

Netzröhre für W-Heizung  
indirekt geheizt  
Parallelspeisung  
AC-Heating  
indirectly heated  
connected in parallel

# TELEFUNKEN

**EL 34**

Endpentode  
Power pentode

Meßwerte · Measuring values		U <sub>f</sub>	6,3	V
		I <sub>f</sub>	1,5	A
U <sub>a</sub>	<b>250</b>	V		
U <sub>g3</sub>	<b>0</b>	V		
U <sub>g2</sub>	<b>265</b>	V		
U <sub>g1</sub>	-13,5	V		
I <sub>a</sub>	<b>100</b>	mA		
I <sub>g2</sub>	14,9	mA		
S	11	mA/V		
R <sub>i</sub>	15	kΩ		
μ <sub>g2/g1</sub>	11			
U <sub>g1e</sub> (I <sub>g1</sub> = +0,3 μA)	-1,3	V		

## Betriebswerte · Typical operation

Eintakt-A-Betrieb · Class A-amplifier

U <sub>b</sub>	<b>265</b>	<b>265</b>	V
U <sub>a</sub>	<b>250</b>	<b>250</b>	V
U <sub>g3</sub>	<b>0</b>	<b>0</b>	V
R <sub>g2</sub>	<b>2</b>	—	kΩ
U <sub>g1</sub>	-14,5	-13,5	V
I <sub>a</sub>	70	<b>100</b>	mA
I <sub>g2</sub>	10	14,9	mA
R <sub>a</sub>	3	2	kΩ
U <sub>g1eff</sub> (N)	9,3	8,7	V
N (10 %)	8	11	W
U <sub>g1eff</sub> (50 mW)	0,65	0,5	V

Als Triode geschaltet Connected as Triode g <sub>2</sub> an a, g <sub>3</sub> an k			
U <sub>ag2</sub>	<b>375</b>	V	
R <sub>k</sub>	<b>370</b>	Ω	
I <sub>a</sub> + I <sub>g2</sub>	70	mA	
I <sub>a</sub> + I <sub>g2</sub> (ausgest.)	74	mA	
R <sub>a</sub>	3	kΩ	
U <sub>g1eff</sub> (N)	18,9	V	
N (8 %)	6	W	
U <sub>g1eff</sub> (50 mW)	1,7	V	

## Betriebswerte · Typical operation

2 Röhren in Gegentakt-AB-Betrieb  
2 tubes push-pull, class AB

U <sub>b</sub>	<b>375</b>	V
U <sub>a</sub> + U <sub>Rk</sub>	<b>355</b>	V
U <sub>g3</sub>	<b>0</b>	V
R <sub>g2</sub> <sup>1)</sup>	<b>470</b>	Ω
R <sub>k</sub> <sup>1)</sup>	<b>130</b>	Ω
I <sub>a</sub>	2×75	mA
I <sub>a</sub> ausgest.	2×95	mA
I <sub>g2</sub>	2×11,5	mA
I <sub>g2</sub> ausgest.	2×22,5	mA
R <sub>aa</sub>	3,4	kΩ
U <sub>g1eff</sub> (N)	21	V
N (5 %)	35	W

Als Trioden geschaltet Connected as Triode g <sub>2</sub> an a, g <sub>3</sub> an k			
U <sub>ag2</sub>	<b>400</b>	V	
R <sub>k</sub> <sup>1)</sup>	<b>220</b>	Ω	
I <sub>a</sub> + I <sub>g2</sub>	2×65	mA	
I <sub>a</sub> + I <sub>g2</sub> (ausgest.)	2×71	mA	
R <sub>aa</sub>	5	kΩ	
U <sub>g1eff</sub> (N)	22	V	
N (3 %)	16,5	W	

<sup>1)</sup> gemeinsam · common.



