

TOSHIBA X-RAY TUBE
DF-182 / DF-182R

Stationary Anode X-ray Tube

- ◆ Especially designed for mobile type surgical X-ray TV apparatus.
- ◆ This tube has 1.8 and 0.5 focus, and is available for maximum tube voltage 125 kV.
- ◆ Installed in the same enclosure with the high voltage transformer.

General Data

Electrical:

Circuit:

High Voltage Generator	Constant Potential High-Voltage Generator
Grounding	Center grounded
Nominal X-ray Tube Voltage (IEC60613:2010)	125 kV
Nominal Focal Spot Value (IEC60336:2005):	
Large Focus	1.8
Small Focus	0.5
Nominal Anode Input Power (at 1.0s)	
Large Focus	See Rating Chart
Small Focus	4200 W
Small Focus	1000 W
Nominal Radiographic Anode Input Power (IEC60613:2010):	
Large Focus	5300 W
Small Focus	1100 W
Exposure Duty Cycle:	
Large Focus	1:60
Small Focus	1:60

(Exposure Time : Interval Time)

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 ★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.

Mechanical:

Dimensions:

- Overall Length See dimensional outline
- Maximum Diameter See dimensional outline

Target:

- Anode Angle 20 degrees
- Material Tungsten

Inherent Filtration At least 0.8 mm Al at 50 kV

X-ray Coverage 500 x 500 mm at SID 909 mm

Weight:

- DF-182 Approx. 430 g
- DF-182R Approx. 550 g

Cooling Method Oil immersed (60°C Max.) and convection oil cooling.

Tube Holding Holding the glass envelope of the anode end and cathode end, or the screw of the anode shank.

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

Maximum X-ray Tube Voltage (IEC60613:2010)	125 kV
Between Anode (or Cathode) and Ground	62.5 kV
Minimum X-ray Tube Voltage	40 kV
Maximum X-ray Tube Current (IEC60613:2010):	
Large Focus	100 mA
Small Focus	15 mA
Maximum Filament Current:	
Large Focus	4.6 A
Small Focus	3.2 A
Filament Voltage: (At Maximum Filament Current)	
Large Focus	5.4 ~ 6.8 V
Small Focus	3.8 ~ 5.2 V
Filament Frequency Limits	DC or AC (Sine Wave) 0 ~ 20 kHz
Thermal Characteristics: (See Anode Thermal Characteristics)	
Anode Heat Content:	
DF-182	28 kJ
DF-182R	35.5 kJ
Maximum Anode Heat Dissipation Rate:	
DF-182	265 W
DF-182R	600 W
Maximum Radiographic Exposure Time:	
Large Focus	
DF-182	10 s
DF-182R	10 s
Small Focus:	
DF-182	10 s
DF-182R	30 s
Maximum Fluoroscopic Duration:	
DF-182R	600 W - 20 minutes

Environmental Limits

Operating Limits (in dielectric oil):	
Oil Temperature	10 ~ 60°C
Oil pressure	70 ~ 140 kPa
Shipping and Storage Limits:	
Temperature	-40 ~ 70°C
Humidity	10 ~ 90 %
	(No condensation)
Atmospheric Pressure	50 ~ 106 kPa

Cautions

Read this page carefully before using the tube.

Since X-ray tube will emit X-rays when it is energized with high voltage, special knowledge is required to handle it. The items below show general cautions for the tube handling.

1. The tube shall be handled or operated only by qualified personnel.
Only a specialist with knowledge of X-ray tube should assemble, maintain and remove the tube.
2. The tube envelope is made of glass. In transporting and handling, sufficient care should be taken not to give strong impact or vibration to the tube.
3. Radiation protection of the tube unit assembled with this tube must be sufficiently taken. And the leakage technique factor of the tube unit must not exceed maximum anode cooling rate of this tube.
4. Regulations and standards require the minimum source-skin distance (SSD) and the minimum filtration of the useful beam. Use the tube after fulfilling the requirements.
5. The tube might be broken due to only one overload operation.
Provide proper overload protection circuit. Operate the tube by selecting a proper input condition according to the conditions for operation and tube characteristics charts.
6. Dispose the scrapped products according to the requirement of local regulation.
7. **Returning Tube**
X-ray tube should be repackaged with the original material when it is returned back for quality examination in our factory. If the packaging is not proper, the tube may not be correctly examined. TETD does not warrant it if returned X-ray tube is in damage at receiving.
8. If any abnormalities are found in using this tube, immediately switch off the power supply and contact TETD.
9. The charts of this technical data are indicating standard values.
For usage not described here or for any unclear items, please contact TETD.

