

ELECTRONIC TUBE REFERENCE

6BY6

Heptode electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
HEPTODE

Pentagrid gated-amplifier tube used in color television receivers as a combined sync separator and sync clipper, with dual-control grids for pulse processing.

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	
TRANSCONDUCTANCE	0.0019 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	1 W
MAXIMUM GRID DISSIPATION	0.1 W
<i>Grid 1 transconductance promoted.</i>	

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



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
Maximum plate voltage	300 V	Published handbook rating
Maximum screen voltage	150 V	Published handbook rating
Plate voltage	250 V	ClassA
Screen voltage	100 V	ClassA
Control-grid bias	2.5 V	ClassA
Plate current	6.5 mA	ClassA
Screen current	9 mA	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	1900 μ S	Published handbook characteristic
Heater voltage	6.3 V	Published heater rating
Heater current	300 mA	Published heater rating



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 1 · Heptode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	250 V	Published operating/characteristic table

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Current	6.5 mA	Published operating/characteristic table



SOURCE OPERATING CONDITIONS

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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 · Heptode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid1-to-plate capacitance	—0.08 pF	Maximum
Grid3-to-plate capacitance	—0.35 pF	Maximum
Grid1-to-grid3 capacitance	—0.22 pF	Maximum

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	GatedAmplifier
Plate current	6.5 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid3-to-plate transconductance	500 uS	—
Grid1-to-plate transconductance	2900 uS	—



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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid3 Transconductance	500 μ S	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Typical Plate Voltage	250 V	ClassA
Typical Screen Voltage	100 V	ClassA



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
Voltage	63 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Current	3 A	Published datasheet value; multiple values represent separate source-table limits or conditions.
and Heater	5.4	Published datasheet value; multiple values represent separate source-table limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
and Heater	6.9	Published datasheet value; multiple values represent separate source-table limits or conditions.
and Heater	7.6	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate Voltage	250 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grids-No.2-and-No.4 Voltage	100 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.3 Voltage	-2.5 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.1 Voltage	-2.5 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.3-to-Plate Transconductance	500	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.1-to-Plate Transconductance	1900	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate Current	6.5 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grids-No.2-and-No.4 Current	9 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
current of 35 μ amp and grid-No.1	35 A	Published datasheet value; multiple values represent separate source-table limits or conditions.
current of 35 μ amp and grid-No.3	35 A	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 1: Grid No.1 – published value 1	1	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 1: Grid No.1 – published value 2	5	Published datasheet value; multiple values represent separate source-table limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pin 2: Cathode, – published value 1	2	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 2: Cathode, – published value 2	6	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 3: Heater – published value 1	3	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 3: Heater – published value 2	7	Published datasheet value; multiple values represent separate source-table limits or conditions.
Pin 4: Heater	4	Published datasheet value; multiple values represent separate source-table limits or conditions.
Plate Voltage	10 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.3 Voltage	0 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grids-No.2-and-No.4 Voltage	25 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid-No.1 Voltage	0 V	Published datasheet value; multiple values represent separate source-table limits or conditions.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 to Plate	0.08 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid No.3 to Plate	0.35 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Grid No.1 to Grid No.3	0.15 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
PLATE VOLTAGE	300 V	Published datasheet value; multiple values represent separate source-table limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
GRIDS-No.2-and-No.4 SUPPLY VOLTAGE	300 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Negative Bias Value	50 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Positive Bias Value'	0 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Negative Bias Value	100 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
PLATE DISSIPATION	2 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
GRIDS-No.2-and-No.4 INPUT	1 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
GRID-No.1 INPUT	0.1 mA	Published datasheet value; multiple values represent separate source-table limits or conditions.
Heater negative with respect to cathode	200 V	Published datasheet value; multiple values represent separate source-table limits or conditions.
Heater positive with respect to cathode	200 V	Published datasheet value; multiple values represent separate source-table limits or conditions.


