



ELECTRONIC TUBE REFERENCE

PL81

Power - TV Horizontal Output (sweep) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

PENTODE

Television line-time-base output pentode designed to scan wide-angle CRTs from relatively low HT supply voltages.

GENERAL CHARACTERISTICS

BASE DESIGNATION	Noval	BASE PINS	9
NOMINAL HEATER	21.5 V / 300 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Pentode	
PLATE RESISTANCE	10000 Ω
TRANSCONDUCTANCE	0.0062 S
AMPLIFICATION FACTOR	5.3
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM SCREEN VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	8 W
MAXIMUM SCREEN DISSIPATION	4.5 W
MAXIMUM CATHODE CURRENT	180 mA
<i>Published values promoted where clearly readable; identical repeated sections compressed when applicable.</i>	

Television line-time-base output pentode for scanning wide-angle CRTs from low HT supply voltages.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1951 Philips Receiving Tubes for Television

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

1951 PHILIPS RECEIVING TUBES FOR TELEVISION

Section 1 · Pentode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode Voltage	200 V	—
Screen Voltage	200 V	—
Control Grid Voltage	-28 V	—
Anode Current	40 mA	—
Screen Current	2.8 mA	—
Transconductance	6000 μ S	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Positive Peak Anode Voltage	7000 V	PulseInput
Anode Voltage	200 V	PushPull; TwoTubes; ClassB
Power Output	20 W	PushPull; TwoTubes; ClassB
Anode-to-Anode Matching Resistance	2500 ohm	PushPull; TwoTubes; ClassB

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1958 Brimar Radio Valve No 7

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

1958 BRIMAR RADIO VALVE NO 7

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak Positive Plate Pulse Voltage	7000 V	LineFlyback

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Television line time-base output	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1958 Mullard Receiving Tubes

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

1958 MULLARD RECEIVING TUBES

Section 1 · Pentode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	170 V	—
Screen Voltage	170 V	—
Plate Current	45 mA	—
Screen Current	3 mA	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

195X Tesla

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

195X TESLA

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	21.5 V	Published nominal value or midpoint of published range
Heater current	300 mA	Published nominal value or midpoint of published range

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input capacitance	16 pF	Published first-page value
Output capacitance	7 pF	Published first-page value



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

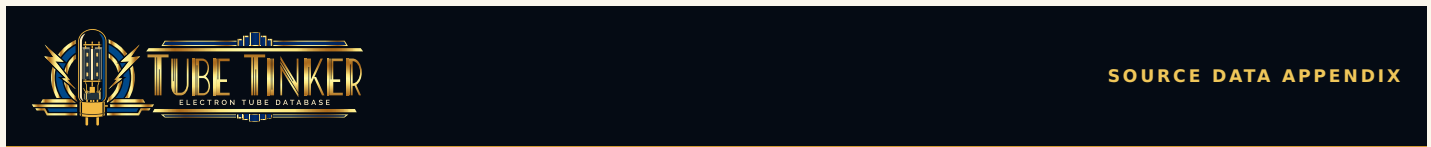
1961 Ferranti Technical Handbook

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

1961 FERRANTI TECHNICAL HANDBOOK

Section 1 · Pentode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	21.5 V	—
Heater Current	300 mA	—



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1963 Philips Electron Tubes Handbook V1

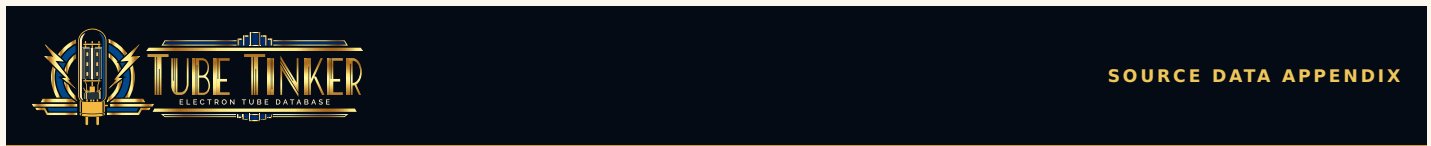
Published test conditions and operating points. Values on this page are preserved as reported by this source.

1963 PHILIPS ELECTRON TUBES HANDBOOK V1

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	170 V	HorizontalDeflection
Screen voltage	170 V	HorizontalDeflection
Control-grid voltage	-22 V	HorizontalDeflection
Plate current	45 mA	HorizontalDeflection
Screen current	3 mA	HorizontalDeflection

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	6200 μ S	Section1
Plate resistance	10000 Ω	170VPlate
Amplification factor	5.3	Section1



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	21.5 V	Published nominal value
Heater current	300 mA	Published nominal value

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum peak anode voltage	7 kV	Pulse duration $\leq$ 22% cycle, max 18 μ s



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 · Pentode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	21.5 V	Published nominal value
Heater current	300 mA	Published nominal value

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate dissipation	7.5 W	Published maximum rating
Maximum positive peak anode voltage	7 kV	Pulse duration ≤22% cycle, max 18 us



SOURCE DATA APPENDIX

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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode peak voltage Vap max	7 kV	Anode peak voltage Vap max. 7 kV
Cathode current Ik max	180 mA	Cathode current Ik max. 180 mA
Heater current I _φ	300 mA	Heater current I _φ 300 mA
Heater voltage Vi	215 V	Heater voltage Vi 215V
Grid No. 1 to all except anode Cgi(a)	14 pF	Grid No. 1 to all except anode Cgi(a) 14 pF
Anode to grid No	1 pF	Anode to grid No. 1 pF
Anode to cathode Cak max	0.1 pF	Anode to cathode Cak max. 0.1 pF

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The minimum required cut-off voltage (-Vgl) during flyback is	120 V	The minimum required cut-off voltage (-Vgl) during flyback is 120V at Vy=6000V,
The minimum required cut-off voltage (-Vgl) during flyback is 120V at Vy	6000 V	The minimum required cut-off voltage (-Vgl) during flyback is 120V at Vy=6000V,
Vg2	190 V	Vg2 =190 V and Zgl =1 k Ω at line frequency.
Anode voltage Va, max	550 V	Anode voltage Va, max. 550 V
Cathode to heater voltage Vkf max	200 V	Cathode to heater voltage Vkf max. 200 V
Grid No. 1 resistor Rgy max	0.5 MΩ	Grid No. 1 resistor Rgy max. 0.5 M Ω
During the heating-up of the cathode Wg, = max	6 W	2) During the heating-up of the cathode Wg, = max. 6 W.

TUBE TINKER

An independent reference for electronic tubes, vacuum tubes, and their source documents.

[Catalog](#) [Tube types](#) [Full books](#) [Blog](#) [Feedback & corrections](#)

© 2026 Tube Tinker