

## FEATURES

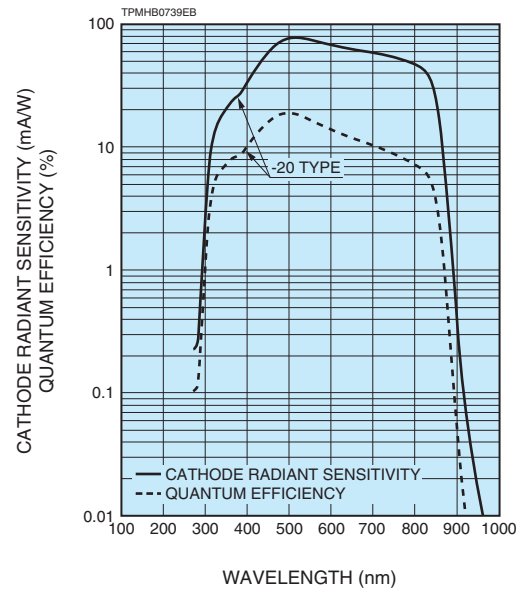
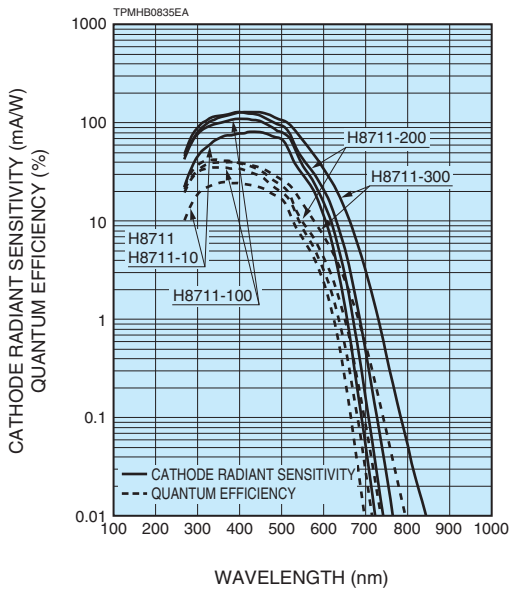
- 4 × 4 multianode, Anode size: 4.2 mm × 4.2 mm / Anode
- Effective area: 18.1 mm × 18.1 mm
- High speed response
- Low cross-talk: 1 % Typ.
- High cathode sensitivity
- Weight: Approx. 50 g

## APPLICATIONS

- High energy physics
- Flow cytometer
- DNA sequencer
- 2D radiation imaging



Figure 1: Typical spectral response



# MATRIX MULTIANODE PHOTOMULTIPLIER TUBE ASSEMBLY H8711 SERIES

Type No.	Spectral response		Photo-cathode material	Window material	Dynode structure / Stages	Maximum ratings		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 Typ.	Red/White ratio Typ.	Radiant Typ. (mA/W)
								Min. (μA/lm)	Typ. (μA/lm)			
<b>Normal divider type</b>												
H8711	300 to 650	420	BA	K	MC/12	-1000	0.017	60	80	9.5	—	80
H8711-100	300 to 650	400	SBA	K	MC/12	-1000	0.017	90	105	13.5	—	110
H8711-200	300 to 650	400	UBA	K	MC/12	-1000	0.017	110	135	15.5	—	130
H8711-300	300 to 700	420	EGBA	K	MC/12	-1000	0.017	120	160	14.0	—	125
H8711-20	300 to 920	530	ERMA	K	MC/12	-1000	0.017	350	500	—	0.4	78
<b>Tapered divider type</b>												
H8711-10	300 to 650	420	BA	K	MC/12	-1000	0.017	60	80	9.5	—	80

**NOTE:** (A) BA: Bialkali, SBA: Super bialkali, UBA: Ultra bialkali, EGBA: Extended green bialkali, ERMA: Extended red multialkali  
 (B) K: Borosilicate glass  
 (C) MC: Metal channel  
 (D) The maximum average anode current is defined as 5 % of divider current when maximum high voltage is applied.

