

ELECTRONIC TUBE REFERENCE

2050

Specialized - Thyatron electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
THYRATRON

Gas-filled thyatron for relay and grid-controlled rectifier service. Grid triggering initiates controlled gas conduction for switching and power-control circuits.

GENERAL CHARACTERISTICS

BASE DESIGNATION	8J	BASE PINS	8
NOMINAL HEATER	6.3 V / 600 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Thyatron	
MAXIMUM PLATE VOLTAGE	1300 V
MAXIMUM CATHODE CURRENT	10 A
Published maximum ratings and device-specific characteristics are promoted where schema-compatible; remaining switching/gauge/regulator electrical data is retained in section parameters.	

2050 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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195X Raytheon Special Purpose Tubes

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

195X RAYTHEON SPECIAL PURPOSE TUBES

Section 1 · Thyatron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum peak inverse anode voltage	1300 V	—
Maximum peak cathode current	1 A	—
Maximum average cathode current	100 mA	—

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1960 RCA Industrial and Communications Types

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

1960 RCA INDUSTRIAL AND COMMUNICATIONS TYPES

Section 1 · Thyatron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Control-grid voltage range	-75 to +90 V	—
Maximum anode voltage	650 V	—
Maximum inverse anode voltage	1300 V	—
Peak cathode current	1 A	—
Average cathode current	100 mA	—
Fault current	10 A	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid circuit resistance maximum	10 Mohm	—



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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 · Thyatron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Nominal
Heater current	600 mA	Nominal



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1963 Amperex Condensed

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

1963 AMPEREX CONDENSED

Section 1 · Thyatron

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater heating time	10 s	—
Tube drop	8 V	Conducting

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak forward anode voltage	650 V	—
Peak inverse anode voltage	1300 V	—
Maximum grid voltage	-50 V	—



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1966 Tung Sol Electronic Tubes 3 of 4

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

1966 TUNG SOL ELECTRONIC TUBES 3 OF 4

Section 1 · Thyatron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	—
Heater current	600 mA	—
Maximum anode voltage	450 V	ControlledRectifier
Maximum average anode current	100 mA	ControlledRectifier

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode-to-control-grid capacitance	0.26 pF	—

CONSTRUCTION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Gas fill	Xenon	—

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Relay and grid-controlled rectifier service	—



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1971 RCA HB3 Binder 2 of 7

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	5.7 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Voltage (AC or DC) – published value 2	6.3 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Voltage (AC or DC) – published value 3	6.9 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Current, with heater volts = 6.3 0.54 – published value 1	6.3 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Current, with heater volts = 6.3 0.54 – published value 2	0.54 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Current, with heater volts = 6.3 0.54 – published value 3	0.6 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Current, with heater volts = 6.3 0.54 – published value 4	0.66 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
for conditions: 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.
square-pulse volts = 50; ar,d peak anode amp	50 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
For conditions: 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.
volts = -250; grid-No. 1 resistor lohmsl =	-250 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
1000; do anode amp. = 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 amp. = 0. 1 – published value 2	0 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
1000; do anode amp. = 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 amp. = 0. 1 – published value 4	50 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
For conditions: do anode volts= 125; grid-No. I	125 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
volts= -10; grid-No. I resistorlohmsl = 1000 – published value 1	-10 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
volts= -10; grid-No. I resistorlohmsl = 1000 – published value 2	1000 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
do anode amp. = 0. 1 – published value 1	0 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
do anode amp. = 0. 1 – published value 2	1 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
do anode amp. = 0. 1 – published value 3	1 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
supply volts Irmsl = 460, and average anode	460 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
amp. ' 0. 1 – published value 1	0 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
amp. ' 0. 1 – published value 2	1 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
amp. ' 0. 1 – published value 3	500 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Tube Voltage Drop (Approx.)	8 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
resistor Imegohmsl =0; grid-No.2 volts = 0 – published value 1	0 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
resistor Imegohmsl =0; grid-No.2 volts = 0 – published value 2	2 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
resistor Imegohmsl =0; grid-No.2 volts = 0 – published value 3	0 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
resistor Imegohmsl =0; grid-No.2 volts = 0 – published value 4	250 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Grid-No.2 Control Ratio (Approx.) with grid-No. 1	2	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
resistor (megohms) = 0; grid-No.2 resistor – published value 1	0 Mohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
resistor (megohms) = 0; grid-No.2 resistor – published value 2	2 Mohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
(megohmsl = 0; grid-No. 1 volts = 0 – published value 1	0 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
(megohmsl = 0; grid-No. 1 volts = 0 – published value 2	0 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
(megohmsl = 0; grid-No. 1 volts = 0 – published value 3	800 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
GRID-No.2 (SHIELD-GRID) VOLTAGE	2 V	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.

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.

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

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
of 0.1 sec. max – published value 1	0.1 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
of 0.1 sec. max – published value 2	10 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
of 0.1 sec. max – published value 3	10 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Averay~m – published value 1	0 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Averay~m – published value 2	0.01 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Averagem – published value 1	0 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Averagem – 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.



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 · Thyatron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc) 5.7 6.3	6.9 V	Heater Voltage (ac/dc) 5.7 6.3 6.9 volts
Heater Current 0.54 0.60	660 mA	Heater Current 0.54 0.60 0.66 ampere
Input	4.2 pF	Input 4.2 pF
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 Resistance ^f	2000 ohm	Anode-Circuit Resistance ^f 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