

FEATURES

- 6 (X) + 6 (Y) Cross Plate Anode
- Flangeless Type
- High Speed Response

APPLICATIONS

- PET (Positron Emission Tomography)
- Compact Gamma Camera
- Scintillation Mammography



GENERAL

Parameter		Description	Unit
Spectral Response		300 to 650	nm
Wavelength of Maximum Response		420	nm
Photocathode	Material	Bialkali	—
	Minimum Effective Area	22 × 22	mm
Window Material		Borosilicate glass	—
Dynode	Structure	Metal channel dynode	—
	Number of Stages	11	—
Anode		6 (X) + 6 (Y) Cross plate anode	—
Weight		Approx. 28 (U Type: Approx. 38)	g
Suitable Socket		E678-32B (sold separately)	—
Operating Ambient Temperature		-80 to +50 (U Type: -30 to +50)	°C
Storage Temperature		-80 to +50 (U Type: -30 to +50)	°C

MAXIMUM RATINGS (Absolute Maximum Values)

Parameter		Value	Unit
Supply Voltage	Between Anode and Cathode	1000	V
Average Anode Current in Total		0.1	mA

CHARACTERISTICS (at 25 °C)

Parameter		Min.	Typ.	Max.	Unit
Cathode Sensitivity	Luminous (2856 K)	50	80	—	μA/lm
	Quantum Efficiency at 420 nm	—	24	—	%
	Blue Sensitivity Index (CS 5-58)	7	9	—	—
Anode Sensitivity	Luminous (2856 K)	15	70	—	A/lm
Gain		—	0.9×10^6	—	—
Anode Dark Current in Total of Anodes (after 30 min storage in darkness)		—	2	10	nA
Time Response	Anode Pulse Rise Time	—	2.4	—	ns
	Electron Transit Time	—	11.5	—	ns
	Transit Time Spread (FWHM)	—	1.0	—	ns

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

VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE

Electrodes	K	G	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	Dy11	P
Ratio	0.5	1.5	2	1	1	1	1	1	1	1	1	1	1	0.5

