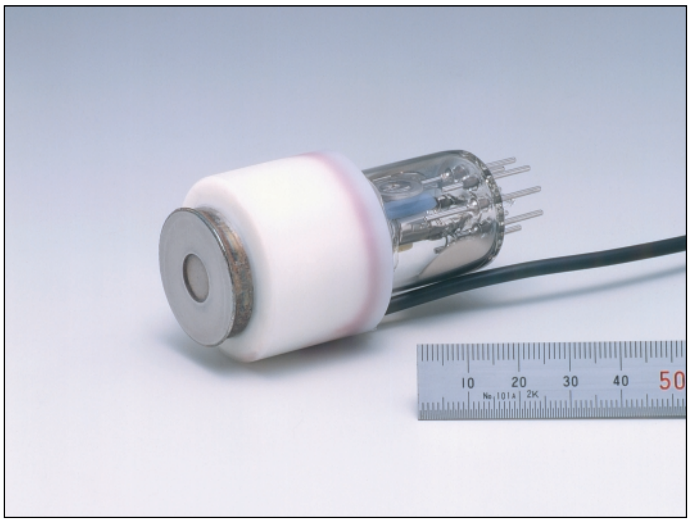
X-RAY TUBE

TRANSMISSION MODE SOFT X-RAY TUBE N7599 SERIES

OVER VIEW

The N7599 series are end-window type of compact X-ray tubes, combining a transmission mode target and an X-ray tube window made of beryllium (Be) for each.
They offer ease of use because they can be operated under a condition that heater and Be window are at ground condition, and their targets can be cooled by natural heat radiation.
They provide characteristic X-ray spectra of the target materials used. The maximum target current is 0.2 mA.



FEATURES

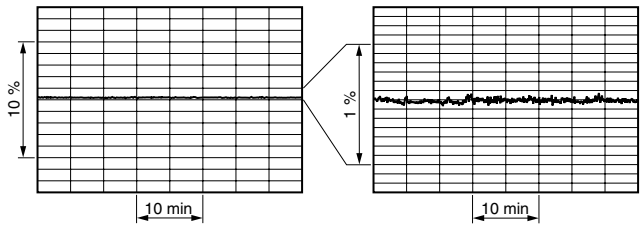
- **High Stability: 0.1 % (RMS)**
- **High Power: 0.2 mA**
- **Radiation of Characteristic X-ray Spectrum**
- **Ease of Use:**
  - **Compact size**
  - **Natural cooling target**
  - **Heater and Be window can be at ground**

APPLICATIONS

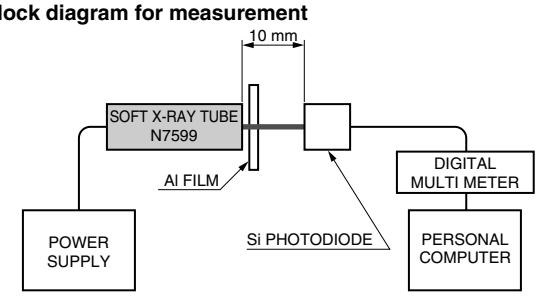
- **Measurement of Thin Film Thickness**
- **X-ray Fluorescence Spectrometer**
- **Non-destructive Inspection**
- **Ash Content Measurement**
- **Sulfur Analysis**
- **Measurement of Evaporated Film Thickness and Distribution**

HIGH STABILITY

●Fluctuation Characteristics



Block diagram for measurement



TXPRB0014EA

CHARACTERISTICS

■GENERAL

Parameter	N7599	N7599-01	N7599-11	N7599-15	Unit
Heater Voltage (AC or DC)	12.0 ± 1.2				V
Heater Current	75				mA
X-Ray Radiating Window	Be (t: 0.1 mm)				—
Target Material Ⓐ	W	W	Ti	Fe	—
Target Focal Point Area	Approx. ϕ0.3				mm
Radiation Angle	71				degrees
Cooling Method	Convection cooling				—
Base	8-pin glass base (JEDEC No. E8-11)				—
Weight	Approx. 54				g

■MAXIMUM RATINGS (Absolute Maximum Value)

Parameter	N7599	N7599-01	N7599-11	N7599-15	Unit
Target Voltage (DC) Ⓑ	+15.3	+10.0	+10.0	+15.3	kV
Target Current Ⓑ	0.2				mA
Target Dissipation	2				W
Be Window Temperature	0 to 60				°C

