



ELECTRONIC TUBE REFERENCE

UL84

Power - Pentode (NOT beam) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

PENTODE

High-transconductance series-heater audio power pentode for Class A and push-pull Class AB output.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	9
NOMINAL HEATER	45 V / 100 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Pentode	
PLATE RESISTANCE	28000 Ω
TRANSCONDUCTANCE	0.01 S
MAXIMUM PLATE VOLTAGE	550 V
MAXIMUM SCREEN VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	12 W
MAXIMUM SCREEN DISSIPATION	1.75 W
MAXIMUM CATHODE CURRENT	100 mA
<i>Published ratings and characteristics promoted from the approved source.</i>	

Power pentode for Class A and two-tube Class AB low-frequency audio output amplification.



SOURCE OPERATING CONDITIONS

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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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	170 V	ClassA
Screen Voltage	170 V	ClassA
Grid Voltage	-12.5 V	ClassA
Plate Current	70 mA	ClassA
Screen Current	5 mA	ClassA
OutputPower	5.6 W	ClassA
Total Distortion	10 percent	ClassA
Load Impedance	2400 Ohm	ClassA
OutputPower	13.55 W	ClassB;PushPull;TwoTubes;Va=170V
OutputPower	13 W	ClassAB;PushPull;TwoTubes;Va=170V
OutputPower	2.1 W	ClassA;TriodeConnection;Va=170V
OutputPower	3.9 W	ClassAB;PushPull;TwoTubes;TriodeConnection;Va=170V

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input Capacitance	12 pF	—
Output Capacitance	6 pF	—
Plate To Grid Capacitance	0.6 pF	—



1957 Philips Receiving and Amplifying Tubes

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

1957 PHILIPS RECEIVING AND AMPLIFYING TUBES

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	45 V	—
Heater Current	100 mA	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	170 V	ClassA
Plate Current	70 mA	ClassA
Maximum Signal Power Output	5.3 W	ClassA



SOURCE DATA APPENDIX

195X Tesla

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

195X TESLA

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	45 V	Nominal
HeaterCurrentNominal	100 mA	Nominal
Maximum Plate Voltage	550 V	—
Maximum Screen Voltage	300 V	—
Maximum Plate Dissipation	12 W	—



SOURCE OPERATING CONDITIONS

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1961 Ferranti Technical Handbook

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1961 FERRANTI TECHNICAL HANDBOOK

Section 1 · Pentode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Audio output	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Class-A audio operation	Published	ClassA



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1963 Philips Electron Tubes Handbook V1

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1963 PHILIPS ELECTRON TUBES HANDBOOK V1

Section 1 · Pentode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode capacitance	6.8 pF	—
Control-grid capacitance	13 pF	—
Anode-to-control-grid capacitance	—0.6 pF	Maximum
Control-grid-to-heater capacitance	—0.25 pF	Maximum

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	170 V	Typical
Screen voltage	170 V	Typical
Grid voltage	-12.5 V	Typical
Plate current	70 mA	Typical
Screen current	3.5 mA	Typical
Transconductance	11000 μ S	Typical
Plate resistance	26 k Ω	Typical

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate supply voltage	170 V	ClassA; OneTube
Load resistance	2 k Ω	ClassA; OneTube
Power output	5.1 W	ClassA; OneTube
Plate supply voltage	200 V	ClassA; OneTube
Load resistance	2.5 k Ω	ClassA; OneTube
Power output	5.3 W	ClassA; OneTube
Plate supply voltage	200 V	ClassAB; PushPull; TwoTubes
Load resistance plate-to-plate	3 k Ω	ClassAB; PushPull; TwoTubes
Power output	14.3 W	ClassAB; PushPull; TwoTubes
Distortion	3.8 %	ClassAB; PushPull; TwoTubes



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1967 Mullard Receiving and Amplifying Valves

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1967 MULLARD RECEIVING AND AMPLIFYING VALVES

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Output pentode roter (or	12	Characteristic
*Vg2 (b) =	4700	CHARACTERISTICS

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Va	200 V	OPERATING CONDITIONS AS SINGLE VALVE AMPLIFIER
Vg	170 V	OPERATING CONDITIONS AS SINGLE VALVE AMPLIFIER
Ra	2.4 kΩ	OPERATING CONDITIONS AS SINGLE VALVE AMPLIFIER
*Vg	47012	OPERATING CONDITIONS AS SINGLE VALVE AMPLIFIER
approximately	10	OPERATING CONDITIONS AS SINGLE VALVE AMPLIFIER
Va	200 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
Vg	200 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
Ra _ a	3.5 a	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
Pout	15 W	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
Distributed load conditions with screen-grid tapping at	20 w	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
Va + VRk	200 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
Vg2 + VR k	200 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
Va l b) max	550 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
Va max	250 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
Vg	550 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Vg2 max	200 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
I " Ve = Vg	0 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
2: Ve = Vg2 = 17 0 V	0 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
3 : Ve ~ Vg2 = 10 0 V II I	0 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
Vg 1 (V)	0 V	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
CO NTROL-GRID VOLTAGE AS PARAMETER. Vg2 =	100	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
CO NTRO L-GRID VO LTA GE AS PARAM ETER. Vg	170	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
CO NTROL-GRID VOLTAGE AS PARAMETER. Vg	200	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
PERFORMANC E OF UL8	4 W	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
v« = V g	100 v	OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL
Va = Vg2 =	170	PERFORMANCE OF UL84 WHEN USED AS SINGLE VALVE AMPLIFIER
PERFO RMA N CE OF UL8	4	PERFORMANCE OF UL84 WHEN USED AS SINGLE VALVE AMPLIFIER



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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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Power Output	5.3 W	ClassA;OneTube;Supply 200 V;Load 2.5 kohm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Power Output	14.3 W	ClassAB;PushPull;TwoTubes;Supply 200 V;Load 3 kohm



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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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	45 V	Nominal
HeaterCurrentNominal	100 mA	Nominal
Maximum Plate Voltage	250 V	—
Maximum Screen Voltage	200 V	—
Maximum Plate Dissipation	12 W	—
Maximum Screen Dissipation	1.75 W	—
Maximum Cathode Current	100 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	11000 μ S	Typical
Amplification Factor	8	Typical
Plate Resistance	26000 ohm	Typical



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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.

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Capacitances Ca 6,0 pF	6 a	Capacitances Ca 6,0 pF
Capacités) 3	3 a	Capacités) 3
Capacitances Ca	6 a	Capacitances Ca = 6,0 pF
Capacites c	12 a	Capacites c = 12,0 pF
Capacités Cq	6.8 a	Capacités Cq = 6,8 pF
A (Grille-écran relide a l'anode)	1 A	A (Grille-écran relide a l'anode)
en montage triode (Grille-écran relide a l'anode)	1 a	en montage triode (Grille-écran relide a l'anode)
4 (Grille-écran reliée a l'anode	4 a	4 (Grille-écran reliée a l'anode
en montage triode (Grille-écran reliée a l'anode)	1 a	en montage triode (Grille-écran reliée a l'anode)
9 With automatic grid bias	9 W	9 With automatic grid bias
1)With automatic grid bias	1 W	1)With automatic grid bias

TUBE TINKER

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