HAMAMATSU

PHOTON IS OUR BUSINESS

# PHOTOMULTIPLIER TUBES
# R14374, R14689

## FEATURES

- **High gain 1.0 × $10^7$**
- **$\phi$80 mm Hemisphere...R14374**
- **$\phi$90 mm Hemisphere...R14689**

Left: R14374, Right: R14689

## APPLICATIONS

- **High energy physics**

## SPECIFICATIONS

### GENERAL

| Parameter | | R14374 | R14689 | Unit |
|---|---|---|---|---|
| Spectral response | | 300 to 650 | | nm |
| Wavelength of maximum response | | 420 | | nm |
| Window material | | Borosilicate glass | | — |
| Photocathode | Material | Bialkali | | — |
| | Minimum effective area | $\phi$72 | $\phi$81 | mm |
| Dynode | Structure | Circular and linear-focused | | — |
| | Number of stages | 10 | | — |
| Base | | JEDEC No. B14-38 | | — |
| Operating ambient temperature | | -30 to +50 | | °C |
| Storage temperature | | -30 to +50 | | °C |
| Suitable socket | | E678-14W (Sold separately) | | — |

### MAXIMUM RATINGS (Absolute maximum values)

| Parameter | | R14374 | R14689 | Unit |
|---|---|---|---|---|
| Supply voltage | Between anode and cathode | 1500 | | V |
| | Between anode and last dynode | 300 | | V |
| Average anode current | | 0.1 | | mA |

### CHARACTERISTICS (Typ.) (at 25 °C)

| Parameter | | R14374 | R14689 | Unit |
|---|---|---|---|---|
| Cathode sensitivity | Luminous (2856 K) | 90 | | µA/lm |
| | Radiant at 420 nm | 90 | | mA/W |
| | Blue sensitivity index (CS 5-58) | 11.0 | | — |
| | Quantum efficiency at 380 nm | 27.5 | | % |
| Anode sensitivity | Luminous (2856 K) | 900 | | A/lm |
| | Radiant at 420 nm | $9.0 \times 10^5$ | | A/W |
| Gain | | $1.0 \times 10^7$ | | — |
| Anode dark current (After 30 minute storage in darkness) | | 50 | | nA |
| Time response | Anode pulse rise time | 2.9 | 2.9 | ns |
| | Electron transit time | 35 | 36 | ns |
| | Transit time spread (FWHM) | 1.3 | 1.5 | ns |

**NOTE:** Anode characteristics are measured with a voltage distribution ratio and supply voltage shown below.

### VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE

| Electrodes | K | Dy1 | Dy2 | Dy3 | Dy4 | Dy5 | Dy6 | Dy7 | Dy8 | Dy9 | Dy10 | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ratio | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Supply voltage: 1250 V, K: Cathode, Dy: Dynode, P: Anode

# PHOTOMULTIPLIER TUBE
# R14374, R14689

Figure 1: Typical spectral response

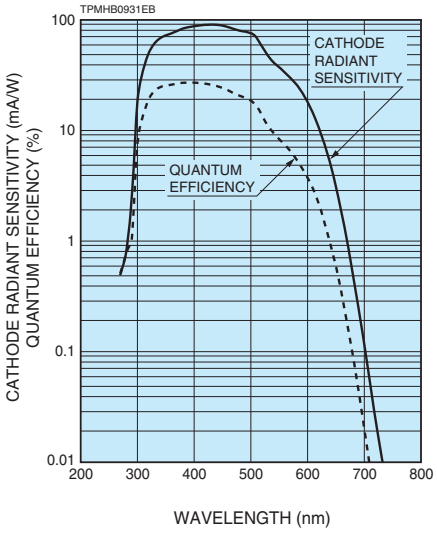



Figure 2: Typical gain

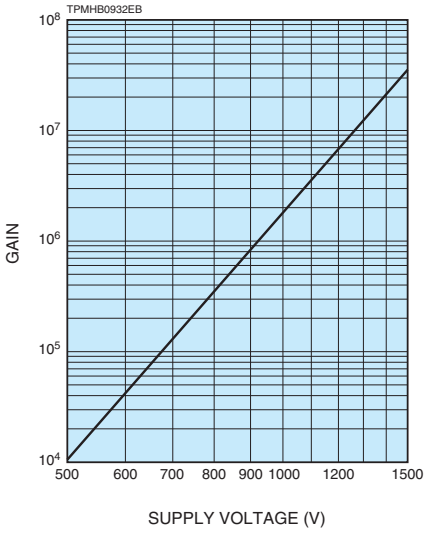



Figure 3: Transit time spread (FWHM)

