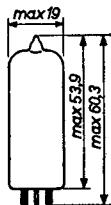
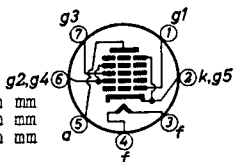


DUAL CONTROL HEPTODE for use in computer circuits  
 HEPTODE A DOUBLE COMMANDE pour utilisation dans circuits  
 de comptage  
 DOPPELGESTEUERTE HEPTODE zur Verwendung in Zählschaltungen

Heating : indirect by A.C. or D.C.  
 parallel supply  
 Chauffage: indirect par C.A. ou C.C.  
 alimentation parallèle  
 Heizung : indirekt durch Wechsel-  
 oder Gleichstrom; Paral-  
 lelspeisung

$$\left. \begin{array}{l} V_f = 6,3 \text{ V}^1 \\ I_f = 270 \text{ mA}^2 \end{array} \right\}$$

Dimensions in mm  
 Dimensions en mm  
 Abmessungen in mm



Base, culot, Sockel: MINIATURE

Capacitances (without external shield)  
 Capacités (sans blindage extérieur)  
 Kapazitäten (ohne äussere Abschirmung)

$C_a$	=	7,9 pF	$C_{g1}$	<	0,08 pF
$C_{g1}$	=	5,4 pF	$C_{g3}$	<	0,45 pF
$C_{g3}$	=	7,0 pF	$C_{g1g3}$	<	0,2 pF

<sup>1</sup>) In order to obtain a prolonged tube life, the maximum variation of  $V_f$  should be less than  $\pm 5\%$  (absolute limits)

Afin d'obtenir une vie prolongée du tube, la variation maximum de  $V_f$  sera moins de  $\pm 5\%$  (limites absolues)

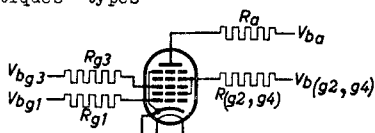
Zur Verlängerung der Lebensdauer der Röhre darf die maximale Heizspannungsschwankung nicht mehr als  $\pm 5\%$  (absolute Werte) betragen

<sup>2</sup>) At  $V_f = 6.3 \text{ V}$  the spread of  $I_f$  from tube to tube can be  $\pm 14 \text{ mA}$

Pour  $V_f = 6,3 \text{ V}$ , l'écart de  $I_f$  d'un tube à l'autre peut être de  $\pm 14 \text{ mA}$

Bei  $V_f = 6,3 \text{ V}$  kann die Streuung von  $I_f$  der Röhren bis zu  $\pm 14 \text{ mA}$  betragen

Typical characteristics  
Caractéristiques types  
Kenndaten



$V_{ba}$	=	150	150	150	150 V
$V_{b(g2, g4)}$	=	75	75	75	75 V
$V_{bg1}$	=	0	0	-10	0 V
$V_{bg3}$	=	0	-10	0	+55 V
$R_a$	=	20	20	20	- k $\Omega$
$R_{g2, g4}$	=	470	470	470	- $\Omega$
$R_{g1}$	=	47	47	47	- k $\Omega$
$R_{g3}$	=	47	47	47	- k $\Omega$
$I_a$	=	>5,5	<0,2	<0,2	- mA
$I_{g3}$	=	-	-	-	>0 mA

Insulation ( $V_f = 6,3$  V)  
 Isolement ( $V_{kf} = 120$  V)  $r_{kf} = \text{min. } 8 \text{ M}\Omega$   
 Isolation

Inverse grid No.1 and grid No.3 current  
 Courant inverse des grilles 1 et 3  
 Negativen Gitterstrom der Gitter 1 und 3

$V_{ba}$	=	150 V
$V_{b(g2, g4)}$	=	75 V
$V_{bg1}$	=	-1,5 V
$V_{bg3}$	=	-1,5 V
$R_a$	=	20 k $\Omega$
$R_{g2, g4}$	=	470 $\Omega$
$R_{g1}$	=	47 k $\Omega$
$R_{g3}$	=	47 k $\Omega$
$-I_{g1}$	= max.	0,2 $\mu$ A
$-I_{g3}$	= max.	0,5 $\mu$ A

