

# —PRODUCT INFORMATION—

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7815R

## Planar Triode

TUBES

The 7815R 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

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC . . . . \* Volts  
Heater Current† . . . . . 1.0 Amperes

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

#### MECHANICAL

Operating Position - Any

Cooling - Conduction and Convection

Net Weight, approximate. . . . . 2.5 Ounces  
Maximum Anode Temperature . . . . 250 C

### 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 . . . . .              | 10W    | 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 tubes 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 tubes by General Electric Company conveys any license under patent claims covering combinations of tubes 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 the tubes with other devices or elements by any purchaser of tubes or others.

GENERAL  ELECTRIC

Supersedes 7815R D and R Sheet dated 7-64

**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 tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

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

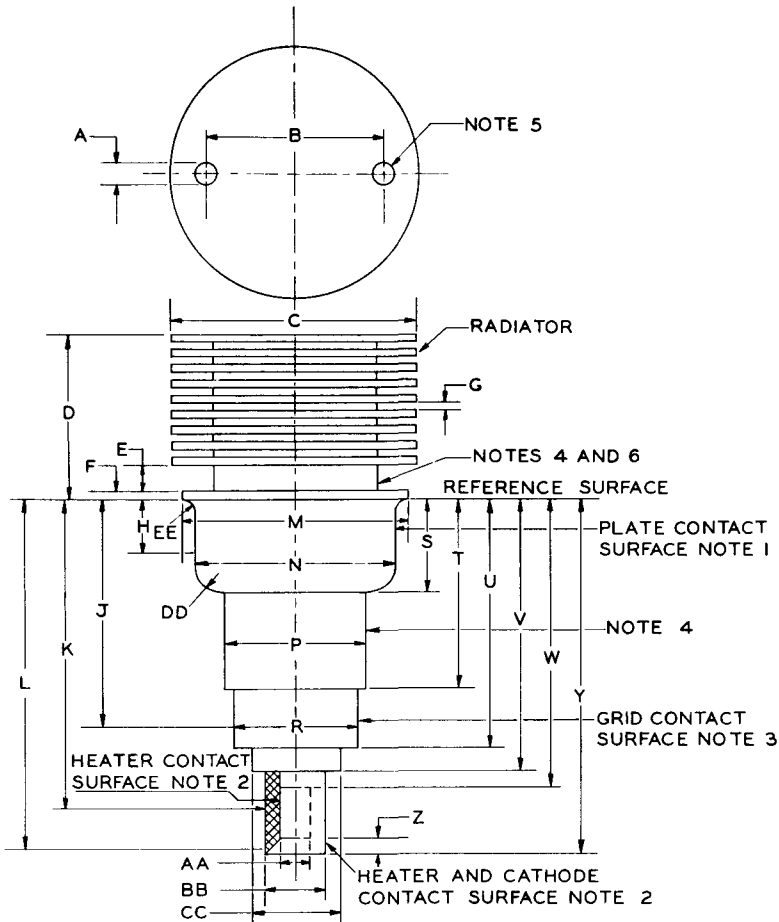
all other electron devices in the equipment.

The equipment manufacturer should design so that initially and throughout life no absolute-maximum value for the intended service is exceeded with any tube 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 tube 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  $\pm 5\%$ . 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.
- ¶ Plate dissipation of 100 watts is permissible with forced-air cooling.

# PHYSICAL DIMENSIONS



## DIMENSIONS FOR OUTLINE (INCHES)

| Ref. | Inches  |         |
|------|---------|---------|
|      | Minimum | Maximum |
| A    | 0.105   | 0.145   |
| B    | 0.650   | 0.850   |
| C    | 1.234   | 1.264   |
| D    | 0.766   | 0.826   |
| E    | 0.125   | 0.185   |
| F    | ---     | 0.040   |
| G    | 0.025   | 0.046   |
| M    | 1.180   | 1.195   |
| N    | 1.025   | 1.035   |
| P    | 0.752   | 0.792   |
| R    | 0.655   | 0.665   |
| S    | 0.462   | 0.477   |
| T    | 0.970   | 1.010   |
| U    | 1.289   | 1.329   |
| V    | ---     | 1.475   |
| W    | ---     | 1.534   |
| Y    | 1.815   | 1.875   |
| Z    | ---     | 0.086   |
| AA   | 0.213   | 0.223   |
| BB   | 0.315   | 0.325   |
| CC   | ---     | 0.545   |

