



## X63 HEPTODE FREQUENCY CHANGER

### DESCRIPTION

Type X63 is an indirectly heated variable-mu heptode. It can be operated successfully up to 20 Mc/s, in which case it is essential that the input and oscillator circuits be thoroughly screened.

### RATINGS

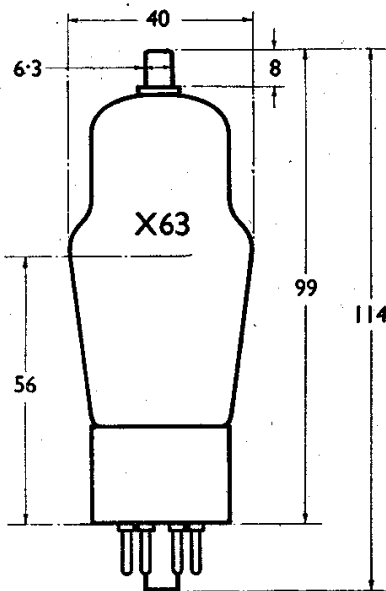
Heater Voltage	...	...	...	...	...	6.3	volts
Heater Current	...	...	...	...	...	0.3	amp
Anode Voltage	...	...	...	...	...	250	max. volts
Screen Grid Voltage	...	...	...	...	...	100	max. volts
Signal Grid Voltage	...	...	...	...	...	-3	min. volts
Oscillator Anode Voltage	...	...	...	...	...	100	max. volts
Total Cathode Current	...	...	...	...	...	9.5	mA
Conversion Conductance*	at $V_{g4} = -3$	...	...	...	...	490	$\mu A/V$
	at $V_{g4} = -45$	...	...	...	...	6.0	$\mu A/V$
Conversion Impedance*	...	...	...	...	...	0.3	megohm

\*measured at  $V_a = 250$ ,  $V_{g3, 5} = 100$ ,  $V_{g2} = 100$ ,  $V_{g4} = -3$ .

### Capacitances :

Oscillator anode to all other electrodes	...	...	...	...	5.9	approx. pF
Signal Grid to all other electrodes	...	...	...	...	4.9	" "
Heptode Anode to all other electrodes	...	...	...	...	11.5	" "
Oscillator grid to all other electrodes	...	...	...	...	10.5	" "

### DIMENSIONS



All dimensions are in mm. and are the maximum except where otherwise stated.

### BASE

#### 8-PIN OCTAL.

- Pin 1: Not connected
- 2: Heater
- 3: Anode
- 4: Screen Grid  $g_{3, 5}$
- 5: Osc. Grid  $g_1$
- 6: Osc. Anode  $g_2$
- 7: Heater
- 8: Cathode

Top Cap: Control Grid  $g_4$

View looking on underside of base.

Type X63 is not supplied with metallised bulb. Screening should be used when necessary.

### OPERATING CONDITIONS

Anode Voltage	...	...	...	250	volts
Screen Grid Voltage (Potentiometer supply)	...	...	...	100	volts
Signal Grid D.C. Voltage	...	...	...	-3	volts
Oscillator Anode D.C. Voltage (Series supply)	...	...	...	100	volts
Oscillator Anode Resistor (from 250v. supply)	...	...	...	20,000	ohms
Optimum R.F. Oscillator Grid Voltage	...	...	...	25	peak volts
Oscillator Grid Resistor	...	...	...	100,000	ohms
Total Cathode Current	...	...	...	9.5	mA

Automatic grid bias should always be used. The total oscillator grid to cathode resistance must not exceed 4 megohms. For optimum performance the oscillator anode voltage should be at least double the screen voltage.

A typical circuit is shown on page 90.