

SPECIAL QUALITY DUAL CONTROL HEPTODE

E91H

Special quality dual control heptode for use as a gating valve in computer circuits where stability of characteristics and long life are required.

This data should be read in conjunction with GENERAL NOTES—SPECIAL QUALITY VALVES which precede this section of the handbook and the index numbers are used to indicate where reference should be made to a specific note.

HEATER

Suitable for parallel operation, a.c. or d.c.

V_h^1	6.3	V
I_h	270	mA

The maximum variation of heater current at $V_h = 6.3V$ is $\pm 14mA$.

MOUNTING POSITION

Any

CAPACITANCES² (measured without an external shield)

C_{a-g1}	< 0.08	pF
C_{a-g3}	< 0.45	pF
C_{g1-g3}	< 0.2	pF
C_{g1-a11}	5.4	pF
C_{g3-a11}	7.0	pF
C_{a-a11}	7.9	pF

CHARACTERISTICS³ (see fig. 1)

$V_a(b)$	150	150	150	150	V
$V_{g2+g4(b)}$	75	75	75	75	V
$V_{g1(b)}$	0	0	-10	0	V
$V_{g3(b)}$	0	-10	0	+55	V
R_a	20	20	20	—	k Ω
R_{g2+g4}	470	470	470	—	Ω
R_{g1}	47	47	47	—	k Ω
R_{g3}	47	47	47	—	k Ω
I_a	> 5.5 < 7.0	< 0.2	< 0.2	—	mA
I_{g3}	—	—	—	> 0	mA

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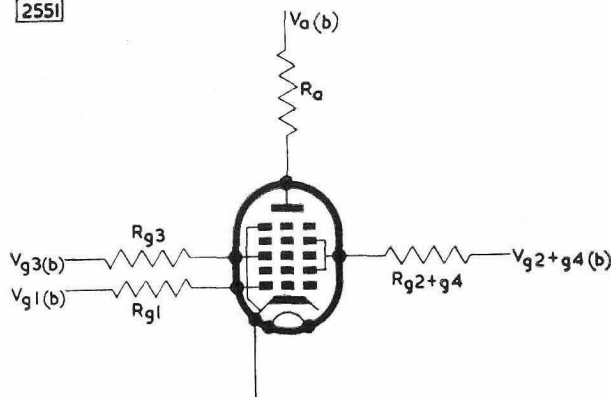


Fig 1

Inverse grid current (g_1 and g_3)

$V_{a(b)}$	150	V
$V_{g2+g4(b)}$	75	V
$V_{g1(b)}$	-1.5	V
$V_{g3(b)}$	-1.5	V
R_a	20	$k\Omega$
R_{g2+g4}	470	Ω
R_{g1}	47	$k\Omega$
R_{g3}	47	$k\Omega$
$-I_{g1}$	< 0.2	μA
$-I_{g3}$	< 0.5	$\mu A \leftarrow$

INSULATION

Between heater and cathode.

