

ELECTRONIC TUBE REFERENCE

YD1002

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

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
TRIODE

Vapor-cooled high-power transmitting triode with coaxial grid connection for RF amplifier and oscillator service. Rated for approximately 60 kW plate dissipation and 16 kV plate voltage for major professional transmitter stages.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	12.6 V / 160 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
TRANSCONDUCTANCE	0.06 S
AMPLIFICATION FACTOR	58
MAXIMUM PLATE VOLTAGE	16000 V
MAXIMUM PLATE DISSIPATION	60000 W
MAXIMUM GRID DISSIPATION	1300 W
MAXIMUM CATHODE CURRENT	18 A
Maximum ratings promoted from published rating tables; additional condition-specific values preserved in parameters.	

Vapor-cooled triode with coaxial grid lead-through, suitable for use as RF amplifier, oscillator and Cathode connecting strip (2 for each tube) RöKat221 Q81-X1136 Insulating pipe at water inlet RöKüV31Zub4 Q81-X1634

SOURCE OPERATING CONDITIONS

1963 Siemens

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

1963 SIEMENS

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification factor	58	—
Transconductance	60000 μ S	—
Emission current	75 A A	—
Amplification factor	58	—
at UA = 1	6 kV, IA = 1 A kV	—
Transconductance	60 mA/V mA/V	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	12,6 V V	—
Heater current	≈ 160 A A	—
Frequency	10 30 MHz MHz	—
Anode voltage (dc)	16 12,5 kV kV	—
Grid voltage (dc)	— 1000 — 1000 V V	—
Cathode current (dc)	18 18 A A	—
Peak cathode current	65 65 A A	—
Anode dissipation	60 60 kW kW	—
Grid dissipation	1300 1300 W W	—
Frequency	≤ 10 ≤ 10 ≤ 30 ≤ 30 MHz MHz	—
Output power	110 85 110 85 kW 1) kW	—
Anode voltage (dc)	15 15 12 12 kV kV	—
Grid voltage (dc)	— 260 — 260 — 210 — 210 V V	—
Peak grid voltage (ac)	600 520 650 520 V V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode current (dc)	10,1 7,75 12,7 9,85 A A	—
Grid current (dc)	2,0 1,3 3,0 1,9 A A	—
Anode input power	151 116,3 153 118 kW A	—
Drive power	1080 610 1770 880 W 1) W	—
Anode dissipation	41 31,3 43 33 kW kW	—
Grid dissipation	560 270 1140 480 W W	—
Efficiency	73 73 72 72 %	—
Anode load resistance	920 1235 590 775 Ω Ω	—
Transmitter Triode	2021 V V	—
Frequency	10 30 60 MHz MHz	—
Anode voltage (dc)	16 12,5 8,5 kV kV	—
Grid voltage (dc)	— 1000 — 1000 — 1000 V V	—
Cathode current (dc)	18 18 18 A A	—
Peak cathode current	65 65 65 A A	—
Anode dissipation	60 60 60 kW kW	—
Grid dissipation	1300 1300 1100 W W	—
Frequency	$\leq 10 \leq 30 \leq 60$ MHz MHz	—
Output power	85 + 3,1 2) 85 + 3,9 2) 57 + 3,5 2) kW 1) kW	—
Anode voltage (dc)	15 12 8,0 kV kV	—
Grid voltage (dc)	— 260 — 210 — 130 V V	—
Peak grid voltage (ac)	520 520 460 3) V V	—
Anode current (dc)	7,75 9,85 10 A A	—
Grid current (dc)	1,3 1,8 2,3 A A	—
Anode input power	116,3 118 80 kW A	—
Drive power	0,61+3,1 2) 0,88+3,9 2) 0,93+3,5 2) kW 1) kW	—
Anode dissipation	31,3 33 23 kW kW	—
Grid dissipation	270 480 630 W W	—
Efficiency	73 72 71 %	—
Anode load resistance	1280 815 490 Ω Ω	—
Transmitter Triode	2021 V V	—
Frequency	10 30 MHz MHz	—
Anode voltage (dc)	16 12,5 kV kV	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid voltage (dc)	– 1000 – 1000 V V	—
Cathode current (dc)	18 18 A A	—
Peak cathode current	65 65 A A	—
Anode dissipation	60 60 kW kW	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode/grid	≈ 120 pF pF	—
Cathode/anode	≈ 1,4 pF 1) pF	—
Grid/anode	≈ 50 pF pF	—
Transmitter Triode	2021 V V	—


