



ELECTRONIC TUBE REFERENCE

1C6

Voltage Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

HEPTODE

Battery or receiving-tube frequency converter combining local-oscillator and mixer action for superheterodyne radio service. Its multi-grid structure provides frequency conversion while minimizing component count and, in battery types, filament power.

GENERAL CHARACTERISTICS

BASE DESIGNATION	6L	BASE PINS	6
NOMINAL HEATER	2 V / 120 mA	PARALLEL HEATER	– / –
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Heptode	
PLATE RESISTANCE	600000 Ω
TRANSCONDUCTANCE	0.00044 S
MAXIMUM PLATE VOLTAGE	180 V
MAXIMUM SCREEN VOLTAGE	67.5 V
MAXIMUM PLATE DISSIPATION	0.3 W
MAXIMUM SCREEN DISSIPATION	0.2 W
MAXIMUM CATHODE CURRENT	9 mA
<i>Conversion transconductance promoted; oscillator-anode limits retained as parameters.</i>	

Directly heated pentagrid converter for frequency-conversion service.

SOURCE OPERATING CONDITIONS

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1937 Raytheon Radio Receiving Tubes

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

1937 RAYTHEON RADIO RECEIVING TUBES

Section 1 · Heptode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum grid 2 voltage	135 V	—
Maximum grid 2 supply voltage	180 V	ThroughSeriesResistor
Minimum grid 4 bias	-3 V	—
Plate voltage	135 V	FrequencyConverter
Screen voltage	67.5 V	FrequencyConverter
Grid 2 supply voltage	135 V	FrequencyConverter
Grid 4 bias	-3 V	FrequencyConverter
Oscillator grid resistor	50000 ohm	FrequencyConverter
Plate current	1.3 mA	PlateVoltage=135V
Screen current	2 mA	PlateVoltage=135V
Grid 2 current	2.6 mA	PlateVoltage=135V
Oscillator grid current	0.2 mA	PlateVoltage=135V
Plate voltage	180 V	FrequencyConverter
Plate current	1.5 mA	PlateVoltage=180V

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	0.55 MOhm	PlateVoltage=135V
Conversion transconductance	300 uS	PlateVoltage=135V
Plate resistance	0.75 MOhm	PlateVoltage=180V
Conversion transconductance	325 uS	PlateVoltage=180V
Oscillator-section transconductance	1000 uS	NotOscillating



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1940 RCA

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1940 RCA

Section 1 · Heptode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	2 V	Nominal
HeaterCurrentNominal	120 mA	Nominal
Maximum Plate Voltage	180 V	—
Maximum Screen Voltage	67.5 V	—
Maximum Cathode Current	10 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	1000 μ S	Typical
Plate Resistance	700000 ohm	Typical
Oscillator Transconductance	1000 μ S	Oscillator section not oscillating



SOURCE OPERATING CONDITIONS

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1948 Brimar Radio Valve Manual

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1948 BRIMAR RADIO VALVE MANUAL

Section 1 · Heptode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Service	Frequency changer	—



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1950 Sylvania

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1950 SYLVANIA

Section 1 · Heptode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Conversion Conductance	460 μ S	Plate 180 V

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Frequency Range	24 MHz	Satisfactory to 20-24 MHz



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195X General Electric Essential Characteristics

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195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 1 · Heptode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Oscillator grid current	0.2 mA	Converter
Grid resistor	50000 Ω	Converter
Plate voltage	180 V	Converter
Screen voltage	67.5 V	Converter
Control-grid voltage	-3 V	Converter
Plate current	1.5 mA	Converter

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Screen current	2 mA	Converter
Oscillator-plate voltage	180 V	Converter
Oscillator-plate series resistance	20000 Ω	Converter
Oscillator-plate current	4 mA	Converter

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	700000 Ω	Converter
Conversion transconductance	325 μ S	Converter



SOURCE OPERATING CONDITIONS

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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
Filament Voltage	2 V	Nominal
Filament Current	120 mA	Nominal
Screen Supply Voltage	180 V	—
OscillatorAnodeSupplyVoltage	180 V	—
OscillatorAnodeVoltage	135 V	—
OscillatorAnodeDissipation	0.4 W	—
Plate Voltage	135 V	ConverterService;PlateVoltage=135V
Screen Voltage	67.5 V	ConverterService;PlateVoltage=135V
Control Grid Voltage	-3 V	ConverterService;PlateVoltage=135V
OscillatorAnodeSupplyVoltage	135 V	ConverterService;PlateVoltage=135V
Oscillator Grid Resistor	50000 ohm	ConverterService;PlateVoltage=135V
Plate Current	1.3 mA	ConverterService;PlateVoltage=135V

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Screen Current	2.5 mA	ConverterService;PlateVoltage=135V
OscillatorAnodeCurrent	3.1 mA	ConverterService;PlateVoltage=135V
Oscillator Grid Current	0.2 mA	ConverterService;PlateVoltage=135V
Total Cathode Current	7.1 mA	ConverterService;PlateVoltage=135V
Plate Voltage	180 V	ConverterService;PlateVoltage=180V
Screen Voltage	67.5 V	ConverterService;PlateVoltage=180V
Control Grid Voltage	-3 V	ConverterService;PlateVoltage=180V
OscillatorAnodeSupplyVoltage	180 V	ConverterService;PlateVoltage=180V
Oscillator Grid Resistor	50000 ohm	ConverterService;PlateVoltage=180V
Plate Current	1.5 mA	ConverterService;PlateVoltage=180V
Screen Current	2 mA	ConverterService;PlateVoltage=180V
OscillatorAnodeCurrent	4 mA	ConverterService;PlateVoltage=180V
Oscillator Grid Current	0.2 mA	ConverterService;PlateVoltage=180V
Total Cathode Current	7.7 mA	ConverterService;PlateVoltage=180V

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
ControlGridToMixerPlateCapacitance	0.3 pF	—
ControlGridToOscillatorAnodeCapacitance	0.3 pF	—
ControlGridToOscillatorGridCapacitance	0.15 pF	—
OscillatorGridToOscillatorAnodeCapacitance	1.5 pF	—
RF Input Capacitance	10 pF	—
Oscillator Input Capacitance	6 pF	—
OscillatorOutputCapacitance	6 pF	—
MixerOutputCapacitance	10 pF	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance	600000 ohm	ConverterService;PlateVoltage=135V
Conversion Transconductance	440 uS	ConverterService;PlateVoltage=135V
Plate Resistance	700000 ohm	ConverterService;PlateVoltage=180V
Conversion Transconductance	450 uS	ConverterService;PlateVoltage=180V