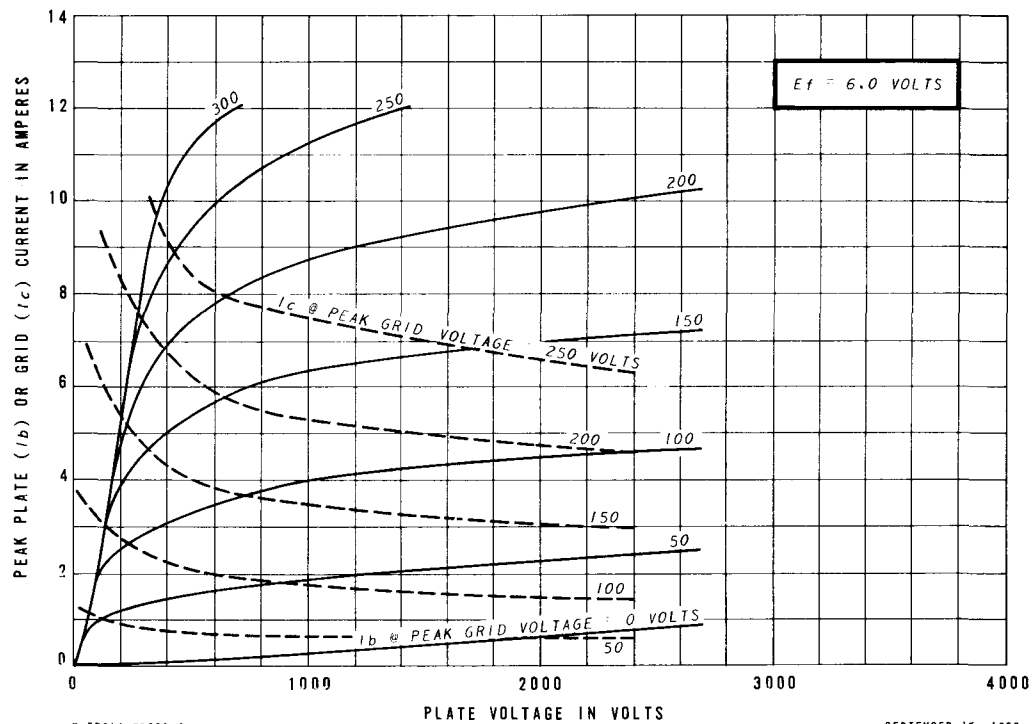
## DIMENSIONS FOR ELECTRODE CONTACT AREA (INCHES)

| Ref. | Dimension   | Contact |
|------|-------------|---------|
| H    | 0.198±0.163 | Plate   |
| J    | 1.225±0.040 | Grid    |
| K    | 1.631±0.097 | Heater  |
| L    | 1.645±0.170 | Cathode |

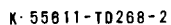
## NOTES

1. The total indicated runout of the plate contact surface with respect to the cathode contact surfaces will not exceed 0.020 inch.
2. The total indicated runout of the cathode contact surface with respect to the heater contact surfaces will not exceed 0.012 inch.
3. The total indicated runout of the grid contact surface with respect to the cathode contact surface will not exceed 0.020 inch.
4. Do not clamp or locate on this surface.
5. Hole provided for tube extractor through the top fin only.
6. Measure plate shank temperature on this surface.

# AVERAGE PLATE CHARACTERISTICS



## PULSED OPERATION



SEPTEMBER 15, 1966

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**TUBE DEPARTMENT**

**GENERAL**  **ELECTRIC**

**Owensboro, Kentucky**