



**ELECTRONIC
INNOVATIONS
IN ACTION**

MICROWAVE DEVICES

7815

Planar Triode

The 7815 is a high-mu, ceramic-and-metal, planar triode designed for use as a grid-pulsed or plate-pulsed oscillator, frequency multiplier, or power amplifier at frequencies up to 3000 megacycles.

GENERAL

ELECTRICAL	MECHANICAL
Cathode - Coated Unipotential	Operating Position - Any
Heater Characteristics and Ratings	Cooling - Conduction and Convection
Heater Voltage, AC or DC . . . * Volts	Net Weight, approximate. . . . 1.7 Ounces
Heater Current† 1.0 Amperes	Maximum Anode Temperature 250 C
Direct Interelectrode Capacitances‡	
Grid to Plate: (g to p) . . . 2.05 pf	
Grid to Cathode: (g to k). . . 6.3 pf	
Plate to Cathode: (p to k), Maximum 0.035 pf	

MAXIMUM RATINGS AND TYPICAL OPERATION

PLATE-PULSED OSCILLATOR OR AMPLIFIER—CLASS C

MAXIMUM RATINGS—ABSOLUTE-MAXIMUM VALUES

Peak Pulse Plate-Supply Voltage.	3500	Volts
Pulse Length	6	Microseconds
Duty Factor	0.0033	
Negative DC Grid Voltage	150	Volts
Positive Peak Grid Voltage	250	Volts
Negative Peak Grid Voltage	750	Volts
Plate Dissipation	10	Watts
Grid Dissipation.	2.0	Watts
Average Plate Current	10	Milliamperes
Peak Plate Current	3.0	Amperes
Average Grid Current	5.0	Milliamperes
Frequency	3000	Megacycles

TYPICAL OPERATION—OSCILLATOR AT 2500 MEGACYCLES

Heater Voltage	5.8	Volts
Peak Plate-Supply Voltage.	3500	Volts
Pulse Length	5	Microseconds
Duty Factor	0.0030	
Peak Plate Current	3.0	Amperes
Average Plate Current	9.0	Milliamperes
Average Grid Current	3.0	Milliamperes
Peak Useful Power Output, approximate.	2000	Watts

The devices and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of devices by General Electric Company conveys any license under patent claims covering combinations of these devices with other devices or elements. In the

absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of these devices with other devices or elements by any purchaser or others.



Supersedes PI Sheet dated 10-66

MAXIMUM RATINGS AND TYPICAL OPERATION (Continued)

GRID-PULSED OSCILLATOR OR AMPLIFIER—CLASS C

MAXIMUM RATINGS—ABSOLUTE-MAXIMUM VALUES

DC Plate Voltage	2000	Volts
Pulse Length	6	Microseconds
Duty Factor	0.0033	
Negative DC Grid Voltage	150	Volts
Positive Peak Grid Voltage	250	Volts
Negative Peak Grid Voltage	750	Volts
Plate Dissipation	10	Watts
Grid Dissipation	2.0	Watts
Average Plate Current	10	Milliamperes
Peak Plate Current	3.0	Amperes
Average Grid Current	5.0	Milliamperes
Frequency	3000	Megacycles

TYPICAL OPERATION—AMPLIFIER AT 1100 MEGACYCLES

Heater Voltage	6.0	Volts
DC Plate Voltage	1700	Volts
DC Grid Voltage	-45	Volts
Pulse Length	3.5	Microseconds
Duty Factor	0.001	
Peak Plate Current	1.9	Amperes
Peak Grid Current	1.1	Amperes
Driving Power during Pulse, approximate	400	Watts
Peak Useful Power Output, approximate	1500	Watts

Absolute-Maximum ratings are limiting values of operating and environmental conditions applicable to any electron device of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The device manufacturer chooses these values to provide acceptable serviceability of the device, making no allowance for equipment variations, environmental variations, and the effects of changes in operating conditions due to variations in the characteristics of the device under consideration and of all other electron devices in the equipment.

The equipment manufacturer should design so that initially and throughout life no absolute-maximum value for the intended service is exceeded with any device under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of the device under consideration and of all other electron devices in the equipment.

