

ELECTRONIC TUBE REFERENCE

6AS8

Voltage Pentode or Tetrode (with diode) electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

DIODE-PENTODE

High-perveance diode and sharp-cutoff pentode for television or radio IF, video, AGC, detector, and DC-restorer applications.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9AK	BASE PINS	9
NOMINAL HEATER	6.3 V / 450 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

9AK - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 – 1G3	A	G3 – Suppressor Grid	CONNECTED
PIN2 – 2G1	B	G1 – Control Grid	CONNECTED
PIN3 – 2P	B	P – Plate (Anode)	CONNECTED
PIN4 – H	–	H – Heater	CONNECTED
PIN5 – H	–	H – Heater	CONNECTED
PIN6 – K	A	K – Cathode	CONNECTED
PIN7 – 1G1	A	G1 – Control Grid	CONNECTED
PIN8 – 1G2	A	G2 – Screen Grid	CONNECTED
PIN9 – 1P	A	P – Plate (Anode)	CONNECTED

SECTION RATINGS

SECTION1 Pentode	
PLATE RESISTANCE	300000 Ω
TRANSCONDUCTANCE	0.0062 S
MAXIMUM PLATE VOLTAGE	200 V
MAXIMUM SCREEN VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	2.5 W
MAXIMUM SCREEN DISSIPATION	0.5 W
<i>Sharp-cutoff pentode; promoted Class A1 values.</i>	

SECTION2 Diode	
MAXIMUM CATHODE CURRENT	5 mA
PEAK INVERSE VOLTAGE	330 V
NOMINAL OUTPUT CURRENT	5 A
PEAK FORWARD CURRENT	50 A
<i>Diode detector section.</i>	

Combination high-perveance diode and sharp-cutoff pentode for television/radio IF, video, AGC, detector, and DC-restorer applications.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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
Plate voltage	200 V	ClassA
Screen voltage	150 V	ClassA
Plate current	9.5 mA	ClassA
Screen current	3 mA	ClassA

195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 2 · Diode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	200 V	ClassA
Screen voltage	150 V	ClassA
Plate current	9.5 mA	ClassA
Screen current	3 mA	ClassA

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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	—
Plate voltage	150 V	ClassA1
Transconductance	6200 μ S	ClassA1



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1966 Tung Sol Electronic Tubes 1 of 4

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

1966 TUNG SOL ELECTRONIC TUBES 1 OF 4

Section 2 · Diode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published table
Heater current	450 mA	Published table
Pentode plate resistance	300000 ohm	PentodeSection
Pentode transconductance	6000 μ S	PentodeSection

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Diode peak inverse plate voltage	330 V	DiodeSection
Diode peak plate current	50 mA	DiodeSection
Diode DC plate current	5 mA	DiodeSection



SOURCE DATA APPENDIX

1971 RCA HB3 Binder 4 of 7

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

1971 RCA HB3 BINDER 4 OF 7
Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage nominal	6.3 V	—
Heater current	450 mA	—

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate supply voltage	200 V	ClassA1
Screen supply voltage	150 V	ClassA1
Cathode resistor	180 ohm	ClassA1
Plate resistance	300000 ohm	ClassA1
Transconductance	6200 µS	ClassA1
Plate current	9.5 mA	ClassA1
Screen current	3 mA	ClassA1
Grid voltage for plate current 10 µA	-8 V	ClassA1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1-to-plate capacitance	0.04 pF	—
Input capacitance	7 pF	—
Output capacitance	2.2 pF	—

1971 RCA HB3 BINDER 4 OF 7
Section 2 · Diode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage nominal	6.3 V	—
Heater current	450 mA	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum DC plate current	5 mA	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate-to-heater/cathode/internal-shield capacitance	3 pF	—



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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc)	6.3 V	Published in approved 6AS8 target entry; Section2
Heater Current	450 mA	Published in approved 6AS8 target entry; Section2
Internal Shield	3 pF	Published in approved 6AS8 target entry; Section2
Grid No.1 to Plate	0.03 pF	Published in approved 6AS8 target entry; Section2
Grid-No.2 Supply Voltage	150 V	Published in approved 6AS8 target entry; Section2
Cathode-Bias Resistor	180 Ω	Published in approved 6AS8 target entry; Section2
Transconductance	6200 μ S	Published in approved 6AS8 target entry; Section2
Plate Current	9.5 mA	Published in approved 6AS8 target entry; Section2
Grid-No.2 Current	3 mA	Published in approved 6AS8 target entry; Section2
Grid-No.1 Voltage (Approx.) for plate current of 10 /iA	-8 V	Published in approved 6AS8 target entry; Section2

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Internal Shield	7 pF	Published in approved 6AS8 target entry; Section2
Internal Shield	2.4 pF	Published in approved 6AS8 target entry; Section2

