

ELECTRONIC TUBE REFERENCE

8CS7

Power - TV Vertical Output electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

TRIODE-TRIODE

Dissimilar dual triode for combined television vertical oscillator and deflection-amplifier service. Its small-signal section generates the scanning waveform while the higher-current output section handles vertical deflection and kilovolt-level pulse voltages.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9EF	BASE PINS	9
NOMINAL HEATER	8.4 V / 450 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

9EF - TERMINAL PINOUT

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

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	7700 Ω
TRANSCONDUCTANCE	0.0022 S
AMPLIFICATION FACTOR	17
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	1.25 W
MAXIMUM CATHODE CURRENT	20 mA
MAXIMUM HEATER-CATHODE VOLTAGE	200 V
WARM-UP TIME	11 s
<i>Published promoted fields populated semantically; identical repeated sections compressed.</i>	

SECTION2 Triode	
PLATE RESISTANCE	3450 Ω
TRANSCONDUCTANCE	0.0044 S
AMPLIFICATION FACTOR	15
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	6.5 W
MAXIMUM CATHODE CURRENT	30 mA
MAXIMUM HEATER-CATHODE VOLTAGE	200 V
WARM-UP TIME	11 s
<i>Published promoted fields populated semantically; identical repeated sections compressed.</i>	

Dissimilar medium-mu dual triode used as a vertical-deflection oscillator and vertical-deflection amplifier in television receivers.



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

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Service	Vertical deflection oscillator	—

1950 SYLVANIA

Section 2 · Triode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Service	Vertical deflection amplifier	—



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
Heater voltage	8.4 V	Rated heater condition
Heater current	450 mA	Rated heater condition

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Voltage (ac or dc)	8.4 V	Voltage (ac or dc) 6.3 8.4 Volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid Cutoff Voltage . . -24 *	-221 V	Grid Cutoff Voltage . . -24 * -221 Volts

1965 SYLVANIA ELECTRONIC TUBES VOL3

Section 2 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	8.4 V	Rated heater condition
Heater current	450 mA	Rated heater condition



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

SOURCE PDF

1966 Tung Sol Electronic Tubes 2 of 4

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

1966 TUNG SOL ELECTRONIC TUBES 2 OF 4

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate_voltage	250 V	TVVerticalDeflection,Oscillator
Grid_voltage	-8.5 V	TVVerticalDeflection,Oscillator

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate_current	10.5 mA	TVVerticalDeflection,Oscillator
Transconductance	2200 uS	TVVerticalDeflection,Oscillator
Amplification_factor	17	TVVerticalDeflection,Oscillator
Plate_resistance	7700 ohm	TVVerticalDeflection,Oscillator

1966 TUNG SOL ELECTRONIC TUBES 2 OF 4

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum_peak_positive_plate_voltage	2200 V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum_peak_cathode_current	105 mA	—
Plate_voltage	250 V	TVVerticalDeflection
Grid_voltage	-10.5 V	TVVerticalDeflection
Heater_warmup_time	11 s	TVVerticalDeflection

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate_current	19 mA	TVVerticalDeflection
Transconductance	4500 uS	TVVerticalDeflection
Amplification_factor	15.5	TVVerticalDeflection
Plate_resistance	3450 ohm	TVVerticalDeflection


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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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	8.4 V	—
Heater current nominal	450 mA	—

1971 RCA HB3 BINDER 5 OF 7

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage nominal	8.4 V	—
Heater current nominal	450 mA	—