2 Röhren in Gegentakt-B-Betrieb  
2 tubes push-pull, class B

$U_b$	<b>350</b>	<b>375</b>	<b>400</b>	<b>425</b>	V
$U_a$	<b>325</b>	<b>350</b>	<b>375</b>	<b>400</b>	V
$U_{g3}$	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	V
$R_{g2}^{1)}$	<b>470</b>	<b>470</b>	<b>1000</b>	<b>1000</b>	$\Omega$
$U_{g1}$	<b>-32</b>	<b>-32</b>	<b>-38</b>	<b>-38</b>	V
$I_a$	2×35	2×35	2×30	2×30	mA
$I_{a \text{ ausgest.}}$	2×93	2×120	2×100	2×120	mA
$I_{g2}$	2×4,7	2×4,7	2×4,4	2×4,4	mA
$I_{g2 \text{ ausgest.}}$	2×25	2×25	2×25	2×25	mA
$R_{aa}$	3,8	2,8	4	3,4	k $\Omega$
$U_{g1 \text{ eff}} (N)$	22,7	22,7	27	27	V
N	36	44	45	55	W
$k_{\text{ges}}$	6	5	6	5	%
$U_{ba}$	<b>475</b>	<b>500</b>	<b>750</b>	<b>800</b>	V
$U_a$	<b>450</b>	<b>475</b>	<b>725</b>	<b>775</b>	V
$U_{bg2}$	<b>375</b>	<b>400</b>	<b>375</b>	<b>400</b>	V
$R_{g2}^{1)}$	<b>750</b>	<b>750</b>	<b>750</b>	<b>750</b>	$\Omega$
$U_{g3}$	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	V
$U_{g1}$	<b>-36</b>	<b>-36</b>	<b>-39</b>	<b>-39</b>	V
$I_a$	2×30	2×30	2×25	2×25	mA
$I_{a \text{ ausgest.}}$	2×102	2×125	2×84	2×91	mA
$I_{g2}$	2×4	2×4	2×3	2×3	mA
$I_{g2 \text{ ausgest.}}$	2×25	2×25	2×19	2×19	mA
$R_{aa}$	5	4	11	11	k $\Omega$
$U_{g1 \text{ eff}} (N)$	25,8	25,8	23,4	23,4	V
N	58	70	90	100	W
$k_{\text{ges}}$	6	5	6	5	%

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



**Grenzwerte · Maximum ratings**

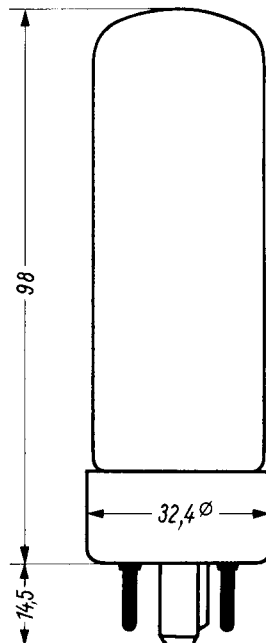
$U_{a0}$	<b>2000</b>	V
$U_a$	<b>800</b>	V
$N_a$	<b>25</b>	W
$N_{a \text{ ausgest.}}$	<b>27,5</b>	W
$U_{g20}$	<b>800</b>	V
$U_{g2}$	<b>425</b>	V
$N_{g2}$	<b>8</b>	W
$I_k$	<b>150</b>	mA
$R_{g1}^{1)}$	<b>0,7</b>	M $\Omega$
$R_{g1}^{2)}$	<b>0,5</b>	M $\Omega$
$U_{f/k}$	<b>100</b>	V
$R_{f/k}$	<b>20</b>	k $\Omega$
tKolben	<b>245</b>	$^{\circ}$ C

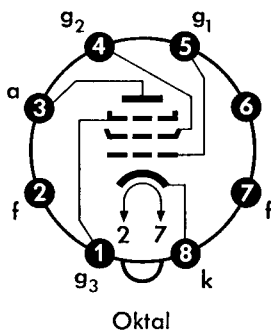
1) A-Betrieb, AB-Betrieb

2) B-Betrieb

**Kapazitäten · Capacitances**

$C_{g1}$	ca. 15,2	pF
$C_a$	ca. 8,4	pF
$C_{g1/a}$	< 1,1	pF
$C_{g1/f}$	< 1	pF
$C_{k/f}$	ca. 10	pF

