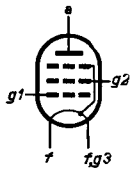
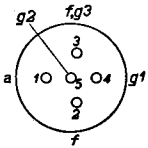
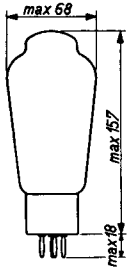
OUTPUT PENTODE
PENTHODE DE SORTIE
ENDPENTHODE

Heating : direct by A.C.; parallel supply
Chauffage : direct par C.A.; alimentation en parallèle — Vf = 4 V, If = 2 A
Heizung : direkt durch Wechselstrom; Parallelspeisung







Capacities
Capacités
Kapazitäten

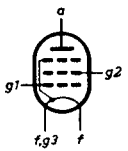
Cag1 = 3 pF

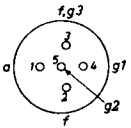
OUTPUT PENTODE
PENTHODE DE SORTIE
ENDPENTODE

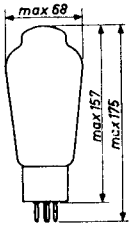
Heating : direct by A.C.
parallel supply
Chauffage: direct par C.A.
alimentation- parallèle
Heizung : direkt durch Wechselstrom
Parallelspeisung

V_f = 4 V
I_f = 2 A

Dimensions in mm
Dimensions en mm
Abmessungen in mm







Base, culot, Sockel: O

Capacitances
Capacités
Kapazitäten

C_{ag1} = 3 pF

Operating characteristics class A
Caractéristiques d'utilisation classe A
Betriebsdaten Klasse A

V_a	=	300	550 V
V_{g2}	=	300	200 V
V_{g1}	=	-40	-30 V
R_k	=	455	650 Ω
I_a	=	83	45 mA
I_{g2}	=	4,6	1,4 mA
S	=	3,9	3,2 mA/V
μ_{g2g1}	=	4,5	4,5 -
R_i	=	20	30 kΩ
$R_{a\sim}$	=	3,6	12 kΩ
V_i	=	20	15,5 V_{eff}
W_o	=	10,3	12 W
d_{tot}	=	10	10 %
$V_i(W_o=50mW)$	=	1,5	1,1 V_{eff}

Operating conditions class A
Caractéristiques d'utilisation classe A
Betriebsdaten Klasse A

Va	=	300	550	V
Vg2	=	300	200	V
Vg1	=	-40	-30	V
Rk	=	455	650	Ω
Ia	=	83	45	mA
Ig2	=	4,6	1,4	mA
S	=	3,9	3,2	mA/V
μg2g1	=	4,5	4,5	-
Ri	=	20	30	kΩ
Ra	=	3,6	12	kΩ
Vi(d = 10%)	=	20	15,5	V_{eff}
Wo(d = 10%)	=	10,3	12	W
d	=	10	10	%
Vi(Wo=50mW)	=	1,5	1,1	V_{eff}

Operating conditions class B
Caractéristiques d'utilisation classe B
Betriebsdaten Klasse B

Va	=	300		V
Vg2	=	300		V
Vg1	=	-63		V
Raa'	=	4,5		kΩ
Vi	=	0	46	V_{eff}
Ia	=	2x15	2x72,5	mA
Ig2	=	2x0,4	2x14,3	mA
Wo	=	0	26,5	W
d	=	-	4,5	%

Operating characteristics class B
Caracteristiques d'utilisation classe B
Betriebsdaten Klasse B

V_a	=	300		V
V_{g2}	=	300		V
V_{g1}	=	-63		V
$R_{aa\sim}$	=	4,5		kΩ
V_i	=	0	46	V_{eff}
I_a	=	2x15	2x72,5	mA
I_{g2}	=	2x0,4	2x14,3	mA
W_o	=	0	26,5	W
d_{tot}	=	-	4,5	%

Operating characteristics class AB
Caracteristiques d'utilisation classe AB
Betriebsdaten Klasse AB

V_a	=	300		550		V
V_{g2}	=	300		250		V
R_k	=	330		445		Ω
$R_{aa\sim}$	=	4		12		kΩ
V_i	=	0	39	0	37	V_{eff}
I_a	=	2x64	2x72,5	2x45	2x53	mA
I_{g2}	=	2x2	2x11,9	2x0,8	2x7,4	mA
W_o	=	0	24	0	41	W
d_{tot}	=	-	2,9	-	4,3	%

