

ELECTRONIC TUBE REFERENCE

ECF80

Voltage - Triode Pentode electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

PENTODE-TRIODE

Triode-pentode combination for receiver and amplifier service; available source material does not establish a narrower functional role confidently.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9C12	BASE PINS	9
NOMINAL HEATER	6.3 V / 430 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

SECTION RATINGS

SECTION1 Pentode	
PLATE RESISTANCE	4000000 Ω
TRANSCONDUCTANCE	0.0065 S
AMPLIFICATION FACTOR	47
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM SCREEN VOLTAGE	175 V
MAXIMUM PLATE DISSIPATION	1.7 W
MAXIMUM SCREEN DISSIPATION	0.5 W
MAXIMUM CATHODE CURRENT	14 mA
Pentode section; values semantically promoted from published characteristics/maximum-ratings tables where present.	

SECTION2 Triode	
PLATE RESISTANCE	4000 Ω
TRANSCONDUCTANCE	0.005 S
AMPLIFICATION FACTOR	50
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	1.5 W
MAXIMUM CATHODE CURRENT	14 mA
<i>Triode section; values semantically promoted from published characteristics/maximum-ratings tables where present.</i>	

Triode-pentode for VHF oscillator and frequency-converter 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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Indirect (cathodes isolees du filament)	63 V	Pentode
Alimentatlon du filament en parallele. { F	145 A	Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Tension de l'anode	170 V	Pentode
Tension de la grille 2	170 V	Pentode
Tension de la grille 1	-2 V	Pentode
Courant anodique	10 mA	Pentode
Courant de la grille 2	28 mA	Pentode
Resistance interne	4 Mohm	Pentode
Capacite de la grille 1	55 pF	Pentode
Capacite de l'anode	38 pF	Pentode
Capacite anode-grille 1	0.025 pF	Pentode
Resistance du circuit de la grille 1 Rg	0.1 Mohm	Pentode
Resistance de polarisation	820 ohm	Pentode
Tension eff. d'oscillation (grille 1). V osc	3.5 V	Pentode
Courant anodique	5.2 mA	Pentode
Courant de la grille 2	1.5 mA	Pentode
Pente de conversion	2.1 mA/V	Pentode

1953 LA RADIOTECHNIQUE

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Tension de l'anode	100 V	Triode
Tension de la grille	2 V	Triode
Courant anodique	14 mA	Triode
Resistance interne	4 kohm	Triode
Pente	5 mA/V	Triode
82140 %Ë ZZkQËË	82140 %	Triode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Capacite de la grille	25 pF	Triode
Capacite anode-grille	1.5 pF	Triode
Capacite anode pentode-anode triode	0.07 pF	Triode
Capacite anode pentode-grille triode	2 pF	Triode
Capacite grille 1 pentode-anode triode	0.16 pF	Triode



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

SOURCE PDF

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
MaximumFrequencyChangerFrequency	220 MHz	Television

1961 FERRANTI TECHNICAL HANDBOOK

Section 2 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	430 mA	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1963 Amperex Condensed

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

1963 AMPEREX CONDENSED

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Mixer plate voltage	100 V	PentodeSection Mixer
Mixer plate current	14 mA	PentodeSection Mixer

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Mixer amplification factor	20	PentodeSection Mixer
Mixer plate resistance	400000 ohm	PentodeSection Mixer
Mixer transconductance	5000 μ S	PentodeSection Mixer

1963 AMPEREX CONDENSED

Section 2 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published heater rating
Heater current	430 mA	Published heater rating
Triode amplification factor	47	TriodeSection Oscillator

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Triode plate voltage	170 V	TriodeSection Oscillator
Triode control-grid bias	-2 V	TriodeSection Oscillator
Triode plate current	10 mA	TriodeSection Oscillator


SOURCE DATA APPENDIX

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 2 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published heater rating
Heater current	430 mA	Published heater rating
Triode transconductance	5000 μ S	TriodeSection

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pentode plate voltage	170 V	PentodeSection
Pentode screen voltage	170 V	PentodeSection
Pentode grid bias	-2 V	PentodeSection
Pentode plate current	10 mA	PentodeSection
Triode plate voltage	100 V	TriodeSection
Triode grid bias	-2 V	TriodeSection
Triode plate current	14 mA	TriodeSection


SOURCE DATA APPENDIX

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
Plate Voltage	250 V	PentodeSection
Screen Voltage	200 V	PentodeSection
Plate Current	7 mA	PentodeSection
Screen Current	1.8 mA	PentodeSection
Transconductance	5500 uS	PentodeSection
Plate Resistance	900000 ohm	PentodeSection
Grid1-to-Grid2 Amplification Factor	47	PentodeSection
Plate Resistance	900000 ohm	—
Transconductance	5500 uS	—
Amplification Factor	47	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Plate Voltage	250 V	—
Maximum Screen Voltage	200 V	—
Maximum Plate Dissipation	1.7 W	—
Maximum Screen Dissipation	0.75 W	—
Maximum Cathode Current	14 mA	—
Interelectrode Capacitance Data Published	1	SourceTablePresent

