

ELECTRONIC TUBE REFERENCE

3C45W

Specialized - Thyatron electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
THYRATRON

Ruggedized hydrogen thyatron for high-power network-discharge pulse switching, with reservoir control for stable long-life operation.

GENERAL CHARACTERISTICS

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

SECTION RATINGS

SECTION1 Thyatron	
MAXIMUM PLATE VOLTAGE	3000 V
Published maximum ratings and characteristics audited; remaining values retained densely in parameter table.	

The 3C45W is a ruggedized hydrogen-filled thyatron for network-discharge service, designed for high resistance to shock and vibration and equipped with a reservoir for stable long life.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1962 ITT

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

1962 ITT

Section 1 · Thyatron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The [1]	3	The 3C45W is a unipotential cathode, three element hydrogen See outline drawing
The [2]	5	The 3C45W is a unipotential cathode, three element hydrogen See outline drawing
such service, it is suitable for producing pulse outputs of	55	such service, it is suitable for producing pulse outputs of 55
KW at an average power level of more than	65 kW	KW at an average power level of more than 65 watts.
Max. peak anode voltage, forward	3 V	Max. peak anode voltage, forward.... 3.0 Kilovolts
Min. anode supply voltage	300 V	Min. anode supply voltage..... 300 Volts d.c.
Max. peak anode current	35 mA	Max. peak anode current..... 35 Amperes
Electrical Data, General Nom. Min. Max. Max. average anode current	45 mA	Electrical Data, General Nom. Min. Max. Max. average anode current..... 45 Milliamperes
Heater voltage [1]	63 V	Heater voltage..... 63 59 6.7 Volts a.c. Mox. RMS anode current (Note 3)..... 1.25 Amperes a.c.
Heater voltage [2]	59 V	Heater voltage..... 63 59 6.7 Volts a.c. Mox. RMS anode current (Note 3)..... 1.25 Amperes a.c.
Heater voltage [3]	6.7 V	Heater voltage..... 63 59 6.7 Volts a.c. Mox. RMS anode current (Note 3)..... 1.25 Amperes a.c.
Heater voltage [4]	3 V	Heater voltage..... 63 59 6.7 Volts a.c. Mox. RMS anode current (Note 3)..... 1.25 Amperes a.c.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage [5]	1.25 V	Heater voltage..... 63 59 6.7 Volts a.c. Max. RMS anode current (Note 3)..... 1.25 Amperes a.c.
Heater current. E,== [1]	6.3 mA	Heater current. E,==6.3 volts..... 2.2 2.7 Amperes Max. epy x ib x prr.._.._...._ 0.3x 107
Heater current. E,== [2]	2.2 mA	Heater current. E,==6.3 volts..... 2.2 2.7 Amperes Max. epy x ib x prr.._.._...._ 0.3x 107
Heater current. E,== [3]	2.7 mA	Heater current. E,==6.3 volts..... 2.2 2.7 Amperes Max. epy x ib x prr.._.._...._ 0.3x 107
Heater current. E,== [4]	0.3 mA	Heater current. E,==6.3 volts..... 2.2 2.7 Amperes Max. epy x ib x prr.._.._...._ 0.3x 107
Heater current. E,== [5]	107 mA	Heater current. E,==6.3 volts..... 2.2 2.7 Amperes Max. epy x ib x prr.._.._...._ 0.3x 107
Minimum heating time....._....._ [1]	3 mA	Minimum heating time....._....._ 3 Minutes Max. anode current rate of rise..... 750 Amperes/usecond
Minimum heating time....._....._ [2]	750 mA	Minimum heating time....._....._ 3 Minutes Max. anode current rate of rise..... 750 Amperes/usecond
Peak trigger voltage..... Note	4 V	Peak trigger voltage..... Note 4
Mechanical Data, General Max. peak inverse trigger voltage	200 V	Mechanical Data, General Max. peak inverse trigger voltage.... 200 Volts
Any Max. anode delay time (Note [1])	5	.. Any Max. anode delay time (Note 5)..... 0.6 Microsecond
Any Max. anode delay time (Note [2])	0.6	.. Any Max. anode delay time (Note 5)..... 0.6 Microsecond
BOSE. . Per outline Max. anode delay time drift	0.15	BOSE. . Per outline Max. anode delay time drift.. ... 0.15 Microsecond
Net Weight [1]	2.5	Net Weight ... 2.5 Ounces Ambient temperature....._..... —50° to - 90° Cent.
Net Weight [2]	-50	Net Weight ... 2.5 Ounces Ambient temperature....._..... —50° to - 90° Cent.
Net Weight [3]	90	Net Weight ... 2.5 Ounces Ambient temperature....._..... —50° to - 90° Cent.
Typical Operation as Pulse Modulator, Note	4	Typical Operation as Pulse Modulator, Note 4
Peak network voltage	3 V	Peak network voltage..... 3.0 Kilovolts with the tube removed should have the following character-

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pulse repetition rate	2500	Pulse repetition rate..... 2500 Pulses/sec and istics:
Pulse length [1]	0.5 V	Pulse length..... 0.5 Microsecond A. Voltage.....coooooooooe..... 175-250 Volts
Pulse length [2]	175 V	Pulse length..... 0.5 Microsecond A. Voltage.....coooooooooe..... 175-250 Volts
Pulse length [3]	-250 V	Pulse length..... 0.5 Microsecond A. Voltage.....coooooooooe..... 175-250 Volts
Pulse forming network impedance [1]	45.2 us	Pulse forming network impedance.... 45.2 Ohms 8. Duration 2 Microseconds (at 70% points)
Pulse forming network impedance [2]	8 us	Pulse forming network impedance.... 45.2 Ohms 8. Duration 2 Microseconds (at 70% points)
Pulse forming network impedance [3]	2 us	Pulse forming network impedance.... 45.2 Ohms 8. Duration 2 Microseconds (at 70% points)
Pulse forming network impedance [4]	70 us	Pulse forming network impedance.... 45.2 Ohms 8. Duration 2 Microseconds (at 70% points)
Trigger voltage [1]	200 V	Trigger voltage..... 200 Volts C. Source of impedance.. 1500 Ohms (max.)
Trigger voltage [2]	1500 V	Trigger voltage..... 200 Volts C. Source of impedance.. 1500 Ohms (max.)
Peak power output (Resistive load D. Rate of rise	200 W	Peak power output (Resistive load D. Rate of rise..... 200 Volts/microsecond (min.)
Peak anode current	35 A	Peak anode current ... 35 Amperes The limits of anode time delay and anode time jitter are based
Average anode current	44 A	Average anode current 044 Amperes d.c. on the minimum trigger. Using the highest permissible trigger
The time of anode delay is measured between the	26	The time of anode delay is measured between the 26 percent
Note	2 V	Note 2 point on the rising portion of the unloaded grid voltage pulse
The peak inverse voltage should not exceed	1.5 kV	The peak inverse voltage should not exceed 1.5 KV during and the point at which evidence of anode conduction first

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The root mean square anode current shall be computed as the Note	6 uA	The root mean square anode current shall be computed as the Note 6
square root of the product of the peak current and the Time jitter is measured at the	50 uA	square root of the product of the peak current and the Time jitter is measured at the 50 percent point on the anode
Published value	2	2. CATHODE MIN.
Published value	3	3. GRID
Published value	4	4. HEATER & CATHODE