 max. Abmessungen  
 max. dimensions

 Gewicht · Weight  
 max. 50 g

 Sockelschaltbild  
 Base connection


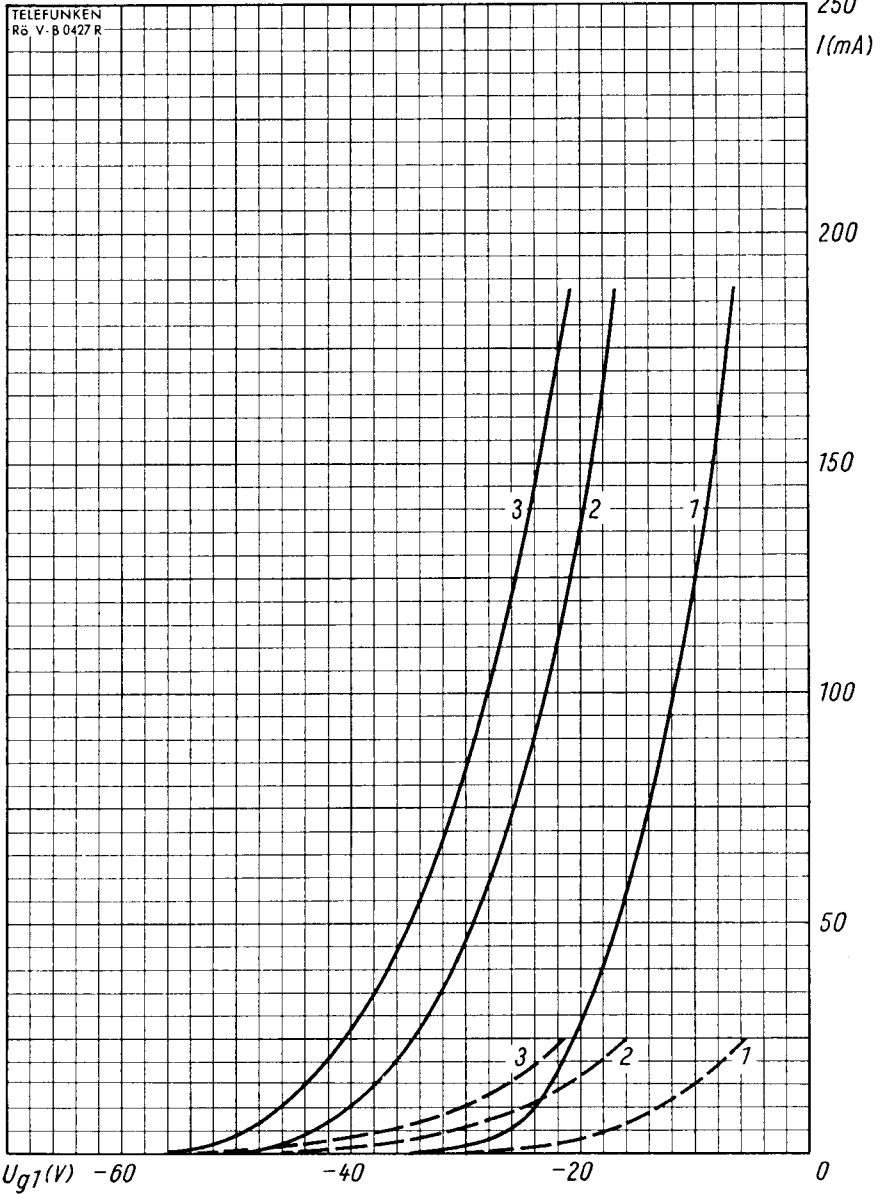
Oktal

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

Free pins not to be connected externally.