Figure 2: Typical gain

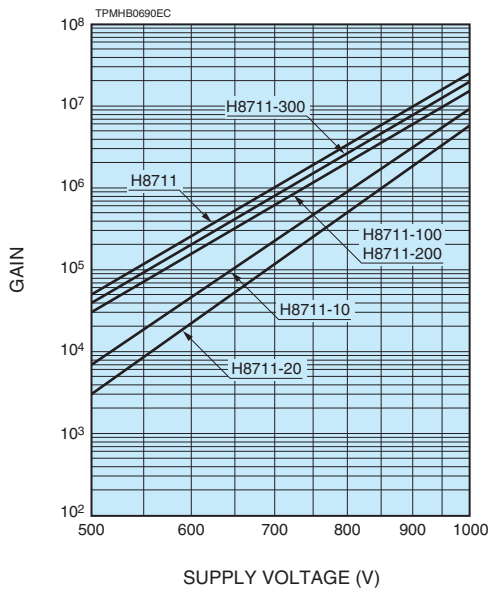


Figure 3: Time response (Example)

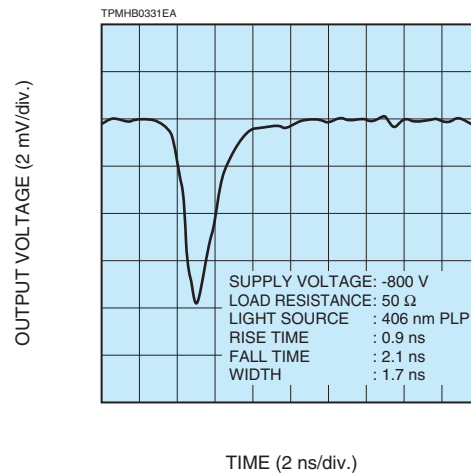
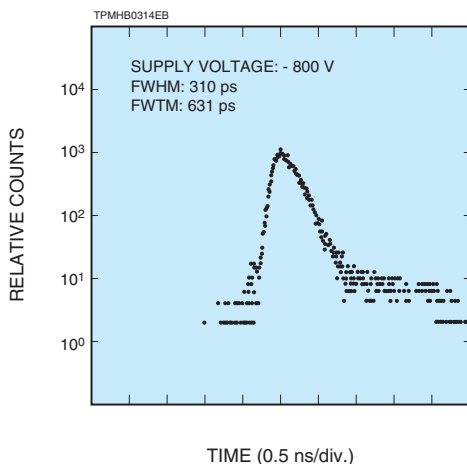


Figure 4: T.T.S. characteristic (Example)



Anode to cathode supply voltage (V)	Anode characteristics									Pulse linearity per channel		Uniformity between each anode		Type No.
	Luminous		Gain Typ.	Dark current per channel (After 30 min)		Time response			2 % deviation (mA)	5 % deviation (mA)	Typ.	Max.		
	Min. (A/lm)	Typ. (A/lm)		Typ.	Max.	Rise time (ns)	Transit time (ns)	T.T.S. (ns)						
			Typ.	Max.	Typ.	Typ.	Typ.							
-800	80	280	$3.5 \times 10^6$									1: 2	1: 3	H8711
-800	50	210	$2.0 \times 10^6$	0.8	4	0.83	12.0	0.33	0.5	1		1: 2	1: 3	H8711-100
-800	50	270	$2.0 \times 10^6$											H8711-200
-800	50	400	$2.5 \times 10^6$											H8711-300
-800	50	250	$0.5 \times 10^6$											H8711-20
-800	20	70	$8.8 \times 10^5$											0.4

**VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE**

Electrodes	K	Dy1	Dy2	Dy3	Dy4	Dy5	...	Dy9	Dy10	Dy11	Dy12	P
Normal divider type	2	2	2	1	1	1...1		1	1	1	1	
Tapered divider type	2.4	2.4	2.4	1	1	1...1		1	1	1.2	2.4	

