

# Osram Valves

Made in England.

## TYPE X41

### TRIODE-HEXODE FREQUENCY CHANGER.

With Indirectly Heated Cathode.

(For Operation from A.C. Mains).

The OSRAM X41 is a multi-electrode valve designed to perform as a mixer, first detector or frequency changer valve in a superheterodyne receiver. It is fitted with an Indirectly Heated Cathode common to two sets of electrodes:

- (1) The Hexode.
- (2) The Triode.

The triode grid is connected to a mixer grid internally so that oscillations generated by the triode modulate the hexode cathode stream. The control grid of the hexode portion may be connected to an A.V.C. line, as it has "variable mu" characteristics.

The triode hexode offers the following points of advantage:

- (1) Almost complete absence of interaction between triode and hexode sections.
- (2) High mutual conductance in the triode section.
- (3) High conversion gain due to its high impedance.

Type X41 is applicable to short wave reception in a suitable circuit as shown.



Maximum dimensions :  
Overall length (including  
pins) 135 m/m.  
Diameter of bulb 45 m/m.

### CHARACTERISTICS.

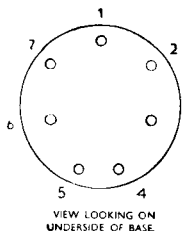
|                                        |                  |                                        |
|----------------------------------------|------------------|----------------------------------------|
| Heater Volts .. .. .                   | 4.0              |                                        |
| Heater Current .. .. .                 | 1.2 amp. approx. |                                        |
|                                        |                  | Recommended<br>Operating<br>Condition. |
|                                        | Max.             |                                        |
| Anode Volts .. .. .                    | 250              | 250                                    |
| Screen Volts .. .. .                   | 80               | 70                                     |
| Oscillator Anode Volts .. .. .         | 150              | 100                                    |
| Oscillator Grid Peak Swing .. .. .     | 12 peak.         | 10—12 peak.                            |
| Control Grid Voltage .. .. .           | ..               | —1.5v.                                 |
| Conversion Conductance average .. .. . | ..               | 640 micromhos.                         |
| Conversion Impedance .. .. .           | ..               | 0.75 megohms.                          |
| Total Cathode Current average .. .. .  | ..               | 7.6 ma.                                |

### Interelectrode Capacities :—

|                                          |                               |
|------------------------------------------|-------------------------------|
| Control Grid—Anode .. .. .               | 0.046 micromicrofarad approx. |
| Anode—Earth .. .. .                      | 21.5 " " "                    |
| Control Grid—Earth .. .. .               | 7.0 " " "                     |
| Oscillator Grid—Oscillator Anode .. .. . | 3.56 " " "                    |
| Oscillator Anode—Earth .. .. .           | 8.5 " " "                     |
| Oscillator Grid—Earth .. .. .            | 17.0 " " "                    |
| Oscillator Grid—Control Grid .. .. .     | 0.26 " " "                    |

(Taken on metallised valve)

For prices see  
pages 126-129.



### BASE 7-PIN.

- 1: Oscillator Anode ( $A_0$ )
  - 2: Oscillator and Mixer Grids ( $G_0, G_1$ )
  - 3: Screen ( $G_2, G_3$ )
  - 4: Heater
  - 5: Heater
  - 6: Cathode
  - 7: Anode ( $A$ )
- Top Cap: Control Grid ( $G_4$ )

Type X41 is supplied in metallised or plain carbonised bulb, according to requirements.

### TYPICAL OPERATING CONDITIONS.

[illegible]

**TYPE X41**  
Taken at

|                        |     |               |
|------------------------|-----|---------------|
| ANODE VOLTS            | --- | 250           |
| SCREEN VOLTS           | --- | 70            |
| OSCILLATOR ANODE VOLTS | --- | 100           |
| OSCILLATOR GRID        | --- | 12 VOLTS PEAK |

Left Y-axis: CONVERSION CONDUCTANCE IN MICROMHOS (0 to 900)  
Right Y-axis: ANODE & CATHODE CURRENTS IN MILLIAMPERES (0 to 9.0)  
X-axis: CONTROL GRID VOLTS (-30 to 0)

Curves shown:  
 - CONVERSION CONDUCTANCE (solid line, left axis)  
 - TOTAL CATHODE CURRENT (solid line, right axis)  
 - OSCILLATOR ANODE CURRENT (solid line, right axis)  
 - ANODE CURRENT (solid line, right axis)

### CHARACTERISTIC CURVES OF AVERAGE VALVE