SOURCE DATA APPENDIX

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 Voltage (ac/dc) 6.3	8.4 V	Published in approved 8CS7 target datasheet entry; Section1
Heater Current 0.6	450 mA	Published in approved 8CS7 target datasheet entry; Section1
Heater Warm-up Time (Average) 11	11 seconds	Published in approved 8CS7 target datasheet entry; Section1
DC Plate Voltage 500	600 V	Published in approved 8CS7 target datasheet entry; Section1
Peak Negative-Pulse Grid Voltage 400	250 V	Published in approved 8CS7 target datasheet entry; Section1
Peak Cathode Current 70	105 mA	Published in approved 8CS7 target datasheet entry; Section1
Average Cathode Current 20	30 mA	Published in approved 8CS7 target datasheet entry; Section1
Plate Dissipation 1.25	8.6 W	Published in approved 8CS7 target datasheet entry; Section1
Grid-Circuit Resistance 2.2	2.2 MΩ	Published in approved 8CS7 target datasheet entry; Section1
# Pulse duration must not exceed 15% of a vertical scanning cycle (	2.5 milliseconds	Published in approved 8CS7 target datasheet entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate 2.6	2.6 pF	Published in approved 8CS7 target datasheet entry; Section1
Grid to Cathode and Heater 1.8	3 pF	Published in approved 8CS7 target datasheet entry; Section1
Plate to Cathode and Heater 0.5	0.5 pF	Published in approved 8CS7 target datasheet entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage 250	250 V	Published in approved 8CS7 target datasheet entry; Section1
Grid Voltage -8.5	-10.5 V	Published in approved 8CS7 target datasheet entry; Section1
Plate Resistance (Approx.) 7700	3450 Ω	Published in approved 8CS7 target datasheet entry; Section1
2200	4500 μS	Published in approved 8CS7 target datasheet entry; Section1
10.5	19 mA	Published in approved 8CS7 target datasheet entry; Section1
Plate Current for grid voltage of	-16 V	Published in approved 8CS7 target datasheet entry; Section1
Plate Current for grid voltage of --16 volts	3 mA	Published in approved 8CS7 target datasheet entry; Section1

1975 RCA RC30

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc) 6.3	8.4 V	Published in approved 8CS7 target datasheet entry; Section2
Heater Current 0.6	450 mA	Published in approved 8CS7 target datasheet entry; Section2
Heater Warm-up Time (Average) 11	11 seconds	Published in approved 8CS7 target datasheet entry; Section2
DC Plate Voltage 500	600 V	Published in approved 8CS7 target datasheet entry; Section2
Peak Negative-Pulse Grid Voltage 400	250 V	Published in approved 8CS7 target datasheet entry; Section2
Peak Cathode Current 70	105 mA	Published in approved 8CS7 target datasheet entry; Section2
Average Cathode Current 20	30 mA	Published in approved 8CS7 target datasheet entry; Section2
Plate Dissipation 1.25	8.6 W	Published in approved 8CS7 target datasheet entry; Section2
Grid-Circuit Resistance 2.2	2.2 MΩ	Published in approved 8CS7 target datasheet entry; Section2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
# Pulse duration must not exceed 15% of a vertical scanning cycle (	2.5 milliseconds	Published in approved 8CS7 target datasheet entry; Section2

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate 2.6	2.6 pF	Published in approved 8CS7 target datasheet entry; Section2
Grid to Cathode and Heater 1.8	3 pF	Published in approved 8CS7 target datasheet entry; Section2
Plate to Cathode and Heater 0.5	0.5 pF	Published in approved 8CS7 target datasheet entry; Section2

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage 250	250 V	Published in approved 8CS7 target datasheet entry; Section2
Grid Voltage -8.5	-10.5 V	Published in approved 8CS7 target datasheet entry; Section2
Plate Resistance (Approx.) 7700	3450 Ω	Published in approved 8CS7 target datasheet entry; Section2
2200	4500 μS	Published in approved 8CS7 target datasheet entry; Section2
10.5	19 mA	Published in approved 8CS7 target datasheet entry; Section2
Plate Current for grid voltage of	-16 V	Published in approved 8CS7 target datasheet entry; Section2
Plate Current for grid voltage of --16 volts	3 mA	Published in approved 8CS7 target datasheet entry; Section2