Operating characteristics as mixer  
 Caractéristiques d'utilisation comme tube mélangeur  
 Betriebsdaten als Mischröhre

$V_a$	=	250 V
$V_{g2+g4}$	=	100 V
$V_{g3}$	=	-5 V
$V_{osc}$	=	10 $V_{eff}$ <sup>2)</sup>
$R_{g1}$	=	20 k $\Omega$
$I_a$	=	3,3 mA
$I_{g1}$	=	530 $\mu$ A
$I_{g2+g4}$	=	6,5 mA
$S_c$	=	450 $\mu$ A/V
$R_1$	=	0,85 M $\Omega$

Limiting values (Absolute limits)  
 Caractéristiques limites (Limites absolues)  
 Grenzdaten (Absolutwerte)

$V_{a0}$	= max. 500 V	$W_a$	= max. 1,0 W
$V_a$	= max. 250 V	$W_{g2+g4}$	= max. 1,0 W
$V_{(g2+g4)0}$	= max. 500 V	$W_{g1}$	= max. 0,5 W
$V_{g2+g4}$	= max. 100 V	$W_{g3}$	= max. 0,5 W
$-V_{g3}$	= max. 100 V	$I_k$	= max. 20 mA
$+V_{g3}$	= max. 0 V	$I_{kp}$	= max. 70 mA
$-V_{g3p}$	= max. 200 V	$V_{kf}$	= max. 120 V
$+V_{g3p}$	= max. 90 V	$R_{g1}$	= max. 0,5 M $\Omega$ <sup>4)</sup>
$-V_{g1}$	= max. 100 V	$R_{g1}$	= max. 1,0 M $\Omega$ <sup>5)</sup>
$+V_{g1}$	= max. 0 V	$R_{g3}$	= max. 0,5 M $\Omega$ <sup>4)</sup>
$-V_{g1p}$	= max. 200 V	$R_{g3}$	= max. 1,0 M $\Omega$ <sup>5)</sup>
$+V_{g1p}$	= max. <sup>3)</sup>		

2) Oscillator voltage on  $g_1$ ; signal voltage on  $g_3$   
 Tension d'oscillateur a  $g_1$ ; tension de signal a  $g_3$   
 Oszillatorspannung an  $g_1$ ; Signalspannung an  $g_3$

3) Limited by  $I_{kp}$  and  $W_{g1}$   
 Limité par  $I_{kp}$  et  $W_{g1}$   
 Begrenzt durch  $I_{kp}$  und  $W_{g1}$

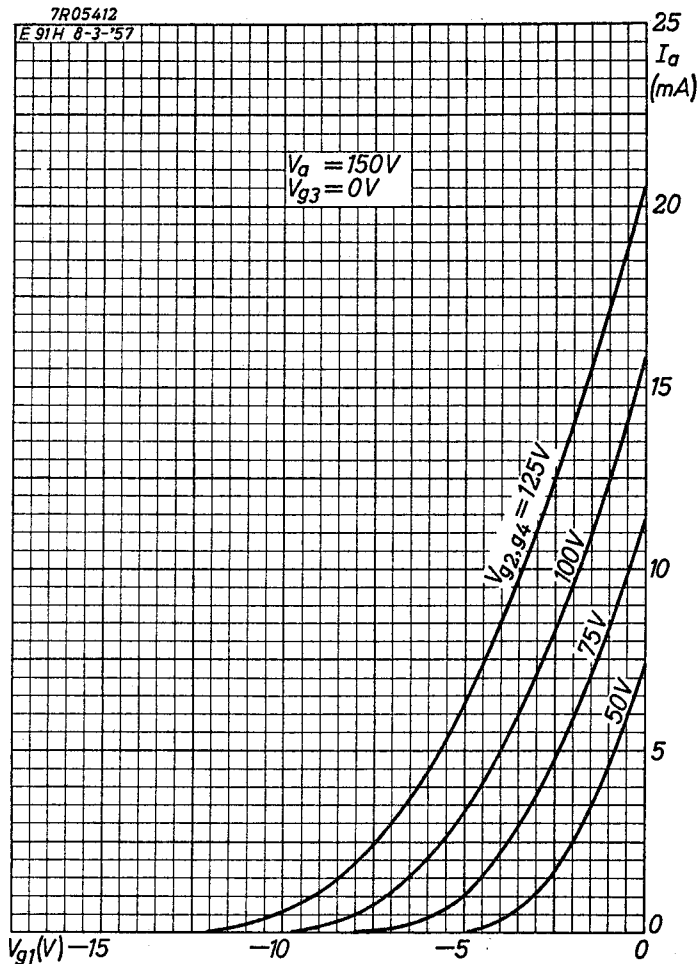
4) With fixed bias  
 En polarisation fixe  
 Mit fester Gittervorspannung

