

ELECTRONIC TUBE REFERENCE

EF95

Voltage - Pentode Sharp Cutoff (single) electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
PENTODE

Sharp-cutoff pentode designed for RF or IF amplification in high-frequency wide-band applications to approximately 400 MHz. Its compact construction provides fixed-gain broadband signal performance.

GENERAL CHARACTERISTICS

BASE DESIGNATION	7BD	BASE PINS	7
NOMINAL HEATER	6.3 V / 175 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

7BD - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 – G1	A	G1 – Control Grid	CONNECTED
PIN2 – G3	A	G3 – Suppressor Grid	CONNECTED
PIN2 – IS	A	IS – Internal Screen	CONNECTED
PIN2 – K	A	K – Cathode	CONNECTED
PIN3 – H	–	H – Heater	CONNECTED
PIN4 – H	–	H – Heater	CONNECTED
PIN5 – P	A	P – Plate (Anode)	CONNECTED
PIN6 – G2	A	G2 – Screen Grid	CONNECTED
PIN7 – G3	A	G3 – Suppressor Grid	CONNECTED
PIN7 – IS	A	IS – Internal Screen	CONNECTED
PIN7 – K	A	K – Cathode	CONNECTED

SECTION RATINGS

SECTION1 Pentode	
PLATE RESISTANCE	250000 Ω
TRANSCONDUCTANCE	0.0052 S
MAXIMUM PLATE VOLTAGE	180 V
MAXIMUM SCREEN VOLTAGE	180 V
MAXIMUM PLATE DISSIPATION	1.7 W
MAXIMUM SCREEN DISSIPATION	0.5 W
MAXIMUM CATHODE CURRENT	18 mA
<i>Promoted ratings and characteristics are taken from the printed target-tube entry in the approved PDF.</i>	

Sharp-cutoff pentode used as an RF or IF amplifier in high-frequency wide-band applications up to about 400 MHz.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

195X Tesla

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

195X TESLA

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	6.3 V	Nominal
HeaterCurrentNominal	175 mA	Nominal
Maximum Plate Voltage	180 V	—
Maximum Screen Voltage	180 V	—
Maximum Plate Dissipation	1.8 W	—

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



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1963 Mullard

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

1963 MULLARD

Section 1 · Pentode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input capacitance	4 pF	Pentode; shielded
Output capacitance	3.1 pF	Pentode; shielded

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode current	7.7 mA	Va=180V; Vg2=120V
Screen current	2.4 mA	Va=180V; Vg2=120V
Triode transconductance	6800 uS	TriodeConnection
Triode plate resistance	5200 ohm	TriodeConnection
Triode amplification factor	35	TriodeConnection


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 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published heater rating
Heater current	175 mA	Published heater rating
Transconductance	5000 μS	RF Amplifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	120 V	RF Amplifier
Screen voltage	120 V	RF Amplifier


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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
(in 4.0	4 pF	Published in approved EF95 target datasheet entry; Section1
Cout 2.2	3.1 pF	Published in approved EF95 target datasheet entry; Section1
(a - g'! 23 <	0.02 pF	Published in approved EF95 target datasheet entry; Section1
Ch- k 2	2 pF	Published in approved EF95 target datasheet entry; Section1
Cin 2.7	2.8 pF	Published in approved EF95 target datasheet entry; Section1
Cou t 4.2	5.1 pF	Published in approved EF95 target datasheet entry; Section1
((a- g 1.4	1.4 pF	Published in approved EF95 target datasheet entry; Section1
gm 5.0	5.1 mA	Published in approved EF95 target datasheet entry; Section1
Pg2 max	500 mW	Published in approved EF95 target datasheet entry; Section1
T h ul h max	170 °C	Published in approved EF95 target datasheet entry; Section1



TUBE TINKER
ELECTRON TUBE DATABASE

SOURCE DATA APPENDIX

1969 Tesla Manual of Electronic Tubes

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

1969 TESLA MANUAL OF ELECTRONIC TUBES

Section 1 · Pentode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published nominal value
Heater current	175 mA	Published nominal value
Transconductance	5100 μ S	Published operating characteristic

