HAMAMATSU

# LINEAR ARRAY MULTIANODE PMT AND ASSEMBLY
# R5900U-L16 SERIES, H7260 SERIES

## Multianode 16 Channel Linear Array (R5900U-L16: PMT)
## Multianode 32 Channel Linear Array (H7260: PMT ASSEMBLY)

## FEATURES

- **High Cathode Sensitivity**
  - **Luminous 250 μA/lm Typ. (-01 Type)**
  - **Luminous 500 μA/lm Typ. (-20 Type)**
- **Anode Structure**
  - **1 mm Channel Pitch**
  - **R5900U-L16 Series..... 0.8 mm × 16 Anodes**
  - **H7260 Series..... 0.8 mm × 32 Anodes**
- **High Speed Response: Rise Time 0.6 ns Typ.**

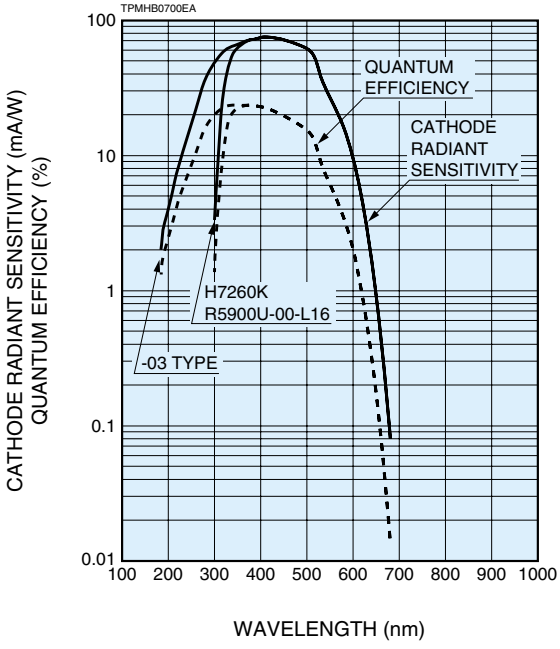
LEFT: R5900U-L16 SERIES RIGHT: H7260 SERIES

## APPLICATIONS

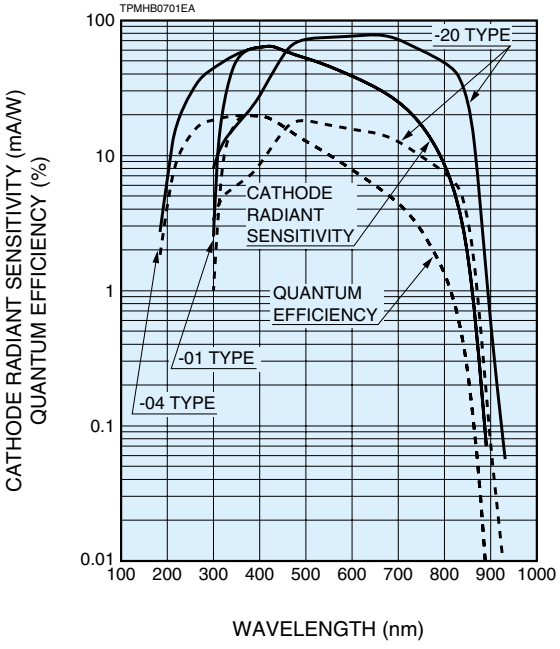
- **Biomedical Fluorescence Detection**
- **Laser Scanning Detection**
- **Spectroscopy**
- **Environmental Monitoring**

Figure 1: Typical Spectral Response

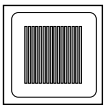
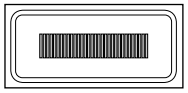
-00 and -03 Types




-01, -04 and -20 Types



# SPECIFICATIONS

| Type No. | Anode Type | | Outline No. | Effective Area per Channel (mm) | Channel Pitch (mm) | Ⓐ Dynode Structure / No. of Stages | Weight (g) | Ⓑ Insulation Cover Material |
|---|---|---|---|---|---|---|---|---|
| R5900U-L16 SERIES | 16 Channel Linear Array |  | 1 (See Fig.8) | 0.8 × 16 | 1 | MC/10 | 35 | P.O.M. |
| H7260 SERIES | 32 Channel Linear Array |  | 2 (See Fig.13) | 0.8 × 7 | 1 | MC/10 | 62 | P.O.M. |