Supply voltage: -800 V, K: Cathode, Dy: Dynode, P: Anode

Figure 5: Pulse linearity per channel (Example)

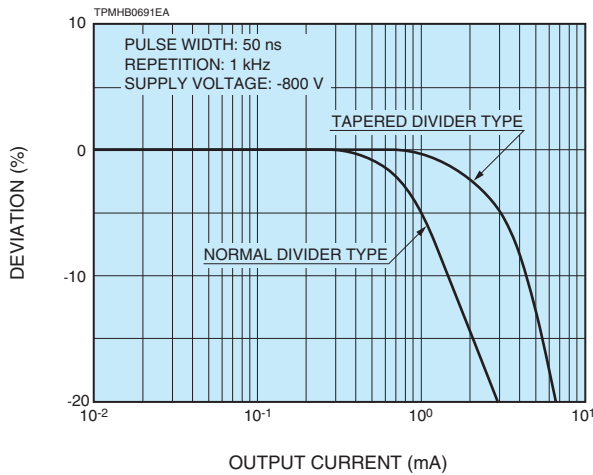


Figure 6: Anode cross-talk (Example)

0.1	0.8	0.1
0.5	100	0.3
0.1	0.3	0.1

SUPPLY VOLTAGE: -800 V  
LIGHT SOURCE: TUNGSTEN LAMP (UNIFORM DC LIGHT)  
SPOT ILLUMINATION: 4 MM × 4 MM

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Figure 7: Dimensional outline and basing diagram (Unit: mm)