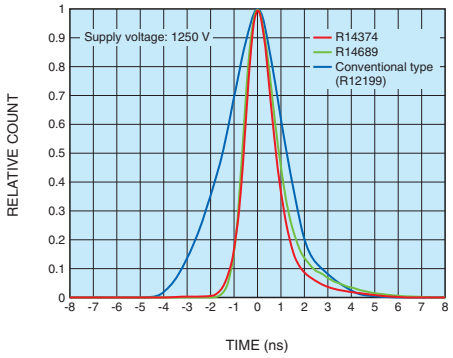
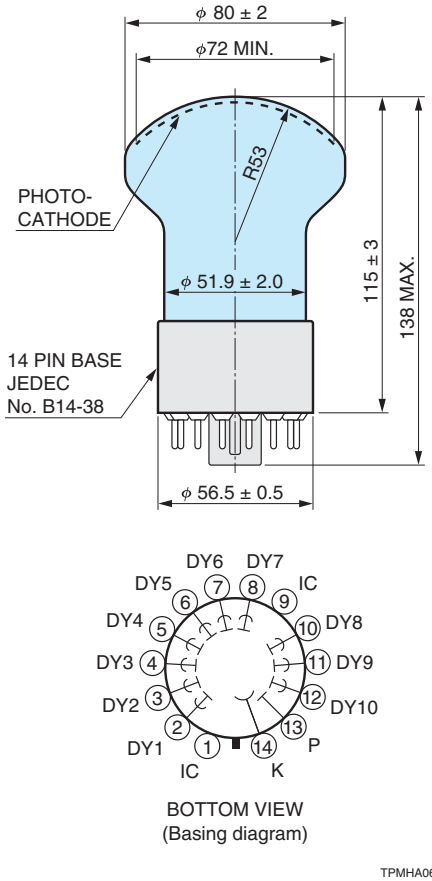
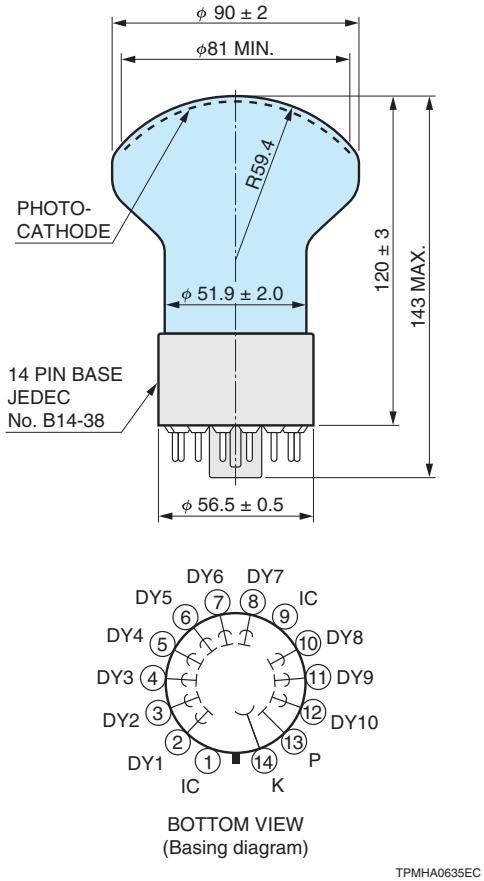



Figure 4: Dimensional outline (Unit: mm)

**●R14374**




**●R14689**





**HAMAMATSU PHOTONICS K.K.** **www.hamamatsu.com**

**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, Bridgewater, NJ 08807, 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)8152-265-8 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, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk
**North Europe:** Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 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 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41 E-mail: info@hamamatsu.it
**China:** Hamamatsu Photonics (China) Co., Ltd.: 1201 Tower B, Jiaming Center, 27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, P.R. China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn
**Taiwan:** Hamamatsu Photonics Taiwan Co., Ltd.: 8F-3, No.158, Section 2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw



TPMH1381E01
MAR. 2020 IP