

ELECTRONIC TUBE REFERENCE

6Z10

Power - Beam (NOT sweep) electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
BEAMPOWER-PENTODE

Combination tube integrating an FM discriminator or limiter function with a beam-power audio-output section for radio and television receiver service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	12BT	BASE PINS	12
NOMINAL HEATER	6.3 V / 950 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

12BT - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1	–	H – Heater	CONNECTED
PIN2	B	G2 – Screen Grid	CONNECTED
PIN3	B	G3 – Suppressor Grid	CONNECTED
PIN3	B	K – Cathode	CONNECTED
PIN4	A	P – Plate (Anode)	CONNECTED
PIN5	A	G3 – Suppressor Grid	CONNECTED
PIN6	A	G2 – Screen Grid	CONNECTED
PIN7	A	G1 – Control Grid	CONNECTED
PIN8	A	K – Cathode	CONNECTED
PIN8	–	IS – Internal Screen	CONNECTED
PIN9	B	P – Plate (Anode)	CONNECTED
PIN11	B	G1 – Control Grid	CONNECTED
PIN12	–	H – Heater	CONNECTED

SECTION RATINGS

SECTION1 Pentode	
PLATE RESISTANCE	250000 Ω
TRANSCONDUCTANCE	0.00036 S
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM SCREEN VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	1.5 W
MAXIMUM SCREEN DISSIPATION	0.8 W
MAXIMUM CATHODE CURRENT	13 mA
<i>Gated-beam discriminator section; published accelerator/grid characteristics do not map cleanly to standard promoted plate/screen fields and are preserved as parameters.</i>	

SECTION2 Beam Power	
PLATE RESISTANCE	100000 Ω
TRANSCONDUCTANCE	0.0065 S
MAXIMUM PLATE VOLTAGE	275 V
MAXIMUM SCREEN VOLTAGE	275 V
MAXIMUM PLATE DISSIPATION	10 W
MAXIMUM SCREEN DISSIPATION	2 W
MAXIMUM CATHODE CURRENT	55 mA
<i>Beam-pentode section maximum ratings and Class-A characteristics promoted.</i>	

6Z10 is a Other vacuum tube documented in the RCA Receiving Tube Manual. The supplied excerpt was reviewed for heater data, section arrangement, maximum ratings, electrical characteristics, interelectrode capacitances, typical operating conditions, and stated applications.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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 Supply Voltage	330 V	—
Accelerator Supply Voltage	330 V	—
Grid 1 Transconductance	360 μ S	—
Grid 3 Transconductance	700 μ S	—

1968 GENERAL ELECTRIC CO

Section 2 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	250 V	ClassA
Screen Voltage	250 V	ClassA
Load Resistance	5000 ohm	ClassA
Power Output	4.2 W	ClassA
Total Harmonic Distortion	8.5 %	ClassA



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
Heater voltage	6.3 V	—
Heater current	950 mA	—
Plate voltage	135 V	PentodeUnit
Screen voltage	75 V	PentodeUnit
Plate current	5 mA	PentodeUnit

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 transconductance	360 μ S	PentodeUnit
Grid No.3 transconductance	700 μ S	PentodeUnit
Grid No.1 cutoff voltage	-4 V	PentodeUnit
Grid No.3 cutoff voltage	-4 V	PentodeUnit

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1-to-grid No.3 capacitance	0.009 pF	PentodeUnit

1971 RCA HB3 BINDER 5 OF 7

Section 2 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	BeamPowerUnit
Screen voltage	250 V	BeamPowerUnit
Grid voltage	-8 V	BeamPowerUnit
Plate current	35 mA	BeamPowerUnit
Screen current	3 mA	BeamPowerUnit

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	100000 ohm	BeamPowerUnit
Transconductance	6500 μ S	BeamPowerUnit

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	0.22 pF	BeamPowerUnit
Input capacitance	11 pF	BeamPowerUnit
Output capacitance	7.5 pF	BeamPowerUnit



SOURCE OPERATING CONDITIONS

[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 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Warm-up Time (Average)	11 seconds	Heater Warm-up Time (Average) 11 11 seconds
Grid No.1 to Grid No	0.009 PF	Grid No.1 to Grid No.3 0.009 PF
Grid No.1 to Cathode, Heater, Grid No	3	Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, Plate,
Grid No	2	Grid No.3 to Cathode, Heater, Grid No.1, Grid No.2, Plate,
Plate Dissipation	10 watts	Plate Dissipation 10 watts
Grid-No	2 watts	Grid-No.2 Input 2 watts
Maximum-Signal Plate Current	39 mA	Maximum-Signal Plate Current 39 mA
Maximum-Signal Grid-No	13 mA	Maximum-Signal Grid-No.2 Current 13 mA
Load Resistance	5000 ohms	Load Resistance 5000 ohms

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-No	275 volts	Grid-No.2 (Screen-Grid) Voltage 275 volts
Plate Voltage	250 volts	Plate Voltage 250 volts
Grid-No	250 volts	Grid-No.2 Voltage 250 volts
Grid-No.1 (Control-Grid) Voltage	-8 volts	Grid-No.1 (Control-Grid) Voltage -8 volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak AF Grid-No.1 Voltage	8 volts	Peak AF Grid-No.1 Voltage 8 volts
Zero-Signal Plate Current	35 mA	Zero-Signal Plate Current 35 mA
Zero-Signal Grid-No	3 mA	Zero-Signal Grid-No.2 Current 3 mA
Plate Resistance (Approx.)	0.1 megohm	Plate Resistance (Approx.) 0.1 megohm
Transconductance G5	0	Transconductance G500 /imhos
Grid-No	1	Grid-No. 1-Circuit Resistance:

1975 RCA RC30

Section 2 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 to Plate	0.22 PF	Grid No.1 to Plate 0.22 PF
Grid-No	33 kohms	Grid-No.2 Resistor 33 33 kohms

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 to Cathode. Heater, Grid No	11 pF	Grid No.1 to Cathode. Heater, Grid No.2, and Grid No.3 . . . 11 pF
Plate to Cathode, Heater, Grid No	7.5 pF	Plate to Cathode, Heater, Grid No.2, and Grid No.3 7.5 pF

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Supply Voltage	330 volts	Plate Supply Voltage 330 volts
Grid-No	330 volts	Grid-No.2 Voltage 330 volts
Grid-No.1 Voltage, Peak positive value	60 volts	Grid-No.1 Voltage, Peak positive value 60 volts
Average Cathode Current	13 mA	Average Cathode Current 13 mA
Plate Voltage	135 volts	Plate Voltage 135 135 135 volts
Grid-No	0 volts	Grid-No.3 (Suppressor-Grid) Voltage 4 4 0 volts
Grid-No	280 volts	Grid-No.2 (Screen-Grid) Supply Voltage 280 280 volts
Grid-No	75 volts	Grid-No.2 Voltage 75 volts
Grid No	0 volts	Grid No. 1 (Control-Grid) Voltage 0 0 0 volts
Transconductance, Grid No.1 to Plate	360	Transconductance, Grid No.1 to Plate 360 /imhos

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance, Grid No	700	Transconductance, Grid No.3 to Plate 700 /imhos
Average Plate Current	5	Average Plate Current 5 til A
Grid-No	4.5 mA	Grid-No.2 Current 4.5 mA
Grid No	3	Grid No.3 Voltage (Approx.) for plate current of

TUBE TINKER

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and their source documents.

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