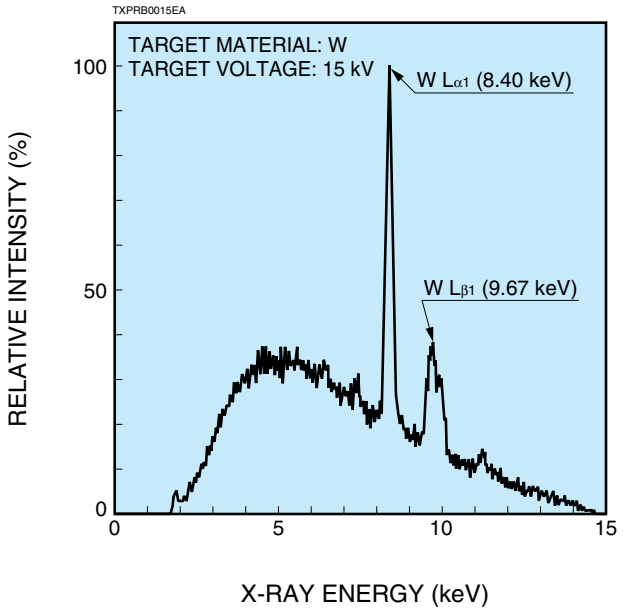
■RATINGS

Parameter	N7599	N7599-01	N7599-11	N7599-15	Unit
Target Voltage (DC) Ⓑ	+15	+9.5	+9.5	+15	kV
Target Current Ⓑ	0.2				mA
Target Dissipation	1.9				W
Beam Cutoff Voltage (G_1 Voltage)	-150				V
Grid No.2 Voltage (G_2 Voltage)	+250				V
Cathode Voltage	0				V
Be Window Potential	0				V

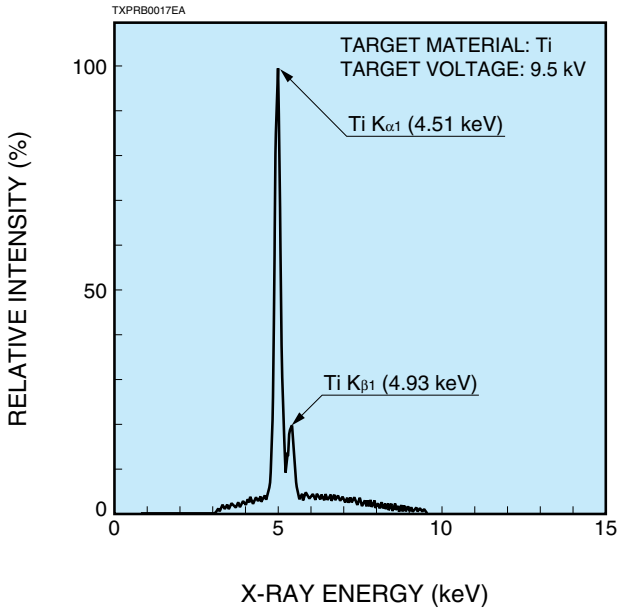
NOTE: ⒶOther materials are available upon request.
ⒷIn the range of output (=Target Voltage × Target Current) less than Target Dissipation.

