

ELECTRONIC TUBE REFERENCE

TAL1235

Power - Triode (over 1000V 100W) electronic tube

CONSOLIDATED TECHNICAL DATA  
1 SECTION  
CONSTRUCTION  
TRIODE

Forced-air-cooled three-phase directly heated transmitting triode for high- and low-frequency amplifier and oscillator service. Approximately 12 kW plate dissipation and 12 kV capability support substantial fixed-station RF power.

GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | —                 | BASE PINS            | —             |
| NOMINAL HEATER      | 28.3 V / 48.5 A   | PARALLEL HEATER      | — / —         |
| HEATING             | Direct            | SERIES OPERATION     | Not specified |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Similar       |

SECTION RATINGS

|                                                                                                               |         |
|---------------------------------------------------------------------------------------------------------------|---------|
| SECTION1 Triode                                                                                               |         |
| AMPLIFICATION FACTOR                                                                                          | 12      |
| MAXIMUM PLATE VOLTAGE                                                                                         | 12000 V |
| MAXIMUM PLATE DISSIPATION                                                                                     | 12000 W |
| MAXIMUM CATHODE CURRENT                                                                                       | 2.9 A   |
| Forced-air-cooled three-phase directly heated transmitting triode for HF/LF amplifier and oscillator service. |         |

Forced-air-cooled three-phase directly heated transmitting triode for HF/LF amplifier and oscillator service.

## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1963 Philips Electron Tubes Handbook V4

Published test conditions and operating points. Values on this page are preserved as reported by this source.

## 1963 PHILIPS ELECTRON TUBES HANDBOOK V4

## Section 1 · Triode

| OTHER                        |                 |                                                                           |
|------------------------------|-----------------|---------------------------------------------------------------------------|
| PARAMETER                    | PUBLISHED VALUE | CONDITION / NOTE                                                          |
| max                          | 28.3 V          | Cooling   max.28.3 V1)                                                    |
| Plate current                | 25 A            | Typical characteristics   Ia =t .25 A                                     |
| Caractdristiques types s Va  | 12 kV           | Typical characteristics   Caractdristiques types s Va= 12 kV) =           |
| Kenndaten                    | 16.5 mA/V       | Typical characteristics   Kenndaten 16.5 mA/V                             |
| lsat                         | 23 A            | Typical characteristics   lsat = 23A                                      |
| a value of                   | 23 A            | Typical characteristics   a value of 23 A.                                |
| un courant de saturation de  | 23 A            | Typical characteristics   un courant de saturation de 23 A eat indiqu6e h |
| Published electrical value   | 23 A            | Typical characteristics   23 A Erhalt.                                    |
| Limiting values Va           | 15 kV           | Maximum ratings   Limiting values Va 15 kV Ig =0.6A                       |
| Limiting values Va           | 600 mA          | Maximum ratings   Limiting values Va 15 kV Ig =0.6A                       |
| Caracteristiques limites -Vg | 1000 V          | Maximum ratings   Caracteristiques limites - Vg=1000 V Wia= 75 kW         |
| Caracteristiques limites -Vg | 75 kW           | Maximum ratings   Caracteristiques limites - Vg=1000 V Wia= 75 kW         |
| Grenzdaten Ia                | 5 A             | Maximum ratings   Grenzdaten Ia = 5A Wa = 18kW                            |
| Grenzdaten Ia                | 18 kW           | Maximum ratings   Grenzdaten Ia = 5A Wa = 18kW                            |
| F = <                        | 37.5 MHz        | Maximum ratings   F = <20 <20 <20 27 37.5 Mc/s                            |
| Va                           | 10 kV           | Maximum ratings   Va 15 12 10 15 10 kV                                    |

