

ELECTRONIC TUBE REFERENCE

3CS6

Voltage - Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
HEPTODE

Multi-grid heptode for mixer, modulator, and specialized receiver signal-processing applications. Separate control grids provide independent influence over plate current for versatile frequency-conversion and modulation functions.

GENERAL CHARACTERISTICS

BASE DESIGNATION	7CH	BASE PINS	7
NOMINAL HEATER	3.15 V / 600 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

7CH - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 – G1	A	G1 – Control Grid	CONNECTED
PIN2 – G5	A	G5 – Fifth Grid	CONNECTED
PIN2 – K	A	K – Cathode	CONNECTED
PIN3 – H	–	H – Heater	CONNECTED
PIN4 – H	–	H – Heater	CONNECTED
PIN5 – P	A	P – Plate (Anode)	CONNECTED
PIN6 – G2	A	G2 – Screen Grid	CONNECTED
PIN6 – G4	A	G4 – Fourth Grid	CONNECTED
PIN7 – G3	A	G3 – Suppressor Grid	CONNECTED

SECTION RATINGS

SECTION1 Heptode	
PLATE RESISTANCE	1000000 Ω
TRANSCONDUCTANCE	0.0011 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	100 V
MAXIMUM PLATE DISSIPATION	1 W
MAXIMUM SCREEN DISSIPATION	1 W
MAXIMUM CATHODE CURRENT	14 mA
WARM-UP TIME	11 s
<i>Grid-1 transconductance promoted; grid-3 transconductance retained as parameter.</i>	

Pentagrid gated-amplifier tube used as a combined sync separator and sync clipper in television receivers.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

195X General Electric Essential Characteristics

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

195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 1 · Heptode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	GatedAmplifier;Grid3=0V
Screen-grid voltage	30 V	GatedAmplifier;Grid3=0V
Grid No.1 bias	1 V	GatedAmplifier;Grid3=0V
Plate current	1 mA	GatedAmplifier;Grid3=0V
Screen-grid current	1.3 mA	GatedAmplifier;Grid3=0V
Plate resistance	1000000 ohm	GatedAmplifier;Grid3=0V
Transconductance	1100 uS	GatedAmplifier;Grid3=0V
Plate voltage	100 V	GatedAmplifier;Grid3=-1V
Screen-grid voltage	30 V	GatedAmplifier;Grid3=-1V
Grid No.1 bias	0 V	GatedAmplifier;Grid3=-1V
Plate current	0.8 mA	GatedAmplifier;Grid3=-1V
Screen-grid current	5.5 mA	GatedAmplifier;Grid3=-1V
Plate resistance	700000 ohm	GatedAmplifier;Grid3=-1V
Plate voltage	10 V	GatedAmplifier;Grid3=0V
Screen-grid voltage	30 V	GatedAmplifier;Grid3=0V
Grid No.1 bias	0 V	GatedAmplifier;Grid3=0V
Plate current	2 mA	GatedAmplifier;Grid3=0V
Screen-grid current	4.5 mA	GatedAmplifier;Grid3=0V

1961 Tung Sol

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

1961 TUNG SOL

Section 1 · Heptode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Cathode Current	14 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Warmup Time	11 s	—



SOURCE DATA APPENDIX

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 · Heptode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	Grid3=-1V
Screen-grid voltage	30 V	—
Grid 1 voltage	0 V	—
Grid 3 voltage	-1 V	—
Plate current	0.8 mA	—
Screen-grid current	5.5 mA	—

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid 1 transconductance	1100 μ S	—
Grid 3 transconductance	1500 μ S	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	1000000 Ohm	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid 1 to plate capacitance	0.07 pF	—
Grid 3 to plate capacitance	0.36 pF	—
Grid 1 input capacitance	5.5 pF	—
Grid 3 input capacitance	7 pF	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

1966 Tung Sol Electronic Tubes 1 of 4

SOURCE PDF

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 · Heptode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	3.15 V	Published heater rating
Heater current	600 mA	Published heater rating
Transconductance	1100 μ S	Grid1ToPlate

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	300 V	Published limit
Maximum grids 2 and 4 supply voltage	300 V	Published limit
Plate voltage	100 V	DualControl
Grids 2 and 4 voltage	30 V	DualControl
Plate current	1 mA	DualControl
Grids 2 and 4 current	1.3 mA	DualControl



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1968 General Electric Co

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

1968 GENERAL ELECTRIC CO

Section 1 · Heptode

OTHER

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater warm-up time	11 s	—



SOURCE OPERATING CONDITIONS

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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 · Heptode

CHARACTERISTICS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Current – published value 1	0.6	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Current – published value 2	0.04	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Voltage (ac or dc) at 0.600 A – published value 1	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Voltage (ac or dc) at 0.600 A – published value 2	0.6 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Voltage (ac or dc) at 0.600 A – published value 3	3.15 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.

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 · Heptode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc) 3.15 4.2 6.3	12.6 V	Published in approved 12CS6 target entry; Section1
Heater Current 0.6 0.45 0.3	150 mA	Published in approved 12CS6 target entry; Section1
Heater Warm-up Time (Average) 11 11	11 seconds	Published in approved 12CS6 target entry; Section1
Grid-No.3-to-Plate Transconductance	1500 μ S	Published in approved 12CS6 target entry; Section1
Grid-No.1-to-Plate Transconductance	1100 μ S	Published in approved 12CS6 target entry; Section1
Plate Current 0.8	1 mA	Published in approved 12CS6 target entry; Section1
Grids-No.2-and-No.-4 Current 5.5	1.3 mA	Published in approved 12CS6 target entry; Section1
50 iiA	2.2 V	Published in approved 12CS6 target entry; Section1
50 /l A –	-2.6 V	Published in approved 12CS6 target entry; Section1
Plate Voltage	300 V	Published in approved 12CS6 target entry; Section1
Grids-No.2-and-No.4 Supply Voltage	300 V	Published in approved 12CS6 target entry; Section1
Cathode Current	14 mA	Published in approved 12CS6 target entry; Section1
Plate Dissipation	1 W	Published in approved 12CS6 target entry; Section1
For grids-No. 2-and-No.4 voltages up to	150 V	Published in approved 12CS6 target entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
For grids-No. 2-and-No.4 voltages up to 150 volts	1 W	Published in approved 12CS6 target entry; Section1
For grids-No.2-and-No.4 voltages between 150 and	300 V	Published in approved 12CS6 target entry; Section1
Grid-No.1-Circuit Resistance	0.47 MΩ	Published in approved 12CS6 target entry; Section1
Grid-No. 3-Circuit Resistance	2.2 MΩ	Published in approved 12CS6 target entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.4, and Grid No.5	5.5 pF	Published in approved 12CS6 target entry; Section1
Grid No.4, and Grid No.5	7 pF	Published in approved 12CS6 target entry; Section1
Grid No.4, and Grid No.5	7.5 pF	Published in approved 12CS6 target entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage 100	100 V	Published in approved 12CS6 target entry; Section1
Plate Resistance (Approx.) 0.7	1 MΩ	Published in approved 12CS6 target entry; Section1

TUBE TINKER

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