

Netzröhre für GW-Heizung  
indirekt geheizt  
Serienspeisung

DC-AC-heating  
indirectly heated  
connected in series

# TELEFUNKEN

**PF 83**

Regelbare NF-Pentode  
Remote cutoff AF-pentode

$I_f$  **300** mA  
 $U_f$  ca. 4,5 V

## Meßwerte

### Measuring values

$U_a$  **250** V  
 $U_{g3}$  **0** V  
 $U_{g2}$  **50** V  
 $U_{g1}$  **-1,6** V  
 $I_a$  **4** mA  
 $I_{g2}$  **1,15** mA  
 $S$  **1,6** mA/V  
 $R_i$  **1,25** M $\Omega$   
 $\mu_{g2g1}$  **10**

## Betriebswerte · Typical operation

NF-Verstärker in Widerstandsverstärker-Schaltung  
Resistance-coupled amplifier

|                 | <b>200</b>  | <b>230</b>  |            |
|-----------------|-------------|-------------|------------|
| $U_b$           | <b>0</b>    | <b>0</b>    | V          |
| $U_{g3}$        | <b>0</b>    | <b>0</b>    | V          |
| $R_a$           | <b>100</b>  | <b>100</b>  | k $\Omega$ |
| $R_{g2}$        | <b>390</b>  | <b>390</b>  | k $\Omega$ |
| $R_{g1}$        | <b>3</b>    | <b>3</b>    | M $\Omega$ |
| $R_{g1}^1)$     | <b>1</b>    | <b>1</b>    | M $\Omega$ |
| $U_{a\sim eff}$ | <b>8</b>    | <b>8</b>    | V          |
| $U_{g1}$        | <b>-1</b>   | <b>-20</b>  | V          |
| $I_a$           | <b>1,46</b> | <b>1,15</b> | mA         |
| $I_{g2}$        | <b>0,45</b> | <b>0,17</b> | mA         |
| V               | <b>100</b>  | <b>12</b>   |            |
| k               | <b>1,5</b>  | <b>3</b>    | %          |

<sup>1)</sup> Gitterableitwiderstand der folgenden Stufe  
Grid resistance for next stage

## Mikrophonie und Brumm

Die Röhre darf ohne spezielle Maßnahmen gegen Mikrophonie und Brumm in Schaltungen verwendet werden, die für eine Eingangsspannung  $U_{e\sim eff} > 10$  mV ( $f = 1$  kHz,  $-U_R \leq 2$  V) eine Lautsprecherleistung von 50 mW ergeben,  $Z_{g1}$  (50 Hz)  $\leq 500$  k $\Omega$ ,  $U_{fk\sim eff} = 40$  V (Lage der Röhre in der Heizkette). Für andere Werte von  $-U_R$  ist die zulässige Eingangsspannung der Verstärkung umgekehrt proportional.

## Microphonics and hum

Without special measures having been taken against microphonics and hum, the tube may be used in circuits providing 50 mW loudspeaker output at an input voltage  $U_{e\sim rms} > 10$  mV ( $f = 1,000$  c/s,  $-U_R \leq 2$  V).  $Z_{g1}$  (at 50 c/s)  $\leq 500$  k $\Omega$ ,  $U_{fk\sim rms} = 40$  V (position of tube in heater circuit). The admissible input voltage is inversely proportional to the amplification for other values of  $-U_R$ .



