

ELECTRONIC TUBE REFERENCE

4KE8

Voltage - Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
PENTODE-TRIODE

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

GENERAL CHARACTERISTICS

BASE DESIGNATION	9DC	BASE PINS	9
NOMINAL HEATER	4.5 V / 600 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

9DC - TERMINAL PINOUT

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

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	5000 Ω
TRANSCONDUCTANCE	0.008 S
AMPLIFICATION FACTOR	40
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	1.5 W
<i>Oscillator triode section.</i>	

SECTION2 Pentode	
PLATE RESISTANCE	125000 Ω
TRANSCONDUCTANCE	0.012 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	1.1 W
MAXIMUM CATHODE CURRENT	20 mA
<i>Frame-grid mixer pentode section.</i>	

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

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	125 V	OscillatorMixer;40MHz
Cathode resistor	68 ohm	OscillatorMixer;40MHz
Plate current	13 mA	OscillatorMixer;40MHz

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	5000 ohm	OscillatorMixer;40MHz
Transconductance	8000 uS	OscillatorMixer;40MHz
Amplification factor	40	OscillatorMixer;40MHz
Triode grid-to-plate capacitance	1.3 pF	—
Triode input capacitance	2.4 pF	—
Triode output capacitance	2 pF	—
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	125 V	OscillatorMixer;40MHz
Grid 2 voltage	125 V	OscillatorMixer;40MHz
Cathode resistor	33 ohm	OscillatorMixer;40MHz
Plate current	10 mA	OscillatorMixer;40MHz
Grid 2 current	2.8 mA	OscillatorMixer;40MHz

Characteristic		
Parameter	Published Value	Condition / Note
Plate resistance	125000 ohm	OscillatorMixer;40MHz
Transconductance	12000 uS	OscillatorMixer;40MHz
Pentode grid 1-to-plate capacitance	0.015 pF	—
Pentode input capacitance	5 pF	—
Pentode output capacitance	3.4 pF	—



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
Grid-No. 3-Circuit Resistance	0.01 MΩ	Published in approved 6KE8 target datasheet entry; Section1
# Pulse duration must not exceed 15% of a horizontal scanning cycle (	10 microseconds	Published in approved 6KE8 target datasheet entry; Section1
Heater Voltage (ac/dc) 4.5 5.6	6.3 V	Published in approved 6KE8 target datasheet entry; Section1
Heater Current 0.6 0.45	400 mA	Published in approved 6KE8 target datasheet entry; Section1
Heater Warm-up Time (Average) 11	11 seconds	Published in approved 6KE8 target datasheet entry; Section1
Plate Voltage 280	280 V	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.2 (Screen-Grid) Supply Voltage	280 V	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.1 (Control-Grid) Voltage, Positive-bias value	0 V	Published in approved 6KE8 target datasheet entry; Section1
Cathode Current	20 mA	Published in approved 6KE8 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Dissipation	2 W	Published in approved 6KE8 target datasheet entry; Section1
For grid-No. 2 voltages up to	140 V	Published in approved 6KE8 target datasheet entry; Section1
For grid-No.2 voltages between 140 and	280 V	Published in approved 6KE8 target datasheet entry; Section1
Plate Supply Voltage 125	125 V	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.2 Supply Voltage	125 V	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.1 Supply Voltage 0	0 V	Published in approved 6KE8 target datasheet entry; Section1
Cathode-Bias Resistor 68	33 Ω	Published in approved 6KE8 target datasheet entry; Section1
Plate Current 13	10 mA	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.2 Current	2.8 mA	Published in approved 6KE8 target datasheet entry; Section1
For plate current of 60 /zA --	-3 V	Published in approved 6KE8 target datasheet entry; Section1
For fixed-bias operation 0.5	0.25 MΩ	Published in approved 6KE8 target datasheet entry; Section1
For cathode-bias operation 1	0.5 MΩ	Published in approved 6KE8 target datasheet entry; Section1
Heater Voltage (ac/dc) 6.3	40 V	Published in approved 6KE8 target datasheet entry; Section1
Heater Current 2	300 mA	Published in approved 6KE8 target datasheet entry; Section1
Plate to Grid-No.1	2.5 pF	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.1 to Heater	0.2 pF	Published in approved 6KE8 target datasheet entry; Section1
Plate Supply Voltage	700 V	Published in approved 6KE8 target datasheet entry; Section1
Peak Positive-Pulse Plate Voltage*	7000 V	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.2 Voltage (zero-current)	700 V	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.2 Voltage	250 V	Published in approved 6KE8 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Dissipation (Absolute-Maximum Value)	34 W	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.2 Input	7 W	Published in approved 6KE8 target datasheet entry; Section1
Cathode Current	500 mA	Published in approved 6KE8 target datasheet entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate	1.3 pF	Published in approved 6KE8 target datasheet entry; Section1
and Internal Shield	2.4 pF	Published in approved 6KE8 target datasheet entry; Section1
and Internal Shield	2 pF	Published in approved 6KE8 target datasheet entry; Section1
and Internal Shield	5 pF	Published in approved 6KE8 target datasheet entry; Section1
and Internal Shield	3.4 pF	Published in approved 6KE8 target datasheet entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance (Approx.) 5000	125000 Ω	Published in approved 6KE8 target datasheet entry; Section1
Transconductance 8000	12000 μS	Published in approved 6KE8 target datasheet entry; Section1
Plate Voltage 45	160 V	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.3 Voltage! 0	0 V	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.2 Voltage . 160	160 V	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.1 Voltage . 0	0 V	Published in approved 6KE8 target datasheet entry; Section1
Plate Current* 1000 (min.)	1400 mA	Published in approved 6KE8 target datasheet entry; Section1
Grid-No.2 Current"	45 mA	Published in approved 6KE8 target datasheet entry; Section1

