



ELECTRONIC TUBE REFERENCE

UF89

Voltage - Pentode Remote Cutoff (single) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

PENTODE

Variable-mu or remote-cutoff pentode designed for RF, IF, broadband, or AVC-controlled receiver amplification.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	9
NOMINAL HEATER	12.6 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	400000 Ω
TRANSCONDUCTANCE	0.0044 S
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM SCREEN VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	2.25 W
MAXIMUM SCREEN DISSIPATION	0.45 W
MAXIMUM CATHODE CURRENT	16.5 mA
<i>Published maximum ratings and typical characteristics promoted from the approved source.</i>	

Variable-mu voltage pentode for radio-frequency or intermediate-frequency amplification. The supplied French datasheet was translated to English for descriptive output.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	170 V	—
Plate Current	12 mA	—
Screen Voltage	100 V	—
Screen Current	4.4 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	4400 μ S	—
Plate Resistance	400000 ohm	—



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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cutoff characteristic	Variable- μ	—

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	RF / IF amplifier	—



SOURCE DATA APPENDIX

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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

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode capacitance	5.1 pF	—
Control-grid capacitance	5.5 pF	—
Anode-to-control-grid capacitance	—0.002 pF	Maximum
Control-grid-to-heater capacitance	0.05 pF	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	170 V	Typical
Screen voltage	100 V	Typical
Grid voltage	-1.2 V	Typical
Plate current	12 mA	Typical
Screen current	4.4 mA	Typical
Transconductance	4400 uS	Typical
Plate resistance	0.4 MOhm	Typical
Amplification factor grid2-grid1	21	Typical
Transconductance	3850 uS	RF/IF amplifier; PlateVoltage=200V
Plate resistance	0.55 MOhm	RF/IF amplifier; PlateVoltage=200V

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	200 V	RF/IF amplifier
Plate current	11.1 mA	RF/IF amplifier; PlateVoltage=200V
Screen current	3.8 mA	RF/IF amplifier; PlateVoltage=200V



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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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Vg Z	110 V	CHARACTERISTICS
gm	3.8 mA	CHARACTERISTICS
negati ve bias should be increased to	-2	CHARACTERISTICS
Vg3	0 a	CHARACTERISTICS
gm	3.85 V	CHARACTERISTICS
gm (Vg , =	160 V	CHARACTERISTICS
acce pta ble the negati ve grid bias should be increased to	-2	CHARACTERISTICS
UF8	9	CHARACTERISTICS

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
V a (b) max	550 V	LIMITING VALUES
V a max	250 V	LIMITING VALUES
Vg	550 V	LIMITING VALUES
Vg	250 V	LIMITING VALUES

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
*W it h gr id current biasing Rg1_ k max.=	22 W	LIMITING VALUES
VAR IABLE-MU R.F. PENTODE UF8	9	LIMITING VALUES
Vg1eV)	0	LIMITING VALUES
UF8	9	LIMITING VALUES
2982 UF89 gm	9	LIMITING VALUES
Vg l(V)	0 V	LIMITING VALUES
VARIABLE·MU R.F. PENTODE UF8	9	LIMITING VALUES
VARIABLE-MU R.F. PENTODE UF8	9	LIMITING VALUES



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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
Tension filament eerenenenennnnnnnnnnnnnnnnnnnnnnnnnnnnnn "Vf	12.6 V	—
Tension d'anode c	250 V	—
Tension de grille n°2	250 V	—
Tension entre filament et Cathod@ ... s rasrenmercuse Vfk	150 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
s00 If	100 mA	—
Tension d'alimentation.....e YN 100	100 v	—
Tension d'anode Va 100	100 v	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Tension de grille n° 3 V8; 0	0 v	—
Résistance de grille n° 2 Rg 15	0 kΩ	—
Résistance de cathode ...s Rk 130	160 Ω	—
Tension de grille n° 1 s Vg, -1{ -10 -1,9;	-10 V	—
Pent@ crrrrereerennennannnnnnnnnn Ss 3,2 0,15 3,3	0.16 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	12.6 V	Nominal
HeaterCurrentNominal	100 mA	Nominal
Maximum Plate Voltage	250 V	—
Maximum Screen Voltage	250 V	—
Maximum Plate Dissipation	2.25 W	—
Maximum Screen Dissipation	0.45 W	—
Maximum Cathode Current	16.5 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	4400 μS	Typical
Amplification Factor	21	Typical
Plate Resistance	400000 ohm	Typical