V_h	6.3	V
V_{h-k}	120	V
Leakage current	< 15	μA

TYPICAL OPERATING CONDITIONS

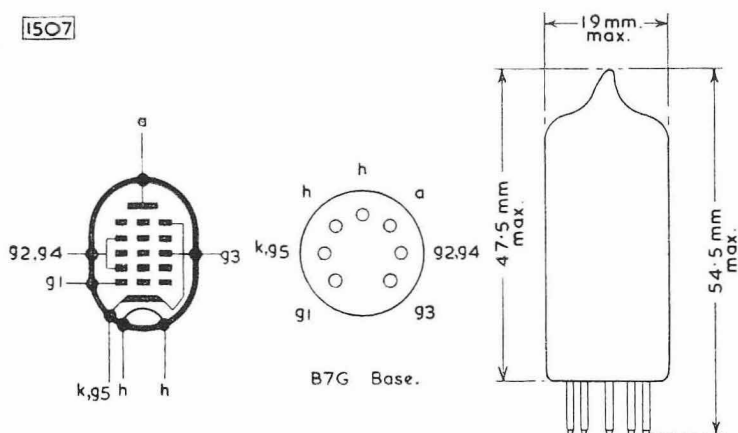
As a frequency changer

V_a	250	V
V_{g2+g4}	100	V
V_{g3}	-5.0	V
I_a	3.3	mA
I_{g2+g4}	6.5	mA
$V_{g1(r.m.s.)}$	10	V
I_{g1}	530	μA
R_{g1}	20	$k\Omega$
g_c	450	$\mu A/V$
r_a	850	$k\Omega$

LIMITING VALUES¹ (absolute ratings)

$V_{a(b)}$ max.	500	V
V_a max.	250	V
p_a max.	1.0	W
$V_{g2+g4(b)}$ max.	500	V
V_{g2+g4} max.	100	V
p_{g2+g4} max.	1.0	W
$+V_{g1}$ max.	0	V
$-V_{g1}$ max.	100	V
$-V_{g1(pk)}$ max.	200	V
p_{g1} max.	500	mW
$+V_{g3}$ max.	0	V
$-V_{g3}$ max.	100	V
$+V_{g3(pk)}$ max.	90	V
$-V_{g3(pk)}$ max.	200	V
p_{g3} max.	500	mW
I_k max.	20	mA
$i_{k(pk)}$ max.	70	mA
R_{g1-k} max. (cathode bias)	1.0	MΩ
R_{g1-k} max. (fixed bias)	500	kΩ
R_{g3-k} max. (cathode bias)	1.0	MΩ
R_{g3-k} max. (fixed bias)	500	kΩ
V_{h-k} max.	120	V

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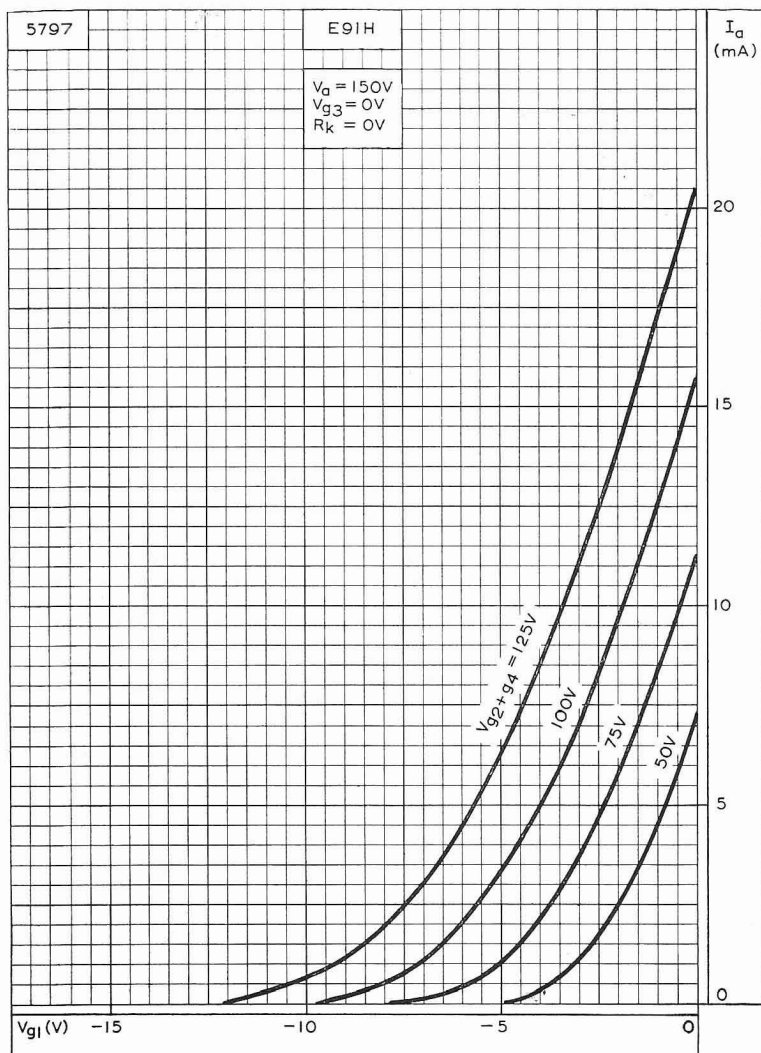
The bulb and base dimensions of this valve are in accordance with BS148, Section B7G.

