



ELECTRONIC TUBE REFERENCE

4GS8

Voltage Dual Pentode electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

PENTODE-PENTODE

Sharp-cutoff twin pentode designed as combined television sync separator, sync clipper, and automatic-gain-control amplifier.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	9
NOMINAL HEATER	4.2 V / 450 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Capable
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

SECTION RATINGS

SECTION1 Pentode	
TRANSCONDUCTANCE	0.0012 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	150 V
MAXIMUM PLATE DISSIPATION	1.1 W
MAXIMUM SCREEN DISSIPATION	0.75 W
MAXIMUM CATHODE CURRENT	12 mA
<i>Tung-Sol and Sylvania 4GS8 dual pentode for TV sync separator/clipper and AGC duties; separate plates and grid-3 electrodes, with shared screen and control structures; first physical pentode section. Heater 4.2 V, 450 mA series-string service, controlled warm-up approximately 11 s. Per-section maximum plate 300 V, plate dissipation 1.1 W; shared screen grid max 150 V, screen dissipation 0.75 W, DC cathode current max 12 mA. For separately tested section in manufacturer arrangement, grid-4-to-plate transconductance about 1200 μmhos (0.0012 S); this is a GRID-SPECIFIC conductance, not interchangeable with grid-3 response on second physical section. Typical plate 100 V and screen 67.5 V, other section grounded during separate measurements. Capacitive coupling between sections and 9LW/9FG basing variants noted.</i>	

SECTION2 Pentode	
TRANSCONDUCTANCE	0.00027 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	150 V
MAXIMUM PLATE DISSIPATION	1.1 W
MAXIMUM SCREEN DISSIPATION	0.75 W
MAXIMUM CATHODE CURRENT	12 mA
<i>Second physical pentode section in 4GS8 shared-grid double-pentode used for television sync separator/clipper and AGC amplification. Unlike first section's grid-4 conductance, this section's grid-3-to-plate transconductance about 270 μmhos (0.00027 S) under Tung-Sol section-isolated test conditions (100 V plate, 67.5 V screen, opposing plate and grid 3 grounded). This is a GRID-SPECIFIC measurement. Common ratings include each section plate max 300 V and dissipation 1.1 W, shared screen voltage max 150 V and dissipation 0.75 W, DC cathode current max 12 mA. Heater 4.2 V, 450 mA for controlled-warm-up series string, about 11 s.</i>	

Sharp-cutoff twin pentode used as combined sync separator, sync clipper, and AGC amplifier in television receivers.



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 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid4Transconductance	1200 μ S	Section1

1961 TUNG SOL

Section 2 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid3 Transconductance	270 μ S	Section2



SOURCE OPERATING CONDITIONS

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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 (EACH SECTION)	2 MMF	Capacitances GRID #} TO PLATE (EACH SECTION) 2.0 μ pf
GRID #	6 MMF	Capacitances GRID #1 TO ALL 6.0 μ pf
GRID #} (EACH SECTION) TO ALL	3.8 MMF	Capacitances GRID #} (EACH SECTION) TO ALL 3.8 μ pf
PLATE (EACH SECTION) TO ALL	3.2 MMF	Capacitances PLATE (EACH SECTION) TO ALL 3.2 μ pf

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
GRID #	0.015 MMF	Capacitances GRID #3 (SECTION 2) (MAX.) 0.015 μ f

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HEATER VOLTAGE	4.2 V	Maximum Ratings HEATER VOLTAGE 4.2 VOLTS
MAXIMUM PLATE DISSIPATION (EACH SECTION)	1.1 W	Maximum Ratings MAXIMUM PLATE DISSIPATION (EACH SECTION) 1.1 WATTS
MAXIMUM GRID #	0.75 W	Maximum Ratings MAXIMUM GRID #2 DISSIPATION 0.75 wATTs
MAXIMUM DC CATHODE CURRENT	12 mA	Maximum Ratings MAXIMUM DC CATHODE CURRENT 12 MA.
MAXIMUM GR ID #f CIRCUIT RESISTANCE 0	5 Mohm	Maximum Ratings MAXIMUM GR ID #f CIRCUIT RESISTANCE 0.5 MEGOHM
MAXIMUM GRID #	5 Mohm	Maximum Ratings MAXIMUM GRID #3 CIRCUITRESISTANCE (EACH SECTION) 0.5 MEGOHM
HEATER WARM— UP TIME (AP PROX.) *	11 s	Maximum Ratings HEATER WARM— UP TIME (AP PROX.) * 11.0 SECONDS
HEATER VOLTAGE lj	2 V	Typical Operating Conditions HEATER VOLTAGE lj.2 VOLTS
PLATE VOLTAGE (EACH SECTION)	100 V	Typical Operating Conditions PLATE VOLTAGE (EACH SECTION) 100 100 VOLTS
GRID #	67.5 V	Typical Operating Conditions GRID #2 VOLTAGE 67.5 67.5 voLTs
PLATE CURRENT (EACH SECTION)	2 mA	Typical Operating Conditions PLATE CURRENT (EACH SECTION) 2.0 MA.
GRID #	3.6 mA	Typical Operating Conditions GRID #2 CURRENT 6.0 3.6 MA..
CATHODE CURRENT	7.7 mA	Typical Operating Conditions CATHODE CURRENT 6.1 7.7 MA.
PLATE CURRENT	2 mA	Typical Operating Conditions PLATE CURRENT 2.0 MA.
GRID #	270 MMHOS	Typical Operating Conditions GRID #3 TRANSCONDUCTANCE 270 μ MHOS
GRID #	1200 MMHOS	Typical Operating Conditions GRID #1 TRANSCO ND UCTANCE 1200 μ MHOS

