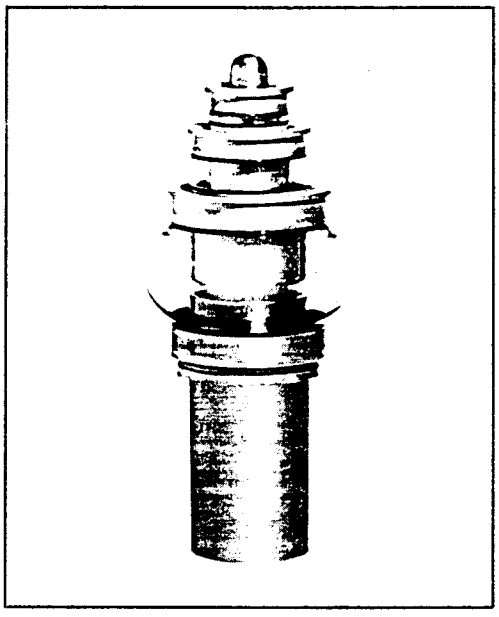


ISSUED 5-64

ML-DP20

High-Mu Triode
Pulse Power
to 2 Mw

MACHLETT
ELECTRON TUBE SPECIALIST

DESCRIPTION

The ML-DP20 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 the tube can deliver pulse power output in the order of 2 Mw.

The cathode of this tube consists of sturdy, self-supporting, stress-free thoriated-tungsten filaments. The tube is designed for operation in oil or equivalent dielectric liquid, which is required for utilization of the maximum plate voltage rating of 90 kV. The anode is capable of dissipating 1.6 kW when cooled by free convection 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	7.0	V
Filament Current	85	A
Filament Starting Current	400	A
Filament Cold Resistance	.0095	Ohm
Amplification Factor	180	
Interelectrode Capacitance, approximate		
Grid-Plate	14	pf
Grid-Cathode	32	pf
Plate-Cathode	1	pf

Mechanical

Mounting Position	Vertical, anode down	
Type of Cooling	Oil convection	
Maximum bulk oil temperature	75	°C†
Maximum Glass Temperature	165	°C
Net Weight, approximate	15	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, Absolute Values

DC Plate Voltage	90	kV§
Peak Plate Voltage	100	kv§
DC Grid Voltage	−1500	V
Peak Negative Grid Voltage	−2500	v
Pulse Cathode Current	35	a
Grid Dissipation	300	W
Plate Dissipation	1.6	kW‡
Pulse Duration, approximate	1000	μs#
Duty Factor	.03	#

Typical Operation

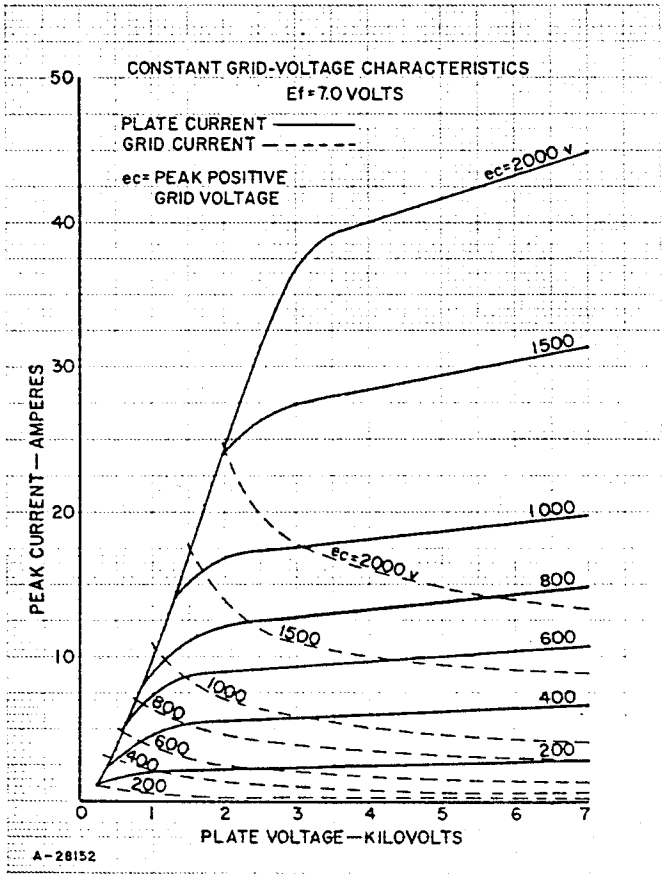
DC Plate Voltage	80	kV
DC Grid Voltage	−600	V
Peak Positive Grid Voltage	1600	v
Pulse Plate Current	30	a
Pulse Grid Current	10	a
Pulse Driving Power	21	kw
Pulse Power Output	2.2	Mw
Pulsed Plate Output Voltage	76	kv
Duty Factor	.01	

