

For Scintillation Counting and Positron CT Applications
10-Stage Dual Structure in a Rectangular Envelope
High Time Resolution, Good Coupling to Rectangular BGO
Good Space Utilization, Low Cross Talk

GENERAL

Parameter		Description/Value	Unit
Spectral Response		300 to 650	nm
Wavelength of Maximum Response		420	nm
Photocathode	Material	Bialkali	—
	Minimum Useful Size	$(8 \times 18) \times 2$ (dual)	mm dia.
Window Material		Borosilicate glass	—
Dynode	Structure	Linear focused	—
	Number of Stages	10×2 (dual)	—
Base		17-pin glass base	—
Suitable Socket		E678-17A (supplied)	—

MAXIMUM RATINGS (Absolute Maximum Values)

Parameter		Value	Unit
Supply Voltage	Between Anode and Cathode	1750	Vdc
	Between Anode and Last Dynode	250	Vdc
Average Anode Current		0.1	mA
Ambient Temperature		-80 to +50	°C

CHARACTERISTICS (at 25°C)

Parameter		Min.	Typ.	Max.	Unit
Cathode Sensitivity	Luminous (2856K)	—	80	—	$\mu\text{A/lm}$
	Blue (with CS 5-58 filter)	—	9.5	—	$\mu\text{A/lm-b}$
	Quantum Efficiency at 480nm	—	23	—	%
Anode Sensitivity	Luminous (2856K)	—	200	—	A/lm
	Blue (with CS No. 5-58 filter)	—	24	—	A/lm-b
Gain		—	2.5×10^6	—	—
Anode Dark Current		—	20	250	nA
Time Response	Anode Pulse Rise Time	—	1.8	—	ns
	Electron Transit Time	—	20	—	ns
	Transit Time Spread	—	1.0	—	ns
Energy Resolution for 511keV γ -ray with BGO		—	20	—	%
BGO Time Resolution (BGO-Plastic)	FWHM	—	2.4	—	ns
	FWTM	—	4.8	—	ns
Gain Ratio (one segment to another)		0.5	1	2	—

VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE

Electrodes	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	P
Ratio	4	1	1.5	1	1	1	1	1	1	1	1	1

Supply Voltage: 1250Vdc, K: Cathode, Dy: Dynode, P: Anode

NOTE: The gain of each segment can be controlled within 1 to 0.3 by adjusting independent dynode (7th dynode) potential.