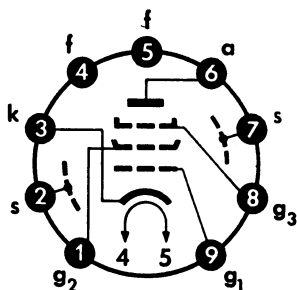
**Grenzwerte · Maximum ratings**

|           |            |            |
|-----------|------------|------------|
| $U_{ao}$  | <b>550</b> | V          |
| $U_a$     | <b>250</b> | V          |
| $N_a$     | <b>1</b>   | W          |
| $U_{g2o}$ | <b>550</b> | V          |
| $U_{g2}$  | <b>250</b> | V          |
| $N_{g2}$  | <b>0,2</b> | W          |
| $I_k$     | <b>6</b>   | mA         |
| $R_{g1}$  | <b>3</b>   | M $\Omega$ |
| $R_{g3}$  | <b>10</b>  | k $\Omega$ |
| $U_{fk}$  | <b>100</b> | V          |
| $R_{fk}$  | <b>20</b>  | k $\Omega$ |

**Kapazitäten · Capacitances**

|            |                    |    |
|------------|--------------------|----|
| $C_e$      | <b>4</b>           | pF |
| $C_a$      | <b>5</b>           | pF |
| $C_{g1/a}$ | <b>&lt; 0,05</b>   | pF |
| $C_{g1/f}$ | <b>&lt; 0,0025</b> | pF |