| PARAMETER                    | PUBLISHED VALUE | CONDITION / NOTE                                       |
|------------------------------|-----------------|--------------------------------------------------------|
| Vg                           | <b>-600 V</b>   | Maximum ratings   Vg = -900 ..700 -600 -900 -600 V     |
| Plate current                | <b>4.2 A</b>    | Maximum ratings   Ia = 4.2 4.2 4.2 4.2 4.2 A           |
| Ig                           | <b>600 mA</b>   | Maximum ratings   Ig = 0.42 0.5 0.53 0.42 0.6 A        |
| Vgp                          | <b>1200 V</b>   | Maximum ratings   Vgp = 1470 1350 1160 1470 1200 V     |
| Wig                          | <b>650 W</b>    | Maximum ratings   Wig = 560 610 560 560 650 W          |
| is                           | <b>42 kW</b>    | Maximum ratings   is = 63 50.4 42 63 42 kW             |
| Wa                           | <b>16 kW</b>    | Maximum ratings   Wa = 14.5 12.4 11 18 16 kW           |
| wo                           | <b>26 kV</b>    | Maximum ratings   wo = 48.5 38 31 45 26 kV(            |
| Limiting values Va           | <b>15 kV</b>    | Maximum ratings   Limiting values Va = 15 kV           |
| Caracttristiques lirnites Ia | <b>2.5 A</b>    | Maximum ratings   Caracttristiques lirnites Ia = 2.5 A |
| Grenzdaten Wia               | <b>37.5 kW</b>  | Maximum ratings   Grenzdaten Wia = 37.5 kW             |
| Pa                           | <b>18 kW</b>    | Maximum ratings   Pa = 18 kW                           |
| f = <                        | <b>20 MHz</b>   | Maximum ratings   f = <20 <20 <20 Mc/s                 |
| Plate voltage                | <b>10 kV</b>    | Maximum ratings   Va = 15 12 10 kV                     |
| Vg                           | <b>-315 V</b>   | Maximum ratings   Vg = -500 -400 -315 V                |
| Plate current                | <b>2.5 A</b>    | Maximum ratings   Ia = 1.8 2.2 2.5 A                   |
| Vgp                          | <b>440 V</b>    | Maximum ratings   Vgp = 500 470 440 V                  |
| Vita                         | <b>25 kW</b>    | Maximum ratings   Vita = 27 26.5 25 kW                 |
| Via                          | <b>17 kW</b>    | Maximum ratings   Via = 18 18 17 kW                    |
| wo                           | <b>8 kW</b>     | Maximum ratings   wo = 9 8.5 8 kW                      |
| Ig                           | <b>400 mA</b>   | Maximum ratings   Ig = 0.3 0.36 0.4 A                  |
| wig                          | <b>317 W</b>    | Maximum ratings   wig 270 305 317 W                    |
| Limiting values Va = max     | <b>12 kV</b>    | Maximum ratings   Limiting values Va = max. 12 kV      |
| Vg = max                     | <b>1000 V</b>   | Maximum ratings   -Vg = max. 1000 V                    |
| Plate current                | <b>2.9 A</b>    | Maximum ratings   Ia = max. 2.9 A                      |
| Ig = max                     | <b>600 mA</b>   | Maximum ratings   Ig = max. 0.6 A                      |
| Wia = max                    | <b>35 kW</b>    | Maximum ratings   Wia = max. 35 kW                     |
| Wa = max                     | <b>12 kW</b>    | Maximum ratings   Wa = max. 12 kW                      |
| f = <                        | <b>27 MHz</b>   | Maximum ratings   f = <20 <20 27 27 Mc/s               |