NOTES

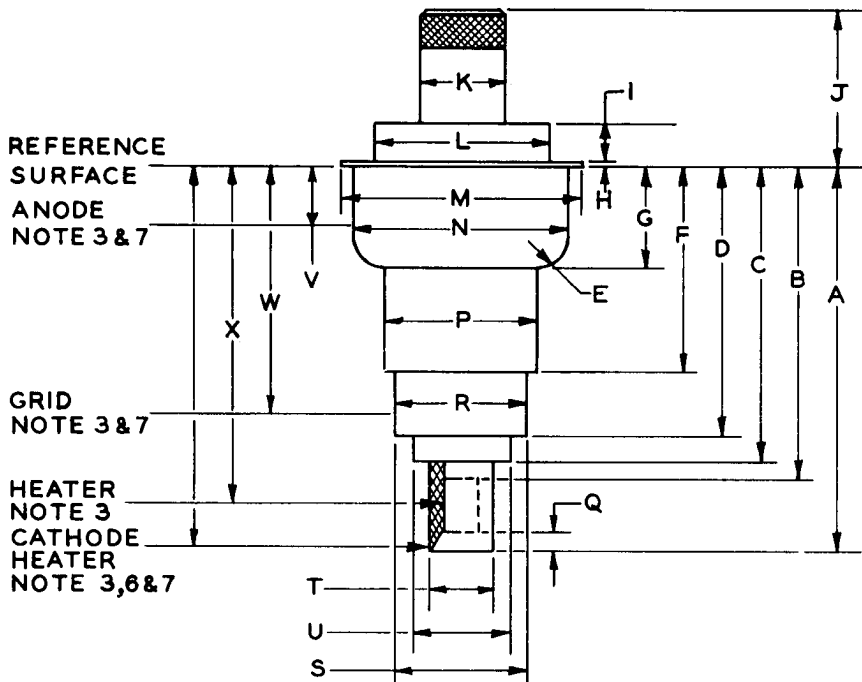
- * The equipment designer should design the equipment so that heater voltage is centered at some value within the range of 5.0 to 6.0 volts. Heater voltage variations about the center value should be kept as small as practical and should not, in any case, exceed ±5%. The optimum center value of heater voltage depends on the cathode current and on other parameters of circuit design and operation. For specific recommendations, contact your General Electric tube sales representative.
- ‡ Heater Current of a bogey tube at $E_f = 6.0$ volts.
- § Measured without heater voltage.

DIMENSIONS FOR
OUTLINE (INCHES)

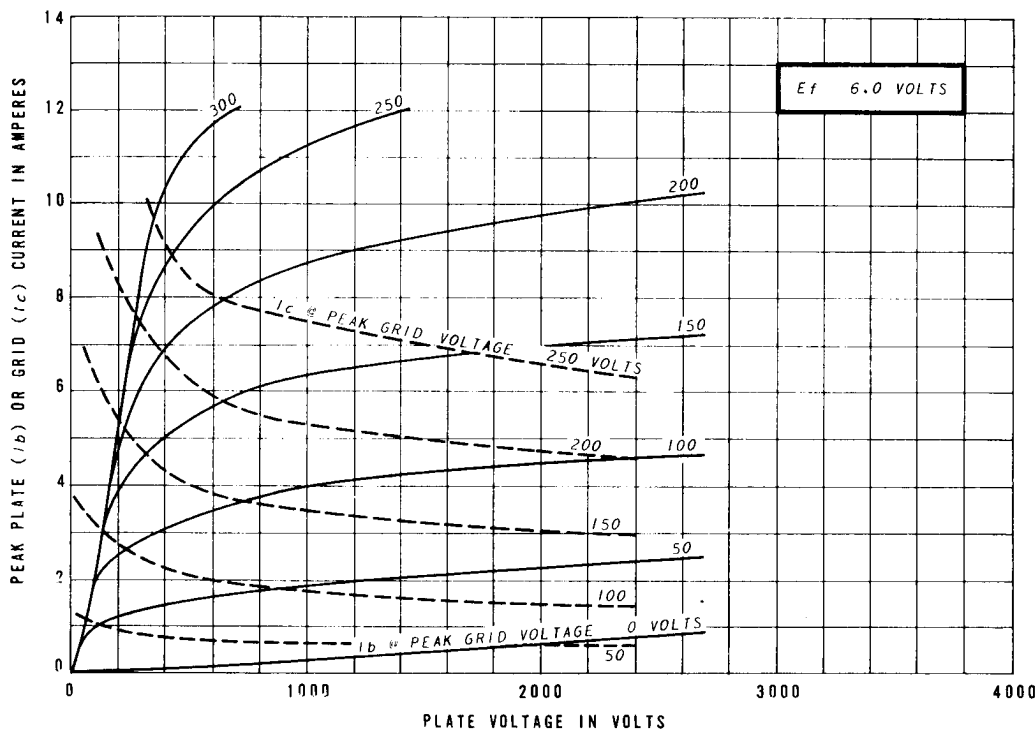
Ref.	Inches	
	Minimum	Maximum
A	1.815	1.875
B	---	1.534
C	---	1.475
D	1.289	1.329
E	---	0.100
F	0.970	1.010
G	0.462	0.477
H	---	0.040
I	---	0.185
J	0.766	0.826
K	0.427	0.447
L	0.840	0.860
M	1.180	1.195
N	1.025	1.035
P	0.752	0.792
Q	---	0.086
R	0.655	0.665
S	---	0.545
T	0.213	0.223
U	0.315	0.325

