

FEATURES

- Wide effective area: 23 mm × 23 mm
- High speed response
- Compact
- Light weight: Approx. 31 g (R11265U series)
Approx. 74 g (H11934 series)
- With divider circuit (H11934 series)

APPLICATIONS

- High energy physics
- Scintillation counting
- Portable radiation monitor with nuclear identification



Left: R11265U series, Right: H11934 series

Figure 1: Typical spectral response

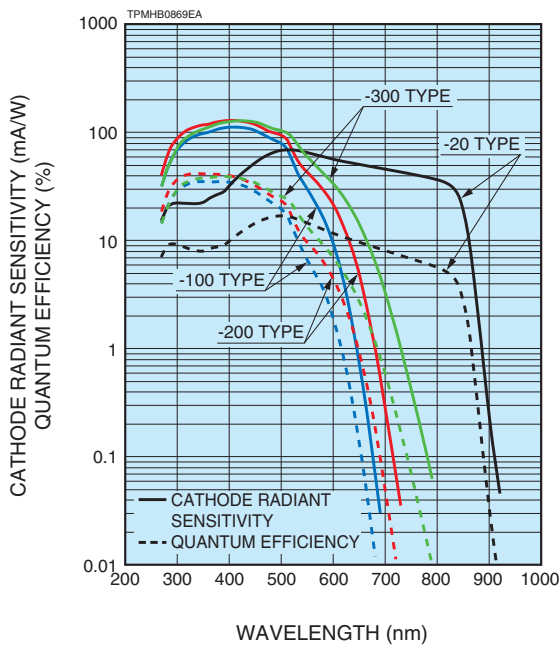
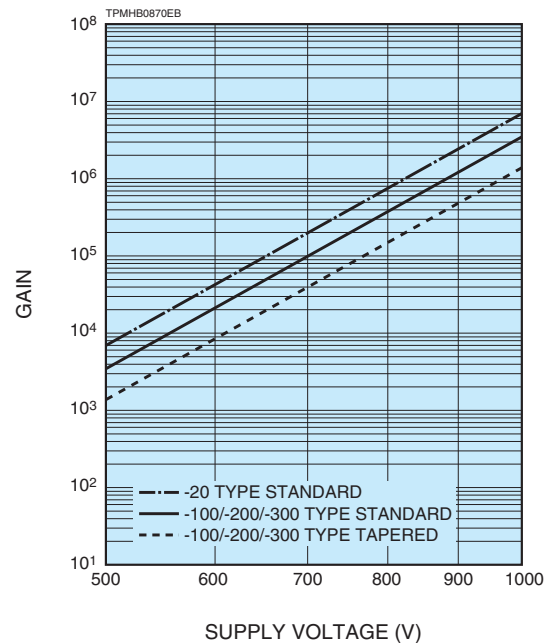


Figure 2: Typical gain



PHOTOMULTIPLIER TUBES AND PHOTOMULTIPLIER TUBE ASSEMBLIES

R11265U SERIES / H11934 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 (mA)	Luminous		Blue sensitivity index (CS 5-58) Typ.	Red/white ratio (R-68) Typ.	Quantum efficiency ^(D) Typ. (%)	Radiant ^(E) Typ. (mA/W)
								Min. (μA/lm)	Typ. (μA/lm)				
R11265U-100	300 to 650	400	SBA	K	MC/12	1000	0.1	90	105	13.5	—	35	110
R11265U-200	300 to 650	400	UBA	K	MC/12	1000	0.1	110	135	15.5	—	43	130
R11265U-300	300 to 700	420	EGBA	K	MC/12	1000	0.1	120	160	14	—	39	125
R11265U-20	300 to 920	530	ERMA	K	MC/12	1000	0.1	350	500	—	0.4	19	78
H11934-100	300 to 650	400	SBA	K	MC/12	-1000	0.018	90	105	13.5	—	35	110
H11934-200	300 to 650	400	UBA	K	MC/12	-1000	0.018	110	135	15.5	—	43	130
H11934-300	300 to 700	420	EGBA	K	MC/12	-1000	0.018	120	160	14	—	39	125
H11934-100-10	300 to 650	400	SBA	K	MC/12	-1000	0.018	90	105	13.5	—	35	110
H11934-200-10	300 to 650	400	UBA	K	MC/12	-1000	0.018	110	135	15.5	—	43	130
H11934-300-10	300 to 700	420	EGBA	K	MC/12	-1000	0.018	120	160	14	—	39	125
H11934-20	300 to 920	530	ERMA	K	MC/12	-1000	0.018	350	500	—	0.4	19	78