| PARAMETER                          | PUBLISHED VALUE | CONDITION / NOTE                                                                              |
|------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|
| Plate voltage                      | <b>10 kV</b>    | Maximum ratings   $V_a = 12\ 10\ 12\ 10\ \text{kV}$                                           |
| Control-grid voltage               | <b>-900 V</b>   | Maximum ratings   $V_{g1} = -1000\ -900\ -1000\ -900\ \text{V}$                               |
| Plate current                      | <b>2.9 A</b>    | Maximum ratings   $I_a = 2.9\ 2.9\ 2.9\ 2.9\ \text{A}$                                        |
| $I_g$                              | <b>500 mA</b>   | Maximum ratings   $I_g = 0.4\ 0.45\ 0.45\ 0.5\ \text{A}$                                      |
| $V_{gp}$                           | <b>1600 V</b>   | Maximum ratings   $V_{gp} = 1600\ 1550\ 1650\ 1600\ \text{V}$                                 |
| $W_{ia}$                           | <b>29 kW</b>    | Maximum ratings   $W_{ia} = 35\ 29\ 35\ 29\ \text{kW}$                                        |
| Published electrical value         | <b>1 V</b>      | Maximum ratings   $1V_a = 8\ 7.5\ 9\ 8.5\ \text{kW}$                                          |
| Published electrical value         | <b>8.5 kW</b>   | Maximum ratings   $1V_a = 8\ 7.5\ 9\ 8.5\ \text{kW}$                                          |
| Power output                       | <b>20.5 kW</b>  | Maximum ratings   $W_o = 27\ 21.5\ 26\ 20.5\ \text{kW}$                                       |
| $W_{mod}$                          | <b>14.5 kW</b>  | Maximum ratings   $W_{mod} = 17.5\ 14.5\ 17.5\ 14.5\ \text{kW}$                               |
| Limiting values $V_a = \text{max}$ | <b>15 kV</b>    | Maximum ratings   Limiting values $V_a = \text{max. } 15\ \text{kV}$                          |
| $W_{ia} = \text{max}$              | <b>90 kW</b>    | Maximum ratings   $W_{ia} = \text{max. } 90\ \text{kW}$                                       |
| $W_a = \text{max}$                 | <b>18 kW</b>    | Maximum ratings   $W_a = \text{max. } 18\ \text{kW}$                                          |
| Plate voltage                      | <b>12 kV</b>    | Maximum ratings   $V_a = 12\ 12\ \text{kV}$                                                   |
| $V_g$                              | <b>-425 V</b>   | Maximum ratings   $V_g = -400\ -425\ \text{V}$                                                |
| $V_{gpp}$                          | <b>1480 V</b>   | Maximum ratings   $V_{gpp} = 0\ 2000\ 0\ 1480\ \text{V}$                                      |
| Plate current                      | <b>2.25 A</b>   | Maximum ratings   $I_a = 2 \times 0.35\ 2 \times 4.5\ 2 \times 0.15\ 2 \times 2.25\ \text{A}$ |
| $I_g$                              | <b>190 mA</b>   | Maximum ratings   $I_g = 0.2 \times 0.55\ 0\ 2 \times 0.19\ \text{A}$                         |
| $I_{gp}$                           | <b>1.25 A</b>   | Maximum ratings   $I_{gp} = 0\ 2 \times 3\ 0\ 2 \times 1.25\ \text{A}$                        |
| $W_{ig}$                           | <b>127 W</b>    | Maximum ratings   $W_{ig} = 0\ 2 \times 500\ 0\ 2 \times 127\ \text{W}$                       |
| $W_{ia}$                           | <b>27 kW</b>    | Maximum ratings   $W_{ia} = 2 \times 4.2\ 2 \times 54\ 2 \times 1.8\ 2 \times 27\ \text{kW}$  |
| $W_a$                              | <b>7.7 kW</b>   | Maximum ratings   $W_a = 2 \times 4.2\ 2 \times 14\ 2 \times 1.8\ 2 \times 7.7\ \text{kW}$    |
| Published electrical value         | <b>38.5 kW</b>  | Maximum ratings   $= 0\ 80\ 0\ 38.5\ \text{kW}$                                               |
| Plate voltage                      | <b>10 kV</b>    | Maximum ratings   $V_a = 10\ 10\ \text{kV}$                                                   |
| $V_g$                              | <b>-345 V</b>   | Maximum ratings   $V_g = -325\ -345\ \text{V}$                                                |
| $V_{gpp}$                          | <b>1330 V</b>   | Maximum ratings   $V_{gpp} = 0\ 2050\ 0\ 1330\ \text{V}$                                      |
| Plate current                      | <b>2.25 A</b>   | Maximum ratings   $I_a = 2 \times 0.3\ 2 \times 5.4\ 2 \times 0.14\ 2 \times 2.25\ \text{A}$  |
|                                    |                 |                                                                                               |

