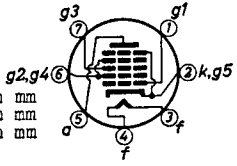
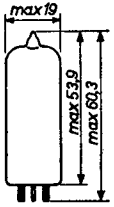
DUAL CONTROL HEPTODE for use in computer circuits
HEPTODE A DOUBLE COMMANDE pour utilisation dans circuits de comptage
DOPPELGESTEUERTE HEPTODE zur Verwendung in Zählschaltungen

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

$V_f = 6{,}3\ V$ [1]
$I_f = 270\ mA$ [2]



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_{ag1} <	0,08 pF
C_{g1} = 5,4 pF		C_{ag3} <	0,45 pF
C_{g3} = 7,0 pF		C_{g1g3} <	0,2 pF

[1] In order to obtain a prolonged tube life, the maximum variation of V_f should be less than ± 5% (absolute limits)

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

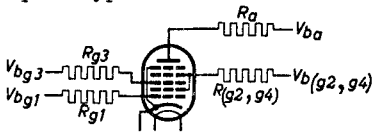
Zur Verlängerung der Lebensdauer der Röhre darf die maximale Heizspannungsschwankung nicht mehr als ± 5% (absolute Werte) betragen

[2] At V_f = 6.3 V the spread of I_f from tube to tube can be ± 14 mA

Pour V_f = 6,3 V, l'écart de I_f d'un tube à l'autre peut être de ± 14 mA

Bei V_f = 6,3 V kann die Streuung von I_f der Röhren bis zu ± 14 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	- kΩ
$R_{g2,g4}$	=	470	470	470	- Ω
R_{g1}	=	47	47	47	- kΩ
R_{g3}	=	47	47	47	- kΩ
I_a	=	>5,5 <7,0	<0,2	<0,2	- mA
I_{g3}	=	-	-	-	>0 mA

Insulation / Isolement / Isolation (V_f = 6,3 V; V_{kf} = 120 V) r_{kf} = min. 8 MΩ

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 kΩ
$R_{g2,g4}$	=	470 Ω
R_{g1}	=	47 kΩ
R_{g3}	=	47 kΩ
$-I_{g1}$	= max.	0,2 µA
$-I_{g3}$	= max.	0,5 µA

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} [2]
R_{g1}	=	20 kΩ
I_a	=	3,3 mA
I_{g1}	=	530 µA
I_{g2+g4}	=	6,5 mA
S_c	=	450 µA/V
R_i	=	0,85 MΩ

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

V_{ao}	= max. 500 V	W_a	= max. 1,0 W
V_a	= max. 250 V	W_{g2+g4}	= max. 1,0 W
$V_{(g2+g4)o}$	= 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 MΩ [4]
$-V_{g1}$	= max. 100 V	R_{g1}	= max. 1,0 MΩ [5]
$+V_{g1}$	= max. 0 V	R_{g3}	= max. 0,5 MΩ [4]
$-V_{g1p}$	= max. 200 V	R_{g3}	= max. 1,0 MΩ [5]
$+V_{g1p}$	= max. [3]		

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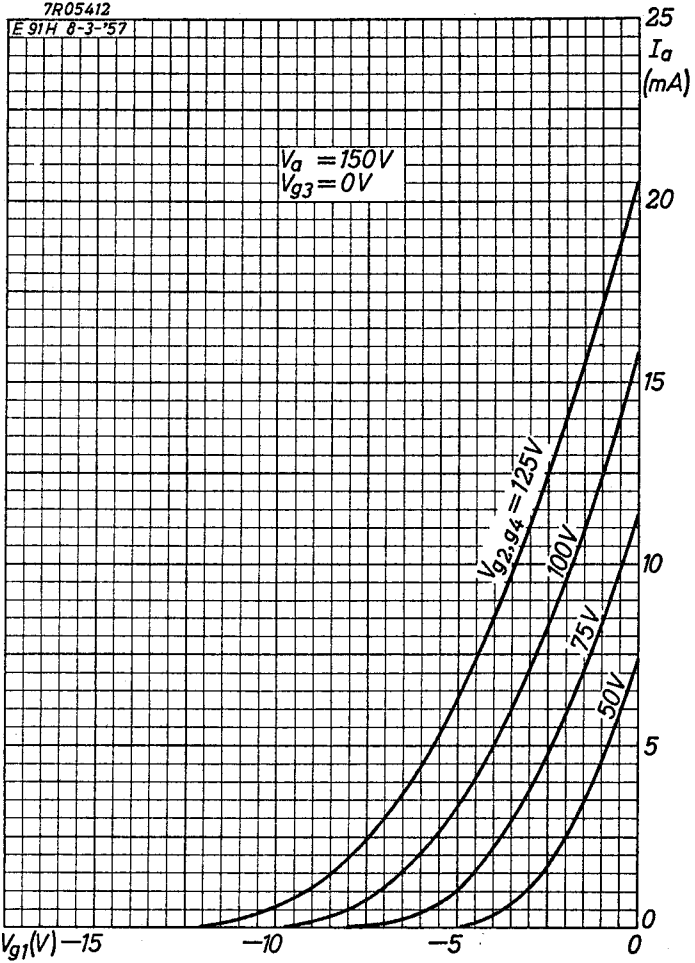
[2]) Oscillator voltage on g1; signal voltage on g3
Tension d'oscillateur à g1; tension de signal à g3
Oszillatorspannung an g1; Signalspannung an g3