Section 2 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	100 V	TriodeSection
Plate Current	14 mA	TriodeSection
Grid Voltage	-2 V	TriodeSection
Transconductance	5000 μ S	TriodeSection
Amplification Factor	20	TriodeSection
Plate Resistance	4000 ohm	TriodeSection
Plate Resistance	4000 ohm	—
Transconductance	5000 μ S	—
Amplification Factor	20	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Plate Voltage	250 V	—
Maximum Plate Dissipation	1.5 W	—
Maximum Cathode Current	14 mA	—
Interelectrode Capacitance Data Published	1	SourceTablePresent



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published nominal value
Heater current	430 mA	Published nominal value

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate dissipation	1.7 W	Published maximum rating
Application	VHF oscillator-frequency converter	Printed source application

1968 MAZDA BELVU

Section 2 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published nominal value
Heater current	430 mA	Published nominal value

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate dissipation	1.5 W	Published maximum rating



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

SOURCE PDF

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	430 mA	Nominal
Maximum Plate Voltage	300 V	—
Maximum Screen Voltage	300 V	—
Maximum Plate Dissipation	2.5 W	—
Maximum Screen Dissipation	0.6 W	—
Maximum Cathode Current	30 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	6500 μ S	Typical
Plate Resistance	300000 ohm	Typical

1972 PHILIPS RECEIVING TUBES

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	6.3 V	Nominal
HeaterCurrentNominal	430 mA	Nominal
Maximum Plate Voltage	300 V	—
Maximum Plate Dissipation	1.5 W	—
Maximum Cathode Current	20 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	5500 μ S	Typical
Amplification Factor	50	Typical
Plate Resistance	15000 ohm	Typical



TUBE TINKER
ELECTRON TUBE DATABASE

SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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 2 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
up to	220 MHz	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage Vh	63 V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Current Ih	430 mA	—
Heater Positive 100	100 V	—
Heater Negative 150	150 V	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1975 RCA RC30

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

1975 RCA RC30

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
• Pulse duration must not exceed 15% of a vertical scanning cycle (	2.5 milliseconds	Published in approved ECF80 target datasheet entry; Section2
Heater Voltage (ac/dc) 4.6	6.3 V	Published in approved ECF80 target datasheet entry; Section2
Heater Current 0.6	450 mA	Published in approved ECF80 target datasheet entry; Section2
Plate Supply Voltage 550	550 V	Published in approved ECF80 target datasheet entry; Section2
Plate Voltage 250	250 V	Published in approved ECF80 target datasheet entry; Section2
Grid-No.2 (Screen-Grid) Supply Voltage	550 V	Published in approved ECF80 target datasheet entry; Section2
With cathode current of	14 mA	Published in approved ECF80 target datasheet entry; Section2
With cathode current of 14 mA	175 V	Published in approved ECF80 target datasheet entry; Section2
With cathode current less than	10 mA	Published in approved ECF80 target datasheet entry; Section2
With cathode current less than 10 mA	200 V	Published in approved ECF80 target datasheet entry; Section2
Cathode Current 14	14 mA	Published in approved ECF80 target datasheet entry; Section2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Dissipation 1.5	1.7 W	Published in approved ECF80 target datasheet entry; Section2
With plate dissipation greater than	1.2 W	Published in approved ECF80 target datasheet entry; Section2
With plate dissipation greater than 1.2 watts	0.5 W	Published in approved ECF80 target datasheet entry; Section2
With p.ate dissipation less than	1.2 W	Published in approved ECF80 target datasheet entry; Section2
Input Resistance at frequency of	50 MHz	Published in approved ECF80 target datasheet entry; Section2
Equivalent Noise Resistance	1500 Ω	Published in approved ECF80 target datasheet entry; Section2
For fixed-bias operation 0.5	0.5 MΩ	Published in approved ECF80 target datasheet entry; Section2
For cathode-bias operation 0.5	1 MΩ	Published in approved ECF80 target datasheet entry; Section2
Heater Voltage 6.3	50 V	Published in approved ECF80 target datasheet entry; Section2
Heater Current 0.78	100 mA	Published in approved ECF80 target datasheet entry; Section2
Plate Supply Voltage 550	900 V	Published in approved ECF80 target datasheet entry; Section2
Plate Voltage 300	600 V	Published in approved ECF80 target datasheet entry; Section2
Grid-No.2 Supply Voltage	550 V	Published in approved ECF80 target datasheet entry; Section2
Plate Dissipation 1	7 W	Published in approved ECF80 target datasheet entry; Section2
Grid-No.2 Input	1.8 W	Published in approved ECF80 target datasheet entry; Section2
Plate Voltage 100	200 V	Published in approved ECF80 target datasheet entry; Section2
For fixed-bias operation I	1 MΩ	Published in approved ECF80 target datasheet entry; Section2
For cathode-bias operation 2	2 MΩ	Published in approved ECF80 target datasheet entry; Section2