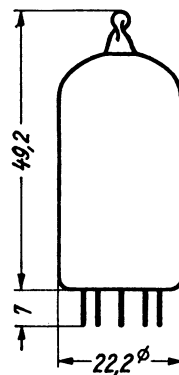
**Sockelschaltbild**  
Base connection



**Pico 9 · Noval**

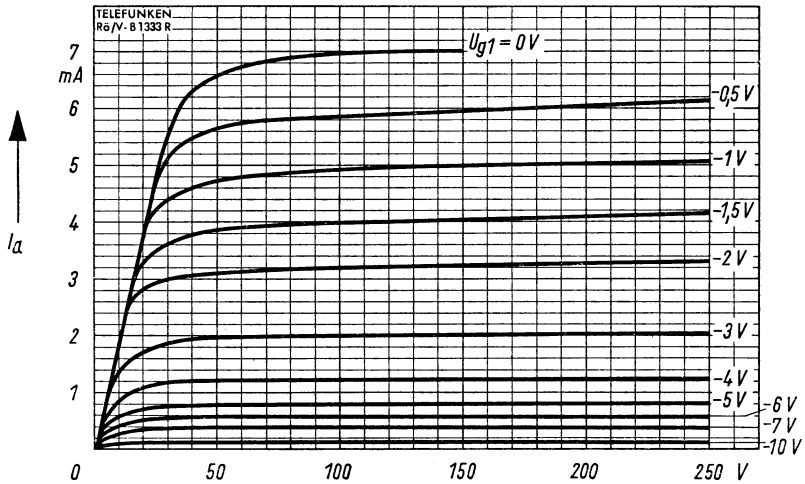
**max. Abmessungen**  
max. dimensions

DIN 41 539, Nenngröße 40, Form A

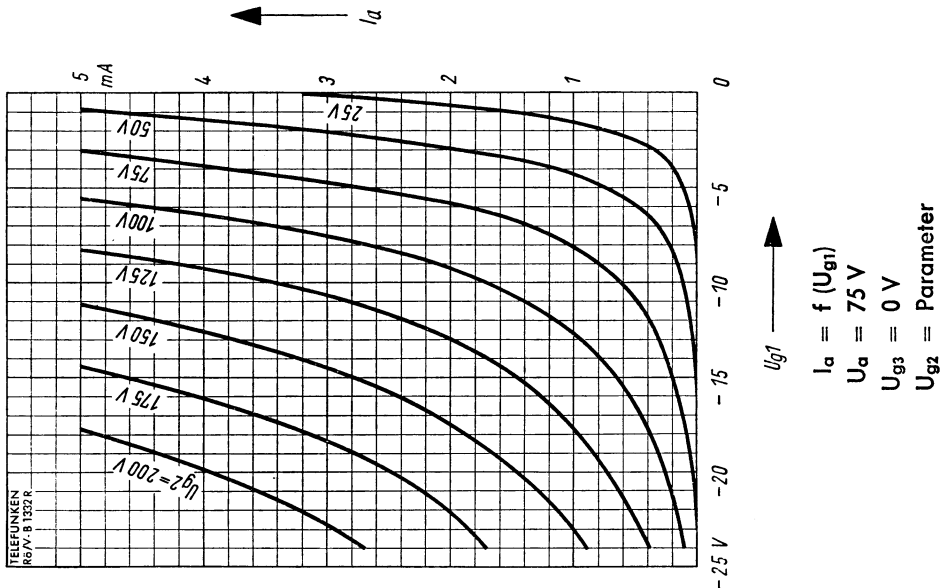


**Gewicht · Weight**  
max. 16 g

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

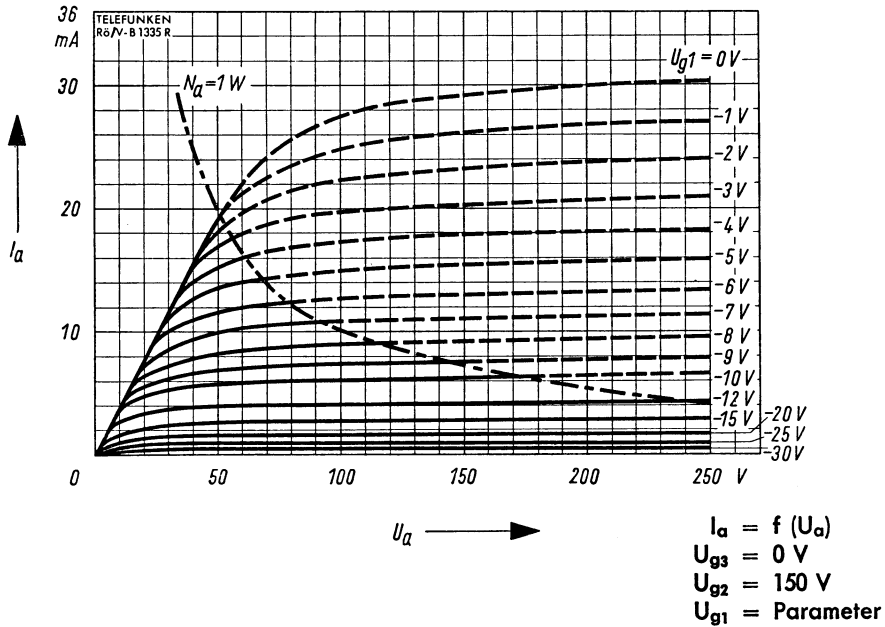
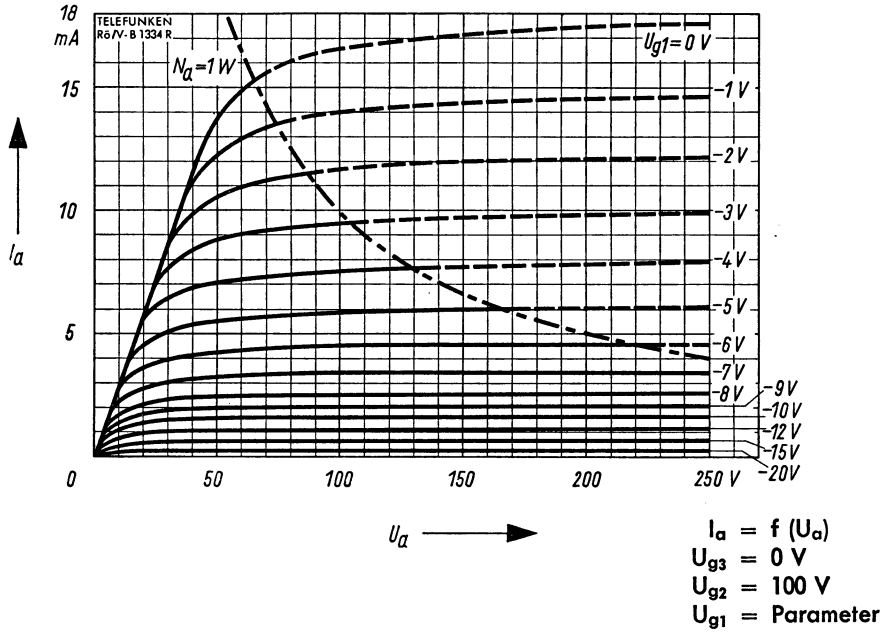