5) With automatic grid bias  
 En polarisation automatique  
 Mit automatischer Gittervorspannung

**SQ****PHILIPS****E91H**

7R05412

E91H 8-3-'57



6.6.1957

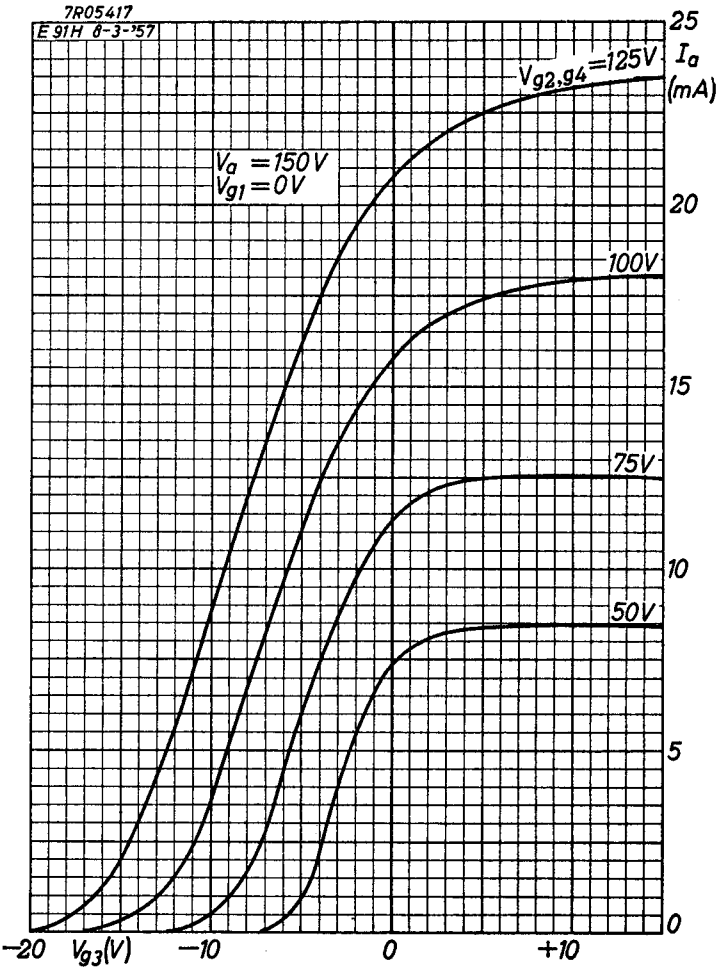
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# E91H

