

ELECTRONIC TUBE REFERENCE

6KE8

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 oscillator-mixer tube in television receivers.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9DC	BASE PINS	9
NOMINAL HEATER	6.3 V / 400 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	280 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM CATHODE CURRENT	20 mA
<i>Representative electrical section from supplied RCA data sheet.</i>	

SECTION2 Pentode	
PLATE RESISTANCE	125000 Ω
TRANSCONDUCTANCE	0.012 S
MAXIMUM PLATE VOLTAGE	280 V
MAXIMUM SCREEN VOLTAGE	280 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	0.5 W
MAXIMUM CATHODE CURRENT	20 mA
<i>Representative electrical section from supplied RCA data sheet.</i>	

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

SOURCE OPERATING CONDITIONS

1940 RCA

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

1940 RCA

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater or filament voltage	6.3 V	Published nominal value
Heater or filament current	450 mA	Published nominal value
Pentode transconductance	12000 μ S	Published headline value

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Combined oscillator-mixer converter	Television receiver

1940 RCA

Section 2 · Pentode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater or filament voltage	6.3 V	Published nominal value
Heater or filament current	450 mA	Published nominal value
Transconductance	12000 μ S	Published operating characteristic

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
Heater voltage nominal	6.3 V	—
Heater current	400 mA	—
Maximum plate voltage	280 V	Promoted field corroboration

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Voltage (AC or DC)	6.3 V	Published table column
Current at heater volts	6.3 V	Published table column
Plate resistance	5000 ohm	Promoted field corroboration
Transconductance	8000 μ S	Promoted field corroboration
Amplification factor	40	Promoted field corroboration

1971 RCA HB3 BINDER 5 OF 7

Section 2 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage nominal	6.3 V	—
Heater current	400 mA	—
PLATE VOLTAGE	280 V	Published source row
PLATE VOLTAGE (value 2)	280 V	Published source row
GRIC-No	2 V	Published source row
GRIC-No (value 2)	280 V	Published source row
GRID-No	2	Published source row
GRID-No (value 2)	2	Published source row
GRID-No	1	Published source row
CATHODE CURRENT	20 mA	Published source row
CATHODE CURRENT (value 2)	20 mA	Published source row
For grid-No	2	Published source row
For grid-No	2	Published source row
between	140	Published source row
between (value 2)	280	Published source row

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
between (value 3)	2	Published source row
PLATE DISSIPATION	2 W	Published source row
PLATE DISSIPATION (value 2)	2 W	Published source row

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Voltage (AC or DC)	0.6 V	Published table column
Current at heater volts	0 V	Published table column
Plate Supply Voltage	125 V	Published source row
Plate Supply Voltage (value 2)	125 V	Published source row
Grid-No	2 V	Published source row
Grid-No (value 2)	125 V	Published source row
Cathode Resistor	68 ohm	Published source row
Cathode Resistor (value 2)	33 ohm	Published source row
Plate Resistance (Approx)	5000 ohm	Published source row
Plate Resistance (Approx) (value 2)	125000 ohm	Published source row
Transconductance	8000 μ S	Published source row
Transconductance (value 2)	12000 μ S	Published source row
Plate Current	13 mA	Published source row
Plate Current (value 2)	10 mA	Published source row
Grid-No	2 mA	Published source row
Grid-No (value 2)	2.8 mA	Published source row
Grid-No	1	Published source row
Grid No	1	Published source row
Grid No	2	Published source row

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No	1 pF	Published source row
Grid No (value 2)	0 pF	Published source row
Grid No (value 3)	15 pF	Published source row
Grid No	1	Published source row

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No (value 2)	3	Published source row



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-Circu it 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 Voitagc 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
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

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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
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

1975 RCA RC30

Section 2 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-No. 3-Circu it Resistance	0.01 M Ω	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

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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 Voitagc 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
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

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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
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

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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

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