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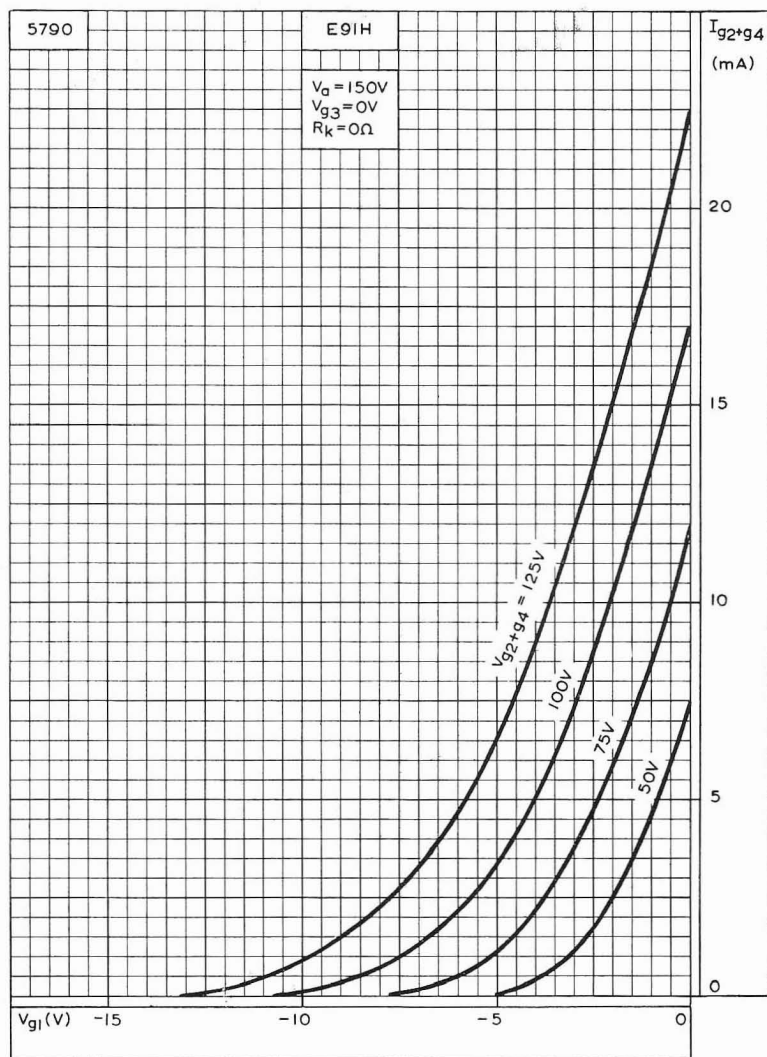
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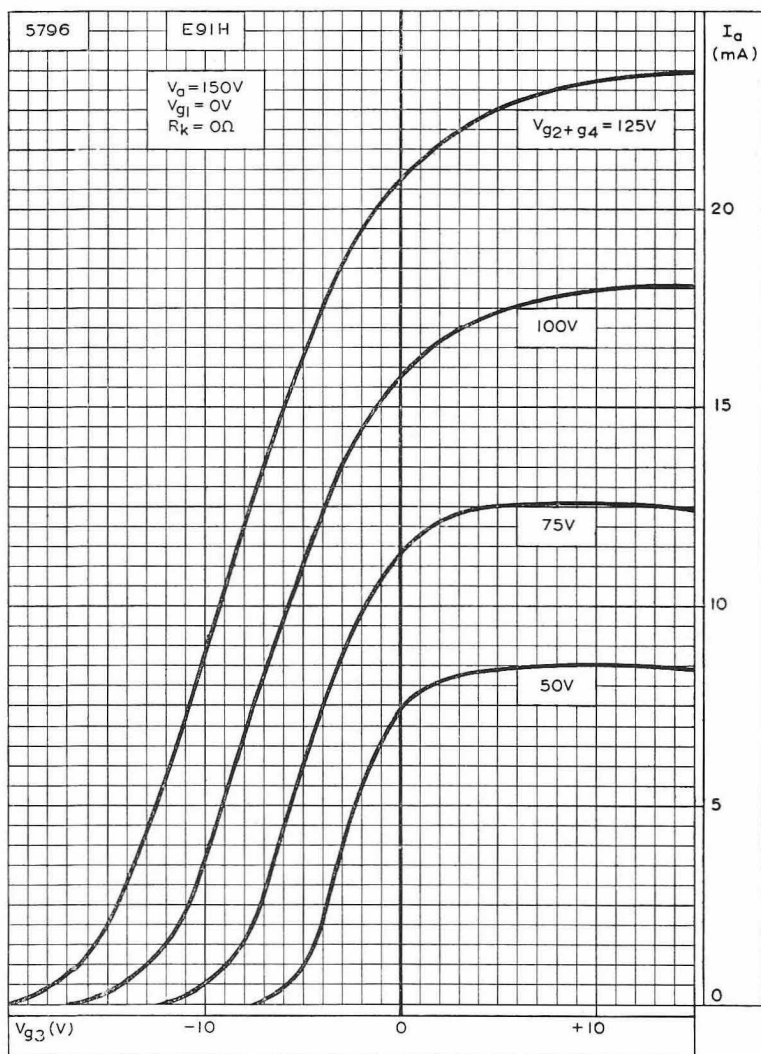
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ANODE CURRENT PLOTTED AGAINST CONTROL-GRID (g_1) VOLTAGE
WITH SCREEN-GRID VOLTAGE AS PARAMETER