NOTE: (A) SBA: Super bialkali, UBA: Ultra bialkali, EGBA: Extended green bialkali, ERMA: Extended red multialkali
 (B) K: Borosilicate glass (UV glass type is available)
 (C) MC: Metal channel
 (D) Quantum efficiency is measured at the peak sensitivity wavelength (-100/-200 series: 350 nm, -300 series: 380 nm, -20 series: 500 nm).
 (E) Cathode radiant sensitivity is measured at the peak sensitivity wavelength (-100/-200 series: 400 nm, -300 series: 420 nm, -20 series: 530 nm).

Figure 3: Time response (Example)

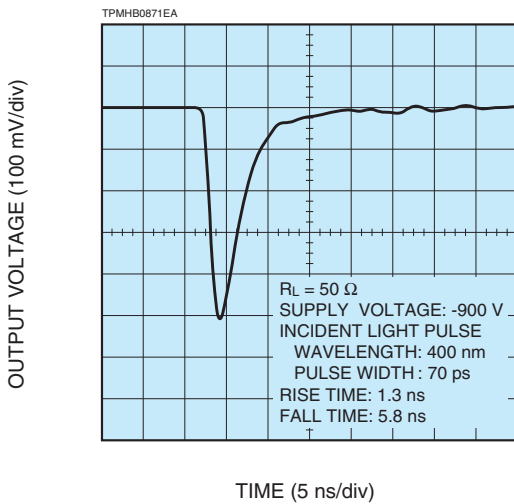


Figure 4: Single photon counting (Example)

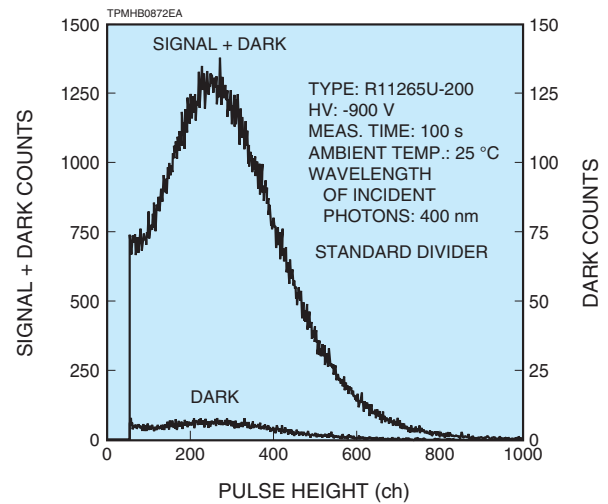
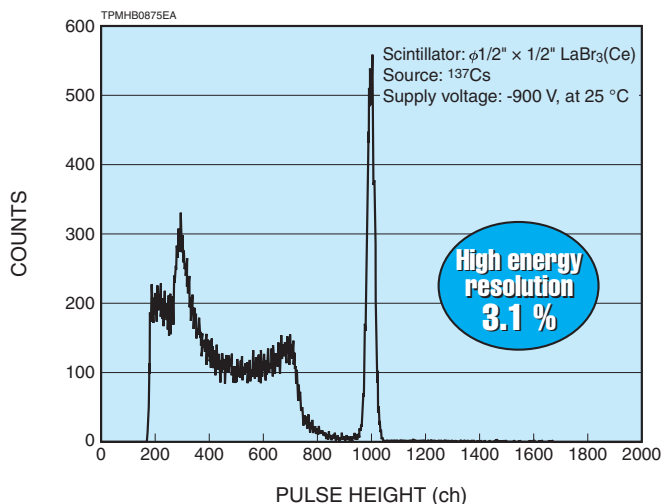


Figure 5: Energy resolution



Typical energy resolution for metal package PMTs
 R11265U-200
⁵⁷Co : 7.4 %
¹³⁷Cs : 3.1 %
 Scintillator: φ1/2" LaBr₃(Ce)

