

**INDUSTRIAL X-RAY TUBE
E7598**

Toshiba X-ray Tube for Industrial Use

- ◆ The Toshiba X-ray tube E7598 is designed to provide the load of 5mA at 250kV, pulse-voltage circuit under insulation gas (SF₆).
- ◆ It is suitable for portable X-ray units up to 250kV for non-destructive inspection of metal casting or metal welding.
- ◆ This tube has metal-ceramic sealed envelope which results in mechanically strong and compact sized structure.

General Data

Electrical:

Circuit:

High Voltage Generator Pulse Voltage
(Pulse Width 1ms, Duty Factor 0.2)
Self-rectified
Grounding Anode-grounded

Nominal X-ray Tube Voltage:

Pulse Voltage 250 kV
Self-rectified 200 kV
Nominal Focal Spot Value 2.0
Maximum Filament Current 4.0 A

Mechanical:

Dimensions See dimensional outline
Overall Length 186 mm
Maximum Diameter ϕ 132 mm

Target:

Anode Angle 22 degrees
Construction Tungsten
Inherent Filtration 1.0 mm Beryllium
X-ray Coverage ¹⁾ ϕ 350 mm at SID 600 mm
Weight (Approx.) 4.1 kg

Note 1) More than 50% blackening of the film at center spot.

★The information contained herein is presented only as a guide for the applications of our products.
No Responsibility is assumed by TOSHIBA ELECTRON TUBES & DEVICES CO.,LTD.(TETD) for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of TETD or others.
★The information contained herein may be changed without prior notice. It is therefore advisable to contact TETD before proceeding with the design of equipment incorporating this product.

Insulating Medium	Insulation Gas (SF ₆)
Pressure	39.4 × 10 ⁴ ~ 58.8 × 10 ⁴ Pa (4 ~ 6 kg/cm ² Gauge)
Gas Temperature	Maximum 70°C
Cooling Method	Forced air (External radiator is required) Maximum 150°C at anode top
Tube Holding	Hold anode flange (φ 132) uniformly
Mechanical Strength (Shock)	Maximum 200G (at upper holding condition)
Tube Direction	Free
Appearance, Finish	No Painting

Absolute Maximum and Minimum Ratings (At any time, these values must not be exceeded.)

Maximum Tube Voltage (1ms - Pulse)	¹⁾ 250 kV
(Self - rectified)	²⁾ 200 kV
Maximum Inverse Voltage	210 kV
Minimum X-ray Tube Voltage	100 kV
Maximum X-ray Tube Current	5 mA (Average)
Maximum Input Power (1ms - Pulse)	250 kV 5mA
(Self - rectified)	200 kV 5mA
	10 min ON - 10 min OFF
Filament Frequency Limits	DC or AC (Sine wave) 0 ~ 20 kHz
Maximum Filament Current	4.0 A
	See Emission & Filament Characteristics Chart
Maximum Filament Voltage (At 4.0 A)	5 ~ 7 V
Maximum Anode Temperature	³⁾ Maximum 150°C at anode top

Note 1) 250 kV is absolute maximum rating, tube voltage should not be exceeded 250 kV when line voltage to generator fluctuates.

2) 200 kV is absolute maximum rating, tube voltage should not be exceeded 200 kV when line voltage to generator fluctuates.