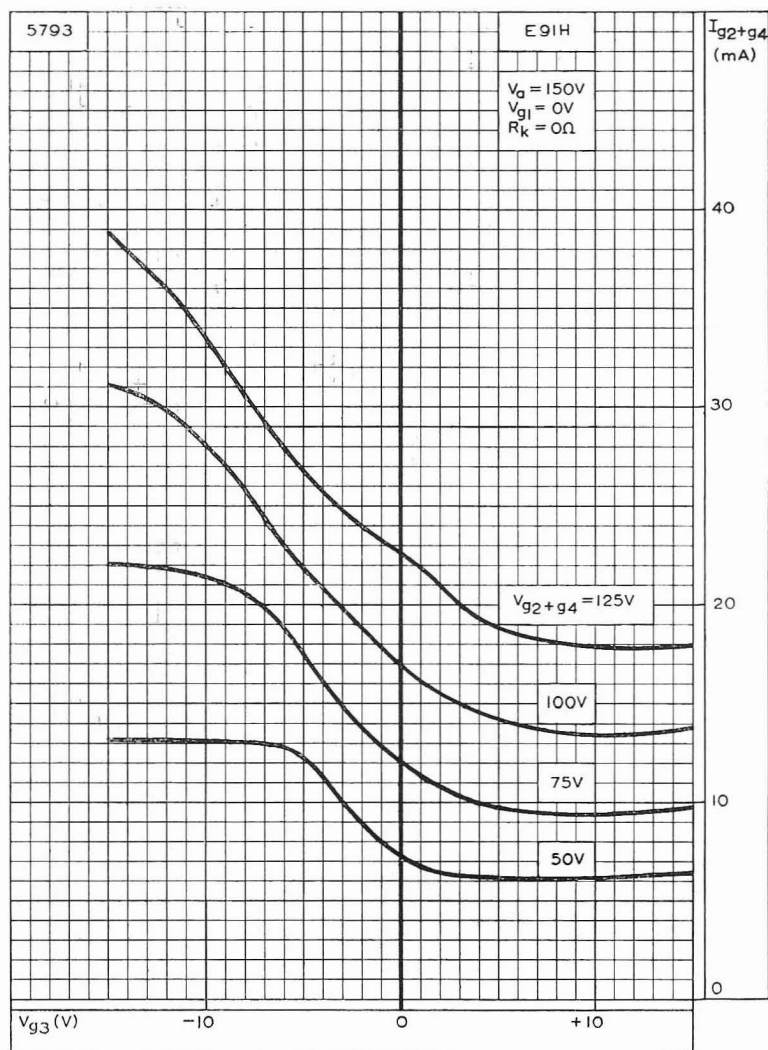
SCREEN-GRID CURRENT PLOTTED AGAINST CONTROL-GRID (g_1)
VOLTAGE WITH SCREEN-GRID VOLTAGE AS PARAMETER