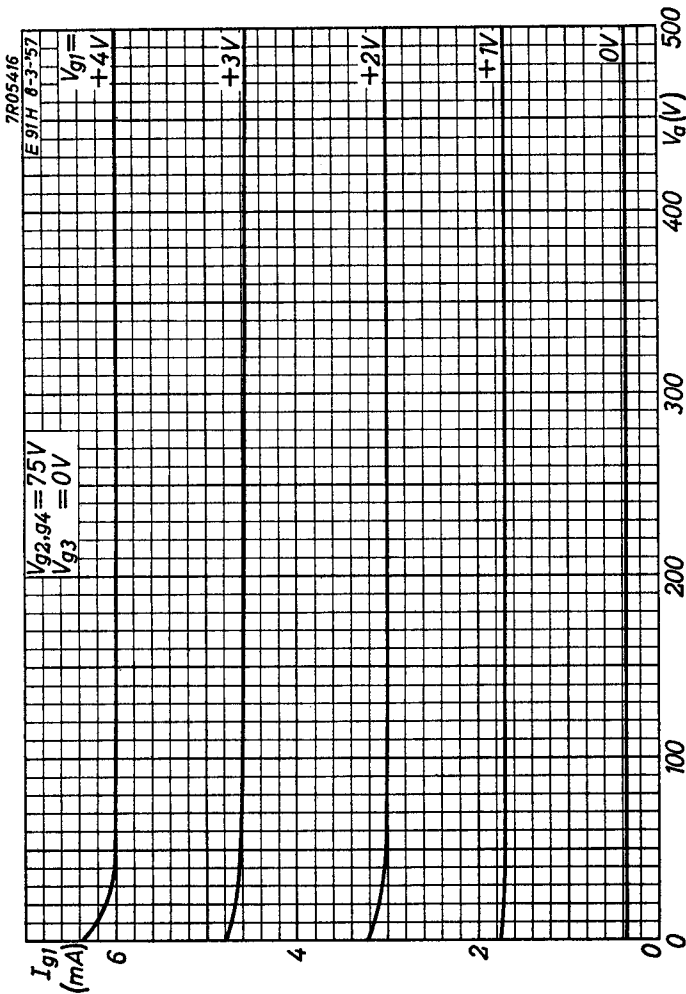
# PHILIPS

7R05417

E91H 8-3-57



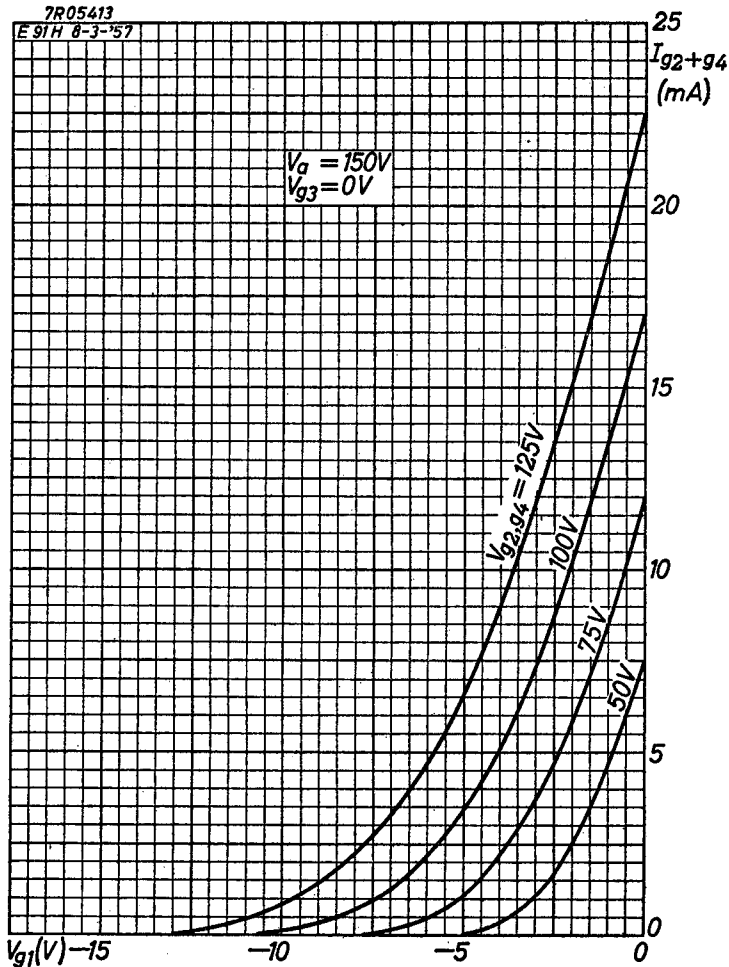
B

**SQ****PHILIPS****E91H**

**E91H****PHILIPS**

7R05413

E91H 8-3-'57

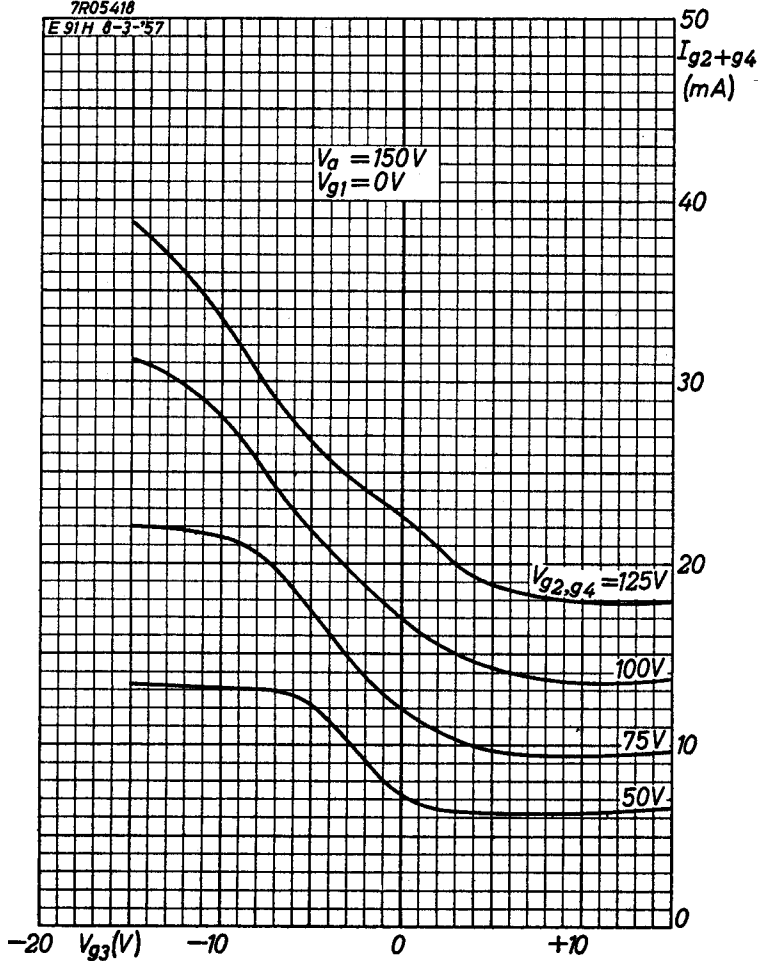