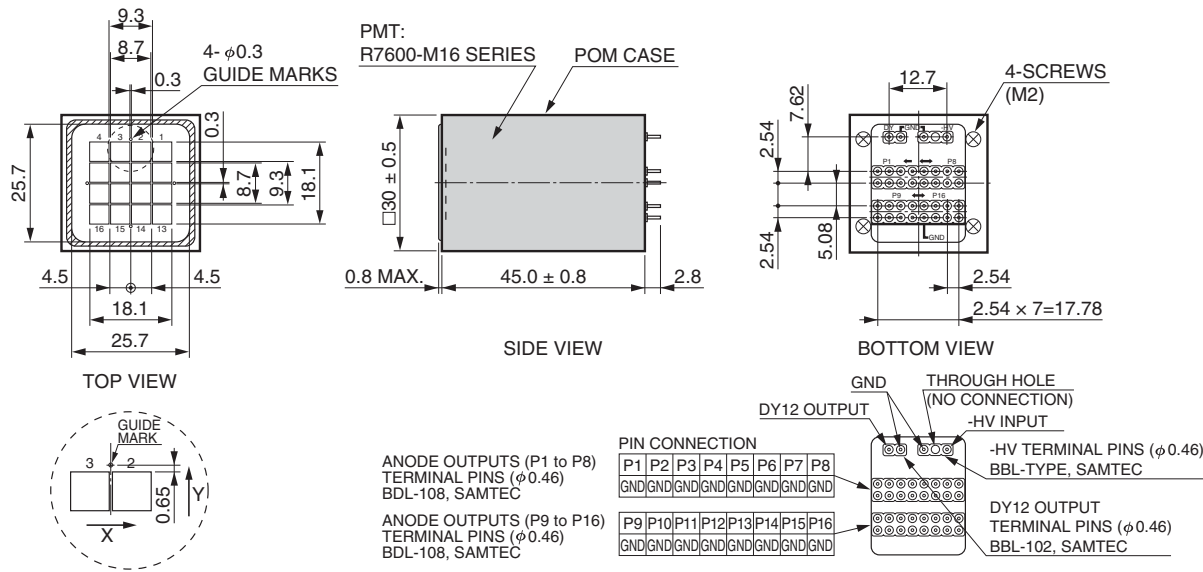
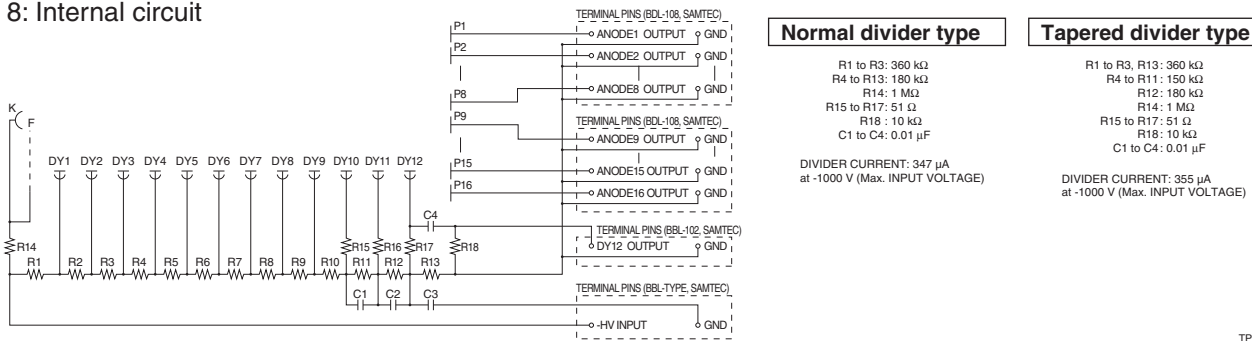
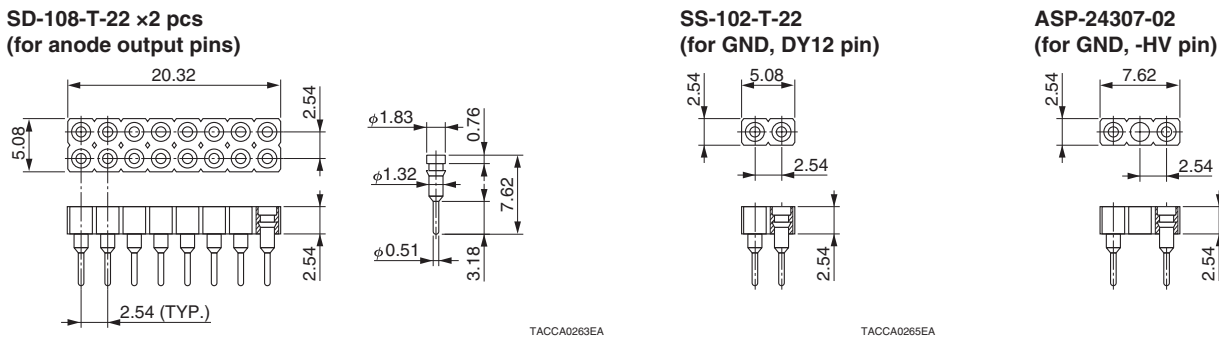


Figure 8: Internal circuit



TPMHA0497ED

Figure 9: Suitable sockets (Unit: mm) Supplied



**⚠ 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)

## HAMAMATSU PHOTONICS K.K. [www.hamamatsu.com](http://www.hamamatsu.com)

### Electron Tube Division

314-5, Shimokanzo, Iwata City, Shizuoka Pref., 438-0193, Japan, Telephone: (81)539/62-5248, Fax: (81)539/62-2205

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, NJ 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: usa@hamamatsu.com

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-265-0, Fax: (49)8152-265-8 E-mail: info@hamamatsu.de

France: Hamamatsu Photonics France S.A.R.L.: 19, 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 E-mail: info@hamamatsu.fr

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk

North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509 031 00, Fax: (46)8-509 031 01 E-mail: info@hamamatsu.se

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41 E-mail: info@hamamatsu.it

China: Hamamatsu Photonics (China) Co., Ltd.: 1201 Tower B, Jiaming Center, 27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, P.R. China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn

Taiwan: Hamamatsu Photonics Taiwan Co., Ltd.: 8F-3, No.158, Section 2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw

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