

High Speed Response, 30 mm Square, Bialkali and Multialkali Photocathode
10-stage, Head-on Type

FEATURES

- Effective Area: 18 mm × 18 mm
- High Cathode Sensitivity
 - Luminous 200 $\mu\text{A}/\text{lm}$ Typ. (R5900U-01 Type)
 - Luminous 500 $\mu\text{A}/\text{lm}$ Typ. (R5900U-20 Type)
- High Speed Response
- Wide Dynamic Range
- Compact
- Weight: Approx. 33 g

APPLICATIONS

- High Energy Physics
- Flow Cytometer (R5900U-01, -20 Type)
- DNA Sequencer (R5900U-01, -20 Type)
- Pollution Monitoring (NOx) (R5900U-01, -20 Type)

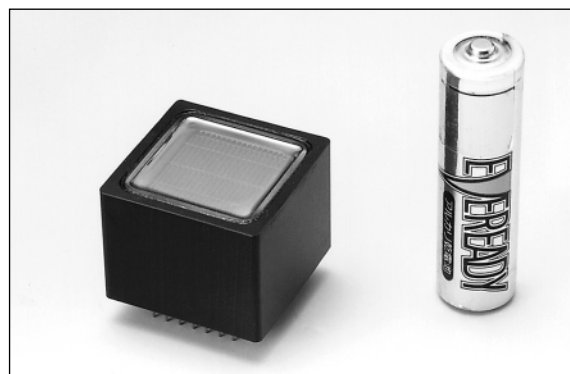
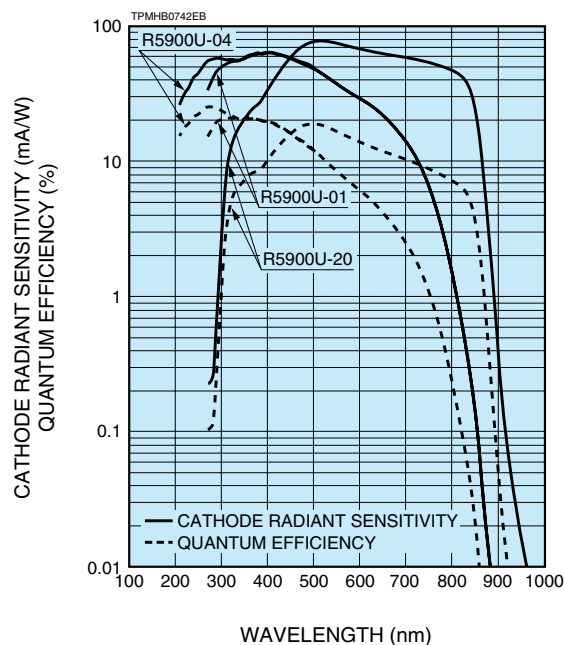
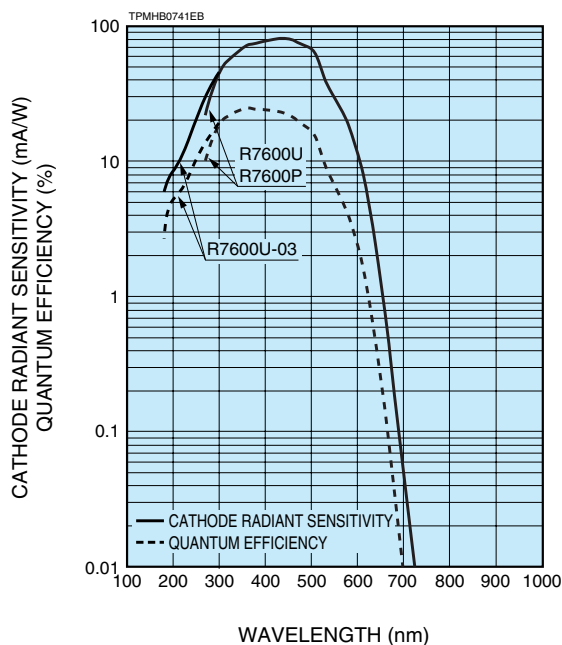


