HAMAMATSU

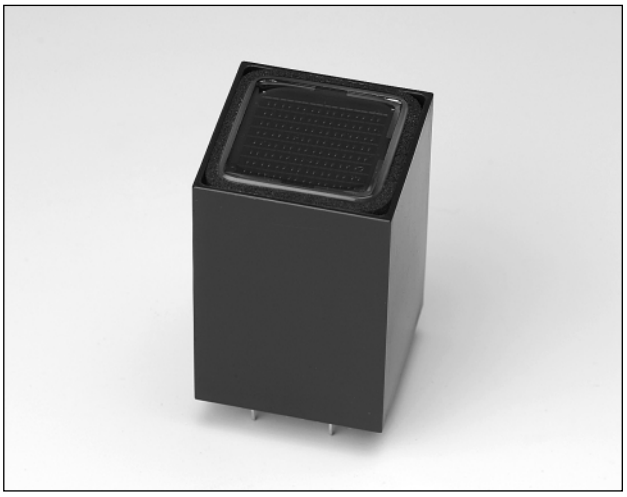
MULTIANODE PHOTOMULTIPLIER TUBE ASSEMBLY H7546A, H7546B

PATENT

8 × 8 Multianode, High Speed Response, Low Cross-talk, 30 mm Square Bialkali and Multialkali Photocathode, 12-stage, Head-on Type

FEATURES

- 8 × 8 Multianode, Anode Size: 2 mm × 2 mm / Anode
- Effective Area: 18.1 mm × 18.1 mm
- High Speed Response
- Low Cross-talk: 2 % Typ.
- High Cathode Sensitivity
  - Luminous 200 μA/lm Typ. (-01 Type)
  - Luminous 500 μA/lm Typ. (-20 Type)
- Two Configurations are Available for -HV Input (see figure 8)
  - H7546A: Cable Input Type
  - H7546B: Hard Pin Input Type
- Weight: Approx. 80 g (H7546A)
  Approx. 60 g (H7546B)

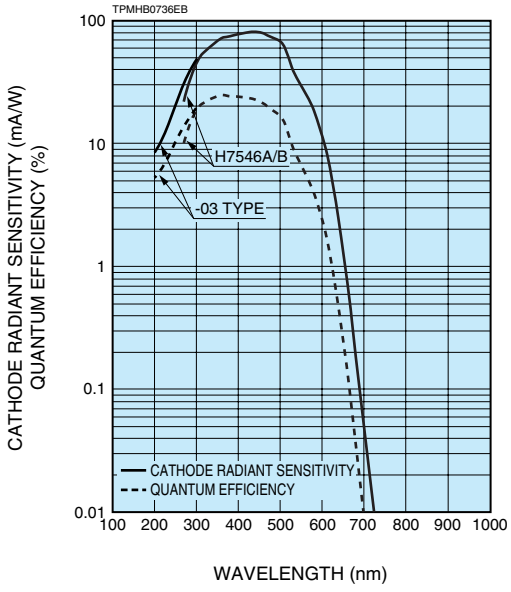


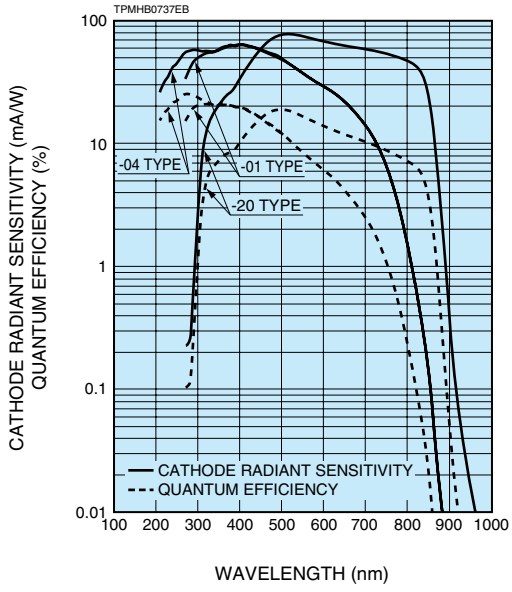
H7546B

APPLICATIONS

- High Energy Physics
- Flow Cytometer (-01, -20 Type)
- DNA Sequencer (-01, -20 Type)

