



ELECTRONIC TUBE REFERENCE

EBF80

Voltage - Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA

3 SECTIONS

CONSTRUCTION

DIODE-DIODE-PENTODE

Double-diode variable-mu pentode for RF/IF amplification, detection, and automatic-volume-control service. The pentode provides controlled gain while paired diodes handle detector and AVC rectification.

GENERAL CHARACTERISTICS

BASE DESIGNATION	NOVAL	BASE PINS	9
NOMINAL HEATER	6.3 V / 300 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Common cathode	SECTION CONSTRUCTION	Dissimilar

SECTION RATINGS

SECTION1 Pentode	
PLATE RESISTANCE	1400000 Ω
TRANSCONDUCTANCE	0.0022 S
AMPLIFICATION FACTOR	18
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	0.3 W
MAXIMUM CATHODE CURRENT	10 mA
<i>Published ratings/characteristics promoted where clearly stated; repeated identical sections compressed where applicable.</i>	

SECTION2 Diode	
MAXIMUM CATHODE CURRENT	0.8 mA
PEAK INVERSE VOLTAGE	350 V
NOMINAL OUTPUT CURRENT	0.8 mA
PEAK FORWARD CURRENT	5 mA
MAXIMUM HEATER-CATHODE VOLTAGE	100 V
<i>Source-published values promoted where directly stated; additional values retained in parameter table.</i>	

SECTION3 Diode	
MAXIMUM CATHODE CURRENT	0.8 mA
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Dual-diode pentode for detection and RF or IF amplification; source also designates 6N8.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1951 Mullard Valve and Service Manual

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

1951 MULLARD VALVE AND SERVICE MANUAL

Section 2 · Diode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	300 mA	—



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1953 RFT Rundfunk Technik

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

1953 RFT RUNDFUNK TECHNIK

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	6.3 V	Nominal
HeaterCurrentNominal	300 mA	Nominal
Maximum Plate Voltage	300 V	—
Maximum Screen Voltage	300 V	—
Maximum Plate Dissipation	1.5 W	—
Maximum Screen Dissipation	0.3 W	—

1953 RFT RUNDFUNK TECHNIK

Section 2 · Diode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published nominal value
Heater current	300 mA	Published nominal value
Transconductance	2200 μ S	Published operating characteristic

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate dissipation	1.7 W	Published maximum rating



SOURCE DATA APPENDIX

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

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	VariableMuPentode	—

1958 BRIMAR RADIO VALVE NO 7

Section 2 · Diode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	300 mA	—



SOURCE DATA APPENDIX

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-mu	—

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

1961 FERRANTI TECHNICAL HANDBOOK

Section 2 · Diode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Detector / AVC	—



SOURCE DATA APPENDIX

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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	RFIFAmplifier
Screen voltage	85 V	RFIFAmplifier
Control-grid voltage	-2 V	RFIFAmplifier
Plate current	5 mA	RFIFAmplifier

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Screen current	1.75 mA	RFIFAmplifier

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	2200 μ S	Section1
Plate resistance	1400000 Ω	Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate capacitance	5.2 pF	Section1
Grid capacitance	4.2 pF	Section1
Grid-to-plate capacitance maximum	0.0025 pF	Section1

1963 PHILIPS ELECTRON TUBES HANDBOOK V1A

Section 2 · Diode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Diode capacitance	2.2 pF	Diode1

1963 PHILIPS ELECTRON TUBES HANDBOOK V1A

Section 3 · Diode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Diode capacitance	2.35 pF	Diode2



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Vg2 max. (Ia =	5 mA	Published in approved EBF80.pdf target datasheet; Section1
Ik max	10 mA	Published in approved EBF80.pdf target datasheet; Section1
I' d max	0.8 mA	Published in approved EBF80.pdf target datasheet; Section1
iadlPk) max	5 mA	Published in approved EBF80.pdf target datasheet; Section1
input voltage , 'lIn, is not less than	25 mV	Published in approved EBF80.pdf target datasheet; Section1
input voltage , 'lIn, is not less than 25 mV for an output of	50 mW	Published in approved EBF80.pdf target datasheet; Section1

1967 MULLARD RECEIVING TUBES FOR MAINTENANCE

Section 2 · Diode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Vg2 max. (Ia =	5 mA	Published in approved EBF80.pdf target datasheet; Section2
Ik max	10 mA	Published in approved EBF80.pdf target datasheet; Section2
I' d max	0.8 mA	Published in approved EBF80.pdf target datasheet; Section2
iadlPk) max	5 mA	Published in approved EBF80.pdf target datasheet; Section2
input voltage , 'lIn, is not less than	25 mV	Published in approved EBF80.pdf target datasheet; Section2
input voltage , 'lIn, is not less than 25 mV for an output of	50 mW	Published in approved EBF80.pdf target datasheet; Section2



SOURCE DATA APPENDIX

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

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	RF_IF_Amplifier text	—

1968 MAZDA BELVU

Section 2 · Diode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Detector text	—



SOURCE DATA APPENDIX

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
Anode current Ia	5 mA	—
Transconductance S	2.2 mA/V	—
Heater voltage Ve	6.3 V	—
Heater current If	300 mA	—
Anode voltage Vao max	—550 V	Maximum
Va max	—300 V	Maximum
Anode dissipation W, max	—1.5 W	Maximum
Grid No.2 voltage Vg20 max	—550 V	Maximum