 $V_a = 150V$   
 $V_{g3} = 0V$ 

D

**SQ****PHILIPS****E91H**

7R05418

E91H 8-3-'57



6.6.1957

E

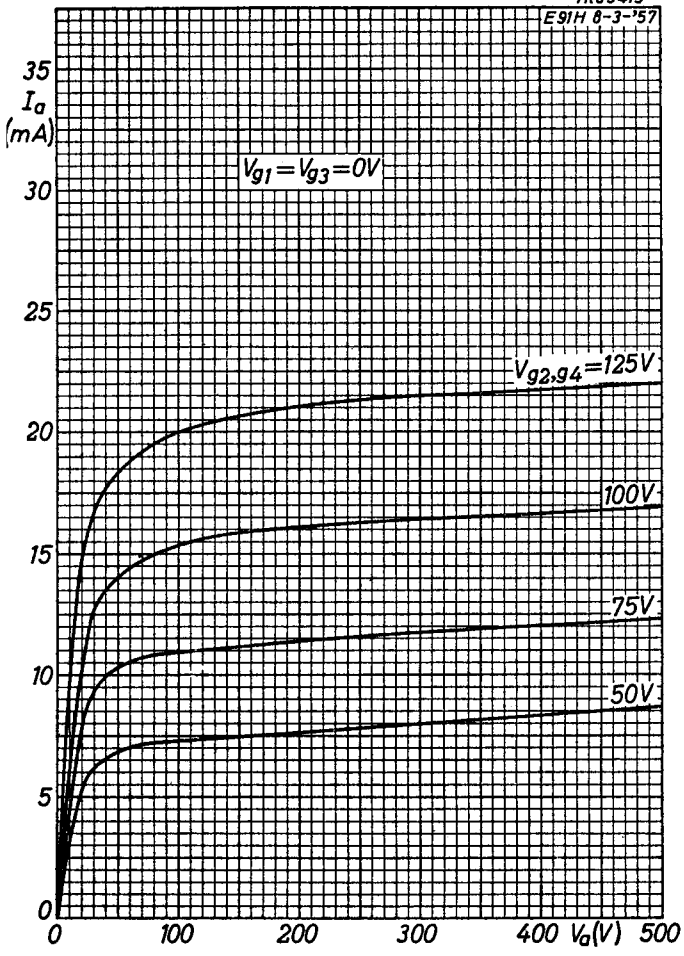


# E91H

# PHILIPS

7R05419

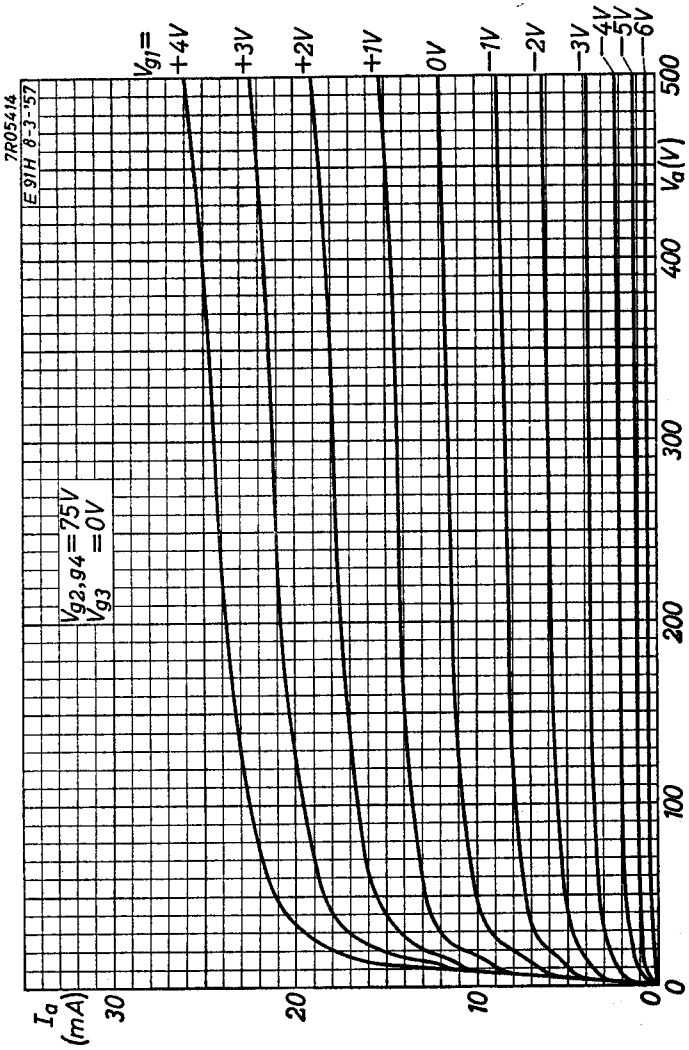
