

Netzröhre für GW-Heizung  
indirekt geheizt  
Serienspeisung  
DC-AC-Heating  
indirectly heated  
connected in series

# TELEFUNKEN

**PL 81**

**Leistungspentode für  
Horizontal-Ablenkung  
Power-Pentode for  
Horizontal-Deflection**

$U_f$  21,5 V  
 $I_f$  300 mA

**Meßwerte** · Measuring Values

$U_a$	<b>170</b>	<b>200</b>	V
$U_{g3}$	<b>0</b>	<b>0</b>	V
$U_{g2}$	<b>170</b>	<b>200</b>	V
$U_{g1}$	-22	-28	V
$I_a$	<b>45</b>	<b>40</b>	mA
$I_{g2}$	3	2,8	mA
S	6,2	6	mA/V
$R_i$	10	11	k $\Omega$
$\mu_{g2g1}$	5,3	5,3	

**Optimale Spitzenwerte des Anodenstromes bei Anwendung als Endröhre für Horizontalablenkung.**

Die Kennlinien auf den Blättern 050259 ... 080259 geben die Werte mittlerer neuer Röhren an. Beim Entwurf der Schaltung für die horizontale Ablenkung ist zu beachten, daß sich infolge Röhrentoleranzen und Veränderungen während der Lebensdauer die angegebenen Werte um 25% verringern können.

**Optimal values of peak plate current when using as power tube for horizontal deflection.**

Average values of new tubes are indicated by the curves of leaf 050259 ... 080259. When developing new circuits for horizontal deflection it is necessary to note that the indicated values, caused by a changing and by tolerances of tubes, may decrease during the life time to 25%.



## Betriebswerte · Typical Operation

2 Röhren in Gegentakt-B-Betrieb

2 tubes push-pull, Class B

$U_a$	<b>170</b>	<b>200</b>	V
$U_{g3}$	0	0	V
$U_{bg2}$	<b>170</b>	<b>200</b>	V
$R_{g2}^1)$	1	1	k $\Omega$
$U_{g1}$	-27	-31,5	V
$I_{a0}$	<b>2×20</b>	<b>2×25</b>	mA
$I_{a \text{ ausgest.}}$	2×73	2×87	mA
$I_{g20}$	2×1,5	2×2	mA
$I_{g2 \text{ ausgest.}}$	2×10	2×12,5	mA
$R_{aa}$	2,5	2,5	k $\Omega$
$U_{g1 \sim (N)}$	19	22,5	V <sub>eff</sub>
N	13,5	20	W
k	5,2	5,2	%

1)  $R_{g2}$  gemeinsam ·  $R_{g2}$  common

## Grenzwerte · Maximum Ratings

Allgemein · General

$U_{a0}$	<b>550</b>	V
$U_a$	<b>250</b>	V
$N_a$	<b>8</b>	W
$U_{g20}$	<b>550</b>	V
$U_{g2}$	<b>250</b>	V
$N_{g2}$	<b>4,5</b>	W
$N_a + N_{g2}$	<b>10</b>	W
$I_k$	<b>180</b>	mA
$U_{g1e} (I_{g1} = +0,3 \mu A)$	<b>-1,3</b>	V
$R_{g1}$	<b>0,5</b>	M $\Omega$
$U_{fk}$	<b>200</b>	V
$R_{fk}$	<b>20</b>	k $\Omega$

## Grenzwerte · Maximum Ratings

Als Endröhre für Horizontalablenkung

As power tube for horizontal deflection

$U_{asp}^2)$	<b>6</b>	kV
$U_{asp}^2)$	<b>-1,5</b>	kV
$N_a$	<b>7</b>	W
$N_{g2}^3)$	<b>4,5</b>	W
$U_{g1sp}^2)$	<b>3</b>	V
$U_{g1sp}^2)$	<b>-1000</b>	V
$R_{g1}^4)$	<b>2,2</b>	M $\Omega$

2) Impulsdauer max. 18% einer Periode,

$$t_{\max} = 18 \mu s$$

Impulse duration max. 18% per period,

$$t_{\max} = 18 \mu s$$

3) Während der Anheizzeit der Booster-

$$N_{g2 \max} = 6 \text{ W}$$

During booster diode heating-up period

$$N_{g2 \max} = 6 \text{ W}$$

4)  $U_{g1}$  durch  $R_{g1}$  erzeugt

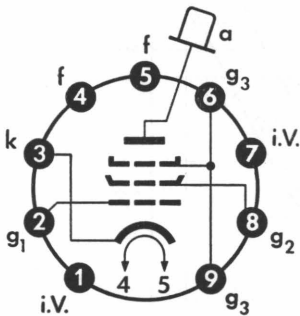
$U_{g1}$  only produced by  $R_{g1}$



## Kapazitäten · Capacitances

$C_e$	14,7	pF
$C_a$	6,4	pF
$C_{g1a}$	< 0,8	pF
$C_{ak}$	< 0,1	pF
$C_{g1f}$	< 0,2	pF

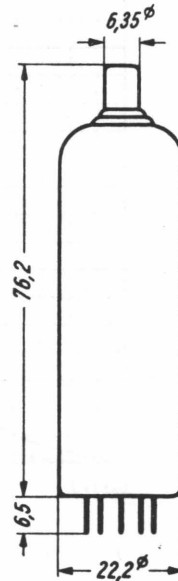
Sockelschaltbild  
Base connection



Freie Stifte bzw. freie Fassungskontakte  
dürfen nicht als Stützpunkte für Schalt-  
mittel benutzt werden.

