ELECTRONIC TUBE REFERENCE

6HB7

Voltage - Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
PENTODE-TRIODE

Miniature triode-pentode used as a combined oscillator and mixer in color and black-and-white television receivers.

General characteristics

BASE DESIGNATION	9QA	**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

9QA - Terminal pinout

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

Section ratings

SECTION1 Triode

PLATE RESISTANCE	5000 Ω
TRANSCONDUCTANCE	0.0085 S
AMPLIFICATION FACTOR	40
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM SCREEN VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	2.5 W

Published maximum ratings and characteristic values promoted where applicable; additional table values retained in TUBE_SECTION_PARAMETER.

SECTION2 Pentode

PLATE RESISTANCE	200000 Ω
TRANSCONDUCTANCE	0.0064 S
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM SCREEN VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	3.1 W
MAXIMUM SCREEN DISSIPATION	0.55 W

Published maximum ratings and characteristic values promoted where applicable; additional table values retained in TUBE_SECTION_PARAMETER.

Miniature type used as combined oscillator and mixer B (T//-L- tube in color and black-and-white television receivers G ip utilizing an intermediate frequency in the order of 40 MHz. Outlines section, 6B; requires miniature 9- k,G3 ,is contact socket. Type 5HB7 is identical with type 6HB7 p except for heater ratings. 9QA 5HB7 6HB7 Heater Voltage (ac/dc) 4.

SOURCE OPERATING CONDITIONS

1964 RMA EIA

SOURCE PDF

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

1964 RMA EIA

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Heater Voltage	**6.3 V**	—
Heater Current	**450 mA**	—
TriodeGridToPlateCapacitance	**1.9 pF**	—
Triode Input Capacitance	**3 pF**	—
TriodeOutputCapacitance	**1.9 pF**	—
TriodeTransconductance	**8500 uS**	—
TriodePlateResistance	**5000 ohm**	—

OTHER		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
TriodePlateVoltage	**150 V**	ClassA
TriodePlateCurrent	**18 mA**	ClassA

1964 RMA EIA

Section 2 · Pentode

CHARACTERISTIC		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
PentodeGridToPlateCapacitanceMaximum	**0.01 pF**	—
Pentode Input Capacitance	**5 pF**	—
Pentode Output Capacitance	**3.4 pF**	—
PentodeTransconductance	**6400 uS**	—
PentodePlateResistance	**200000 ohm**	—

OTHER		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
PentodePlateVoltage	**125 V**	ClassA
PentodeScreenVoltage	**125 V**	ClassA
PentodePlateCurrent	**12 mA**	ClassA
PentodeScreenCurrent	**4 mA**	ClassA

SOURCE OPERATING CONDITIONS

1965 Sylvania Electronic Tubes Vol3

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

1965 SYLVANIA ELECTRONIC TUBES VOL3

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Plate resistance	**5000 ohm**	—
Transconductance	**8500 uS**	—

OTHER		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Maximum plate voltage	**330 V**	—
Maximum plate dissipation	**2.5 W**	—
Heater voltage	**6.3 V**	—
Heater current	**450 mA**	—
Typical plate current	**18 mA**	—

1965 SYLVANIA ELECTRONIC TUBES VOL3

Section 2 · Pentode

CHARACTERISTIC		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Plate resistance	**200000 ohm**	—
Transconductance	**6400 uS**	—

OTHER		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Maximum plate voltage	**330 V**	—
Maximum plate dissipation	**3.1 W**	—
Heater voltage	**6.3 V**	—
Heater current	**450 mA**	—
Typical plate current	**12 mA**	—
Typical screen-grid current	**4 mA**	—

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

Section 1 · Triode

OTHER		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Plate voltage	**150 V**	ClassA
Plate current	**18 mA**	ClassA
Maximum plate voltage	**330 V**	—
respect to cathode	**200 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
respect to cathode	**200**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Plate Voltage — published value 1	**330 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Plate Voltage — published value 2	**330 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Supply Voltage	**330 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Positive-bias value — published value 1	**0 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Positive-bias value — published value 2	**0 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Plate Dissipation — published value 1	**2 mA**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Plate Dissipation — published value 2	**5 mA**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Plate Dissipation — published value 3	**3.1 mA**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
For fixed-bias operation — published value 1	**0.5 mA**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
For fixed-bias operation — published value 2	**0.25 mA**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
For cathode-bias operation — published value 1	**1 mA**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
For cathode-bias operation — published value 2	**0.5 mA**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.

