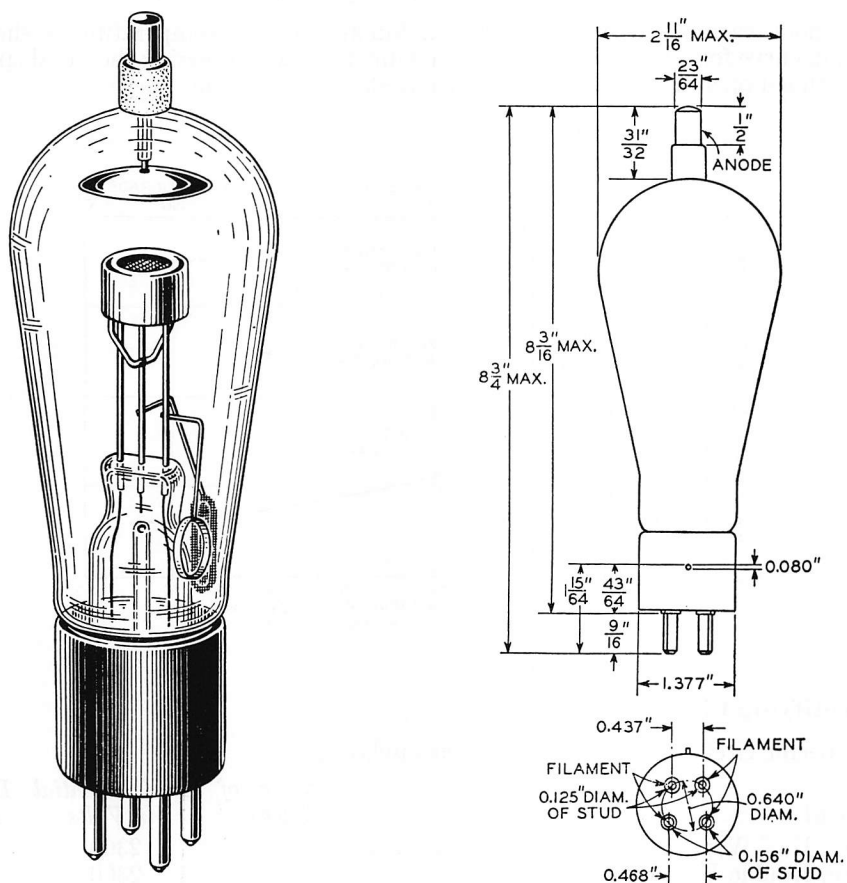


249B Vacuum Tube



Classification

The No. 249B Vacuum Tube is a half wave thermionic mercury vapor rectifier for use in rectifying circuits designed to supply direct current from an alternating current supply. It is the same as the No. 258B electrically but is equipped with a different type base.

Base and Socket

The No. 249B Vacuum Tube employs a standard four-prong thrust-type base suitable for use in the Western Electric No. 130B (or similar type) Socket. It is to be noted from the arrangement of electrode terminals shown above that the filament terminals are tied together in parallel. The corresponding socket terminals should also be connected to insure the best contact connections for the filament current. The anode terminal is located at the top of the bulb and is arranged for a special quick release connector. The tube can be mounted only in a vertical position with the base end down.

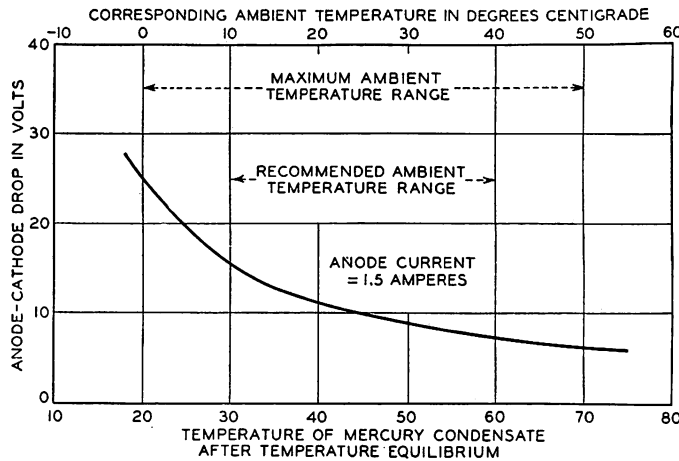
Rating and Characteristic Data

| | |
|--|----------------|
| Filament Voltage..... | 2.5 Volts A.C. |
| Nominal Filament Current..... | 7.5 Amperes |
| Approximate Direct Anode-Cathode Drop when Conducting | 15 Volts |
| Maximum Peak Plate Current..... | 1.5 Amperes |
| Maximum Peak Inverse Potential..... | 7,500 Volts |
| Safe Operating Ambient Temperature Range..... | 0 to 50° C. |

Rating and Characteristic Data—Continued

The anode-cathode potential is substantially independent of the plate current. The exact value varies from tube to tube and during the life of a given tube. Within the specified ambient temperature range and plate current range it will vary from 5 to 25 volts.

The anode cathode potential drop as a function of the temperature is shown on the accompanying curve for a typical No. 249-B Vacuum Tube when passing the rated space current. The recommended operating temperature range is also shown on this curve.



Typical Rectifying Circuits

For specific circuits the following ratings apply.

| Type of Circuit | Number of Tubes | Load Potential in Volts | Load Current in Amperes |
|--|-----------------|-------------------------|-------------------------|
| Single Phase, Half-Wave..... | 1 | 2300 | 0.50 |
| Single Phase, Double Half-Wave..... | 2 | 2300 | 1.0 |
| Single Phase, Double Half-Wave (4 tube series circuit) | 4 | 4500 | 1.0 |
| Three Phase, (6 tube series "Y" circuit)..... | 6 | 7000 | 1.3 |

General Features

The mercury vapor type of rectifying tube has the desirable property of a low and almost constant potential drop between the cathode and anode when the tube is passing current. Due to their low potential drop a much more efficient rectifier system can be had than is possible by the use of most high vacuum rectifier tubes, whose potential drops are relatively high. The constancy of the potential drop with space current makes possible rectifying systems whose regulation depends almost entirely on the regulation of the plate transformers.

The No. 249B Vacuum Tube employs an improved oxide coated mesh type filament encased in a metallic shield which insures a uniform cathode temperature. The mechanical construction is such as to preserve the active materials for long operating periods at high inverse voltages as well as during shelf life and shipment. These features make possible the maximum operating life. The No. 249B Vacuum Tube has an increased rating over the No. 249A and may be used to replace it.