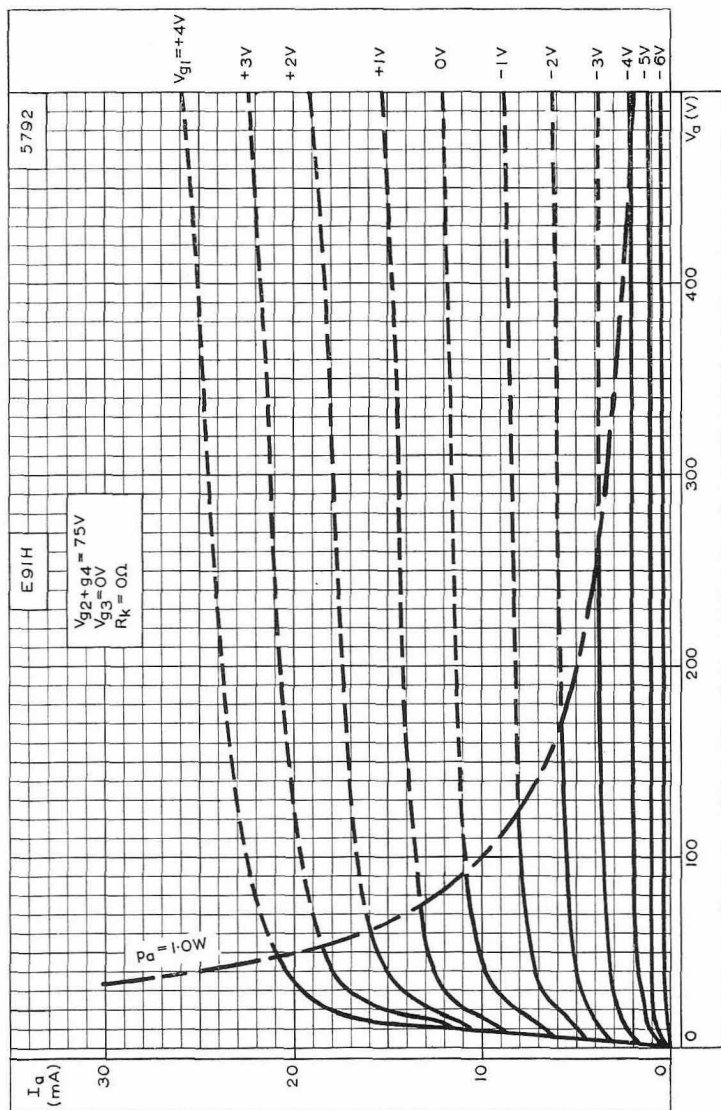
ANODE CURRENT PLOTTED AGAINST CONTROL-GRID (g_3) VOLTAGE
WITH SCREEN-GRID VOLTAGE AS PARAMETER

