

ELECTRONIC TUBE REFERENCE

5AT8

Voltage Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
PENTODE-TRIODE

Medium-mu triode plus sharp-cutoff pentode used as a combined oscillator and mixer in television receivers.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9DW	BASE PINS	9
NOMINAL HEATER	4.7 V / 600 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Common cathode	SECTION CONSTRUCTION	Dissimilar

9DW - TERMINAL PINOUT

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

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	6000 Ω
TRANSCONDUCTANCE	0.0065 S
AMPLIFICATION FACTOR	40
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	2.7 W
MAXIMUM HEATER-CATHODE VOLTAGE	200 V
WARM-UP TIME	11 s
<i>Oscillator triode section.</i>	

SECTION2 Pentode	
PLATE RESISTANCE	300000 Ω
TRANSCONDUCTANCE	0.0055 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	2.3 W
MAXIMUM SCREEN DISSIPATION	0.45 W
MAXIMUM HEATER-CATHODE VOLTAGE	200 V
WARM-UP TIME	11 s
<i>Sharp-cutoff VHF mixer pentode section.</i>	

Medium-mu triode plus sharp-cutoff pentode used as a combined oscillator and mixer in television receivers with about 40-MHz IF.



SOURCE OPERATING CONDITIONS

1950 Sylvania

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

1950 SYLVANIA

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Conversion transconductance	2100 μ S	MixerService

1950 SYLVANIA

Section 2 · Pentode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Conversion transconductance	2800 μ S	MixerService



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1965 Westinghouse Data Book

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

1965 WESTINGHOUSE DATA BOOK

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Triode typical plate voltage	125 V	—
Heater-cathode voltage maximum	200 V	—

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Triode transconductance	8500 μ S	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Triode amplification factor	40	—
Triode plate resistance	5000 ohm	—
Heater warm-up time	11 s	—

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Oscillator / phase inverter / vertical oscillator	—

1965 WESTINGHOUSE DATA BOOK

Section 2 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pentode/tetrode typical plate voltage	125 V	—
Pentode/tetrode grid2 voltage	125 V	—

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pentode/tetrode transconductance	6400 uS	—
Pentode/tetrode plate resistance	200000 ohm	—

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Mixer / IF / video / general-purpose amplifier	—


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

1966 Tung Sol Electronic Tubes 1 of 4

[SOURCE PDF](#)

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 · Triode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
TRIODE GRID TO~TRIO DE PLATE: (T-G TO TP)	1.5 pF	Capacitances TRIODE GRID TO~TRIO DE PLATE: (T-G TO TP) 1.5 1.5 pf
OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
TRIODE PLATE VOLTAGE	275 V	Maximum Ratings TRIODE PLATE VOLTAGE 275 VOLTS
POSITIVE DC TRIODE GRID VOLTAGE	0 V	Maximum Ratings POSITIVE DC TRIODE GRID VOLTAGE 0 VOLTS
TRIODE PLATE DISSIPATION	1.7 V	Maximum Ratings TRIODE PLATE DISSIPATION 1.7 VOLTS

1966 TUNG SOL ELECTRONIC TUBES 1 OF 4

Section 2 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
VELOPE. IT IS DESIGNED PRIMARILY FOR USE IN	600 mA	VELOPE. IT IS DESIGNED PRIMARILY FOR USE IN 600 MA. SERIES HEATER OPERATED TELEVISION
PLATE VOLTAGE	125 V	ClassA PLATE VOLTAGE 725 125 VOLTS
GRID	-1 V	ClassA GRID 1 VOLTAGE -1.0 -1.0 VOLTS
PLATE CURRENT	12 mA	ClassA PLATE CURRENT 9.0 12.0 MA.
GRID	2.2 mA	ClassA GRID 2 CURRENT 2.2 MA.
TRANSCONDUCTANCE	6.5 uS	ClassA TRANSCONDUCTANCE 5.500 6.500 pMHOS
PLATE RESISTANCE (APPROX.)	6 ohm	ClassA PLATE RESISTANCE (APPROX.) 300.000 6.000 OHMS
GRID	-7 V	ClassA GRID 1 VOLTAGE (APPROX.) FOR Ib = 20 μA -6.5 -7 VOLTS

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PENTODE GRID	0.06 pF	Capacitances PENTODE GRID 1 TO PENTODE PLAT E:(PG1 TO PP) MAX. ~ 0.03 —j 0.06 pf
CATHODE TO HEATER (K TO H)	6 pF	Capacitances CATHODE TO HEATER (K TO H) --3 6.0 —~ 6.0 pf