# TELEFUNKEN

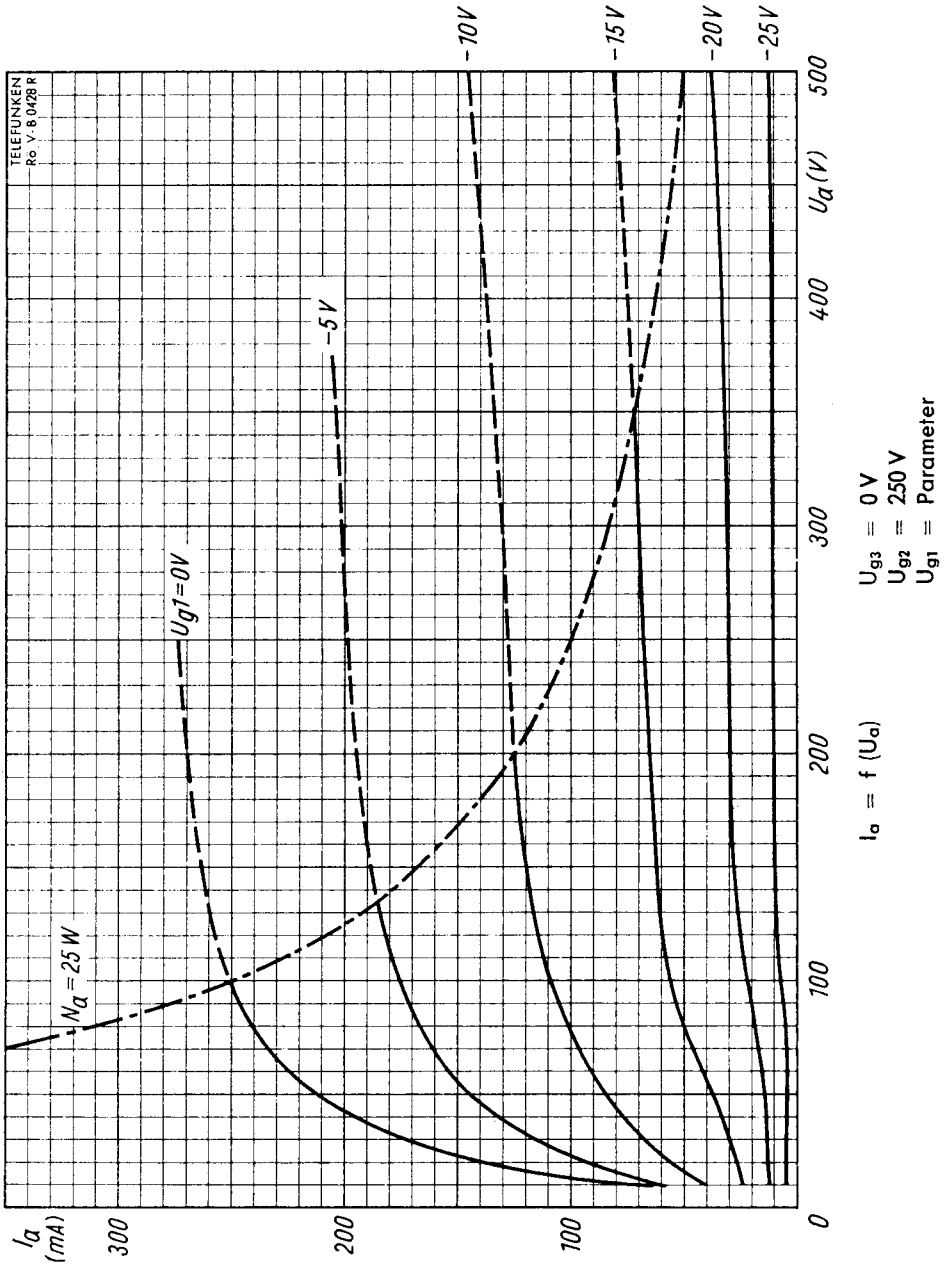


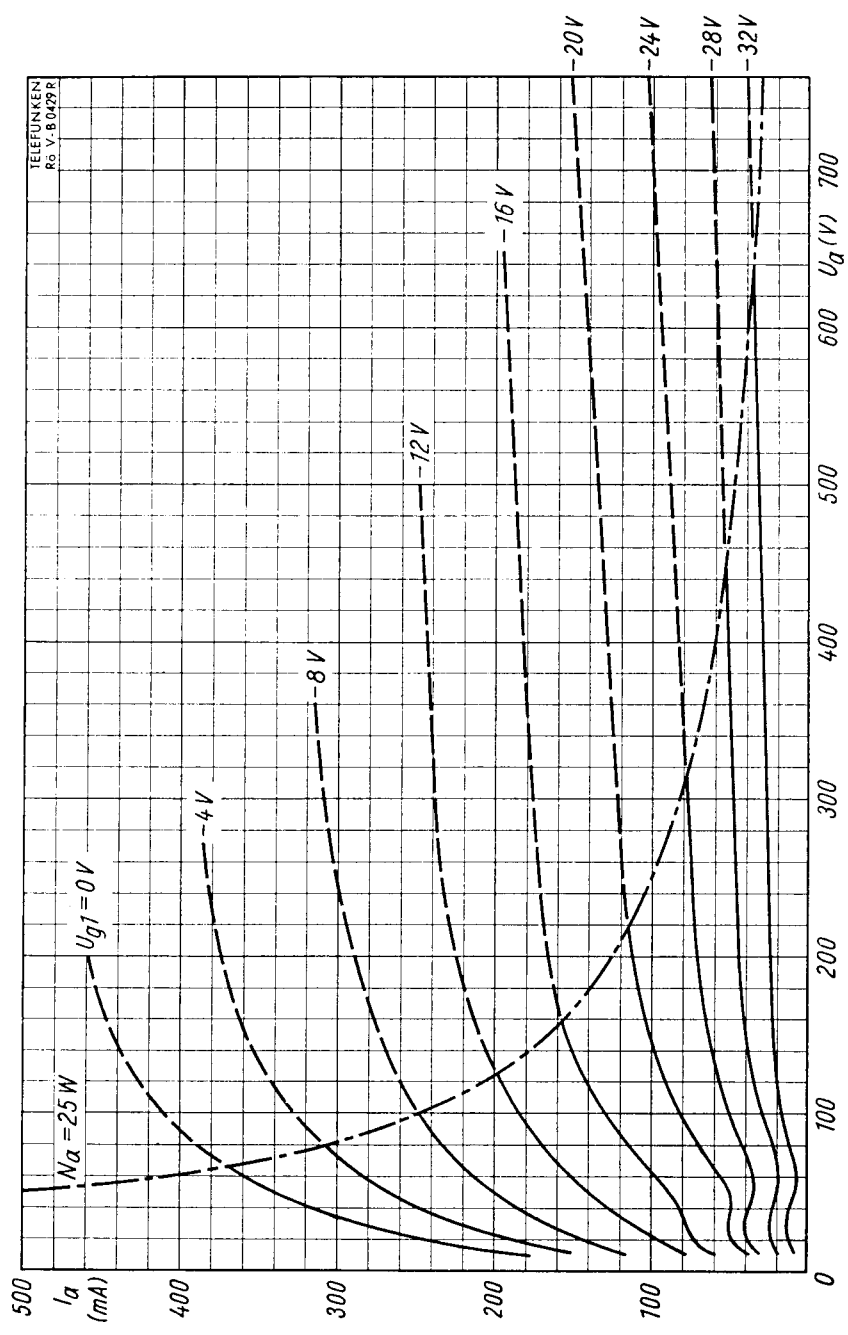
$I_a, I_{g2} = f(U_{g1})$

1	$U_a = 250 \text{ V},$	$U_{g3} = 0 \text{ V},$	$U_{g2} = 250 \text{ V}$
2	$U_a = 350 \text{ V},$	$U_{g3} = 0 \text{ V},$	$U_{g2} = 375 \text{ V}$
3	$U_a = 400 \text{ V},$	$U_{g3} = 0 \text{ V},$	$U_{g2} = 425 \text{ V}$

