

**FEATURES**

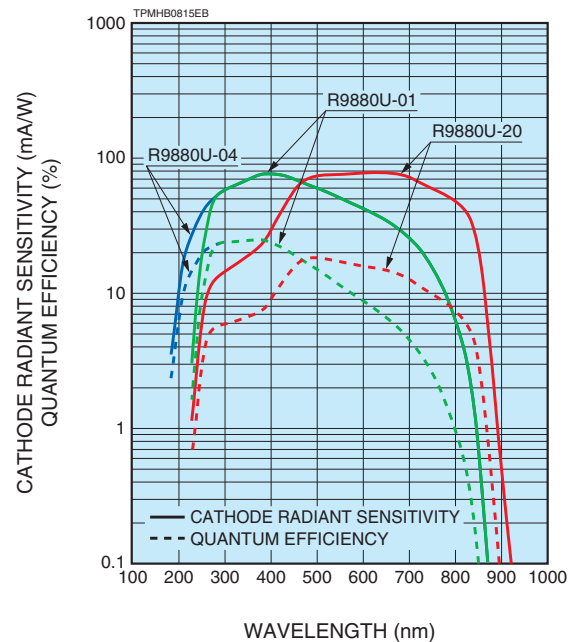
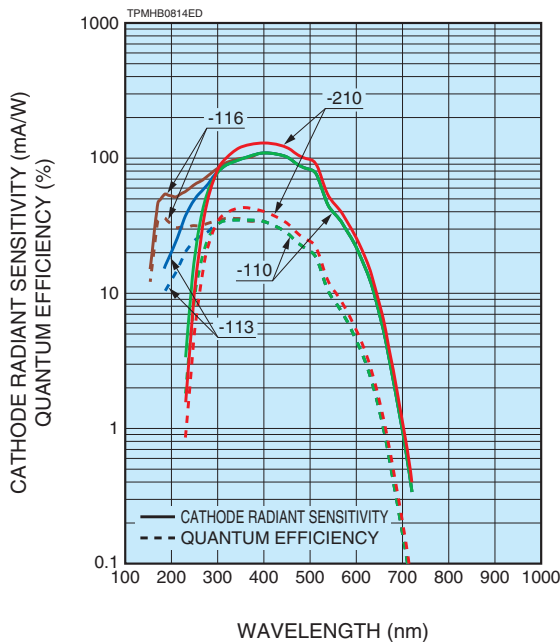
- Compact and light weight
- Metal package (TO-8 Type)
- High cathode sensitivity
- Fast time response
- High gain .....  $2 \times 10^6$  (Typ.)

**APPLICATIONS**

- Fluorescence measurement
- Radiation measurement
- Environmental monitoring
- LIDAR



Figure 1: Typical spectral response



# PHOTOMULTIPLIER TUBE R9880U 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 (CS 5-58) Typ.	Red/white ratio (R-68) Typ.	Radiant Typ. (mA/W)
								Min. (μA/lm)	Typ. (μA/lm)			
R9880U-01	230 to 870	400	MA	K	MC/10	1100	0.1	100	200	—	0.2	77
R9880U-04	185 to 870	400	MA	U				100	200	—	0.2	77
R9880U-20	230 to 920	630	MA	K				350	500	—	0.45	78
R9880U-110	230 to 700	400	SBA	K				80	105	13.5	—	110
R9880U-113	185 to 700	400	SBA	U				80	105	13.5	—	110
R9880U-116	160 to 700	400	SBA	Q				80	105	13.5	—	110
R9880U-210	230 to 700	400	UBA	K				100	135	15.5	—	130

NOTE: (A) MA: Multialkali, SBA: Super bialkali, UBA: Ultra bialkali  
 (B) K: Borosilicate glass, U: UV glass, Q: Quartz glass  
 (C) MC: Metal channel  
 (D) Measured at peak wavelength

