



ELECTRONIC TUBE REFERENCE

2050A

Specialized - Thyatron electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

THYRATRON

Gas-filled thyatron for relay and grid-controlled rectifier service. Its control grid triggers gas discharge for electronic switching.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	6
NOMINAL HEATER	6.3 V / 600 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Thyatron	
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM CATHODE CURRENT	10 A
<i>Published maximum ratings and device-specific characteristics are promoted where schema-compatible; remaining switching/gauge/regulator electrical data is retained in section parameters.</i>	

2050A is a gas-filled thyatron for relay and grid-controlled rectifier service. The supplied RCA manual excerpt was reviewed for heater data, physical sections, maximum ratings, electrical characteristics, capacitances, and stated operating conditions.

SOURCE OPERATING CONDITIONS

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

1971 RCA HB3 BINDER 2 OF 7

Section 1 · Thyatron

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Voltage (AC or DC) – published value 1	6 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Voltage (AC or DC) – published value 2	3 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Voltage (AC or DC) – published value 3	10 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Current at 6.3 volts – published value 1	6.3 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Current at 6.3 volts – published value 2	6 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
For do anode volts = 100, grid-No.1	100 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
volts (square-wave pulse) = 50, peak	50 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
anode amperes during conduction = 1 – published value 1	1 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
anode amperes during conduction = 1 – published value 2	500 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
With do anode volts = 125, grid-No.1	125 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
volts = -250, grid-No.1 resistor (ohms) – published value 1	-250 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
volts = -250, grid-No.1 resistor (ohms) – published value 2	1 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
= 1000, do anode amperes = 0 1 – published value 1	1000 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
= 1000, do anode amperes = 0 1 – published value 2	0 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
= 1000, do anode amperes = 0 1 – published value 3	1 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
= 1000, do anode amperes = 0 1 – published value 4	50 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
volts = -10, grid-No.1 resistor (ohms)	-10 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
= 1000, do anode amperes = 0 1 – published value 1	1000 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
= 1000, do anode amperes = 0 1 – published value 2	0 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
= 1000, do anode amperes = 0 1 – published value 3	1 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
= 1000, do anode amperes = 0 1 – published value 4	100 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
do anode supply volts (rms) = 460,	460 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
average anode amperes = 0.1 – published value 1	100 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
average anode amperes = 0.1 – published value 2	5 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode Voltage Drop (Approx)	8 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
No.1 resistor (ohms) = 0, grid No.2 – published value 1	0 ohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
No.1 resistor (ohms) = 0, grid No.2 – published value 2	2 ohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Grid-No.2 Control Ratio (Approx.) for	2	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
grid-No.1 resistor (ohms) = 0, grid-No.2 – published value 1	0 ohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
grid-No.1 resistor (ohms) = 0, grid-No.2 – published value 2	2 ohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
resistor (ohms) = 0, grid No.1 connected – published value 1	0 ohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
resistor (ohms) = 0, grid No.1 connected – published value 2	1 ohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
For anode subgly frequency of 60 cys	6	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
GRID-No.2 CURRENT	2	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
AMBIENT-TEMPERATURE RANGE – published value 1	-75 C	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
AMBIENT-TEMPERATURE RANGE – published value 2	90 C	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
AMBIENT-TEMPERATURE RANGE – published value 3	-75 C	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
AMBIENT-TEMPERATURE RANGE – published value 4	90 C	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
RMS Anode Voltage – published value 1	117 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
RMS Anode Voltage – published value 2	400 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
RMS.Grid-No.1 Bias Voltage°	5 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
DC Grid-No.1 Bias Voltage	-6 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Voltage – published value 1	5 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Voltage – published value 2	6 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Resistance – published value 1	1 Mohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Resistance – published value 2	1 Mohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Anode-Circuit Resistances – published value 1	1200 ohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Anode-Circuit Resistances – published value 2	2000 ohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
θ Approximately 180° out of phase with the anode voltage – published value 1	0 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
θ Approximately 180° out of phase with the anode voltage – published value 2	180 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
6.3 volts. Regardless of the heater-voltage supply used, the	6.3 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
A grid-Xo.i resistor having a value as high as 10 megohms	10 Mohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ef=6.3 VOLTS	6.3 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Et=6.3210% VOLTS	6.321 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
AMBIENT –TEMPERATURE RANGE ("C1=-75 TO +90 – published value 1	-75	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
AMBIENT –TEMPERATURE RANGE ("C1=-75 TO +90 – published value 2	90	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
AC ANODE VOLTS (RMS-60 CPS)	60 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
E f = 6.3 VOLTS	6.3 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
GRID–N?2 RESISTOR IOHMS = 0	2 ohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Heater or filament voltage nominal	6.3 V	Nominal value from supplied datasheet.
Heater or filament current nominal	600 mA	Nominal or average value from supplied datasheet.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Forward – published value 1	180 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Forward – published value 2	650 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Inverse – published value 1	360 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Inverse – published value 2	1300 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
conduction – published value 1	-100 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
conduction – published value 2	-100 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
conduction – published value 1	-10 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
conduction – published value 2	-10 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
conduction – published value 1	-250 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
conduction – published value 2	-250 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Peak – published value 1	1 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Peak – published value 2	1 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Averageb – published value 1	0.2 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Averageb – published value 2	0.1 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
second maximum – published value 1	10 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
second maximum – published value 2	10 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Averageb – published value 1	0 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Averageb – published value 2	0.01 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Averageb – published value 1	0.01 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Averageb – published value 2	0.01 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
respect to cathode – published value 1	100 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
respect to cathode – published value 2	100 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
respect to cathode – published value 1	25 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
respect to cathode – published value 2	25 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
0.1 ampere – published value 1	0.1 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
0.1 ampere – published value 2	10 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
0.1 ampere – published value 1	0.1 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
0.1 ampere – published value 2	2 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.



SOURCE DATA APPENDIX

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 · Thyatron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input	4.2 pF	Input 4.2 pF

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Current	600 mA	Heater Current 0.6 ampere
For dc anode volts = 100, grid-No	1 V	For dc anode volts = 100, grid-No. 1 volts (square-wave pulse)
RMS Anode Voltage 117	400 V	RMS Anode Voltage 117 400 volts
Peak Grid-No. 1 Signal Voltage 6	6 V	Peak Grid-No. 1 Signal Voltage 6 6 volts
Grid-No. 1 Circuit Resistance . 1	1 Mohm	Grid-No. 1 Circuit Resistance . 1 1 megohm
Anode-Circuit Resistancef	2000 ohm	Anode-Circuit Resistancef 1200 2000 ohms
For average anode current below	100 mA	For average anode current below 0.1 ampere 10 megohms
For average anode current above	100 mA	For average anode current above 0.1 ampere 2 megohms
DC Operating Current (Continuous)	3.5 mA	DC Operating Current (Continuous) 3.5 mA
DC Operating Current (Continuous)	1.6 mA	DC Operating Current (Continuous) 1.6 mA

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