—  $I_a$     - - -  $I_{g2}$



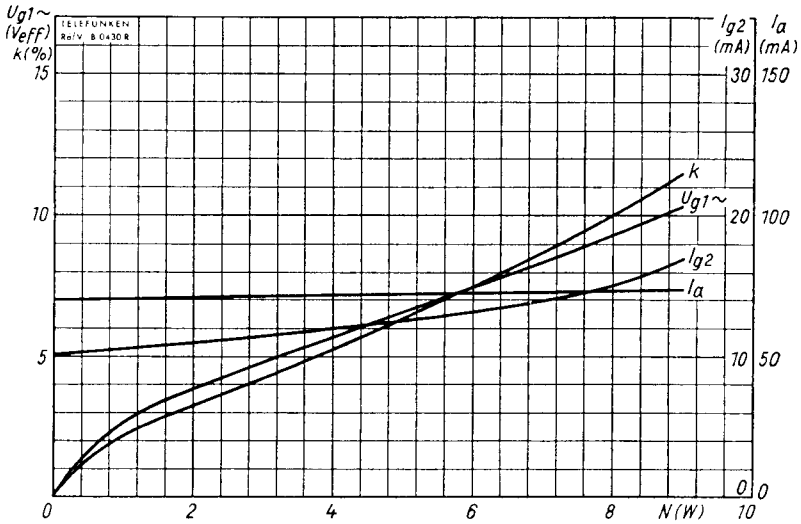




$I_a = f(U_a)$

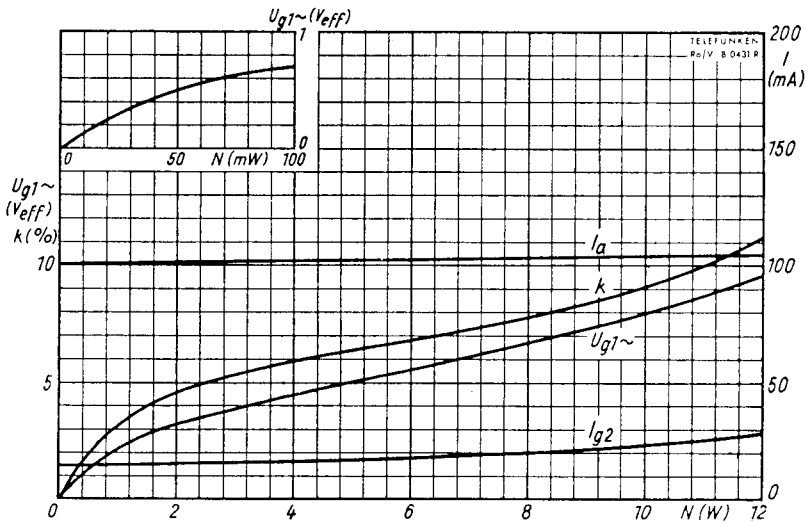
$U_{g3} = 0 \text{ V}$   
 $U_{g2} = 360 \text{ V}$   
 $U_{g1} = \text{Parameter}$





### Eintakt-A-Betrieb · Class-A-amplifier

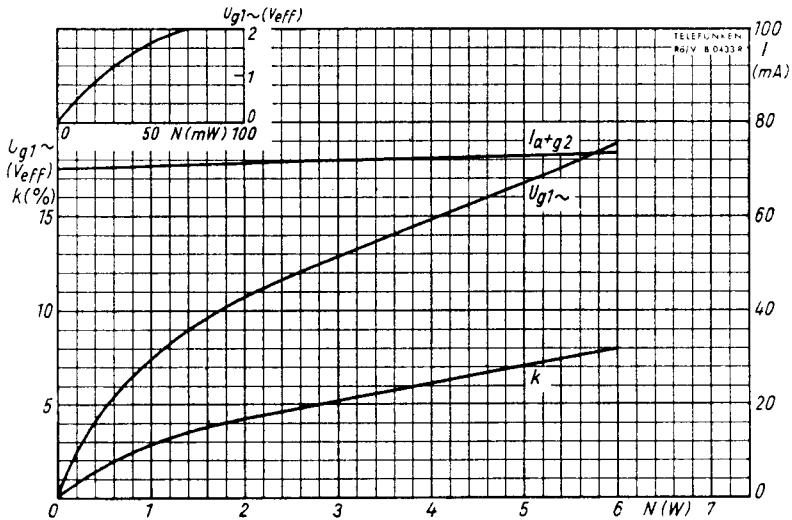
$U_b = 265 \text{ V}$        $U_{g3} = 0 \text{ V}$        $R_a = 3 \text{ k}\Omega$   
 $U_a = 250 \text{ V}$        $U_{g1} = -14,5 \text{ V}$        $R_{g2} = 2 \text{ k}\Omega$



### Eintakt-A-Betrieb · Class-A-amplifier

$U_b = 265 \text{ V}$        $U_{g3} = 0 \text{ V}$        $R_a = 2 \text{ k}\Omega$   
 $U_a = 250 \text{ V}$        $U_{g1} = -13,5 \text{ V}$        $R_{g2} = 0 \text{ k}\Omega$





