



ELECTRONIC TUBE REFERENCE

6BY8

Voltage - Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

DIODE-PENTODE

Television diode-pentode combining an RF amplifier with a limiter or detector diode. Manufacturer application centers on television receiver signal processing rather than general radio detector/converter service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	9
NOMINAL HEATER	6.3 V / 600 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

SECTION RATINGS

SECTION1 Pentode	
PLATE RESISTANCE	500000 Ω
TRANSCONDUCTANCE	0.0052 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	3 W
Published promoted values applied where applicable; additional table data retained as parameters.	

SECTION2 Diode	
MAXIMUM PLATE VOLTAGE	250 V
Published promoted values applied where applicable; additional table data retained as parameters.	

Combination high-perveance diode and sharp-cutoff pentode used in television receivers; the pentode serves as an RF amplifier and the diode as a limiter or detector.

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
Plate Voltage	0 V	Published operating/characteristic table
Screen Voltage	150 V	Published operating/characteristic table

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Current	10.6 mA	Published operating/characteristic table
Screen Current	4.3 mA	Published operating/characteristic table
Transconductance	200 μ S	Published operating/characteristic table
Plate Resistance	1 ohm	Published operating/characteristic table

1961 TUNG SOL

Section 2 · Diode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	0 V	Published operating/characteristic table
Screen Voltage	150 V	Published operating/characteristic table

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Current	10.6 mA	Published operating/characteristic table
Screen Current	4.3 mA	Published operating/characteristic table
Transconductance	200 μ S	Published operating/characteristic table
Plate Resistance	1 ohm	Published operating/characteristic table

SOURCE OPERATING CONDITIONS

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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 1 · Pentode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Diode capacitance	4.8 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum peak inverse plate voltage	—150 V	DiodeSection
Maximum peak plate current	—150 mA	DiodeSection

1966 TUNG SOL ELECTRONIC TUBES 1 OF 4

Section 2 · Diode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pentode grid1-to-plate capacitance	—0.0035 pF	Maximum
Pentode input capacitance	5.5 pF	—
Pentode output capacitance	5 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	PentodeSection

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	0.5 MOhm	PentodeSection
Transconductance	3900 uS	PentodeSection

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Voltage	6.3 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Current	600 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
and heater	4.8	Published datasheet value; multiple values represent separate source-table limits or conditions.
grid No. 2, and heater – published value 1	2	Published datasheet value; multiple values represent separate source-table limits or conditions.
grid No. 2, and heater – published value 2	5.5	Published datasheet value; multiple values represent separate source-table limits or conditions.
No.2, and heater	5	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate-Supply Voltage – published value 1	100 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate-Supply Voltage – published value 2	250 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Supply Voltage – published value 1	100 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Supply Voltage – published value 2	150 V	Published datasheet value; multiple values represent separate source-table limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance (Approx) – published value 1	0.5 ohm	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate Resistance (Approx) – published value 2	1 ohm	Published datasheet value; multiple values represent separate source-table limits or conditions.
Transconductance – published value 1	3900	Published datasheet value; multiple values represent separate source-table limits or conditions.
Transconductance – published value 2	5200	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate Current – published value 1	5 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate Current – published value 2	10.6 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.2 Current – published value 1	2.1 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.2 Current – published value 2	4.3 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
(Approx.) for plate $\mu_a = 10$ – published value 1	10 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
(Approx.) for plate $\mu_a = 10$ – published value 2	-4.2 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
(Approx.) for plate $\mu_a = 10$ – published value 3	-6.5 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid No.1	5	Published datasheet value; multiple values represent separate source-table limits or conditions.
For grid-No.2 voltages between 150	150 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
and 300 volts	300 V	Published datasheet value; multiple values represent separate source-table limits or conditions.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 to plate	0.0035 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.3 (SUPPRESSOR-GRID) VOLTAGE	0 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
GRID-No.2 (SCREEN-GRID) SUPPLY VOLTAGE	300 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Negative-bias value	50 V	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.
For grid-No.2 voltages up to 150volts. 0.65 max – published value 1	150 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
For grid-No.2 voltages up to 150volts. 0.65 max – published value 2	0.65 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
PLATE DISSIPATION	3 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Heater negative with respect to cathode	200 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Heater positive with respect to cathode	200 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
For fixed-bias operation	0.25 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
For cathode-bias operation	1 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
PEAK INVERSE PLATE VOLTAGE	430 V	Published datasheet value; multiple values represent separate source-table limits or conditions.

Section 2 · Diode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pin 1 -Pentode – published value 1	1	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 1 -Pentode – published value 2	4	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 2 -Pentode – published value 1	2	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 2 -Pentode – published value 2	6	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid No.3,	7	Published datasheet value; multiple values represent separate source-table limits or conditions.



