

FERRANTI HEPTODE

A directly heated Heptode, designed for use as a Frequency Changer in Battery Operated Receivers, suitable for A.V.C. It has a high-conversion conductance and will operate satisfactorily at frequencies up to 20 Mc/s. The filament is suitable only for D.C. operation.

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 (—), and Suppressor grid (g_5).	Pin 4—Oscillator grid (g_1)
Pin 2—Anode	Pin 5—Filament (—), and Suppressor grid (g_5).
Pin 3—Oscillator Anode (g_2) and Screen grid (g_4).	Pin 6—Signal grid (g_3).
	Pin 7—Filament (+).

FILAMENT.

Filament Voltage	...	...	1.4 volts
Filament Current	...	...	50 mA.

RATINGS.

Max. Anode Voltage	...	...	90 volts.
Max. Oscillator Anode Voltage	...	...	67.5 volts.
Max. Screen Voltage	...	...	67.5 volts.
Max. Cathode Current	...	...	5.5 mA.
Max. Signal Grid Voltage	...	...	0 Volts.

TYPICAL OPERATION.

V_a	45	67.5	90	90	volts.
$V_{g_2+g_4}$	45	67.5	45	67.5	volts.
V_{g_3}	0	0	0	0	volts.
V_{g_3} (for $g_c = 5\mu A/v$)	-9	-14	-9	-14	volts.
R_{g_1}	100	100	100	100	K Ω
r_a	600	500	800	600	K Ω
g_c	235	280	250	300	$\mu A/volt.$
i_a	0.7	1.4	0.8	1.6	mA.
ig_2+g_4	1.9	3.2	1.9	3.2	mA.
ig_1	150	250	150	250	$\mu A.$
ik	2.75	5.0	2.75	5.0	mA.

OSCILLATOR SECTION.

$V_{g_1} = V_{g_3}$	...	...	0 volts.
$V_{g_2} = V_{g_4} = V_a$	...	...	67.5 volts.
* g_m	...	...	1.4 mA/volt.

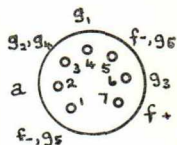
CAPACITANCES.

C_{g_1-all}	...	3.8 pF.	C_{a-g_3}	...	<0.4 pF.
C_{g_3-all}	...	7.0 pF.	$C_{g_1-g_3}$	...	<0.2 pF.
C_{a-all}	...	7.5 pF.	C_{a-g_1}	...	<0.1 pF.