**Notes:**
Ⓐ MC: Metal Channel
Ⓑ P.O.M: polyoxymethylene

| Type No. | Spectral Response | | Ⓖ Photocathode Material | Ⓗ Window Material | Cathode Characteristics | | | | | Supply Voltage (V dc) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Range (nm) | Peak Wavelength (nm) | | | Luminous Min. (μA/lm) | Luminous Typ. (μA/lm) | Blue Sens. Index (CS 5-58) Typ. | Red /White Ratio (R-68) Typ. | Ⓘ Radiant Typ. (mA/W) | |
| R5900U-00-L16 | 300 to 650 | 420 | BA | B | 50 | 70 | 8.5 | — | 72 | -800 Ⓙ |
| R5900U-01-L16 | 300 to 880 | 420 | MA | B | 150 | 250 | — | 0.3 | 65 | -800 Ⓙ |
| R5900U-03-L16 | 185 to 650 | 420 | BA | U | 50 | 70 | 8.5 | — | 72 | -800 Ⓙ |
| R5900U-04-L16 | 185 to 880 | 420 | MA | U | 150 | 250 | — | 0.3 | 65 | -800 Ⓙ |
| R5900U-20-L16 | 300 to 920 | 630 | MA | B | 350 | 500 | — | 0.45 | 78 | -800 Ⓙ |
| H7260K | 300 to 650 | 420 | BA | B | 50 | 70 | 8.5 | — | 72 | -800 |
| H7260-01 | 300 to 880 | 420 | MA | B | 150 | 250 | — | 0.3 | 65 | -800 |
| H7260-03 | 185 to 650 | 420 | BA | U | 50 | 70 | 8.5 | — | 72 | -800 |
| H7260-04 | 185 to 880 | 420 | MA | U | 150 | 250 | — | 0.3 | 65 | -800 |
| H7260-20 | 300 to 920 | 630 | MA | B | 350 | 500 | — | 0.45 | 78 | -800 |

**Notes:**
Ⓖ BA: Bialkali MA: Multialkali
Ⓗ B: Borosilicate glass U: UV glass
Ⓘ Measured at the peak wavelength

(at 25 °C)

| Ⓒ Socket / Socket Assembly | Maximum Ratings Ⓓ | | | | Type No. |
|---|---|---|---|---|---|
| | Supply Voltage (V dc) | Ⓔ Total Average Anode Current (μA) | Ⓔ Average Anode Current per Channel (μA) | Voltage Divider Current (mA) | |
| E678-32B / E6736 | -900 | 100 | 10 | — | R5900U-L16 SERIES |
| SD-108-T-22* / — | -900 | 100 | 6 | 0.37 Ⓕ | H7260 SERIES |

**Notes:**
Ⓒ *: Supplied No mark: Sold separately
Ⓓ The maximum ambient temperature range
R5900U-L16 SERIES: -30 °C to +50 °C
R7260 SERIES: 0 °C to +50 °C
Ⓔ Averaged over any interval of 30 seconds maximum.
Ⓕ Measured with the maximum supply voltage.

(at 25 °C)

| Anode Characteristics Ⓚ | | | | | | | Pulse Linearity per Channel (±2 % deviation) (mA) | Cross-talk (%) | Uniformity Between Each Anode | | Type No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Luminous | | Gain | Dark Current per Channel (After 30 min.) | | Time Response | | | | | | |
| | | | | | Rise Time | Transit Time Spread (FWHM) | | | | | |
| Min. (A/lm) | Typ. (A/lm) | Typ. | Typ. (nA) | Max. (nA) | Typ. (ns) | (ns) | | | Typ. | Max. | |
| 50 | 280 | $4 \times 10^6$ | 0.2 | 2 | 0.6 | 0.18 | 0.8 | 3 | 1: 1.5 | 1: 2 | R5900U-00-L16 |
| 75 | 250 | $1 \times 10^6$ | 0.5 | 5 | 0.6 | 0.18 | 0.8 | 3 | 1: 1.7 | 1: 2.5 | R5900U-01-L16 |
| 50 | 280 | $4 \times 10^6$ | 0.2 | 2 | 0.6 | 0.18 | 0.8 | 3 | 1: 1.5 | 1: 2 | R5900U-03-L16 |
| 75 | 250 | $1 \times 10^6$ | 0.5 | 5 | 0.6 | 0.18 | 0.8 | 3 | 1: 1.7 | 1: 2.5 | R5900U-04-L16 |
| 175 | 500 | $1 \times 10^6$ | 1 | 10 | 0.6 | 0.18 | 0.8 | 3 | 1: 1.7 | 1: 2.5 | R5900U-20-L16 |
| 50 | 140 | $2 \times 10^6$ | 0.2 | 2 | 0.6 | 0.18 | 0.6 | 3 | 1: 1.5 | 1: 2 | H7260K |
| 75 | 250 | $1 \times 10^6$ | 0.5 | 5 | 0.6 | 0.18 | 0.6 | 3 | 1: 1.7 | 1: 2.5 | H7260-01 |
| 50 | 140 | $2 \times 10^6$ | 0.2 | 2 | 0.6 | 0.18 | 0.6 | 3 | 1: 1.5 | 1: 2 | H7260-03 |
| 75 | 250 | $1 \times 10^6$ | 0.5 | 5 | 0.6 | 0.18 | 0.6 | 3 | 1: 1.7 | 1: 2.5 | H7260-04 |
| 175 | 500 | $1 \times 10^6$ | 1 | 10 | 0.6 | 0.18 | 0.6 | 3 | 1: 1.7 | 1: 2.5 | H7260-20 |