### Eintakt-A-Betrieb als Triode, $g_2$ an a

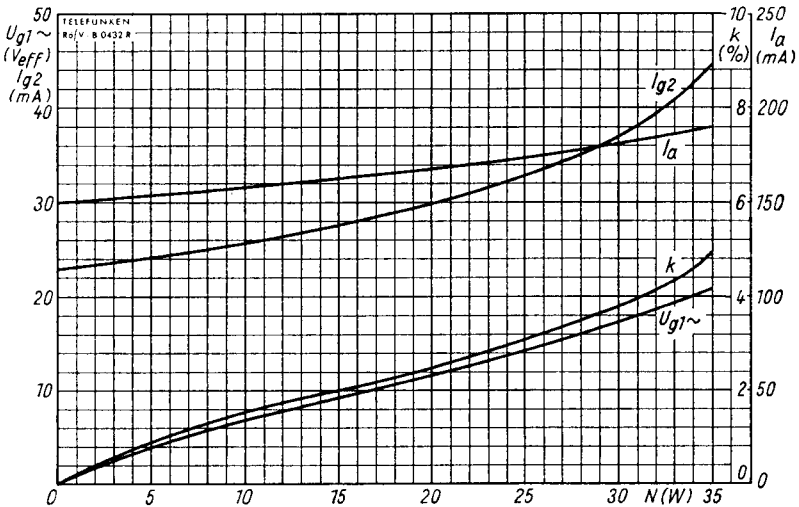
Connected as triode,  $g_2$  to a, class-A amplifier

$U_b = 375 \text{ V}$

$R_k = 370 \Omega$

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

$R_a = 3 \text{ k}\Omega$



### 2 Röhren in Gegentakt-AB-Betrieb • 2 tubes push-pull, class AB

$U_b = 375 \text{ V}$

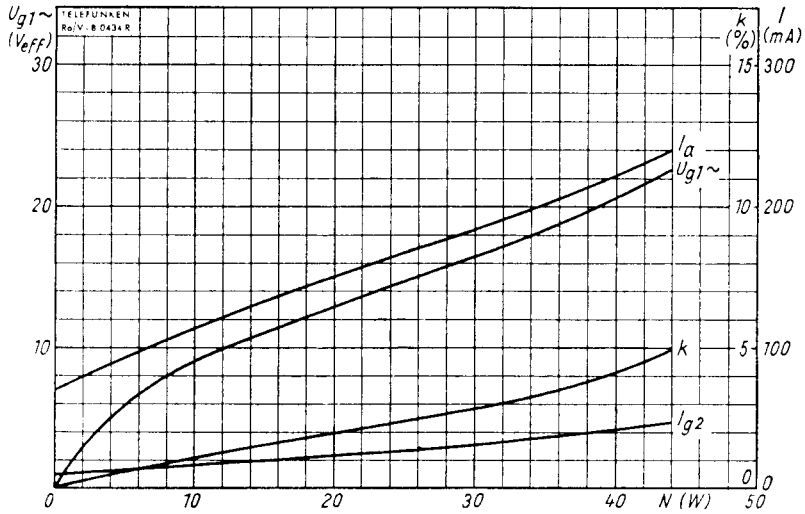
$R_k = 130 \Omega$

$R_{g2} = 470 \Omega$

$R_{aa} = 3,4 \text{ k}\Omega$







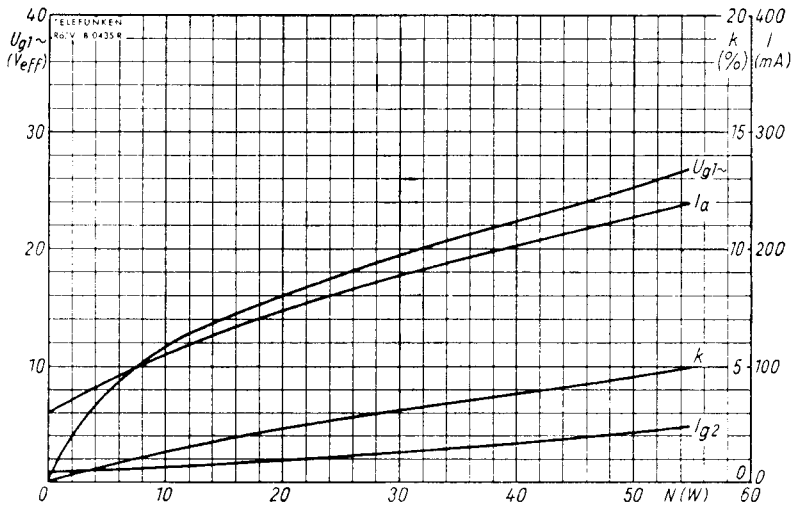
**2 Röhren in Gegentakt-B-Betrieb** · 2 tubes push-pull, class B

