

ELECTRONIC TUBE REFERENCE

3C23

Specialized - Thyatron electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
THYRATRON

Gas-filled grid-controlled thyatron for switching, controlled-rectifier, relay, motor-control, oscillator, or pulse service as documented by the manufacturer.

GENERAL CHARACTERISTICS

BASE DESIGNATION	UX4	BASE PINS	4
NOMINAL HEATER	2.5 V / 7 A	PARALLEL HEATER	– / –
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Thyatron	
MAXIMUM PLATE VOLTAGE	1250 V
MAXIMUM CATHODE CURRENT	1.8 A
FORWARD VOLTAGE DROP	10 V
WARM-UP TIME	15 s
Published ratings/characteristics promoted where semantically applicable; supplemental values retained in parameter table.	

The 3C23 is a three-electrode argon and mercury-vapor thyatron with a negative-control characteristic for controlled rectifier, motor-control, and relay service.



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 · Thyatron

OTHER

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament Voltage	2.5 V	—
Filament Current	7 A	—

CONSTRUCTION

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filling	Argon and mercury vapor	—



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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
Filament heating time	15 s	Thyatron
Tube voltage drop	15 V	Thyatron
Ionization time	3 μ s	Thyatron

OTHER

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak forward voltage maximum	1250 V	Thyatron

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak inverse voltage maximum	1250 V	Thyratron
Peak anode current maximum	6 A	Thyratron
Average anode current maximum	1.8 A	Thyratron
Maximum grid voltage	-500 V	Thyratron



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1963 Ferranti

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

1963 FERRANTI

Section 1 · Thyratron

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterOrFilamentVoltage	2.5 V	—
HeaterOrFilamentCurrent	7 A	—
FilamentHeatingTimeMinimum	15 s	—
PeakVoltageDrop	16 V	—
Control Grid Voltage	0 V	AnodeVoltage=25V
Control Grid Voltage	-4 V	AnodeVoltage=500V
Control Grid Voltage	-6.5 V	AnodeVoltage=1250V
IonisationTimeApproximate	10 us	—
DeionisationTimeApproximate	1000 us	—
GridToAnodeCapacitance	1.8 pF	—
Grid To Filament Capacitance	58 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PeakAnodeVoltageForwardMaximum	1250 V	—
PeakAnodeVoltageInverseMaximum	1250 V	—
PeakAnodeCurrentMaximum	3 A	PowerFrequency<25Hz

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PeakAnodeCurrentMaximum	6 A	PowerFrequency>=25Hz
MeanAnodeCurrentMaximum	1.5 A	PowerFrequency<210Hz
MeanAnodeCurrentMaximum	1 A	PowerFrequency=210-400Hz
PeakGridCurrentMaximum	50 mA	—
MeanGridCurrentMaximum	10 mA	AveragedOver5Seconds
NegativeControlGridVoltageMaximum	500 V	BeforeConduction
NegativeControlGridVoltageMaximum	10 V	DuringConduction
PowerSupplyFrequencyMaximum	400 Hz	—
Condensed Mercury Temperature Minimum	-40 C	—
Condensed Mercury Temperature Maximum	80 C	—
GridCircuitResistanceMinimum	1000 ohm	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

SOURCE PDF

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 forward anode voltage	1250 V	ThyatronService
Peak reverse anode voltage	1250 V	ThyatronService
Peak anode current	6 A	ThyatronService
Average anode current	1.5 A	ThyatronService
Maximum plate voltage	1250 V	PromotedValue
Maximum cathode current	1.5 A	PromotedValue
Forward	1250 V	PublishedTable
Reverse	1250 V	PublishedTable

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak Or Dc Before Tube Conduction	500 V	PublishedTable
Average During Tube Conduction -Note 1	-10 V	PublishedTable
Filament Voltage 2.37	2.63 V	PublishedTable

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode heating time minimum	15 s	ThyratronService
Anode voltage drop initial	10 V	ThyratronService
Anode voltage drop end of life	20 V	ThyratronService
Rectifier forward voltage drop	10 V	PromotedValue
Rectifier warmup time	15 s	PromotedValue
Filament Current @ Ef= 2.5 Molts	7 A	PublishedTable
Cathode Heating Time– Minimum	15 s	PublishedTable
Anode To Control Grid Capacitance	1.8 MMF	PublishedTable
Anode Volts = 120, Anode Current =	1.5 A	PublishedTable
Grid Volts =- 20, Grid Resistor = 10,000 Ohms	360 MMF	PublishedTable
Grid Volts =- 500 Grid Resistor = 100,000 Ohms	60 MMF	PublishedTable
Initial	10 V	PublishedTable
End Of Life	20 V	PublishedTable

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



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 – published value 1	2 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Voltage – published value 2	5 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Voltage – published value 3	5 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Current at 2.5 volts, – published value 1	2.5 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Current at 2.5 volts, – published value 2	7 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
For conditions: do anode volts = 100,	100 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
peak grid volts = +30, and peak	30 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
anode amperes = 6 – published value 1	6 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
anode amperes = 6 – published value 2	3 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
For conditions: do anode	120 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
do grid-supply volts = -20, grid re	-20 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
anode amperes = 1.5 – published value 1	1.5 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
anode amperes = 1.5 – published value 2	360 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
do grid-supply volts= -500, grid re	-500 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
anode amperes = 1.5 – published value 1	1.5 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
anode amperes = 1.5 – published value 2	60 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
anode amperes = 1.5 – published value 3	0 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Anode Voltage Drop (Approx)	15 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Ef=2.5 VOLTS AC 3570; CIRCUIT RE – published value 1	2.5 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Ef=2.5 VOLTS AC 3570; CIRCUIT RE – published value 2	3570 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
TEMPERATURE=-40°C TO +B0°C	-40	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Heater or filament voltage nominal	2.5 V	Nominal value from supplied datasheet.
Heater or filament current nominal	7 A	Nominal or average value from supplied datasheet.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Forward – published value 1	200 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Forward – published value 2	1250 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	200 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Inverse – published value 2	1250 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
tube conduction – published value 1	-500 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
tube conduction – published value 2	-500 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
tube conduction – published value 1	-10 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
tube 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	6 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Peak – published value 2	6 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Average' – published value 1	1.5 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Average' – published value 2	1.5 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
0.1 second max – published value 1	0.1 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
0.1 second max – published value 2	12 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
0.1 second max – published value 3	120 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Average~	0.01 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.



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