



ELECTRONIC TUBE REFERENCE

PCL85

Power - TV Vertical Output electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

BEAMPOWER-TRIODE

Triode beam-power combination tube for television vertical-deflection service, integrating oscillator or driver and high-current frame-output functions.

GENERAL CHARACTERISTICS

BASE DESIGNATION	B9A	BASE PINS	9
NOMINAL HEATER	18 V / 300 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	9000 Ω
TRANSCONDUCTANCE	0.007 S
AMPLIFICATION FACTOR	63
MAXIMUM PLATE VOLTAGE	550 V
MAXIMUM PLATE DISSIPATION	0.5 W
MAXIMUM CATHODE CURRENT	15 mA

Triode section; promoted values are taken from the approved source where explicitly published.

SECTION2 Beam Power	
PLATE RESISTANCE	15000 Ω
TRANSCONDUCTANCE	0.011 S
MAXIMUM PLATE VOLTAGE	550 V
MAXIMUM SCREEN VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	8 W
MAXIMUM SCREEN DISSIPATION	1.5 W
MAXIMUM CATHODE CURRENT	75 mA
<i>Pentode section; promoted values are taken from the approved source where explicitly published.</i>	

Triode-pentode power tube for 110-degree television vertical-deflection service.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1953 La Radiotechnique

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

1953 LA RADIOTECHNIQUE

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Indirect (cathode isolee du filament)	300 mA	Triode
Alimentation en serie Vi	18 V	Triode

SOURCE OPERATING CONDITIONS

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1963 Philips Electron Tubes Handbook V1

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

1963 PHILIPS ELECTRON TUBES HANDBOOK V1

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage maximum	250 V	TriodeSection
Plate dissipation maximum	0.5 W	TriodeSection
Cathode current maximum	15 mA	TriodeSection

1963 PHILIPS ELECTRON TUBES HANDBOOK V1

Section 2 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage maximum	250 V	PentodeSection
Peak plate voltage maximum	2000 V	FrameOutput
Plate dissipation maximum	7 W	Continuous
Plate dissipation maximum	9 W	FrameOutput
Screen voltage maximum	250 V	PentodeSection
Screen dissipation maximum	1.5 W	PentodeSection
Application	Vertical/frame time-base output with triode driver Section2	



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1968 Mazda Belvu

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

1968 MAZDA BELVU

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	18 V	Nominal
HeaterCurrentNominal	300 mA	Nominal
Maximum Plate Voltage	250 V	—
Maximum Plate Dissipation	1.5 W	—
Maximum Cathode Current	20 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	5500 μ S	Typical
Amplification Factor	50	Typical

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance	18000 ohm	Typical

1968 MAZDA BELVU

Section 2 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	18 V	Nominal
HeaterCurrentNominal	300 mA	Nominal
Maximum Plate Voltage	550 V	—
Maximum Screen Voltage	250 V	—
Maximum Plate Dissipation	7 W	—
Maximum Screen Dissipation	2.5 W	—
Maximum Cathode Current	80 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	11000 μ S	Typical
Plate Resistance	15000 ohm	Typical



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1972 Philips Receiving Tubes

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

1972 PHILIPS RECEIVING TUBES

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	17.5 V	Published nominal value
Heater current	300 mA	Published nominal value
Transconductance	7000 μ S	Published operating characteristic

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate dissipation	0.5 W	Published maximum rating
Maximum pentode peak anode voltage	2 kV	Frame-output pulse service

1972 PHILIPS RECEIVING TUBES

Section 2 · Beam Power

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	17.5 V	Published nominal value
Heater current	300 mA	Published nominal value

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate dissipation	8 W	Published maximum rating