**Notes:**
Ⓙ Refer to the "voltage distribution ratio and voltage" shown below

| Electrodes | K | Dy1 | Dy2 | • • • | Dy10 | P |
|---|---|---|---|---|---|---|
| Distribution | 1 | 1 | 1 | • • • | 1 | |

Supply Voltage: 800 V, K: Cathode, Dy: Dynode, P: Anode
Ⓚ Anode characteristics are measured with the supply voltage and voltage distribution ratio specified by note Ⓙ

# R5900U-L16 SERIES

Figure 2: Cross-Section

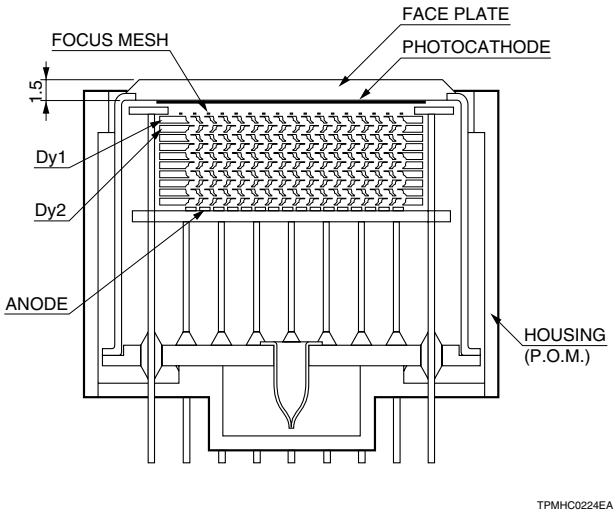



Figure 3: Typical Gain Characteristics

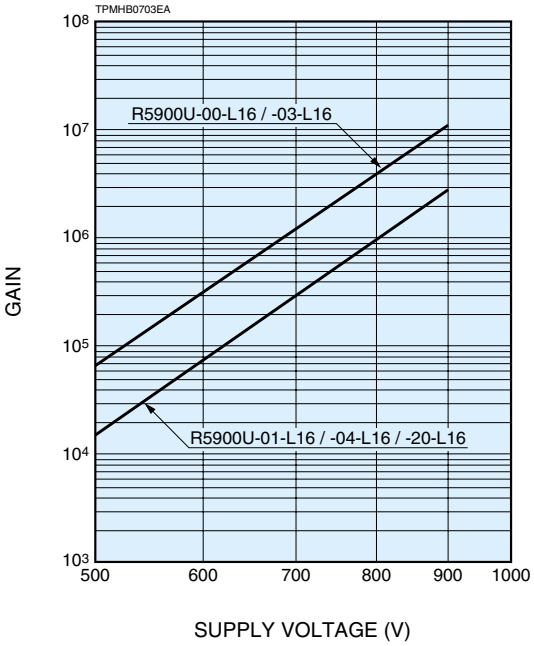



Figure 4: Anode Uniformity (Example)