[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

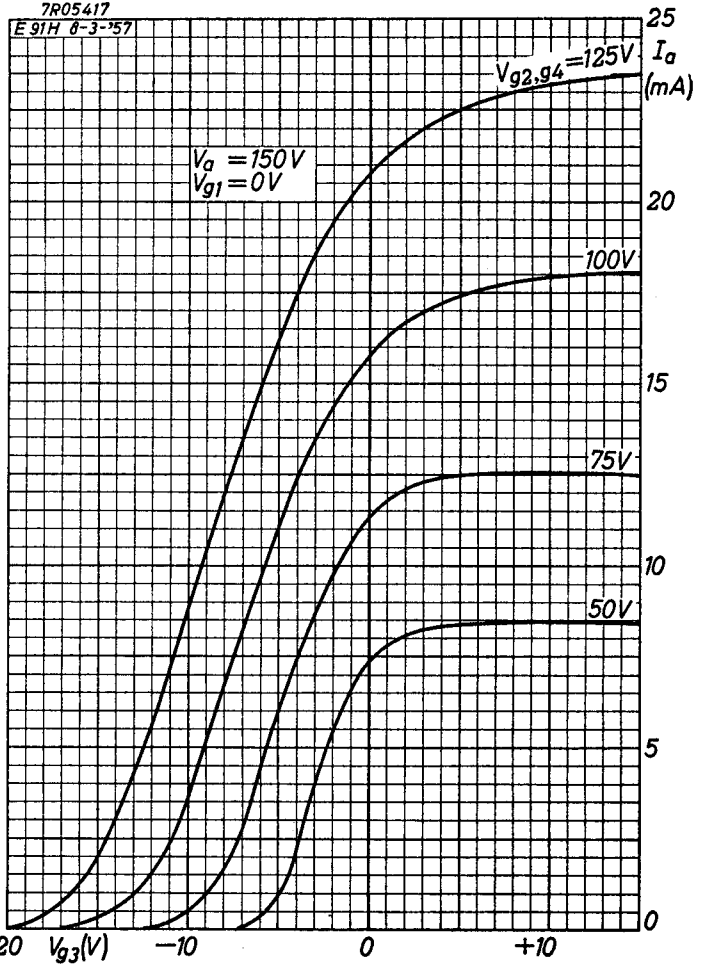
SQ PHILIPS E91H



6.6.1957

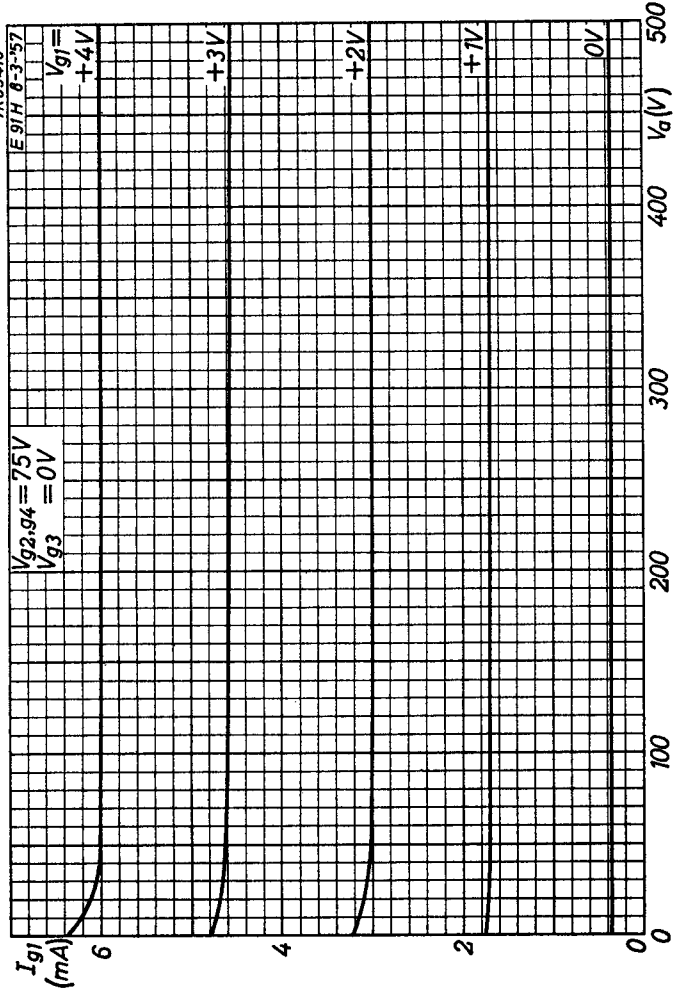
A

