

# Osram Valves

Made in England.



Illustration full size.

Maximum Dimensions :  
 Overall Height 35 m/m.  
 Diameter of Bulb 13.5 m/m.  
 Diameter of glass seal 22 m/m.

## TYPE HA1 MINIATURE LOW CAPACITY TRIODE (With Indirectly Heated Cathode).

The OSRAM HA1 is an Indirectly Heated Triode of special design intended to reduce the capacity between the electrodes, or their respective support and lead-in wires, to a minimum. In order to achieve this result the electrode supports are taken to a circular seal mounting instead of to the normal base. Due to the low capacity between electrodes, type HA1 is particularly applicable to operation either for reception or low power transmission on ultra-short wavelengths of the cm. order, and may also be applied to ultra-high frequency amplification where, with suitable circuit and lay-out of components, a material gain per stage can be achieved.

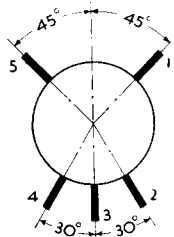
### CHARACTERISTICS.

Heater Volts .. .. .	4.0
Heater Current .. .. .	0.3 amp. approx. max.
Anode Volts .. .. .	180
Grid Volts .. .. .	-6.5
Anode Current .. .. .	4.5 ma. max.
Amplification Factor .. .. .	20
Impedance .. .. .	11,800 ohms
Mutual Conductance .. .. .	1.7 mA/v measured at $E_a = 100$ , Ia 4 ma.

### Interelectrode Capacities :

Grid to Anode .. .. .	1.4 m.mfd. approx.
Anode to Cathode .. .. .	0.6 " "
Grid to Cathode .. .. .	1.0 " "

For prices see  
 pages 126-129.



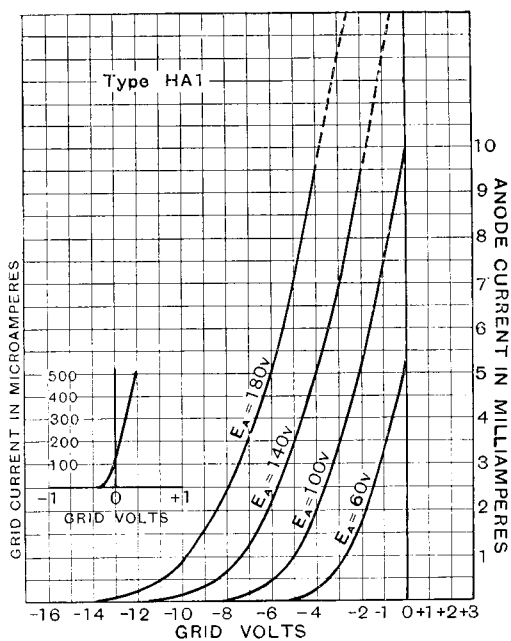
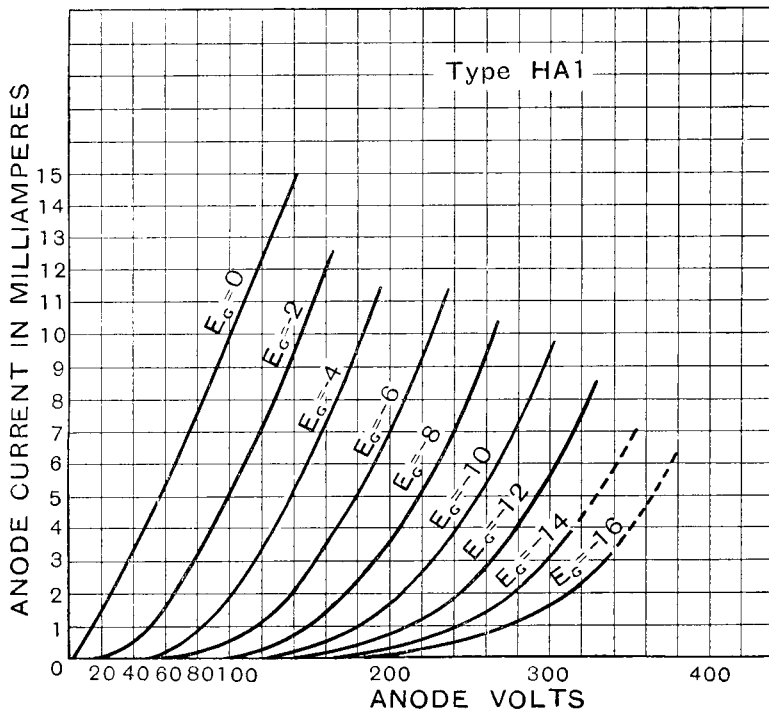
### PIN ARRANGEMENT.

- 1: Anode
- 2: Heater
- 3: Cathode
- 4: Heater
- 5: Grid

Angular spacing and connections  
 of ultra short wave valve.  
 View from above, i.e. end containing  
 electrode system.

In no circumstances should connections be soldered to valve contacts.

# TYPE HA1



CHARACTERISTIC CURVES OF AVERAGE VALVE.