

ELECTRONIC TUBE REFERENCE

CONSOLIDATED TECHNICAL DATA

12BA7

1 SECTION
CONSTRUCTION
HEPTODE

Voltage - Radio Detector Converter electronic tube

Heptode oscillator-mixer for superheterodyne frequency conversion. It combines local oscillator and mixer action in one multi-grid structure with comparatively strong conversion performance for radio receiver front ends.

GENERAL CHARACTERISTICS

BASE DESIGNATION	8CT	BASE PINS	9
NOMINAL HEATER	12.6 V / 150 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	
PLATE RESISTANCE	1000000 Ω
TRANSCONDUCTANCE	0.00095 S
AMPLIFICATION FACTOR	165
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	150 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	0.6 W
MAXIMUM CATHODE CURRENT	22 mA
<i>Heptode section; ratings and characteristics retained in parameter rows where not safely promotable.</i>	

THE 126A7 IS A CATHODE TYPE HIGH GAIN PENTAGRID CONVERTER IN THE SMALL J-PIN BUTTON CONSTRUCTION. IT IS DESIGNED FOR SERVICE AS A COMBINED LOCAL OSCILLATOR AND MIXER AT HIGH FREQUENCIES, ESPECIALLY IN THE FM BROADCAST BAND.



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	950 μ S	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Service	Converter / oscillator-mixer	—



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
GRID i_i	70 pF	Published datasheet; operating column 1
GRID i_i	3.3 pF	Published datasheet; operating column 2

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Gi T0 (F1f GZy1Gg}G3}GS}P}IS)	3.4 pF	Published datasheet
K T0 (H}GZhGg}G3}GS}P}IS)	4 pF	Published datasheet

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
RF INPUT; G~ T0 (M}K}Gi}GZ6Gg}GS}P}IS)	9.5 pF	Published datasheet
MIXER	0 pF	Published datasheet; operating column 1
MIXER	8.3 pF	Published datasheet; operating column 2
MAXIMUM HEATER –CATHODE VOLTAGE	90 V	Published datasheet
MAXIMUM PLATE VOLTAGE	300 V	Published datasheet
MAXIMUM GRIDS /	2 V	Published datasheet; operating column 1
MAXIMUM GRIDS /	6 V	Published datasheet; operating column 2
MAXIMUM GRIDS /	44 V	Published datasheet; operating column 3
MAXIMUM GRIDS k2	6 V	Published datasheet; operating column 1
MAXIMUM GRIDS k2	300 V	Published datasheet; operating column 2
MAXIMUM NEGATIVE GRID	43 V	Published datasheet
MAXIMUM POSITIVE GRID i1	3 V	Published datasheet; operating column 1
MAXIMUM POSITIVE GRID i1	0 V	Published datasheet; operating column 2
MAXIMUM GRID	15 V	Published datasheet; operating column 1
MAXIMUM GRID	0 V	Published datasheet; operating column 2
MAXIMUM PLATE DISSIPATION	2 W	Published datasheet
MAXIMUM GRIDS M2	6 W	Published datasheet; operating column 1
MAXIMUM GRIDS M2	4 W	Published datasheet; operating column 2
MAXIMUM GRIDS M2	1.5 W	Published datasheet; operating column 3
MAXIMUM CATHODE CURRENT	22 mA	Published datasheet
CONVERSION TRANSC	0 uS	Published datasheet; operating column 1
CONVERSION TRANSC	900 uS	Published datasheet; operating column 2
CONVERSION TRANSC	950 uS	Published datasheet; operating column 3
CONNECTED TO PLATE B	0 uS	Published datasheet
EC2 b EC4 =	100 V	Published datasheet
Ecs =	0 V	Published datasheet
~ Ecs =	0 V	Published datasheet
Rq! =	20 ohm	Published datasheet; operating column 1
Rq! =	0 ohm	Published datasheet; operating column 2
o. .--I c =	0.1 V	Published datasheet; operating column 1
o. .--I c =	12.6 V	Published datasheet; operating column 2

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HEATER VOLTAGE	12.6 V	Published datasheet
HEATER VOLTAGE	126 V	Published datasheet; operating column 1
NEATER CURRENT LSO	150 mA	Published datasheet
PLATE VOLTAGE L00	250 V	Published datasheet
GRID rE3 VOLTAGE	-1 V	Published datasheet; operating column 1
PLATE CURRENT	3.6 mA	Published datasheet; operating column 1
PLATE CURRENT	3 mA	Published datasheet; operating column 2
GRIDS !	2 mA	Published datasheet; operating column 1
GRIDS !	6 mA	Published datasheet; operating column 2
GRIDS !	4 mA	Published datasheet; operating column 3
TOTAL CATHODE CURRENT	1 mA	Published datasheet; operating column 1
TOTAL CATHODE CURRENT	2 mA	Published datasheet; operating column 2
GRID N3 VOLTAGE	0 V	Published datasheet
GRID ki VOLTAGE	0 V	Published datasheet
PLATE CURRENT	32 mA	Published datasheet
current of	0.35 mA	Published datasheet



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
Current	300 mA	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
(RF Input)	9.5 pF	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
(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.1	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
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

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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 μS	PublishedColumn1
Conversion Transconductance	950 μS	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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage nominal	12.6 V	—
Heater current	150 mA	—

TUBE TINKER

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