SOURCE DATA APPENDIX

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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament voltage Vi	12.6 V	Filament voltage Vi = 12.6 V
Filament current	160 A	Filament current = 160 A
Anode voltage Vo	3 kV	Anode voltage Vo = 3 kV
Anode current	1 A	Anode current = 1 A
Amplification factor	58	Amplification factor = 58
Mutual conductance	60 mA	Mutual conductance = 60 mA/V
Cooling data for anode dissipation W,	60 kW	Cooling data for anode dissipation W, = 60 kW
Frequency) f) upto	30 MHz	Frequency) f) upto 10 upto 30 MHz
Frequency f	30 MHz	Frequency f = 10 30 30 30 MHz
Anode voltage Vg	8 kV	Anode voltage Vg = 15 12 10 8 kV

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid voltage V_g	-450 V	Grid voltage $V_g = -600 -550 -500 -450$ V
Anode current I_a	8.75 A	Anode current $I_a = 9.75 9.25 9.0 8.75$ A
Grid current I_g	1.8 A	Grid current $I_g = 2.2 2.2 2.1 1.8$ A
Peak grid driving voltage V_{gp}	810 V	Peak grid driving voltage $V_{gp} = 1000 940 875 810$ V
Anode input power W_i	70 kW	Anode input power $W_i = 146 111 90 70$ kW
Anode dissipation W_a	15 kW	Anode dissipation $W_a = 26 21 18 15$ kW
Output power W_o	55 kW	Output power $W_o = 120 90 72 55$ kW
Efficiency η	78.5	Efficiency $\eta = 82 81 80 78.5$ %
Frequency f	30 MHz	Frequency $f = 10 10 30 30$ MHz
Anode voltage V_a	12 kV	Anode voltage $V_a = 15 15 12 12$ kV
Grid voltage V_g	-210 V	Grid voltage $V_g = -260 -260 -210 -210$ V
Anode current I_a	9.85 A	Anode current $I_a = 10.1 7.75 12.7 9.85$ A
Grid current I_g	1.9 A	Grid current $I_g = 2.0 1.3 3.0 1.9$ A
Peak grid driving voltage V_{gp}	5200 V	Peak grid driving voltage $V_{gp} = 600 520 650 5200$ V
Anode input power w_{ia}	118 kW	Anode input power $w_{ia} = 151 116.3 153 118$ kW
Anode dissipation W_a	33 kW	Anode dissipation $W_a = 41 31.3 43 33$ kW
Output power W_o	85 kW	Output power $W_o = 110 85 110 85$ kW
Efficiency η	72	Efficiency $\eta = 73 73 72 72$ %

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode dissipation $W_a = \max$	60 kW	Anode dissipation $W_a = \max. 60 \max. 60$ kW
Negative grid voltage $-V_g = \max$	1000 V	Negative grid voltage $-V_g = \max. 1000 \max. 1000$ V
Grid dissipation $W_g = \max$	1.3 kW	Grid dissipation $W_g = \max. 1.3 \max. 1.3$ kW
Anode current $I_a = \max$	13 A	Anode current $I_a = \max. 13 \max. 13$ A
Grid current $I_g = \max$	3.3 A	Grid current $I_g = \max. 3.3 \max. 3.3$ A
Anode voltage $V_a = \max$	12.5 kV	Anode voltage $V_a = \max. 16 \max. 12.5$ kV
Anode dissipation $W_a = \max$	60 kW	Anode dissipation $W_a = \max. 60 \max. 60$ kW
Negative grid voltage $-V_g = \max$	1000 V	Negative grid voltage $-V_g = \max. 1000 \max. 1000$ V
Anode current $I_a = \max$	13 A	Anode current $I_a = \max. 13 \max. 13$ A

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode voltage $V_a = \text{max}$	5 kV	Anode voltage $V_a = \text{max. 11.5 kV}$
Negative grid voltage $-V_g = \text{max}$	1000 V	Negative grid voltage $-V_g = \text{max. 1000 V}$
Grid dissipation $P_{g1} = \text{max}$	1.3 kW	Grid dissipation $P_{g1} = \text{max. 1.3 kW}$

TUBE TINKER

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