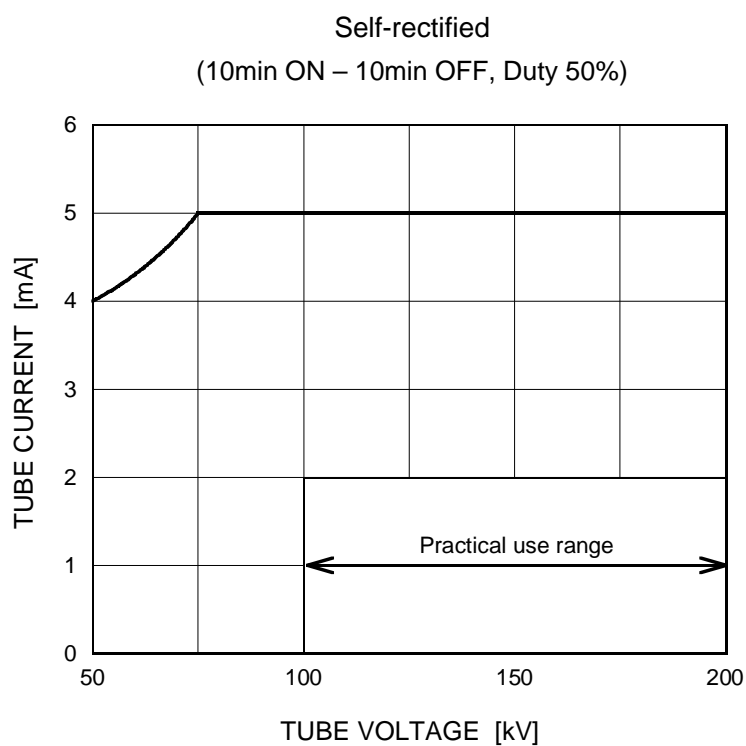
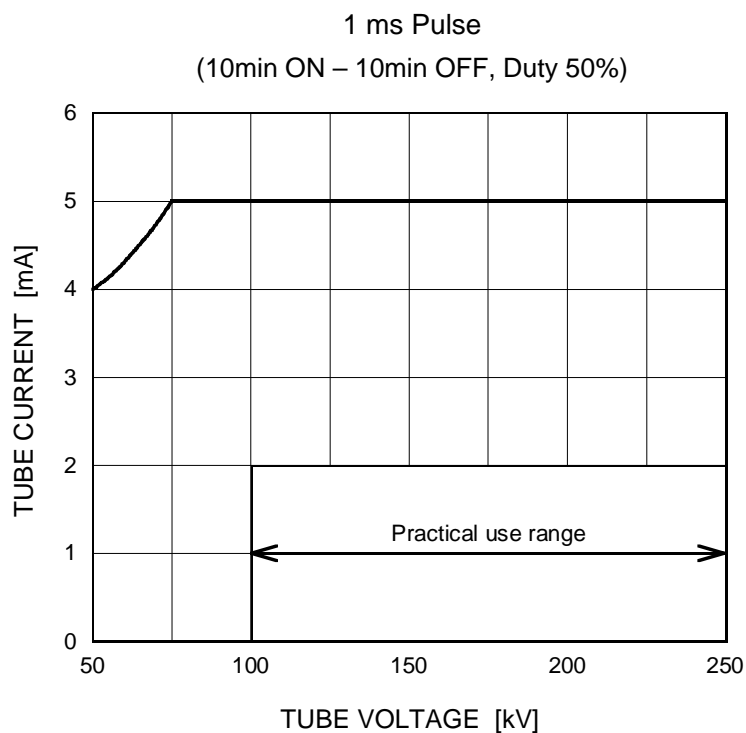
3) The thermo paint close to X-ray port is used as maximum temperature record during operation. (See dimensional outline)

Environmental Limits

Shipping and Storage Limits:

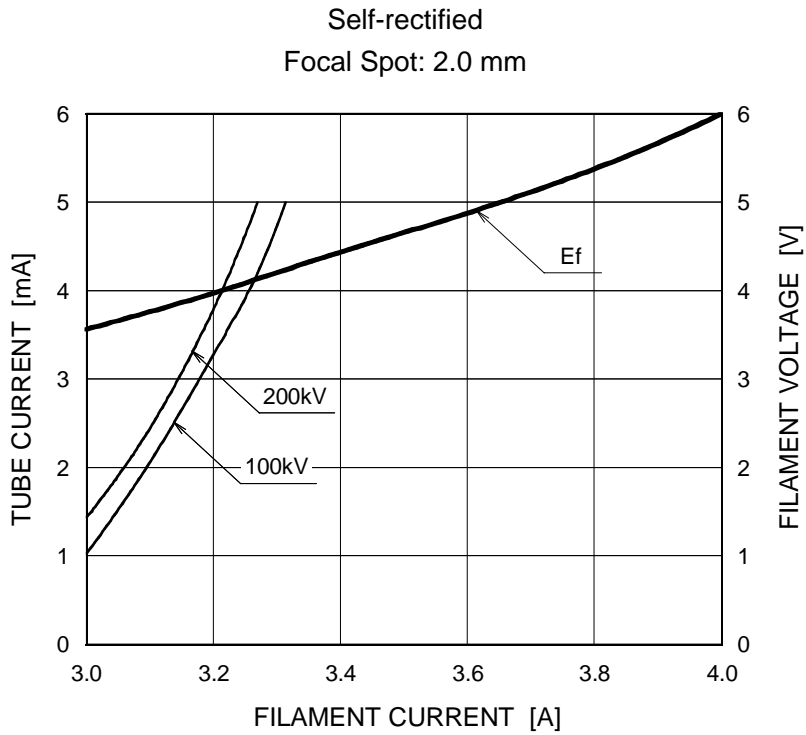
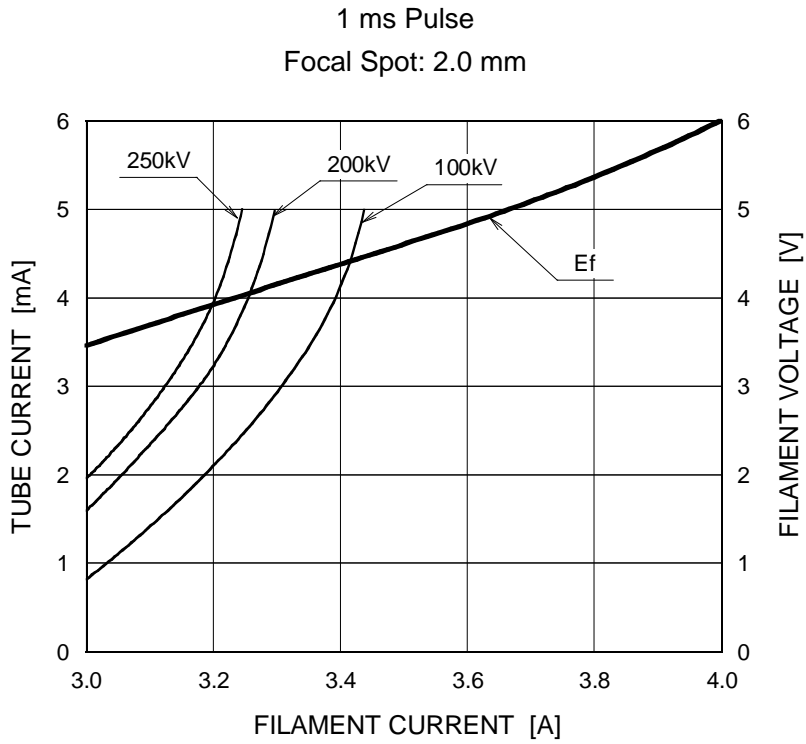
Temperature	-40 ~ 70 °C
Humidity	10 ~ 90 % (No condensation)
Atmospheric Pressure	50 ~ 106 kPa

Maximum Rating Charts (Absolute Maximum Rating Charts)



Note: In case the operating tube voltage is below 100kV, the tube current may be difficult to flow by the influence of the tube wall charge.

