MULTIANODE
PHOTOMULTIPLIER TUBE ASSEMBLY
H7546A, H7546B

8 × 8 Multianode, High Speed Response, Low Cross-talk, 30 mm Square
Bialkali and Multalkali Photocathode, 12-stage, Head-on Type

FEATURES

- 8 × 8 Multianode, Anode Size: 2 mm × 2 mm / Anode
- Effective Area: 18.1 mm × 18.1 mm
- High Speed Response
- Low Cross-talk: 2 % Typ.
- High Cathode Sensitivity
  - Luminous 250 µA/Im Typ. (-01 Type)
  - Luminous 500 µA/Im Typ. (-20 Type)
- Two Configurations are Available for -HV Input (see figure 8)
  - H7546A: Cable Input Type
  - H7546B: Hard Pin Input Type
- Weight: Approx. 80 g (H7546A)
  - Approx. 60 g (H7546B)

APPLICATIONS

- High Energy Physics
- Flow Cytometer (-01, -20 Type)
- DNA Sequencer (-01, -20 Type)

Figure 1: Typical Spectral Response
### Multianode Photomultiplier Tube Assembly H7546A, H7546B

#### Spectral Response

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Range (nm)</th>
<th>Peak Wavelength (nm)</th>
<th>Photo-cathode Material</th>
<th>Window Material</th>
<th>Dynode Structure / Stages</th>
<th>Supply Voltage Between Anode and Cathode (V)</th>
<th>Average Anode Output Current in Total (mA)</th>
<th>Luminous (µA/lm)</th>
<th>Typ. (µA/lm)</th>
<th>Blue Sensitivity Index (CS 5-58) Typ.</th>
<th>Red/White Ratio (R-68) Typ.</th>
<th>Radiant (mA/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H7546B</td>
<td>300 to 650</td>
<td>420</td>
<td>BA</td>
<td>K</td>
<td>MC/12</td>
<td>-1000</td>
<td>0.023</td>
<td>60</td>
<td>80</td>
<td>8.5</td>
<td>—</td>
<td>80</td>
</tr>
<tr>
<td>H7546B-01</td>
<td>300 to 880</td>
<td>420</td>
<td>MA</td>
<td>K</td>
<td>MC/12</td>
<td>-1000</td>
<td>0.023</td>
<td>150</td>
<td>200</td>
<td>—</td>
<td>0.25</td>
<td>65</td>
</tr>
<tr>
<td>H7546B-03</td>
<td>185 to 650</td>
<td>420</td>
<td>BA</td>
<td>U</td>
<td>MC/12</td>
<td>-1000</td>
<td>0.023</td>
<td>60</td>
<td>80</td>
<td>8.5</td>
<td>—</td>
<td>80</td>
</tr>
<tr>
<td>H7546B-20</td>
<td>300 to 920</td>
<td>530</td>
<td>MA</td>
<td>K</td>
<td>MC/12</td>
<td>-1000</td>
<td>0.023</td>
<td>350</td>
<td>500</td>
<td>—</td>
<td>0.4</td>
<td>78</td>
</tr>
</tbody>
</table>

**NOTE:**
- A: The specification for A-type is the same as B-type shown.
- BA: Bialkali, MA: Multialkali
- C: K: Borosilicate glass, U: UV glass
- D: MC: Metal channel

### Figures

**Figure 2:** Typical Gain

**Figure 3:** Time Response (Example)

**Figure 4:** Single Photoelectron PHD per Channel (Example)

**Figure 5:** Anode Cross-talk (Example)
Supply Voltage: -800 V, K: Cathode, Dy: Dynode, P: Anode

VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE

<table>
<thead>
<tr>
<th>Electrodes</th>
<th>K</th>
<th>Dy1</th>
<th>Dy2</th>
<th>Dy3</th>
<th>Dy4</th>
<th>Dy5</th>
<th>...</th>
<th>Dy9</th>
<th>Dy10</th>
<th>Dy11</th>
<th>Dy12</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Supply Voltage: -800 V, K: Cathode, Dy: Dynode, P: Anode

Figure 6: Anode Matrix and Guide Mark (Unit: mm)

GUIDEMARK
The guide marks are holes of 0.3 mm in diameter on the electrode plate. They can be seen from top of the H7546 series through its photocathode. They can be used for positioning when scintillating or optical fibers are coupled to the H7546 series.

Figure 7: Suitable Sockets (Unit:mm) Supplied

SD-108-T-22 ×4 pcs (for Anode Output Pins)

SS-101-T-22 ×2 pcs (for GND, DY12 Pin)

ASP-24307-02* (for GND, -HV Pin) * H7546B Only
**Figure 8: Dimensional Outline and Basing Diagram (Unit: mm)**

**H7546A SERIES**
- PMT: R7600-M64 SERIES
- POM CASE DIVIDER ASSEMBLY
- GND TERMINAL PIN (×0.64)
- ANODE OUTPUT TERMINAL PINS (×0.64)
- DIVIDER CURRENT: 450 μA

**H754B SERIES**
- PMT: R7600-M64 SERIES
- POM CASE DIVIDER ASSEMBLY
- GND TERMINAL PIN (×0.64)
- ANODE OUTPUT TERMINAL PINS (×0.64)
- DIVIDER CURRENT: 450 μA

**WARNING ~ High Voltage~

The product is operated at high voltage potential. Further, the metal housing of the product is connected to the photocathode (potential) so that it becomes a high voltage potential when the product is operated at a negative high voltage (anode grounded).

Accordingly, extreme safety care must be taken for the electrical shock hazard to the operator or the damage to the other instruments.

* PATENT: USA: 5410211 and other(9), GBR: 551767 and other(9), DEU: 69209809 and other(9), FRA: 551767 and other(9), JPN: 3078905 and other(9)*

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**Figure 9: Internal Circuit (H7546A, H7546B)**

- Anode1 Output
- Anode2 Output
- Anode8 Output
- Anode64 Output
- Terminal Pins (2.54 mm pitch, ×0.64)
- HV Input (×0.64)
- GND (×0.64)
- HV; SHV-P (Coaxial Cable, Red)

**Additional Notes:**
- **R1, R5, R14: 100 kΩ**
- **R2, R4, R15: 200 kΩ**
- **R6, 300 kΩ**
- **R17, R19: 51 Ω**
- **R20: 10 kΩ**
- **R21: 1 MΩ**
- **C1, C2: 0.022 μF/500 V**
- **C3: 0.022 μF/500 V**
- **C4: 0.01 μF/500 V**
- **Divider Current: 455 μA**
- **Input Voltage:** at -1000 V (Max.)

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*TPMH1240E11  MAR. 2006 IP*