



ELECTRONIC TUBE REFERENCE

6SJ7

Voltage Pentode - Sharp Cutoff (single) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
PENTODE

Sharp-cutoff pentode designed for RF, IF, wide-band, or high-frequency voltage-amplifier service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	RETMA 8N	BASE PINS	8
NOMINAL HEATER	6.3 V / 300 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Pentode	
PLATE RESISTANCE	1500000 Ω
TRANSCONDUCTANCE	0.00165 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	100 V
MAXIMUM PLATE DISSIPATION	2.5 W
MAXIMUM SCREEN DISSIPATION	0.7 W
<p><i>RCA 6SJ7 sharp-cutoff metal single-ended RF amplifier pentode; RMA 1938 and JETEC 1950. Heater 6.3 V 0.3 A, coated unipotential cathode, octal 8-pin, basing 8N. Pins 1 shell/internal shield, 2 heater, 3 suppressor grid, 4 control grid, 5 cathode, 6 screen grid, 7 heater, 8 plate. 1938 at V_a 250 V V_{g2} 100 V: plate current 3.0 mA, screen 0.8 mA, gm 1650 μhos (0.00165 A/V), rp approx 1.5 MΩ; at V_a 100 V: I_a 2.9 mA, I_{g2} 0.9 mA, gm 1575 μhos, rp 0.7 MΩ. 1950 JETEC max plate 300 V, plate dissipation 2.5 W, screen supply max 300 V under ratings conditions, heater-cathode max 90 V; earlier 1938 tentative plate maximum 250 V. Pentode grid-plate capacitance max 0.005 pF, input 6 pF, output 7 pF. Suppressor externally connected to cathode at socket; screen voltage ratings depend on specified circuit/operating conditions.</i></p>	

Sharp-cutoff RF pentode.

SOURCE OPERATING CONDITIONS

1940 RCA

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

1940 RCA

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The 65J7 and the 65Kk7 are two new metal r~f amplifier pentodes featur	65	The 65J7 and the 65Kk7 are two new metal r~f amplifier pentodes featur-
amplifier operation, (5) greater uniformity of ain in amplifiers,(6) hn?her	6	amplifier operation, (5) greater uniformity of ain in amplifiers,(6) hn?her
HEATER VOLTAGE (A.C. or D.C.)	6.3 V	HEATER VOLTAGE (A.C. or D.C.) 6.3 Volts
HEATER CURRENT o	300 mA	HEATER CURRENT o 0.3 Ampere
Grid to Plate 0.005 max. uuf	0.005 pF	Grid to Plate 0.005 max. uuf
Heater Voltage 6.3	6.3 V	Heater Voltage 6.3 6.3 Volts
Plate vVoltage 100 250 max. Volts	250 V	Plate vVoltage 100 250 max. Volts
screen voltage 100 max. 100 max. Volts	100 V	screen voltage 100 max. 100 max. Volts
Grid voltage -3 - Volts	-3 V	Grid voltage -3 - Volts
Plate Current 2.9	3 mA	Plate Current 2.9 3.0 Milliamperes
screen Current 0.9	0.8 mA	screen Current 0.9 0.8 Milliamperes
Amplification Factor (Approx.)	2500	Amplification Factor (Approx.) 1100 2500
HEATER CURRENT ° 0,	3 A	HEATER CURRENT ° 0,3 Ampere
Grid to Plate 0,005 sax. uuf	5 pF	Grid to Plate 0,005 sax. uuf
Plate voltage 100 250 max., Volts	250 V	Plate voltage 100 250 max., Volts
screen vVoltage 100 sax. 100 max. Volts	100 V	screen vVoltage 100 sax. 100 max. Volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid voltage -3 min, -3 ain, Volts	-3 V	Grid voltage -3 min, -3 ain, Volts
Plate Current 8.9	9.2 mA	Plate Current 8.9 9.2 Milliamperes
screen Current 2.6	2.4 mA	screen Current 2.6 2.4 Milliamperes
Amplification Factor (Approx.)	1600	Amplification Factor (Approx.) 875 1600
ductance = 10 micromhos	-35 V	ductance = 10 micromhos - -35 volts
E; 6.3 VOLTS "SCREEN VOLTS	6.3 V	E; 6.3 VOLTS "SCREEN VOLTS
SUPPRESSOR VOLTS =	0 V	SUPPRESSOR VOLTS = 0

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance (Approx.) 0.7	1.5 ohm	Plate Resistance (Approx.) 0.7 1.5 Megohms
Transconductance 1575	1650 μ S	Transconductance 1575 1650 Micromhos
Plate Resistance (Approx. 0.25	0.8 ohm	Plate Resistance (Approx. 0.25 0.8 Megohm
Transconductance 1900	2000 μ S	Transconductance 1900 2000 Micromhos



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1948 Brimar Radio Valve Manual