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

POSITION SENSITIVE PHOTOMULTIPLIER TUBES

R8520-00-C12, R8520U-00-C12

Figure 1: Typical Spectral Response

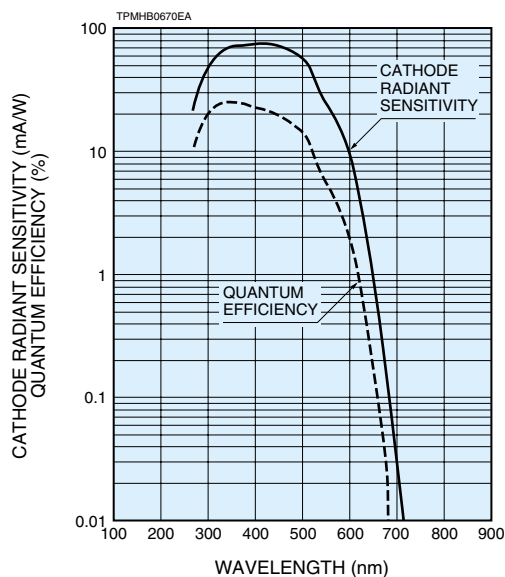


Figure 2: Typical Gain and Anode Dark Current

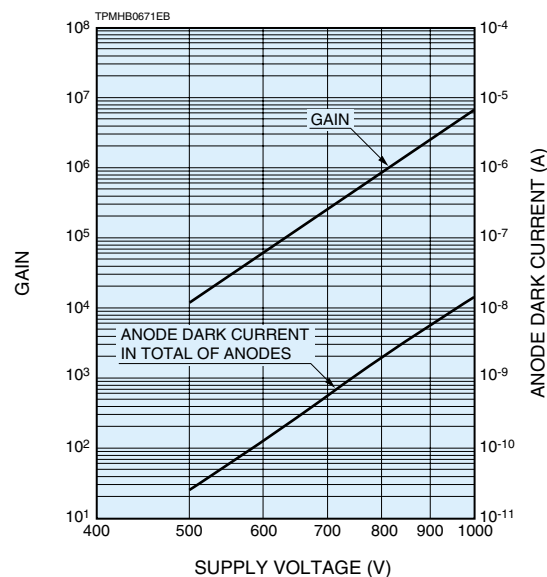


Figure 3: Pulse Height Distribution

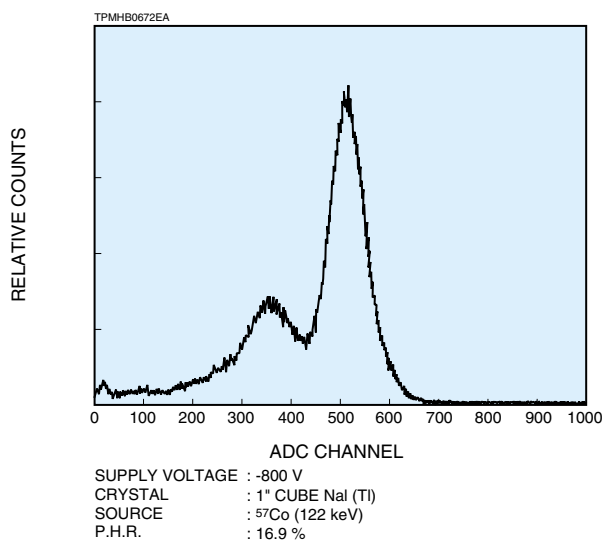


Figure 4: Position Response Using PX-anodes

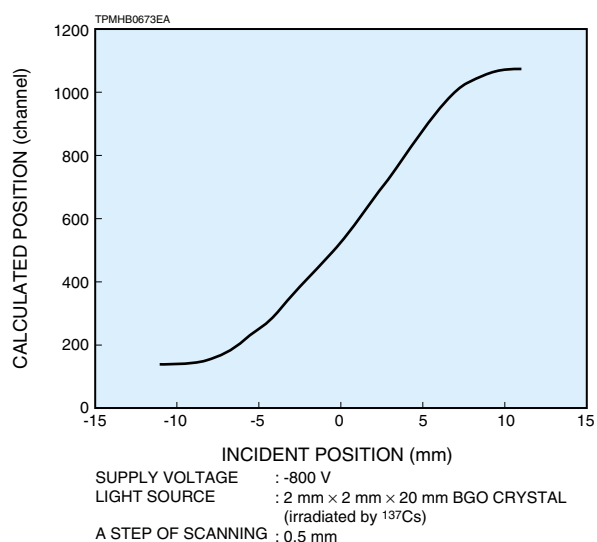
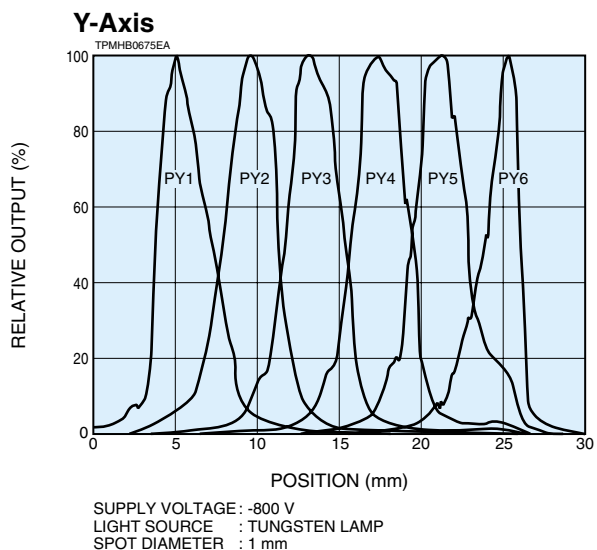
