



ELECTRONIC TUBE REFERENCE

EF98

Voltage - Pentode or Tetrode (under 100V) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

PENTODE

Low-voltage pentode for oscillator, RF/IF amplifier, mixer, and transistor-driver service directly from 6-24 V supplies. Its broad low-voltage amplifier role outweighs any single radio-converter application.

GENERAL CHARACTERISTICS

BASE DESIGNATION	MINIATURE	BASE PINS	7
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	90000 Ω
TRANSCONDUCTANCE	0.0021 S
MAXIMUM PLATE VOLTAGE	50 V
MAXIMUM SCREEN VOLTAGE	50 V
MAXIMUM PLATE DISSIPATION	0.5 W
MAXIMUM SCREEN DISSIPATION	0.5 W
MAXIMUM CATHODE CURRENT	15 mA
<i>Promoted ratings and characteristics are taken from the printed target-tube entry in the approved PDF.</i>	

Low-voltage pentode for oscillator, RF or IF amplifier, mixer, or transistor-driver service from 6 V, 12 V, or 24 V batteries.



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	300 mA	Nominal
Maximum Plate Voltage	250 V	—
Maximum Screen Voltage	250 V	—
Maximum Plate Dissipation	2.5 W	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	5000 μ S	Typical



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1963 Philips Electron Tubes Handbook V1a

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

1963 PHILIPS ELECTRON TUBES HANDBOOK V1A

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published heater rating
Heater current	200 mA	Published heater rating

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	2100 μ S	IFAmplifier
Plate resistance	90000 ohm	IFAmplifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	25 V	IFAmplifier
Screen voltage	6.3 V	IFAmplifier
Grid bias	-0.75 V	IFAmplifier
Plate current	2.2 mA	IFAmplifier
Screen current	0.6 mA	IFAmplifier
AF-driver power output	30 mW	AFDriver


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1967 Mullard Receiving Tubes for Maintenance

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

1967 MULLARD RECEIVING TUBES FOR MAINTENANCE

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	12.6 V	—
Screen-grid voltage	6.3 V	—
Plate current	2 mA	—
Screen-grid current	0.7 mA	—
Transconductance	2 mA/V	—
Plate resistance	200 kOhm	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	12.6 V	TransistorDriver TetrodeConnection

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Power output	11 mW	TransistorDriver TetrodeConnection
Conversion conductance	675 $\mu\text{A/V}$	RFMixer 12.6V
Maximum plate voltage	50 V	—
Maximum plate dissipation	0.5 W	—
Maximum screen-grid voltage	50 V	—
Maximum screen-grid dissipation	0.5 W	—
Maximum cathode current	15 mA	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input capacitance	6.7 pF	—
Output capacitance	4 pF	—



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1981 Russian Tubes Katsnelson and Larionov

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

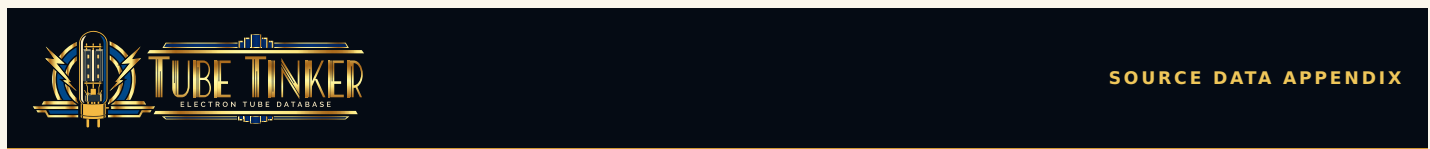
1981 RUSSIAN TUBES KATSNELSON AND LARIONOV

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published nominal/basic-parameter heater condition.
Heater current	300 mA	Published heater current.
Plate current	1.85 mA	Published basic-parameter operating point.
Screen current	0.55 mA	Published basic-parameter operating point.
Transconductance	2000 μS	Published basic-parameter value; normalized to μS .
Plate resistance	200000 Ω	Published internal/plate resistance.
Amplification factor	4.3	Published amplification factor.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input capacitance	6.7 pF	Published in the filename-designated tube entry.
Output capacitance	4 pF	Published in the filename-designated tube entry.
Grid-to-plate capacitance	0.015 pF	Published in the filename-designated tube entry.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	30 V	Published limiting operating value.
Maximum screen voltage	30 V	Published limiting operating value.
Maximum cathode current	15 mA	Published limiting cathode-current value.
Maximum plate dissipation	0.5 W	Published limiting plate-dissipation value.
Maximum screen dissipation	0.5 W	Published limiting screen-dissipation value.



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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Heating
Heater current	300 mA	Heating
Maximum plate dissipation	0.5 W	Promoted published datasheet value
Maximum screen dissipation	0.5 W	Promoted published datasheet value
V _g = max	50 V	Limiting values
V _{ep} =max	50 V	Limiting values
V _{g2} =max	0.5 W	Limiting values

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	90000 Ω	Promoted published datasheet value
Transconductance	2100 μS	Promoted published datasheet value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
ries supply $V_e =$	6.3 V	Published datasheet value
parallele ou série $I_r =$	300 mA	Published datasheet value
$V_{g2} = 6,3 \text{ } 6.3$	32 v	Published datasheet value
$V_{gi \text{ } 1) = -0,75 \text{ } 0,75$	-0.8 V	Published datasheet value
$I_a = 2,2 \text{ } 2$	0.6 mA	Published datasheet value
$I_{g2} = 0,6 \text{ } 0,7$	0.2 mA	Published datasheet value
$R_i = 90 \text{ } 200$	100 kΩ	Published datasheet value
$V_{g2} = 12,6 \text{ } 12,6 \text{ } 14 \text{ } 6,3$	7 V	Published datasheet value
$V_{g3} = 25 \text{ } 12,6 \text{ } 14 \text{ } 6,3$	7 V	Published datasheet value
$V_{g1 \text{ } 1) = -2 \text{ } -2,3 \text{ } -2,4 \text{ } "1,2$	-1.3 V	Published datasheet value
$Ta+I_{g3} = 3 \text{ } 2,1 \text{ } 2,5 \text{ } 1,1$	1.2 mA	Published datasheet value

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
$C_a =$	4 pF	Capacitances
$C_{g1} =$	6.7 pF	Capacitances
$C_{agi} =$	0.015 pF	Capacitances
$C_{gige} =$	3 pF	Capacitances

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