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	300 V	Published in approved 6AS8 target entry; Section2
Grid-No. 3 (Suppressor-Grid) Voltage, Positive value	0 V	Published in approved 6AS8 target entry; Section2
Grid-No. 2 Supply Voltage	300 V	Published in approved 6AS8 target entry; Section2
Grid-No.1 (Control-Grid) Voltage, Positive-bias value	0 V	Published in approved 6AS8 target entry; Section2
Plate Dissipation	2.5 W	Published in approved 6AS8 target entry; Section2
For grid-No.2 voltages up to	150 V	Published in approved 6AS8 target entry; Section2
For grid-No.2 voltages up to 150 volts	0.5 W	Published in approved 6AS8 target entry; Section2
For grid-No.2 voltages between 150 and	300 V	Published in approved 6AS8 target entry; Section2
Plate Supply Voltage	200 V	Published in approved 6AS8 target entry; Section2
For fixed-bias operation	0.25 MΩ	Published in approved 6AS8 target entry; Section2
For cathode-bias operation	1 MΩ	Published in approved 6AS8 target entry; Section2
Peak Inverse Plate Voltage	330 V	Published in approved 6AS8 target entry; Section2
Peak Plate Current	50 mA	Published in approved 6AS8 target entry; Section2
Average Plate Current	5 mA	Published in approved 6AS8 target entry; Section2
Heater Voltage (ac/dc) 6.3	12.6 V	Published in approved 6AS8 target entry; Section2
Heater Current 0.3	150 mA	Published in approved 6AS8 target entry; Section2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Triode Grid to Triode Plate	2 pF	Published in approved 6AS8 target entry; Section2
Triode Grid to Cathode and Heater	2.2 pF	Published in approved 6AS8 target entry; Section2
Triode Plate to Cathode and Heater	0.8 pF	Published in approved 6AS8 target entry; Section2
Plate Dissipation	0.5 W	Published in approved 6AS8 target entry; Section2
Grid Voltage, Positive-bias value	0 V	Published in approved 6AS8 target entry; Section2
Plate Voltage 100	250 V	Published in approved 6AS8 target entry; Section2
Grid Voltage -1	-3 V	Published in approved 6AS8 target entry; Section2
Plate Resistance 54000	58000 Ω	Published in approved 6AS8 target entry; Section2
Transconductance 1300	1200 μS	Published in approved 6AS8 target entry; Section2
Plate Current 0.8	1 mA	Published in approved 6AS8 target entry; Section2
frequency in the order of	40 MHz	Published in approved 6AS8 target entry; Section2

1975 RCA RC30

Section 2 · Diode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc)	6.3 V	Published in approved 6AS8 target entry; Section1
Heater Current	450 mA	Published in approved 6AS8 target entry; Section1
Internal Shield	3 pF	Published in approved 6AS8 target entry; Section1
Grid No.1 to Plate	0.03 pF	Published in approved 6AS8 target entry; Section1
Grid-No.2 Supply Voltage	150 V	Published in approved 6AS8 target entry; Section1
Cathode-Bias Resistor	180 Ω	Published in approved 6AS8 target entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	6200 μS	Published in approved 6AS8 target entry; Section1
Plate Current	9.5 mA	Published in approved 6AS8 target entry; Section1
Grid-No.2 Current	3 mA	Published in approved 6AS8 target entry; Section1
Grid-No.1 Voltage (Approx.) for plate current of 10 /iA	-8 V	Published in approved 6AS8 target entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Internal Shield	7 pF	Published in approved 6AS8 target entry; Section1
Internal Shield	2.4 pF	Published in approved 6AS8 target entry; Section1

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	300 V	Published in approved 6AS8 target entry; Section1
Grid-No. 3 (Suppressor-Grid) Voltage, Positive value	0 V	Published in approved 6AS8 target entry; Section1
Grid-No. 2 Supply Voltage	300 V	Published in approved 6AS8 target entry; Section1
Grid-No.1 (Control-Grid) Voltage, Positive-bias value	0 V	Published in approved 6AS8 target entry; Section1
Plate Dissipation	2.5 W	Published in approved 6AS8 target entry; Section1
For grid-No.2 voltages up to	150 V	Published in approved 6AS8 target entry; Section1
For grid-No.2 voltages up to 150 volts	0.5 W	Published in approved 6AS8 target entry; Section1
For grid-No.2 voltages between 150 and	300 V	Published in approved 6AS8 target entry; Section1
Plate Supply Voltage	200 V	Published in approved 6AS8 target entry; Section1
For fixed-bias operation	0.25 MΩ	Published in approved 6AS8 target entry; Section1
For cathode-bias operation	1 MΩ	Published in approved 6AS8 target entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak Inverse Plate Voltage	330 V	Published in approved 6AS8 target entry; Section1
Peak Plate Current	50 mA	Published in approved 6AS8 target entry; Section1
Average Plate Current	5 mA	Published in approved 6AS8 target entry; Section1
Heater Voltage (ac/dc) 6.3	12.6 V	Published in approved 6AS8 target entry; Section1
Heater Current 0.3	150 mA	Published in approved 6AS8 target entry; Section1
Triode Grid to Triode Plate	2 pF	Published in approved 6AS8 target entry; Section1
Triode Grid to Cathode and Heater	2.2 pF	Published in approved 6AS8 target entry; Section1
Triode Plate to Cathode and Heater	0.8 pF	Published in approved 6AS8 target entry; Section1
Plate Dissipation	0.5 W	Published in approved 6AS8 target entry; Section1
Grid Voltage, Positive-bias value	0 V	Published in approved 6AS8 target entry; Section1
Plate Voltage 100	250 V	Published in approved 6AS8 target entry; Section1
Grid Voltage -1	-3 V	Published in approved 6AS8 target entry; Section1
Plate Resistance 54000	58000 Ω	Published in approved 6AS8 target entry; Section1
Transconductance 1300	1200 μS	Published in approved 6AS8 target entry; Section1
Plate Current 0.8	1 mA	Published in approved 6AS8 target entry; Section1
frequency in the order of	40 MHz	Published in approved 6AS8 target entry; Section1