Section 2 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-No. 3-Circuit Resistance	0.01 MΩ	Published in approved 6KE8 target datasheet entry; Section2
# Pulse duration must not exceed 15% of a horizontal scanning cycle (	10 microseconds	Published in approved 6KE8 target datasheet entry; Section2
Heater Voltage (ac/dc) 4.5 5.6	6.3 V	Published in approved 6KE8 target datasheet entry; Section2
Heater Current 0.6 0.45	400 mA	Published in approved 6KE8 target datasheet entry; Section2
Heater Warm-up Time (Average) 11	11 seconds	Published in approved 6KE8 target datasheet entry; Section2
Plate Voltage 280	280 V	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.2 (Screen-Grid) Supply Voltage	280 V	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.1 (Control-Grid) Voltage, Positive-bias value	0 V	Published in approved 6KE8 target datasheet entry; Section2
Cathode Current	20 mA	Published in approved 6KE8 target datasheet entry; Section2
Plate Dissipation	2 W	Published in approved 6KE8 target datasheet entry; Section2
For grid-No. 2 voltages up to	140 V	Published in approved 6KE8 target datasheet entry; Section2
For grid-No.2 voltages between 140 and	280 V	Published in approved 6KE8 target datasheet entry; Section2
Plate Supply Voltage 125	125 V	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.2 Supply Voltage	125 V	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.1 Supply Voltage 0	0 V	Published in approved 6KE8 target datasheet entry; Section2
Cathode-Bias Resistor 68	33 Ω	Published in approved 6KE8 target datasheet entry; Section2
Plate Current 13	10 mA	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.2 Current	2.8 mA	Published in approved 6KE8 target datasheet entry; Section2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
For plate current of 60 /zA --	-3 V	Published in approved 6KE8 target datasheet entry; Section2
For fixed-bias operation 0.5	0.25 MΩ	Published in approved 6KE8 target datasheet entry; Section2
For cathode-bias operation 1	0.5 MΩ	Published in approved 6KE8 target datasheet entry; Section2
Heater Voltage (ac/dc) 6.3	40 V	Published in approved 6KE8 target datasheet entry; Section2
Heater Current 2	300 mA	Published in approved 6KE8 target datasheet entry; Section2
Plate to Grid-No.1	2.5 pF	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.1 to Heater	0.2 pF	Published in approved 6KE8 target datasheet entry; Section2
Plate Supply Voltage	700 V	Published in approved 6KE8 target datasheet entry; Section2
Peak Positive-Pulse Plate Voltage*	7000 V	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.2 Voltage (zero-current)	700 V	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.2 Voltage	250 V	Published in approved 6KE8 target datasheet entry; Section2
Plate Dissipation (Absolute-Maximum Value)	34 W	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.2 Input	7 W	Published in approved 6KE8 target datasheet entry; Section2
Cathode Current	500 mA	Published in approved 6KE8 target datasheet entry; Section2

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate	1.3 pF	Published in approved 6KE8 target datasheet entry; Section2
and Internal Shield	2.4 pF	Published in approved 6KE8 target datasheet entry; Section2
and Internal Shield	2 pF	Published in approved 6KE8 target datasheet entry; Section2
and Internal Shield	5 pF	Published in approved 6KE8 target datasheet entry; Section2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
and Internal Shield	3.4 pF	Published in approved 6KE8 target datasheet entry; Section2

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance (Approx.) 5000	125000 Ω	Published in approved 6KE8 target datasheet entry; Section2
Transconductance 8000	12000 μS	Published in approved 6KE8 target datasheet entry; Section2
Plate Voltage 45	160 V	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.3 Voltage! 0	0 V	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.2 Voltage . 160	160 V	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.1 Voltage . 0	0 V	Published in approved 6KE8 target datasheet entry; Section2
Plate Current* 1000 (min.)	1400 mA	Published in approved 6KE8 target datasheet entry; Section2
Grid-No.2 Current"	45 mA	Published in approved 6KE8 target datasheet entry; Section2

TUBE TINKER

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