

ELECTRONIC TUBE REFERENCE

6FG7

Voltage Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
PENTODE-TRIODE

Medium-mu triode plus sharp-cutoff pentode used as a combined oscillator and mixer in VHF television receivers.

GENERAL CHARACTERISTICS

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

9GF - TERMINAL PINOUT

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

SECTION RATINGS

SECTION1 Pentode	
PLATE RESISTANCE	180000 Ω
TRANSCONDUCTANCE	0.0074 S
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM SCREEN VOLTAGE	150 V
MAXIMUM PLATE DISSIPATION	3 W
MAXIMUM SCREEN DISSIPATION	0.55 W
<i>Pentode section; promoted characteristic uses first published average operating column.</i>	

SECTION2 Triode	
PLATE RESISTANCE	5700 Ω
TRANSCONDUCTANCE	0.0075 S
AMPLIFICATION FACTOR	43
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	2.5 W
<i>Triode section.</i>	

Medium-mu triode plus sharp-cutoff pentode used as a combined oscillator and mixer in VHF television receivers.



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	PentodeSection

1961 TUNG SOL

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Service	Oscillator	TriodeSection



SOURCE OPERATING CONDITIONS

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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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pentode typical grid2 voltage	125 V	—
Grid2 input maximum	0.55 W	—

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pentode transconductance	6400 μ S	—

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Mixer / RF-IF amplifier	—

1965 WESTINGHOUSE DATA BOOK

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Triode typical plate voltage	125 V	—
Heater-cathode voltage maximum	200 V	—

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Triode amplification factor	40	—
Triode transconductance	7400 μ S	—

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	VHF 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
Screen_voltage	125 V	ClassA
Grid_1_voltage	-1 V	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate_current	11 mA	ClassA
Screen_current	4 mA	ClassA

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
Heater_warmup_time	11 s	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate_current	13 mA	ClassA



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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
Plate Voltage	100 V	PentodeSection
Screen Voltage	100 V	PentodeSection

1968 GENERAL ELECTRIC CO

Section 2 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	125 V	TriodeSection
Plate Current	13 mA	TriodeSection

SOURCE OPERATING CONDITIONS

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1971 RCA HB3 Binder 4 of 7

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

1971 RCA HB3 BINDER 4 OF 7

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	ClassA
Maximum plate voltage	330 V	—
Maximum screen-grid voltage	330 V	—

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pin 1 -Triode Grid – published value 1	1	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 1 -Triode Grid – published value 2	7	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 6 -Pentode Plate – published value 1	6	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 6 -Pentode Plate – published value 2	9	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

1971 RCA HB3 BINDER 4 OF 7

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	ClassA
Maximum plate voltage	330 V	—
respect to cathode	200 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
respect to cathode	200 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid No.1 to plate – published value 1	0 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid No.1 to plate – published value 2	2 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid No.1 to plate – published value 3	0.01 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
PLATE VOLTAGE – published value 1	330 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
PLATE VOLTAGE – published value 2	330 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
SUPPLY VOLTAGE	330 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Positive-bias value – published value 1	0 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Positive-bias value – published value 2	0 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
PLATE DISSIPATION – published value 1	2 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
PLATE DISSIPATION – published value 2	5 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
PLATE DISSIPATION – published value 3	3 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification factor	17	ClassA
Voltage (AC or DC) – published value 1	6.3 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Voltage (AC or DC) – published value 2	6.3 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Voltage (AC or DC) – published value 3	0.6 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Current – published value 1	0 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Current – published value 2	450 A	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Current – published value 3	30 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Current – published value 4	450 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid to plate – published value 1	1.8	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid to plate – published value 2	1.8	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
grid No.3, and heater – published value 1	3	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
grid No.3, and heater – published value 2	3	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
grid No.3, and heater – published value 1	1.3	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
grid No.3, and heater – published value 2	1.9	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
and heater – published value 1	5	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
and heater – published value 2	5	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
and heater – published value 1	2.4	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
and heater – published value 2	3.4	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
grid No 3 – published value 1	3	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
grid No 3 – published value 2	6	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
grid No 3 – published value 3	6	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Voltage – published value 1	125 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Voltage – published value 2	100 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Voltage – published value 3	125 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid-No.2 Voltage – published value 1	100 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid-No.2 Voltage – published value 2	125 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid-No.1 Voltage – published value 1	-1 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid-No.1 Voltage – published value 2	0 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid-No.1 Voltage – published value 3	-1 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Amplification Factor	43 A	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance (Approx.) – published value 1	5700 ohm	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Resistance (Approx.) – published value 2	180000 ohm	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Transconductance – published value 1	7500	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Transconductance – published value 2	7400	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Transconductance – published value 3	6000	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Current – published value 1	13 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Current – published value 2	11 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid-No.2 Current	4 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
for plate $\mu_a = 30$ – published value 1	30 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
for plate $\mu_a = 30$ – published value 2	-6.5 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
for plate $\mu_a = 30$ – published value 3	-7.5 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 2 -Triode Plate	2	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 3-Cathode – published value 1	3	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 3-Cathode – published value 2	8	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pin 4 -Heater	4	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 5-Heater	5	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
between 165 and 330 volts – published value 1	165 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
between 165 and 330 volts – published value 2	330 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
A With external Shield JEDEC No.315 connected to cathode except	95	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.