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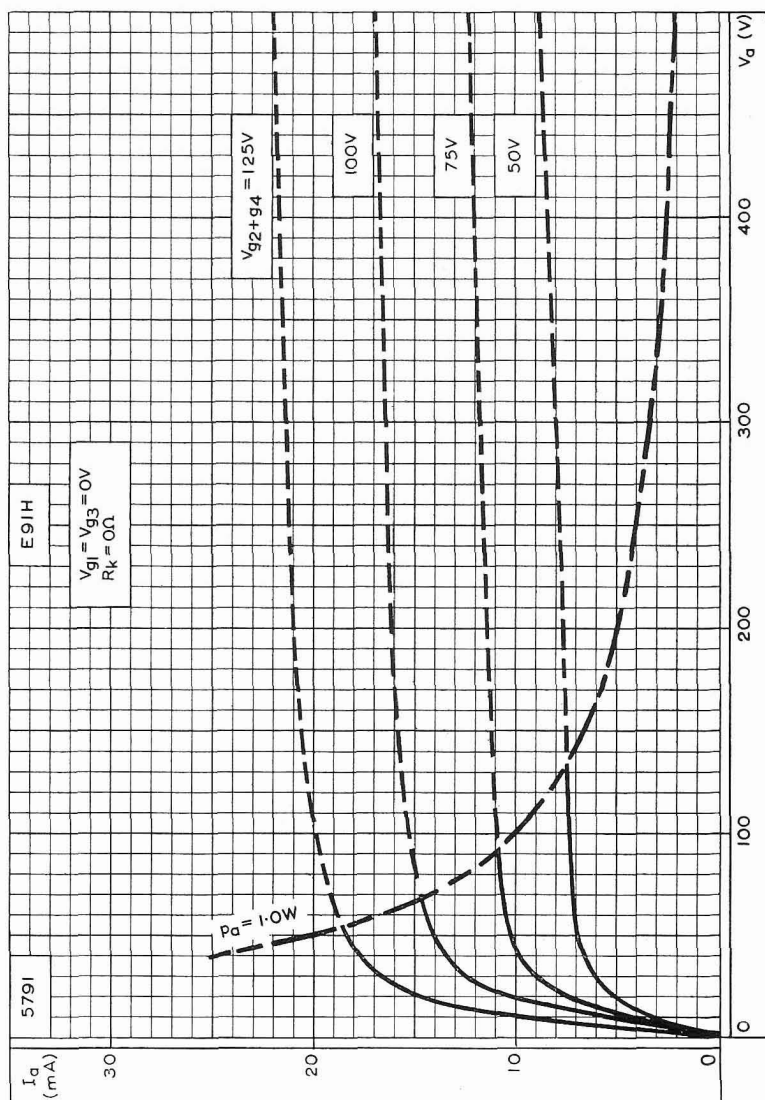
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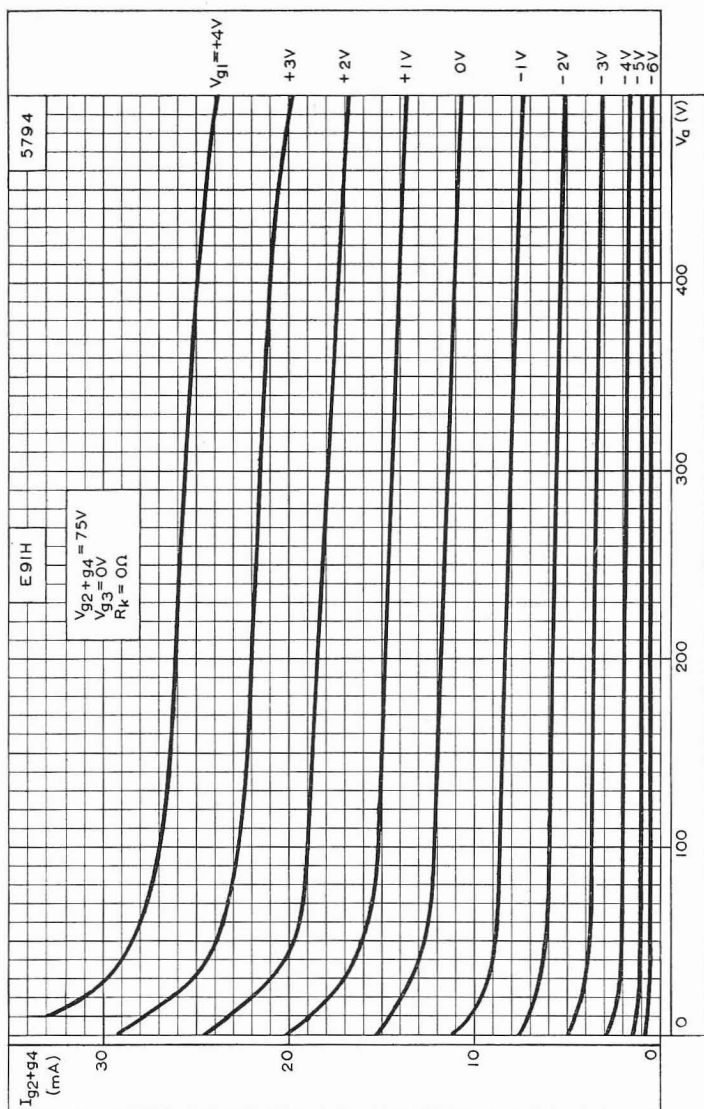
SCREEN-GRID CURRENT PLOTTED AGAINST CONTROL-GRID (g_3)
VOLTAGE WITH SCREEN-GRID VOLTAGE AS PARAMETER



