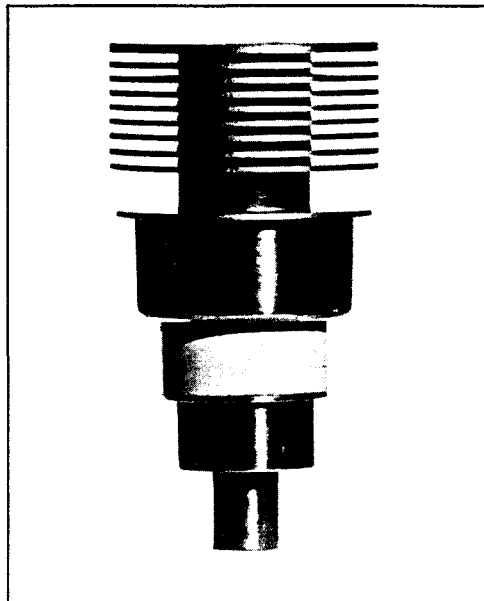




ML-7855

UHF Planar Triode

CW, Plate or Grid Pulsed

Frequency Stable

Phormat Cathode

17 W CW at 2.5 Gc



ELECTRON TUBE SPECIALIST

DESCRIPTION

The ML-7855 is a ruggedized, high-mu planar triode of ceramic-and-metal construction, designed for use as a grid-pulsed, plate-pulsed, or CW oscillator, frequency multiplier, or amplifier in radio transmitting service from low frequency to 3 Gc.

In addition to low interelectrode capacitance, high transconductance and high mu, this tube incorporates design features which help to assure frequency-stable operation

even under adverse ambient temperature and varying plate dissipation conditions. The cathode is an indirectly heated disc with an oxide coating impregnated in a nickel matrix. The unique matrix construction (in combination with proper plate series impedance) reduces to a minimum failures of the cathode due to voltage surges thereby further increasing the reliability of this tube. The anode of the ML-7855 is cooled by forced air.

GENERAL CHARACTERISTICS

Electrical

Heater Voltage (AC or DC)	6.0 V
Heater Current at 6.0 Volts	1.00 A
Cathode Heating Time, minimum	60 sec
Amplification Factor	80
Transconductance	25000 μ mhos
Interelectrode Capacitance, without Heater Voltage	
Grid-Plate	2.5 pf
Grid-Cathode	6.3 pf
Plate-Cathode, maximum	.06 pf

Mechanical

Mounting Position	Optional
Type of Cooling	Forced-air
Maximum Anode Temperature	250 °C
Net Weight	2.5 oz

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

RF Power Amplifier and Oscillator
Class C Telegraphy

Key-down conditions per tube without amplitude modulation†

Maximum Ratings, Absolute Values

DC Plate Voltage	2500 V
DC Grid Voltage	-150 V
Instantaneous Peak Grid-Cathode Voltage	
Grid negative to cathode	-400 v
Grid positive to cathode	30 v
DC Plate Current	100 mA
DC Grid Current	45 mA
Plate Dissipation	100 W
Grid Dissipation	2 W
Frequency	2.5 Gc

Typical Operation, RF Power Amplifier

Frequency	500 Mc
Filament Voltage	6.0 V
DC Plate Voltage	900 V
DC Grid Voltage	-40 V
DC Plate Current	90 mA
DC Grid Current, approximate	30 mA
Driving Power, approximate	6 W
Useful Power Output	40 W

Typical Operation, RF Oscillator

Frequency	2.5 Gc
Filament Voltage	6.0 V
DC Plate Voltage	900 V
DC Grid Voltage, approximate	-22 V
DC Plate Current	90 mA
DC Grid Current	10 mA
Useful Power Output	17 W

Plate-Pulsed RF Oscillator and Amplifier
Class C

Maximum Ratings, Absolute Values

Peak Plate Pulse Supply Voltage	3500 v
DC Grid Voltage	-150 V
Instantaneous Peak Grid-Cathode Voltage	
Grid negative to cathode	-750 v
Grid positive to cathode	250 v
Peak Plate Current from Pulse Supply	3 a
Average Plate Current	10 mA
Average Grid Current	5 mA
Average Plate Dissipation	35 W
Average Grid Dissipation	1.5 W
Pulse Duration	6 μs††