Figure 1: Typical Spectral Response



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PHOTOMULTIPLIER TUBE R5900U / R7600U SERIES

| Type No. | Spectral Response | | Photo-cathode Material ^(A) | Window Material ^(B) | Dynode Structure / Stages ^(C) | Maximum Ratings ^(D) | | Cathode Characteristics | | | | |
|-----------|-------------------|----------------------|---------------------------------------|--------------------------------|--|--|--|-------------------------|--------------|---------------------------------------|-----------------------------|---------------------|
| | Range (nm) | Peak Wavelength (nm) | | | | Supply Voltage Between Anode and Cathode (V) | Average Anode Output Current in Total (mA) | Luminous | | Blue Sensitivity Index (CS 5-58) Typ. | Red/White Ratio (R-68) Typ. | Radiant Typ. (mA/W) |
| | | | | | | | | Min. (μA/lm) | Typ. (μA/lm) | | | |
| R7600U | 300 to 650 | 420 | BA | K | MC/10 | 900 | 0.1 | 60 | 80 | 9.5 | — | 80 |
| R5900U-01 | 300 to 850 | 420 | MA | K | MC/10 | 900 | 0.1 | 150 | 200 | — | 0.25 | 65 |
| R7600U-03 | 185 to 650 | 420 | BA | U | MC/10 | 900 | 0.1 | 60 | 80 | 9.5 | — | 80 |
| R5900U-04 | 185 to 880 | 420 | MA | U | MC/10 | 900 | 0.1 | 150 | 200 | — | 0.25 | 65 |
| R5900U-20 | 300 to 920 | 530 | MA | K | MC/10 | 900 | 0.1 | 350 | 500 | — | 0.4 | 78 |
| R7600P | 300 to 650 | 420 | BA | K | MC/10 | 900 | 0.1 | 60 | 80 | 9.5 | — | 80 |

NOTE: ^(A) BA: Bialkali, MA: Multialkali
^(B) K: Borosilicate glass, U: UV glass
^(C) MC: Metal channel
^(D) The maximum operating ambient temperature range is -30 °C to +50 °C

Figure 2: Typical Gain

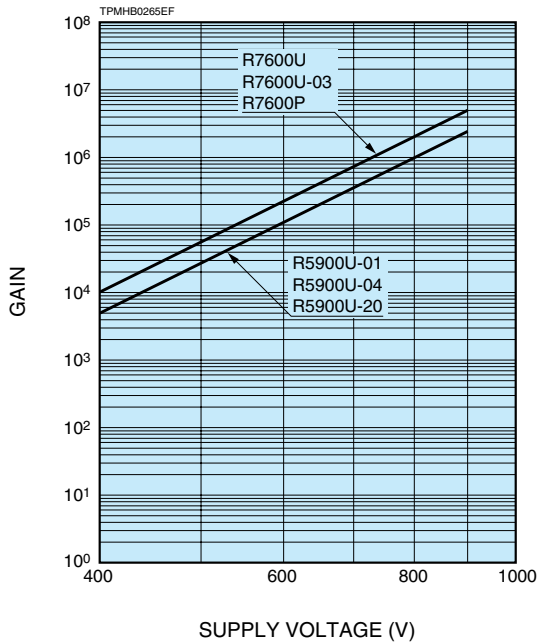


Figure 3: Time Response (Example)

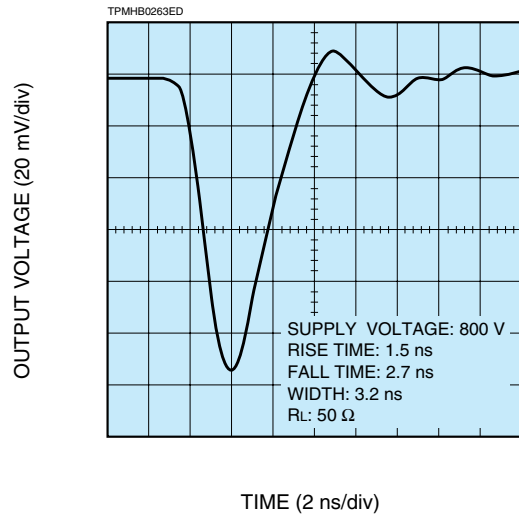
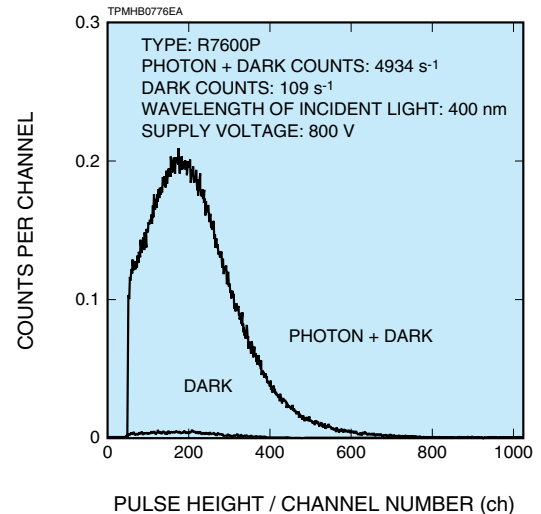