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
at anode current $I_3 = \text{max}$	—2.5 mA	Maximum
at anode current $I_a =$	—5 mA	Maximum
Grid No.2 dissipation $W_{gz} \text{ max}$	—0.3 W	Maximum
Cathode current $I_x \text{ max}$	—10 mA	Maximum
Grid resistor, automatic bias $R_{gl} \text{ max}$	—3 M Ω	Maximum
Grid resistor, grid current bias $R_{gl} \text{ max}$	—22 M Ω	Maximum
Cathode to heater voltage $V_s \text{ max}$	—100 V	Maximum
input voltage is min. 25 mV for an output of	50— mW	Minimum

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode to all except grid No.1 $C_{a(gl)}$	4.9 pF	—
Grid No.1 to all except anode $C_{gl(a)}$	4.2 pF	—
Anode to grid No.1 $C_{agl} \text{ max}$	—0.0025 pF	Maximum
Grid No.1 to heater $C_{glf} \text{ max}$	—0.07 pF	Maximum
Diode No.1 to grid No.1 $C_{dlgl} \text{ max}$	—0.0008 pF	Maximum
Diode No.2 to grid No.1 $C_{dzdl} \text{ max}$	—0.001 pF	Maximum
Diode No.1 to anode $C_{d;a} \text{ max}$	—0.2 pF	Maximum
Diode No.2 to anode $C_{dza} \text{ max}$	—0.05 pF	Maximum

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply voltage V_b	250 A	—
Grid No.3 voltage V_{g3}	0 v	—
Grid No.2 resistor R_{g2}	95 k Ω	—
Grid No.1 voltage V_{g-2}	-41.5 V	—
Internal resistance $R_y \text{ 1.4 min}$	10— M Ω	Minimum

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply voltage Vb 250 250 250	250 V	—
Grid No.2 resistor Rg2 0.82 0.39 1.0	0.47 MΩ	—
Grid No.1 resistor Rg1 1 1 10	10 MΩ	—
Grid No.1 resistor next stage Rg' 0.68 0.33 0.68	0.33 MΩ	—
Anode current Ia 0.75 1.5 0.75	1.5 mA	—
Grid No.2 current Ig2 0.30 0.53 0.25	0.5 mA	—
at output voltage Vo =	3 VRMS	—
at output voltage Vo =	5 VRMS	—
Supply voltage Vb 250 250 250	250 V	—
Anode resistor R, 0.1 0.047 0.1	0.047 MΩ	—
Grid No.1 resistor Rg1 1 1 10	10 MΩ	—
Grid No.1 resistor next stage Rg! 0.33 0.15 0.33	0.15 MΩ	—
Anode current I, 2.08 4.10 2.16	4.5 mA	—
at output voltage V, =	3 VRMS	—
at output voltage Vo =	5 VRMS	—
at output voltage V, =	8 VRMS	—

1972 PHILIPS RECEIVING TUBES

Section 2 · Diode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Diode No.1 to all Cd1	2.2 pF	—
Diode No.2 to all Cd2	2.35 pF	—
Diode No.1 to diode No.2 Cd1d2 max	—0.35 pF	Maximum
Diode No.1 to heater Cd1f max	—0.02 pF	Maximum

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Diode No.2 to heater Cd2f max	—0.005 pF	Maximum

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Diode No.1 voltage, negative peak -Vdp max	—350 V	Maximum
Diode No.2 voltage, negative peak -Vdp max	—350 V	Maximum
Diode No.1 current Id1 max	—0.8 mA	Maximum
Diode No.2 current Id2 max	—0.8 mA	Maximum
Diode No.1 current, peak Idlp max	—5 mA	Maximum
Diode No.2 current, peak IdZp max	—5 mA	Maximum
Cathode to heater voltage Vkf max	—100 V	Maximum



SOURCE DATA APPENDIX

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
HeaterVoltageNominal	6.3 V	Nominal
HeaterCurrentNominal	300 mA	Nominal
Maximum Plate Voltage	300 V	—
Maximum Screen Voltage	300 V	—
Maximum Plate Dissipation	1.5 W	—
Maximum Screen Dissipation	0.3 W	—
Maximum Cathode Current	10 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	2200 μ S	Typical
Amplification Factor	18	Typical
Plate Resistance	1500000 ohm	Typical

1973 MAZDA VALVES BINDER 2

Section 2 · Diode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	6.3 V	Nominal
HeaterCurrentNominal	300 mA	Nominal
Maximum Cathode Current	0.8 mA	—

1973 MAZDA VALVES BINDER 2

Section 3 · Diode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	6.3 V	Nominal
HeaterCurrentNominal	300 mA	Nominal
Maximum Cathode Current	0.8 mA	—



SOURCE DATA APPENDIX

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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	—
Heater current	300 mA	—
Typical plate voltage	250 V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	2200 μ S	—
Plate resistance	1.4 Mohm	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	300 V	—
Maximum plate dissipation	1.5 W	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate output capacitance	4.9 pF	—
Grid input capacitance	4.2 pF	—
Plate-grid capacitance maximum	0.0025 pF	—

1999 PHILIPS E-Z

Section 2 · Diode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum diode current	0.8 mA	—
Maximum diode peak current	5 mA	—

TUBE TINKER

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and their source documents.

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