

FERRANTI HEPTODE

A directly heated miniature Heptode designed for use as a Frequency Changer in Battery Operated Receivers. The low drain filament is suitable only for DC. operation either from a series or parallel supply.

PHYSICAL DETAILS.

Base	...	...	B7G.
Max. Overall Length	...	...	54.5 mm. (2 $\frac{1}{8}$ in.).
Max. Seated Height	...	...	47.5 mm. (1 $\frac{7}{8}$ in.).
Max. Diameter	...	...	19 mm. ($\frac{3}{4}$ in.).

Mounting Position—Any.

BASE CONNECTIONS.

Pin 1—Filament (—).	Pin 5—Screen Grid (g_4).
Pin 2—Anode.	Pin 6—Control Grid (g_3).
Pin 3—Oscillator Anode (g_2).	Pin 7—Filament (+) and
Pin 4—Oscillator Grid (g_1).	Suppressor Grid (g_5).

FILAMENT.

Filament Voltage	...	Series.	Parallel.
Filament Current	...	1.3	1.4 volts.
	...	24	25 mA.

RATINGS.

Max. H.T. Supply Voltage	...	110 volts.
Max. Anode Voltage	...	90 volts.
Max. Oscillator Anode Voltage	...	60 volts.
Max. Screen Voltage	...	90 volts.
Max. Anode Dissipation	...	0.15 watt.
Max. Oscillator Anode Dissipation	...	0.1 watt.
Max. Screen Dissipation	...	0.03 watt.
Max. Cathode Current	...	2.6 mA.
Max. R_{g_3-k}	...	3 M Ω
Max. R_{g_1-k}	...	0.1 M Ω
Max. $V_{g_3} (I_{g_3} = +0.3 \mu A)$	...	+1.0 volt.
Max. $V_{g_1} (I_{g_1} = +0.3 \mu A)$	...	0 volt.

TYPICAL OPERATION AND CHARACTERISTICS.

*Anode Voltage = V_b	...	64	85	volts.
Control Grid Voltage	...	0	0	volt.
Screen Feed Resistor	...	0	120	k Ω
Osc. Anode Feed Resistor	...	18	33	k Ω
Oscillator Grid Resistor	...	27	27	k Ω
Screen Voltage	...	64	68	volts (approx.).
Oscillator Anode Voltage	...	35	35	volts (approx.).
Oscillator Grid Voltage	...	4	4	volts (r.m.s.).
Total Cathode Current	...	2.45	2.4	mA.
Anode Current	...	0.55	0.6	mA.
Screen Current	...	0.12	0.14	mA.
Oscillator Anode Current	...	1.6	1.5	mA.
Oscillator Grid Current	...	85	85	μA .
Conv. Conductance (gc)	...	275	300	μA /volts.
Anode Impedance	...	0.75	0.8	M Ω
Control Grid Voltage (for 100:1 reduction in gc)	...	-4.5	-6.5	volts.

OSCILLATOR SECTION†

*Anode Voltage = V_b	...	64	85	volts.
Screen Voltage	...	64	64	volts.
Control Grid Voltage	...	0	0	volt.
Oscillator Anode Voltage	...	35	35	volts.
Oscillator Grid Voltage	...	+1.4	+1.4	volts.
Oscillator Anode Current	...	1.7	1.7	mA.
Mutual Conductance (g_{1-2})	...	0.6	0.6	mA/V.
Inner μ ($\mu_{g_1-g_2}$)	...	7.5	7.5	

CAPACITANCES.

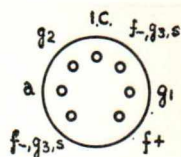
C_{g_1-all}	...	3.9 pF.	C_{a-g_2}	...	<0.3 pF.
C_{g_2-all}	...	4.8 pF.	C_{a-g_3}	...	<0.36 pF.
C_{g_3-all}	...	7.4 pF.	$C_{g_1-g_2}$	...	3.0 pF.
C_{a-all}	...	8.1 pF.	$C_{g_1-g_3}$	...	<0.2 pF.
C_{a-g_1}	...	<0.11 pF.	$C_{g_2-g_3}$	...	1.6 pF.

*Based on supply voltages of 67.5V and 90V decreased by the negative bias for the output valve.

†With Oscillator Grid (g_1) connected to filament (+).