TUBE TINKER
ELECTRON TUBE DATABASE

SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1973 Mazda Valves Binder 2

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

1973 MAZDA VALVES BINDER 2

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Current Ih	300 mA	—
Heater Voltage Vh	175 V	—
Maximum Anode Supply Voltage Va(b)max 550	550 V	—
Maximum Anode Voltage Va(max) 300	300 V	—
Maximum Screen Grid Supply Voltage V\$2(b)max	550 V	—
Maximum Screen Grid Voltage V\$2(max) —	250 V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Heater to Cathode Voltage $V_{h-k(max)}$ 200§	200 V	—
Maximum Cathode Current $I_k(max)$ 15	75 mA	—
§ Maximum pulse duration 5% of one cycle with a maximum of	1 ms	—
§ During warming up the maximum d.c. component is	315 V	—
Maximum pulse duration 2% of one cycle with a maximum of	400 s	—
I Grid 1 to Heater C_{gl-h} <0.15 <	0.2 pF	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Self Bias 33	2.2 MS	—
height P_a should not exceed	105 W	—
height p_{S2} should not exceed	2 W	—
Anode Pentode to Grid Triode Cap_{gt} <	3 pF	—
Anode Triode to Grid 1 Ca_{gl} <	0.08 pF	—
Anode to Grid 1 Ca_{gl} – <	6 pF	—
Anode Voltage V_a 100	100 V	—
Control Grid Voltage V_g –0 85	0 V	—
Anode Current I_a 50	105 mA	—
Mutual Conductance g_m 55	70 mA	—
Anode Voltage V_a 50	65 V	—
Screen Grid Voltage $V_{g.}$, 170	210 V	—
Control Grid Voltage V_{gi} -10	-1 V	—
Peak Anode Current $I_a(pk)$ 200	285 mA	—
Peak Screen Grid Current $I_{ga(pk)}$ 35	45 mA	—
Z_{gl} (f =	50 Hz	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cg _{L-h} =	2 pF	—
V _{h-k} (r.m.s.) _=	150 V	—
== —	190 V	—
T T T	-20 V	—
Q •i ii 'aaaii7iaa l ■■■■... "i..._ iii•... _	-4 V	—
___ ■ 3nUUU::jii■~Uasa! !..= 'i ...U.U_____	-16 V	—
~• ~~	-22 V	—
d' —	8 V	—
PENTODE SECTION V92 =	210 V	—



SOURCE DATA APPENDIX

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1975 RCA RC30

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1975 RCA RC30

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate supply voltage	550 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	ClassA
Grid No.1 voltage	-0.8 V	ClassA
Plate current	5 mA	ClassA

1975 RCA RC30

Section 2 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate supply voltage	550 V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak plate voltage	2000 V	—
Screen-grid supply voltage	550 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	170 V	ClassA
Screen-grid voltage	170 V	ClassA
Grid No.1 voltage	-15 V	ClassA
Plate current	41 mA	ClassA
Screen-grid current	2.7 mA	ClassA



SOURCE OPERATING CONDITIONS

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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
Anode current I_y	10.5 mA	—
Transconductance S	7 mA/V	—
Cathode peak current $I_{kp} \text{ max}$	150 mA	—
Anode current I, S	10.5 mA	—
Transconductance $S \text{ 5.5}$	7 mA/V	—
peak $I_{ic}, \text{ max}$	100 mA	—
for automatic bias $R_g \text{ max}$	3.3 MΩ	—
Cathode to heater voltage $V_s \text{ max}$	200 V	—
A cathode peak current of	100 mA	—
max	315 V	—
T urves $A:V_o=\backslash g$	210 V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
V91	0 V	—
Iy Y Ygp	210 V	—
ag' - p e - --	22 V	—
e i l 0 Tvg	210 V	—
AN	12 V	—
mAJ-L 8 1 Vg, [1]	190 V	—
mAJ-L 8 1 Vg, [2]	0 V	—
cERnE) T ee	0 V	—
gy ey L	16 V	—
4 N e	18 V	—
Vg,	0 V	—
S===_	8 V	—
s,	10 V	—
00\ Yo	0 V	—
(mA), i	210 V	—
§6« Y	2 A	—
y,	4 V	—
Vg	100 V	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode voltage Va, max	550 V	—
V, max	300 V	—
Anode dissipation Wy max	0.5 W	—
average Ik max	15 mA	—
peak Ikp max	150 mA	—

1999 PHILIPS E-Z

Section 2 · Beam Power

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode peak voltage Vap max	2 kV	—
Anode dissipation W, max	8 W	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater current If	300 mA	—
Heater voltage Ve	17.5 V	—
when Zgl (at f [1])	50 Hz	—
when Zgl (at f [2])	0.2 pF	—
Grid No. 2 dissipation Wg2 max	1.5 W	—
Cathode current Ix max	75 mA	—
for fixed bias Rgl max	1 MΩ	—
for automatic bias Rgl max	2.2 MΩ	—
Cathode to heater voltage Vif max	200 V	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid triode to anode pentode CgTaP max	0.05 pF	—
Grid triode to heater CgTf max	0.15 pF	—
Grid No. 1 pentode to anode pentode Cglpap max	1 pF	—
Grid No. 1 pentode to anode triode CglPaT max	0.08 pF	—
Grid No.1 pentode to heater CglPf max	0.2 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode voltage Va 50	65 V	—
Anode peak current Iap 200	285 mA	—
Grid No. 2 peak current Ig2p 35	45 mA	—
Anode voltage Vag max	550 V	—
Va max	300 V	—
Grid No. 2 voltage VgZ0 max	550 V	—
Vg 9 max	250 V	—
picture height W, should not exceed	10.5 W	—