DIMENSIONS FOR ELECTRODE
CONTACT AREA (INCHES)

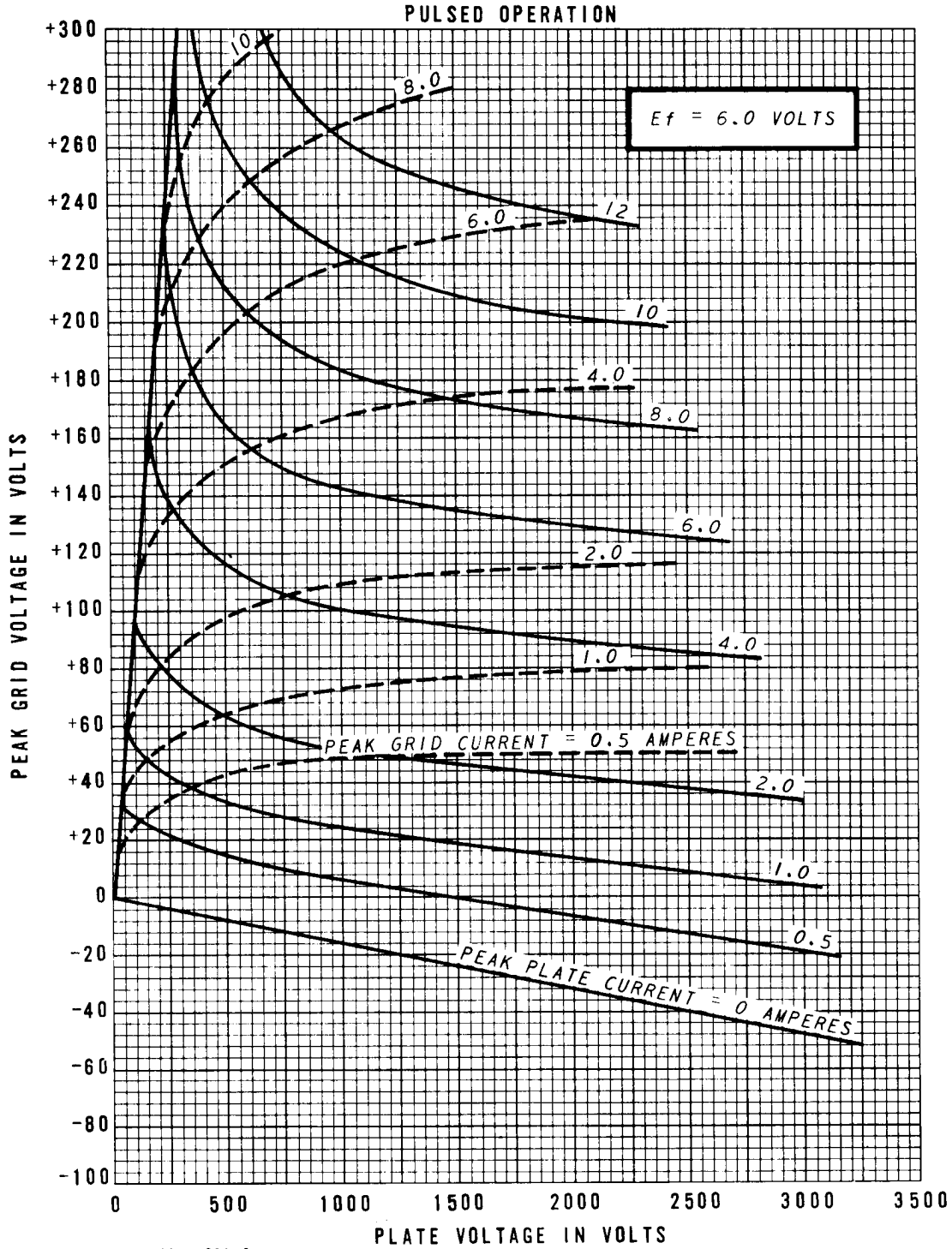
Ref.	Dimension	Contact
V	0.198±0.163	Anode
W	1.225±0.040	Grid
X	1.631±0.097	Heater
Y	1.645±0.170	Cathode



AVERAGE PLATE CHARACTERISTICS



AVERAGE CONSTANT-CURRENT CHARACTERISTICS



K-55811-TD268-2

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