E91H 8-3-'57



# SQ

# PHILIPS

# E91H



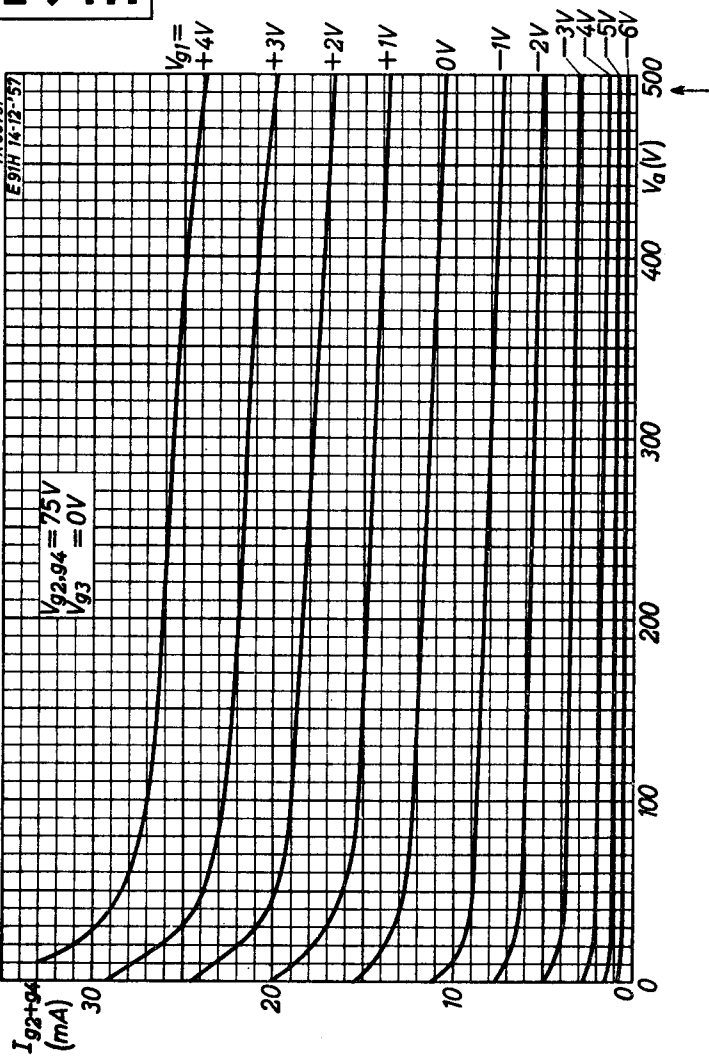
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**PHILIPS**

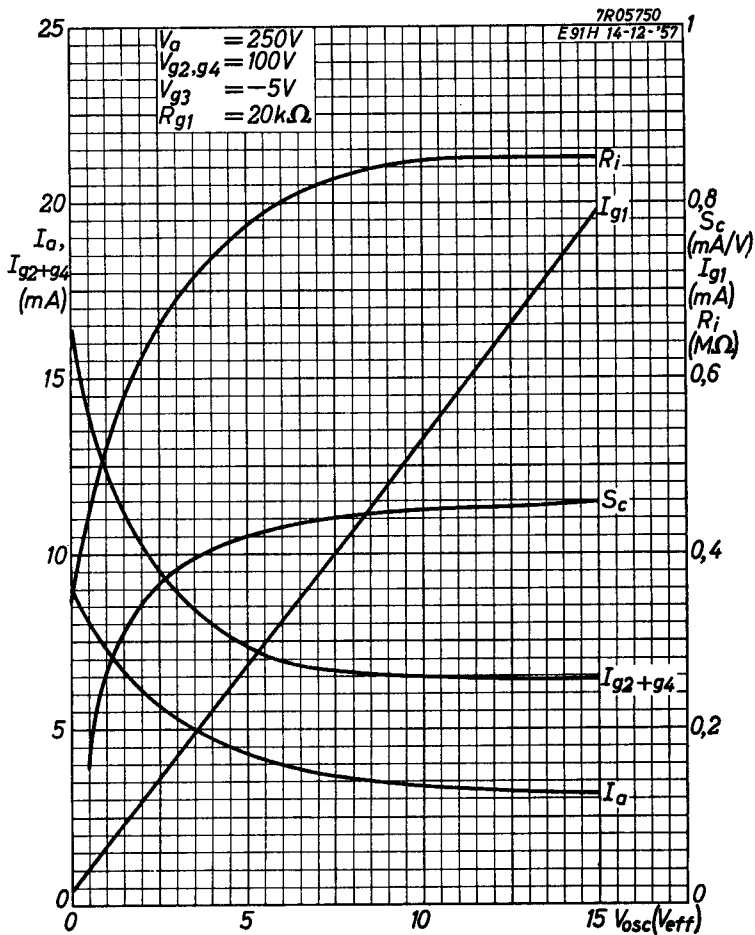
**SQ**

7R05751

E91H 16-12-57



H

**SQ****PHILIPS****E91H**

12.12.1957

I

**PHILIPS**

*Electronic  
Tube*

**HANDBOOK**

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8	E	1957.06.06
9	F	1957.06.06
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