Figure 4: Single Photon Counting (Example)



| Anode to Cathode Supply Voltage (V) | Anode Characteristics | | | | | | | | | | Pulse Linearity | | Type No. |
|-------------------------------------|-----------------------|-------------|-------------------|-----------------------------|-----------|------------|------|---------------|--------------|------|--------------------|--------------------|-----------|
| | Luminous | | Gain Typ. | Dark Current (After 30 min) | | Dark Count | | Time Response | | | 2 % Deviation (mA) | 5 % Deviation (mA) | |
| | Min. (A/lm) | Typ. (A/lm) | | Typ. (nA) | Max. (nA) | Typ. | Max. | Rise Time | Transit Time | TTS | | | |
| | | | Typ. (ns) | | | | | Typ. (ns) | Typ. (ns) | | | | |
| 800 | 40 | 160 | 2.0×10^6 | 2 | 20 | — | — | 1.4 | 9.6 | 0.35 | 30 | 60 | R7600U |
| 800 | 50 | 200 | 1.0×10^6 | 10 | 50 | — | — | | | | | | R5900U-01 |
| 800 | 40 | 160 | 2.0×10^6 | 2 | 20 | — | — | | | | | | R7600U-03 |
| 800 | 50 | 200 | 1.0×10^6 | 10 | 50 | — | — | | | | | | R5900U-04 |
| 800 | 100 | 500 | 1.0×10^6 | 20 | 50 | — | — | | | | | | R5900U-20 |
| 800 | 40 | 160 | 2.0×10^6 | — | — | 200 | 500 | | | | | | R7600P |

VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE

| Electrodes | K | Dy1 | Dy2 | Dy3 | Dy4 | Dy5 | Dy6 | Dy7 | Dy8 | Dy9 | Dy10 | P |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|---|
| Ratio | 1.5 | 1.5 | 1.5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

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

Figure 5: TTS Characteristic (Example)

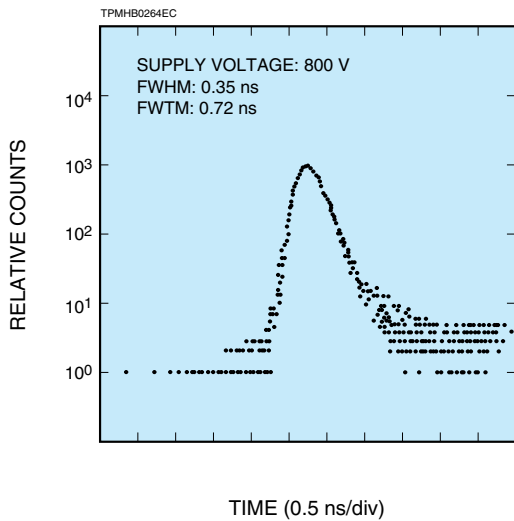
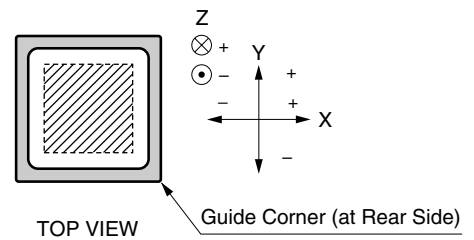
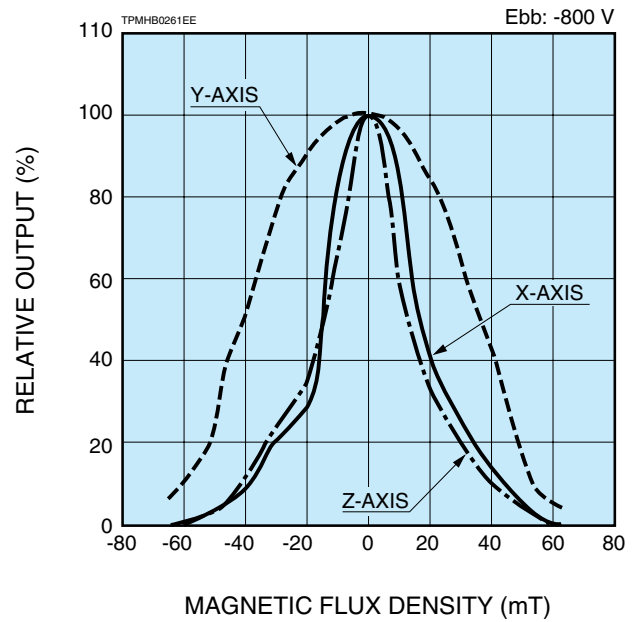
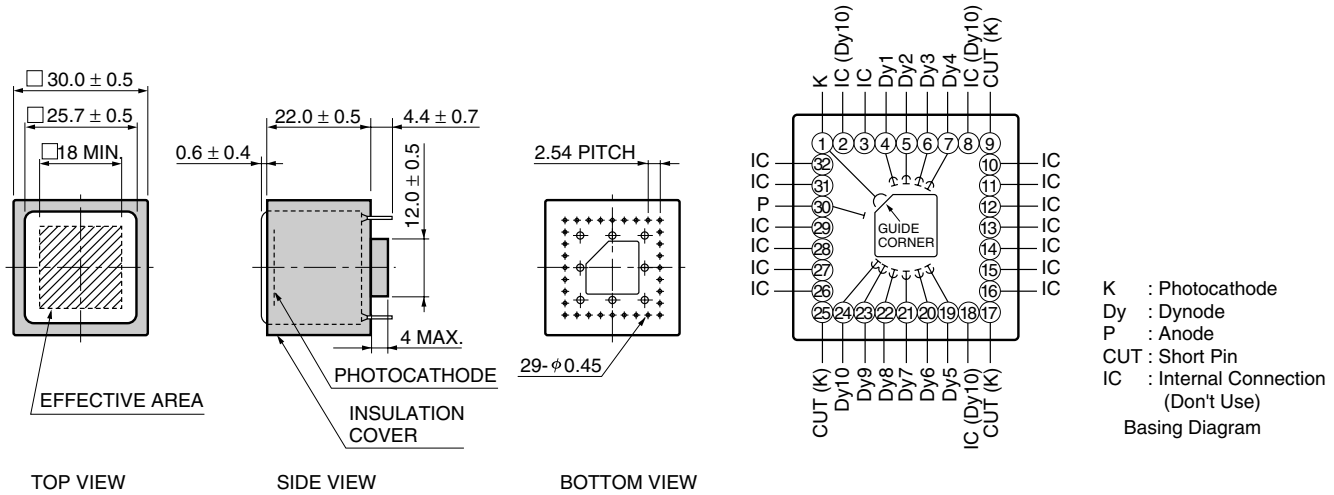


