35W4

DIODE

FOR HALF-WAVE POWER-RECTIFIER APPLICATIONS

DESCRIPTION AND RATING

The 35W4 is a miniature half-wave rectifier for use in line-operated equipment having series-connected heaters. The heater is tapped to permit operation of a panel lamp.

GENERAL

Cathode—Coated Unipotential
Heater Voltage, AC or DC 35 ±10% 32 ±10%† Volts
Heater-Tap Voltage 7.5* 5.5† Volts
Heater Current 0.15 0.15† Ampere

MECHANICAL
Mounting Position—Any
Envelope—T-5½, Glass
Base—E7-1, Miniature Button 7-Pin

MAXIMUM RATINGS

RECTIFIER SERVICE—DESIGN-MAXIMUM VALUES
Peak Inverse Plate Voltage 360 Volts
Steady-State Peak Plate Current 660 Milliamperes
DC Output Current
Without Panel Lamp 110 Milliamperes
With Panel Lamp and Shunting Resistor 100 Milliamperes
With Panel Lamp and No Shunting Resistor 66 Milliamperes
Heater-Tap Voltage When Panel Lamp Fails, RMS 17 Volts
Panel Lamp Shunting Resistor
For DC Output Current of 70 Milliamperes 800 Ohms
For DC Output Current of 80 Milliamperes 400 Ohms
For D-C Output Current of 90 Milliamperes 250 Ohms
Heater-Cathode Voltage
Heater Positive with Respect to Cathode 360 Volts
Heater Negative with Respect to Cathode 360 Volts

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a barge tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

These values are chosen by the tube manufacturer to provide acceptable service-ability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

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

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.

EIA 58Q

TERMINAL CONNECTIONS

Pin 1—No Connection
Pin 2—No Connection
Pin 3—Heater
Pin 4—Heater
Pin 5—Plate
Pin 6—Heater Tap
Pin 7—Cathode

PHYSICAL DIMENSIONS
CHARACTERISTICS AND TYPICAL OPERATION

HALF-WAVE RECTIFIER WITH PANEL LAMP NUMBER 40 OR NUMBER 47

<table>
<thead>
<tr>
<th>Parameter</th>
<th>32</th>
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</thead>
<tbody>
<tr>
<td>Heater Voltage (Pin 3 to Pin 4)</td>
<td></td>
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</tr>
<tr>
<td>Heater-Tap Voltage (Pin 4 to Pin 6)</td>
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<td>5.5</td>
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<tr>
<td>Heater Current (Between Pins 3 and 6)</td>
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<tr>
<td>AC Plate-Supply Voltage, RMS</td>
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<td>117</td>
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<td>117</td>
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<tr>
<td>Filter Input Capacitor</td>
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<tr>
<td>Total Effective Plate-Supply Impedance</td>
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<tr>
<td>Panel-Lamp Shunting Resistor</td>
<td>300</td>
<td>150</td>
<td>100</td>
<td>90</td>
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<tr>
<td>DC Output Current</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
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HALF-WAVE RECTIFIER WITHOUT PANEL LAMP

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<tr>
<th>Parameter</th>
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<tbody>
<tr>
<td>Heater Voltage (Pin 3 to Pin 4)</td>
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<tr>
<td>Heater-Tap Voltage (Pin 4 to Pin 6)</td>
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<tr>
<td>Heater Current (Between Pins 3 and 4)</td>
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<tr>
<td>AC Plate-Supply Voltage, RMS</td>
<td>117</td>
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<tr>
<td>Filter Input Capacitor</td>
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<tr>
<td>Total Effective Plate-Supply Impedance</td>
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<tr>
<td>DC Output Current</td>
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<tr>
<td>DC Output Voltage at Filter Input</td>
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<tr>
<td>For DC Output Current of 50 Milliamperes</td>
<td>135</td>
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<tr>
<td>For DC Output Current of 100 Milliamperes</td>
<td>120</td>
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Tube Voltage Drop
lb = 200 Milliamperes DC ................................ 18 Volts

* Operation without a panel lamp.
† Operation with Number 40 or Number 47 panel lamp connected between pins 4 and 6.

Typical Circuit for Operation

WITH PANEL LAMP

TYPICAL CIRCUIT FOR OPERATION

WITHOUT PANEL LAMP

Rs = Panel-Lamp Shunting Resistor

Drop across R at 0.15 amperes should equal difference between line voltage and total of all rated heater voltages.
**AVERAGE PLATE CHARACTERISTICS**

\[ E_f = \text{RATED VALUE} \]

**OPERATION CHARACTERISTICS**

**HALF-WAVE RECTIFIER**

- \( E_f = 35 \text{ VOLTS BETWEEN PINS NUMBER 3 AND NUMBER 4 (NO TAP CONNECTION)} \)
- \( E_b = 117 \text{ VOLTS (RMS)} \)
- TOTAL EFFECTIVE PLATE-SUPPLY IMPEDANCE = 15 OHMS
- \( C = \text{FILTER INPUT-CAPACITOR} \)

**DC OUTPUT VOLTAGE AT INPUT TO FILTER IN VOLTS**

**DC LOAD CURRENT IN MILLIAMPERES**