$$U_b = 375 \text{ V}$$

$$R_{g2} = 470 \Omega$$

$$U_{g1} = -32 \text{ V}$$

$$R_{aa} = 2,8 \text{ k}\Omega$$



**2 Röhren in Gegentakt-B-Betrieb** · 2 tubes push-pull, class B

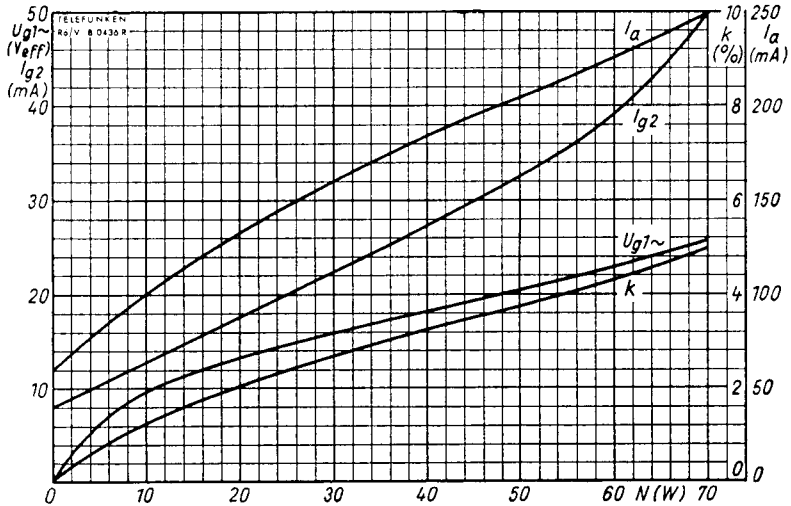
$$U_b = 425 \text{ V}$$

$$R_{g2} = 1 \text{ k}\Omega$$

$$U_{g1} = -38 \text{ V}$$

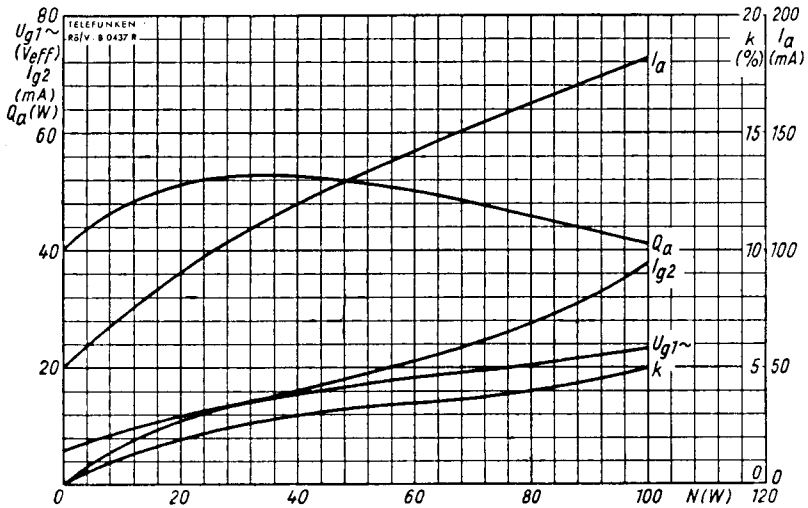
$$R_{aa} = 3,4 \text{ k}\Omega$$





**2 Röhren in Gegentakt-B-Betrieb · 2 tubes push-pull, class B**

$U_{ba} = 500 \text{ V}$        $U_{g3} = 0 \text{ V}$        $R_{g2} = 750 \Omega$   
 $U_{bg2} = 400 \text{ V}$        $U_{g1} = -36 \text{ V}$        $R_{ca} = 4 \text{ k}\Omega$



**2 Röhren in Gegentakt-B-Betrieb · 2 tubes push-pull, class B**

$U_{ba} = 800 \text{ V}$        $U_{g3} = 0 \text{ V}$        $R_{g2} = 750 \Omega$   
 $U_{bg2} = 400 \text{ V}$        $U_{g1} = -39 \text{ V}$        $R_{ca} = 11 \text{ k}\Omega$