Limiting values
Caractéristiques limites
Grenzdaten

V_{a_o}	= max.	900	V
V_a	= max.	550	V
W_a	= max.	25	W
V_{g2_o}	= max.	500	V
V_{g2}	= max.	300	V
$W_{g2}(V_i=0)$	= max.	1,5	W
$W_{g2}(W_o=max.)$	= max.	4,3	W
I_k	= max.	100	mA
$V_{g1}(I_{g1}=+0,3\mu A)$	= max.	-2	V
R_{g1}	= max.	0,3	MΩ

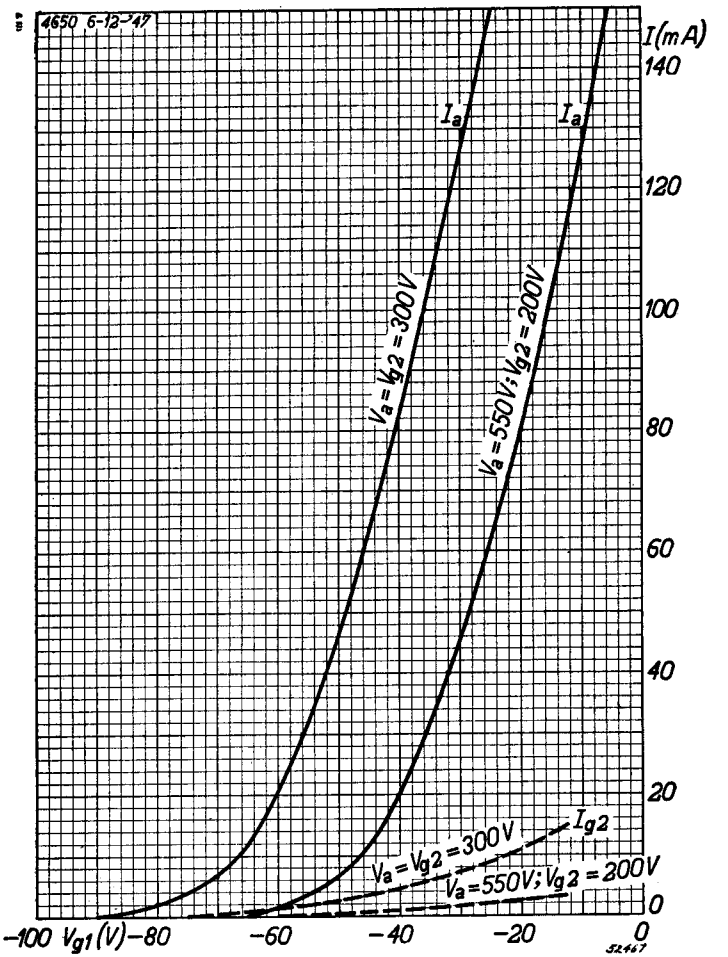
Operating conditions class AB
Caractéristiques d'utilisation classe AB
Betriebsdaten Klasse AB

Va	=	300		550		V
Vg2	=	300		250		V
Rk	=	330		445		Ω
Raa'	=	4		12		kΩ
Vi	=	0	39	0	37	V_{eff}
Ia	=	2x64	2x72,5	2x45	2x53	mA
Ig2	=	2x2	2x11,9	2x0,8	2x7,4	mA
Wo	=	0	24	0	41	W
d	=	-	2,9	-	4,3	%

Limiting values
Caractéristiques limites
Grenzdaten

Va_o	= max.	900	V
Va	= max.	550	V
Wa	= max.	25	W
$Vg2_o$	= max.	500	V
Vg2	= max.	300	V
Wg2 (Vi = 0)	= max.	1,5	W
Wg2 (Wo = max.)	= max.	4,3	W
Ik	= max.	100	mA
Vg1 (Ig1=+0,3 µA)	= max.	-2	V
Rg1	= max.	0,3	MΩ

4650 "Miniwatt"



PHILIPS

Electronic Tube

HANDBOOK

4650

page	sheet	date
1	1	1948.08.25
2	1	1953.12.12
3	2	1948.08.25
4	2	1953.12.12
5	3	1948.08.25
6	3a	1948.08.25
7	FP	1999.06.07