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



SOURCE DATA APPENDIX

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
100 μ iA	-5.4 V	Published in approved EF95 target datasheet entry; Section1
For fixed-bias operation 0.5	0.1 M Ω	Published in approved EF95 target datasheet entry; Section1
For cathode-bias operation 1	0.25 M Ω	Published in approved EF95 target datasheet entry; Section1
7BD cies up to	400 MHz	Published in approved EF95 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc)	6.3 V	Published in approved EF95 target datasheet entry; Section1
Heater Current	175 mA	Published in approved EF95 target datasheet entry; Section1
Plate Voltage	180 V	Published in approved EF95 target datasheet entry; Section1
Grid-No.2 Supply Voltage	180 V	Published in approved EF95 target datasheet entry; Section1
Grid-No.1 Voltage, Positive-bias value	0 V	Published in approved EF95 target datasheet entry; Section1
Plate Dissipation	1.7 W	Published in approved EF95 target datasheet entry; Section1
For grid-No. 2 voltages up to	90 V	Published in approved EF95 target datasheet entry; Section1
For grid-No. 2 voltages up to 90 volts	0.5 W	Published in approved EF95 target datasheet entry; Section1
For grid-No.2 voltages between 90 and	180 V	Published in approved EF95 target datasheet entry; Section1
Cathode Current	18 mA	Published in approved EF95 target datasheet entry; Section1
Grid-No.2 Supply Voltage 120	120 V	Published in approved EF95 target datasheet entry; Section1
Heater Voltage (ae/de)	6.3 V	Published in approved EF95 target datasheet entry; Section1
Heater Current	160 mA	Published in approved EF95 target datasheet entry; Section1
Plate Voltage	300 V	Published in approved EF95 target datasheet entry; Section1
Screen Voltage (Grid No. 2)	260 V	Published in approved EF95 target datasheet entry; Section1
Plate Dissipation	2.75 W	Published in approved EF95 target datasheet entry; Section1
Screen Dissipation	0.75 W	Published in approved EF95 target datasheet entry; Section1
Screen Voltage	180 V	Published in approved EF95 target datasheet entry; Section1
Grid Voltage (Grid No. 1)	-9 V	Published in approved EF95 target datasheet entry; Section1
Peak A-F Grid Voltage	9 V	Published in approved EF95 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Zero-Signal Plate Current	15 mA	Published in approved EF95 target datasheet entry; Section1
Transconductance	2300 μ S	Published in approved EF95 target datasheet entry; Section1
Load Resistance	10000 Ω	Published in approved EF95 target datasheet entry; Section1
Max.-Sig. Power Output	1.1 W	Published in approved EF95 target datasheet entry; Section1
For fixed-bias operation	0.1 M Ω	Published in approved EF95 target datasheet entry; Section1
For cathode-bias operation	0.5 M Ω	Published in approved EF95 target datasheet entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Internal Shield	4 pF	Published in approved EF95 target datasheet entry; Section1
Internal Shield	2.8 pF	Published in approved EF95 target datasheet entry; Section1
Grid to Plate	0.12 pF	Published in approved EF95 target datasheet entry; Section1
Output	4.2 pF	Published in approved EF95 target datasheet entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode- Bias Resistor 180	180 Ω	Published in approved EF95 target datasheet entry; Section1
Plate Resistance (Approx.) 0.3	0.5 M Ω	Published in approved EF95 target datasheet entry; Section1
Transconductance 5000	5100 μ S	Published in approved EF95 target datasheet entry; Section1
Plate Current 7.5	7.7 mA	Published in approved EF95 target datasheet entry; Section1
Grid-No. 2 Current 2.5	2.4 mA	Published in approved EF95 target datasheet entry; Section1
Grid-No. 1 Voltage for plate current of 10 pA -8.5	-8.6 V	Published in approved EF95 target datasheet entry; Section1

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	175 mA	Published heater current.
Plate current	7.5 mA	Published basic-parameter operating point.
Screen current	3.5 mA	Published basic-parameter operating point.
Transconductance	5200 μ S	Published basic-parameter value; normalized to μ S.
Plate resistance	250000 Ω	Published internal/plate resistance.
Input capacitance	4.5 pF	Published in the filename-designated tube entry.
Output capacitance	2.8 pF	Published in the filename-designated tube entry.
Grid-to-plate capacitance	0.025 pF	Published in the filename-designated tube entry.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	200 V	Published limiting operating value.
Maximum screen voltage	150 V	Published limiting operating value.
Maximum cathode current	18 mA	Published limiting cathode-current value.
Maximum plate dissipation	1.7 W	Published limiting plate-dissipation value.
Maximum screen dissipation	0.5 W	Published limiting screen-dissipation value.

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	175 mA	Heating

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	340000 Ω	Promoted published datasheet value
Transconductance	9000 μS	Promoted published datasheet value
Cnauffage: Indirect par C.A. ou C.C.; Vg =	6.3 V	Published datasheet value
b i Ca =	2.8 pF	Published datasheet value
Abschirmung) Cgi =	4 pF	Published datasheet value
Ia = 1,5	7.7 ma	Published datasheet value
Ig2 = 2,5	2.4 ma	Published datasheet value

TUBE TINKER

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