E91H PHILIPS



B

SQ PHILIPS E91H



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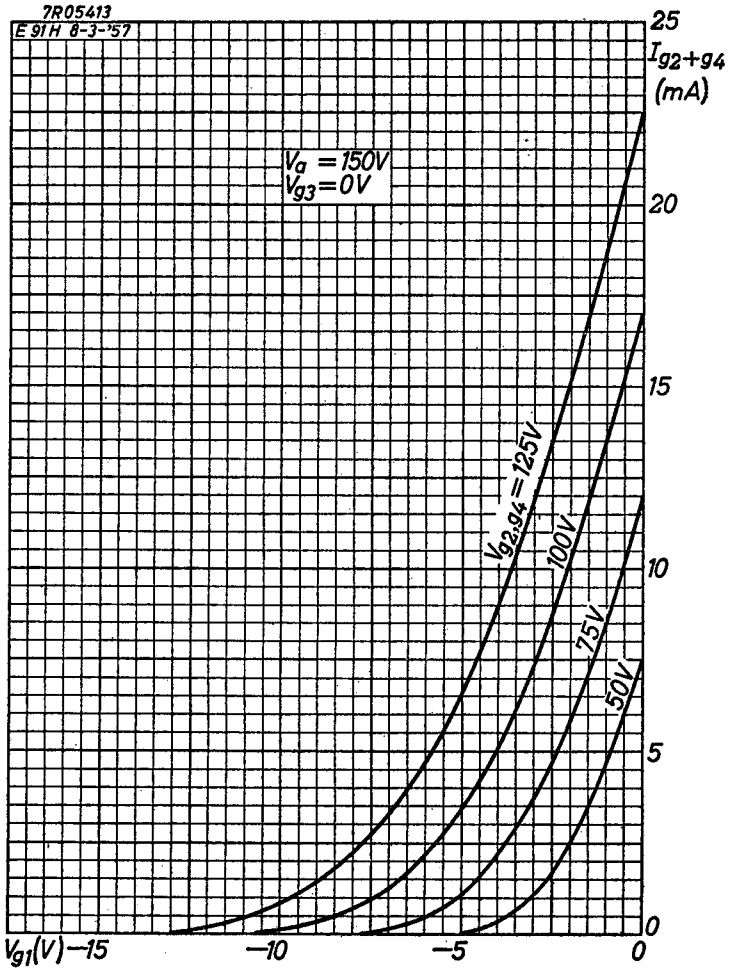
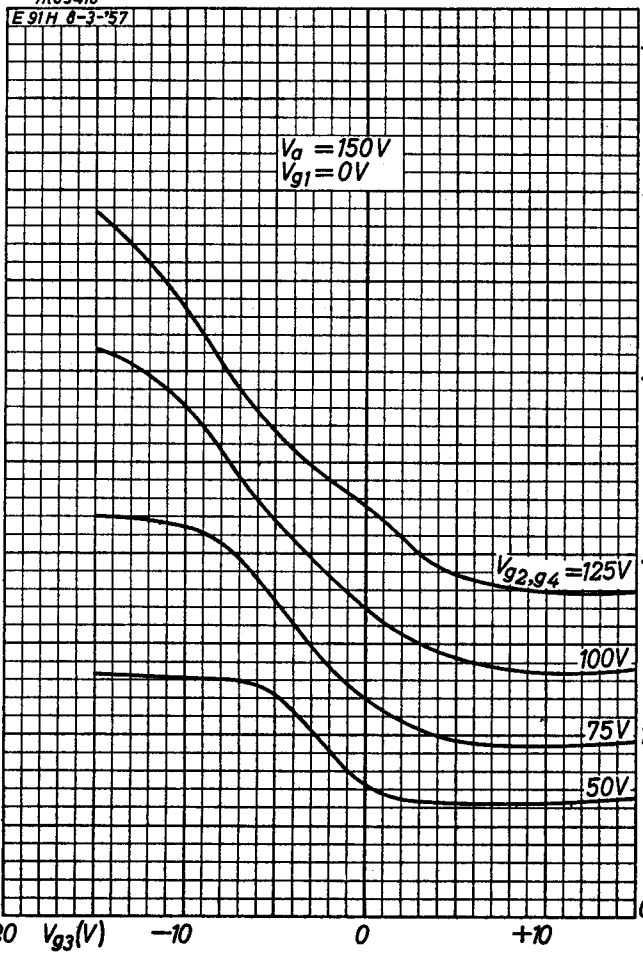
C

