

ELECTRONIC TUBE REFERENCE

6X8

Voltage - Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
PENTODE-TRIODE

Combined triode-pentode for oscillator, mixer, frequency-converter, RF, or IF service in television, communications, or mobile receivers.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9AK	BASE PINS	9
NOMINAL HEATER	6.3 V / 450 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Common cathode	SECTION CONSTRUCTION	Dissimilar

9AK - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 – 1G3	A	G3 – Suppressor Grid	CONNECTED
PIN2 – 2G1	B	G1 – Control Grid	CONNECTED
PIN3 – 2P	B	P – Plate (Anode)	CONNECTED
PIN4 – H	–	H – Heater	CONNECTED
PIN5 – H	–	H – Heater	CONNECTED
PIN6 – K	A	K – Cathode	CONNECTED
PIN7 – 1G1	A	G1 – Control Grid	CONNECTED
PIN8 – 1G2	A	G2 – Screen Grid	CONNECTED
PIN9 – 1P	A	P – Plate (Anode)	CONNECTED

SECTION RATINGS

SECTION1 Pentode	
PLATE RESISTANCE	750000 Ω
TRANSCONDUCTANCE	0.0046 S
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM SCREEN VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	0.4 W
MAXIMUM CATHODE CURRENT	20 mA
<i>Pentode section values mapped from converter-service maximum ratings and average characteristics.</i>	

SECTION2 Triode	
PLATE RESISTANCE	6900 Ω
TRANSCONDUCTANCE	0.0058 S
AMPLIFICATION FACTOR	40
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	1.5 W
MAXIMUM CATHODE CURRENT	20 mA
<i>Triode oscillator section values mapped from section-specific ratings and average characteristics.</i>	

Medium-mu triode plus sharp-cutoff pentode for television oscillator/mixer and amplifier service.

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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	ClassA
Screen-grid voltage	150 V	ClassA
Cathode resistor	200 ohm	ClassA
Plate current	7.7 mA	ClassA
Screen-grid current	1.6 mA	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	750000 ohm	ClassA
Transconductance	4600 uS	ClassA

195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	ClassA
Cathode resistor	100 ohm	ClassA
Plate current	8.5 mA	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	6900 ohm	ClassA
Transconductance	5800 uS	ClassA
Amplification factor	40	ClassA

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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Nominal
Heater current	450 mA	Nominal
Plate voltage	125 V	ClassA
Screen voltage	125 V	ClassA
Grid 1 voltage	-1 V	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate current	9 mA	ClassA
Screen current	2.2 mA	ClassA
Transconductance	5500 μ S	ClassA
Plate resistance	300000 ohm	ClassA
Zero-bias transconductance	5700 μ S	ClassA

1961 TUNG SOL

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Nominal
Heater current	450 mA	Nominal
Plate voltage	125 V	ClassA
Grid 1 voltage	-1 V	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate current	12 mA	ClassA
Transconductance	6500 uS	ClassA
Plate resistance	6000 ohm	ClassA
Amplification factor	40	ClassA



SOURCE OPERATING CONDITIONS

1965 Sylvania Electronic Tubes Vol3

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

1965 SYLVANIA ELECTRONIC TUBES VOL3

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
GridToPlateCapacitanceMaximum	0.06 pF	—
Input Capacitance	4.5 pF	—
Output Capacitance	1.4 pF	—
Plate Resistance	750000 ohm	—
Transconductance	4000 uS	—
TriodeConnectedAmplificationFactor	42	—
TriodeConnectedPlateResistance	7900 ohm	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	150 V	Mixer
Screen Voltage	150 V	Mixer
Cathode Bias Resistance	200 ohm	Mixer
Plate Current	7.7 mA	Mixer
Screen Current	1.6 mA	Mixer

1965 SYLVANIA ELECTRONIC TUBES VOL3

Section 2 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	450 mA	—
Grid To Plate Capacitance	1.4 pF	—
Input Capacitance	2.6 pF	—
Output Capacitance	1 pF	—
Transconductance	4000 μ S	—
Amplification Factor	40	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	150 V	Oscillator
Plate Current	8.5 mA	Oscillator



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	125 V	ClassA
Grid #2 voltage	125 V	ClassA
Grid #1 voltage	-1 V	ClassA
Plate current	9 mA	ClassA
Grid #2 current	2.2 mA	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	5500 μ S	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	300000 ohm	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	0.02 pF	—
Input capacitance	5 pF	—
Output capacitance	2.6 pF	—

1966 TUNG SOL ELECTRONIC TUBES 2 OF 4

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	125 V	ClassA
Grid #1 voltage	-1 V	ClassA
Plate current	12 mA	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	6500 uS	—
Plate resistance	6000 ohm	—
Amplification factor	40	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	1.7 pF	—
Input capacitance	3 pF	—
Output capacitance	1.4 pF	—



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ELECTRON TUBE DATABASE

SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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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 · Pentode

Characteristic		
Parameter	Published Value	Condition / Note
Conversion Transconductance	2100 uS	Mixer;PentodeConnection

1968 GENERAL ELECTRIC CO

Section 2 · Triode

Other		
Parameter	Published Value	Condition / Note
Oscillator Power Output	0.5 W	250MHz



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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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 · Pentode

Other		
Parameter	Published Value	Condition / Note
Plate voltage	125 V	Pentode
Screen voltage	125 V	Pentode
Plate current	9 mA	Pentode
Screen current	2.2 mA	Pentode

Characteristic		
Parameter	Published Value	Condition / Note
Plate resistance	300000 ohm	Pentode
Transconductance	5500 uS	Pentode

Capacitance		
Parameter	Published Value	Condition / Note
Grid-to-plate capacitance	0.06 pF	Pentode

1971 RCA HB3 BINDER 5 OF 7

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	—
Heater current	450 mA	—
Plate voltage	125 V	Triode
Plate current	12 mA	Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	6000 ohm	Triode
Transconductance	6500 uS	Triode
Amplification factor	40	Triode

TUBE TINKER

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