Duty Factor	.0033 ††
Frequency	3 Gc

Typical Operation, Plate-Pulsed RF Amplifier

Frequency	2.5 Gc
Filament Voltage	5.8 V
Pulse Duration	5 μs
Duty Factor	.0030
Peak Plate Pulse Supply Voltage	3500 v
Peak Plate Current from Pulse Supply	3 a
Average Plate Current	9 mA
Average Grid Current	3 mA
Useful Peak Power Output, approximate	2 kw

Grid-Pulsed RF Oscillator and Amplifier
Class C

Maximum Ratings, Absolute Values

DC Plate Voltage	2500 V
DC Grid Voltage	-150 V
Instantaneous Peak Grid-Cathode Voltage	
Grid negative to cathode	-750 v
Grid positive to cathode	250 v
Peak Plate Current from DC Supply	3 a
Average Plate Current	10 mA
Average Grid Current	5 mA
Average Plate Dissipation	20 W
Average Grid Dissipation	1.5 W
Pulse Duration	6 μs††
Duty Factor	.0033 ††
Frequency	3 Gc

Typical Operation, Grid-Pulsed RF Amplifier

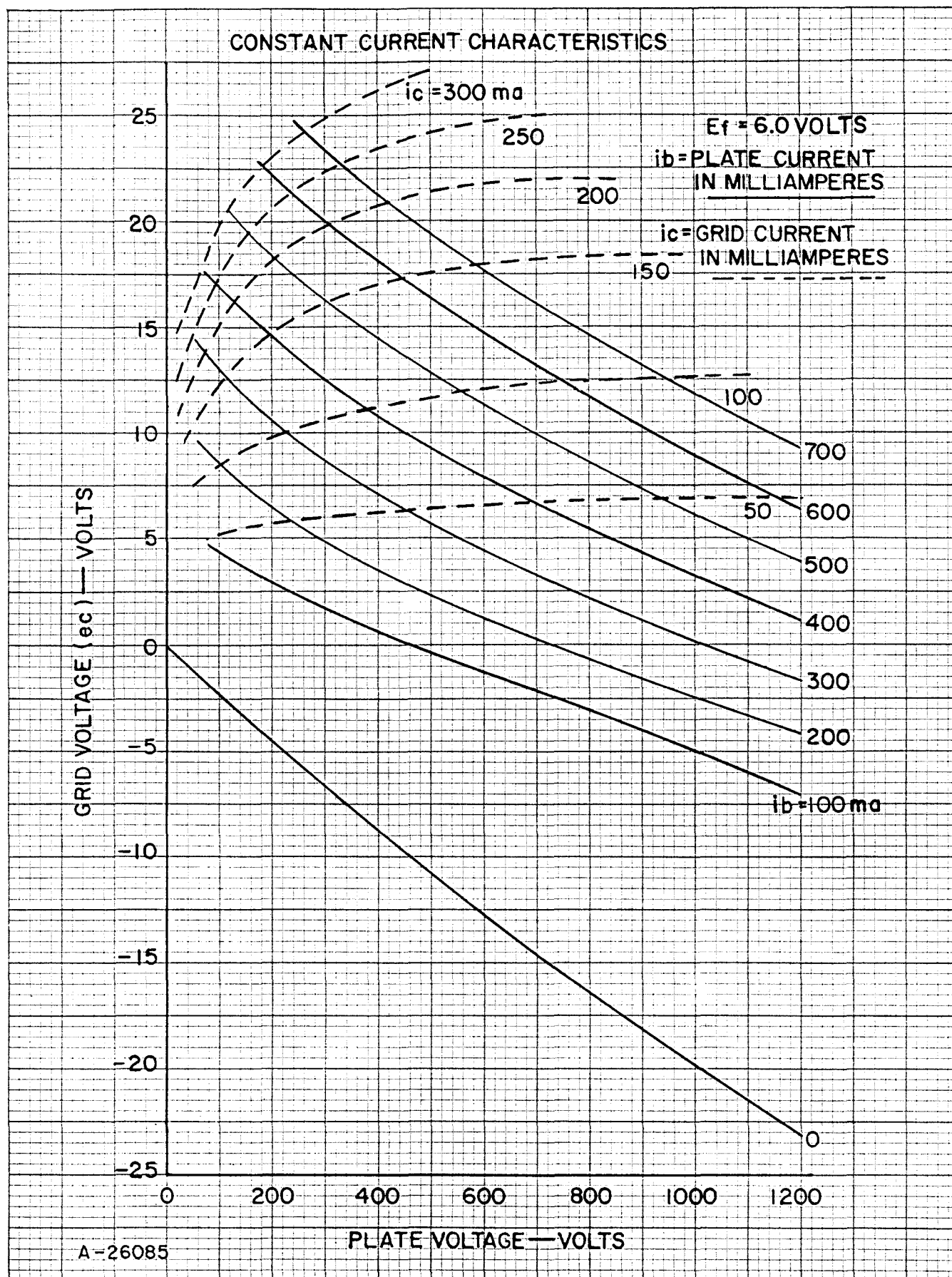
Frequency	1.1 Gc
Filament Voltage	6.0 V
Pulse Duration	3.5 μs
Duty Factor	.001
DC Plate Voltage	1700 V
DC Grid Voltage	-45 V
Peak Plate Current from DC Supply	1.9 a
Peak Grid Current from Pulse Supply	1.1 a
Driving Power During Pulse, approximate	400 W
Useful Peak Power Output, approximate	1.5 kw