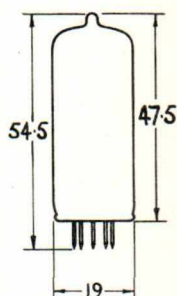
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Base
Connections

Underside View
of Base

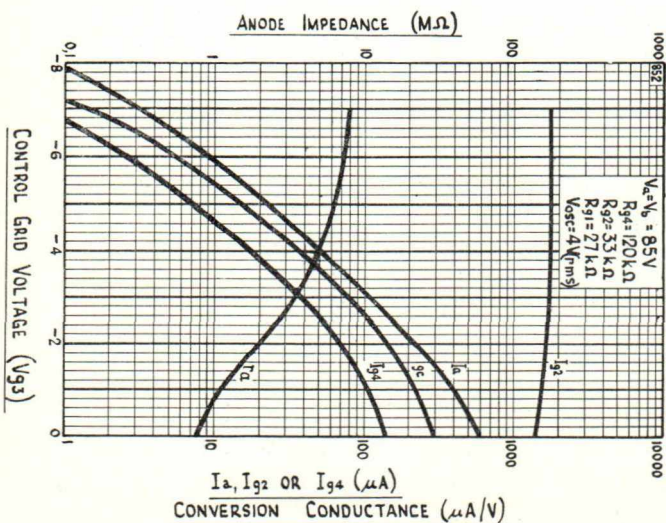
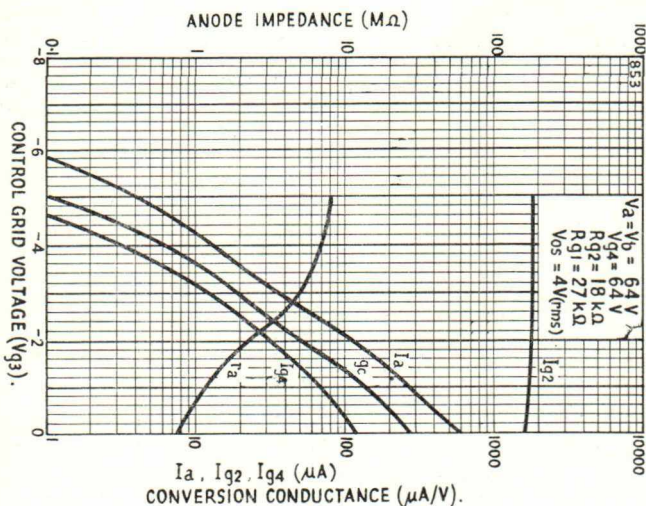


All dimensions
shown are in
millimetres (max.).



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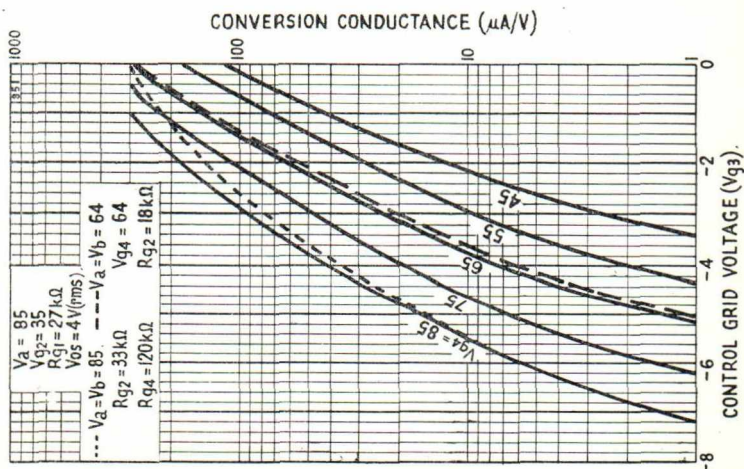
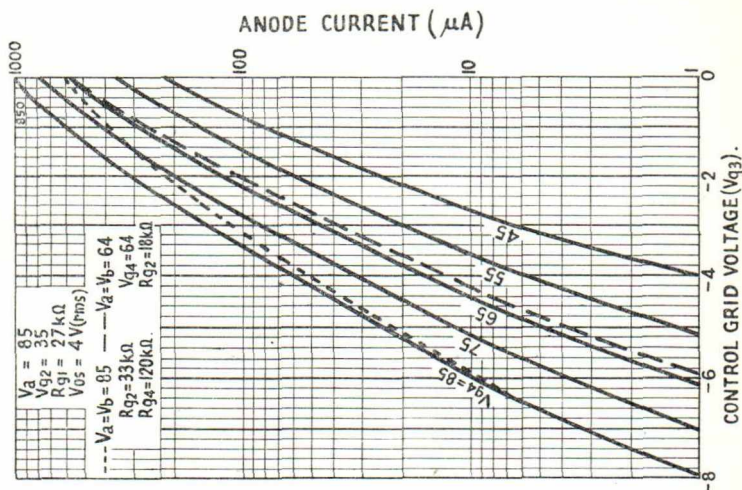
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