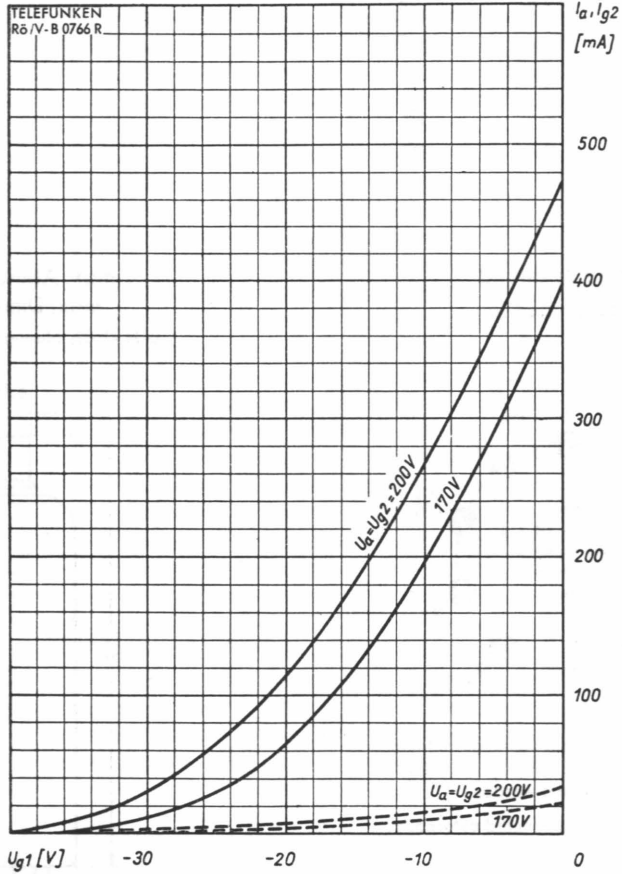
Free pins not to be connected externally.

max. Abmessungen  
max. Dimensions  
DIN 41539, Nenngröße 62, Form B



Gewicht · Weight  
max. 22 g

Wenn notwendig, muß gegen Herausfallen der Röhre aus der Fassung Vorsorge getroffen werden.  
Special precaution must be taken to prevent the tube from becoming dislodged.