PHOTOMULTIPLIER TUBE R1548

Figure 1: Typical Spectral Response

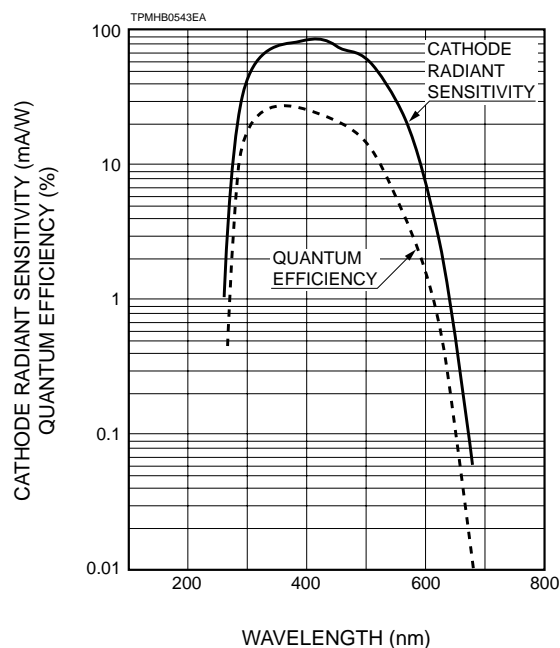


Figure 2: Typical Gain Characteristics

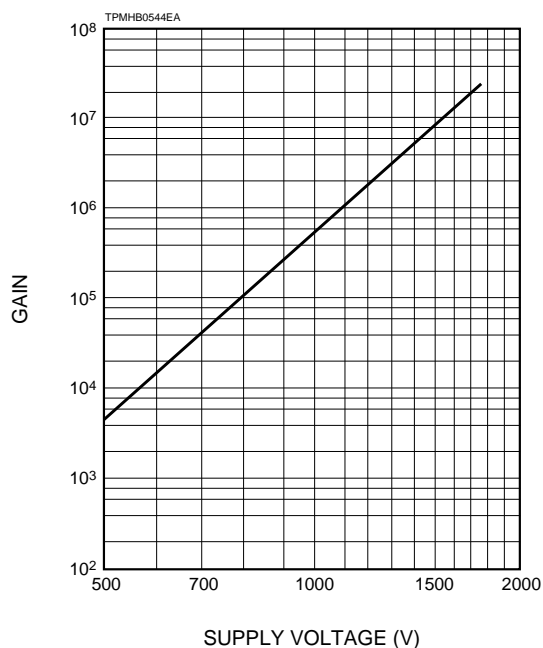
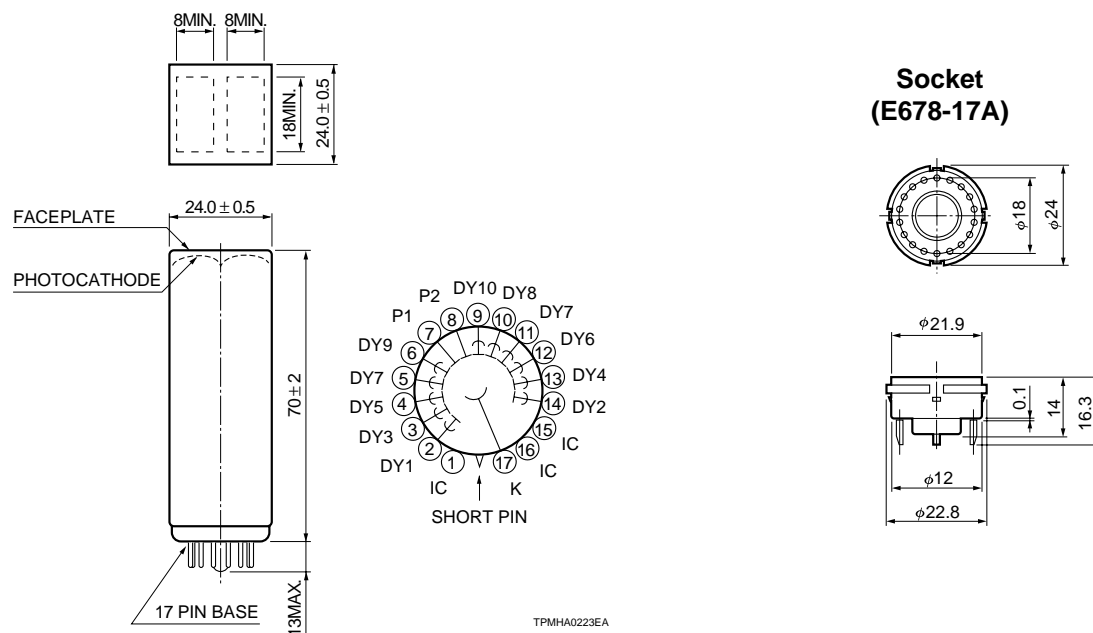


Figure 3: Dimensional Outline and Basing Diagram (Unit: mm)



* This Tube has been developed under the contract with the Agency on Industrial Science and Technology, MITI, Japan as a part of R/D program on Medical and welfare Technology.

HAMAMATSU

HAMAMATSU PHOTONICS K.K., Electron Tube Center

314-5, Shimokanzo, Toyooka-village, Iwata-gun, Shizuoka-ken, 438-0193, Japan, Telephone: (81)539/62-5248, Fax: (81)539/62-2205

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P. O. Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-2658

France: Hamamatsu Photonics France S.A.R.L.: 8, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited: Lough Point, 2 Gladbeck Way, Windmill Hill, Enfield, Middlesex EN2 7JA, United Kingdom, Telephone: (44)181-367-3560, Fax: (44)181-367-6384

North Europe: Hamamatsu Photonics Norden AB: Färögatan 7, S-164-40 Kista Sweden, Telephone: (46)8-703-29-50, Fax: (46)8-750-58-95

Italy: Hamamatsu Photonics Italia: S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39)02-935 81 733, Fax: (39)02-935 81 741

TPMH1219E01
AUG. 1998