E91H PHILIPS



D

SQ PHILIPS E91H



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E

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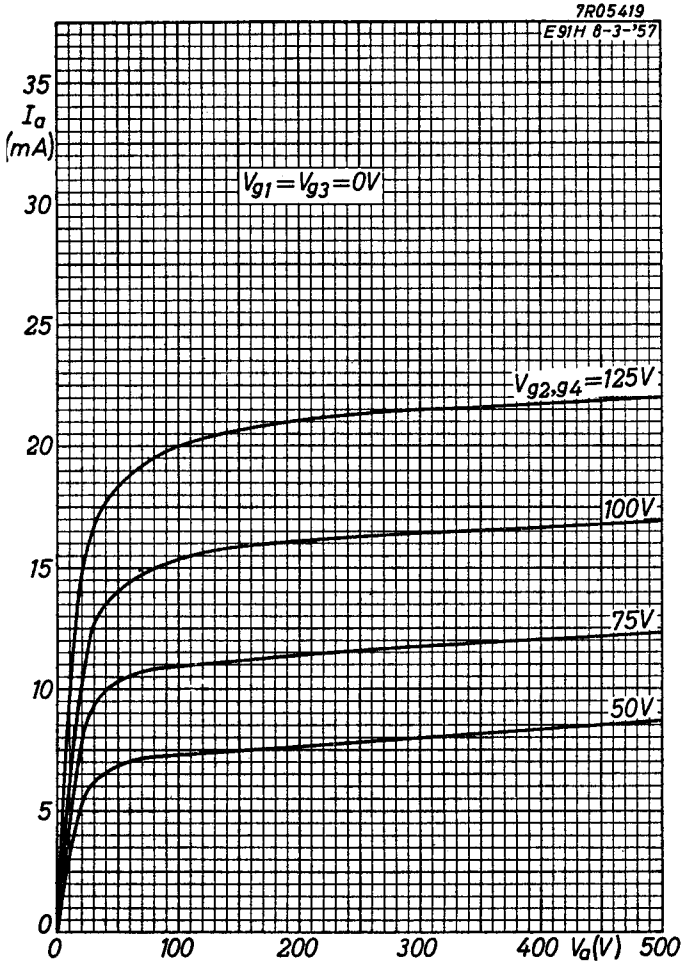
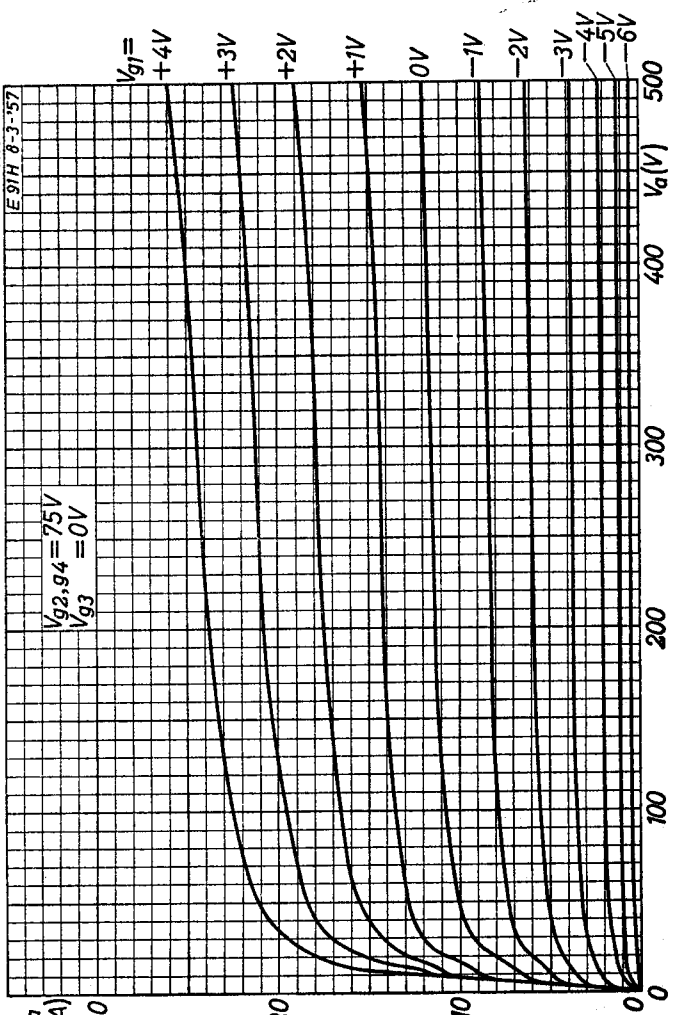
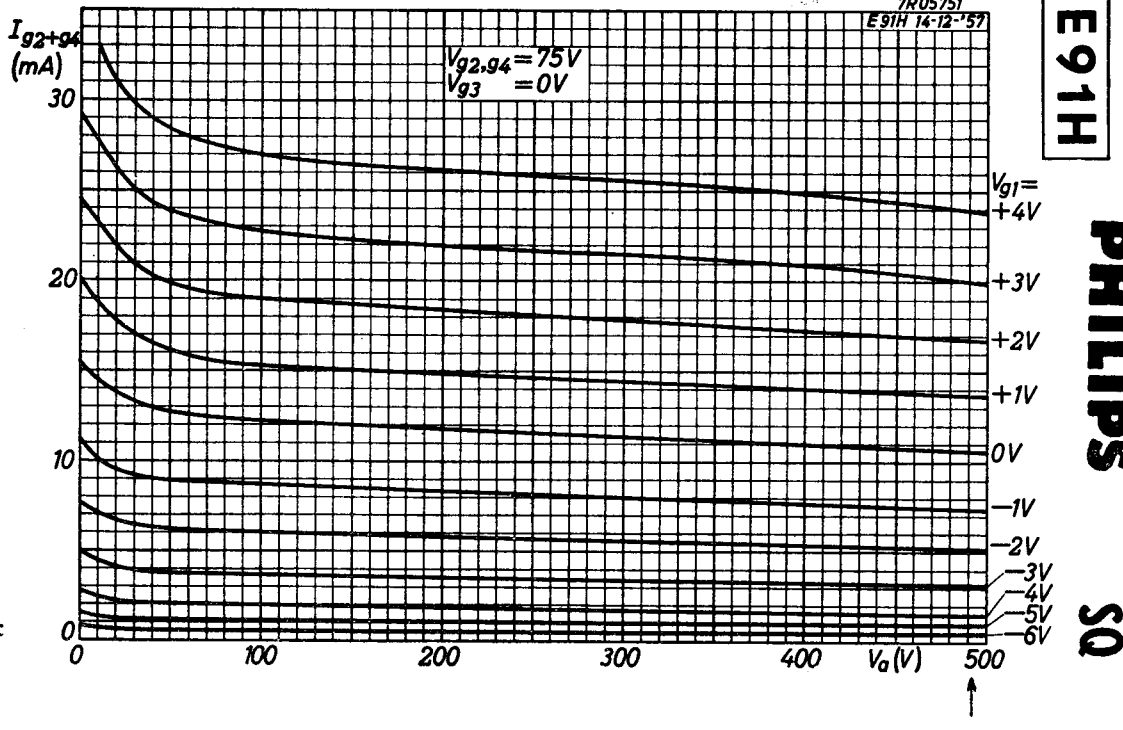
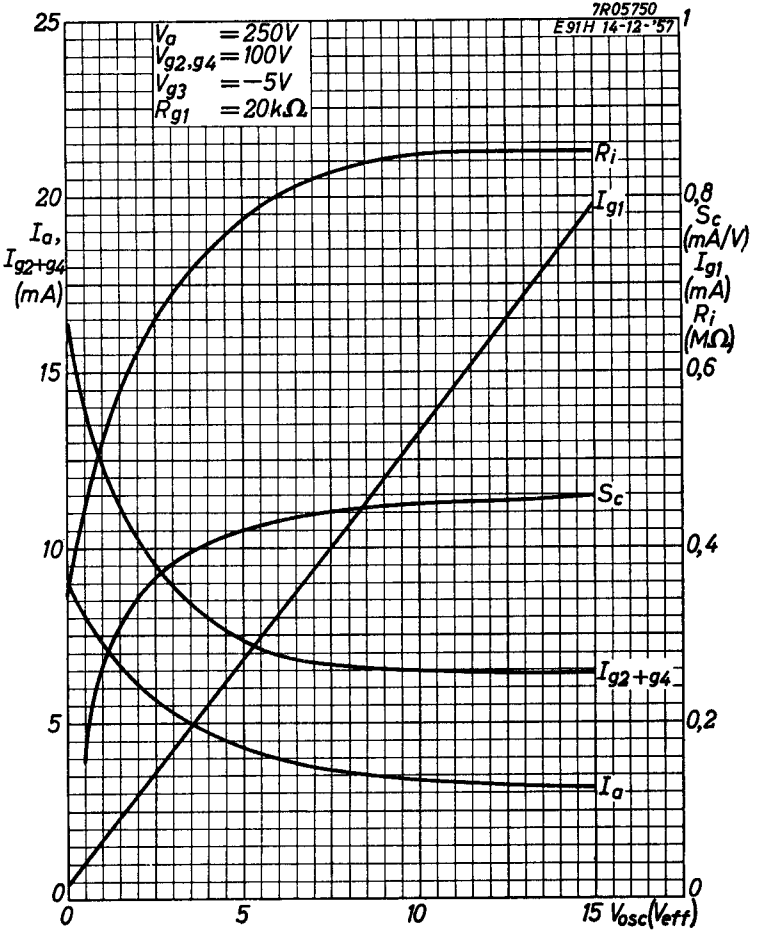