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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode current I_a 12 mA	12 A	Anode current I_a 12 mA
Transconductance S 4.4 mA/V	4.4 a	Transconductance S 4.4 mA/V
Amplification factor H_{gog} 21	21 A	Amplification factor H_{gog} 21
Internal resistance R_i 400 k Ω	400 a	Internal resistance R_i 400 k Ω
Heater current I_f 100 mA	100 a	Heater current I_f 100 mA
Heater voltage V_s 12.6 V	12.6 a	Heater voltage V_s 12.6 V
Anode to all except grid No.1 $C_{a(gl)}$ 5.1 pF	5.1 A	Anode to all except grid No.1 $C_{a(gl)}$ 5.1 pF
Grid No.1 to all except anode $C_{gl(a)}$ 5.5 pF	5.5 a	Grid No.1 to all except anode $C_{gl(a)}$ 5.5 pF
Grid No.1 to heater C_{glf} 0.05 pF	0.05 a	Grid No.1 to heater C_{glf} 0.05 pF
Anode voltage V_a 170 Vv	170 A	Anode voltage V_a 170 Vv
Grid No.2 voltage V_{g2} 100 V	2 v	Grid No.2 voltage V_{g2} 100 V
Grid No.3 voltage V_{g3} 0 v	3 v	Grid No.3 voltage V_{g3} 0 v
Anode current I_y 12 mA	12 A	Anode current I_y 12 mA
Grid No.1 voltage V_{g1} -1.2 v $_l$	1 v	Grid No.1 voltage V_{g1} -1.2 v $_l$
Grid No.2 current I_{g2} 4.4 mA	4.4 mA	Grid No.2 current I_{g2} 4.4 mA
Internal resistance R_{-1} 0.4 M Ω	0.4 a	Internal resistance R_{-1} 0.4 M Ω
Amplification factor “ g_{Zgl} ” 21	21 A	Amplification factor “ g_{Zgl} ” 21

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode voltage, supply voltage V_g	170 A	Anode voltage, supply voltage $V_g = V_p$ 200 170 v
Grid No.3 voltage V_{g3} 0 0 v	3 v	Grid No.3 voltage V_{g3} 0 0 v
Grid No.2 resistor R_{gZ} 24 15 k2	2 s	Grid No.2 resistor R_{gZ} 24 15 k2
Cathode resistor R_y 130 130 Q	130 a	Cathode resistor R_y 130 130 Q
Grid No.1 voltage V_{g1} -1.95 -20 -1.95	1 v	Grid No.1 voltage V_{g1} -1.95 -20 -1.95 =20 V
Anode current I_q 11.1 - 11.0 - mA	11 A	Anode current I_q 11.1 - 11.0 - mA
Grid No.2 current I_{g2} 3.8 - 3.9 - mA	3.9 mA	Grid No.2 current I_{g2} 3.8 - 3.9 - mA
Transconductance S 3.85 0.16 3.8 0.11 mA/V	0.11 a	Transconductance S 3.85 0.16 3.8 0.11 mA/V
Internal resistance R_j 550 - 450 - k@	450 a	Internal resistance R_j 550 - 450 - k@
Equivalent noise resistance R_{eq} 4.2 - 4.5 - kR	4.5 v	Equivalent noise resistance R_{eq} 4.2 - 4.5 - kR
negative grid bias should be increased to a value of 1.5 V at least	1.5 a	negative grid bias should be increased to a value of 1.5 V at least.
Anode voltage, supply voltage V_a	100 A	Anode voltage, supply voltage $V_a = V_y$ 100 100 v
Grid No.2 resistor R_g , 15 0 kQ	2 s	Grid No.2 resistor R_g , 15 0 kQ
Cathode resistor $R_{k\sim}$ 130 160 Q	160 a	Cathode resistor $R_{k\sim}$ 130 160 Q
Grid No.1 voltage V_{g1} -1.05 -10 -1.9~ -10 A%	10 v	Grid No.1 voltage V_{g1} -1.05 -10 -1.9~ -10 A%

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode to grid No.1 C_{g1} max. 0.002 pF	2 mA	Anode to grid No.1 C_{g1} max. 0.002 pF

TUBE TINKER

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