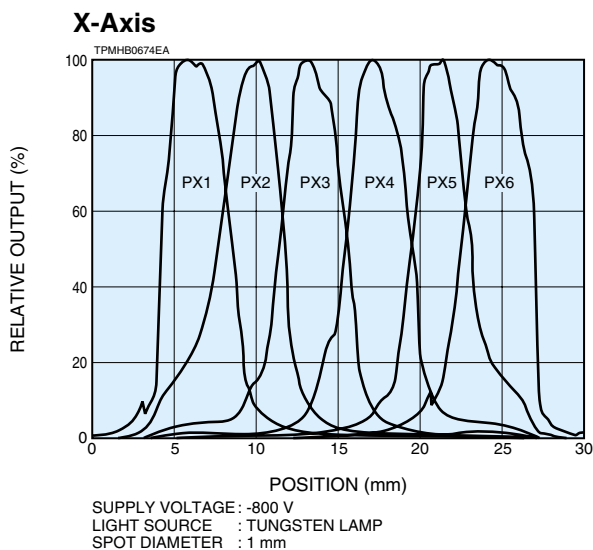
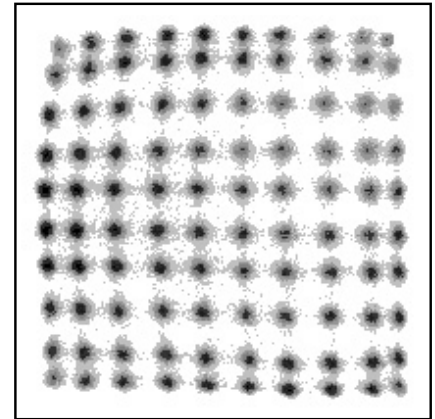
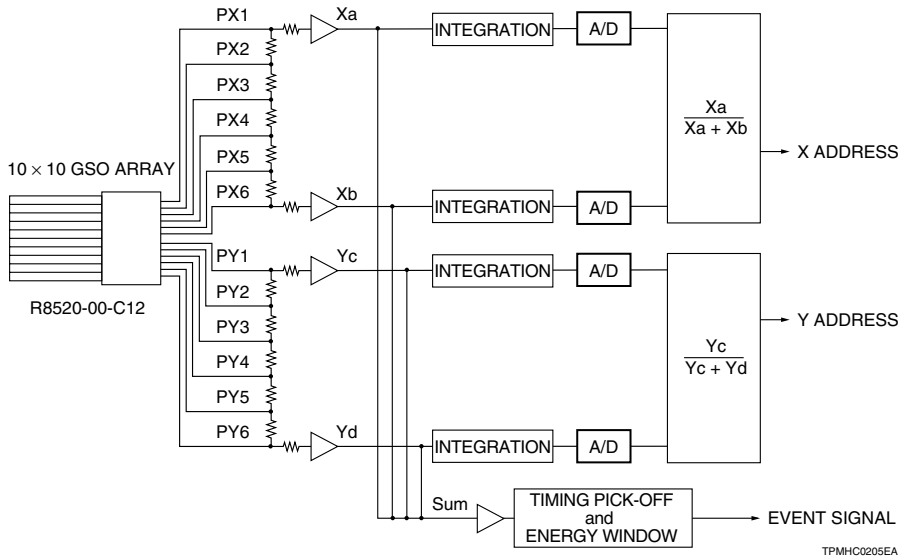


Figure 5: Spatial Resolution



* Output of each anode under a light spot scanning at a center.

Figure 6: Circuit Diagram Example and Positioning Histogram



Positioning histogram of a 10 × 10 array of 2.0 mm × 2.0 mm × 20 mm GSO elements for 511 keV γ -rays. (crystal pitch is 2.2 mm)

Figure 7: R8520-00-C12 Dimensional Outline and Basing Diagram (Unit: mm)

