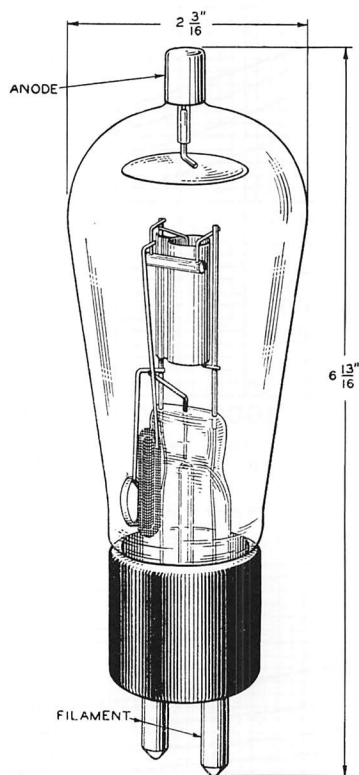


## 253A Vacuum Tube



### Classification

The No. 253A 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.

### Base and Socket

The No. 253A Vacuum Tube employs a two-prong base suitable for use in a Western Electric No. 138A or No. 139A Socket or similar type socket. The arrangement of electrode connections to the base terminals is shown above. The anode terminal is located at the top of the bulb and is arranged for a special quick-release connector. The tube should be mounted only in a vertical position with the base end down.

### Rating and Characteristic Data

Filament Voltage.....	2.5 Volts
Nominal Filament Current.....	3 Amperes
Approximate Anode-Cathode Potential Drop when Conducting.....	15 Volts
Maximum Peak Plate Current.....	0.5 Ampere
Maximum Peak Inverse Potential.....	3,500 Volts
Safe Operating Ambient Temperature.....	10 to 50 Degrees C.

The anode-cathode potential drop 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.

### Typical Rectifying Circuits

For specific circuits the following ratings apply:

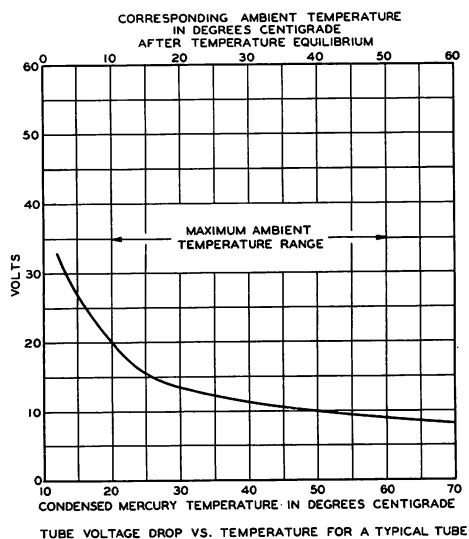
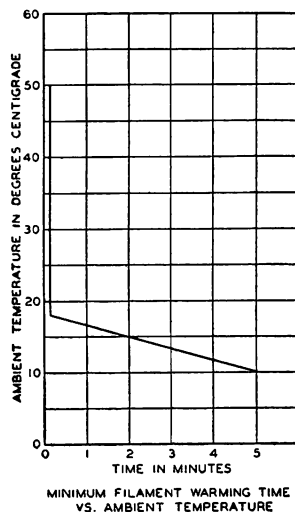
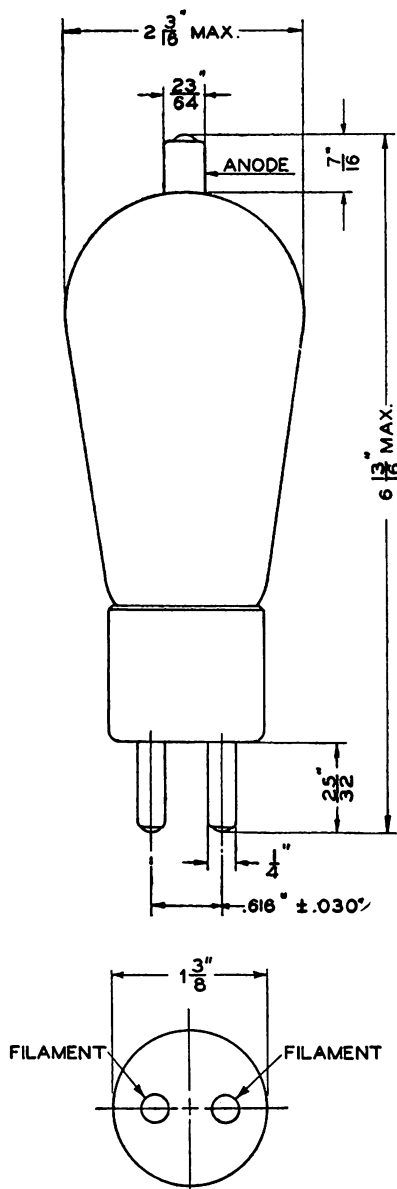
Type of Circuit	Number of Tubes	Load Potential Volts	Load Current Amperes
Single-Phase, Half-Wave.....	1	1,000	0.15
Single-Phase, Double Half-Wave.....	2	1,000	0.30
Single-Phase, Double Half-Wave (Four Tube Series Circuit).....	4	2,000	0.30
Three-Phase (Six Tube Series "Y" Circuit).....	6	3,000	0.45

### 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 high vacuum rectifier tubes, whose potential drop 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. 253A Vacuum Tube employs a highly efficient oxide-coated type of cathode. Its mechanical construction is such that the active materials are maintained for long operating periods as well as during shelf life and shipment.

## 253A Vacuum Tube



### Ratings

Filament	
Voltage	2.5 volts
Nominal Current	3.0 amperes
Required Heating Time	10 seconds
Accelerated Filament Heating	
Recommended open circuit over-voltage	50%
Corresponding period of over-voltage application	$6 \pm 2$ seconds
Tube Voltage Drop—Approximate	15 volts
Maximum Instantaneous Anode Current	1.0 ampere
Maximum Average Anode Current	0.25 ampere
Max. Time of Averaging Anode Current	5 seconds
Maximum Peak Inverse Anode Voltage	3500 volts
Maximum Ambient Temperature Range	10 to 50° C.

**Mounting**—W. E. 138B, 139A or similar socket. A spring clip anode terminal connector is required. Mount in vertical position only—base end down. A clearance of at least  $1\frac{1}{2}$  inches should be allowed between the bulb and any adjacent object.

### Circuit Outputs:

Circuit Designation	Number of Tubes	Output Voltage	Load Current
		At 3500 volts Inverse Voltage	In DC Amperes
A	1	1000	0.25
B	2	1000	0.50
C	4	1000	1.00
D	4	2000	0.50
E	3	1500	0.75
F	6	3000	0.75
G	6	1400	1.25