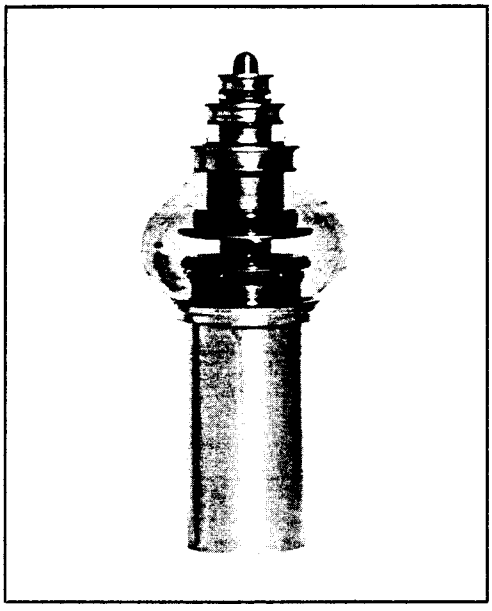


ISSUED 5-64

ML-DP15

MACHLETT

High-Mu Triode
Pulse Power
to 20 Mw

DESCRIPTION

The ML-DP15 is a 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 15 to 20 Mw, depending on circuitry and performance requirements.

The ML-DP15 is designed for operation in oil or equivalent dielectric fluid, which is required for utilization of the maximum plate voltage ratings. For applications with a resistive load and low energy storage, the tube is tentatively rated at 150 kVdc plate voltage. Where the tube is to be used in series with the rf load tube, where high stored energy is involved, or where the frequency of kick-outs must be extremely low, the dc plate voltage should be limited to 125 kV.

The cathode of this tube consists of sturdy, stress-free thoriated-tungsten filaments. The anode is capable of dissipating 6 kW when cooled by free convection of oil. Several modifications of the anode are feasible for higher dissipation, in the order of 9 to 20 kW. In this case a forced flow of the dielectric liquid would be required, in the order of 10 to 20 gpm when the liquid is mineral 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	13.0	V
Filament Current	210	A
Amplification Factor	135	
Interelectrode Capacitances		
Grid-Plate	25	pf
Grid-Filament	80	pf
Plate-Filament	.7	pf

Mechanical

Mounting Position (tube to be supported by anode only)	Vertical, anode down	
Type of Cooling	Oil convection	
Maximum bulk oil temperature	75	C†
Maximum Glass Temperature	165	°C
Net Weight, approximate	35	lb

†It might be necessary to promote mixing of oil by agitation.

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Pulse Modulator or Pulse Amplifier

Maximum Ratings

DC Plate Voltage	150	kV‡
Peak Plate Voltage	150	kv‡
DC Grid Voltage	−1500	V
Peak Negative Grid Voltage	−6000	v
Pulse Cathode Current	175	a
Grid Dissipation	1000	W
Plate Dissipation	6	kW‡‡
Pulse Duration	1000	μs#
Duty Factor	.01	#

Typical Operation

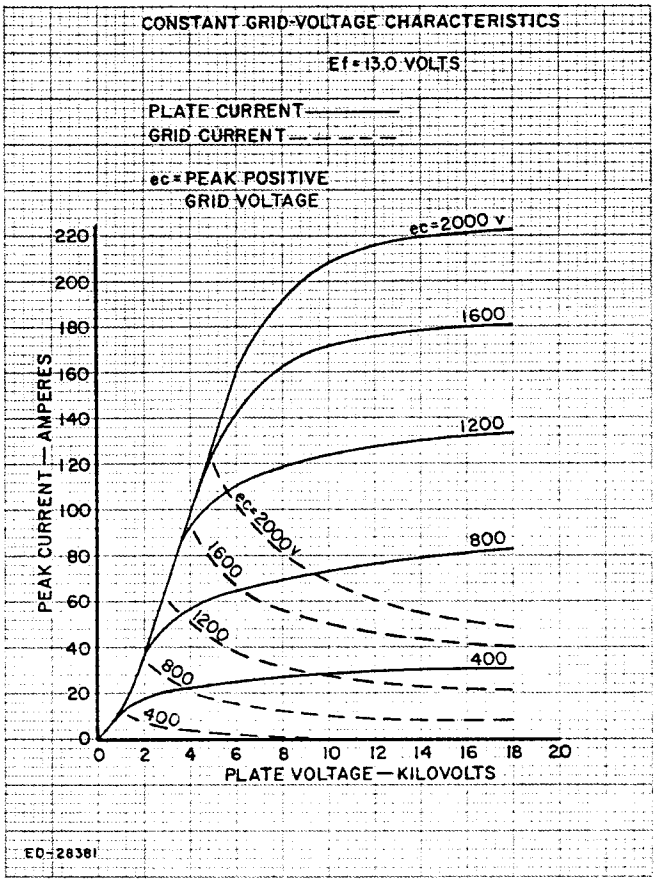
DC Plate Voltage	125	kV
DC Grid Voltage	−1200	V
Pulse Positive Grid Voltage	1300	v
Pulse Plate Current	130	a
Pulse Grid Current	35	a
Pulse Driving Power	90	kw
Pulse Power Output	15	Mw
Pulsed Plate Output Voltage	115	kv
Duty Factor	.004	