SOURCE OPERATING CONDITIONS

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1975 RCA RC30

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

1975 RCA RC30

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Tube Voltage Drop for plate current of	140 mA	Published in approved 4GS8 target entry; Section1
Tube Voltage Drop for plate current of 140 mA	12 V	Published in approved 4GS8 target entry; Section1
Heater Voltage (ac/dc) 3.15 4.2	6.3 V	Published in approved 4GS8 target entry; Section1
Heater Current 0.6 0.45	300 mA	Published in approved 4GS8 target entry; Section1
Heater Warm-up Time (Average) 11	11 seconds	Published in approved 4GS8 target entry; Section1
Plate Voltage (Each Unit)	300 V	Published in approved 4GS8 target entry; Section1
Peak positive value	50 V	Published in approved 4GS8 target entry; Section1
DC negative value	50 V	Published in approved 4GS8 target entry; Section1
DC positive value	3 V	Published in approved 4GS8 target entry; Section1
Grid-No.2 (Screen-Grid) Voltage	150 V	Published in approved 4GS8 target entry; Section1
Grid-No.1 (Control-Grid) Voltage, Negative bias value	50 V	Published in approved 4GS8 target entry; Section1
Cathode Current	12 mA	Published in approved 4GS8 target entry; Section1
Plate Dissipation (Each Unit)	1.1 W	Published in approved 4GS8 target entry; Section1
Grid-No.2 Input	0.75 W	Published in approved 4GS8 target entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage (Each Unit) 100	100 V	Published in approved 4GS8 target entry; Section1
Plate Current	2.2 mA	Published in approved 4GS8 target entry; Section1
100 aA –	-4.6 V	Published in approved 4GS8 target entry; Section1
100 M –	-2.3 V	Published in approved 4GS8 target entry; Section1
Grid-No.3-Circuit Resistance (Each Unit)	0.5 MΩ	Published in approved 4GS8 target entry; Section1
Grid-No.1-Circuit Resistance	0.5 MΩ	Published in approved 4GS8 target entry; Section1
ORID-No	3 V	Published in approved 4GS8 target entry; Section1
GRID-No	2 V	Published in approved 4GS8 target entry; Section1
Heater Voltage (ac/dc) 6.3	12.6 V	Published in approved 4GS8 target entry; Section1
Heater Current 0.9	450 mA	Published in approved 4GS8 target entry; Section1
Heater Warm-up Time	11 seconds	Published in approved 4GS8 target entry; Section1
DC Plate Voltage	300 V	Published in approved 4GS8 target entry; Section1
Positive-bias value	25 V	Published in approved 4GS8 target entry; Section1
Negative-bias value	100 V	Published in approved 4GS8 target entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No. 3 to Plate (Each Unit)	1.9 pF	Published in approved 4GS8 target entry; Section1
Grid No.1 to All Other Electrodes	6 pF	Published in approved 4GS8 target entry; Section1
Grid No.3 to All Other Electrodes (Each Unit)	3.6 pF	Published in approved 4GS8 target entry; Section1
Plate to All Other Electrodes (Each Unit)	3 pF	Published in approved 4GS8 target entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 to Plate	0.1 pF	Published in approved 4GS8 target entry; Section1
Internal Shield	7 pF	Published in approved 4GS8 target entry; Section1
Grid No.3 to All Other Electrodes	8.5 pF	Published in approved 4GS8 target entry; Section1
Grid No.1 to Grid No.3	0.08 pF	Published in approved 4GS8 target entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-No-3 Voltage (Each Unit) -10	0 V	Published in approved 4GS8 target entry; Section1
Grid-No.2 Voltage 67.6	67.5 V	Published in approved 4GS8 target entry; Section1
Plate Current (Each Unit)	2.2 mA	Published in approved 4GS8 target entry; Section1
Grid-No.2 Current 6.5	3.3 mA	Published in approved 4GS8 target entry; Section1
Cathode Current 6.6	7.8 mA	Published in approved 4GS8 target entry; Section1
Plate Voltage 100	100 V	Published in approved 4GS8 target entry; Section1
Grid-No.3 Voltage 0	0 V	Published in approved 4GS8 target entry; Section1
Grid-No.2 Voltage 67.5	67.5 V	Published in approved 4GS8 target entry; Section1
Grid-No.3 Transconductance	180 μS	Published in approved 4GS8 target entry; Section1