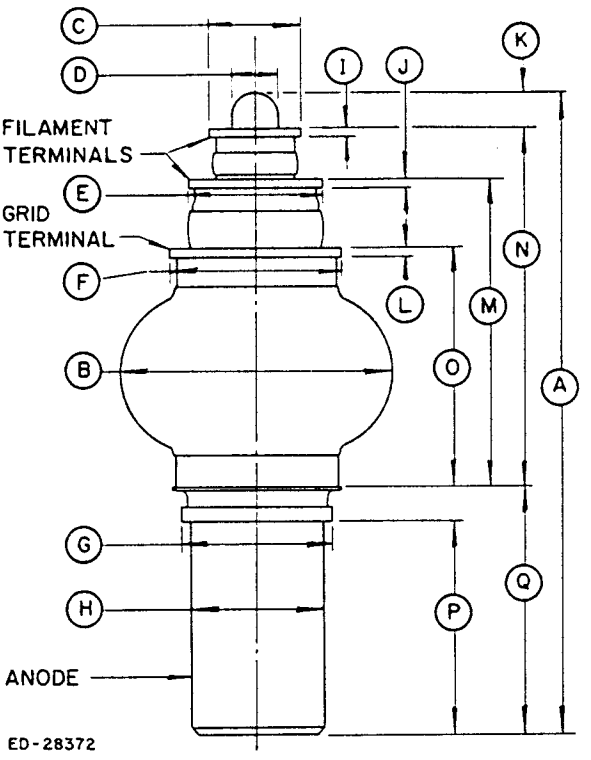
§This voltage may be applied only when the tube is immersed in a suitable dielectric fluid.

‡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 might produce x-rays. Adequate rayproof shielding must therefore be provided in the equipment.

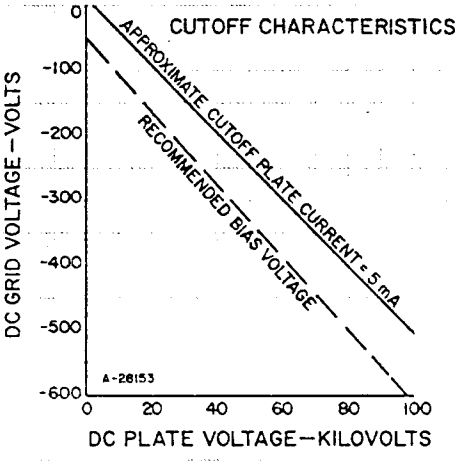




DIMENSIONS FOR OUTLINE OF ML-DP20

Ref.	Inches*			Notes
	Minimum	Nominal	Maximum	
A		16.4		
B		7.0		
C		2.50		
D		1.16		
E		3.50		
F		4.63		
G		4.00		
H		3.50		
I		.19		
J		.19		
K		.94		
L		.19		
M		8.00		
N		9.25		
O		6.31		
P		5.50		
Q		6.19		

*Limits to be determined.



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