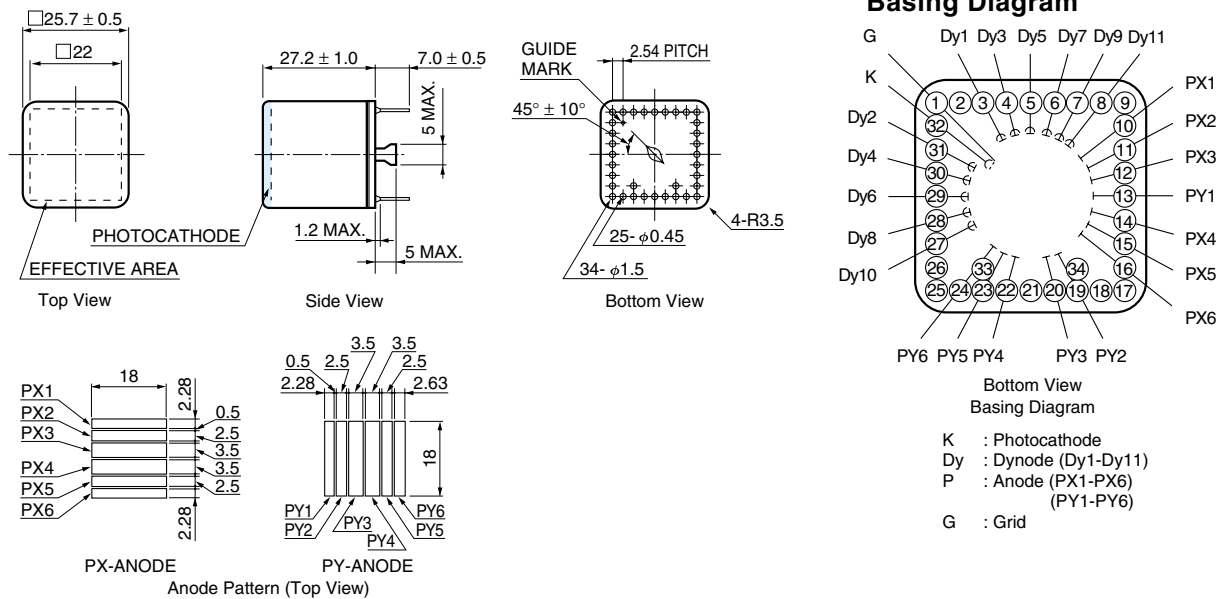
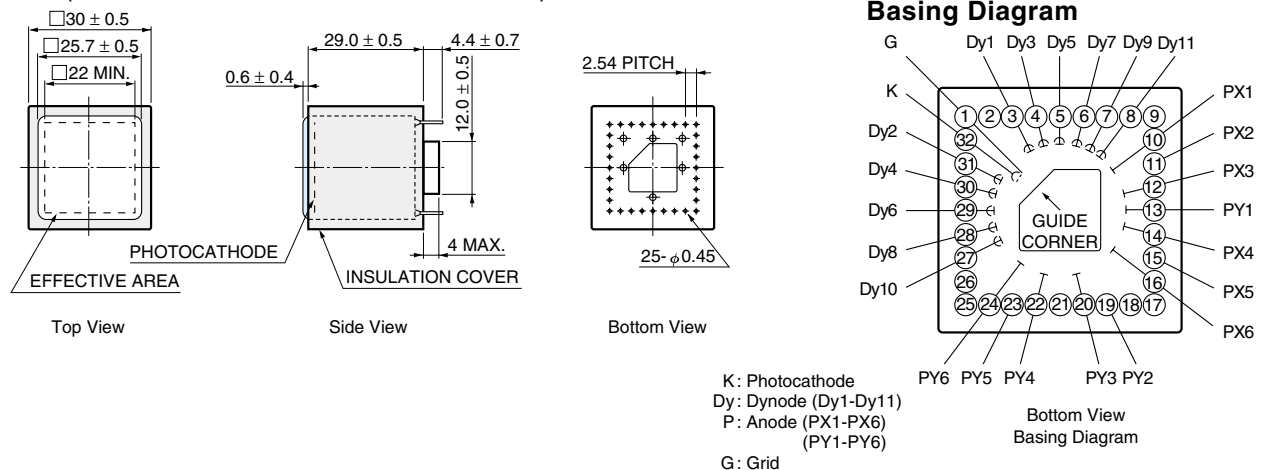


Figure 8: R8520U-00-C12 Dimensional Outline and Basing Diagram (Unit: mm)
(R8520-00-C12 with an Insulation Cover)

