



ELECTRONIC TUBE REFERENCE

EF86

Voltage - Pentode electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

PENTODE

Classic low-noise, low-microphony pentode for microphone, phono, and high-quality audio preamplifier voltage amplification.

GENERAL CHARACTERISTICS

BASE DESIGNATION	NOVAL	BASE PINS	9
NOMINAL HEATER	6.3 V / 200 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Pentode	
PLATE RESISTANCE	2500000 Ω
TRANSCONDUCTANCE	0.002 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	200 V
MAXIMUM PLATE DISSIPATION	1 W
MAXIMUM SCREEN DISSIPATION	0.2 W
MAXIMUM CATHODE CURRENT	6 mA
<i>Promoted ratings and characteristics are taken from the printed target-tube entry in the approved PDF.</i>	

Low-noise pentode for audio-frequency voltage amplification and high-quality preamplifier 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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	6.3 V	Nominal
HeaterCurrentNominal	200 mA	Nominal
Maximum Plate Voltage	300 V	—
Maximum Screen Voltage	300 V	—
Maximum Plate Dissipation	1 W	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	2200 μ S	Typical



SOURCE OPERATING CONDITIONS

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1956 Amperex Hi Fi Brochure

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1956 AMPEREX HI FI BROCHURE

Section 1 · Pentode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	250 V	—
Screen Voltage	140 V	—
Plate Current	3 mA	—
Screen Current	0.6 mA	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Control Grid Voltage	-2 V	—
Transconductance	2000 μ S	—
Equivalent Input Noise Voltage	2 μ V	Bandwidth=25-10000Hz

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Grid Resistance	3000000 ohm	PlateDissipation>0.2W


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1958 Amperex Industrial

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1958 AMPEREX INDUSTRIAL

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	VoltageAmplifier
Screen voltage	140 V	VoltageAmplifier
Grid voltage	-2 V	VoltageAmplifier
Plate current	3 mA	VoltageAmplifier
Screen current	0.6 mA	VoltageAmplifier

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	2500000 ohm	—
Transconductance	2000 μ S	—


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	6.3 V	Nominal
HeaterCurrentNominal	200 mA	Nominal
Maximum Plate Voltage	300 V	—
Maximum Screen Voltage	300 V	—
Maximum Plate Dissipation	1 W	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	2200 μS	Typical



SOURCE DATA APPENDIX

1961 Ferranti Technical Handbook

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1961 FERRANTI TECHNICAL HANDBOOK

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	200 mA	—
NoiseVoltageTypical	3 uV	AudioAmplifier
Application	Tape recorder and microphone preamplifier	LowNoise



SOURCE OPERATING CONDITIONS

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1963 Amperex Condensed

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1963 AMPEREX CONDENSED

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	AudioPreamplifier
Screen voltage	140 V	AudioPreamplifier
Control-grid voltage	-2 V	AudioPreamplifier
Plate current	3 mA	AudioPreamplifier
Screen current	0.6 mA	AudioPreamplifier

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	2.5 MΩ	Section1
Transconductance	2000 μS	Section1



SOURCE OPERATING CONDITIONS

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1963 Philips Electron Tubes Handbook V1a

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1963 PHILIPS ELECTRON TUBES HANDBOOK V1A

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published heater rating

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater current	200 mA	Published heater rating
Transconductance	2000 μ S	AFAmplifier
Plate resistance	2500000 ohm	AFAmplifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	AFAmplifier
Screen voltage	140 V	AFAmplifier
Plate current	3 mA	AFAmplifier



SOURCE OPERATING CONDITIONS

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1967 Mullard Receiving and Amplifying Valves

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

1967 MULLARD RECEIVING AND AMPLIFYING VALVES

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
III	200 mA	Published in approved EF86 target datasheet entry; Section1
j: V""' measured w i t h Vi" =	100 mV	Published in approved EF86 target datasheet entry; Section1
P. z max	200 mW	Published in approved EF86 target datasheet entry; Section1
I k max	6 mA	Published in approved EF86 target datasheet entry; Section1
R. 1 - k max. (p"	200 mW	Published in approved EF86 target datasheet entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
(o ut	5.1 pF	Published in approved EF86 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
C ~l - h <	0.0025 pF	Published in approved EF86 target datasheet entry; Section1



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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	6.3 V	Nominal
HeaterCurrentNominal	200 mA	Nominal
Maximum Plate Voltage	300 V	—
Maximum Screen Voltage	300 V	—
Maximum Plate Dissipation	1 W	—
Maximum Screen Dissipation	0.4 W	—
Maximum Cathode Current	10 mA	—



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SOURCE OPERATING CONDITIONS

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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	6.3 V	Nominal
HeaterCurrentNominal	200 mA	Nominal

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Plate Voltage	300 V	—
Maximum Screen Voltage	300 V	—
Maximum Plate Dissipation	1 W	—
Maximum Screen Dissipation	0.2 W	—
Maximum Cathode Current	10 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	2200 μ S	Typical


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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage Vh	6.3 V	—
Heater Current Ih	200 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
pa >	200 mW	—
Pa <	200 mW	—
Input Cin	38 pF	—
Output Cout	5.1 pF	—
Anode to Grid 1 Ca.gi <	5 pF	—


SOURCE DATA APPENDIX

1981 Russian Tubes Katsnelson and Larionov

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

1981 RUSSIAN TUBES KATSNELSON AND LARIONOV

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published nominal/basic-parameter heater condition.
Heater current	200 mA	Published heater current.
Plate current	3 mA	Published basic-parameter operating point.
Screen current	0.6 mA	Published basic-parameter operating point.
Transconductance	2000 μ S	Published basic-parameter value; normalized to μ S.
Plate resistance	2500000 Ω	Published internal/plate resistance.
Amplification factor	38	Published amplification factor.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	300 V	Published limiting operating value.



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
Heater voltage	6.3 V	Heating
Heater current	200 mA	Heating

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	300 V	Promoted published datasheet value
Maximum screen voltage	300 V	Promoted published datasheet value

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	2500000 Ω	Promoted published datasheet value
Transconductance	2200 μS	Promoted published datasheet value
Amplification factor	38	Promoted published datasheet value



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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199X Svetlana

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

199X SVETLANA

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Current (typical)	200 mA	SourcePage1-2
Cathode-to-heater potential $\pm$	100 V	SourcePage1-2

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC plate voltage Vp	300 V	SourcePage1-2
Screen grid voltage Vg2	200 V	SourcePage1-2
Plate dissipation	1 W	SourcePage1-2
Screen grid dissipation	0.2 W	SourcePage1-2
Cathode current	6 mA	SourcePage1-2
DC plate Voltage 250	250 V	TypicalOperation



SOURCE DATA APPENDIX

2026 Electro Harmonix

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

2026 ELECTRO HARMONIX
Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input Capacitance	4 pF	—
Output Capacitance	5.5 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
TransferCapacitance	0.05 pF	—

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