F


7R05414
E91H 8-3-'57
V_{g1}=
+4V
+3V
+2V
+1V
0V
−1V
−2V
−3V
−4V
−5V
−6V
$V_{g2,g4}$=75V
V_{g3} =0V
I_a (mA)
30
20
10
0
0
100
200
300
400
500
V_a(V)


7R05751
E91H 14-12-'57
E91H
PHILIPS
I_{g2+g4} (mA)
$V_{g2,g4}$ = 75V
V_{g3} = 0V
V_{g1} =
+4V
+3V
+2V
+1V
0V
−1V
−2V
−3V
−4V
−5V
−6V
30
20
10
0
0
100
200
300
400
V_a (V)
500


7R05750
E91H 14-12-'57
V_a = 250V
$V_{g2,g4}$ = 100V
V_{g3} = −5V
R_{g1} = 20kΩ
R_i
I_{g1}
S_c
I_{g2+g4}
I_a
I_a, I_{g2+g4} (mA)
S_c (mA/V)
I_{g1} (mA)
R_i (MΩ)
V_{osc} (V_{eff})
25
20
15
10
5
0
1
0,8
0,6
0,4
0,2
0
0
5
10
15

PHILIPS

Electronic Tube

HANDBOOK

E91H

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5	B	1957.06.06
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7	D	1957.06.06
8	E	1957.06.06
9	F	1957.06.06
10	G	1957.12.12
11	H	1957.12.12
12	I	1957.12.12
13	FP	1999.06.11