Anode to cathode supply voltage (V)	Anode characteristics										Operating ambient temperature (°C)	Storage temperature (°C)	Type No.
	Luminous		Gain Typ.	Dark current (After 30 min)		Time response			Pulse linearity				
	Min. (A/lm)	Typ. (A/lm)		Typ. (nA)	Max. (nA)	Rise time Typ. (ns)	Transit time Typ. (ns)	T.T.S. Typ. (ns)	±2 % Deviation (mA)	±5 % Deviation (mA)			
	(20)	(50)	(4.8 × 10 ⁵)										
900	50	130	1.2 × 10 ⁶	2	20	1.3	5.8	0.27 (0.27)	20 (300)	60 (400)	-30 to +50	-30 to +50	R11265U-100
900	50	160	1.2 × 10 ⁶	2	20								R11265U-200
900	50	190	1.2 × 10 ⁶	2	20								R11265U-300
900	250	1200	2.4 × 10 ⁶	30	200			R11265U-20					
-900	50	130	1.2 × 10 ⁶	2	20			H11934-100					
-900	50	160	1.2 × 10 ⁶	2	20			H11934-200					
-900	50	190	1.2 × 10 ⁶	2	20			H11934-300					
-900	(20)	(50)	(4.8 × 10 ⁵)	2	20			0 to +50	-15 to +50	H11934-100-10			
-900	(20)	(65)	(4.8 × 10 ⁵)	2	20					H11934-200-10			
-900	(20)	(75)	(4.8 × 10 ⁵)	2	20					H11934-300-10			
-900	250	1200	2.4 × 10 ⁶	30	200					H11934-20			

(): Measured with the special voltage distribution ratio (Tapered Divider) shown below.

VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE

Electrodes	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	Dy11	Dy12	P
Standard divider type	2.5	1.3	0.8	0.8	1	1	1	1	1	1	1	1	1	0.5
Tapered divider type	3.3	1.6	1	1	1	1	1	1	1	1	1	1	2.7	1.3

Supply voltage: 900 V, K: Cathode, Dy: Dynode, P: Anode

Figure 6: T.T.S. characteristic (Example)

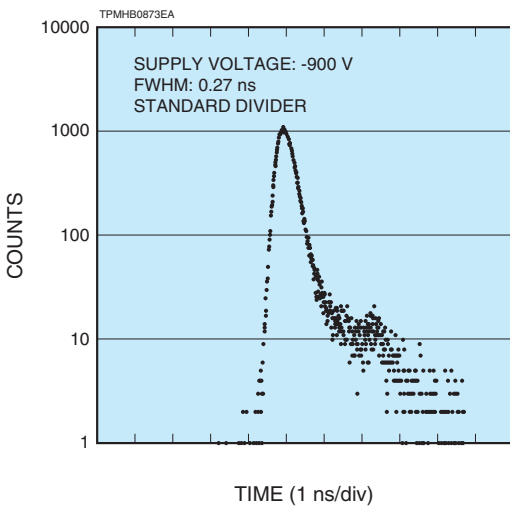


Figure 7: Effect of magnetic fields on anode output (Example)