| PARAMETER                  | PUBLISHED VALUE | CONDITION / NOTE                                              |
|----------------------------|-----------------|---------------------------------------------------------------|
| I <sub>g</sub>             | <b>200 mA</b>   | Maximum ratings   I <sub>g</sub> = 0 2x0.6 0 2x0.2 A          |
| I <sub>gp</sub>            | <b>1.35 A</b>   | Maximum ratings   I <sub>gp</sub> 0 2x3 0 2x1.35 A            |
| W <sub>ig</sub>            | <b>120 W</b>    | Maximum ratings   W <sub>ig</sub> = 0 2x555 0 2x120 W         |
| W <sub>ia</sub>            | <b>22.5 kW</b>  | Maximum ratings   W <sub>ia</sub> = 2x3 2x54 2x1.4 2x22.5 kW  |
| W <sub>a</sub>             | <b>6.5 kW</b>   | Maximum ratings   W <sub>a</sub> = 2x3 2x15.5 2x1.4 2x6.5 kW  |
| Power output               | <b>32 kW</b>    | Maximum ratings   W <sub>o</sub> = 0 77 0 32 kW               |
| Published electrical value | <b>7.1954 A</b> | Maximum ratings   7.7.1954 A                                  |
| Published electrical value | <b>15 V</b>     | Maximum ratings   0 5 0 15 V <sub>a</sub> (kV)                |
| U <sub>os</sub>            | <b>15 kV</b>    | Class C telegraphy   U <sub>os</sub> 15kV                     |
| IIII IIIII                 | <b>10 kV</b>    | Class C telegraphy   IIII IIIII =10kV III•IIII .*>dIIIIIIIIII |
| V~                         | <b>12 kV</b>    | Class C telegraphy   V~ =12kV                                 |
| Published electrical value | <b>7 kw</b>     | Class C telegraphy   7kw) 2xTAL 12/35 Ii                      |

| CHARACTERISTIC                              |                 |                                                                |
|---------------------------------------------|-----------------|----------------------------------------------------------------|
| PARAMETER                                   | PUBLISHED VALUE | CONDITION / NOTE                                               |
| Published electrical value                  | <b>48.5 A</b>   | Cooling   48.5 A                                               |
| Published electrical value                  | <b>100 A</b>    | Cooling   100 A per phase at any time during initial energis-  |
| une valeur de crdte de                      | <b>100 A</b>    | Cooling   une valeur de crdte de 100 A par phase.              |
| Published electrical value                  | <b>100 A</b>    | Cooling   100 A pro Phase Uberschreiten.                       |
| When the valve is used at frequencies above | <b>10 MHz</b>   | Cooling   When the valve is used at frequencies above 10 Mc/s. |
| value at frequencies above                  | <b>10 MHz</b>   | Cooling   value at frequencies above 10 Mc/s.                  |
| le tube aux frequences superieures          | <b>10 MHz</b>   | Cooling   le tube aux frequences superieures 10 Mc/s.          |
| Published electrical value                  | <b>10 MHz</b>   | Cooling   10 Mc/s et que. par consequent. la temperature maxi- |
| bei Frequenzen hoher ale                    | <b>10 MHz</b>   | Cooling   bei Frequenzen hoher ale 10 MHz dttrfte in gewissen  |
| Plate voltage                               | <b>12 kV</b>    | Modulator operation   V <sub>a</sub> =12kV                     |

| CAPACITANCE     |                 |                                           |
|-----------------|-----------------|-------------------------------------------|
| PARAMETER       | PUBLISHED VALUE | CONDITION / NOTE                          |
| Capacitances Ca | <b>2.6 pF</b>   | Capacitances   Capacitances Ca = 2.6 pF   |
| Capacites Cg    | <b>72 pF</b>    | Capacitances   Capacites Cg = 72 pF       |
| Kapazit         | <b>31 pF</b>    | Capacitances   Kapazit8ten Cagi . = 31 pF |



## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1999 Philips E-Z

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1999 PHILIPS E-Z

## Section 1 · Triode

| CHARACTERISTICS                                      |                 |                                                      |
|------------------------------------------------------|-----------------|------------------------------------------------------|
| PARAMETER                                            | PUBLISHED VALUE | CONDITION / NOTE                                     |
| Capacitances Ce                                      | <b>2.6 a</b>    | Capacitances Ce = 2,6 pF                             |
| Fdllen, 2.B., bei einer niedrigen Anodenverlustleis  | <b>2 A</b>      | Fdllen, 2.B., bei einer niedrigen Anodenverlustleis- |
| 1) Grid bias partially obtained by the grid resistor | <b>1 a</b>      | 1) Grid bias partially obtained by the grid resistor |