Figure 2: Typical gain

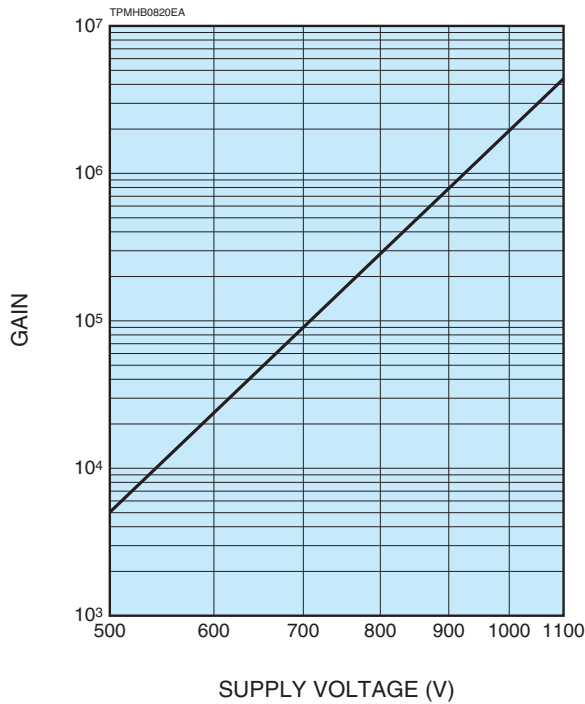


Figure 3: Anode dark current (v.s. Supply voltage)

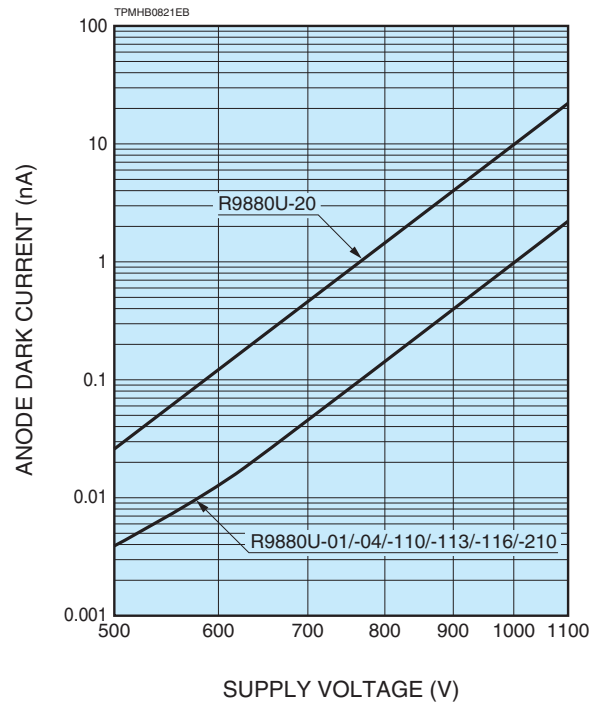
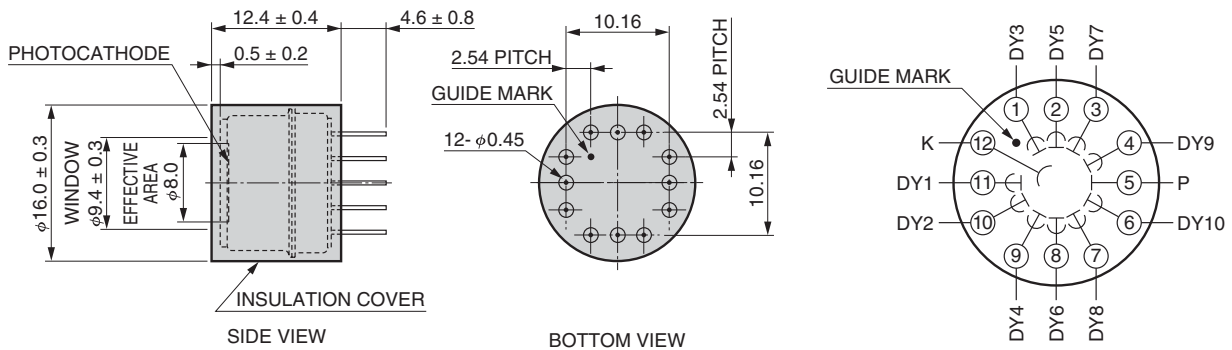