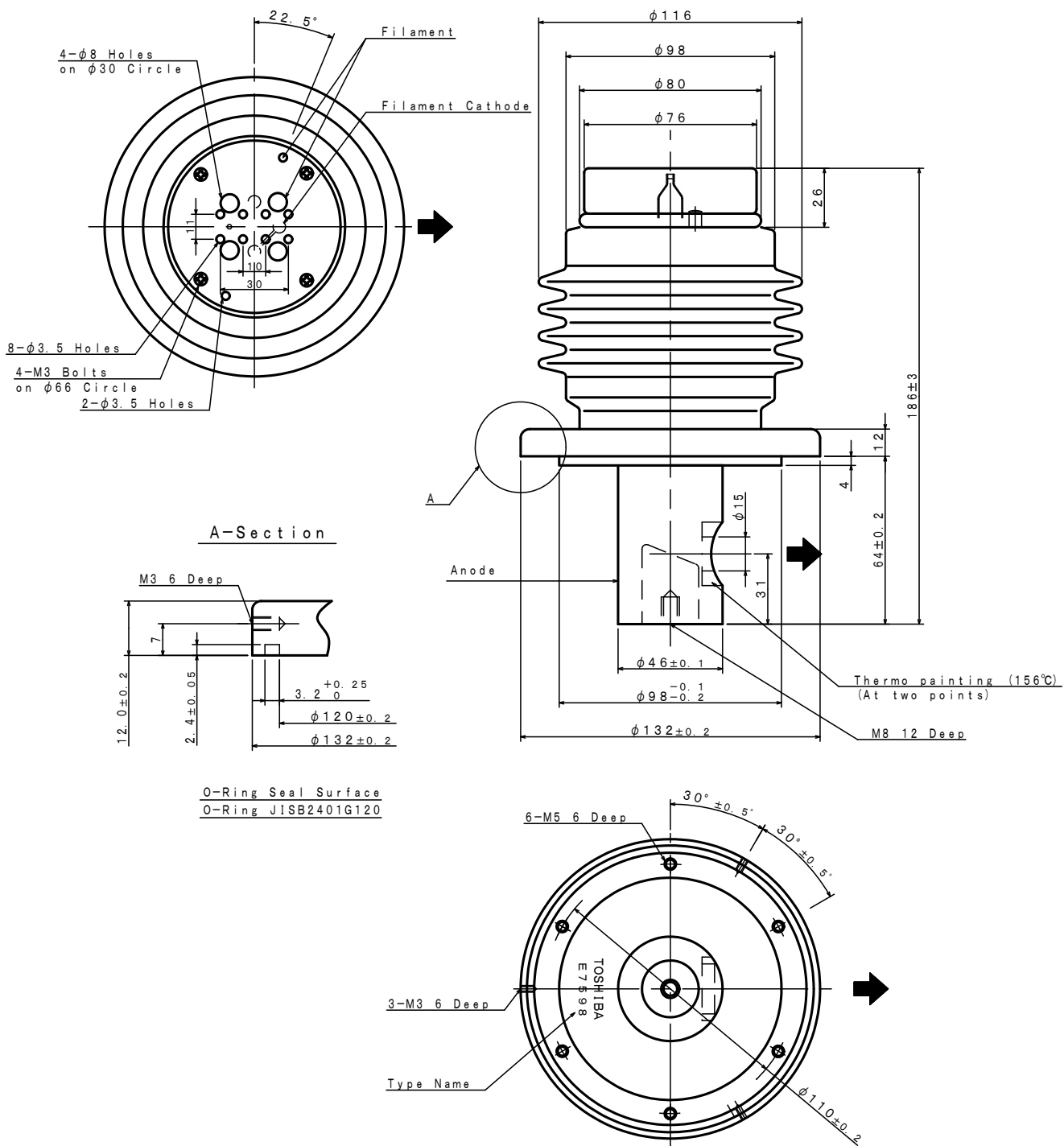
Emission & Filament Characteristics



Note: At any time, filament current must not exceed 4.0 A

Dimensional Outline

Unit mm



↑ : Direction of Main X-ray

OVERSEAS SUBSIDIARIES AND AFFILIATES

EU REPRESENTATIVE

·TOSHIBA ELECTRONICS EUROPE GMBH

HANSAALLEE 181 40549 DÜSSELDORF, GERMANY

PHONE +49 (211) 5296-107 FAX +49 (211) 5296-402

For Sales & Technical Services, please contact the following representative:

·TOSHIBA ELECTRONICS EUROPE GMBH

HANSAALLEE 181 40549 DÜSSELDORF, GERMANY

PHONE +49 (211) 5296-107 FAX +49 (211) 5296-402

·TOSHIBA AMERICA ELECTRONIC COMPONENTS, INC.

2150 EAST LAKE COOK ROAD, SUITE 310

BUFFALO GROVE, ILLINOIS 60089 USA

PHONE +1 (847) 484-2400 FAX +1 (847) 541-7287

·TOSHIBA ELECTRON DEVICES & MATERIALS (SHANGHAI) CO., LTD. (TEMS)

RM1606, SH-PLAZA,

No.336, XIZANG ROAD (MIDDLE), SHANGHAI, 200001, CHINA

PHONE +86 (21) 6361-0077 FAX +86 (21) 6351-5760

TOSHIBA ELECTRON TUBES & DEVICES CO., LTD.

(Product Development Engineering Department)

1385 SHIMOISHIGAMI, OTAWARA-SHI, TOCHIGI-KEN, 324-8550, JAPAN

PHONE: +81-287-26-6666 FAX: +81-287-26-6060

<http://www.toshiba-tetd.co.jp/>

·Toshiba Electron Tubes & Devices Co., Ltd. meets the Environmental Management System Standard, ISO14001.

·Toshiba Electron Tubes & Devices Co., Ltd. meets internationally recognized Standards for Quality Management System ISO9001, ISO13485.