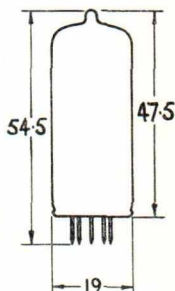
$$*g_1 = (g_2 + g_4 + a)$$

DK91

IR5



Base
Connections
Underside View
of Base



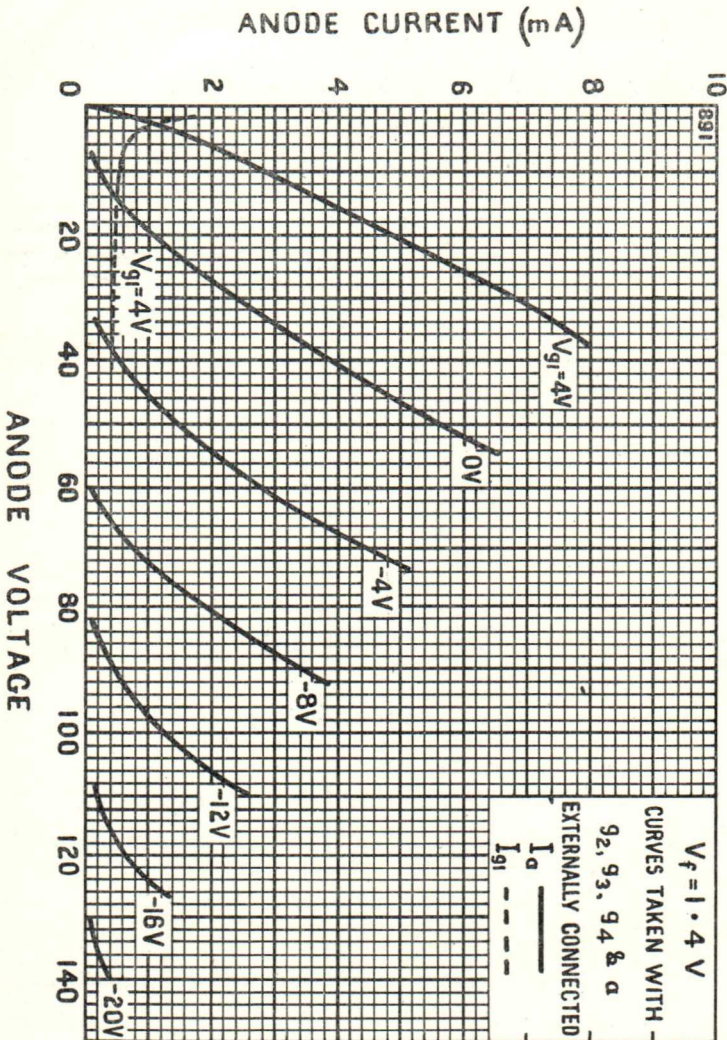
All dimensions
shown are in
millimetres
(max.).

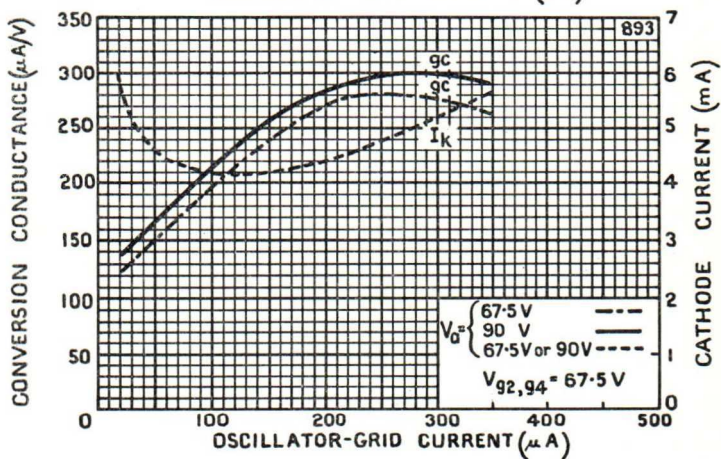
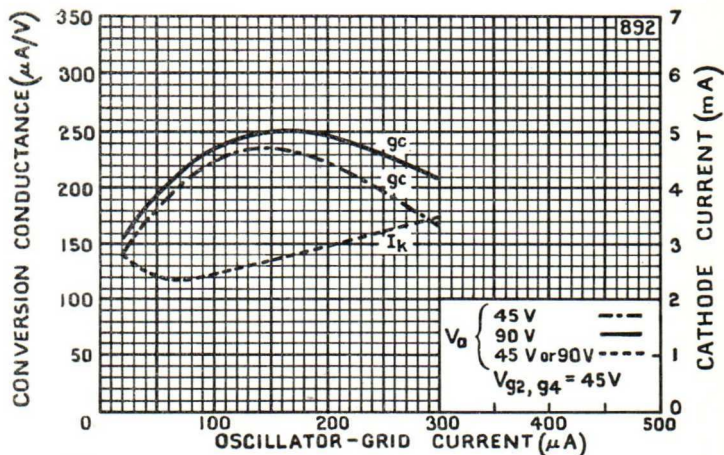




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$V_f = 1.4 \text{ V}$				
CURVE	V_a (V)	V_{g2+4} (V)	R_{g1} (Ω)	I_{g1} (μA)
A	45	45	100,000	150
B	90	45	100,000	150
C	67.5	67.5	100,000	250
D	90	67.5	100,000	250

I_{g1} VARIED BY ADJUSTING
 V_{osc} TO GIVE VALUES SHOWN
 V_{osc} ON $g_2 + g_4 + f = 0$