SOURCE DATA APPENDIX

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)	6.3 V	Published in approved 6BY6 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Current	300 mA	Published in approved 6BY6 target datasheet entry; Section1
grid-No	3 V	Published in approved 6BY6 target datasheet entry; Section1
grid-No.3 volts = 0	-12 V	Published in approved 6BY6 target datasheet entry; Section1
Plate Voltage	330 V	Published in approved 6BY6 target datasheet entry; Section1
Grids-No. 2-and-No.4 Supply Voltage	330 V	Published in approved 6BY6 target datasheet entry; Section1
Negative-bias value	55 V	Published in approved 6BY6 target datasheet entry; Section1
Positive-bias value	0 V	Published in approved 6BY6 target datasheet entry; Section1
Positive peak value	27 V	Published in approved 6BY6 target datasheet entry; Section1
Grid-No.1 Voltage, Negative bias value	110 V	Published in approved 6BY6 target datasheet entry; Section1
Plate Dissipation	2.3 W	Published in approved 6BY6 target datasheet entry; Section1
Grid-No.3 Input	0.1 W	Published in approved 6BY6 target datasheet entry; Section1
For grids-No.2-and-No.4 voltages up to	165 V	Published in approved 6BY6 target datasheet entry; Section1
For grids-No.2-and-No.4 voltages up to 165 volts	1.1 W	Published in approved 6BY6 target datasheet entry; Section1
For grids-No.2-and-No.4 voltages between 165 and	330 V	Published in approved 6BY6 target datasheet entry; Section1
Grid-No.1 Input	0.1 W	Published in approved 6BY6 target datasheet entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No. 1 to All Other Electrodes	5.4 pF	Published in approved 6BY6 target datasheet entry; Section1
Gr-d No.3 to AH Other Electrodes	6.9 pF	Published in approved 6BY6 target datasheet entry; Section1
Plate to AH Other Electrodes	7.6 pF	Published in approved 6BY6 target datasheet entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	250 V	Published in approved 6BY6 target datasheet entry; Section1
Grid-No.3 Voltage	-100 V	Published in approved 6BY6 target datasheet entry; Section1
Grid-No.3-to-Plate Transconductance	500 μS	Published in approved 6BY6 target datasheet entry; Section1
Plate Current	6.5 mA	Published in approved 6BY6 target datasheet entry; Section1
Grids-No. 2-and-No. 4 Current	9 mA	Published in approved 6BY6 target datasheet entry; Section1
Grid-No	3 V	Published in approved 6BY6 target datasheet entry; Section1
grid-No	1 V	Published in approved 6BY6 target datasheet entry; Section1
grid-No. 1 volts $\approx$ 4	15 V	Published in approved 6BY6 target datasheet entry; Section1
Plate Voltage	10 V	Published in approved 6BY6 target datasheet entry; Section1
Grid-No.3 Voltage	0 V	Published in approved 6BY6 target datasheet entry; Section1
Grids-No.2-and-No.4 Voltage	25 V	Published in approved 6BY6 target datasheet entry; Section1
Grid-No.1 Voltage	0 V	Published in approved 6BY6 target datasheet entry; Section1
Plate Current	1.4 mA	Published in approved 6BY6 target datasheet entry; Section1
Grid-No.3 Volts (Approx.) for plate voltage of	25 V	Published in approved 6BY6 target datasheet entry; Section1
and-No.4 voltage of	25 V	Published in approved 6BY6 target datasheet entry; Section1
and-No.4 voltage of 25 volts, grid-No.1 voltage of	0 V	Published in approved 6BY6 target datasheet entry; Section1
plate current of 60 μ A	2.5 V	Published in approved 6BY6 target datasheet entry; Section1
Grid-No.1 Volts (Approx.) for plate voltage of	25 V	Published in approved 6BY6 target datasheet entry; Section1
and-No.4 voltage of 25 volts, grid-No.3 voltage of	0 V	Published in approved 6BY6 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
plate current of 50 #A	2.3 V	Published in approved 6BY6 target datasheet entry; Section1