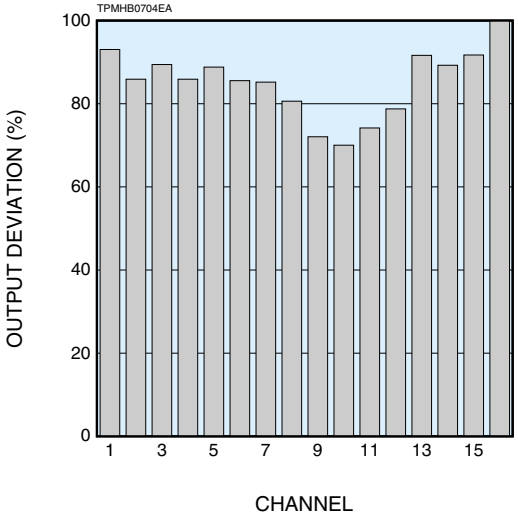
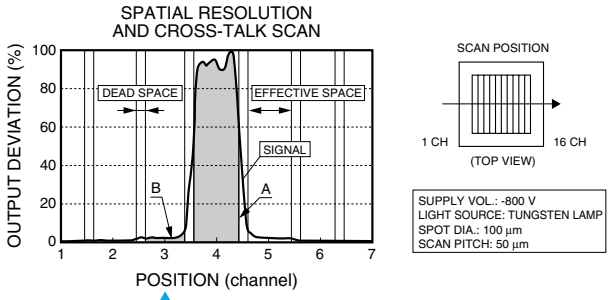



Figure 5: Cross-Talk (Example)

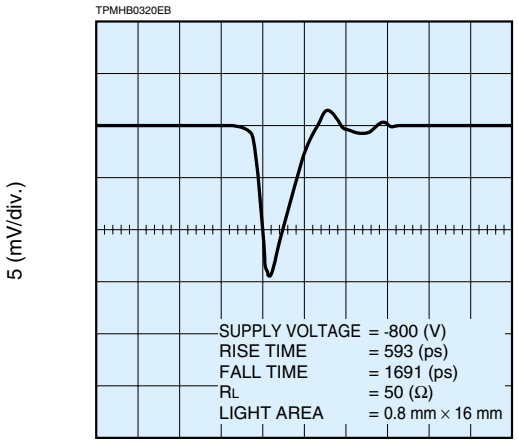



| CH | CROSS-TALK RATIO (%) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 1 | 100 | 2.9 | 0.6 | 0.2 | 0.1 | — | — | — | — | — | — | — | — | — | — | — |
| 2 | 2.9 | 100 | 3.1 | 0.5 | 0.2 | 0.1 | — | — | — | — | — | — | — | — | — | — |
| 3 | 0.8 | 2.8 | 100 | 2.8 | 0.6 | 0.2 | 0.1 | — | — | — | — | — | — | — | — | — |
| 4 | 0.3 | 0.8 | 2.7 | 100 | 3.2 | 0.6 | 0.2 | 0.1 | — | — | — | — | — | — | — | — |
| 5 | 0.1 | 0.3 | 0.8 | 2.9 | 100 | 3.1 | 0.6 | 0.2 | 0.1 | — | — | — | — | — | — | — |
| 6 | — | 0.1 | 0.3 | 0.8 | 2.7 | 100 | 3.0 | 0.6 | 0.2 | 0.1 | — | — | — | — | — | — |
| 7 | — | — | 0.1 | 0.3 | 0.8 | 2.7 | 100 | 3.0 | 0.6 | 0.2 | 0.1 | — | — | — | — | — |
| 8 | — | — | — | 0.1 | 0.3 | 0.8 | 2.9 | 100 | 2.9 | 0.6 | 0.2 | 0.1 | — | — | — | — |
| 9 | — | — | — | — | 0.1 | 0.3 | 0.8 | 2.9 | 100 | 2.9 | 0.6 | 0.2 | 0.1 | — | — | — |
| 10 | — | — | — | — | — | 0.1 | 0.3 | 0.8 | 3.1 | 100 | 2.7 | 0.6 | 0.2 | 0.1 | — | — |
| 11 | — | — | — | — | — | — | 0.1 | 0.4 | 0.8 | 3.3 | 100 | 3.8 | 0.6 | 0.2 | 0.1 | — |
| 12 | — | — | — | — | — | — | — | 0.1 | 0.4 | 0.9 | 3.2 | 100 | 2.8 | 0.6 | 0.2 | 0.1 |
| 13 | — | — | — | — | — | — | — | — | 0.1 | 0.4 | 0.8 | 3.1 | 100 | 2.8 | 0.6 | 0.3 |
| 14 | — | — | — | — | — | — | — | — | — | 0.1 | 0.4 | 0.8 | 3.1 | 100 | 2.7 | 0.6 |
| 15 | — | — | — | — | — | — | — | — | — | — | 0.1 | 0.4 | 0.9 | 3.2 | 100 | 2.9 |
| 16 | — | — | — | — | — | — | — | — | — | — | — | 0.1 | 0.4 | 0.9 | 3.1 | 100 |

