



ELECTRONIC TUBE REFERENCE

EF89

Voltage Pentode - Remote Cutoff (single) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

PENTODE

Variable-mu pentode for gain-controlled RF and intermediate-frequency amplification with substantial signal capability.

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	1000000 Ω
TRANSCONDUCTANCE	0.0036 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	4.25 W
MAXIMUM SCREEN DISSIPATION	0.45 W
MAXIMUM CATHODE CURRENT	16.5 mA
Promoted ratings and characteristics are taken from the printed target-tube entry in the approved PDF.	

Variable-mu pentode for radio-frequency and intermediate-frequency amplification.



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	2.5 W	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	4500 μ S	Typical



SOURCE OPERATING CONDITIONS

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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

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	200 mA	—
EquivalentType	6DA6	—



SOURCE OPERATING CONDITIONS

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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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	200 mA	—
CutoffCharacteristic	Variable mu	—



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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	RFIFAmplifier
Screen voltage	100 V	RFIFAmplifier
Control-grid voltage	-1.95 V	RFIFAmplifier
Plate current	9 mA	RFIFAmplifier
Screen current	3 mA	RFIFAmplifier
Application	High-gain remote-cutoff RF/IF pentode	Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	900000 Ω	Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	5000 μ S	Section1



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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
Transconductance	900 μ S	RForIFAmplifier
Cutoff grid bias	-20 V	RemoteCutoff

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	RForIFAmplifier
Screen voltage	100 V	RForIFAmplifier
Plate current	9 mA	RForIFAmplifier
Screen current	3 mA	RForIFAmplifier



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1967 Mullard Receiving Tubes for Maintenance

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1967 MULLARD RECEIVING TUBES FOR MAINTENANCE

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	RForIFAmplifier
Screen-grid voltage	100 V	RForIFAmplifier
Plate current	10 mA	RForIFAmplifier
Screen-grid current	4 mA	RForIFAmplifier
Transconductance	4.2 mA/V	RForIFAmplifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	300 V	—
Maximum plate dissipation	2.25 W	—
Maximum screen-grid voltage	300 V	—
Maximum screen-grid dissipation	0.45 W	—
Maximum cathode current	16.5 mA	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input capacitance	5.5 pF	—
Output capacitance	5.1 pF	—
Anode-control-grid capacitance	0.002 pF	Maximum



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1968 Mazda Belvu

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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	2.25 W	—
Maximum Screen Dissipation	0.5 W	—
Maximum Cathode Current	15 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	4500 μ S	Typical
Plate Resistance	1000000 ohm	Typical



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
Maximum Plate Voltage	300 V	—
Maximum Screen Voltage	300 V	—
Maximum Plate Dissipation	2.25 W	—
Maximum Screen Dissipation	0.45 W	—
Maximum Cathode Current	15 mA	—

Characteristic		
Parameter	Published Value	Condition / Note
Transconductance	4500 μS	Typical
Plate Resistance	1000000 ohm	Typical



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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	9 mA	Published basic-parameter operating point.
Screen current	3 mA	Published basic-parameter operating point.
Transconductance	3600 μS	Published basic-parameter value; normalized to μS .
Plate resistance	1000000 Ω	Published internal/plate resistance.
Amplification factor	19	Published amplification factor.
Input capacitance	5.5 pF	Published in the filename-designated tube entry.
Output capacitance	5.1 pF	Published in the filename-designated tube entry.
Grid-to-plate capacitance	0.003 pF	Published in the filename-designated tube entry.

Other		
Parameter	Published Value	Condition / Note
Maximum plate voltage	300 V	Published limiting operating value.
Maximum screen voltage	300 V	Published limiting operating value.
Maximum cathode current	16.5 mA	Published limiting cathode-current value.
Maximum plate dissipation	4.25 W	Published limiting plate-dissipation value.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum screen dissipation	0.45 W	Published limiting screen-dissipation value.



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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Heating
Heater current	200 mA	Heating
Maximum plate voltage	300 V	Promoted published datasheet value
Maximum screen voltage	300 V	Promoted published datasheet value
V _a , = max	550 V	Limiting values
V _a = max	300 V	Limiting values
V _{g0} , = max	550 V	Limiting values
V _{g2} = max	300 V	Limiting values
I _x = max	16.5 mA	Limiting values
V _{ir} = maX	100 V	Limiting values

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	4700 μS	Promoted published datasheet value
apazi tdten Cgi= 5,5 p :glf =	0.05 pF	Published datasheet value
V _{g2} = 100 85	100 V	Published datasheet value
I _a = 9 9	12 mA	Published datasheet value
I _{gz} = 3 3,2	4.4 mA	Published datasheet value
V _a =V _p = 250	200 v	Published datasheet value
V _{gl} = 0	0 v	Published datasheet value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published electrical value	0.16 mA/V	Published datasheet value
$S = 4,7 \ 0,22 \ 5,15$	0.15 mA/V	Published datasheet value
$V_p =$	200 V	Published datasheet value
$V_o = 200$	-250 V	Published datasheet value
$V_o =$	250 V	Published datasheet value
$g \ V_p =$	250 V	Published datasheet value
$N \ V_b =$	200 V	Published datasheet value