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
Heater Voltage (ac/dc)	6.3 V	Published in approved 6BY8 target datasheet entry; Section1
Heater Current	600 mA	Published in approved 6BY8 target datasheet entry; Section1
Heater Warm-up Time (Average)	11 seconds	Published in approved 6BY8 target datasheet entry; Section1
Plate Voltage	300 V	Published in approved 6BY8 target datasheet entry; Section1
Grid-No.3 (Suppressor-Grid) Voltage, Positive value	0 V	Published in approved 6BY8 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-No.2 (Screen Grid) Supply Voltage	300 V	Published in approved 6BY8 target datasheet entry; Section1
Negative-bias value	50 V	Published in approved 6BY8 target datasheet entry; Section1
Positive-bias value	0 V	Published in approved 6BY8 target datasheet entry; Section1
Plate Dissipation	3 W	Published in approved 6BY8 target datasheet entry; Section1
For grid-No.2 voltages up to	150 V	Published in approved 6BY8 target datasheet entry; Section1
For grid-No.2 voltages up to 150 volts	0.65 W	Published in approved 6BY8 target datasheet entry; Section1
For grid-No.2 voltages between 150 and	300 V	Published in approved 6BY8 target datasheet entry; Section1
For fixed-bias operation	0.25 MΩ	Published in approved 6BY8 target datasheet entry; Section1
For cathode-bias operation	1 MΩ	Published in approved 6BY8 target datasheet entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Internal Shield	5.5 pF	Published in approved 6BY8 target datasheet entry; Section1
Internal Shield	5 pF	Published in approved 6BY8 target datasheet entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-No.2 Supply Voltage 100	150 V	Published in approved 6BY8 target datasheet entry; Section1
Cathode-Bias Resistor 150	68 Ω	Published in approved 6BY8 target datasheet entry; Section1
Plate Resistance (Approx.) 0.5	1 MΩ	Published in approved 6BY8 target datasheet entry; Section1
Transconductance 3900	5200 μS	Published in approved 6BY8 target datasheet entry; Section1
Plate Current 5	10.6 mA	Published in approved 6BY8 target datasheet entry; Section1
Grid-No.2 Current 2.1	4.3 mA	Published in approved 6BY8 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
10 *A -4.2	-6.5 V	Published in approved 6BY8 target datasheet entry; Section1

1975 RCA RC30

Section 2 · Diode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc)	6.3 V	Published in approved 6BY8 target datasheet entry; Section2
Heater Current	600 mA	Published in approved 6BY8 target datasheet entry; Section2
Heater Warm-up Time (Average)	11 seconds	Published in approved 6BY8 target datasheet entry; Section2
Plate Voltage	300 V	Published in approved 6BY8 target datasheet entry; Section2
Grid-No.3 (Suppressor-Grid) Voltage, Positive value	0 V	Published in approved 6BY8 target datasheet entry; Section2
Grid-No.2 (Screen Grid) Supply Voltage	300 V	Published in approved 6BY8 target datasheet entry; Section2
Negative-bias value	50 V	Published in approved 6BY8 target datasheet entry; Section2
Positive-bias value	0 V	Published in approved 6BY8 target datasheet entry; Section2
Plate Dissipation	3 W	Published in approved 6BY8 target datasheet entry; Section2
For grid-No.2 voltages up to	150 V	Published in approved 6BY8 target datasheet entry; Section2
For grid-No.2 voltages up to 150 volts	0.65 W	Published in approved 6BY8 target datasheet entry; Section2
For grid-No.2 voltages between 150 and	300 V	Published in approved 6BY8 target datasheet entry; Section2
For fixed-bias operation	0.25 MΩ	Published in approved 6BY8 target datasheet entry; Section2
For cathode-bias operation	1 MΩ	Published in approved 6BY8 target datasheet entry; Section2

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Internal Shield	5.5 pF	Published in approved 6BY8 target datasheet entry; Section2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Internal Shield	5 pF	Published in approved 6BY8 target datasheet entry; Section2

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-No.2 Supply Voltage 100	150 V	Published in approved 6BY8 target datasheet entry; Section2
Cathode-Bias Resistor 150	68 Ω	Published in approved 6BY8 target datasheet entry; Section2
Plate Resistance (Approx.) 0.5	1 MΩ	Published in approved 6BY8 target datasheet entry; Section2
Transconductance 3900	5200 μS	Published in approved 6BY8 target datasheet entry; Section2
Plate Current 5	10.6 mA	Published in approved 6BY8 target datasheet entry; Section2
Grid-No.2 Current 2.1	4.3 mA	Published in approved 6BY8 target datasheet entry; Section2
10 *A -4.2	-6.5 V	Published in approved 6BY8 target datasheet entry; Section2

TUBE TINKER

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