SOURCE DATA APPENDIX

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
Heater Voltage (ac/dc) 4.7	6.3 V	Published in approved 6FG7 target entry; Section2
Heater Current 0.6	450 mA	Published in approved 6FG7 target entry; Section2
Heater Warm-up Time (Average) 11	11 seconds	Published in approved 6FG7 target entry; Section2
Plate Voltage 330	330 V	Published in approved 6FG7 target entry; Section2
Grid-No.2 (Screen-Grid) Supply Voltage	330 V	Published in approved 6FG7 target entry; Section2
Grid-No.1 (Control-Grid) Voltage, Positive-bias value 0	0 V	Published in approved 6FG7 target entry; Section2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Dissipation 2.5	3 W	Published in approved 6FG7 target entry; Section2
For grid-No.2 voltages up to	165 V	Published in approved 6FG7 target entry; Section2
For grid-No.2 voltages between 165 and	330 V	Published in approved 6FG7 target entry; Section2
For grid-No.2 voltages between 165 and 330 volts	0.55 W	Published in approved 6FG7 target entry; Section2
Plate Voltage 125 100	125 V	Published in approved 6FG7 target entry; Section2
Grid-No.2 Voltage 100	125 V	Published in approved 6FG7 target entry; Section2
Grid-No.1 Voltage -1 0	-1 V	Published in approved 6FG7 target entry; Section2

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate 1.8	1.8 pF	Published in approved 6FG7 target entry; Section2
Grid to Cathode, Pentode Grid No.3, and Heater 3	3 pF	Published in approved 6FG7 target entry; Section2
Plate to Cathode, Pentode Grid No.3, and Heater 1.3	1.9 pF	Published in approved 6FG7 target entry; Section2
and Heater 2.4	3.4 pF	Published in approved 6FG7 target entry; Section2

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance (Approx.) 5700	180000 Ω	Published in approved 6FG7 target entry; Section2
Transconductance 7500 7400	6000 μS	Published in approved 6FG7 target entry; Section2
Grid-No.2 Current - 11	4 mA	Published in approved 6FG7 target entry; Section2
of 30 nA -6.6 -	-7.5 V	Published in approved 6FG7 target entry; Section2

1975 RCA RC30

Section 2 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc) 4.7	6.3 V	Published in approved 6FG7 target entry; Section1
Heater Current 0.6	450 mA	Published in approved 6FG7 target entry; Section1
Heater Warm-up Time (Average) 11	11 seconds	Published in approved 6FG7 target entry; Section1
Plate Voltage 330	330 V	Published in approved 6FG7 target entry; Section1
Grid-No.2 (Screen-Grid) Supply Voltage	330 V	Published in approved 6FG7 target entry; Section1
Grid-No.1 (Control-Grid) Voltage, Positive-bias value 0	0 V	Published in approved 6FG7 target entry; Section1
Plate Dissipation 2.5	3 W	Published in approved 6FG7 target entry; Section1
For grid-No.2 voltages up to	165 V	Published in approved 6FG7 target entry; Section1
For grid-No.2 voltages between 165 and	330 V	Published in approved 6FG7 target entry; Section1
For grid-No.2 voltages between 165 and 330 volts	0.55 W	Published in approved 6FG7 target entry; Section1
Plate Voltage 125 100	125 V	Published in approved 6FG7 target entry; Section1
Grid-No.2 Voltage 100	125 V	Published in approved 6FG7 target entry; Section1
Grid-No.1 Voltage -1 0	-1 V	Published in approved 6FG7 target entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate 1.8	1.8 pF	Published in approved 6FG7 target entry; Section1
Grid to Cathode, Pentode Grid No.3, and Heater 3	3 pF	Published in approved 6FG7 target entry; Section1
Plate to Cathode, Pentode Grid No.3, and Heater 1.3	1.9 pF	Published in approved 6FG7 target entry; Section1
and Heater 2.4	3.4 pF	Published in approved 6FG7 target entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance (Approx.) 5700	180000 Ω	Published in approved 6FG7 target entry; Section1
Transconductance 7500 7400	6000 μS	Published in approved 6FG7 target entry; Section1
Grid-No.2 Current – 11	4 mA	Published in approved 6FG7 target entry; Section1
of 30 nA –6.6 –	-7.5 V	Published in approved 6FG7 target entry; Section1