CROSS-TALK
AREA B / AREA A × 100

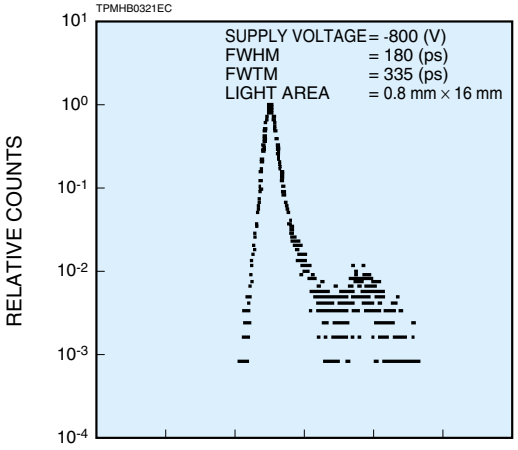
TPMHB0705EA

Figure 6: Typical Time Response



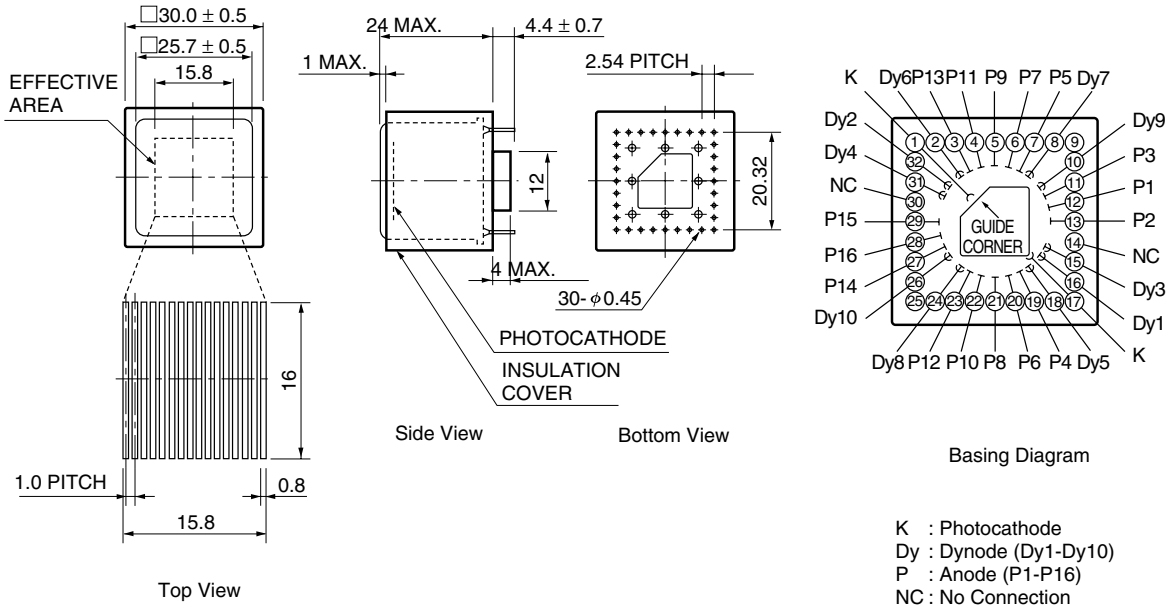

Light is irradiated to only one channel at this measurement.

Figure 7: Typical Transit Time Spread Characteristics




Light is irradiated to only one channel at this measurement.

Figure 8: Dimensional Outline and Basing Diagram (Unit: mm)




