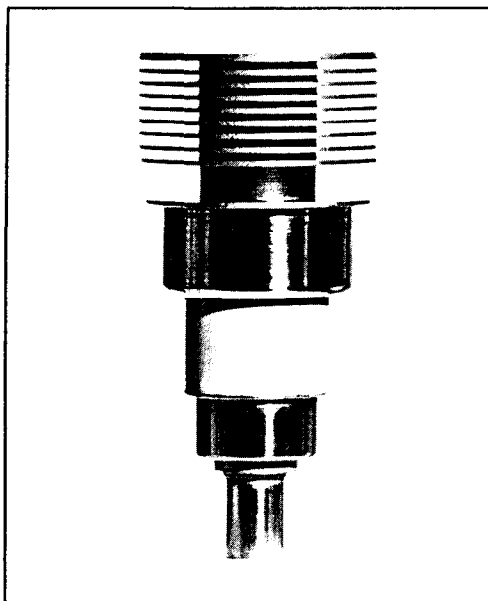




ML-8533

UHF Planar Triode

35 kw Pulse Power

5 kw RF Pulse Power

Phormat Cathode



ELECTRON TUBE SPECIALIST

DESCRIPTION

The ML-8533 is a high-mu planar triode designed for use as a grid-pulsed or plate-pulsed oscillator, frequency multiplier, power amplifier or as a switch tube at high plate voltages. The tubes will deliver useful output at frequencies as high as 3 Gc. Noteworthy differences in this tube as compared to similar tube types are an extended grid-cathode insulator and a special cathode design, permitting operation with up to 8000 Vdc plate voltage. Other features include low interelectrode capacitance, high transconductance, great mechanical strength and capability for sustained, reliable operation at elevated temperatures.

Compact metal-and-ceramic coaxial construction makes the tubes well suited for operation in line-type circuits at lower frequencies as well as in cavity resonators at the higher frequencies. 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-8533 is cooled by forced air.

GENERAL CHARACTERISTICS

Electrical

Heater Voltage (AC or DC)	6.3 $\pm$ 5%	V
Heater Current at 6.3 volts	1.3	A
Heater Heating Time, minimum	60	sec
Amplification Factor, Cutoff	90	
Amplification Factor, Dynamic	145	
Transconductance	30000	μ mhos
Interelectrode Capacitances, without Heater Voltage		
Grid-Plate	1.65	pf
Grid-Cathode	8.0	pf
Plate-Cathode, maximum	.06	pf

