



# Osram Valves

Made in England

## TYPE X42 HEPTODE FREQUENCY CHANGER With Indirectly Heated Cathode. (For operation from A.C. Mains).

The OSRAM X42 is an Indirectly Heated Variable Mu Heptode having the advantages of a short electrode assembly, thus making for low interelectrode capacities and economical operation. Due to the high conversion conductance of this valve a very satisfactory performance will be obtained in a suitably designed circuit.

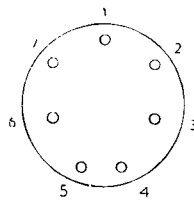
The X42 may be operated successfully down to a wavelength of 15 metres, in which case it is essential that the input and oscillator circuits be thoroughly screened.

Maximum Dimensions :  
Overall length (including pins)  
120 m m.  
Diameter of bulb 41 m m.

### CHARACTERISTICS.

Heater Volts .. .. .	4.0	
Heater Current .. .. .	0.6 amp. approx.	
		Recommended Operating Conditions.
	Max.	
Anode Volts .. .. .	250	250
Screen Volts .. .. .	100	100
Oscillator Anode Volts .. .. .	200	250 through 20,000 ohms.
Oscillator Grid Peak Swing .. .. .	—	25 volts
Control Grid Voltage .. .. .	—	-3      -45
Total Cathode Current average .. .. .	—	9.5      —
Conversion Conductance average .. .. .	—	490      8 Micromhos
Conversion Impedance .. .. .	—	310,000 ohms.
<b>Interelectrode Capacities:</b>		
Control Grid to Anode .. .. .	0.95 micro-mfds. approx.	
Control Grid to Oscillator Anode .. .. .	0.23	"      "
Control Grid to other Electrodes .. .. .	8.58	"      "
Oscillator Grid to Oscillator Anode .. .. .	1.64	"      "
Oscillator Anode to other Electrodes .. .. .	6.98	"      "
Oscillator Grid to other Electrodes .. .. .	8.68	"      "
Oscillator Grid to Control Grid .. .. .	0.27	"      "

For prices see  
pages 126-129.



VIEW LOOKING ON  
UNDERSIDE OF BASE

#### BASE, 7-pin

- 1: Oscillator Anode G<sub>2</sub>
- 2: Oscillator Grid G<sub>1</sub>
- 3: Screen G<sub>3</sub> G<sub>5</sub>
- 4: Heater
- 5: Heater
- 6: Cathode
- 7: Anode

Top Cap: Control Grid G<sub>4</sub>

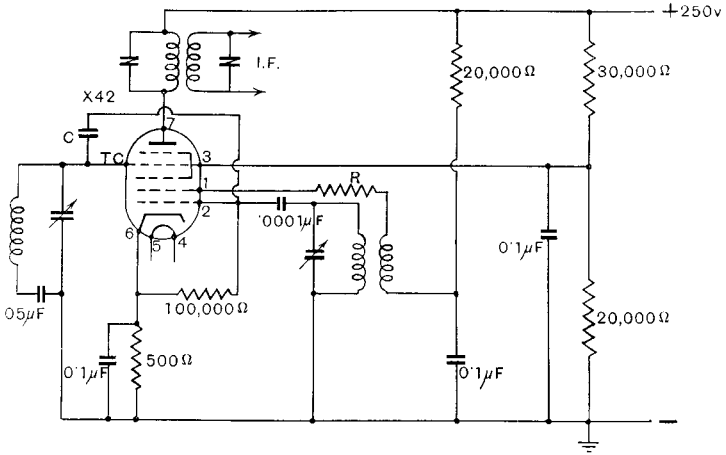
Type X42 has a carbonised bulb and is supplied unmetallised only.

### OPERATING CONDITIONS.

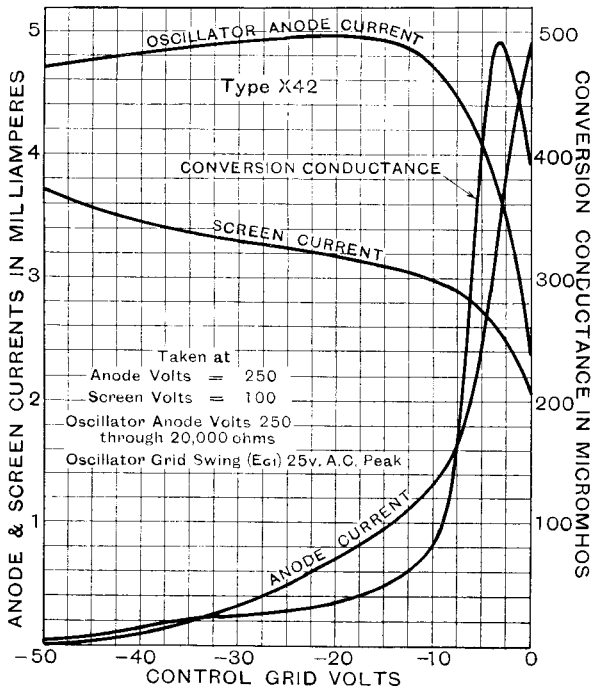
Automatic grid bias must always be used in order to prevent the danger of the anode current rising to a high figure under certain operating conditions. The total oscillator grid G<sub>1</sub> to cathode resistance must not exceed 2 megohms. The screen grids G<sub>3</sub> G<sub>5</sub> must be fed from a potentiometer network which gives good regulation. The oscillator anode G<sub>2</sub> should be fed from a series resistance in order to limit the rise in anode current. For optimum performance the oscillator anode voltage should be at least double the screen voltage.

A resistance should be included in the oscillator anode circuit in order to keep the oscillator voltage constant over the working band on radio frequencies. Its value depends upon the design of the oscillator coils.

# TYPE X42



C = Neutralising condenser 1 to  $2\mu\mu\text{F}$  approx.  
 R = Resistance dependant on design of oscillator coils



CHARACTERISTIC CURVES OF AVERAGE VALVE.