TYPICAL X-RAY SPECTRUM

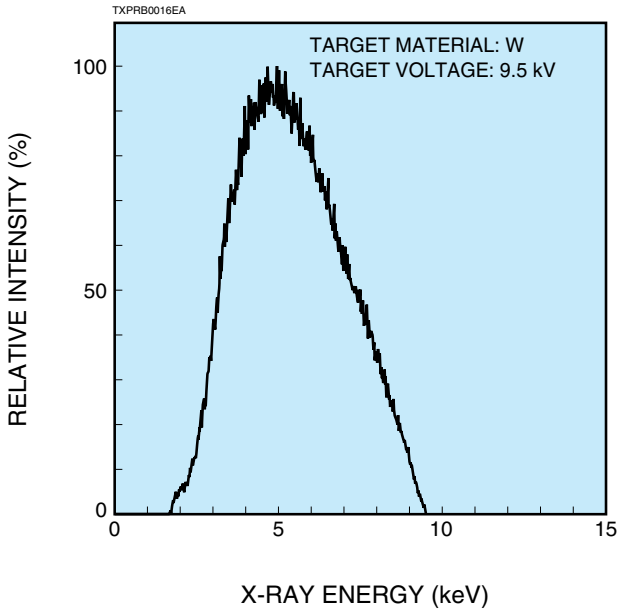
N7599



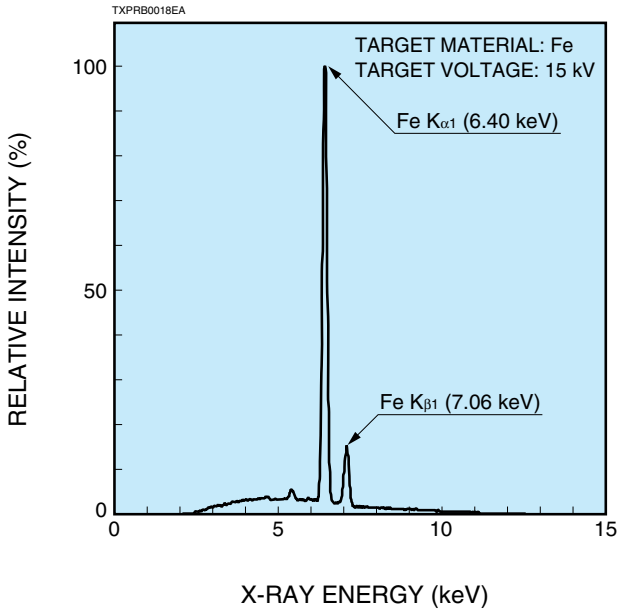
N7599-11



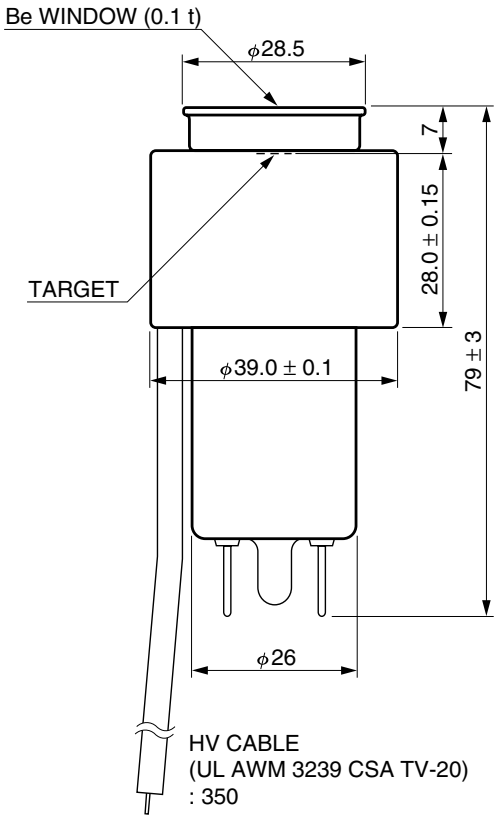
N7599-01

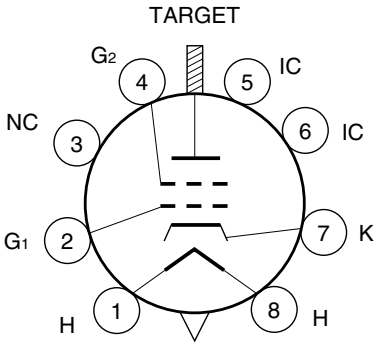


N7599-15



DIMENSIONAL OUTLINES (Unit: mm)





SHORT INDEX PIN

PIN NO.
1.HEATER
2.G_1
3.NC (NO CONNECTION)
4.G_2
5.IC (INTERNAL CONNECTION)
6.IC (INTERNAL CONNECTION)
7.K (CATHODE)
8.HEATER

TXPRA0011EA

Subject to local technical requirements and regulations, availability of products included in this promotional material may vary. Please consult with our sales office. Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions. Specifications are subject to change without notice. No patent rights are granted to any of the circuits described herein. ©2012 Hamamatsu Photonics K.K.

HAMAMATSU PHOTONICS K.K. www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Electron Tube Division
314-5, Shimokanzo, Iwata City, Shizuoka Pref., 438-0193, Japan, Telephone: (81)539/62-5248, Fax: (81)539/62-2205
U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P. O. Box 6910, Bridgewater. N.J. 08807-0910, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: usa@hamamatsu.com
Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-2658 E-mail: info@hamamatsu.de
France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: infos@hamamatsu.fr
United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road Welwyn Garden City Hertfordshire AL7 1BW, United Kingdom, Telephone: 44-(0)1707-294888, Fax: 44(0)1707-325777 E-mail: info@hamamatsu.co.uk
North Europe: Hamamatsu Photonics Norden AB: Thorshamnsgatan 35 SE-164 40 Kista, Sweden, Telephone: (46)8-509-031-00, Fax: (46)8-509-031-01 E-mail: info@hamamatsu.se
Italy: Hamamatsu Photonics Italia: S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39)02-935 81 733, Fax: (39)02-935 81 741 E-mail: info@hamamatsu.it
China: Hamamatsu Photonics (China) Co., Ltd.: 1201 Tower B, Jiaming Center, 27 Dongsanhuan Road North, Chaoyang District, Beijing 100020, China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn

TXPR1019E01
NOV. 2012 IP