Figure 1: Typical Spectral Response





MULTIANODE PHOTOMULTIPLIER TUBE ASSEMBLY H7546A, H7546B

Type No.	Spectral Response		Ⓐ	Ⓑ	Ⓒ	Maximum Ratings		Cathode Characteristics				
	Range (nm)	Peak Wavelength (nm)	Photo-cathode Material	Window Material	Dynode Structure / Stages	Supply Voltage Between Anode and Cathode (V)	Average Anode Output Current in Total (mA)	Luminous Min. (μA/lm)	Luminous Typ. (μA/lm)	Blue Sensitivity Index (CS 5-58) Typ.	Red/ White Ratio (R-68) Typ.	Radiant Typ. (mA/W)
H7546A/B	300 to 650	420	BA	K	MC/12	-1000	0.023	60	80	9.5	—	80
H7546A/B-01	300 to 880	420	MA	K	MC/12	-1000	0.023	150	200	—	0.25	65
H7546A/B-03	185 to 650	420	BA	U	MC/12	-1000	0.023	60	80	9.5	—	80
H7546A/B-04	185 to 880	420	MA	U	MC/12	-1000	0.023	150	200	—	0.2	65
H7546A/B-20	300 to 920	530	MA	K	MC/12	-1000	0.023	350	500	—	0.4	78

NOTE: Ⓐ BA: Bialkali, MA: Multialkali
Ⓑ K: Borosilicate glass, U: UV glass
Ⓒ MC: Metal channel

Figure 2: Typical Gain

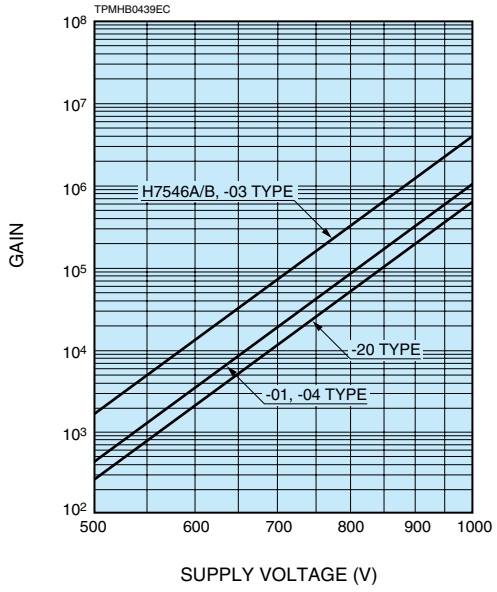


Figure 3: Time Response (Example)

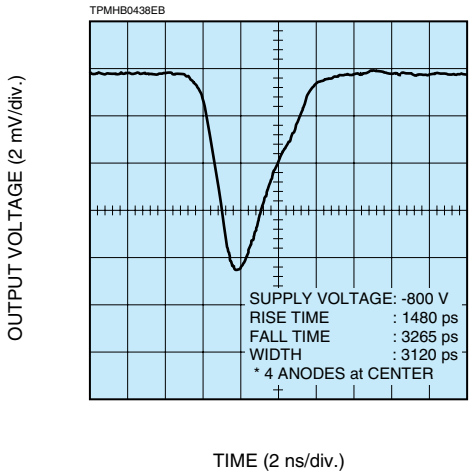


Figure 4: Single Photoelectron PHD per Channel (Example)

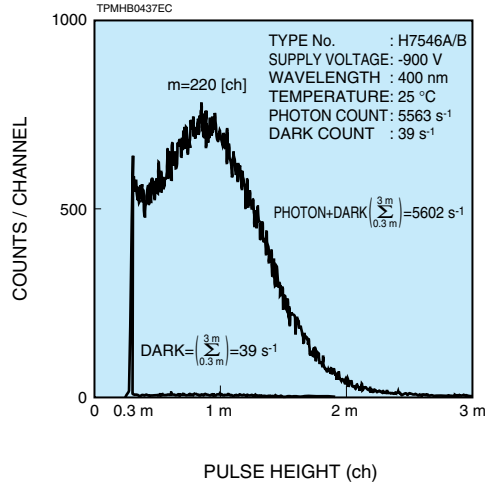


Figure 5: Anode Cross-talk (Example)

0.3	1.4	0.4
0.8	100	1.2
0.2	1.1	0.3

SUPPLY VOLTAGE: -800 V
LIGHT SOURCE: TUNGSTEN LAMP (DC LIGHT)
(with ϕ1 mm optical fiber on Photocathode)

