

## Fast Time Response, For High Energy Physics and Scintillation Counting (Especially for BaF<sub>2</sub> Scintillator)

### GENERAL

| Parameter                      |                        | Description/Value   | Unit    |
|--------------------------------|------------------------|---------------------|---------|
| Spectral Response              |                        | 160 to 650          | nm      |
| Wavelength of Maximum Response |                        | 420                 | nm      |
| Photocathode                   | Material               | Bialkali            | —       |
|                                | Minimum Effective Area | 25                  | mm dia. |
| Window Material                |                        | Synthetic silica    | —       |
| Dynode                         | Structure              | Linear focused      | —       |
|                                | Number of Stages       | 10                  | —       |
| Base                           |                        | 14-pin glass base   | —       |
| Suitable Socket                |                        | E678-14C (supplied) | —       |

### MAXIMUM RATINGS (Absolute Maximum Values)

| Parameter             |                               | Value      | Unit |
|-----------------------|-------------------------------|------------|------|
| Supply Voltage        | Between Anode and Cathode     | 2000       | Vdc  |
|                       | Between Anode and Last Dynode | 350        | Vdc  |
| Average Anode Current |                               | 0.2        | mA   |
| Ambient Temperature   |                               | -80 to +50 | °C   |

### CHARACTERISTICS (at 25 °C)

| Parameter  |                            | Min. | Typ.                  | Max. | Unit    |
|--|----------------------------|------|-----------------------|------|---------|
| Cathode Sensitivity                                    | Luminous (2856K)           | 60   | 95                    | —    | μA/lm   |
|  | Radiant at 420nm           | —    | 88                    | —    | mA/W    |
|  | Blue (CS-5-58 filter)      | —    | 11.0                  | —    | μA/lm-b |
| Anode Sensitivity                                      | Luminous (2856K)           | —    | 190                   | —    | A/lm    |
|  | Radiant at 420nm           | —    | 1.8 × 10 <sup>5</sup> | —    | A/W     |
| Gain   |                            | —    | 2 × 10 <sup>6</sup>   | —    | —       |
| Anode Dark Current (after 30 min. storage in darkness) |                            | —    | 4                     | 80   | nA      |
| Time Response  | Anode Pulse Rise Time      | —    | 1.7                   | —    | ns      |
|  | Electron Transit Time      | —    | 16                    | —    | ns      |
|  | Transit Time Spread (FWHM) | —    | 500                   | —    | ps      |
| Pulse Linearity (at ±2 % deviation)                    |                            | —    | 10 (100)              | —    | mA      |

**NOTE:** Anode characteristics are measured with the voltage distribution ratio A shown below.

( ) : Pulse linearity is measured with the voltage distribution ratio B shown below.

### VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE

| Electrodes        | K | Dy1 | Dy2 | Dy3 | Dy4 | Dy5 | Dy6  | Dy7  | Dy8  | Dy9  | Dy10 | P |
|-------------------|---|-----|-----|-----|-----|-----|------|------|------|------|------|---|
| Ratio A           | 6 | 1   | 1.5 | 1   | 1   | 1   | 1    | 1    | 1    | 1    | 1    | 1 |
| Ratio B (Tapered) | 6 | 1   | 1.5 | 1   | 1   | 1   | 1.2  | 1.5  | 2    | 3.3  | 3    |   |
| Capacitors (μF)   |   |     |     |     |     |     | 0.01 | 0.02 | 0.02 | 0.04 | 0.06 |   |

