

ELECTRONIC TUBE REFERENCE

CONSOLIDATED TECHNICAL DATA

12BE6

1 SECTION
CONSTRUCTION
HEPTODE

Voltage - Radio Detector Converter electronic tube

Heptode oscillator-converter for AC/DC superheterodyne receivers. It integrates local-oscillator and mixer functions in one miniature tube, converting incoming RF signals to the receiver intermediate frequency.

GENERAL CHARACTERISTICS

BASE DESIGNATION	7CH	BASE PINS	7
NOMINAL HEATER	12.6 V / 150 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	0.000475 S
AMPLIFICATION FACTOR	1
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>Published converter characteristic is conversion transconductance, preserved as a parameter rather than promoted as generic transconductance.</i>	

Heptode frequency converter for series-heater receivers.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1958 Brimar Radio Valve No 7

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

1958 BRIMAR RADIO VALVE NO 7

Section 1 · Heptode

CHARACTERISTIC

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	12.6 V	—
Heater Current	150 mA	—



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
Heater voltage	12.6 V	Nominal
Heater current	150 mA	Nominal
Plate voltage	330 V	Typical operating conditions
Plate current	2.62.9 mA	Typical operating conditions



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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	12.6 V	—
Heater Current	150 mA	—
Oscillator Plate Voltage	100 V	—
Oscillator Cathode Current	25 mA	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage Maximum	300 V	—
Grids2And4VoltageMaximum	150 V	—
Plate Dissipation Maximum	1 W	—
Grids2And4DissipationMaximum	1 W	—
NegativeGridBiasMagnitudeMaximum	50 V	—
Plate Voltage	250 V	Converter
Grids2 And4 Voltage	100 V	Converter
Plate Current	3 mA	Converter
Grids2 And4 Current	6.5 mA	Converter
Conversion Transconductance	475 uS	Converter



SOURCE DATA APPENDIX

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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HEATER VOLTAGE	12.6 V	Published datasheet; operating column 1
HEATER VOLTAGE	10 V	Published datasheet; operating column 2
HEATER CURRENT	150 mA	Published datasheet
PLATE VOLTAGE	100 V	Published datasheet; operating column 1
PLATE VOLTAGE	250 V	Published datasheet; operating column 2
GRID #3 VOLTAGE	-1.5 V	Published datasheet; operating column 1
GRIDS #2, AND #4 VOLTAGE	100 V	Published datasheet
GRID #! VOLTAGE (	0 V	Published datasheet; operating column 1
GRID #! VOLTAGE (	10 V	Published datasheet; operating column 2

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HEATER POSITIVE WITH RESPECT TO CATHODE	200 V	Published datasheet
J MAXIMUM PLATE VOLTAGE	330 V	Published datasheet
MAXIMUM GRIDS #2 AND #4 VOLTAGE	110 V	Published datasheet
MAXIMUM GRIDS #2 AND #4 SUPPLY VOLTAGE	330 V	Published datasheet
! MAXIMUM NEGATIVE DC GRID #3 VOLTAGE	-55 V	Published datasheet
MAXIMUM POSITIVE DC GRID #3 VOLTAGE	0 V	Published datasheet
MAXIMUM PLATE DISSIPATION	1.1 W	Published datasheet
MAXIMUM GRIDS #2 AND #4 DISSIPATION	1.1 W	Published datasheet
MAXIMUM CATHODE CURRENT	15.5 mA	Published datasheet
C THE DC COMPONENT MUST NOT EXCEED	100 V	Published datasheet
GRID #1 RESISTANCE (	0 ohm	Published datasheet; operating column 1



SOURCE DATA APPENDIX

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
Screen Supply Voltage	300 V	—
Plate Voltage	100 V	ConverterService; PlateVoltage=100V; ScreenVoltage=100V
Screen Voltage	100 V	ConverterService; PlateVoltage=100V; ScreenVoltage=100V
Grid3 Voltage	-1.5 V	ConverterService; PlateVoltage=100V; ScreenVoltage=100V
Grid1VoltageRMS	10 V	ConverterService; PlateVoltage=100V; ScreenVoltage=100V
Grid1 Resistance	20000 ohm	ConverterService; PlateVoltage=100V; ScreenVoltage=100V
Plate Voltage	250 V	ConverterService; PlateVoltage=250V; ScreenVoltage=100V
Screen Voltage	100 V	ConverterService; PlateVoltage=250V; ScreenVoltage=100V
Grid3 Voltage	-1.5 V	ConverterService; PlateVoltage=250V; ScreenVoltage=100V
Grid1VoltageRMS	10 V	ConverterService; PlateVoltage=250V; ScreenVoltage=100V
Grid1 Resistance	20000 ohm	ConverterService; PlateVoltage=250V; ScreenVoltage=100V