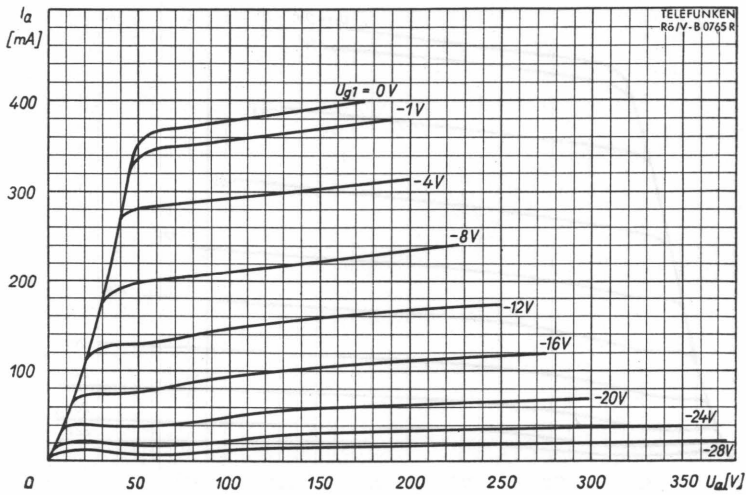
$$I_a, I_{g2} = f(U_{g1})$$

$$U_{g3} = 0V$$

$$U_a = U_{g2} = \text{Parameter}$$

——  $I_a$     - - - -  $I_{g2}$



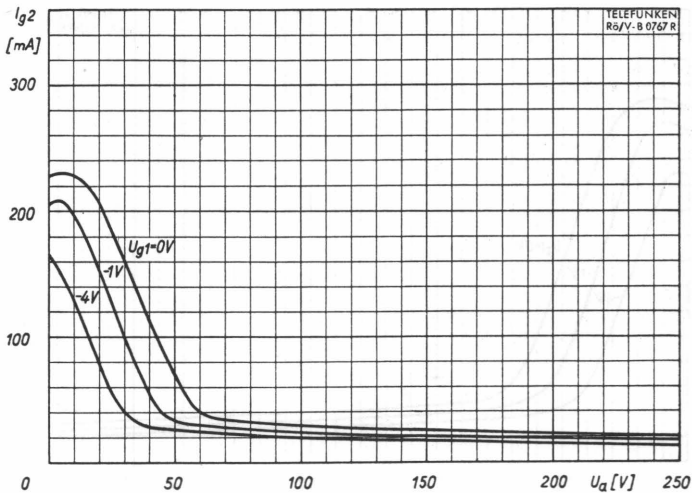


$$I_a = f(U_a)$$

$$U_{g3} = 0 \text{ V}$$

$$U_{g2} = 170 \text{ V}$$

$$U_{g1} = \text{Parameter}$$



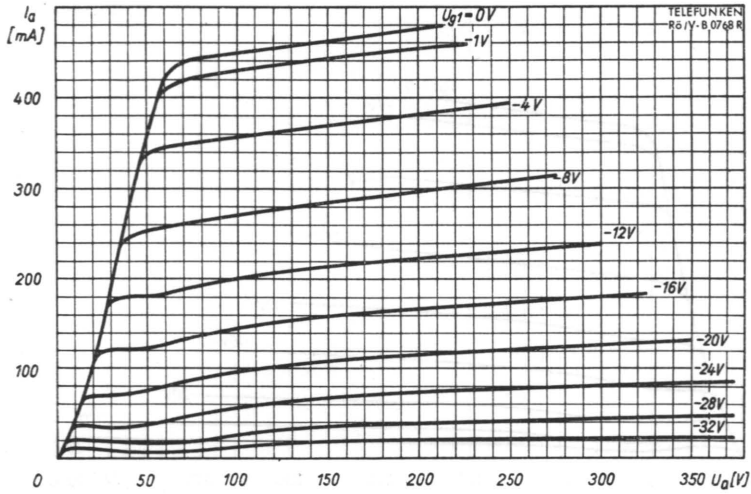
$$I_{g2} = f(U_a)$$

$$U_{g3} = 0 \text{ V}$$

$$U_{g2} = 170 \text{ V}$$

$$U_{g1} = \text{Parameter}$$



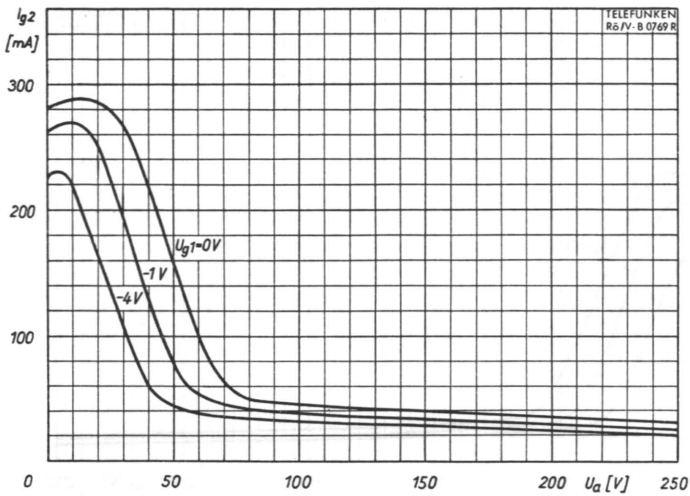


$$I_a = f(U_a)$$

$$U_{g3} = 0 \text{ V}$$

$$U_{g2} = 200 \text{ V}$$

$$U_{g1} = \text{Parameter}$$



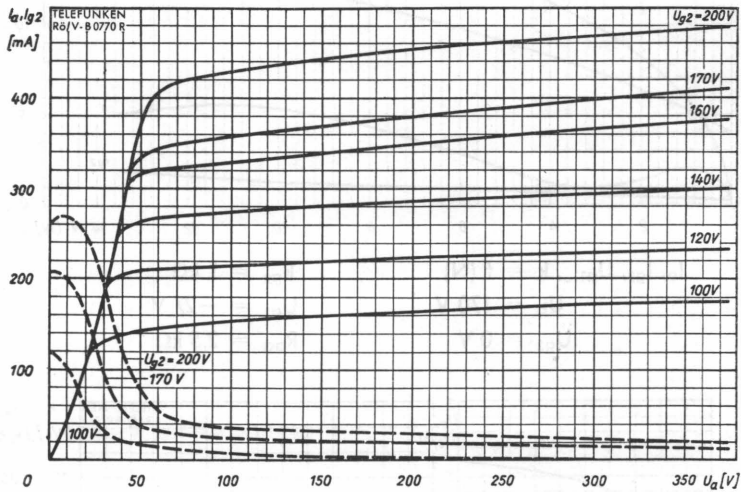
$$I_{g2} = f(U_a)$$

$$U_{g3} = 0 \text{ V}$$