Supply Voltage: 1500 V dc, K: Cathode, Dy: Dynode, P: Anode

# PHOTOMULTIPLIER TUBE R7057

Figure 1: Typical Spectral Response

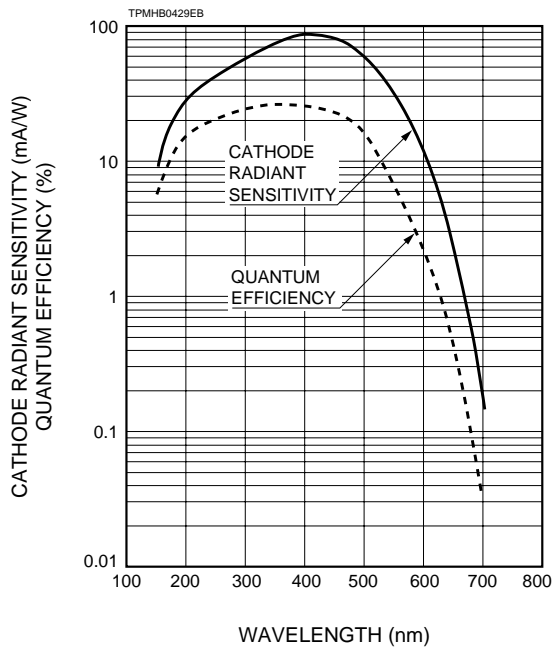


Figure 2: Typical Gain Characteristics

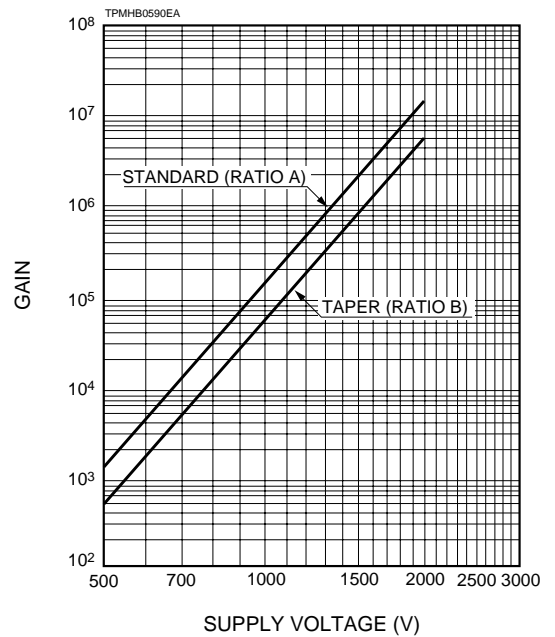
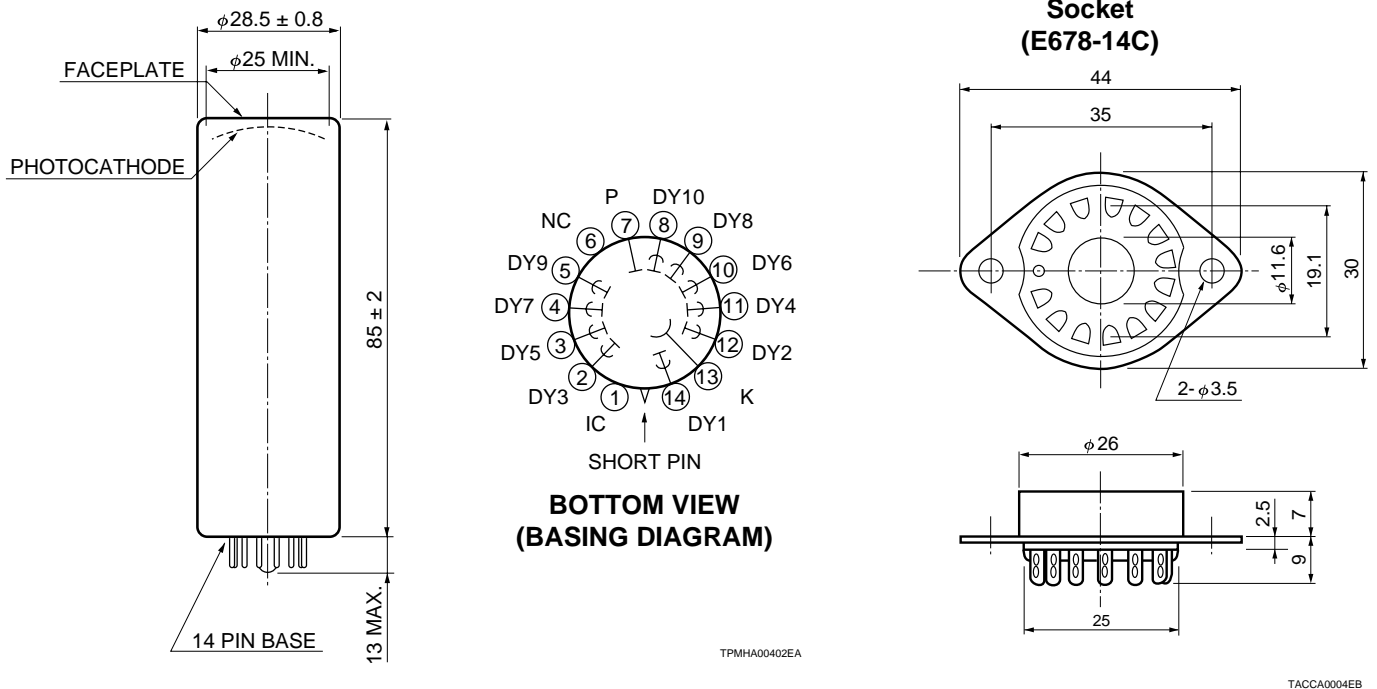


Figure 3: Dimensional Outline and Basing Diagram (Unit: mm)



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