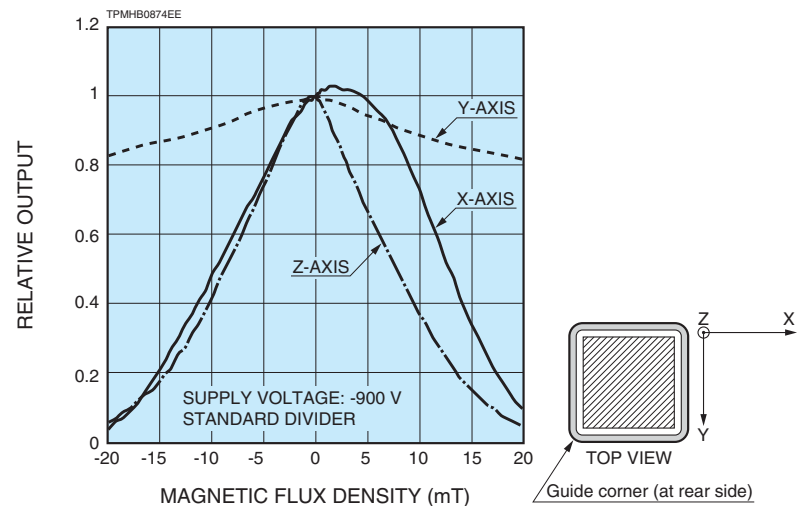
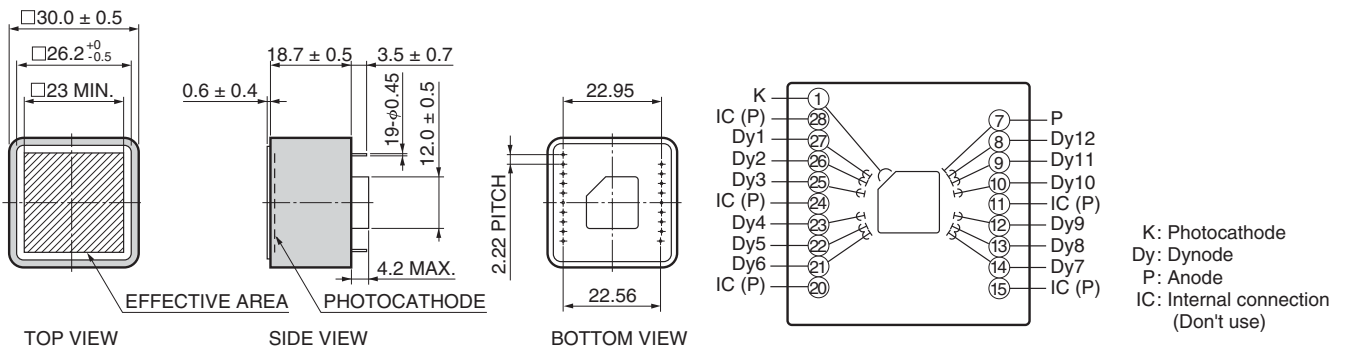


Figure 8: Dimensional outline and basing diagram (Unit: mm)

● R11265U series

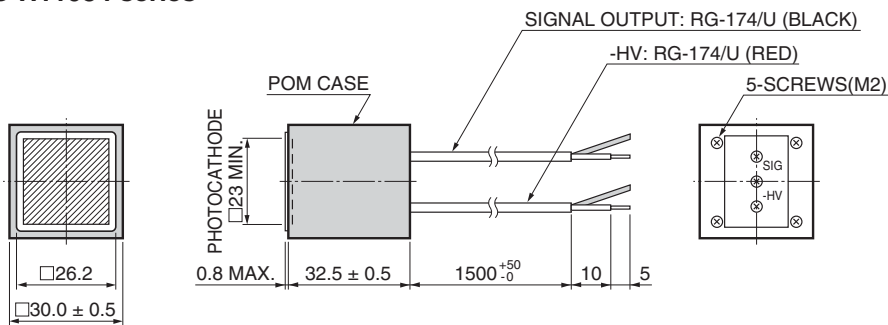


PHOTOMULTIPLIER TUBES AND PHOTOMULTIPLIER TUBE ASSEMBLIES

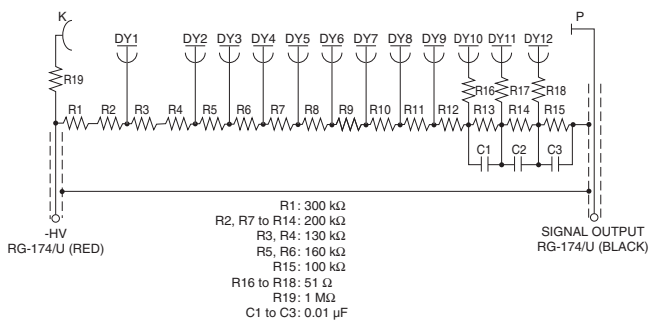
R11265U SERIES / H11934 SERIES

Figure 9: Dimensional outline and circuit diagram (Unit: mm)