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance	400000 ohm	ConverterService; PlateVoltage=100V; ScreenVoltage=100V
Conversion Transconductance	455 uS	ConverterService; PlateVoltage=100V; ScreenVoltage=100V
Plate Current	2.6 mA	ConverterService; PlateVoltage=100V; ScreenVoltage=100V

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Screen Current	7 mA	ConverterService; PlateVoltage=100V; ScreenVoltage=100V
Cathode Current	10.1 mA	ConverterService; PlateVoltage=100V; ScreenVoltage=100V
Plate Resistance	1000000 ohm	ConverterService; PlateVoltage=250V; ScreenVoltage=100V
Conversion Transconductance	475 uS	ConverterService; PlateVoltage=250V; ScreenVoltage=100V
Plate Current	2.9 mA	ConverterService; PlateVoltage=250V; ScreenVoltage=100V
Screen Current	6.8 mA	ConverterService; PlateVoltage=250V; ScreenVoltage=100V


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1968 Mazda Belvu

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

1968 MAZDA BELVU

Section 1 · Heptode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	FrequencyConverter text	—


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1971 RCA HB3 Binder 5 of 7

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

1971 RCA HB3 BINDER 5 OF 7

Section 1 · Heptode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Voltage (AC or DC) $\pm$ %	63 V	PublishedColumn1
Voltage (AC or DC) $\pm$ %	10 V	PublishedColumn2
Current at	6.3 V	—
PLATE VOLTAGE max	330 V	—
Negative-bias value max	55 V	—
Positive-bias value max	0 V	—
SUPPLY VOLTAGE max	330 V	—
GRIDS-No. d No. VOLTAGE max	4 V	PublishedColumn1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
trodes IRF input)	7 pF	PublishedColumn1
(Mixer input)	8 pF	PublishedColumn1
(Mixer input)	13 pF	PublishedColumn2
trodes (Osci llator input)	5.5 pF	PublishedColumn1
Grid No. to plate max. max	3 pF	PublishedColumn1
Grid No. to plate max. max	0.25 pF	PublishedColumn2
Grid No. to grid No max. max	0.15 pF	PublishedColumn1
Grid No. to plate. max. max	0.1 pF	PublishedColumn1
Grid No. to plate. max. max	0.05 pF	PublishedColumn2
Grid No.l to cathode &grid No.S	3 pF	PublishedColumn1
electrodes except grid No.l	15 pF	PublishedColumn1
electrodes except grid No.l	20 pF	PublishedColumn2



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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Dissipation	6.6 watts	Published value from supplied target entry
Tube Voltage Drop for dc plate current of	26 mA	Published value from supplied target entry
Heater Voltage (ac/dc)	12.6 volts	Published value from supplied target entry
Heater Current	0.16 ampere	Published value from supplied target entry
Plate Voltage	330 volts	Published value from supplied target entry
Grids-No	110 volts	Published value from supplied target entry
Grids-No	330 volts	Published value from supplied target entry
Cathode Current	15.5 mA	Published value from supplied target entry
Plate Dissipation	1.1 watts	Published value from supplied target entry
Grid-No	3	Published value from supplied target entry
Plate Voltage	250 volts	Published value from supplied target entry
Grids-No	100 volts	Published value from supplied target entry
Grid-No.1 (Oscillator-Grid) Voltage (rms)	10 volts	Published value from supplied target entry
Grid-No	-1.5 volts	Published value from supplied target entry
Grid-No.1 (Oscillator-Grid) Resistor	20000 ohms	Published value from supplied target entry
Plate Resistance (Approx.)	1 megohm	Published value from supplied target entry
Conversion Transconductance	475	Published value from supplied target entry
Plate Current	2.9 mA	Published value from supplied target entry

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate to All Other Electrodes *	13 pF	Published value from supplied target entry



TUBE TINKER

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and their source documents.

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