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PENTODE GRID	0.05 pF	Capacitances PENTODE GRID 1 TO TRIODE PLATE: (PG1 TO TP) MAX. 0.04 0.05 pf
PENTODE PLATE TO TRIODE PLATE: f PP TO TP) MAX	0.05 pF	Capacitances PENTODE PLATE TO TRIODE PLATE: f PP TO TP) MAX. 0.006 0.05 pf
HEATER WARM-UP TIME A	11 s	Capacitances HEATER WARM-UP TIME A 11 SECONDS
LIMITS OF SUPPLIED CURRENT	600140 mA	Capacitances LIMITS OF SUPPLIED CURRENT 600140 MA.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PENTODE PLATE VOLTAGE	275 V	Maximum Ratings PENTODE PLATE VOLTAGE 275 VOLTS
GRID	275 V	Maximum Ratings GRID 2 SUPPLY VOLTAGE 275 VOLTS
PENTODE PLATE DISSIPATION	2.3 W	Maximum Ratings PENTODE PLATE DISSIPATION 2.3 WATTS
GRID	0.45 W	Maximum Ratings GRID 2 DISSIPATION 0.45 WATTS
POSITIVE DC GRID	0 V	Maximum Ratings POSITIVE DC GRID 1 VOLTAGE 0 VOLTS



SOURCE DATA APPENDIX

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 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	VHF;OscillatorMixer
Plate current	8.5 mA	VHF;OscillatorMixer

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	6900 ohm	VHF;OscillatorMixer
Transconductance	5800 uS	VHF;OscillatorMixer
Amplification factor	40	VHF;OscillatorMixer
Heater warm-up time	11 s	ControlledWarmUp

1971 RCA HB3 BINDER 4 OF 7

Section 2 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	VHF;OscillatorMixer
Grid 2 voltage	150 V	VHF;OscillatorMixer
Plate current	7.7 mA	VHF;OscillatorMixer
Grid 2 current	1.6 mA	VHF;OscillatorMixer

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	750000 ohm	VHF;OscillatorMixer
Transconductance	4600 uS	VHF;OscillatorMixer



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 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
frequency in the order of	40 MHz	Published in approved 6AT8A target entry; Section1
Heater Warm-up Time (Average) 11	11 seconds	Published in approved 6AT8A target entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc)	6.3 V	Published in approved 6AT8A target entry; Section1
Heater Current	1.8 A	Published in approved 6AT8A target entry; Section1
Peak Inverse Plate Voltage#	4500 V	Published in approved 6AT8A target entry; Section1
Peak Plate Current	1300 mA	Published in approved 6AT8A target entry; Section1
Average Plate Current	210 mA	Published in approved 6AT8A target entry; Section1
Plate Dissipation	6.5 W	Published in approved 6AT8A target entry; Section1
Peak value +300	-4500 V	Published in approved 6AT8A target entry; Section1
Average value -(-100	-900 V	Published in approved 6AT8A target entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc) 4.7	6.3 V	Published in approved 6AT8A target entry; Section1
Heater Current , . . 0.6	450 mA	Published in approved 6AT8A target entry; Section1
Grid to Plate 1.5	1.5 pF	Published in approved 6AT8A target entry; Section1
Grid to Cathode and Heater 2	2.4 pF	Published in approved 6AT8A target entry; Section1
Plate to Cathode and Heater 0.5	1 pF	Published in approved 6AT8A target entry; Section1
Grid No.3 4.6	4.8 pF	Published in approved 6AT8A target entry; Section1
Grid No.3 0.9	1.6 pF	Published in approved 6AT8A target entry; Section1
Plate to Heater and Cathode	8.5 pF	Published in approved 6AT8A target entry; Section1
Cathode to Heater and Plate	11.5 pF	Published in approved 6AT8A target entry; Section1
Heater to Cathode	4 pF	Published in approved 6AT8A target entry; Section1

Section 2 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
frequency in the order of	40 MHz	Published in approved 6AT8A target entry; Section2
Heater Warm-up Time (Average) 11	11 seconds	Published in approved 6AT8A target entry; Section2
Heater Voltage (ac/dc)	6.3 V	Published in approved 6AT8A target entry; Section2
Heater Current	1.8 A	Published in approved 6AT8A target entry; Section2
Peak Inverse Plate Voltage#	4500 V	Published in approved 6AT8A target entry; Section2
Peak Plate Current	1300 mA	Published in approved 6AT8A target entry; Section2
Average Plate Current	210 mA	Published in approved 6AT8A target entry; Section2
Plate Dissipation	6.5 W	Published in approved 6AT8A target entry; Section2
Peak value +300	-4500 V	Published in approved 6AT8A target entry; Section2
Average value -(-100	-900 V	Published in approved 6AT8A target entry; Section2

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc) 4.7	6.3 V	Published in approved 6AT8A target entry; Section2
Heater Current , . . 0.6	450 mA	Published in approved 6AT8A target entry; Section2
Grid to Plate 1.5	1.5 pF	Published in approved 6AT8A target entry; Section2
Grid to Cathode and Heater 2	2.4 pF	Published in approved 6AT8A target entry; Section2
Plate to Cathode and Heater 0.5	1 pF	Published in approved 6AT8A target entry; Section2
Grid No.3 4.6	4.8 pF	Published in approved 6AT8A target entry; Section2
Grid No.3 0.9	1.6 pF	Published in approved 6AT8A target entry; Section2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate to Heater and Cathode	8.5 pF	Published in approved 6AT8A target entry; Section2
Cathode to Heater and Plate	11.5 pF	Published in approved 6AT8A target entry; Section2
Heater to Cathode	4 pF	Published in approved 6AT8A target entry; Section2