$$U_{g2} = 200 \text{ V}$$

$$U_{g1} = \text{Parameter}$$





$$I_a, I_{g2} = f(U_a)$$

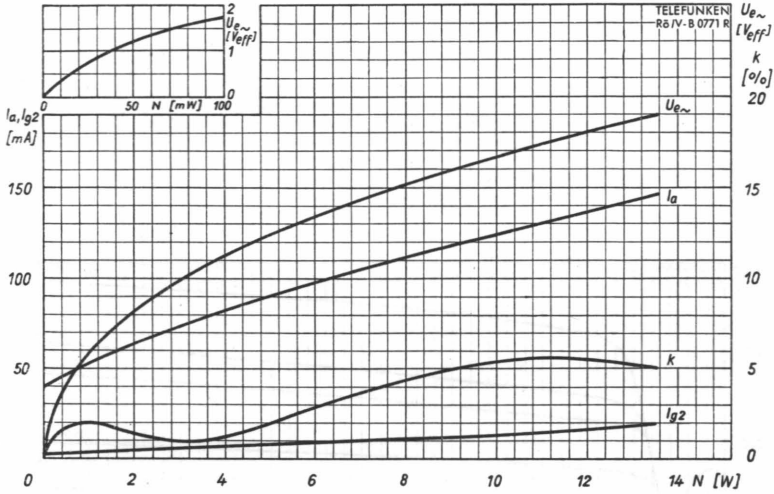
$$U_{g3} = 0V$$

$$U_{g2} = \text{Parameter}$$

$$U_{g1} = -1V$$

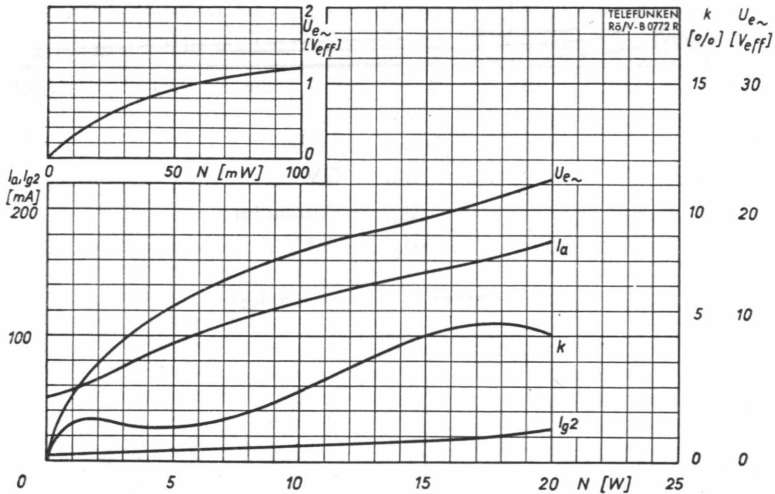
—  $I_a$     - - -  $I_{g2}$





$I_a, I_{g2}, U_{g1\sim}, k = f(N)$   
 $U_b = 170 \text{ V}$   
 $U_{g3} = 0 \text{ V}$

$R_{g2} = 1 \text{ k}\Omega$   
 $U_{g1} = -27 \text{ V}$   
 $R_{aa} = 2,5 \text{ k}\Omega$



$I_a, I_{g2}, U_{g1\sim}, k = f(N)$   
 $U_b = 200 \text{ V}$   
 $U_{g3} = 0 \text{ V}$

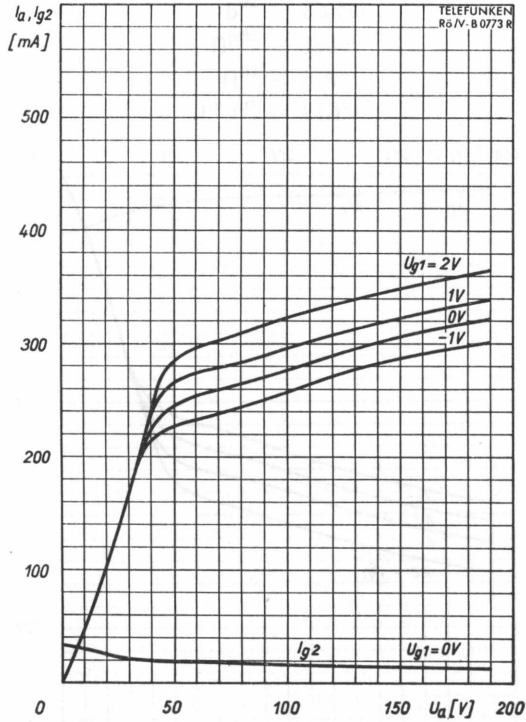
$R_{g2} = 1 \text{ k}\Omega$   
 $U_{g1} = -31,5 \text{ V}$   
 $R_{aa} = 2,5 \text{ k}\Omega$