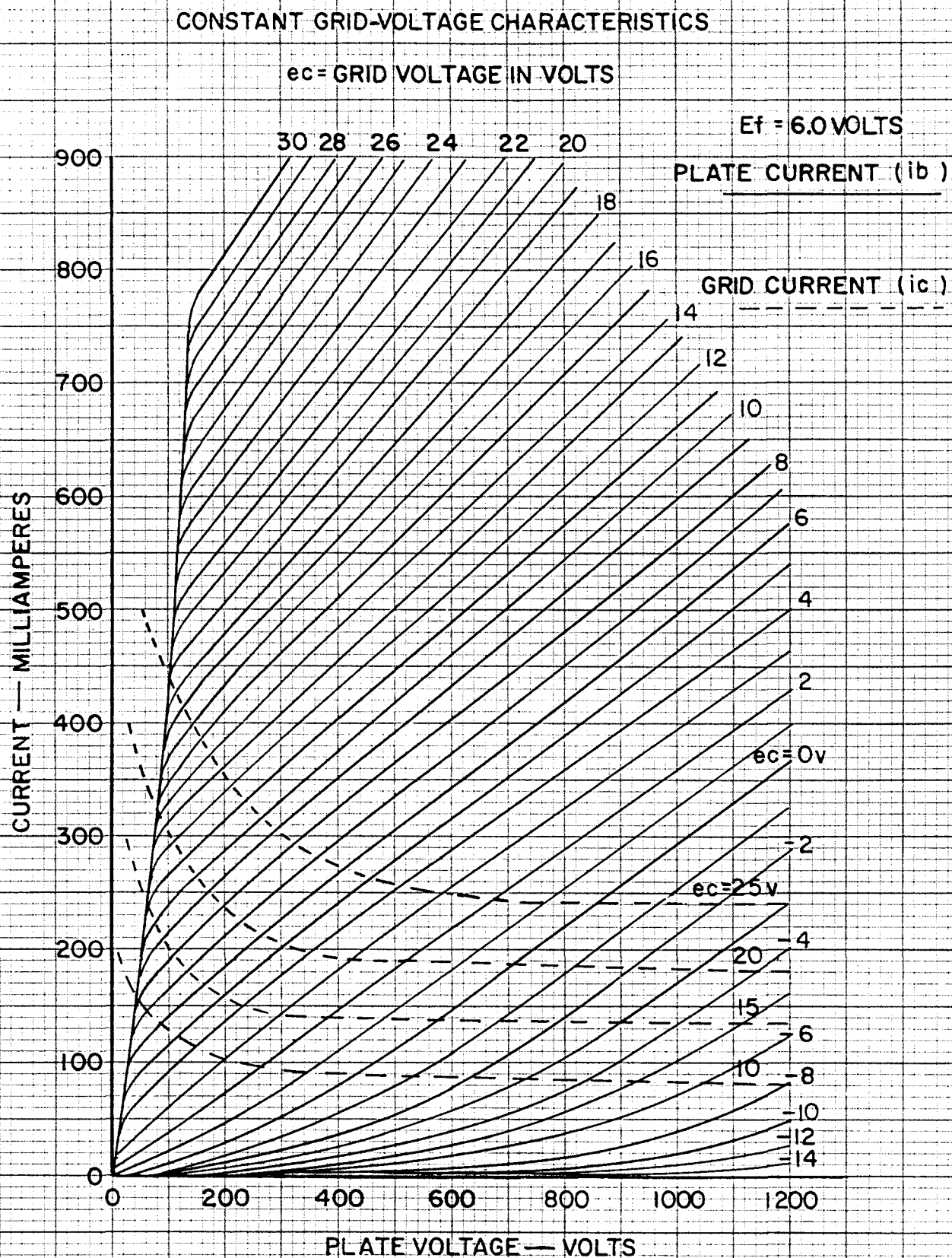
†Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115% of the carrier conditions.

