

## FEATURES

- Compact size
- For scintillation counting
- For photon counting: R1924P
- High reliability for shock and vibration

## APPLICATIONS

- Radiation measurement
- Low level light detection
- Chemiluminescence measurement
- Bioluminescence measurement



Left: R1924A, Right: R1924P

## SPECIFICATIONS

### GENERAL

Parameter		Description	Unit
Spectral response		300 to 650	nm
Wavelength of maximum response		420	nm
Photocathode	Material	Bialkali	—
	Minimum effective area	φ22	mm
Window material		Borosilicate glass	—
Dynode	Structure	Circular and linear-focused	—
	Number of stages	10	—
Base		14 pin glass base	—
Suitable socket		E678-14C (supplied)	—
Operating ambient temperature		-30 to +50	°C
Storage temperature		-80 to +50 (R1924A) / -30 to +50 (R1924P)	°C

### MAXIMUM RATINGS (Absolute maximum values)

Parameter		Value	Unit
Supply voltage	Between anode and cathode	1250	V
	Between anode and last dynode	250	V
Average anode current		0.1	mA

### CHARACTERISTICS (at 25 °C)

Parameter		Min.	Typ.	Max.	Unit
Cathode sensitivity	Luminous (2856 K)	60	90	—	μA/lm
	Quantum efficiency at 420 nm	—	26	—	%
	Blue sensitivity index	9.0	10.5	—	—
Anode sensitivity	Luminous (2856 K)	40 / 90 <sup>(A)</sup>	180	—	A/lm
Gain		— / 1.5 × 10 <sup>6</sup> <sup>(A)</sup>	2.0 × 10 <sup>6</sup>	—	—
Anode dark current (after 30 min storage in darkness)		—	3.0 / 0.5 <sup>(A)</sup>	20 / 10 <sup>(A)</sup>	nA
Anode dark count <sup>(A)</sup>		—	100	300	s <sup>-1</sup>
Time response	Anode pulse rise time	—	1.5	—	ns
	Electron transit time	—	17	—	ns

**NOTE:** <sup>(A)</sup> Photon counting type (R1924P) only  
Anode characteristics are measured with a voltage distribution ratio shown below

### STANDARD VOLTAGE DIVIDER AND SUPPLY VOLTAGE

Electrodes	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	P
Ratio	3	1	1	1	1	1	1	1	1	1	1	1

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

### ENVIRONMENTAL TESTING

Shock.....1000 m/s<sup>2</sup>, 11 ms, 3 impact shocks per direction (6 directions)

Vibration.....200 m/s<sup>2</sup>, 50 Hz to 2000 Hz, 1 octave per minute, 3 sweeps per axis (3 axes)

# PHOTOMULTIPLIER TUBE R1924A/R1924P

Figure 1: Typical spectral response

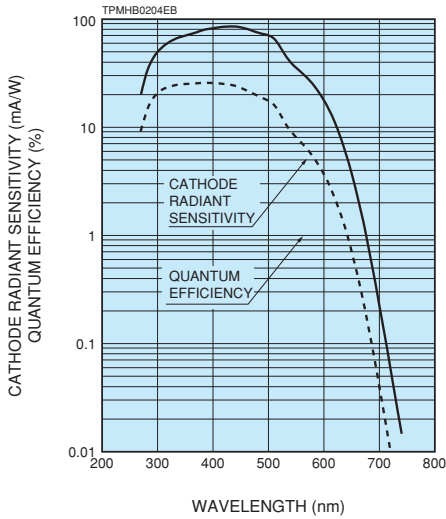


Figure 2: Typical gain and dark current characteristics

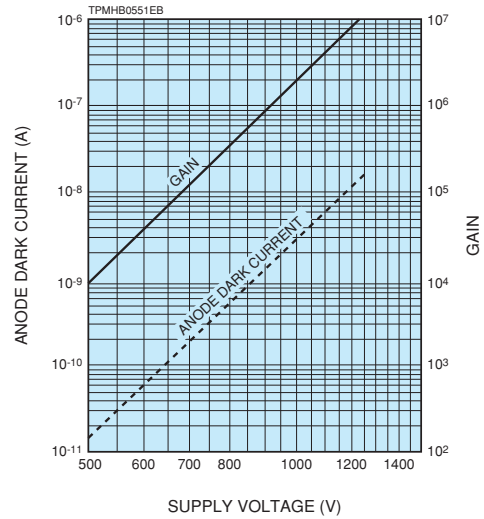


Figure 3: Dimensional outline and basing diagram (Unit: mm)

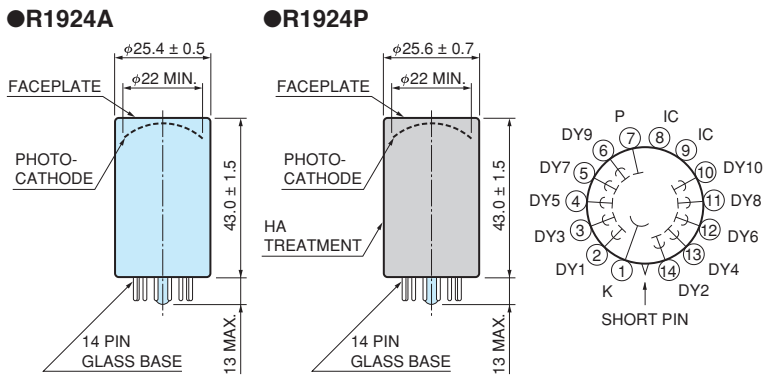
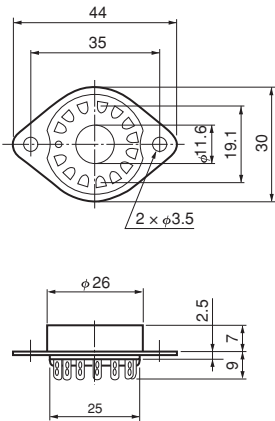
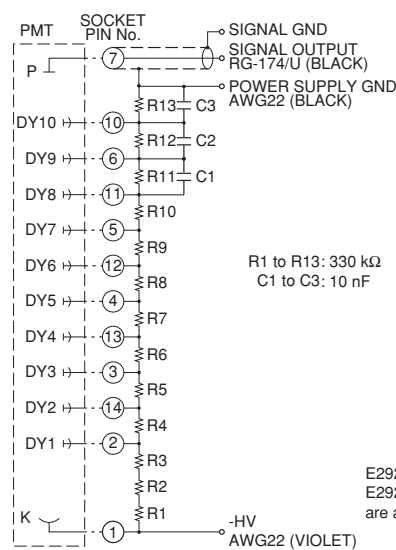
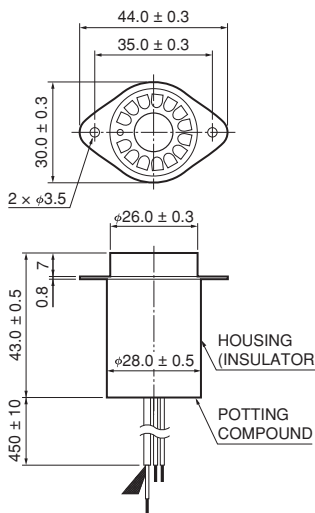


Figure 4: Accessories (Unit: mm)

### Socket E678-14C (supplied)



### D type socket assembly E2924 (sold separately)



E2924-500: SHV (-HV), BNC (SIGNAL)  
E2924-05: pulse operation only (+HV)  
are also available

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\* HAMAMATSU also provides C13890 series and C10940 series compact high voltage power supply modules.

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

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