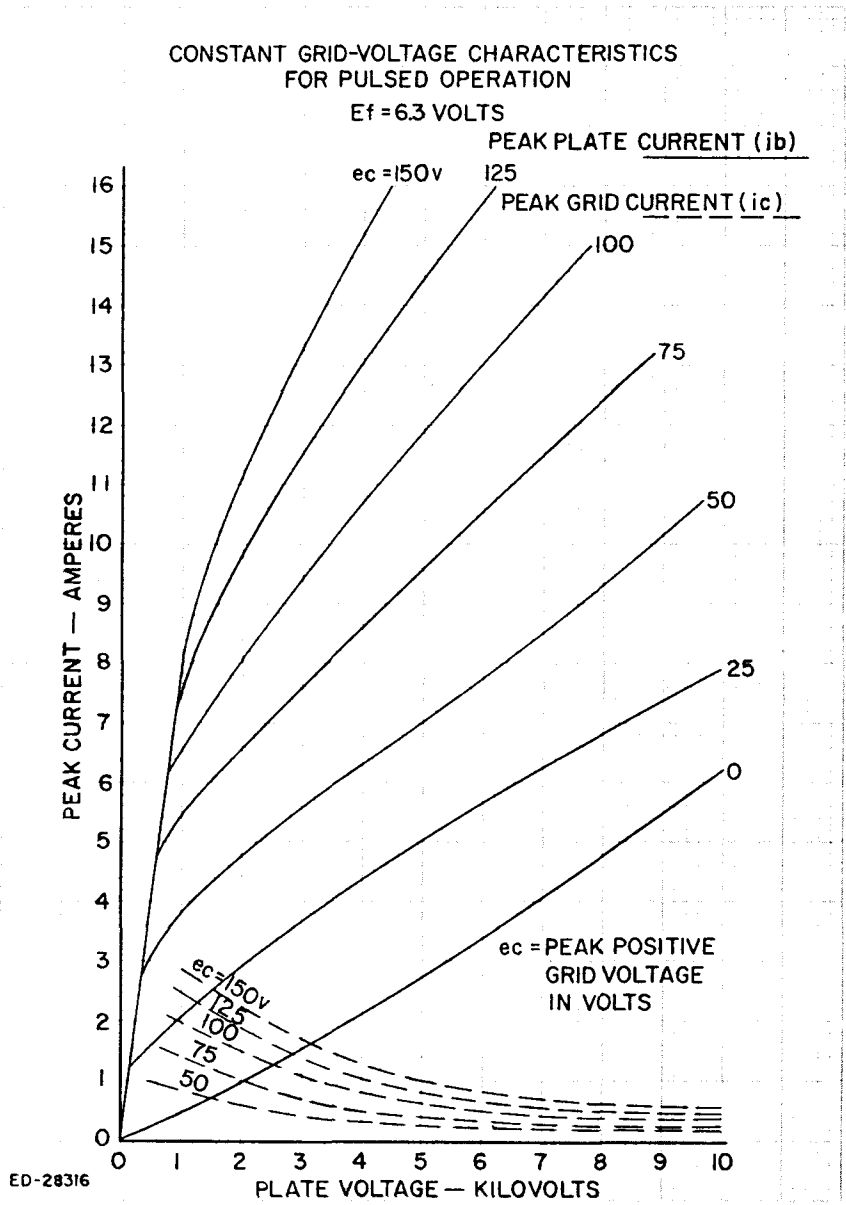
Mechanical

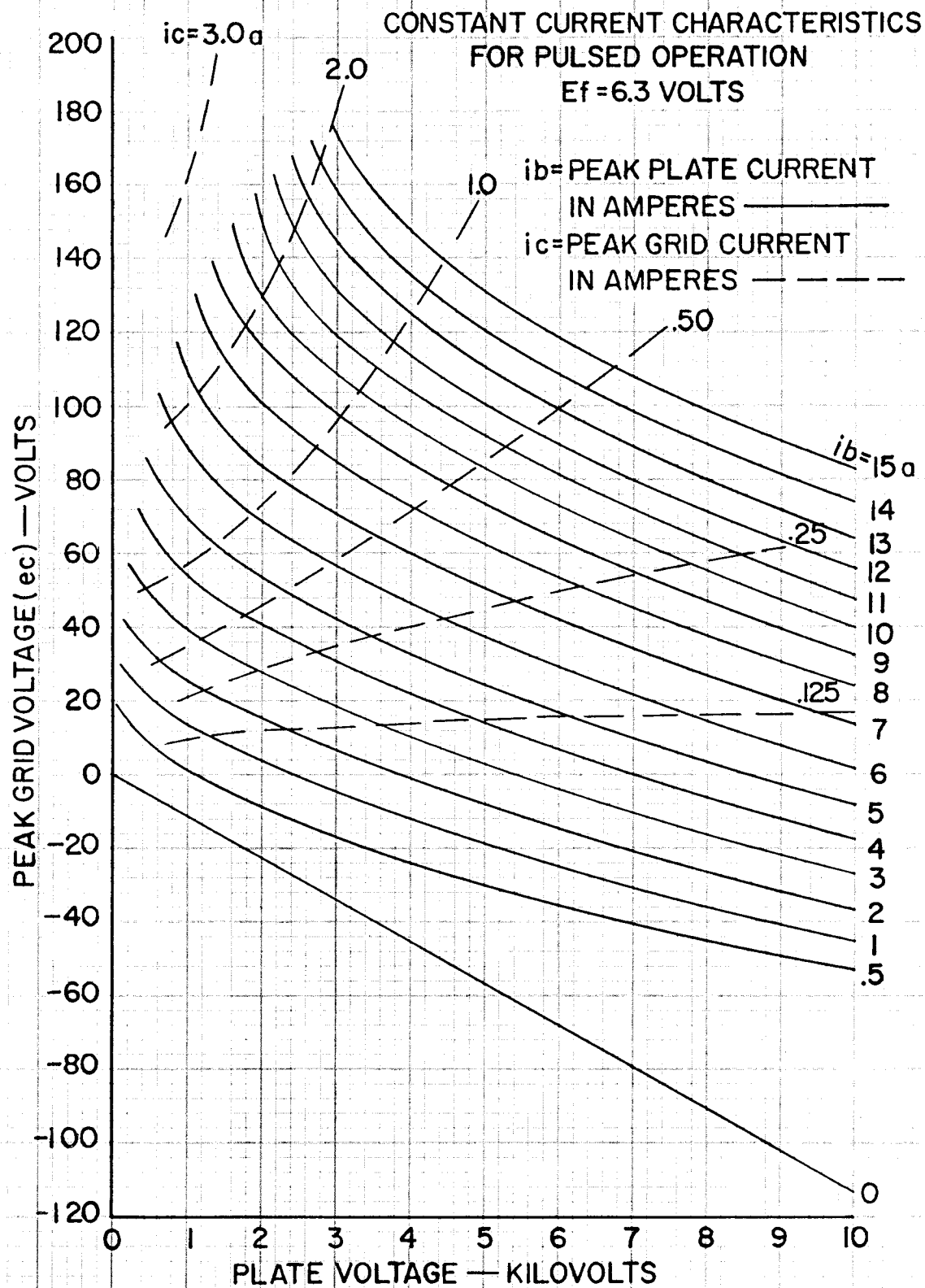
Mounting Position	Optional
Type of Cooling	Forced-air
Maximum Anode Temperature	250 $^{\circ}$ C
Net Weight	2.5 oz