Definition Symbol Marks

CE MARKING OF CONFORMITY



SERIAL NUMBER



MANUFACTURER



DATE OF MANUFACTURE



AUTHORIZED REPRESENTATIVE IN THE EUROPEAN COMMUNITY



PROTECTIVE EARTH



EARTH



CAUTION

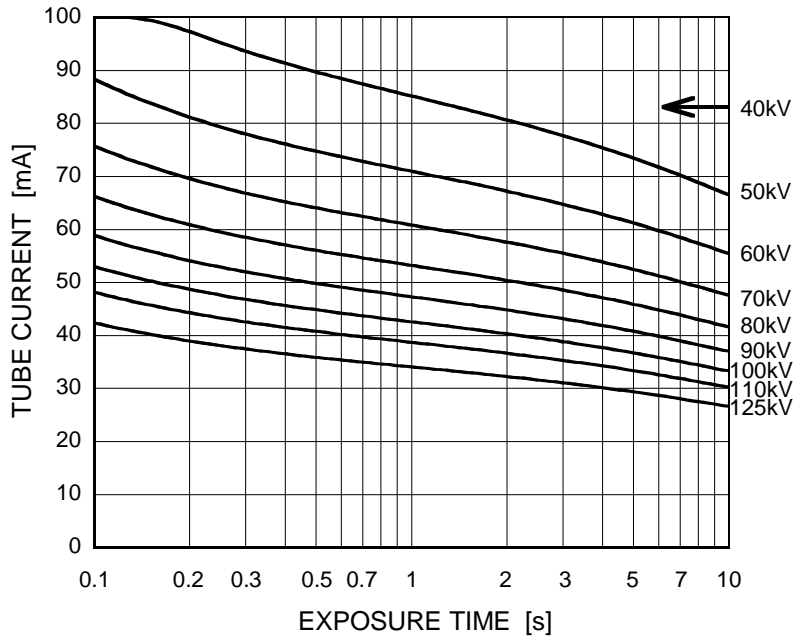


Maximum Rating Charts (Absolute maximum rating charts)

Constant Potential High-Voltage Generator

Nominal Focal Spot Value: 1.8 ■

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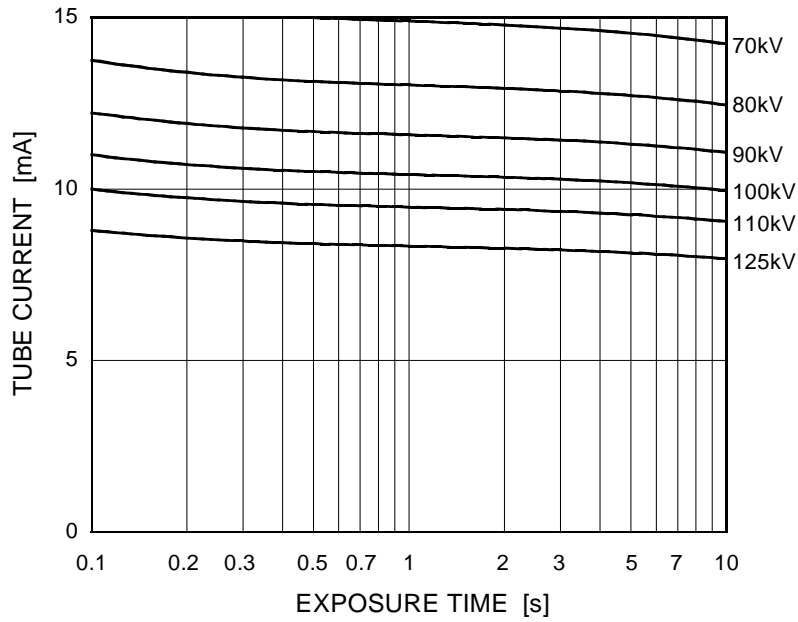
Refer to IEC60613:2010

