

ELECTRONIC TUBE REFERENCE

4BL8

Voltage - Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

PENTODE-TRIODE

Medium-mu triode plus sharp-cutoff pentode used as a television frequency changer.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9DC	BASE PINS	9
NOMINAL HEATER	4.6 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 Pentode	
PLATE RESISTANCE	400000 Ω
TRANSCONDUCTANCE	0.005 S
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM SCREEN VOLTAGE	200 V
MAXIMUM PLATE DISSIPATION	1.7 W
MAXIMUM SCREEN DISSIPATION	0.75 W
MAXIMUM CATHODE CURRENT	14 mA
MAXIMUM HEATER-CATHODE VOLTAGE	200 V
<i>Published ratings and characteristics promoted where applicable.</i>	

SECTION2 Triode	
PLATE RESISTANCE	12500 Ω
TRANSCONDUCTANCE	0.005 S
AMPLIFICATION FACTOR	20
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	1.7 W
MAXIMUM CATHODE CURRENT	14 mA
MAXIMUM HEATER-CATHODE VOLTAGE	200 V
<i>Published ratings and characteristics promoted where applicable.</i>	

Medium-mu triode plus sharp-cutoff pentode used in television frequency-changer service.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	170 V	Mixer
Screen voltage	170 V	Mixer
Plate current	10 mA	Mixer
Screen current	2.8 mA	Mixer

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	6200 μS	Section2
Plate resistance	400000 Ω	Section2

1966 TUNG SOL ELECTRONIC TUBES 1 OF 4

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	Oscillator
Plate current	12 mA	Oscillator

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	5500 μS	Section1
Amplification factor	20	Section1

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

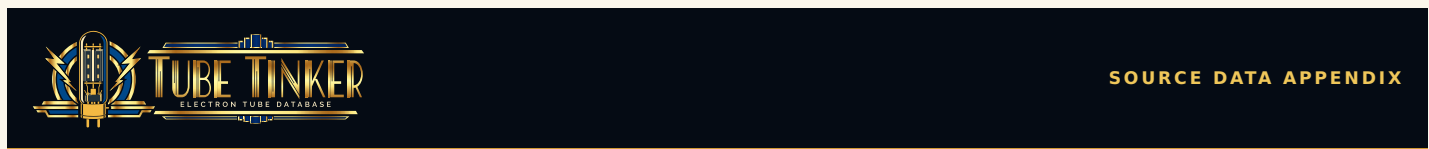
OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	170 V	Inherited from explicitly referenced 6-volt parent type; heater variant
Screen Voltage	170 V	Inherited from explicitly referenced 6-volt parent type; heater variant
Grid Voltage	-2 V	Inherited from explicitly referenced 6-volt parent type; heater variant
Plate Current	10 mA	Inherited from explicitly referenced 6-volt parent type; heater variant
Screen Current	2.8 mA	Inherited from explicitly referenced 6-volt parent type; heater variant

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance	400000 Ω	Inherited from explicitly referenced 6-volt parent type; heater variant
Transconductance	6200 μS	Inherited from explicitly referenced 6-volt parent type; heater variant

1971 RCA HB3 BINDER 4 OF 7
Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Current	560 mA–640 mA	Published nominal ± tolerance
Heater Voltage	4.6 V	At heater current 0.6 A
Plate Voltage	100 V	Inherited from explicitly referenced 6-volt parent type; heater variant
Grid Voltage	-2 V	Inherited from explicitly referenced 6-volt parent type; heater variant
Plate Current	14 mA	Inherited from explicitly referenced 6-volt parent type; heater variant

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification Factor	20	Inherited from explicitly referenced 6-volt parent type; heater variant
Transconductance	5000 μ S	Inherited from explicitly referenced 6-volt parent type; heater variant



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
• Pulse duration must not exceed 15% of a vertical scanning cycle (	2.5 milliseconds	Published in approved ECF80 target datasheet entry; Section2
Heater Voltage (ac/dc) 4.6	6.3 V	Published in approved ECF80 target datasheet entry; Section2
Heater Current 0.6	450 mA	Published in approved ECF80 target datasheet entry; Section2
Plate Supply Voltage 550	550 V	Published in approved ECF80 target datasheet entry; Section2
Plate Voltage 250	250 V	Published in approved ECF80 target datasheet entry; Section2
Grid-No.2 (Screen-Grid) Supply Voltage	550 V	Published in approved ECF80 target datasheet entry; Section2
With cathode current of	14 mA	Published in approved ECF80 target datasheet entry; Section2
With cathode current of 14 mA	175 V	Published in approved ECF80 target datasheet entry; Section2
With cathode current less than	10 mA	Published in approved ECF80 target datasheet entry; Section2
With cathode current less than 10 mA	200 V	Published in approved ECF80 target datasheet entry; Section2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode Current 14	14 mA	Published in approved ECF80 target datasheet entry; Section2
Plate Dissipation 1.5	1.7 W	Published in approved ECF80 target datasheet entry; Section2
With plate dissipation greater than	1.2 W	Published in approved ECF80 target datasheet entry; Section2
With plate dissipation greater than 1.2 watts	0.5 W	Published in approved ECF80 target datasheet entry; Section2
With p.ate dissipation less than	1.2 W	Published in approved ECF80 target datasheet entry; Section2
Input Resistance at frequency of	50 MHz	Published in approved ECF80 target datasheet entry; Section2
Equivalent Noise Resistance	1500 Ω	Published in approved ECF80 target datasheet entry; Section2
For fixed-bias operation 0.5	0.5 MΩ	Published in approved ECF80 target datasheet entry; Section2
For cathode-bias operation 0.5	1 MΩ	Published in approved ECF80 target datasheet entry; Section2
Heater Voltage 6.3	50 V	Published in approved ECF80 target datasheet entry; Section2
Heater Current 0.78	100 mA	Published in approved ECF80 target datasheet entry; Section2
Plate Supply Voltage 550	900 V	Published in approved ECF80 target datasheet entry; Section2
Plate Voltage 300	600 V	Published in approved ECF80 target datasheet entry; Section2
Grid-No.2 Supply Voltage	550 V	Published in approved ECF80 target datasheet entry; Section2
Plate Dissipation 1	7 W	Published in approved ECF80 target datasheet entry; Section2
Grid-No.2 Input	1.8 W	Published in approved ECF80 target datasheet entry; Section2
Plate Voltage 100	200 V	Published in approved ECF80 target datasheet entry; Section2
For fixed-bias operation I	1 MΩ	Published in approved ECF80 target datasheet entry; Section2
For cathode-bias operation 2	2 MΩ	Published in approved ECF80 target datasheet entry; Section2