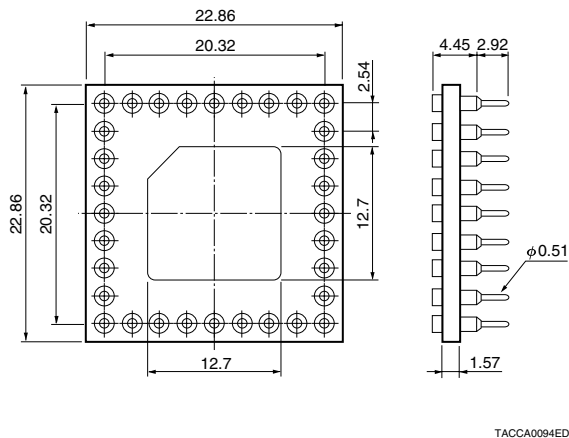


POSITION SENSITIVE PHOTOMULTIPLIER TUBES

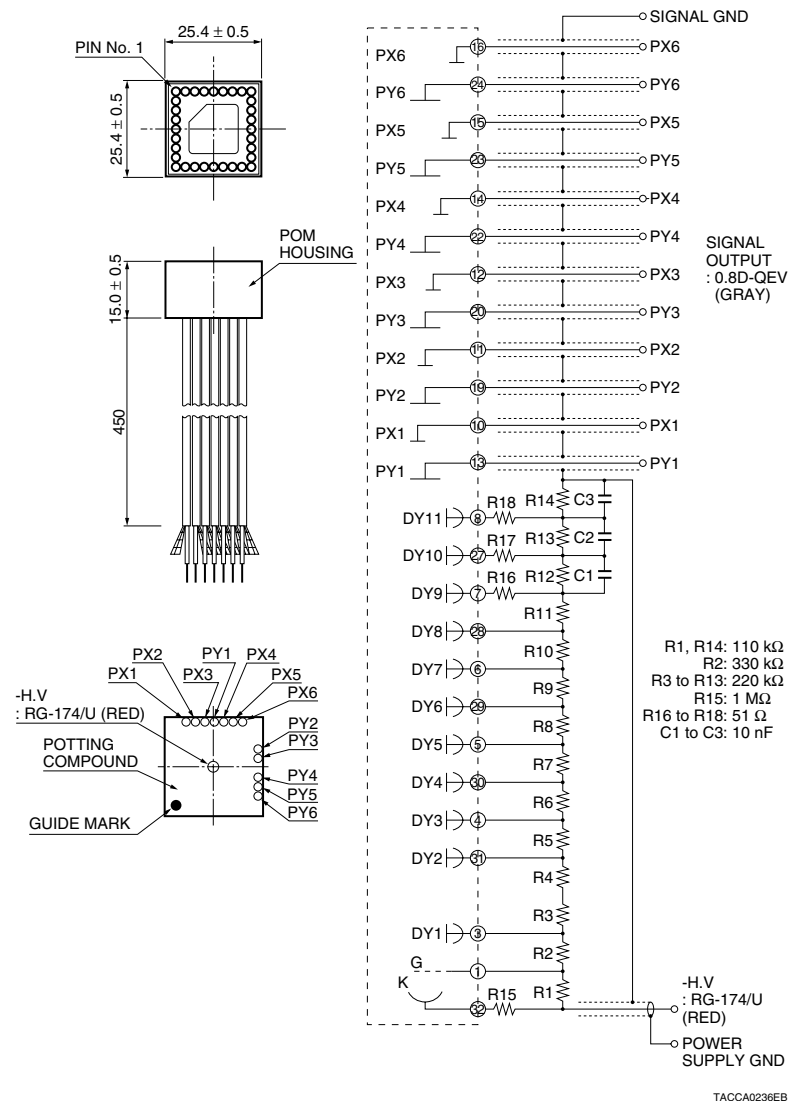
R8520-00-C12, R8520U-00-C12

[ACCESSORIES] (Unit: mm)

● Socket E678-32B **SOLD SEPARATELY**



● D Type Socket Assembly E7514 **SOLD SEPARATELY**



⚠ 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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