### 2 Röhren, Gegentakt-B-Betrieb

$I_a, I_{g2}$  als Gesamtstrom







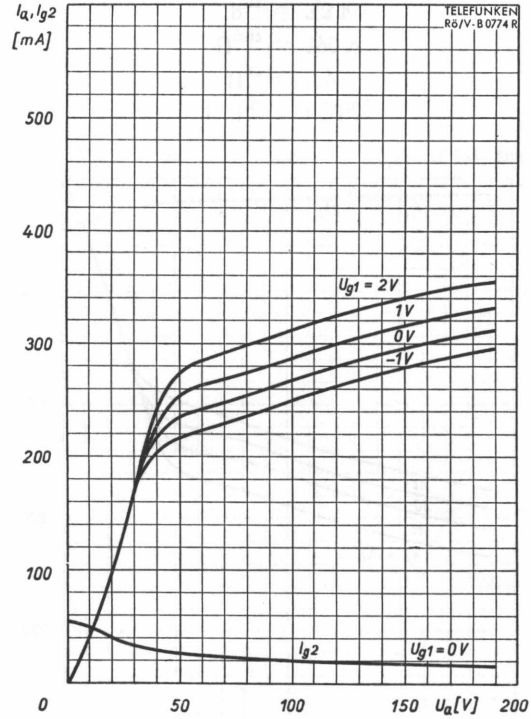
$$I_a, I_{g2} = f(U_a)$$

$$U_{g3} = 0V$$

$$U_{bg2} = 190V$$

$$R_{g2} = 2,2k\Omega$$

$$U_{g1} = \text{Parameter}$$



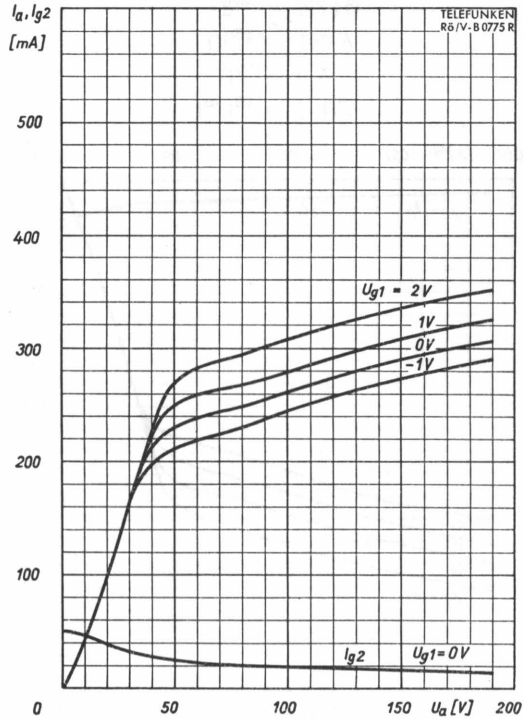
$$I_a, I_{g2} = f(U_a)$$

$$U_{g3} = 0V$$

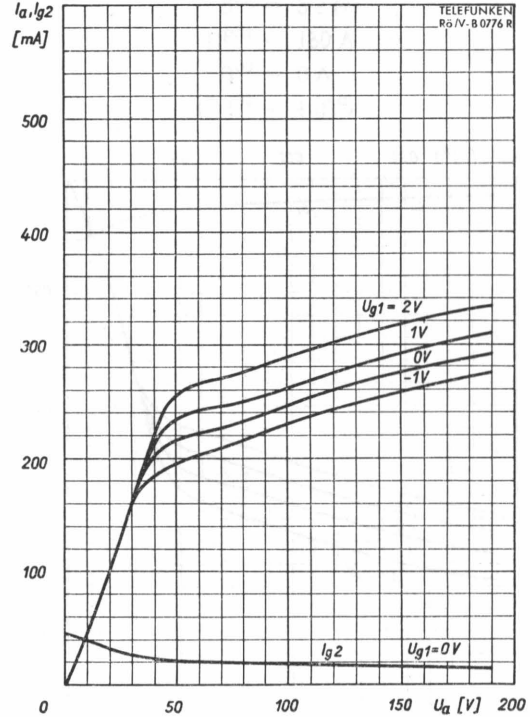
$$U_{bg2} = 190V$$

$$R_{g2} = 2,5k\Omega$$

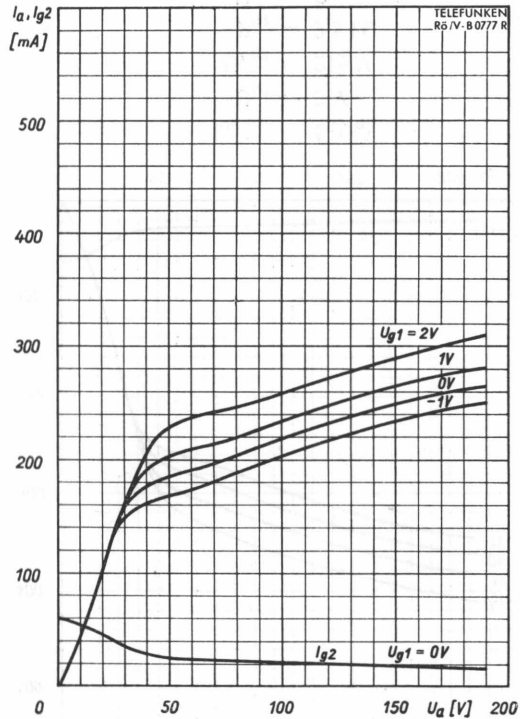
$$U_{g1} = \text{Parameter}$$



$$I_a, I_{g2} = f(U_a)$$
$$U_{g3} = 0V$$
$$U_{bg2} = 190V$$
$$R_{g2} = 2,7k\Omega$$
$$U_{g1} = \text{Parameter}$$



$$I_a, I_{g2} = f(U_a)$$
$$U_{g3} = 0V$$
$$U_{bg2} = 190V$$
$$R_{g2} = 3,3k\Omega$$
$$U_{g1} = \text{Parameter}$$