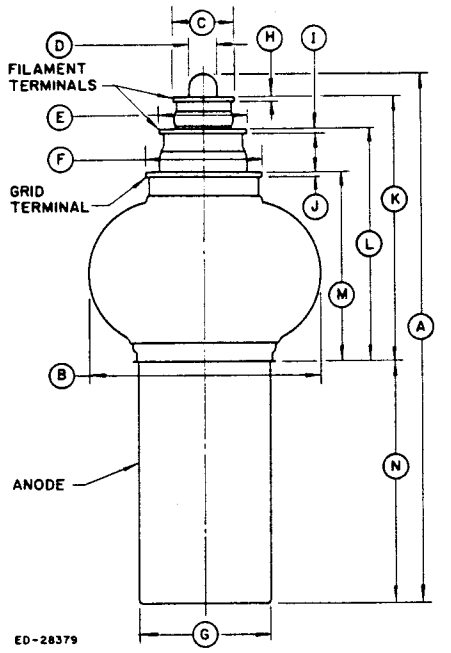
‡Consult the Machlett Laboratories for operation above 125 kV. This voltage may be applied only when the tube is immersed in a suitable dielectric fluid.

‡‡With tube immersed in oil and cooled by natural convection. Higher plate dissipation is possible with forced-liquid cooling.

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

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

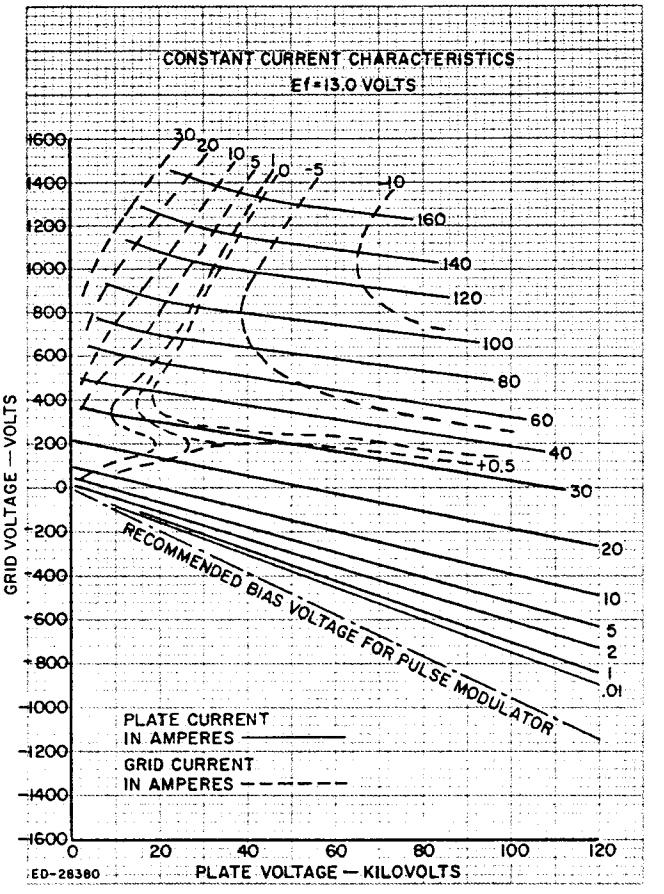




DIMENSIONS FOR OUTLINE OF ML-DP15

Ref.	Inches* Nominal	Ref.	Inches* Nominal	Ref.	Inches* Nominal	Ref.	Inches* Nominal
A	21	E	3.50	I	.19	M	7.38
B	9	F	4.63	J	.19	N	9.50
C	2.50	G	5.13	K	10.38		
D	1.13	H	.19	L	9.13		

*Limits to be determined.



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