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage 100	170 V	Published in approved ECF80 target datasheet entry; Section2
Transconductance 5000	6200 μS	Published in approved ECF80 target datasheet entry; Section2
Plate Current 14	10 mA	Published in approved ECF80 target datasheet entry; Section2
Plate Resistance (Approx.)	0.02 MΩ	Published in approved ECF80 target datasheet entry; Section2
Transconductance 2500	6400 μS	Published in approved ECF80 target datasheet entry; Section2
Plate Current 3.5	35 mA	Published in approved ECF80 target datasheet entry; Section2
Grid-No.2 Current	7 mA	Published in approved ECF80 target datasheet entry; Section2

1975 RCA RC30

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
• Pulse duration must not exceed 15% of a vertical scanning cycle (	2.5 milliseconds	Published in approved ECF80 target datasheet entry; Section1
Heater Voltage (ac/dc) 4.6	6.3 V	Published in approved ECF80 target datasheet entry; Section1
Heater Current 0.6	450 mA	Published in approved ECF80 target datasheet entry; Section1
Plate Supply Voltage 550	550 V	Published in approved ECF80 target datasheet entry; Section1
Plate Voltage 250	250 V	Published in approved ECF80 target datasheet entry; Section1
Grid-No.2 (Screen-Grid) Supply Voltage	550 V	Published in approved ECF80 target datasheet entry; Section1
With cathode current of	14 mA	Published in approved ECF80 target datasheet entry; Section1
With cathode current of 14 mA	175 V	Published in approved ECF80 target datasheet entry; Section1
With cathode current less than	10 mA	Published in approved ECF80 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
With cathode current less than 10 mA	200 V	Published in approved ECF80 target datasheet entry; Section1
Cathode Current 14	14 mA	Published in approved ECF80 target datasheet entry; Section1
Plate Dissipation 1.5	1.7 W	Published in approved ECF80 target datasheet entry; Section1
With plate dissipation greater than	1.2 W	Published in approved ECF80 target datasheet entry; Section1
With plate dissipation greater than 1.2 watts	0.5 W	Published in approved ECF80 target datasheet entry; Section1
With p.ate dissipation less than	1.2 W	Published in approved ECF80 target datasheet entry; Section1
Input Resistance at frequency of	50 MHz	Published in approved ECF80 target datasheet entry; Section1
Equivalent Noise Resistance	1500 Ω	Published in approved ECF80 target datasheet entry; Section1
For fixed-bias operation 0.5	0.5 MΩ	Published in approved ECF80 target datasheet entry; Section1
For cathode-bias operation 0.5	1 MΩ	Published in approved ECF80 target datasheet entry; Section1
Heater Voltage 6.3	50 V	Published in approved ECF80 target datasheet entry; Section1
Heater Current 0.78	100 mA	Published in approved ECF80 target datasheet entry; Section1
Plate Supply Voltage 550	900 V	Published in approved ECF80 target datasheet entry; Section1
Plate Voltage 300	600 V	Published in approved ECF80 target datasheet entry; Section1
Grid-No.2 Supply Voltage	550 V	Published in approved ECF80 target datasheet entry; Section1
Plate Dissipation 1	7 W	Published in approved ECF80 target datasheet entry; Section1
Grid-No.2 Input	1.8 W	Published in approved ECF80 target datasheet entry; Section1
Plate Voltage 100	200 V	Published in approved ECF80 target datasheet entry; Section1
For fixed-bias operation I	1 MΩ	Published in approved ECF80 target datasheet entry; Section1
For cathode-bias operation 2	2 MΩ	Published in approved ECF80 target datasheet entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage 100	170 V	Published in approved ECF80 target datasheet entry; Section1
Transconductance 5000	6200 μ S	Published in approved ECF80 target datasheet entry; Section1
Plate Current 14	10 mA	Published in approved ECF80 target datasheet entry; Section1
Plate Resistance (Approx.)	0.02 M Ω	Published in approved ECF80 target datasheet entry; Section1
Transconductance 2500	6400 μ S	Published in approved ECF80 target datasheet entry; Section1
Plate Current 3.5	35 mA	Published in approved ECF80 target datasheet entry; Section1
Grid-No.2 Current	7 mA	Published in approved ECF80 target datasheet entry; Section1



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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode to heater voltage V _{kf} max.	100 V	Cathode to heater voltage V _{kf} max. 100 V

1999 PHILIPS E-Z

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage V _s	6.3 V	Heater voltage V _s 6.3 V
Heater current I _f	430 mA	Heater current I _f 430 mA
Cathode to heater voltage V _{kg} max.	100 V	Cathode to heater voltage V _{kg} max. 100 V

TUBE TINKER

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

[Catalog](#) [Tube types](#) [Full books](#) [Blog](#) [Feedback & corrections](#)

© 2026 Tube Tinker