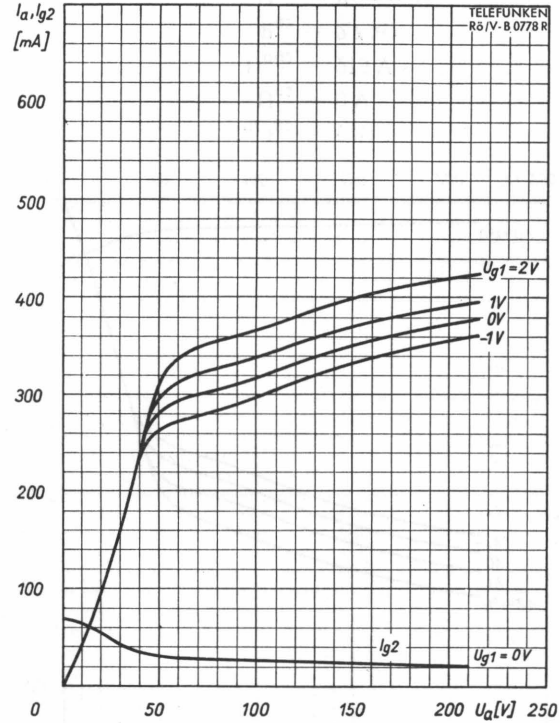
$$I_a, I_{g2} = f(U_a)$$

$$U_{g3} = 0 \text{ V}$$

$$U_{bg2} = 190 \text{ V}$$

$$R_{g2} = 4,7 \text{ k}\Omega$$

$$U_{g1} = \text{Parameter}$$



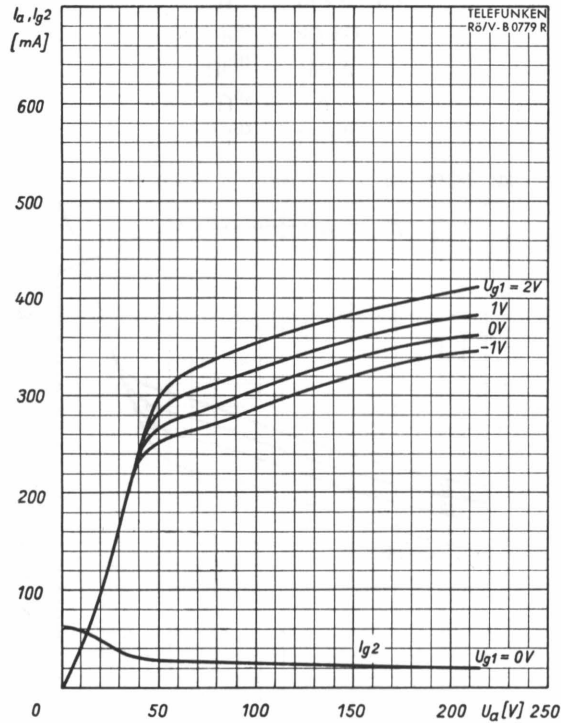
$$I_a, I_{g2} = f(U_a)$$

$$U_{g3} = 0 \text{ V}$$

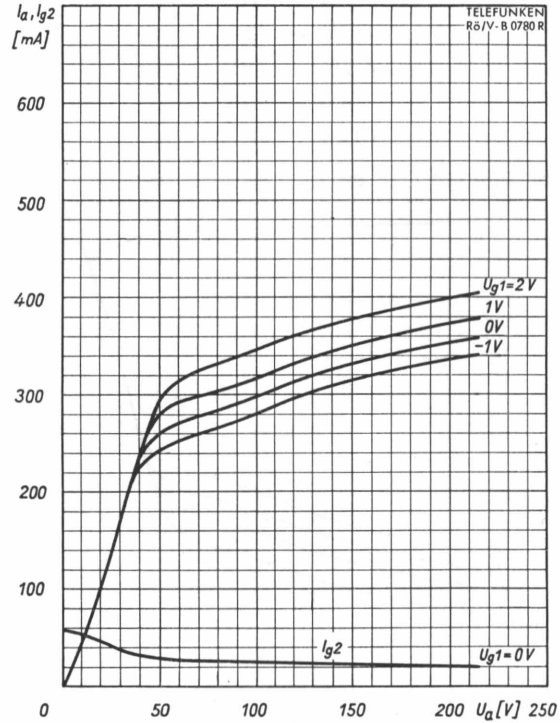
$$U_{bg2} = 215 \text{ V}$$

$$R_{g2} = 2,2 \text{ k}\Omega$$

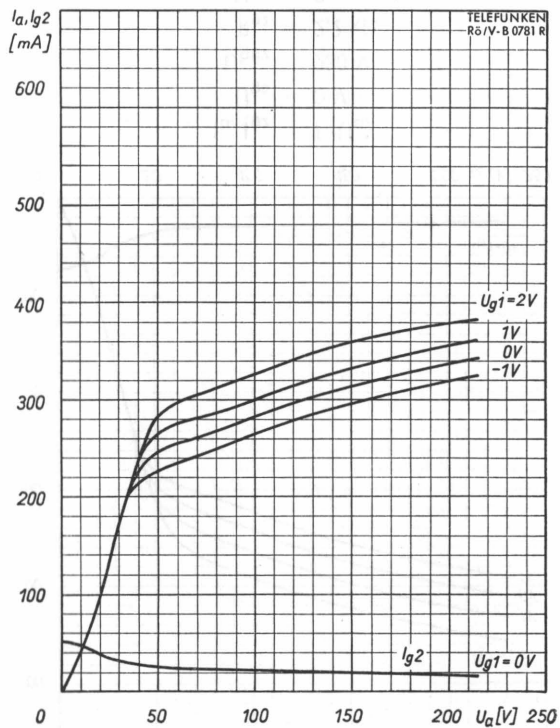
$$U_{g1} = \text{Parameter}$$



$$\begin{aligned} I_a, I_{g2} &= f(U_a) \\ U_{g3} &= 0 \text{ V} \\ U_{bg2} &= 215 \text{ V} \\ R_{g2} &= 2,5 \text{ k}\Omega \\ U_{g1} &= \text{Parameter} \end{aligned}$$



$$\begin{aligned} I_a, I_{g2} &= f(U_a) \\ U_{g3} &= 0 \text{ V} \\ U_{bg2} &= 215 \text{ V} \\ R_{g2} &= 2,7 \text{ k}\Omega \\ U_{g1} &= \text{Parameter} \end{aligned}$$