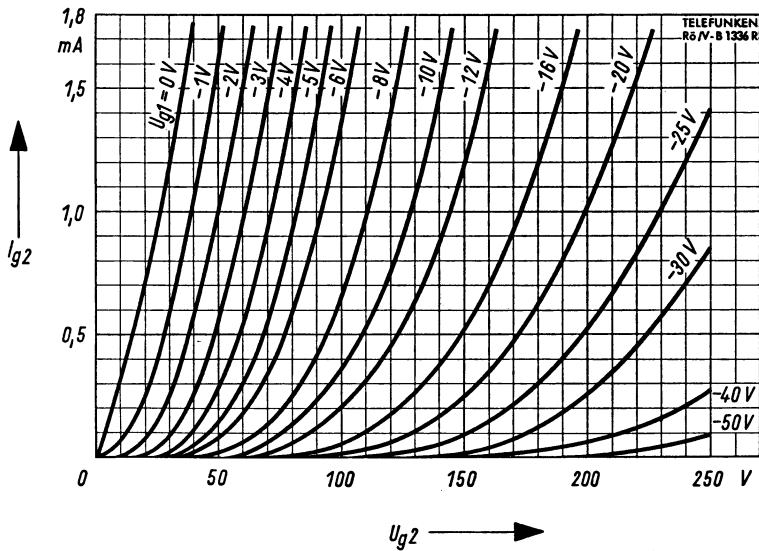
$I_a = f(U_a)$   
 $U_{g3} = 0 \text{ V}$   
 $U_{g2} = 50 \text{ V}$   
 $U_{g1} = \text{Parameter}$



$I_a = f(U_{g1})$   
 $U_a = 75 \text{ V}$   
 $U_{g3} = 0 \text{ V}$   
 $U_{g2} = \text{Parameter}$





