

ELECTRONIC TUBE REFERENCE

8CM7

Power - TV Vertical Output electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
TRIODE-TRIODE

Dissimilar dual triode for combined television vertical-deflection oscillator and output-amplifier service. A medium-mu small-signal section generates the sweep waveform while the larger 6 W section supplies the required deflection current.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9ES	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

9ES - TERMINAL PINOUT

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

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	10500 Ω
TRANSCONDUCTANCE	0.002 S
AMPLIFICATION FACTOR	21
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	4100 Ω
TRANSCONDUCTANCE	0.0044 S
AMPLIFICATION FACTOR	18
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	6 W
MAXIMUM CATHODE CURRENT	35 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 combined vertical-deflection oscillator and vertical-deflection amplifier in television receivers.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1961 Tung Sol

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

1961 TUNG SOL

Section 2 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Section2Transconductance	4400 uS	Section2



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
Warm-upTime^	11 s	Warm-upTime^ 11 11 Seconds Peak Positive Pulse
Plate Voltage	250 V	Plate Voltage 200 250 Volts
Grid Voltage	-8 V	Grid Voltage -7 -8 Volts
Plate Current	20 mA	Plate Current 5 20 Ma.
probable operciting conditions with respect to supply.voltage 10500	4100 ohm	probable operciting conditions with respect to supply.voltage 10500 4100 Ohms

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Current of	1 mA	Current of 1 Ma. . . _10

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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate_current	5 mA	TVVerticalDeflection
Plate_resistance	10500 ohm	TVVerticalDeflection
Transconductance	2000 uS	TVVerticalDeflection

1966 TUNG SOL ELECTRONIC TUBES 2 OF 4

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate_voltage	250 V	TVVerticalDeflection

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate_current	20 mA	TVVerticalDeflection
Plate_resistance	4200 ohm	TVVerticalDeflection
Transconductance	4400 uS	TVVerticalDeflection



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
6.3	8.4 V	Published in approved 8CM7 target datasheet entry; Section1
0.6	450 mA	Published in approved 8CM7 target datasheet entry; Section1
11	11 seconds	Published in approved 8CM7 target datasheet entry; Section1
DC Plate Voltage 550	550 V	Published in approved 8CM7 target datasheet entry; Section1
Peak Positive-Pulse Plate Volt&ge#	2200 V	Published in approved 8CM7 target datasheet entry; Section1
Peak Negative-Pulse Grid Voltage 220	220 V	Published in approved 8CM7 target datasheet entry; Section1
Peak Cathode Current 77	77 mA	Published in approved 8CM7 target datasheet entry; Section1
Average Cathode Current 17	22 mA	Published in approved 8CM7 target datasheet entry; Section1
Plate Dissipation 1.45	6 W	Published in approved 8CM7 target datasheet entry; Section1
For fixed-bias operation 2.2	1 MΩ	Published in approved 8CM7 target datasheet entry; Section1
For cathode-bias operation 2.2	2.5 MΩ	Published in approved 8CM7 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
# Pulse duration must not exceed 15% of a vertical scanning cycle (	2.5 milliseconds	Published in approved 8CM7 target datasheet entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate 3.8	3 pF	Published in approved 8CM7 target datasheet entry; Section1
2	3.5 pF	Published in approved 8CM7 target datasheet entry; Section1
0.5	0.4 pF	Published in approved 8CM7 target datasheet entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage 200	250 V	Published in approved 8CM7 target datasheet entry; Section1
Grid Voltage -7	-8 V	Published in approved 8CM7 target datasheet entry; Section1
10500	4100 Ω	Published in approved 8CM7 target datasheet entry; Section1
Transconductance 2000	4400 μS	Published in approved 8CM7 target datasheet entry; Section1
Plate Current 5	20 mA	Published in approved 8CM7 target datasheet entry; Section1
10 volts	1 mA	Published in approved 8CM7 target datasheet entry; Section1
Grid Voltage (Approx.) for plate current of 10 juA	-14 V	Published in approved 8CM7 target datasheet entry; Section1

1975 RCA RC30

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
6.3	8.4 V	Published in approved 8CM7 target datasheet entry; Section2
0.6	450 mA	Published in approved 8CM7 target datasheet entry; Section2
11	11 seconds	Published in approved 8CM7 target datasheet entry; Section2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC Plate Voltage 550	550 V	Published in approved 8CM7 target datasheet entry; Section2
Peak Positive-Pulse Plate Voltage	2200 V	Published in approved 8CM7 target datasheet entry; Section2
Peak Negative-Pulse Grid Voltage 220	220 V	Published in approved 8CM7 target datasheet entry; Section2
Peak Cathode Current 77	77 mA	Published in approved 8CM7 target datasheet entry; Section2
Average Cathode Current 17	22 mA	Published in approved 8CM7 target datasheet entry; Section2
Plate Dissipation 1.45	6 W	Published in approved 8CM7 target datasheet entry; Section2
For fixed-bias operation 2.2	1 MΩ	Published in approved 8CM7 target datasheet entry; Section2
For cathode-bias operation 2.2	2.5 MΩ	Published in approved 8CM7 target datasheet entry; Section2
# Pulse duration must not exceed 15% of a vertical scanning cycle (	2.5 milliseconds	Published in approved 8CM7 target datasheet entry; Section2

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate 3.8	3 pF	Published in approved 8CM7 target datasheet entry; Section2
2	3.5 pF	Published in approved 8CM7 target datasheet entry; Section2
0.5	0.4 pF	Published in approved 8CM7 target datasheet entry; Section2

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage 200	250 V	Published in approved 8CM7 target datasheet entry; Section2
Grid Voltage -7	-8 V	Published in approved 8CM7 target datasheet entry; Section2
10500	4100 Ω	Published in approved 8CM7 target datasheet entry; Section2
Transconductance 2000	4400 μS	Published in approved 8CM7 target datasheet entry; Section2
Plate Current 5	20 mA	Published in approved 8CM7 target datasheet entry; Section2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
10 volts	1 mA	Published in approved 8CM7 target datasheet entry; Section2
Grid Voltage (Approx.) for plate current of 10 μ A	-14 V	Published in approved 8CM7 target datasheet entry; Section2

TUBE TINKER

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