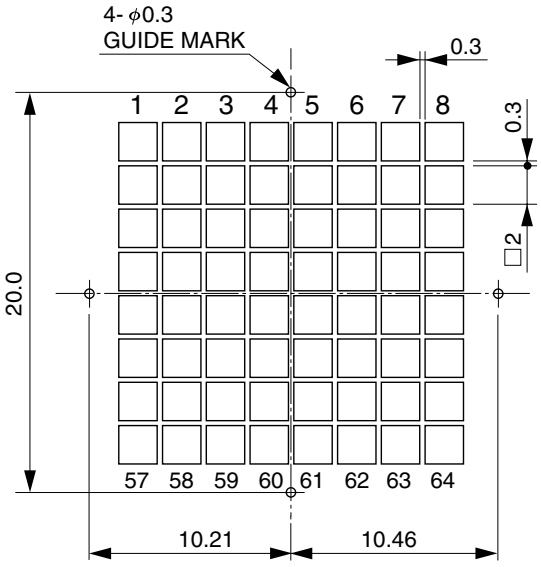
Anode to Cathode Supply Voltage (V)	Anode Characteristics									Pulse Linearity per Channel		Uniformity Between Each Anode		Type No.
	Luminous		Gain	Dark Current per Channel (After 30 min)		Time Response								
	Min. (A/lm)	Typ. (A/lm)	Typ.	Typ. (nA)	Max. (nA)	Rise Time Typ. (ns)	Transit Time Typ. (ns)	TTS Typ. (ns)		2 % Deviation (mA)	5 % Deviation (mA)	Typ.	Max.	
-800	8	24	0.3×10^6	0.2	2	1.0	12.0	0.38		0.3	0.6	1: 2.5	1: 4	**H7546A/B**
-800	5	15	0.8×10^5									1: 3	1: 5	**H7546A/B-01**
-800	8	24	0.3×10^6									1: 2.5	1: 4	**H7546A/B-03**
-800	5	15	0.8×10^5									1: 3	1: 5	**H7546A/B-04**
-800	5	25	0.5×10^5									1: 3	1: 5	**H7546A/B-20**

VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE

Electrodes	K	Dy1	Dy2	Dy3	Dy4	Dy5	···	Dy9	Dy10	Dy11	Dy12	P
Ratio	3	2	2	1	1	1 ··· 1		1	1	2	5	

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

Figure 6: Anode Matrix and Guide Mark (Unit: mm)



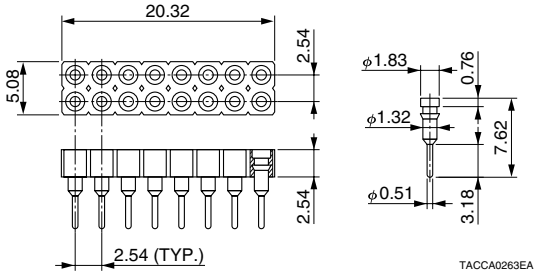
Anode Pattern

TPMHA0404ED

GUIDEMARK
The guide marks are holes of 0.3 mm in diameter on the electrode plate. They can be seen from top of the H7546 series through its photocathode. They can be used for positioning when scintillating or optical fibers are coupled to the H7546 series.

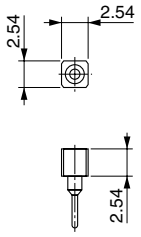
Figure 7: Suitable Sockets (Unit:mm) Supplied

SD-108-T-22 × 4 pcs
(for Anode Output Pins)



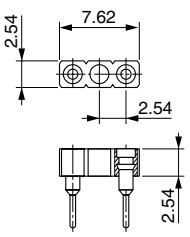
TACCA0263EA

SS-101-T-22 × 2 pcs
(for for GND, DY12 Pin)