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

1948 BRIMAR RADIO VALVE MANUAL

Section 1 · Pentode

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



SOURCE DATA APPENDIX

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	125 V	—
Maximum Plate Dissipation	2.5 W	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	1650 μ S	Typical
Plate Resistance	1000000 ohm	Typical



SOURCE DATA APPENDIX

195X General Electric Essential Characteristics

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

195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	300 V	Published handbook rating
Maximum screen voltage	150 V	Published handbook rating
Plate voltage	250 V	ClassA OperatingPoint1
Screen voltage	100 V	ClassA OperatingPoint1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Control-grid bias	3 V	ClassA OperatingPoint1
Plate current	3 mA	ClassA OperatingPoint1
Screen current	0.8 mA	ClassA OperatingPoint1
Plate voltage	100 V	ClassA OperatingPoint2
Screen voltage	100 V	ClassA OperatingPoint2
Control-grid bias	3 V	ClassA OperatingPoint2
Plate current	2.9 mA	ClassA OperatingPoint2
Screen current	0.9 mA	ClassA OperatingPoint2
Triode-connected plate voltage	250 V	TriodeConnection ClassA
Triode-connected control-grid bias	8.5 V	TriodeConnection ClassA
Triode-connected plate current	9.2 mA	TriodeConnection ClassA
Triode-connected plate voltage	180 V	TriodeConnection ClassA
Triode-connected control-grid bias	6 V	TriodeConnection ClassA
Triode-connected plate current	6 mA	TriodeConnection ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	1000000 ohm	ClassA OperatingPoint1
Transconductance	1650 μ S	ClassA OperatingPoint1
Plate resistance	700000 ohm	ClassA OperatingPoint2
Transconductance	1575 μ S	ClassA OperatingPoint2
Heater voltage	6.3 V	Published heater rating
Heater current	300 mA	Published heater rating
Triode-connected plate resistance	7600 ohm	TriodeConnection
Triode-connected transconductance	2500 μ S	TriodeConnection
Triode-connected amplification factor	19	TriodeConnection
Triode-connected plate resistance	8200 ohm	TriodeConnection



SOURCE OPERATING CONDITIONS

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1960 RCA Industrial and Communications Types

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

1960 RCA INDUSTRIAL AND COMMUNICATIONS TYPES

Section 1 · Pentode

CHARACTERISTICS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cutoff characteristic	Sharp cutoff	—



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1961 Tung Sol

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

1961 TUNG SOL

Section 1 · Pentode

CHARACTERISTIC

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance	1500000 ohm	AlternateOperatingPoint
Transconductance	1650 uS	AlternateOperatingPoint



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1968 General Electric Co

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

1968 GENERAL ELECTRIC CO

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	250 V	ClassA
Screen Voltage	100 V	ClassA
Grid Voltage	-3 V	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Current	3 mA	ClassA
Screen Current	0.8 mA	ClassA



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

SOURCE PDF

1971 RCA HB3 Binder 5 of 7

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

1971 RCA HB3 BINDER 5 OF 7

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Voltage	6.3 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Current	300 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid No.i to Plate – published value 1	2.8	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid No.i to Plate – published value 2	2.8	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid No.l to Cathode – published value 1	3	Published datasheet value; multiple values represent separate source-table limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 to Cathode – published value 2	3.4	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate to Cathode – published value 1	11	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate to Cathode – published value 2	11	Published datasheet value; multiple values represent separate source-table limits or conditions.
(6SJ7, Shell – published value 1	6	Published datasheet value; multiple values represent separate source-table limits or conditions.
(6SJ7, Shell – published value 2	4	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 1 6SJ7-GT, – published value 1	1	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 1 6SJ7-GT, – published value 2	6	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 1 6SJ7-GT, – published value 3	5	Published datasheet value; multiple values represent separate source-table limits or conditions.
Base Sleeve	6	Published datasheet value; multiple values represent separate source-table limits or conditions.
~"1 Pin 2 -Heater – published value 1	1	Published datasheet value; multiple values represent separate source-table limits or conditions.
~"1 Pin 2 -Heater – published value 2	2	Published datasheet value; multiple values represent separate source-table limits or conditions.
~"1 Pin 2 -Heater – published value 3	7	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin3-Grid No.3	8	Published datasheet value; multiple values represent separate source-table limits or conditions.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 to Plate – published value 1	0.005 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid No.1 to Plate – published value 2	0.005 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
'PLATE VOLTAGE	300 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
GRID-No.2 (SCREEN) VOLTAGE	125 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
GRIC-No.2 SUPPLY VOLTAGE	300 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
PLATE DISSIPATION	2.5 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
GRID-No.2 DISSIPATION	0.1 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Positive bias value	0 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
negative with respect to cathode	90 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Heater positive with respect to cathode	90 V	Published datasheet value; multiple values represent separate source-table limits or conditions.