K : Photocathode
Dy : Dynode (Dy1-Dy10)
P : Anode (P1-P16)
NC : No Connection

TPMHA0298EE

# H7260 SERIES

Figure 9: Cross-Section

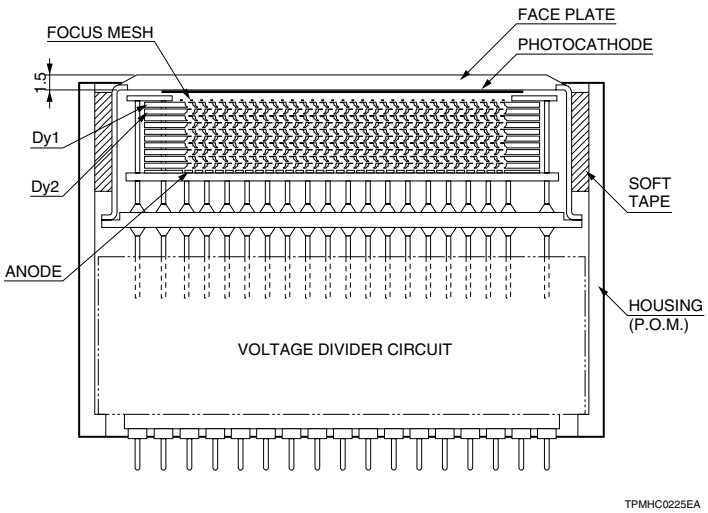



Figure 10: Typical Gain Characteristics

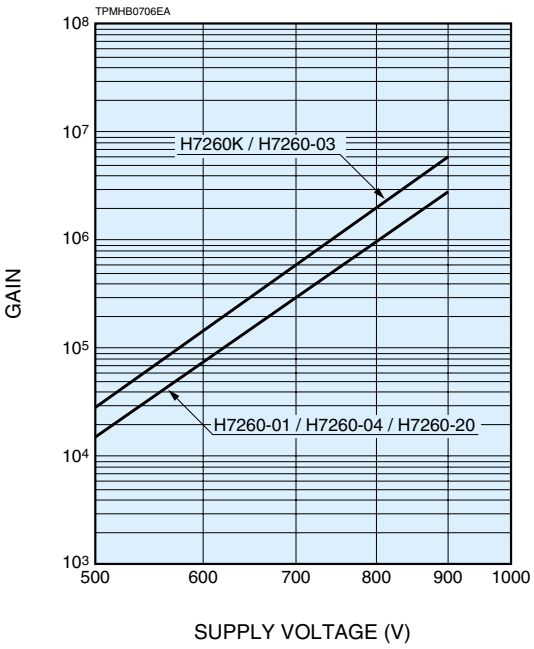



Figure 11: Anode Uniformity (Example)

