

ELECTRONIC TUBE REFERENCE

6BA7

Voltage Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
HEPTODE

Pentagrid oscillator-converter for AM and FM superheterodyne receivers. Its multi-grid structure combines local oscillation and mixing in one tube for compact receiver frequency conversion.

GENERAL CHARACTERISTICS

BASE DESIGNATION	8CT	BASE PINS	9
NOMINAL HEATER	6.3 V / 300 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

8CT - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 – G2	A	G2 – Screen Grid	CONNECTED
PIN1 – G4	A	G4 – Fourth Grid	CONNECTED
PIN2 – G1	A	G1 – Control Grid	CONNECTED
PIN3 – K	A	K – Cathode	CONNECTED
PIN4 – H	–	H – Heater	CONNECTED
PIN5 – H	–	H – Heater	CONNECTED
PIN6 – G5	A	G5 – Fifth Grid	CONNECTED
PIN6 – IS	A	IS – Internal Screen	CONNECTED
PIN7 – G3	A	G3 – Suppressor Grid	CONNECTED
PIN8 – IS	A	IS – Internal Screen	CONNECTED
PIN9 – P	A	P – Plate (Anode)	CONNECTED

SECTION RATINGS

SECTION1 Heptode	
TRANSCONDUCTANCE	0.00055 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	100 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	1.5 W
MAXIMUM CATHODE CURRENT	22 mA
<i>Published promoted fields populated semantically; identical repeated sections compressed where applicable.</i>	

Miniature pentagrid converter used for frequency conversion in AM and FM receivers, with separately excited converter characteristics and oscillator-grid data.

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	250 V	Converter
Screen-grid voltage	100 V	Converter
Grid voltage	-1 V	Converter
Plate current	3.8 mA	Converter
Screen-grid current	10 mA	Converter

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Conversion transconductance	950 μ S	Converter
Oscillator grid current	0.35 mA	Converter
Oscillator grid resistor	20000 ohm	Converter

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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Conversion Transconductance	550 μ S	Converter



SOURCE DATA APPENDIX

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
Grid 3 to plate capacitance maximum	0.19 pF	Section1
Grid 1 to grid 3 capacitance maximum	0.1 pF	Section1
RF input capacitance	9.5 pF	Section1
Oscillator input capacitance	6.7 pF	Section1
Mixer output capacitance	8.3 pF	Section1

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	Converter
Screen voltage	100 V	Converter
Application	Local oscillator and mixer, especially FM broadcast band	Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Conversion transconductance	550 μ S	Converter



SOURCE DATA APPENDIX

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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Current	300 mA	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
(RF Input)	9.5 pF	—
(Mixer Output)	8.3 pF	—
(Osc. Input)	6.7 pF	—
Grid No. to Plate max	3 pF	PublishedColumn1
Grid No. to Plate max	0.19 pF	PublishedColumn2
Grid No. to Grid No.1 max	3 pF	PublishedColumn1
Grid No. to Grid No.1 max	0.1 pF	PublishedColumn2
Grid No.1 to Plate max	0.05 pF	—
Except Cathode	3.4 pF	—
Grid No.1 to Cathode	3.3 pF	—
Except Grid No.i	4 pF	—
PLATE VOLTAGE D max	3 V	PublishedColumn1
PLATE VOLTAGE D max	0 V	PublishedColumn2
GRID-No. d INTERNAL-SHIELD VOLTAGE max	5 V	PublishedColumn1
GRID-No. d INTERNAL-SHIELD VOLTAGE max	0 V	PublishedColumn2
GRIDS-No. d No. VOLTAGE max	4 V	PublishedColumn1
GRIDS-No. d No. VOLTAGE max	100 V	PublishedColumn2
GRIDS-No. d No. SUPPLY VOLTAGE max	4 V	PublishedColumn1
GRIDS-No. d No. SUPPLY VOLTAGE max	300 V	PublishedColumn2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PLATE DISSIPATION max	2 W	—
GRIDS-No. No. DISSIPATION max	4 W	PublishedColumn1
GRIDS-No. No. DISSIPATION max	1.5 W	PublishedColumn2
TOTAL CATHODE CURRENT max	22 mA	—
Negative bias value max	100 V	—
Positive bias value max	0 V	—
Heater negative with respect to cathode. max	90 V	—
Heater positive with respect to cathode. max	90 V	—
Plate Voltage	100 V	PublishedColumn1
Plate Voltage	250 V	PublishedColumn2
Grids-No. & No. (Screen) Voltage	100 V	PublishedColumn1
Grid-No. (Control Grid) Voltage	-1 V	PublishedColumn1
Grid-No.1 (Cscillator Grid) Resistor	20000 ohm	PublishedColumn1
Plate Resistance (Approx.)	0.5 Mohm	PublishedColumn1
Plate Resistance (Approx.)	1 Mohm	PublishedColumn2
Conversion Transconductance	900 μ S	PublishedColumn1
Conversion Transconductance	950 μ S	PublishedColumn2
Plate Current	3.6 mA	PublishedColumn1
Plate Current	3.8 mA	PublishedColumn2
Grids-No. & No. Current	10.2 mA	PublishedColumn1
Grids-No. & No. Current	10 mA	PublishedColumn2
Grid-No.1 Current	0.35 mA	PublishedColumn1
Total Cathode Current	14.2 mA	PublishedColumn1
zero Dias; grids-No. and xo.n and plate at	2 V	PublishedColumn1
zero Dias; grids-No. and xo.n and plate at	300 V	PublishedColumn2

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

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.3-to-all-other-electrodes capacitance	9.5 pF	—
Plate-to-all-other-electrodes capacitance	8.3 pF	—
Grid No.1-to-all-other-electrodes capacitance	6.7 pF	—
Grid No.3-to-plate capacitance	0.19 pF	—
Grid No.1-to-plate capacitance	0.05 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	ConverterSeparateExcitation
Conversion transconductance	900 uS	ConverterSeparateExcitation;PlateVoltage=100V
Plate current	3.6 mA	ConverterSeparateExcitation;PlateVoltage=100V
Plate voltage	250 V	ConverterSeparateExcitation
Conversion transconductance	950 uS	ConverterSeparateExcitation;PlateVoltage=250V
Plate current	3.8 mA	ConverterSeparateExcitation;PlateVoltage=250V
Screen-grid current	10 mA	ConverterSeparateExcitation;PlateVoltage=250V
Oscillator-grid current	0.35 mA	ConverterSeparateExcitation