Maximum Rating Charts (Absolute maximum rating charts)

Constant Potential High-Voltage Generator

Nominal Focal Spot Value: 0.5

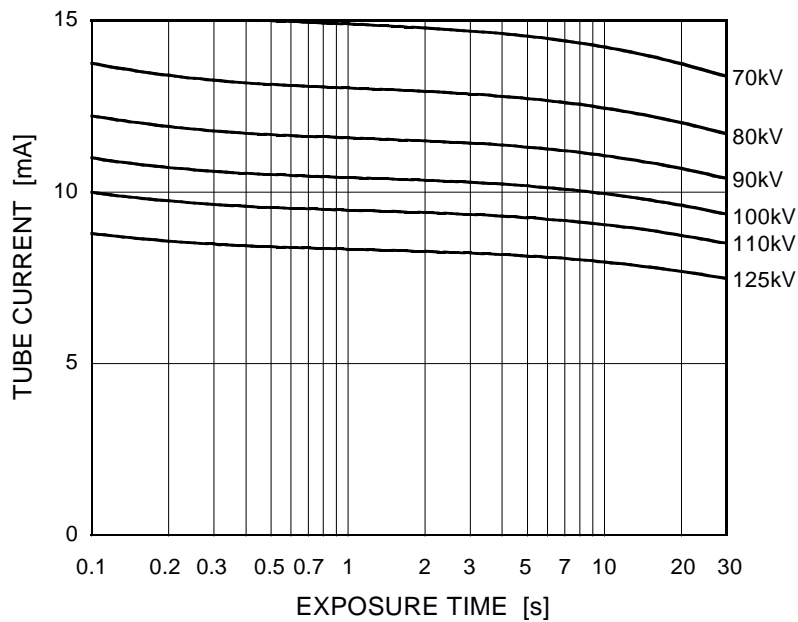
DF-182



Refer to IEC60613:2010

Nominal Focal Spot Value: 0.5

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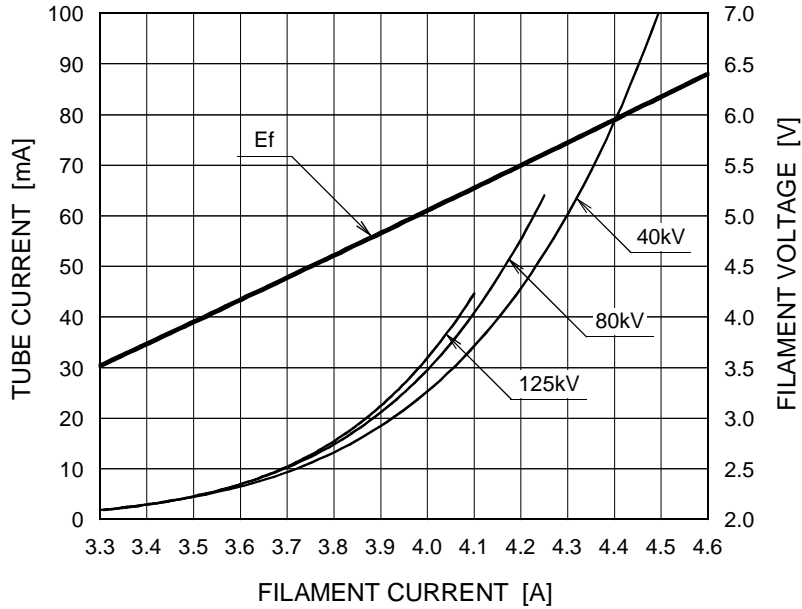