Figure 4: Dimensional outline and basing diagram (Unit: mm)

● R9880U-01/-04/-20/-110/-113/-210



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					
	Min. (A/lm)	Typ. (A/lm)		Typ. (nA)	Max. (nA)	Rise time Typ. (ns)	Transit time Typ. (ns)	T.T.S. Typ. (ns)			
1000	100	400	$2.0 \times 10^6$	1	10	0.57	2.7	0.2	-30 to +50	-30 to +50	R9880U-01
	100	400		1	10						R9880U-04
	350	1000		10	100						R9880U-20
	80	210		1	10						R9880U-110
	80	210		1	10						R9880U-113
	80	210		1	10						R9880U-116
	100	270		1	10						R9880U-210

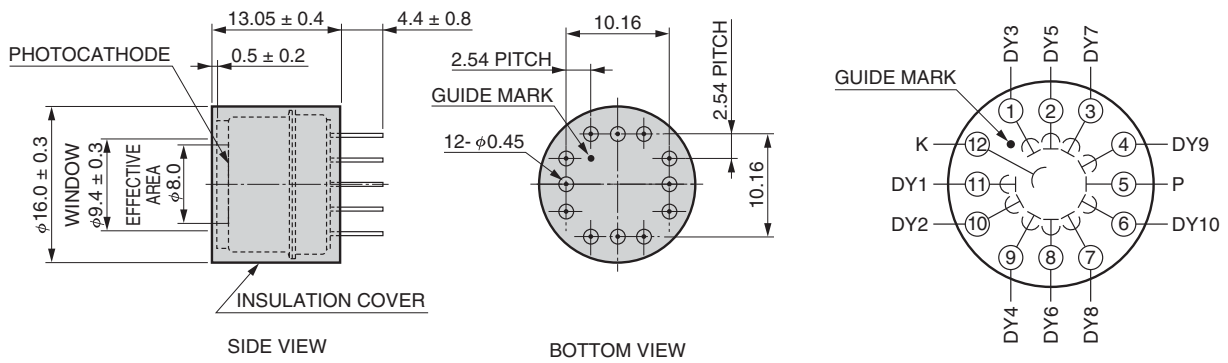
**VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE**

Electrodes	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	P
Distribution ratio	1	1	1	1	1	1	1	1	1	1	1	0.5

Supply voltage: 1000 V, K: Cathode, Dy: Dynode, P: Anode

Figure 5: Dimensional outline and basing diagram (Unit: mm)

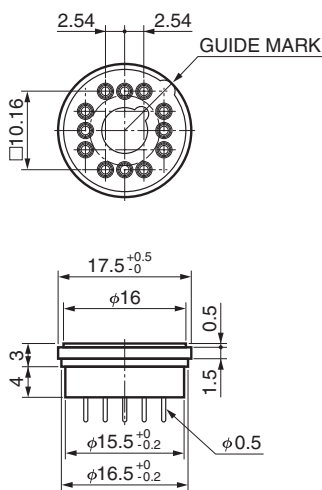
● R9880U-116



TPMHA0642EA

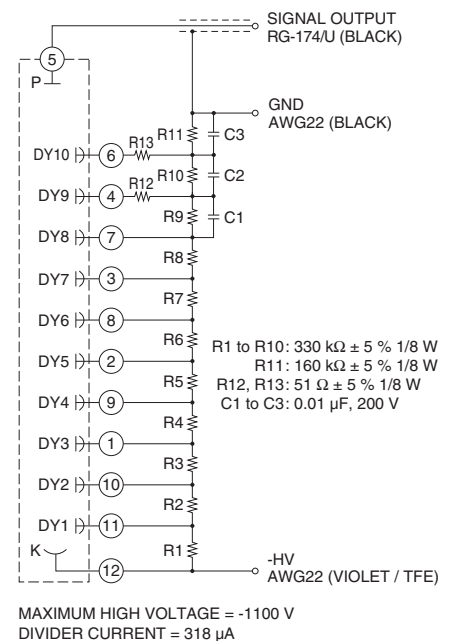
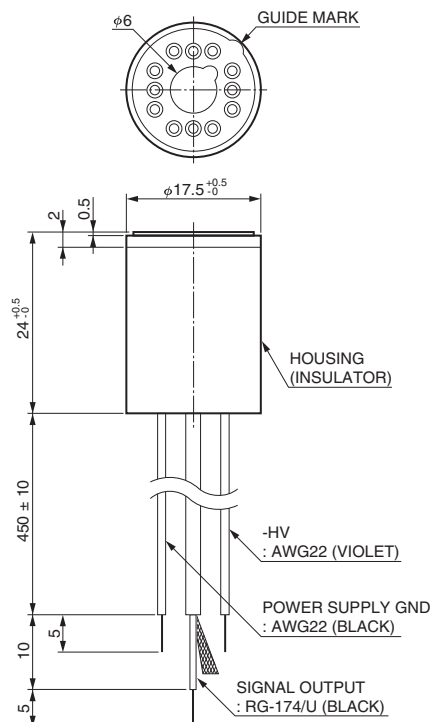
[ACCESSORIES] (Unit: mm) **SOLD SEPARATELY**

