

ELECTRONIC TUBE REFERENCE

3BE6

Voltage - Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
HEPTODE

Pentagrid oscillator-converter electrically related to the 6BE6, combining local-oscillator and mixer functions for superheterodyne receiving service with a controlled-warm-up series-string heater.

GENERAL CHARACTERISTICS

BASE DESIGNATION	7CH	BASE PINS	7
NOMINAL HEATER	3.15 V / 600 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
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
WARM-UP TIME	11 s
<i>Published converter characteristic is conversion transconductance, preserved as a parameter rather than promoted as generic transconductance.</i>	

3BE6 is described in the supplied Tung-Sol datasheet as a controlled-warm-up converter heptode equivalent to 6BE6. Published electrical ratings and operating characteristics were extracted from the supplied source.

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 bias	1.5 V	Converter
Plate current	2.9 mA	Converter
Screen-grid current	6.8 mA	Converter
Plate resistance	1000000 ohm	Converter
Conversion transconductance	475 uS	Converter
Oscillator grid current	0.5 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
Heater Warmup Time	11 s	—

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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	3.15 V	—
Heater Current	600 mA	—
ControlledWarmupHeater	1 boolean	—
Heater Warmup Time	11 s	—
Oscillator Plate Voltage	100 V	Oscillator
Oscillator Amplification Factor	20	—
MixerOutputCapacitance	13 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage Maximum	300 V	—
Grids2And4VoltageMaximum	150 V	—
Plate Dissipation Maximum	1.7 W	—
Grids2And4DissipationMaximum	1 W	—
Plate Voltage	250 V	Converter
Grids2 And4 Voltage	100 V	Converter
Grid3 Voltage	-1.5 V	Converter
Plate Current	3 mA	Converter
Grids2 And4 Current	6.5 mA	Converter
Conversion Transconductance	475 uS	Converter

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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	3.15 V	Published heater rating
Heater current	600 mA	Published heater rating
Conversion transconductance	475 μS	Converter

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	300 V	Converter
Maximum grids 2 and 4 voltage	100 V	Converter
Maximum grids 2 and 4 supply voltage	300 V	Converter
Plate voltage	250 V	Converter
Screen voltage	100 V	Converter
Plate current	2.9 mA	Converter



TUBE TINKER
ELECTRON TUBE DATABASE

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	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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
Heater Warmup Time	11 s	—

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
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

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Screen Current	6.8 mA	ConverterService; PlateVoltage=250V; ScreenVoltage=100V
Cathode Current	10.2 mA	ConverterService; PlateVoltage=250V; ScreenVoltage=100V
Oscillator Transconductance	7250 uS	OscillatorNotOscillating

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid3ToAllCapacitance	7 pF	WithExternalShield
Plate To All Capacitance	13 pF	WithExternalShield
Grid1 To All Capacitance	55 pF	WithExternalShield
CathodeToAllExceptGrid1Capacitance	20 pF	WithExternalShield
Grid3ToPlateCapacitanceMaximum	0.25 pF	WithExternalShield
Grid1ToGrid3CapacitanceMaximum	0.15 pF	WithExternalShield
Grid1ToPlateCapacitanceMaximum	0.05 pF	WithExternalShield
Grid1ToCathodeCapacitance	3 pF	WithExternalShield