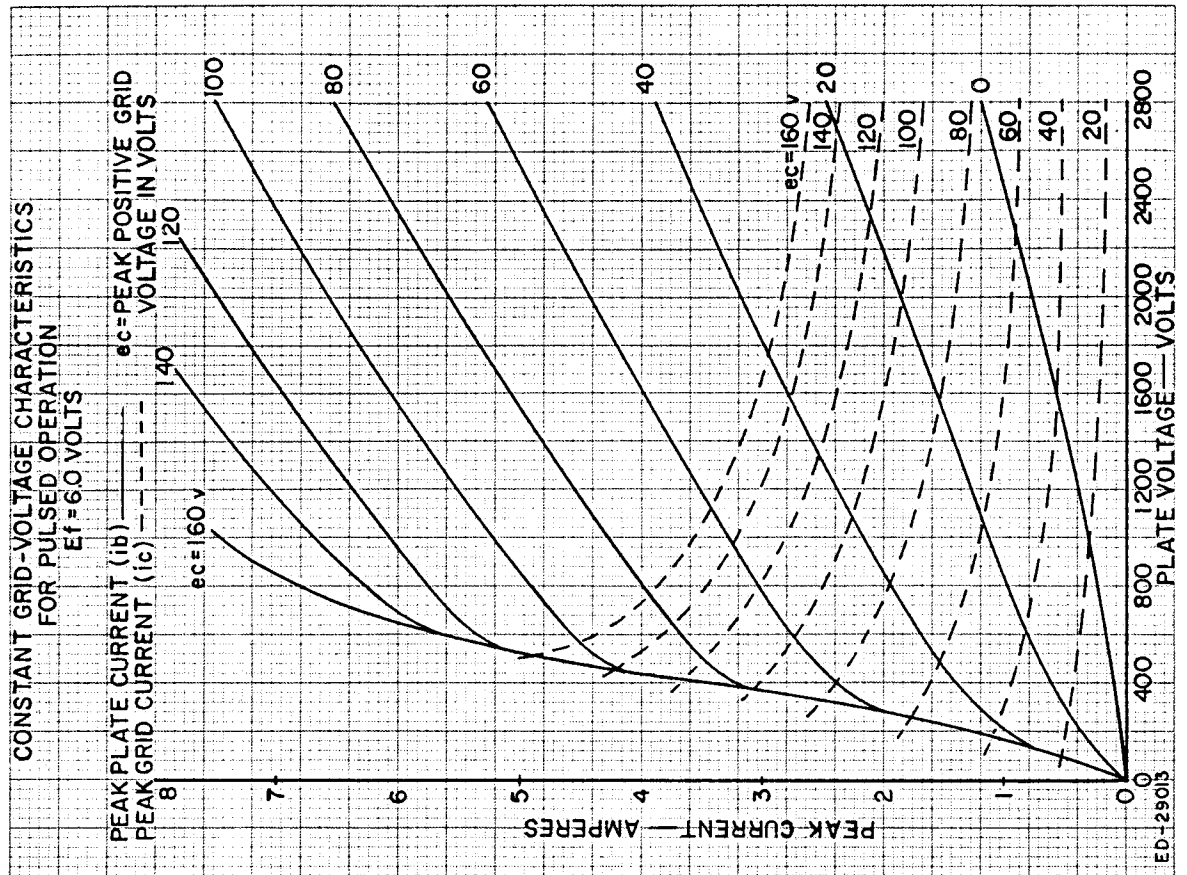
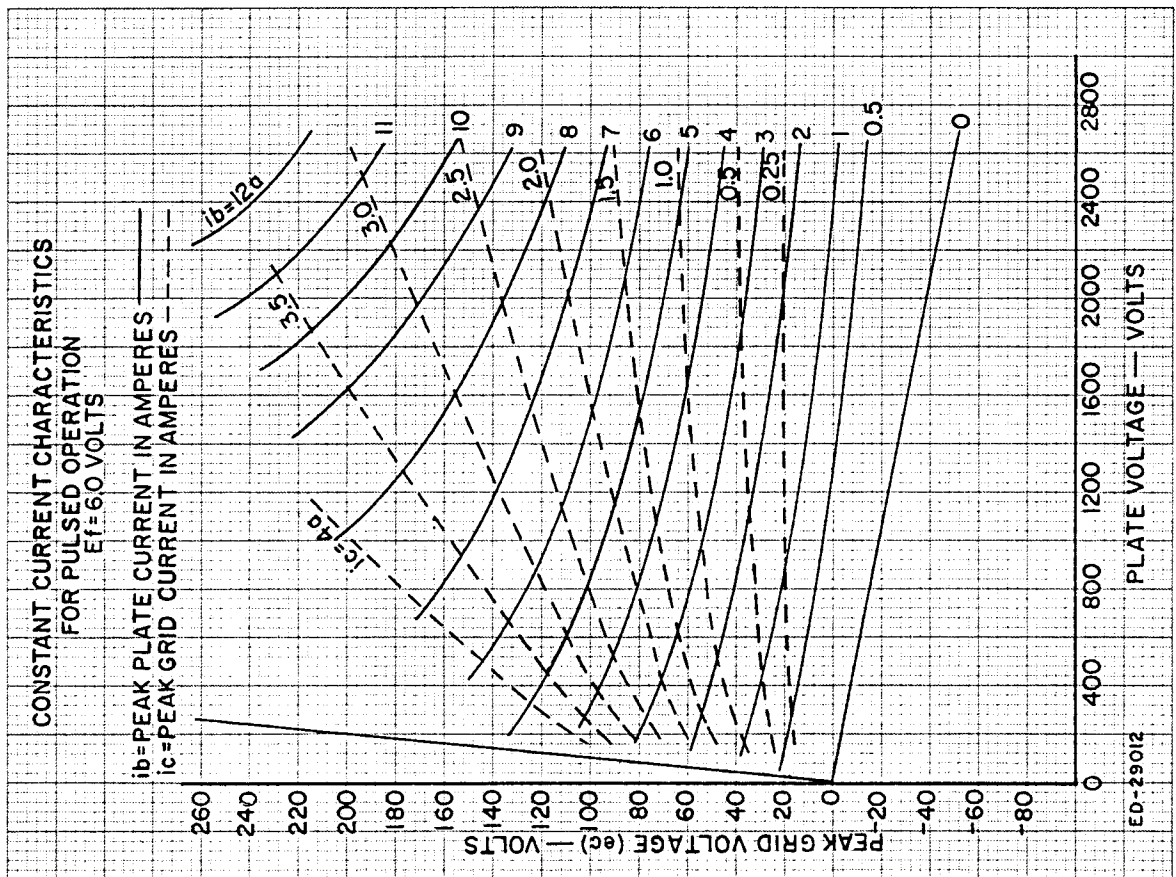
††For applications requiring longer pulse duration or higher duty factors, consult the Machlett Engineering Department.