Refer to IEC60613:2010

Emission & Filament Characteristics

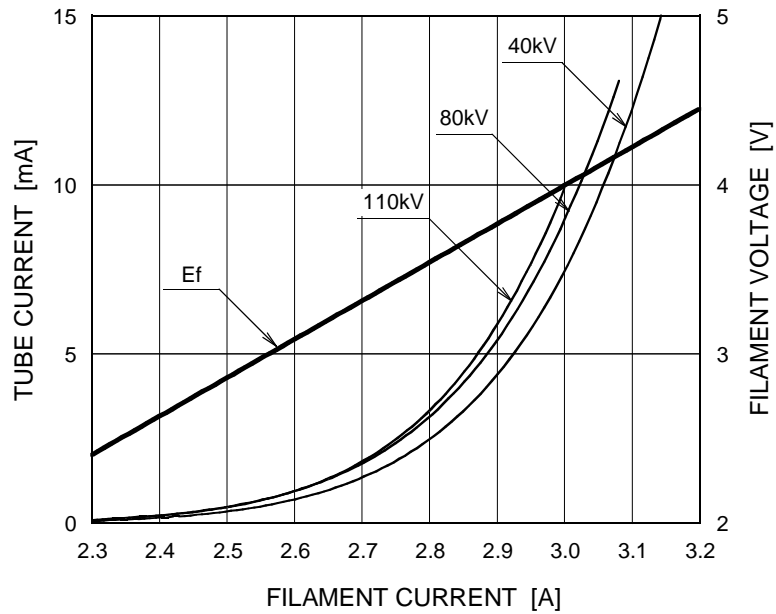
Constant Potential High-Voltage Generator

Nominal Focus Spot Value: 1.8 ■



Note 1) This graph indicates typical characteristics.
 Note 2) Refer to IEC60613:2010

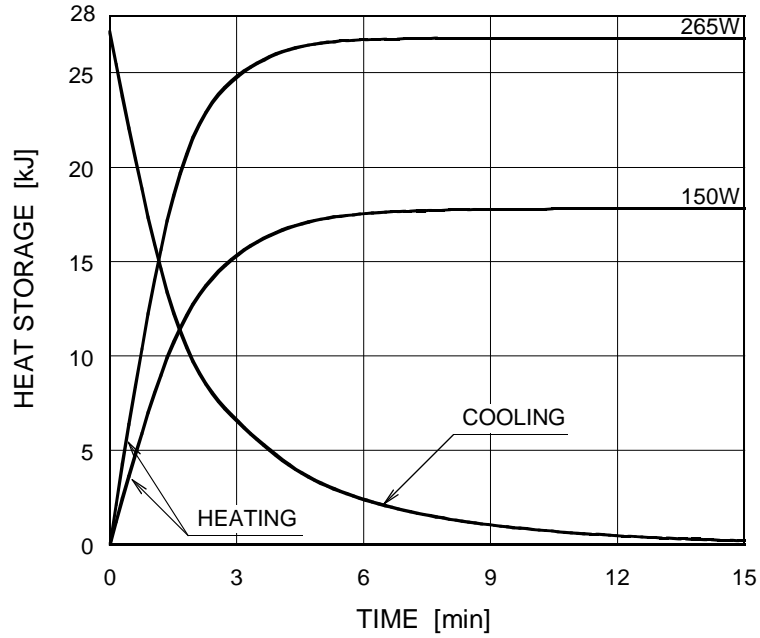
Nominal Focus Spot Value: 0.5 □



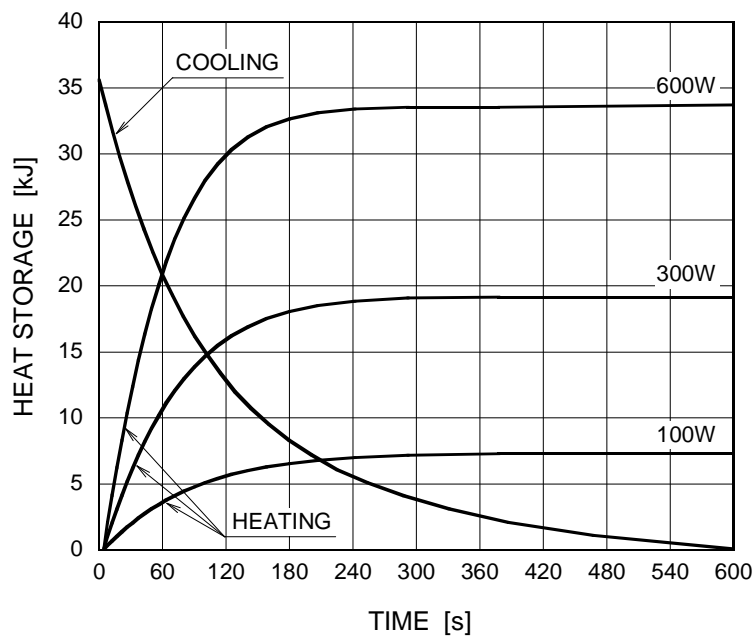
Note 1) This graph indicates typical characteristics.
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Anode Heating / Cooling Curve