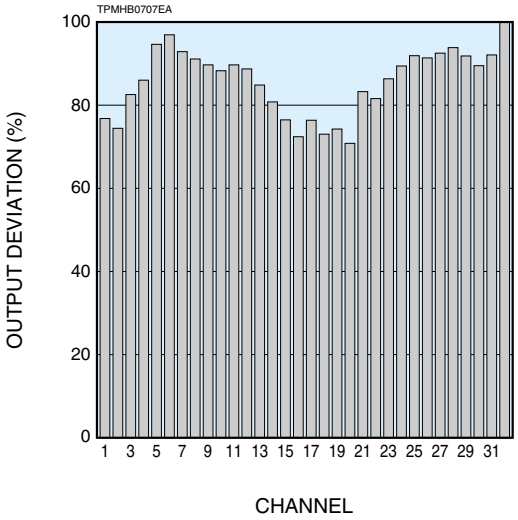



Figure 12: Socket

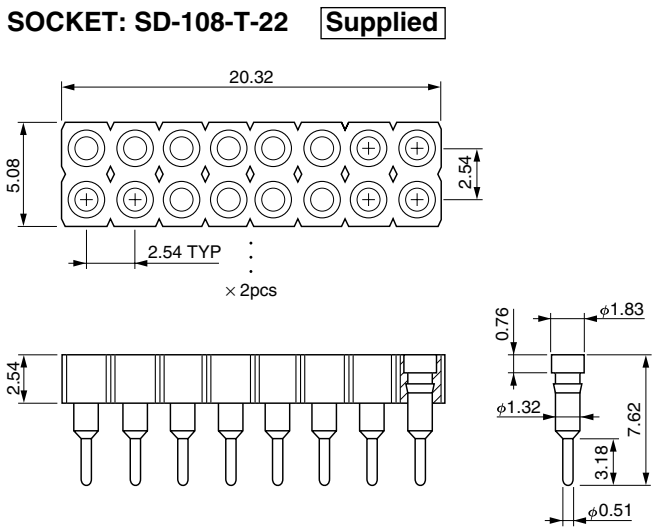
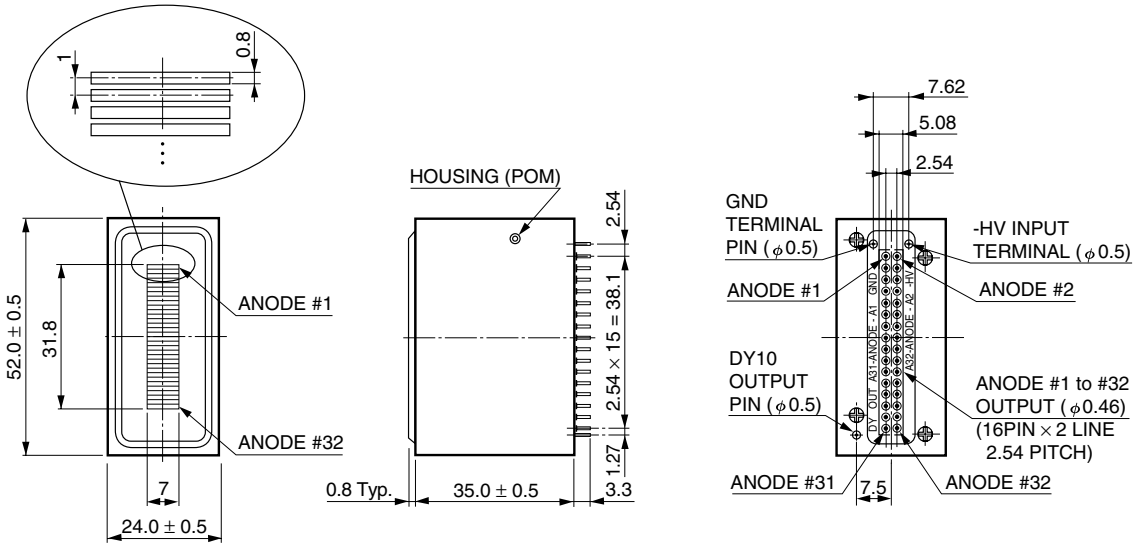
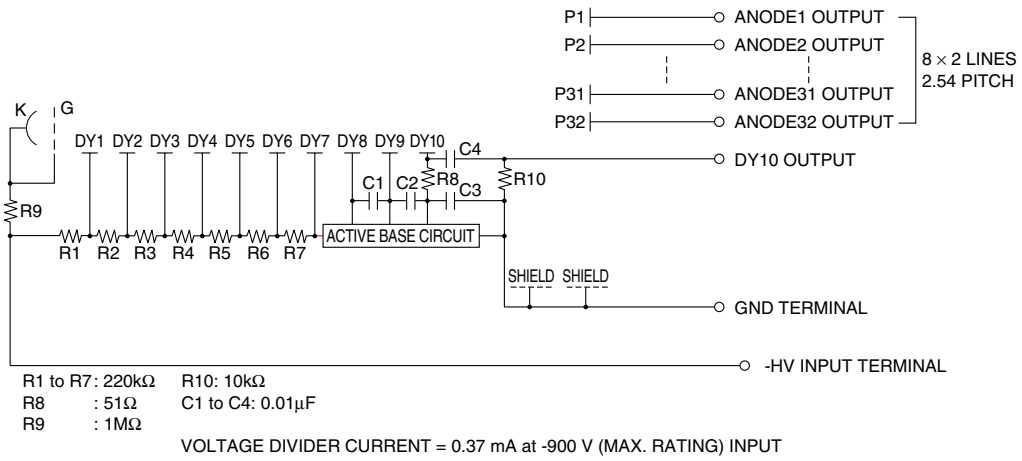


Figure 13: Dimensional Outline and Circuit Diagram of H7260 (Unit: mm)




