GENERAL DESCRIPTION

Application: The Ken-Rad 35Z5GT is a cathode type half-wave rectifier designed for service in AC-DC receivers. It features a 35 volt 150 milliampere heater having a tap brought out from the heater so that with proper external connections a single pilot lamp can be lighted to nominal brilliancy. It is recommended that the plate current of the rectifier be passed through the pilot lamp and the tapped section of the heater. This is accomplished by connecting the plate of the rectifier to the tap on the heater. The Ken-Rad 35Z5GT is a glass tube equipped with an octal base.

Physical Characteristics:

Bottom View

RATING AND CHARACTERISTICS

Heater:
Voltage 35.0 Volts AC or DC
Current .150 Ampere

Note: With 35 volts RMS between pins 2 and 7, the open circuit voltage between pins 2 and 3 is 7.5 volts RMS.

* MAXIMUM CONDITIONS

AC Plate Voltage (RMS)
- 195 Volts Max.

DC Load Current with No. 40 or No. 40A Pilot Lamp
- 60 Milliampere Max.

DC Load Current with No. 50 or No. 51 Pilot Lamp
- 60 Milliampere Max.

DC Load Current without Tap Connected
- 100 Milliampere Max.

Average Tube Voltage Drop
- 16 Volts at 200 Milliampere

* The ratings marked maximum are design centers for a line voltage of 117 volts.

Note: No. 40 and No. 40A lamps are .15 Amp. at 6.3 Volts.
No. 50 and No. 51 lamps are .20 Amp. at 7.5 Volts.

TYPICAL CONDITIONS-TAP CONNECTION

Note: Drop across resistance and all heaters should total 117 volts at .150 Amp.

RECOMMENDATIONS

1. It is recommended that the pilot lamp and DC load current should be such that the potential between base pins 2 and 3 does not exceed 5.2 volts RMS at 117 volts line. This voltage should be measured with a thermal meter or a meter that will read RMS voltages. Rectifier type voltmeters, although calibrated in RMS volts, measure average volts and should not be used for this measurement.

2. It is recommended that the input filter condenser be limited to 40 microfarads.

3. Although it is possible to use DC load currents above 60 milliampere in combination with high current pilot lamps such as the No. 44 and No. 45, this operation is not recommended because with pilot lamp failure excessive voltage appears between pins 2 and 3 causing heater burn out.

4. If the 35Z5GT is used without the tap connection it is recommended that a 25 ohm protective resistor be used in series with the plate.

5. Voltages should not be applied to the socket when installing or removing tubes.
MECHANICAL DATA

Coated unipotential cathode
Outline drawing: 9-11 or 9-41
Base: B6-8 or B6-60 short intermediate shell octal 6-pin
Bulb: T-9 intermediate shell octal 6-pin
Maximum diameter: 1-9/32"
Maximum overall length: 3-5/16"
Maximum seated height: 2-3/4"
Pin connections:
  Pin 1 - No connection
  Pin 2 - Heater
  Pin 3 - Heater tap
  Pin 5 - Plate
  Pin 7 - Heater
  Pin 8 - Cathode

*Panel lamp heater section is between pins 2 and 3.

Mounting position: any

ELECTRICAL DATA

### Without Panel Lamp

<table>
<thead>
<tr>
<th>Ratings</th>
<th>35</th>
<th>7.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater voltage (ac or dc)</td>
<td>volts</td>
<td>volts</td>
</tr>
<tr>
<td>Entire heater (pins 2 and 7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel lamp section (pins 2 and 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater current</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between pins 2 and 7</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Between pins 3 and 7</td>
<td></td>
<td>150</td>
</tr>
<tr>
<td>Maximum AC plate voltage (r.m.s.)</td>
<td>235</td>
<td></td>
</tr>
<tr>
<td>Maximum peak inverse voltage</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>Maximum steady state peak plate current</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>Maximum DC heater-cathode voltage</td>
<td>350</td>
<td></td>
</tr>
<tr>
<td>Maximum panel lamp section r.m.s. voltage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>when panel lamp fails</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Maximum steady-state DC output current:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With panel lamp and no shunting resistor</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>With panel lamp and shunting resistor</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Without panel lamp</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
| Maximum value of panel lamp shunting resistor:
   For DC output current of 70 ma             | 800  |      |
   For DC output current of 80 ma             | 400  |      |
   For DC output current of 90 ma             | 250  |      |
| Tube voltage drop with tube conducting 200 ma DC plate current | 18 |      |

Continued on Page 2
ELECTRICAL DATA (Continued)

Typical Operation with No. 40 or No. 47 Panel Lamp in Circuit Below with Capacitor Input to Filter

A.C. Plate supply voltage (RMS) .................. 117 117 117 235 volts
Filter input capacitor ......................... 40 40 40 40 µf
Minimum total effective plate supply impedance 15 15 15 100 ohms
Panel lamp shunting resistor ............. - 300 150 100 - ohms
D.C. output current ......................... 60 70 80 90 60 ma

Drop across R and all heaters (with panel lamp) should equal the line voltage at 0.15 amperes. Rs = shunting resistor required when DC output current exceeds 60 milliamperes.

Typical Operation Without Panel Lamp in Conventional Half-wave Circuit With Capacitor Input to Filter: (plate current must not flow through tap section)

A.C. plate supply voltage (RMS) .................. 117 235 volts
Filter input capacitor ......................... 40 40 µf
Minimum total effective plate supply impedance ........ 15 100 ohms
D.C. output voltage at input to filter (approx.):
At 50 ma (half load) ..................... 140 280 volts
At 100 ma (full load) ................. 120 235 volts
Difference (voltage regulation) ........ 20 45 volts
Percentage regulation .................. 14 16 %
D.C. output current ......................... 100 100 ma

Refer to "Interpretation of Receiving Tube Ratings"