DF-182

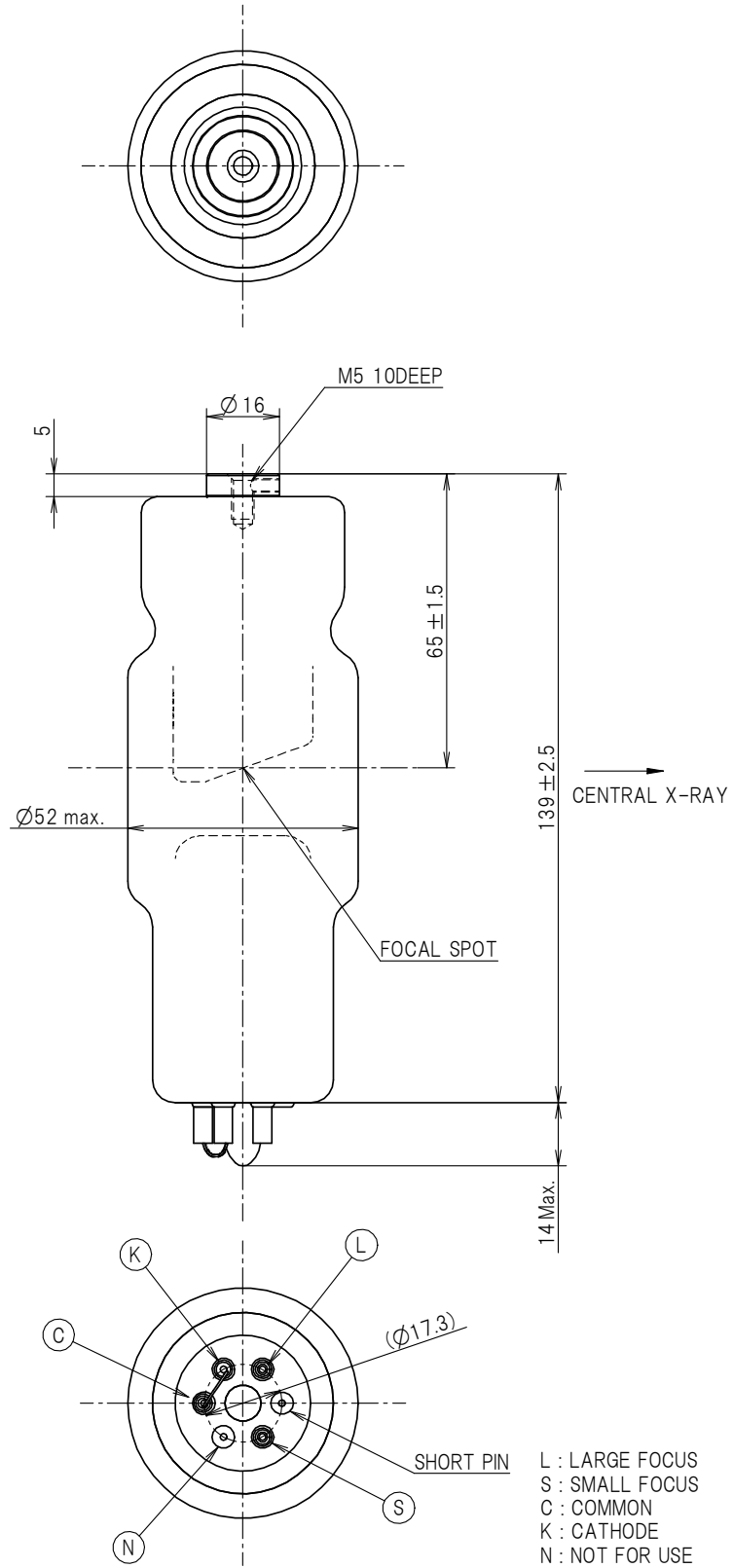


DF-182R



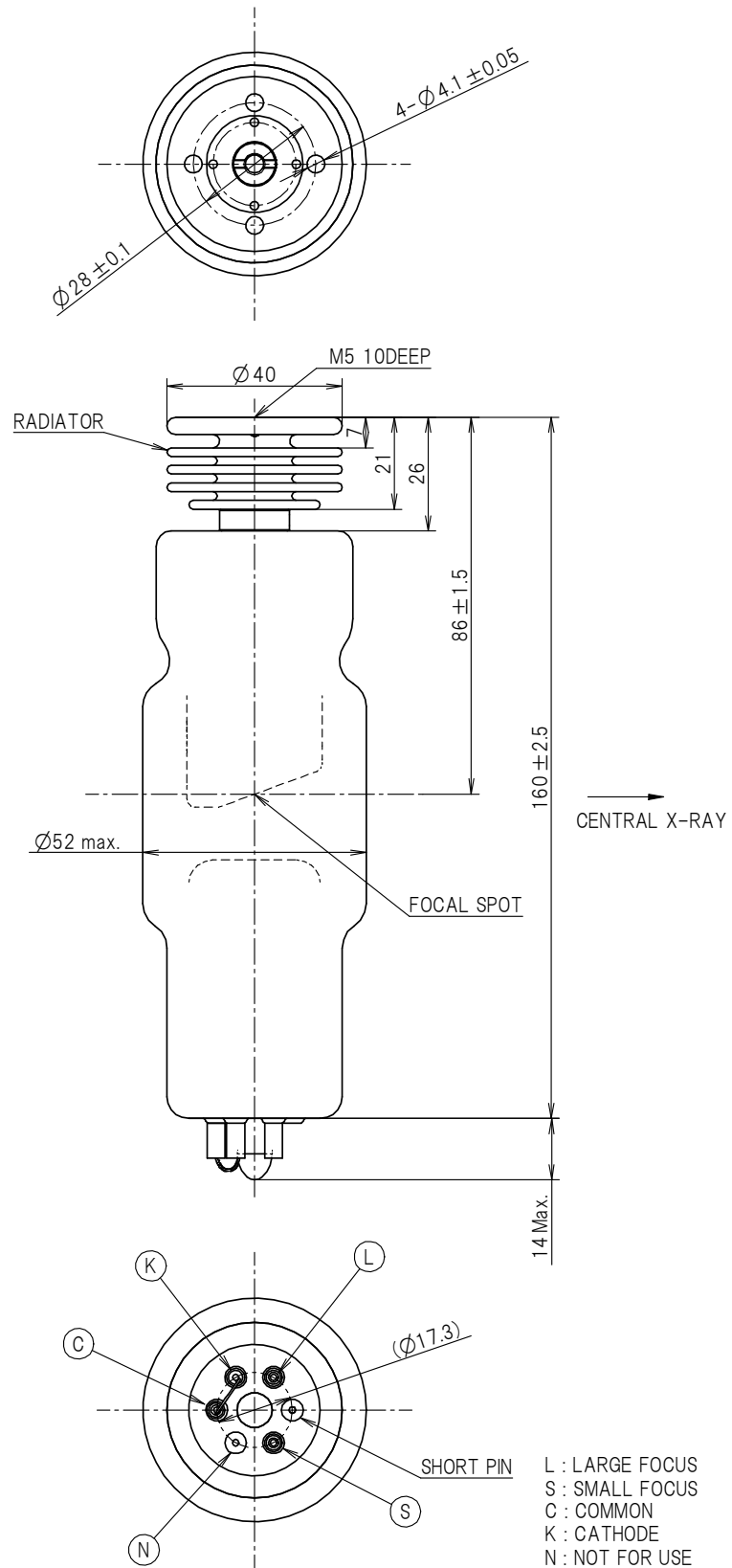
Dimensional Outline of DF-182

Unit: mm

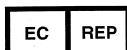


Dimensional Outline of DF-182R

Unit: mm



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