R657

FERRANTI

HIGH VOLTAGE REGULAR CONTROL TRIODE

A low current triode with an indirectly heated cathode. It has been specially designed for use as a control valve in voltage regulators for high voltage, low current, DC. power supplies. The envelope is silicone coated to render it moisture repellent.

PHYSICAL DETAILS.

Base	International Octal.
Top Cap	Skirted Miniature.
Max. Overall Length	129 mm.
Max. Seated Height	115 mm.
Max. Diameter	33 mm.
Mounting Position	Any.
Envelope	Silicone coated clear glass.

HEATER.

Heater Voltage	4·0 volts.
Heater Current	0·9 amp.

RATINGS (Absolute).

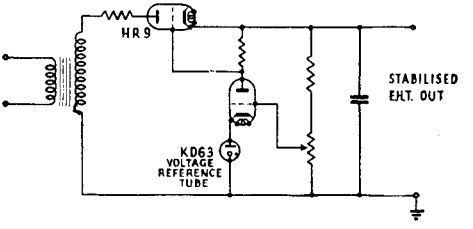
Max. Anode Voltage	25 kV.
Max. Peak Anode Current ...	5 mA.
Max. Mean Anode Dissipation ...	4 watts.
Max. Anode Direct Current ...	0·75 mA.
*Max. Peak Heater Cathode Voltage	150 volts.
Max. Negative Grid Voltage ...	200 volts.
Max. Grid Circuit Resistance ...	10 megohms.
Minimum Cathode Heating Time	45 secs.

CHARACTERISTICS.

Control Characteristics :			
DC. Anode Voltage (kV)	15	20	25
DC. Grid Voltage for cut off (Volts) ...	−26	−34	−42
DC. Grid Voltage for $I_a = 5\mu A$	−21·5	−29	−36
Amplification Factor ...	900	900	900

TYPICAL OPERATION.

The valve is usually employed in a High Voltage Stabiliser Circuit. A typical circuit incorporating a type HR9 grid controlled rectifier is shown below. In this arrangement the HL22 is used as a control valve in association with a voltage reference tube type KD63.



The high voltages normally applied to this valve can be very dangerous and particular care should be taken when making any circuit adjustments. It is recommended that before any part of the circuit is touched the supply should be switched off and the terminals of any capacitor grounded.
Operation of the HL22 at high anode voltage may result in the production of X-rays which could cause possible injury from prolonged exposure at close range unless adequate shielding is provided. Relatively simple shielding should prove adequate.

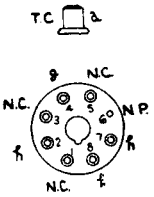
CAPACITANCES.

C_{a-k}	<0·1 pF.
C_{g-k}	1·0 pF.
C_{a-g}	0·6 pF.

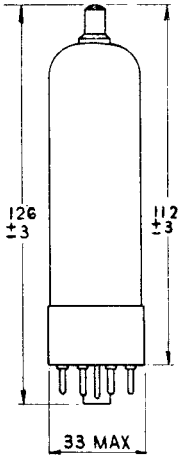
*The heater may be either positive or negative with respect to cathode.

Tentative
Issue 1
April, 1956

HL22



Base Connections Underside View of Base



All dimensions shown are in millimetres (max.)

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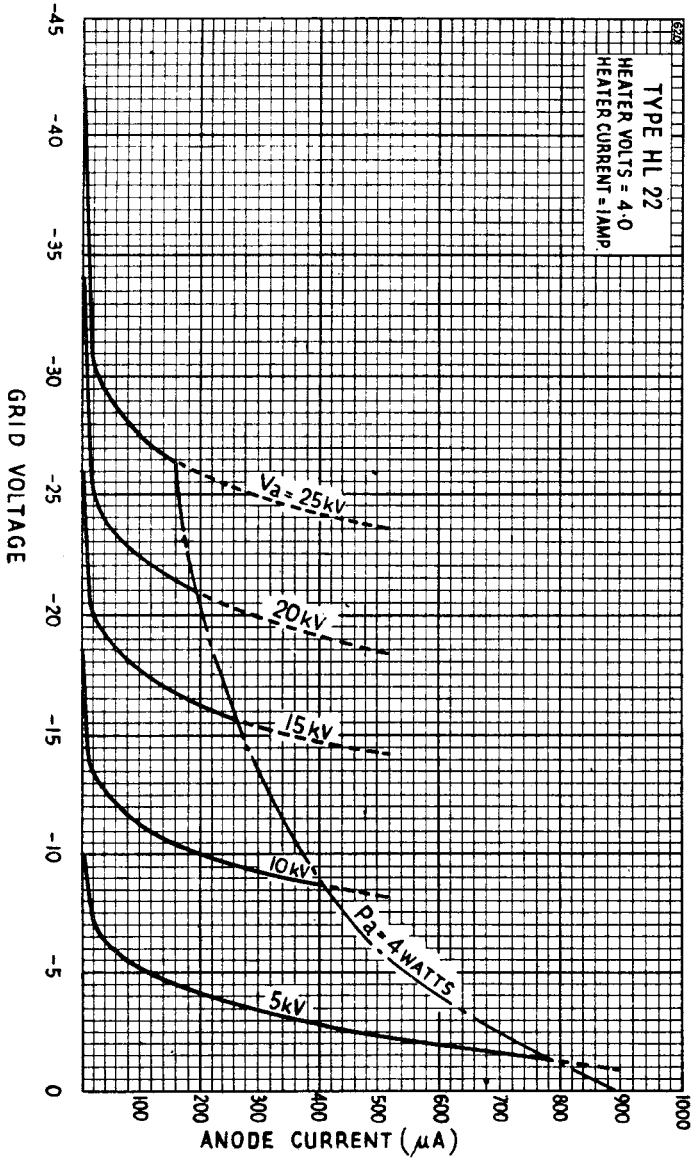
HL22


AVERAGE Ia/Vg CHARACTERISTIC.
TYPE HL 22
HEATER VOLTS = 4·0
HEATER CURRENT = 1AMP
Va = 25kV
20kV
15kV
10kV
Pa = 4 WATTS
5kV
GRID VOLTAGE
-45
-40
-35
-30
-25
-20
-15
-10
-5
0
100
200
300
400
500
600
700
800
900
1000
ANODE CURRENT (μA)