TACCA0264EA

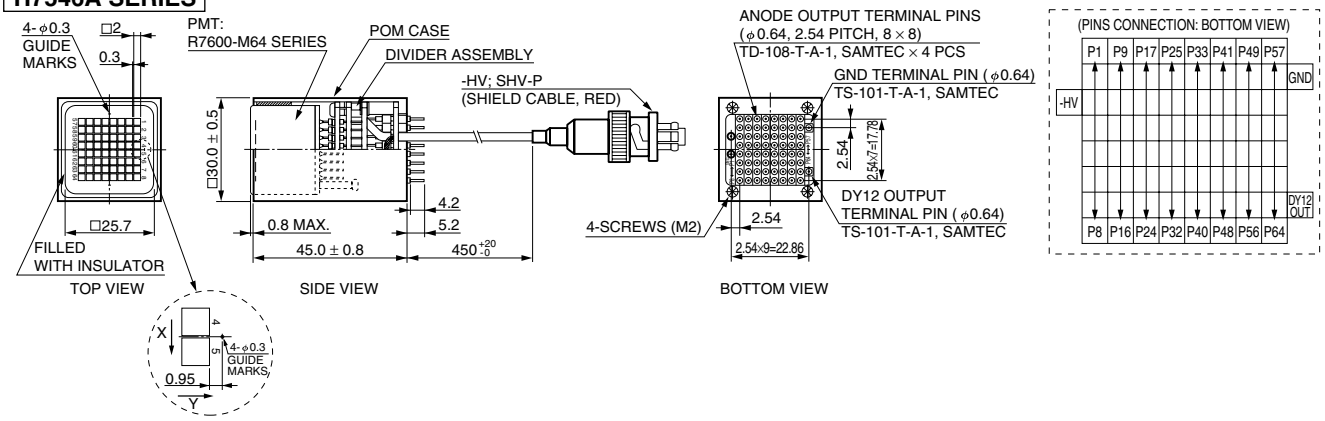
ASP-24307-02*
(for GND, -HV Pin) * H7546B Only



TACCA0266EA

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

H7546A SERIES



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H7546B SERIES

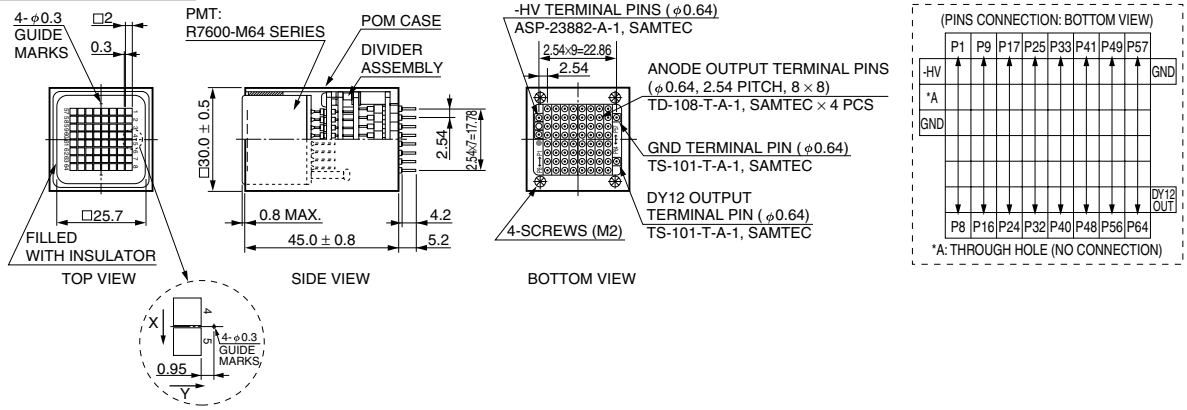

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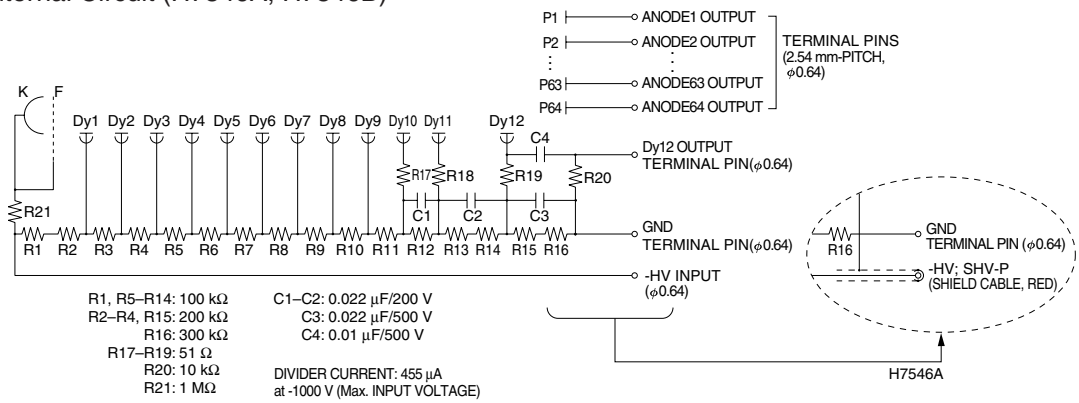
Figure 9: Internal Circuit (H7546A, H7546B)



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⚠ 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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