50DC4
HALF-WAVE VACUUM RECTIFIER
7-PIN MINIATURE TYPE

GENERAL DATA

Electrical:
Without No. 40
Panel Panel Lamp
With No. 40 Panel Lamp

Heater, for Unipotential
Cathode:
Voltage:
Entire heater (Pins 3 and 4)........ 50 ±10% 45 ±10% ac or dc volts
Panel-lamp section
(Pins 4 and 6)........ 7.5 5.5 ac or dc volts
Current:
Between pins 3 and 4... 0.15 - amp
Between pins 3 and 6... 0.15 - amp

Mechanical:
Operating Position....................... Any
Maximum Overall Length.................. 2-5/8"
Maximum Seated Length................... 2-3/8"
Length, Base Seat to Bulb Top (Excluding tip).................. 2" ± 3/32"
Diameter.................................. 0.650" to 0.750"
Dimensional Outline..................... See General Section
Bulb...................................... T5-1/2
Base...................................... Small-Button Miniature 7-Pin (JEDEC No. E7-1)
Basing Designation for BOTTOM VIEW............ 5BQ

Pin 1—No Connection
Pin 2—No Connection
Pin 3—Heater
Pin 4—Heater
Pin 5—Plate
Pin 6—Heater Tap
Pin 7—Cathode
Panel-lamp heater section is between pins 4 and 6.

HALF-WAVE RECTIFIER

Maximum Ratings, Design-Maximum Values:
PEAK INVERSE PLATE VOLTAGE.................. 330 max. volts
PEAK PLATE CURRENT......................... 720 max. ma
DC OUTPUT CURRENT:
With panel lamp and no shunting resistor.................. 70 max. ma
With panel lamp and shunting resistor†.................. 110 max. ma
Without panel lamp.................................. 120 max. ma
PANEL-LAMP SECTION VOLTAGE (RMS):
When panel lamp fails.......................... 16.5 max. volts

† Required when the dc output current is greater than 70 milliamperes.

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TENTATIVE DATA
HALF-WAVE VACUUM RECTIFIER

PEAK HEATER-CATHODE VOLTAGE:
- Heater negative with respect to cathode: 330 max. volts
- Heater positive with respect to cathode: 330 max. volts

Typical Operation:

*With panel lamp in accompanying half-wave circuit with capacitor input to filter*

<table>
<thead>
<tr>
<th>AC Plate-Supply Voltage (RMS)</th>
<th>117</th>
<th>117</th>
<th>117</th>
<th>117 volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter-Input Capacitor</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40 µf</td>
</tr>
<tr>
<td>Minimum Total Effective Plate-Supply Impedance</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15 ohms</td>
</tr>
<tr>
<td>Panel-Lamp Shunting Resistor</td>
<td>450</td>
<td>200</td>
<td>100</td>
<td>75 ohms</td>
</tr>
<tr>
<td>DC Output Current</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100 ma</td>
</tr>
</tbody>
</table>

*Without panel lamp in half-wave circuit with capacitor input to filter*

| AC Plate-Supply Voltage (RMS) | 117 volts |
| Filter-Input Capacitor        | 40 µf     |
| Minimum Total Effective Plate-Supply Impedance | 15 ohms |
| DC Output Current              | 110 ma    |

DC Output Voltage at Input to Filter (Approx.):
- At half-load current of 55 ma: 130 volts
- At full-load current of 110 ma: 110 volts

Voltage Regulation (Approx.):
- Half-load to full-load current: 20 volts

HALF-WAVE CIRCUIT

*With panel lamp No.40 or No.47*

![Half-wave circuit diagram]

DROP ACROSS R AND ALL HEATERS (WITH PANEL LAMP) SHOULD EQUAL 117 VOLTS AT 0.15 AMPERE. R = SHUNTING RESISTOR REQUIRED WHEN DC OUTPUT CURRENT EXCEEDS 70 MILLIAMPERES

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