Figure 6: Effect of Magnetic Fields on Anode Output (Example)



PHOTOMULTIPLIER TUBE R5900U / R7600U SERIES

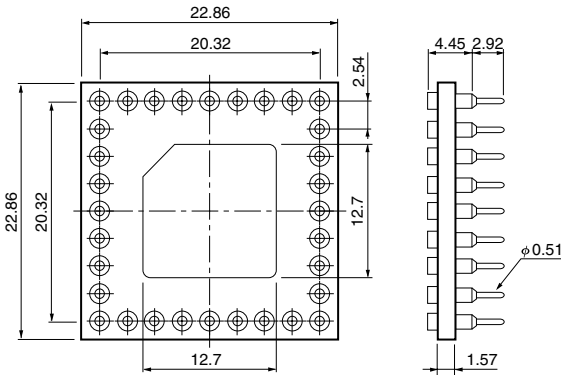
Figure 7: Dimensional Outline and Basing Diagram (Unit: mm)



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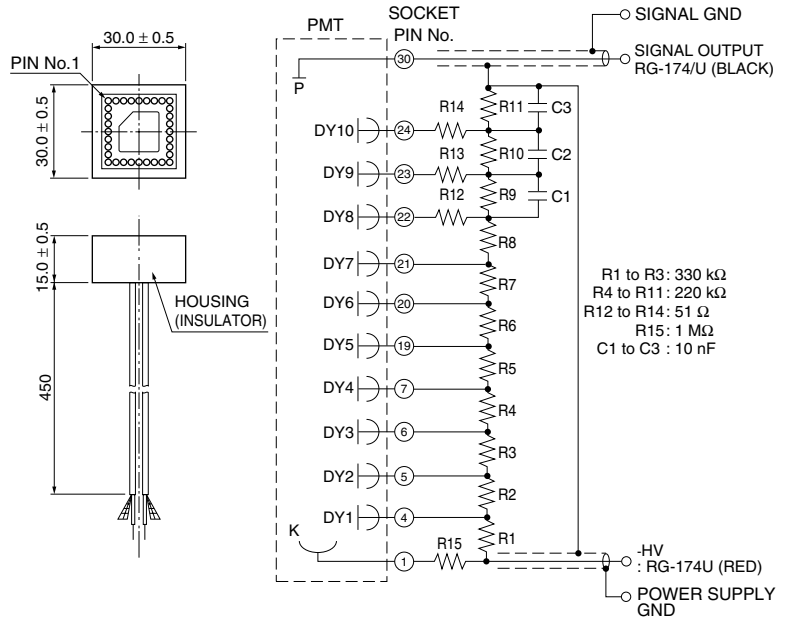
[ACCESSORIES] (Unit: mm) **SOLD SEPARATELY**

● Socket E678-32B



TACCA0094ED

● D Type Socket Assembly E5996



TACCA0234EC

⚠ 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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