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage 100	170 V	Published in approved ECF80 target datasheet entry; Section2
Transconductance 5000	6200 μ S	Published in approved ECF80 target datasheet entry; Section2
Plate Current 14	10 mA	Published in approved ECF80 target datasheet entry; Section2
Plate Resistance (Approx.)	0.02 M Ω	Published in approved ECF80 target datasheet entry; Section2
Transconductance 2500	6400 μ S	Published in approved ECF80 target datasheet entry; Section2
Plate Current 3.5	35 mA	Published in approved ECF80 target datasheet entry; Section2
Grid-No.2 Current	7 mA	Published in approved ECF80 target datasheet entry; Section2

1975 RCA RC30

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
• Pulse duration must not exceed 15% of a vertical scanning cycle (	2.5 milliseconds	Published in approved ECF80 target datasheet entry; Section1
Heater Voltage (ac/dc) 4.6	6.3 V	Published in approved ECF80 target datasheet entry; Section1
Heater Current 0.6	450 mA	Published in approved ECF80 target datasheet entry; Section1
Plate Supply Voltage 550	550 V	Published in approved ECF80 target datasheet entry; Section1
Plate Voltage 250	250 V	Published in approved ECF80 target datasheet entry; Section1
Grid-No.2 (Screen-Grid) Supply Voltage	550 V	Published in approved ECF80 target datasheet entry; Section1
With cathode current of	14 mA	Published in approved ECF80 target datasheet entry; Section1
With cathode current of 14 mA	175 V	Published in approved ECF80 target datasheet entry; Section1
With cathode current less than	10 mA	Published in approved ECF80 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
With cathode current less than 10 mA	200 V	Published in approved ECF80 target datasheet entry; Section1
Cathode Current 14	14 mA	Published in approved ECF80 target datasheet entry; Section1
Plate Dissipation 1.5	1.7 W	Published in approved ECF80 target datasheet entry; Section1
With plate dissipation greater than	1.2 W	Published in approved ECF80 target datasheet entry; Section1
With plate dissipation greater than 1.2 watts	0.5 W	Published in approved ECF80 target datasheet entry; Section1
With p.ate dissipation less than	1.2 W	Published in approved ECF80 target datasheet entry; Section1
Input Resistance at frequency of	50 MHz	Published in approved ECF80 target datasheet entry; Section1
Equivalent Noise Resistance	1500 Ω	Published in approved ECF80 target datasheet entry; Section1
For fixed-bias operation 0.5	0.5 MΩ	Published in approved ECF80 target datasheet entry; Section1
For cathode-bias operation 0.5	1 MΩ	Published in approved ECF80 target datasheet entry; Section1
Heater Voltage 6.3	50 V	Published in approved ECF80 target datasheet entry; Section1
Heater Current 0.78	100 mA	Published in approved ECF80 target datasheet entry; Section1
Plate Supply Voltage 550	900 V	Published in approved ECF80 target datasheet entry; Section1
Plate Voltage 300	600 V	Published in approved ECF80 target datasheet entry; Section1
Grid-No.2 Supply Voltage	550 V	Published in approved ECF80 target datasheet entry; Section1
Plate Dissipation 1	7 W	Published in approved ECF80 target datasheet entry; Section1
Grid-No.2 Input	1.8 W	Published in approved ECF80 target datasheet entry; Section1
Plate Voltage 100	200 V	Published in approved ECF80 target datasheet entry; Section1
For fixed-bias operation I	1 MΩ	Published in approved ECF80 target datasheet entry; Section1
For cathode-bias operation 2	2 MΩ	Published in approved ECF80 target datasheet entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage 100	170 V	Published in approved ECF80 target datasheet entry; Section1
Transconductance 5000	6200 μS	Published in approved ECF80 target datasheet entry; Section1
Plate Current 14	10 mA	Published in approved ECF80 target datasheet entry; Section1
Plate Resistance (Approx.)	0.02 MΩ	Published in approved ECF80 target datasheet entry; Section1
Transconductance 2500	6400 μS	Published in approved ECF80 target datasheet entry; Section1
Plate Current 3.5	35 mA	Published in approved ECF80 target datasheet entry; Section1
Grid-No.2 Current	7 mA	Published in approved ECF80 target datasheet entry; Section1

TUBE TINKER

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