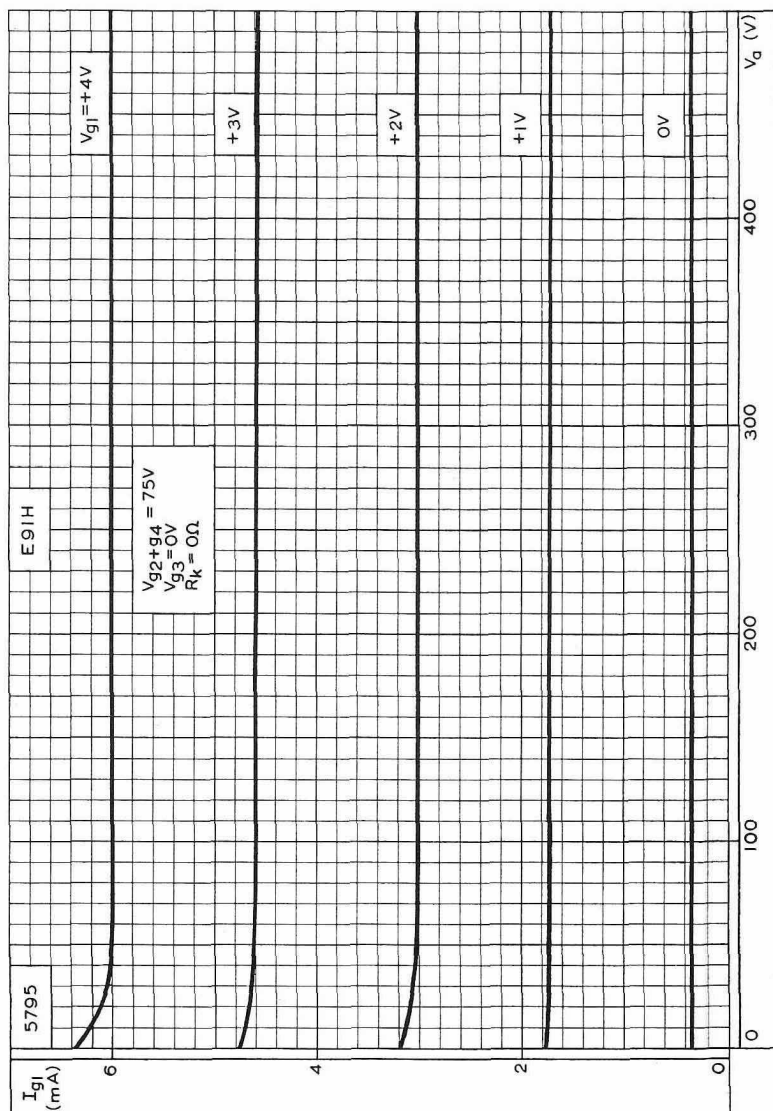
ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH
CONTROL-GRID (g_1) VOLTAGE AS PARAMETER