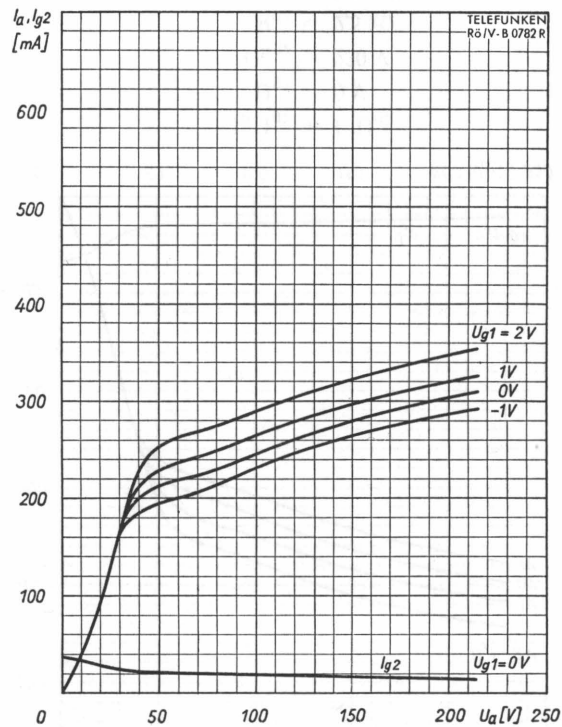
$$I_a, I_{g2} = f(U_a)$$

$$U_{g3} = 0 \text{ V}$$

$$U_{bg2} = 215 \text{ V}$$

$$R_{g2} = 3,3 \text{ k}\Omega$$

$$U_{g1} = \text{Parameter}$$



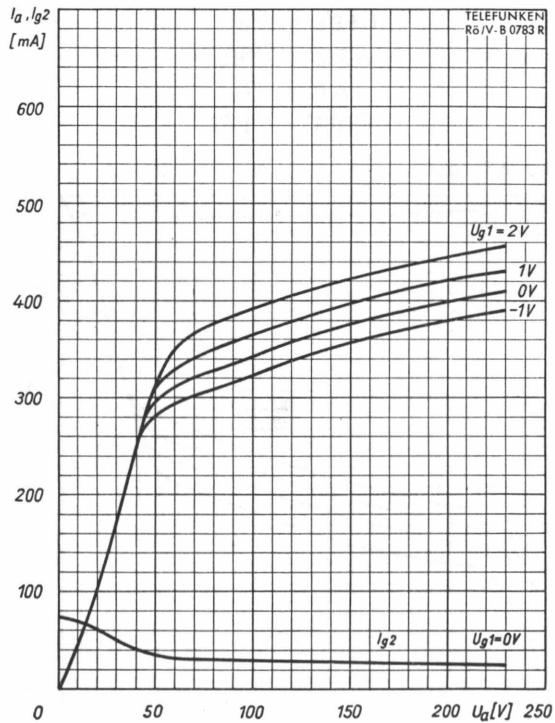
$$I_a, I_{g2} = f(U_a)$$

$$U_{g3} = 0 \text{ V}$$

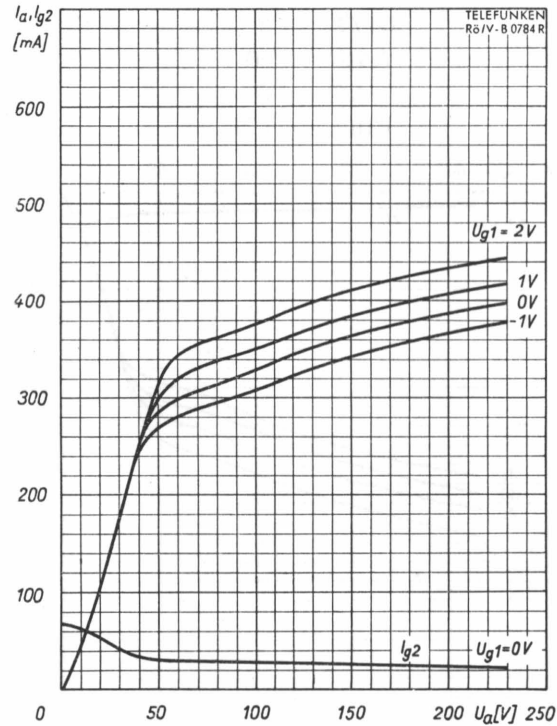
$$U_{bg2} = 215 \text{ V}$$

$$R_{g2} = 4,7 \text{ k}\Omega$$

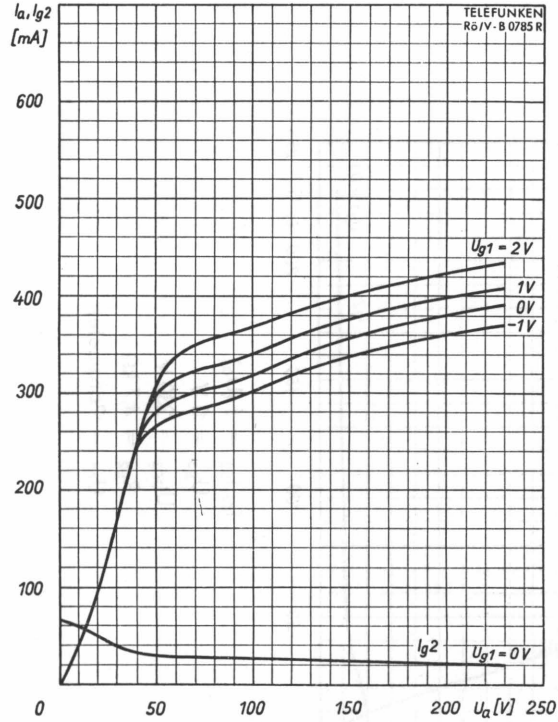
$$U_{g1} = \text{Parameter}$$



$$I_a, I_{g2} = f(U_a)$$
$$U_{g3} = 0 \text{ V}$$
$$U_{bg2} = 230 \text{ V}$$
$$R_{g2} = 2,2 \text{ k}\Omega$$
$$U_{g1} = \text{Parameter}$$



$$I_a, I_{g2} = f(U_a)$$