● H11934 series

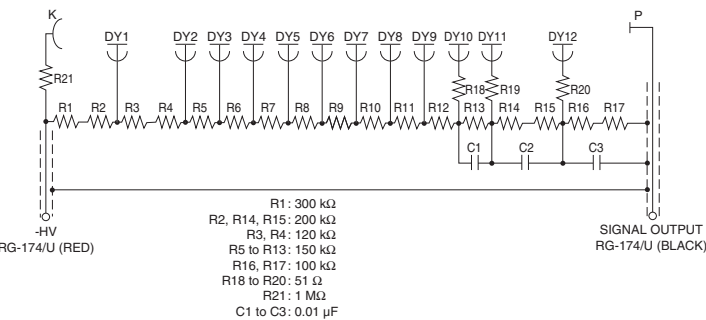


H11934-100/200/300/20



NOTE: DIVIDER RATIO=2.5: 1.3: 0.8: 0.8: 1: 1:1: 0.5
 TOTAL RESISTANCE=2.78 MΩ, DIVIDER CURRENT=359.7 μA at -1000 V (MAX.)

H11934-100-10/200-10/300-10

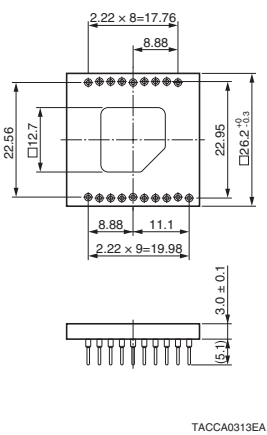


NOTE: DIVIDER RATIO=3.3: 1.6: 1: 1:1: 2.7: 1.3
 TOTAL RESISTANCE=2.69 MΩ, DIVIDER CURRENT=371.7 μA at -1000 V (MAX.)

TPMHA0586EA

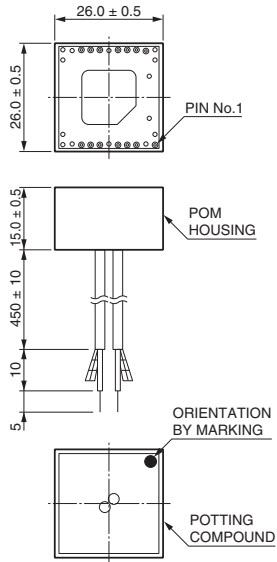
[ACCESSORIES] (Unit: mm) SOLD SEPARATELY

● Socket E678-19K



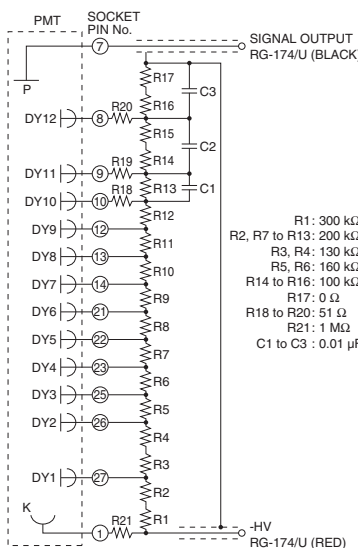
TACCA0313EA

● Socket assemblies E11807, E11807-01



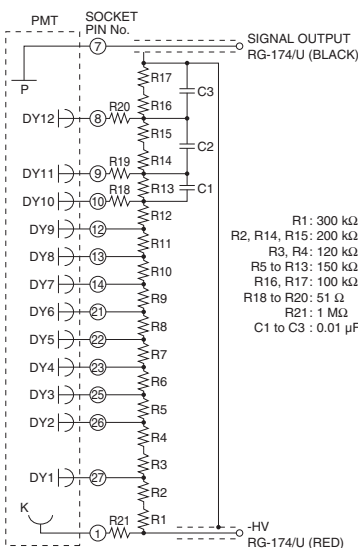
NOTE: Don't touch socket holes while high voltage is supplied in circuit.

E11807 (Standard divider type)



NOTE: DIVIDER RATIO =2.5: 1.3: 0.8: 0.8: 1: 1: 1: 0.5

E11807-01 (Tapered divider type)



NOTE: DIVIDER RATIO =3.3: 1.6: 1: 1: 1: 2.7: 1.3

TACCA0314EA

⚠ 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.

* C13890 series can be used for R11265U series / H11934 series.

HAMAMATSU PHOTONICS K.K. www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., 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)8152-375-0, 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, Jaming Center, 27 Dongsanhuan Bellu, 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, Section2, 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

TPMH1336E03
 SEPT. 2019 IP