TPMHA0455EC

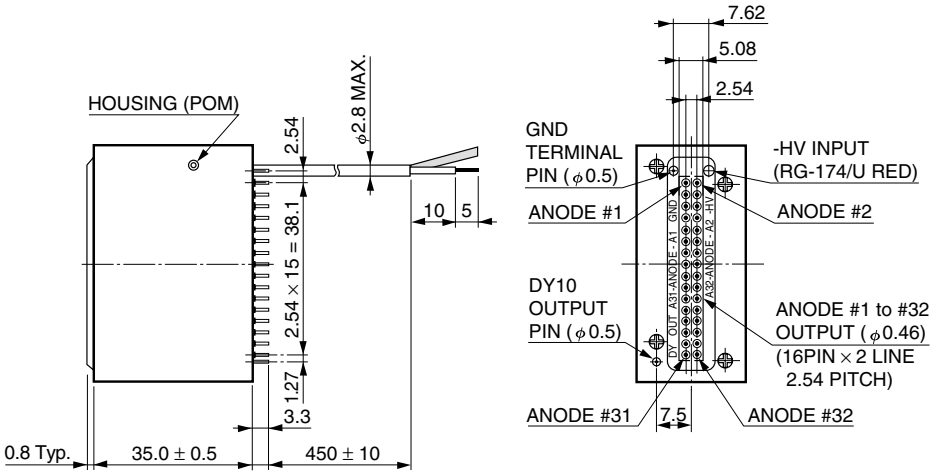



R1 to R7: 220kΩ R10: 10kΩ
R8 : 51Ω C1 to C4: 0.01μF
R9 : 1MΩ

VOLTAGE DIVIDER CURRENT = 0.37 mA at -900 V (MAX. RATING) INPUT

TPMHC0192EA

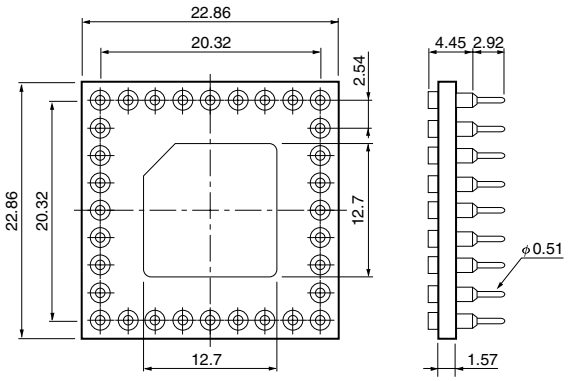
H7260A -HV input cable type is available




TPMHA0456EC

## [ACCESSORIES FOR R5900U-L16 SERIES]

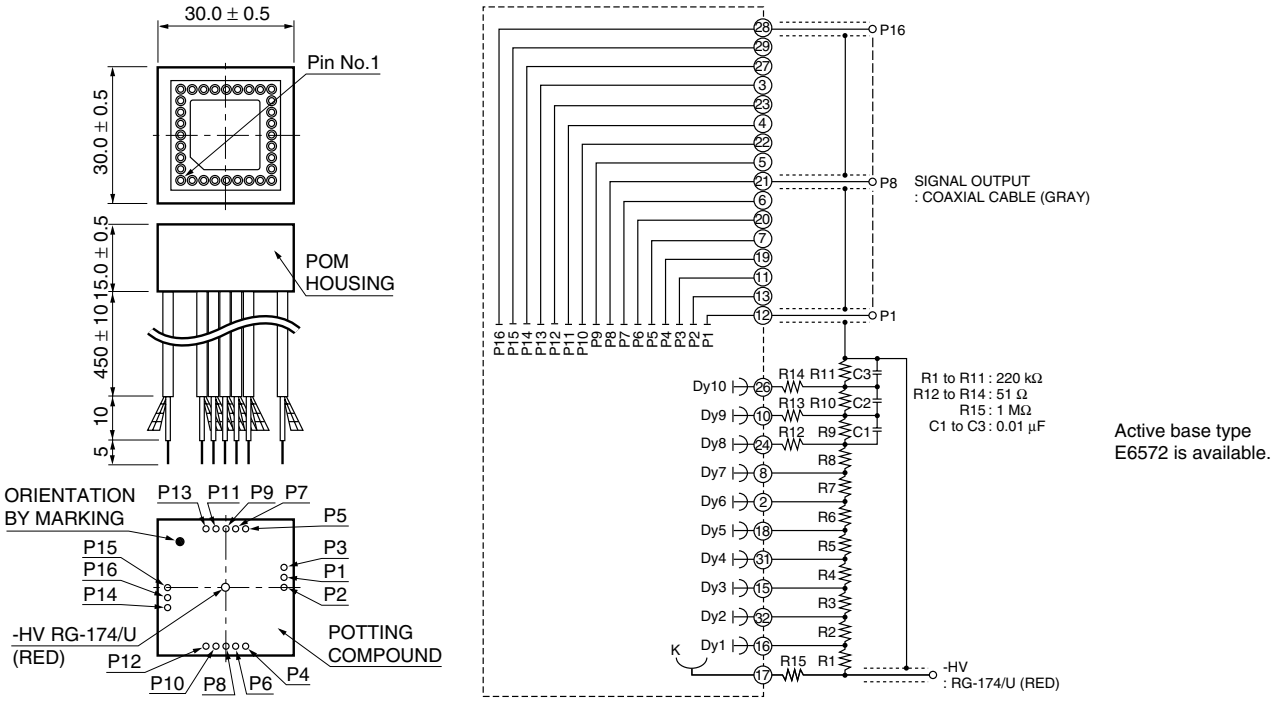
### ● Socket E678-32B SOLD SEPARATELY




MATERIAL: Glass Epoxy

TACCA0094ED

### ● D Type Socket Assembly E6736 SOLD SEPARATELY




Active base type
E6572 is available.

P1 to P16: SIGNAL OUTPUT
COAXIAL CABLE (GRAY)

TACCA0158EE

### ⚠ 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.



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