

ELECTRONIC TUBE REFERENCE

5696

Specialized - Thyatron electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
THYRATRON

Industrial gas-tetrode thyatron for counter and relay applications. Grid-controlled gas discharge provides electronic switching and control.

GENERAL CHARACTERISTICS

BASE DESIGNATION	7BN	BASE PINS	7
NOMINAL HEATER	6.3 V / 150 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

7BN - TERMINAL PINOUT

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

SECTION RATINGS

SECTION1 Thyatron	
MAXIMUM PLATE VOLTAGE	500 V
MAXIMUM CATHODE CURRENT	100 mA
FORWARD VOLTAGE DROP	10 V
WARM-UP TIME	10 s
<i>Published ratings and characteristics promoted where unambiguous; additional source values preserved as parameters.</i>	

Industrial gas-tetrode thyatron used in counter-circuit and relay applications. Extracted from the supplied RCA Receiving Tube Manual excerpt.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1940 RCA

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

1940 RCA

Section 1 · Thyatron

APPLICATION

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Relay_Counter_Control text	—



SOURCE OPERATING CONDITIONS

1953 RFT Rundfunk Technik

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1953 RFT RUNDFUNK TECHNIK

Section 1 · Thyatron

OTHER

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
U _f	6.3 V	U _f 6,3 V 8
U _i	11 V	U _i 11 V
U _z	40 V	U _z 40 V
Cg1/a ca	0.05 pF	Cg1/a ca. 0,05 pF Fassung: 7-10, TGL 11607
J a8 max	500 V	J a8 max. 500 V maX. 10 v
Eks max	100 mA	Eks max. 100 mA maX. 100 kOhm 3)
Di. max	25 mA	Di. max. 25 mA MmaX. 30 5
U g1 max	100 v	U g1 max. 100 v 2)
1 mMaX	100 V	1 mMaX. 100 V
U 18 MaX	10 V	-U 18 MaX. 10 V maX. 25 V
x1 MAaX	5 mA	x1 MAaX. 5 mA MaXe 90 °

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
R mM8aX	10 MOhm	R mM8aX. 10 MOhm maX. 30 °
PublishedValue	1 v	1 v 1)
Ug	2 S	-Ug2 S MAX . 50
Zündkennlinien-Streubereiche bei 4 =	0.1 MOhm	Zündkennlinien-Streubereiche bei 4 = 0,1 MOhm und Ry4 = 10 MOhm,
oder Überheizung (	6.9 V	oder Überheizung (6,9 V) auftreten können.


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1960 RCA Industrial and Communications Types

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1960 RCA INDUSTRIAL AND COMMUNICATIONS TYPES

Section 1 · Thyatron

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Relay control	—


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1961 Tung Sol

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1961 TUNG SOL

Section 1 · Thyatron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Nominal
Heater current	150 mA	Nominal
Maximum cathode current	100 mA	—

Characteristic		
Parameter	Published Value	Condition / Note
Minimum cathode heating time	10 s	—

Capacitance		
Parameter	Published Value	Condition / Note
Anode-to-control-grid capacitance	0.03 pF	—



SOURCE OPERATING CONDITIONS

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1963 Philips Electron Tubes Handbook V3

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

1963 PHILIPS ELECTRON TUBES HANDBOOK V3

Section 1 · Thyatron

Characteristic		
Parameter	Published Value	Condition / Note
Warmup time minimum	10 s	Thyatron
Arc voltage drop	10 V	Thyatron
Anode-to-grid-1 striking ratio	250	Thyatron
Anode-to-grid-2 striking ratio	15	Thyatron
Critical grid-1 current	0.5 μ A	Thyatron
Deionization time	40 μ s	RecoveryTest

Other		
Parameter	Published Value	Condition / Note
Recovery-test anode voltage	500 V	RecoveryTest
Recovery-test peak cathode current	100 mA	RecoveryTest
Pulse duration	20 μ s	RecoveryTest
Grid-1 voltage	-50 V	RecoveryTest

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak forward anode voltage maximum	500 V	Section1
Peak inverse anode voltage maximum	500 V	Section1
Peak cathode current maximum	100 mA	Section1
Surge cathode current maximum	2 A	Section1
Ambient temperature range	-55 to +90 °C	Section1



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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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
Peak inverse anode voltage	500 V	Switching
Peak forward anode voltage	500 V	Switching
Peak cathode current	100 mA	Switching
Average cathode current	25 mA	Switching
Surge cathode current	2 A	0.1Second

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode voltage drop	10 V	—
Critical grid current	0.5 uA	Ebb=350Vrms
Minimum cathode heating time	10 s	—
De-ionization time	25 us	Grid=-100V
De-ionization time	40 us	LowNegativeGridVoltage
Ionization time	0.5 us	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode-to-control-grid capacitance	0.03 pF	—
Control-grid-to-cathode capacitance	1.8 pF	ShieldGridIncluded



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1971 RCA HB3 Binder 2 of 7

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1971 RCA HB3 BINDER 2 OF 7

Section 1 · Thyatron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak forward anode voltage	500 V	—
Peak inverse anode voltage	500 V	—
Peak cathode/anode current	100 mA	—
Average cathode/anode current	25 mA	—
Fault or surge current	2 A	ShortDuration
Peak heater-cathode voltage heater negative	100 V	—
Peak heater-cathode voltage heater positive	25 V	—
Ambient temperature range	-55 to +90 C	—
Heater voltage	6.3 V	—
Heater current	150 mA	—
Relay-service RMS anode voltage	117 V	RelayService

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ionization time	0.5 us	Approximate

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Deionization time	25 us	Approximate
Anode voltage drop	10 V	Conducting
Grid No.2 control ratio	15	—
Grid No.1 control ratio	250	—

CONSTRUCTION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Gas fill	Gas	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-anode capacitance	0.03 pF	Approximate
Grid-to-cathode capacitance	1.6 pF	Approximate



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
Peak forward anode voltage	500 V	RelayService
Peak inverse anode voltage	500 V	RelayService
Peak cathode current	100 mA	RelayService
Average cathode current	25 mA	RelayService
Surge cathode current	2 A	0.1Second

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode voltage drop	10 V	—
Ionization time	0.5 us	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 to anode capacitance	0.03 pF	—
Input capacitance	1.8 pF	—
Output capacitance	0.54 pF	—



SOURCE OPERATING CONDITIONS

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1999 Philips 0-D

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

1999 PHILIPS 0-D

Section 1 · Thyatron

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	—
Heater current	150 mA	—
Anode arc voltage	15 V	—
Recovery time	40 us	V _a =500V;I _{kp} =100mA
Minimum heater warmup time	10 sec	—

CONSTRUCTION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filling	Inert gas	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum anode voltage	500 V	—
Maximum surge current	100 mA	Duration<=0.1s