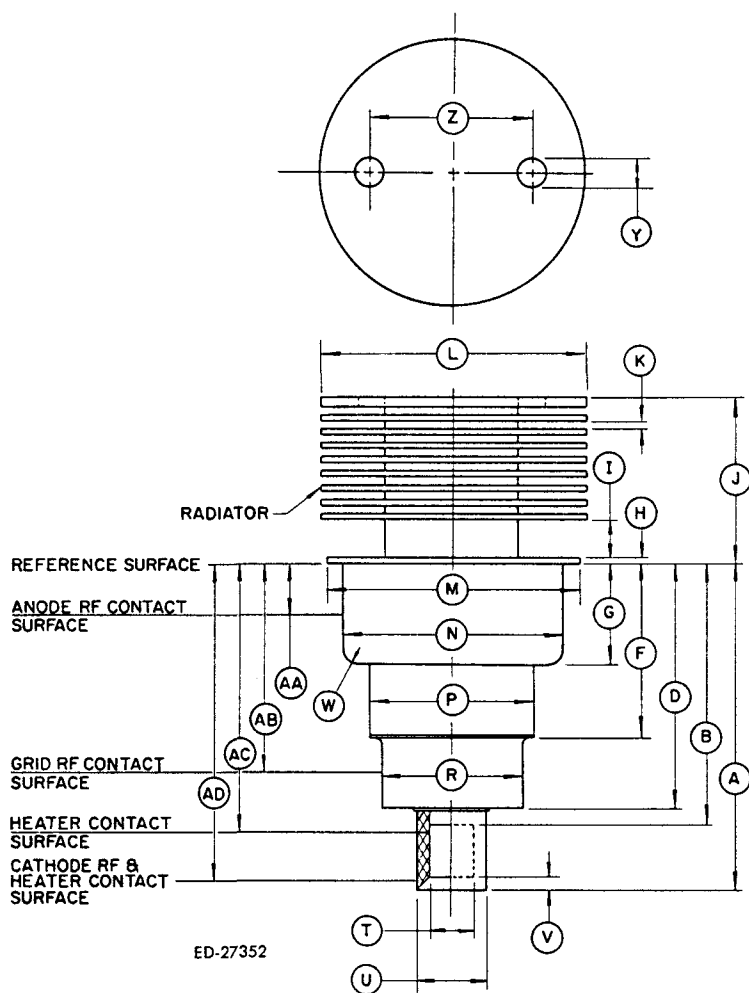
APPLICATION NOTES

Before designing equipment for use with these tubes and before installing tubes in equipment, refer to the general information given in the Machlett publication entitled *Application Notes, UHF Tubes — General*.









**DIMENSIONS FOR
OUTLINE (INCHES)**

Ref.	Minimum	Maximum
A	1.500	1.560
B	—	1.214
D	1.125	1.165
F	0.800	0.840
G	0.462	0.477
H	—	0.040
I	0.125	0.185
J	0.766	0.826
K	0.025	0.046
L	1.234	1.264
M	1.180	1.195
N	1.025	1.035
P	0.752	0.792
R	0.655	0.665
T	0.213	0.223
U	0.315	0.325
V	—	0.086
W	—	0.100
Y	0.105	0.145
Z	0.650	0.850

NOTES

1. The total indicated runout of the anode and grid contact surfaces with respect to the cathode contact surface will not exceed 0.020 inch.
2. The total indicated runout of the cathode contact surface with respect to the heater contact surface will not exceed 0.012 inch.

**DIMENSIONS FOR
ELECTRODE CONTACT SURFACES
(INCHES)**

Ref.	Dimension	Contact
AA	0.198 ± 0.163	Anode
AB	1.061 ± 0.040	Grid
AC	1.316 ± 0.097	Heater
AD	1.330 ± 0.170	Cathode

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