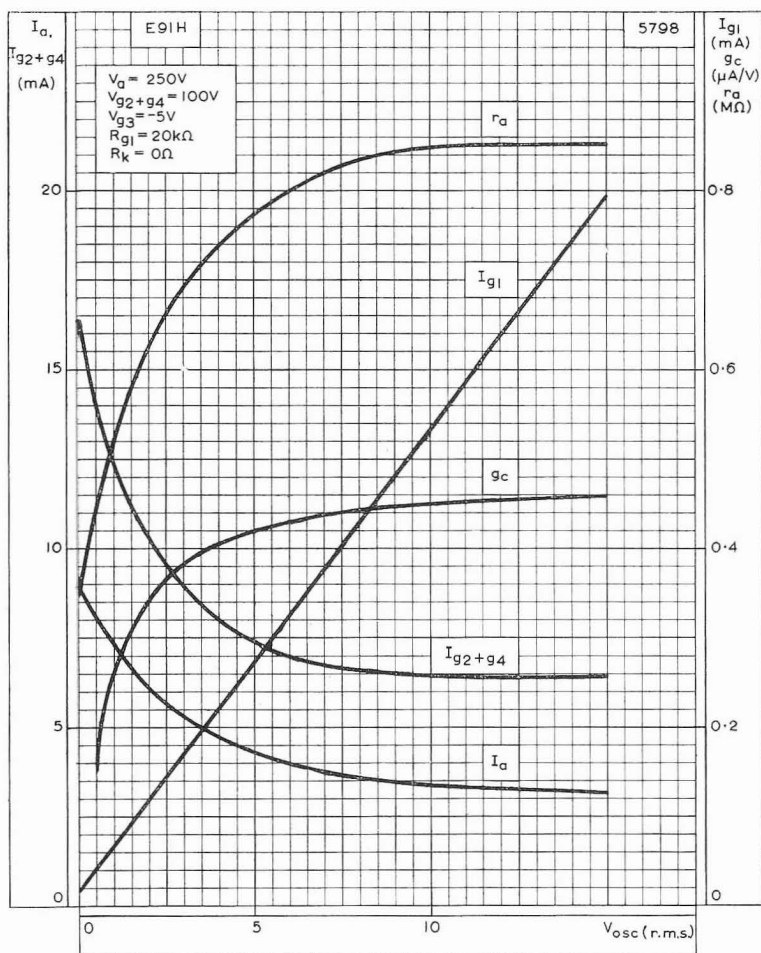
ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH
SCREEN-GRID VOLTAGE AS PARAMETER



SCREEN-GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH
CONTROL-GRID (g_1) VOLTAGE AS PARAMETER



CONTROL-GRID (g_1) CURRENT PLOTTED AGAINST ANODE VOLTAGE
WITH CONTROL-GRID (g_1) VOLTAGE AS PARAMETER



PERFORMANCE CURVES FOR USE AS A FREQUENCY CHANGER