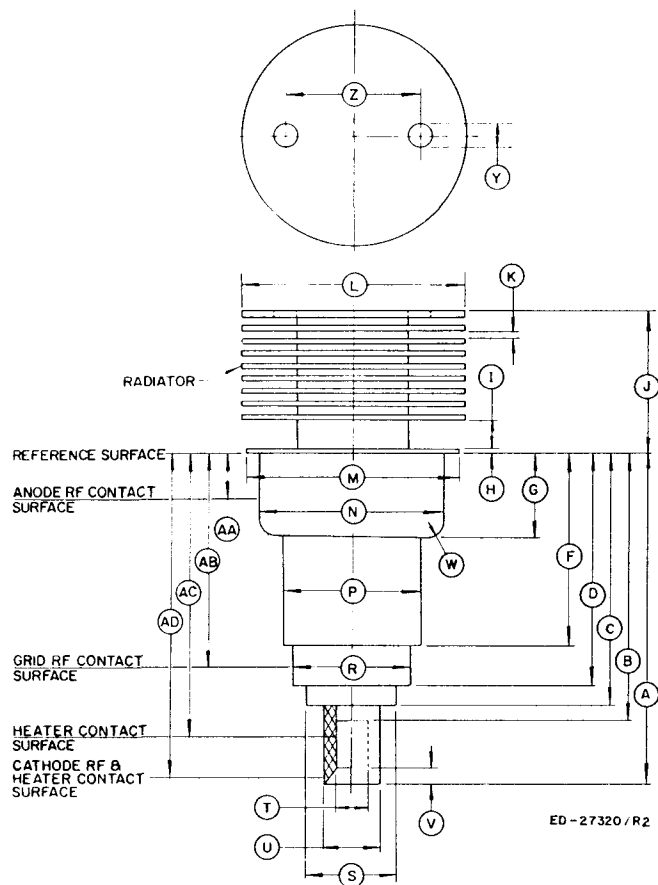
MAXIMUM RATINGS

Pulse Modulator or Pulse Amplifier			Grid-Pulsed or Plate-Pulsed RF Oscillator and Amplifier — Class C		
Maximum Ratings, Absolute Values			Maximum Ratings, Absolute Values		
DC Plate Voltage	8	kV	Frequency	3	Gc
Peak Plate Voltage	10	kV	DC Plate Voltage	8	kV*
DC Grid Voltage	-150	V	DC Grid Voltage	-150	V
Instantaneous Peak Grid-Cathode Voltage			Instantaneous Peak Grid-Cathode Voltage		
Grid negative to cathode	-750	v	Grid negative to cathode	-750	v
Grid positive to cathode	250	v	Grid positive to cathode	250	v
DC Plate Current	150	mA	Average Plate Current	16	mA
Peak Plate Current from Pulse Supply	5	a	Average Grid Current	6	mA
Average Plate Dissipation (Forced-Air Cooling)	100	W	Peak Plate Current from DC Supply	5	a
Average Grid Dissipation	1.5	W	Average Plate Dissipation (Forced-Air Cooling)	100	W
Pulse Duration	6	μs†	Average Grid Dissipation	1.5	W
Duty Factor	0.0033	†	Pulse Duration	6	μs†
			Duty Factor	0.0033	†

†For applications requiring longer pulse duration or higher duty factors, consult the Machlett Engineering Department.
*Plate pulsed operation — peak plate voltage — to 10 kv.







DIMENSIONS FOR OUTLINE

Ref.	Inches			Notes
	Minimum	Nominal	Maximum	
A	1.815		1.875	
AA	.035	.198	.361	1, 5
AB	1.185	1.225	1.265	2, 5
AC	1.534	1.631	1.728	3, 5, 6
AD	1.475	1.645	1.815	4, 6
B	—		1.534	
C	—		1.475	
D	1.289		1.329	
F	.970		1.010	
G	.462		.477	
H	—		.040	
I	.125		.185	
J	.766		.826	
K	.025		.046	
L	1.234		1.264	
M	1.180		1.195	
N	1.025		1.035	
P	.752		.792	
R	.655		.665	
S	—		.545	
T	.213		.223	
U	.315		.325	
V	—		.086	
W	—		.100	
Y	.105		.145	
Z	.650		.850	

NOTES

1. Anode rf contact surface and reference dimension for eccentricity measurements.
2. Grid rf contact surface and reference dimension for eccentricity measurements.
3. Heater contact surface and reference dimension for eccentricity measurements.
4. Heater and cathode rf contact surface and reference dimension for eccentricity measurements.
5. The total indicated runout of the anode and grid contact surface with respect to the cathode contact surface will not exceed .020 inch.
6. The total indicated runout of the cathode contact surface with respect to the heater contact surface will not exceed .012 inch.

THE MACHLETT LABORATORIES, INC.

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