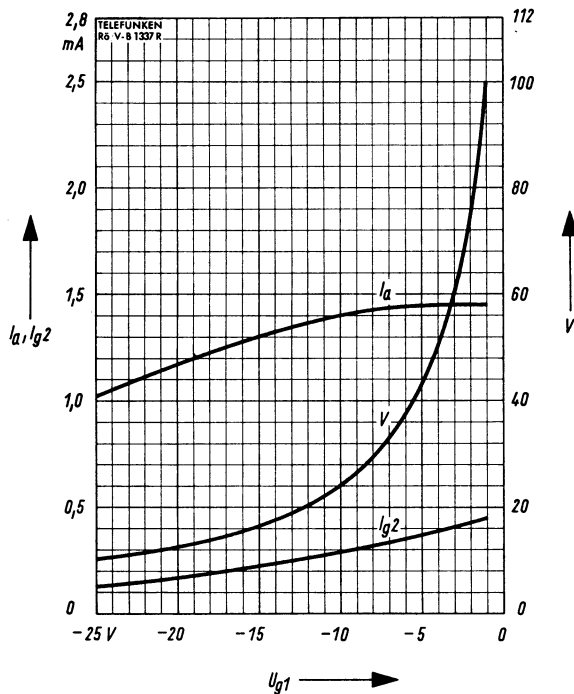


$$I_{g2} = f(U_{g2})$$

$$U_a = 75 \text{ V}$$

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

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



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

$$U_b = 200 \text{ V}$$

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

$$R_a = 100 \text{ k}\Omega$$

$$R_{g2} = 390 \text{ k}\Omega$$

$$R_{g1} = 3 \text{ M}\Omega$$

$$R_{g'} = 1 \text{ M}\Omega$$

| $U_{a\sim\text{eff}}$ | $k_{\text{ges}}$ bei<br>$U_{g1} = -1 \dots -3 \text{ V}$ | $k_{\text{ges}}$ bei<br>$U_{g1} = -1 \dots -20 \text{ V}$ |
|-----------------------|----------------------------------------------------------|-----------------------------------------------------------|
| 3 V                   | 0,8 %                                                    | 0,9 %                                                     |
| 5 V                   | 1,1 %                                                    | 1,2 %                                                     |
| 8 V                   | 1,6 %                                                    | 3 %                                                       |
| 15 V                  | 2,8 %                                                    | 4 %                                                       |

$k_{\text{ges}}$  ist der maximal auftretende Klirrfaktor im angegebenen Regelbereich.

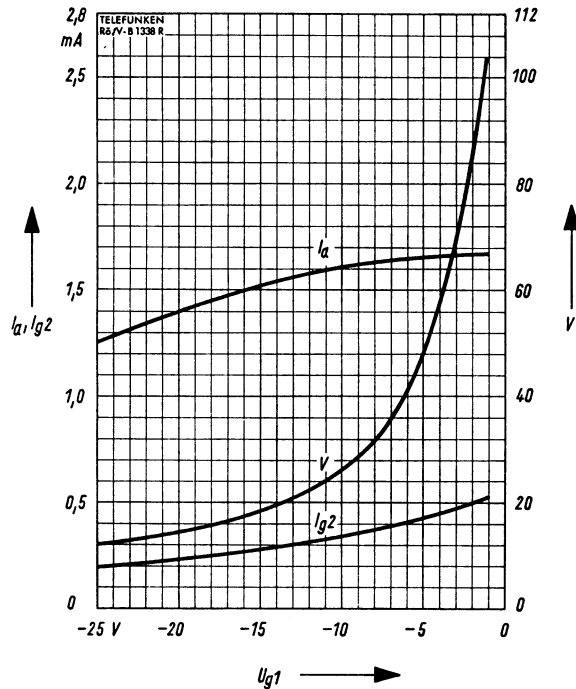
Der Wert ist gemittelt über eine größere Anzahl Röhren.

In the control range given  $k_{\text{ges}}$  is the maximum distortion factor arising.

The value has been determined by measurements on a large number of tubes.

**NF-Verstärker in Widerstandsverstärker-Schaltung** · Resistance-coupled amplifier





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

$$U_b = 230 \text{ V}$$

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

$$R_a = 100 \text{ k}\Omega$$

$$R_{g2} = 390 \text{ k}\Omega$$

$$R_{g1} = 3 \text{ M}\Omega$$

$$R_{g'} = 1 \text{ M}\Omega$$

| $U_{a\sim\text{eff}}$ | $k_{\text{ges}}$ bei<br>$U_{g1} = -1 \dots -3 \text{ V}$ | $k_{\text{ges}}$ bei<br>$U_{g1} = -3 \dots -20 \text{ V}$ |
|-----------------------|----------------------------------------------------------|-----------------------------------------------------------|
| 3 V                   | 0,8 %                                                    | 0,9 %                                                     |
| 5 V                   | 1 %                                                      | 1,2 %                                                     |
| 8 V                   | 1,5 %                                                    | 2,3 %                                                     |
| 15 V                  | 2,6 %                                                    | 3,5 %                                                     |

$k_{\text{ges}}$  ist der maximal auftretende Klirrfaktor im angegebenen Regelbereich.  
Der Wert ist gemittelt über eine größere Anzahl Röhren.

In the control range given  $k_{\text{ges}}$  is the maximum distortion factor arising.  
The value has been determined by measurements on a large number of tubes.

**NF-Verstärker in Widerstandsverstärker-Schaltung · Resistance-coupled amplifier**