$$U_{g3} = 0 \text{ V}$$
$$U_{bg2} = 230 \text{ V}$$
$$R_{g2} = 2,5 \text{ k}\Omega$$
$$U_{g1} = \text{Parameter}$$



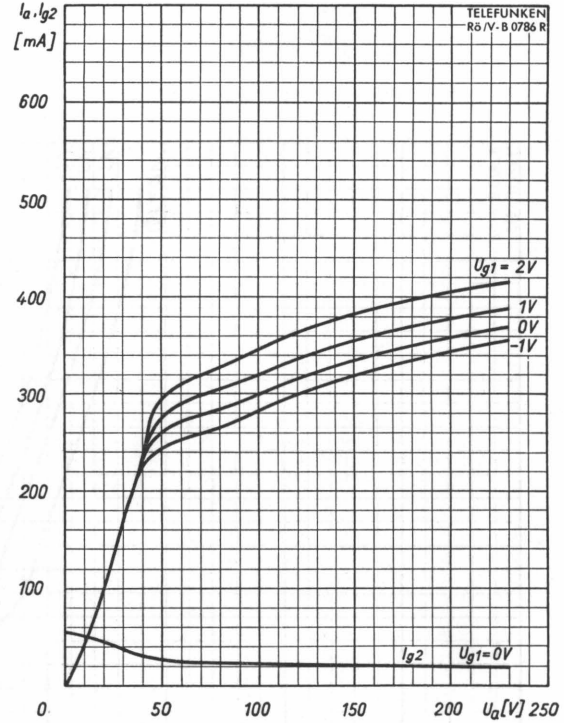
$$I_a, I_{g2} = f(U_a)$$

$$U_{g3} = 0 \text{ V}$$

$$U_{bg2} = 230 \text{ V}$$

$$R_{g2} = 2,7 \text{ k}\Omega$$

$$U_{g1} = \text{Parameter}$$



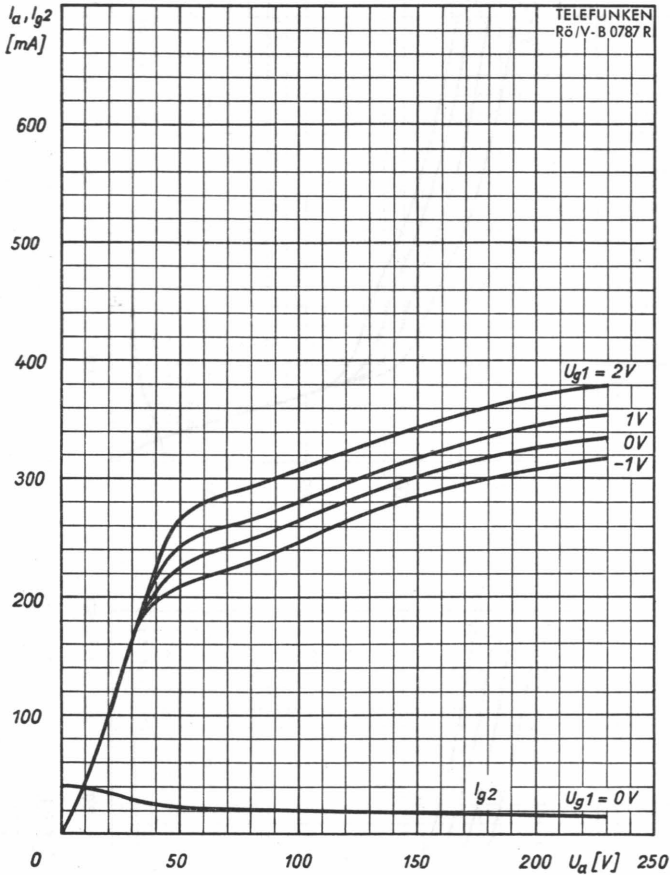
$$I_a, I_{g2} = f(U_a)$$

$$U_{g3} = 0 \text{ V}$$

$$U_{bg2} = 230 \text{ V}$$

$$R_{g2} = 3,3 \text{ k}\Omega$$

$$U_{g1} = \text{Parameter}$$



$I_a, I_{g2} = f(U_a)$   
 $U_{g3} = 0V$   
 $U_{bg2} = 230V$   
 $R_{g2} = 4,7k\Omega$   
 $U_{g1} = \text{Parameter}$