● Socket E678-12-01



TACCA0304EA

● D Type socket assembly E10679-02



\* SHV / BNC connector type (E10679-03) and pin type (E10679-51) are also available.

TACCA0299EC

TACCO165EA

# PHOTOMULTIPLIER TUBE R9880U SERIES

## WARNING: HIGH VOLTAGE



The metal package photomultiplier tubes are operated by applying a high voltage. Use extreme caution to avoid electrical shock and damage to the peripheral equipment and be sure to provide adequate safety measures as needed. As safety measures, an insulation cover is fitted to the metal package which is electrically connected to the photocathode. When operated with the cathode at a high voltage (anode ground scheme), the metal package will be at this same high voltage level. Removing the insulation cover is extremely dangerous, so never attempt to remove it from the package.

## RELATED PRODUCTS

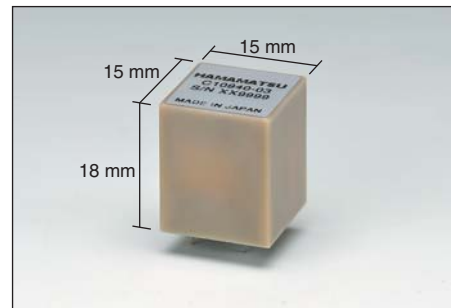
### HIGH VOLTAGE POWER SUPPLY C10940 SERIES

The C10940 series is an on-board type high voltage power supply module designed to provide both "compactness" and "high performance".

The newly developed circuit achieved high performance and low power consumption in spite of operating at low input voltage.

The C10940-03 is designed for negative output, and the C10940-53 is designed for positive output.

When the C10940 series has a suffix "R2", it means controllable by RS-485.



### PHOTOMULTIPLIER TUBE ASSEMBLY H13175U SERIES

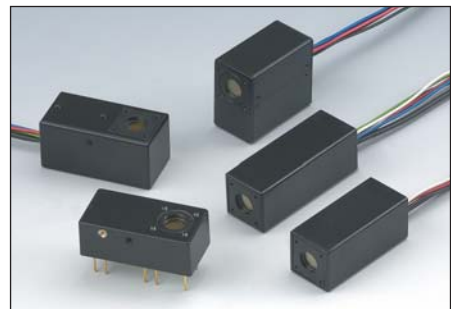
Photomultiplier tube assembly integrating a R9880U series photomultiplier tube and a voltage divider circuit.

Compared to the combination of the currently available R9880U series and E10679-51 (D-type socket assembly), the overall length of the H13175U is shortened by approximately 8 mm. This helps downsize the equipment and also improves the degree of freedom in design.



### PHOTOSENSOR MODULES H10720/H10721/H10722/H10723 SERIES PHOTON COUNTING HEAD H10682 SERIES

The H10720/H10721/H10722/H10723 series are new photosensor modules containing a metal package photomultiplier tube and a high voltage power supply circuit. These photosensor modules operate from a low voltage supply (+5 V: H10720/H10721 series, ±5 V: H10722/H10723 series) and offer features such as high sensitivity, wide dynamic range, and fast response.



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

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