

ELECTRONIC TUBE REFERENCE

5X8

Voltage Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

PENTODE-TRIODE

Combined triode-pentode used as an oscillator and mixer or frequency converter in television or VHF communications receivers.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9AK	BASE PINS	9
NOMINAL HEATER	4.7 V / 600 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	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
AMPLIFICATION FACTOR	40
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM SCREEN VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	0.4 W
<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
<i>Triode oscillator section values mapped from section-specific ratings and average characteristics.</i>	

Miniature type used as combined oscillator and mixer Q/ff. Gf?(N2) crlf Ui^y ""^flUf-; tuDe m television receivers utilizing an intermediate (I/Q^^tW® ' frequency in the order of 40 MHz and in AM/FM re- 0- 6 »» ^0 ceivers. Outlines section, 6B; requires miniature 9-con- "p tact socket. Types 5X8 and 19X8 are identical with 9AK type 6X8A except for heater ratings. 5X8 6X8A 19X8



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
Service	Mixer	IF≈40MHz

1961 TUNG SOL

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Service	Oscillator	—



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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 · Pentode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance maximum	0.06 pF	PentodeSection;WithShield
Input capacitance	4.8 pF	PentodeSection;WithShield
Output capacitance	1.6 pF	PentodeSection;WithShield

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	125 V	ClassA;PentodeSection
Screen voltage	125 V	ClassA;PentodeSection
Grid voltage	-1 V	ClassA;PentodeSection
Plate current	9 mA	ClassA;PentodeSection
Screen current	2.2 mA	ClassA;PentodeSection

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	5500 μ S	PentodeSection
Plate resistance	300000 Ω	PentodeSection
Zero-bias transconductance	5700 μ S	Eb100V;Ec2=70V

1966 TUNG SOL ELECTRONIC TUBES 1 OF 4

Section 2 · Triode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	1.5 pF	TriodeSection
Input capacitance	2.4 pF	TriodeSection;WithShield
Output capacitance	1 pF	TriodeSection;WithShield

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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	6500 μ S	TriodeSection
Amplification factor	40	TriodeSection
Plate resistance	6000 Ω	TriodeSection



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 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Conversion Transconductance	2100 uS	Mixer;PentodeConnection

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Warm-up Time	11 s	—

1968 GENERAL ELECTRIC CO
Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Oscillator Power Output	0.5 W	250MHz



SOURCE DATA APPENDIX

SOURCE PDF

1975 RCA RC30

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

1975 RCA RC30
Section 2 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc)	18.4 volts	Published value from supplied target entry
Heater Current	0.16 ampere	Published value from supplied target entry
Heater Warm-up Time (Average)	11 seconds	Published value from supplied target entry
Plate Voltage	275 volts	Published value from supplied target entry

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No	275	Published value from supplied target entry
Grid-No	2	Published value from supplied target entry
For grid-No	137.5 volts	Published value from supplied target entry
For grid-No	275 volts	Published value from supplied target entry
Grid-No	125 volts	Published value from supplied target entry
Grid-No.1 Voltage	1	Published value from supplied target entry
Amplification Factor	40	Published value from supplied target entry
Plate Resistance (Appiox.)	300000 ohms	Published value from supplied target entry
Transconductance	5500 umhos	Published value from supplied target entry
Plate Current	12	Published value from supplied target entry
Heater Voltage	6.3 volts	Published value from supplied target entry
Heater Current	0.41 ampere	Published value from supplied target entry

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate	1.6 pF	Published value from supplied target entry
Grid to Cathode and Heater	2.4 pF	Published value from supplied target entry
Plate to Cathode and Heater	1 pF	Published value from supplied target entry
Plate to Cathode, Heater, Grid No	2	Published value from supplied target entry
Pentode Plate to Triode Plate	0.008 pF	Published value from supplied target entry
Heater to Cathode	6.5 pF	Published value from supplied target entry
Plate to All Other Elements (except grid)	3 PF	Published value from supplied target entry
Grid to All Other Elements (except plate)	2.5 PF	Published value from supplied target entry
Plate to Grid	2 PF	Published value from supplied target entry
Plate to All Other Elements (except grid No.1)	3.5 PF	Published value from supplied target entry
Plate to Grid No.1 <	6.5 PF	Published value from supplied target entry

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak Heater-Cathode Voltage ±	150 volts	Published value from supplied target entry