

ELECTRONIC TUBE REFERENCE

6CS6

Heptode electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
HEPTODE

Sharp-cutoff dual-control heptode designed for television gated-amplifier and synchronization service, particularly combined sync separation and clipping.

GENERAL CHARACTERISTICS

BASE DESIGNATION	7CH	BASE PINS	7
NOMINAL HEATER	6.3 V / 300 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
<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;ControlGrid3Zero
Screen-grid voltage	30 V	GatedAmplifier;ControlGrid3Zero
Grid voltage	-1 V	GatedAmplifier;ControlGrid3Zero
Plate current	1 mA	GatedAmplifier;ControlGrid3Zero
Screen-grid current	1.3 mA	GatedAmplifier;ControlGrid3Zero
Plate voltage	100 V	GatedAmplifier;ControlGrid3Minus1V
Screen-grid voltage	30 V	GatedAmplifier;ControlGrid3Minus1V
Grid voltage	0 V	GatedAmplifier;ControlGrid3Minus1V
Plate current	0.8 mA	GatedAmplifier;ControlGrid3Minus1V
Screen-grid current	5.5 mA	GatedAmplifier;ControlGrid3Minus1V
Plate voltage	10 V	GatedAmplifier;LowPlateVoltage
Screen-grid voltage	30 V	GatedAmplifier;LowPlateVoltage
Grid voltage	0 V	GatedAmplifier;LowPlateVoltage
Plate current	2 mA	GatedAmplifier;LowPlateVoltage
Screen-grid current	4.5 mA	GatedAmplifier;LowPlateVoltage

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	—



SOURCE DATA APPENDIX

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 · 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	—
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

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1965 Westinghouse Data Book

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

1965 WESTINGHOUSE DATA BOOK

Section 1 · Heptode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	300 mA	—
Transconductance	1500 uS	RepresentativePublishedPoint
Plate Resistance	1000000 ohm	RepresentativePublishedPoint

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Plate Voltage	300 V	—
Maximum Plate Dissipation	1 W	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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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 · Heptode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum cathode current	14 mA	—
Plate voltage	100 V	ClassA
Grid 2 and 4 voltage	30 V	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate current	0.8 mA	ClassA
Transconductance, grid 3 to plate	1500 μ S	ClassA
Plate resistance	0.7 Mohm	ClassA
Transconductance, grid 1 to plate	200 μ S	ClassA

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-1-to-plate capacitance	0.04 pF	—
Grid-3-to-plate capacitance	0.3 pF	—
Grid-1-to-grid-3 coupling capacitance maximum	0.22 pF	—



TUBE TINKER
ELECTRON TUBE DATABASE

SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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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
HeaterVoltageNominal	6.3 V	—
HeaterCurrentNominal	300 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance	1000000 Ohm	—
Transconductance	1100 uS	—
Grid3 Transconductance	1500 uS	Grid3Control
Grid1Transconductance	1100 uS	Grid1Control



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

SOURCE PDF

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
Voltage	6.3 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Current	300 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid No.1 to cathode 8 grid No.5,	8	Published datasheet value; multiple values represent separate source-table limits or conditions.
No.3, and heater	5.5	Published datasheet value; multiple values represent separate source-table limits or conditions.
No.1, and heater	7	Published datasheet value; multiple values represent separate source-table limits or conditions.
No.3, grid No.1, and heater	7.5	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate Voltage – published value 1	100 V	Published datasheet value; multiple values represent separate source-table limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage – published value 2	100 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.2 & Grid-No.4 Voltage – published value 1	30 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.2 & Grid-No.4 Voltage – published value 2	30 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.3 Voltage – published value 1	-1 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.3 Voltage – published value 2	0 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.1 Voltage – published value 1	0 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.1 Voltage – published value 2	-1 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate Resistance (Approx.) – published value 1	0 Mohm	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate Resistance (Approx.) – published value 2	1 Mohm	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.3-to-Plate Transconductance 1500	1500	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.1-to-Plate Transconductance	1100	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate Current – published value 1	0.8 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate Current – published value 2	1 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.2 & Grid-No.4 Current – published value 1	5.5 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-No.2 d Grid-No.4 Current – published value 2	1.3 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
plate current of 50 μ amp – published value 1	50 V	Published datasheet value; multiple values represent separate source-table limits or conditions.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 to plate	0.07 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid No.3 to plate	0.36 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid No.1 to grid No.3	0.22 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.



SOURCE OPERATING CONDITIONS

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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-PIate Transconductance	1100 μ S	Published in approved 12CS6 target entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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
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

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