CHARACTERISTICS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	**5000 ohm**	ClassA
Transconductance	**8500 uS**	ClassA
Amplification factor	**40**	ClassA
Voltage (AC or DC) — published value 1	**6.3 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Voltage (AC or DC) — published value 2	**0.6 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Current,at heater volts = 6.3 — published value 1	**6.3 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Current,at heater volts = 6.3 — published value 2	**0.45 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Warm-up time (Average]	**11**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Plate Supply Voltage — published value 1	**150 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Plate Supply Voltage — published value 2	**125 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Grid-No.2 Supply Voltage	**125 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Grid-No.l Supply Voltage — published value 1	**0 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Grid-No.l Supply Voltage — published value 2	**-1 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Cathode Resistor	**56 ohm**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Plate Resistance (Approx.) — published value 1	**5000 ohm**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Plate Resistance (Approx.) — published value 2	**200000 ohm**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Transconductance — published value 1	**8500**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Transconductance — published value 2	**6400**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Plate Current — published value 1	**18 mA**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Plate Current — published value 2	**12 mA**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-No.2 Current	**4 mA**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
for plate µa = 10 — published value 1	**10 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
for plate µa = 10 — published value 2	**-12 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
for plate µa = 10 — published value 3	**-9 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Grid No. 3,	**3**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Pin 4 -Heater	**4**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Pin 5 -Heater	**5**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Pin 8 -Triode Plate	**8**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Pin 9 -Triode Grid	**9**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
165 and 330 volts — published value 1	**165 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
165 and 330 volts — published value 2	**330 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
GRID-Nw2 VOLTS=125	**125 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
PLATE VOLTS=125	**125 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
GRID-Ns2 VOLTS=125	**125 V**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.

1971 RCA HB3 BINDER 5 OF 7

Section 2 · Pentode

OTHER		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Plate voltage	**125 V**	ClassA
Plate current	**12 mA**	ClassA
Maximum plate voltage	**330 V**	—
Maximum screen-grid voltage	**330 V**	—

CHARACTERISTICS		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Plate resistance	**200000 ohm**	ClassA
Transconductance	**6400 uS**	ClassA
Pin 1- Cathode, Pentode	**1**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Pin 2 -Pentode Grid No.1	**2**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Pin 6 - Pentode Plate	**6**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.
Pin 7- Pentode Grid No.2	**7**	Published datasheet value; multiple values on one source row represent separate limits or operating conditions.

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**
Heater Warm-up Time (Average)	**11 seconds**	Heater Warm-up Time (Average) 11 11 seconds

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Dissipation	**3.1 watts**	Plate Dissipation 2.5 3.1 watts
Grid-No	**2**	Grid-No.2 Input:

CAPACITANCE

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate	**1.9 pF**	Grid to Plate 1.9 pF
Grid to Cathode, Heater, Pentode Grid No	**3 pF**	Grid to Cathode, Heater, Pentode Grid No.3, and Internal Shield 3 pF
Plate to Cathode, Heater, Pentode Grid No	**1.9 pF**	Plate to Cathode, Heater, Pentode Grid No.3, and Internal Shield 1.9 pF

CHARACTERISTIC

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	**330 volts**	Plate Voltage 330 330 volts
Grid-No	**330 volts**	Grid-No.2 (Screen-Grid) Supply Voltage 330 volts
Grid-No	**300**	Grid-No.2 Voltage - See curve page 300
For grid-No	**165 volts**	For grid-No.2 voltages up to 165 volts -
For grid-No	**300 volts**	For grid-No.2 voltages between 165 and 330 volts See curve page 300
Plate Supply Voltage	**125 volts**	Plate Supply Voltage 150 125 volts
Grid-No	**125 volts**	Grid-No.2 Supply Voltage 125 volts
Grid-No.l Supply Voltage	**-1 volts**	Grid-No.l Supply Voltage 0 -1 volts
Amplification Factor	**40**	Amplification Factor 40
Plate Resistance (Approx.)	**0.2 megohm**	Plate Resistance (Approx.) 0.005 0.2 megohm
Transconductance	**6400**	Transconductance 8500 6400 /imhos
Plate Current	**12 mA**	Plate Current 18 12 mA
Grid-No	**4 mA**	Grid-No.2 Current 4 mA
Grid-No	**1**	Grid-No. 1-Circuit Resistance:

1975 RCA RC30

Section 2 · Pentode

CAPACITANCE

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.l to Plate	**0.01 pF**	Grid No.l to Plate 0.010 max pF
Heater to Cathode'	**3.8 pF**	Heater to Cathode' 3.8 pF

OTHER

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid Nol to Cathode, Heater, Grid No	3	Grid Nol to Cathode, Heater, Grid No.2, Grid No.3, and
Plate to Cathode, Heater, Grid No	3	Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal

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