HAMAMATSU

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PHOTOMULTIPLIER TUBES
R4998, R5320

FEATURES

- **Fast time response**
  - **Rise time: 0.7 ns**
  - **T.T.S.: 160 ps**

APPLICATIONS

- **Radiation measurement**
- **High energy physics**
- **TOF counter**

SPECIFICATIONS

GENERAL

Parameter		Description / Value	Unit
Spectral response	R4998	300 to 650	nm
	R5320	160 to 650	nm
Wavelength of maximum response		420	nm
Photocathode	Material	Bialkali	—
	Minimum effective area	ϕ20	mm
Window material	R4998	Borosilicate glass	—
	R5320	Silica glass	—
Dynode	Structure	Linear focused	—
	Number of stages	10	—
Base		12-pin base JEDEC No. B12-43	—
Operating ambient temperature		-30 to +50	—
Storage temperature		-80 to +50	°C
Suitable socket		E678-12A (supplied)	°C

MAXIMUM RATINGS (Absolute maximum values)

Parameter		Value	Unit
Supply voltage	Between anode and cathode	2500	V
Average anode current		0.1	mA

CHARACTERISTICS (at 25 °C)

Parameter		Min.	Typ.	Max.	Unit
Cathode sensitivity	Luminous (2856 K)	60	80	—	μA/lm
	Blue sensitivity index (CS 5-58)	—	9.5	—	—
Anode sensitivity	Luminous (2856 K)	100	400	—	A/lm
Gain		—	5.0×10^6	—	—
Anode dark current (after 30 min storage in darkness)		—	10	200	nA
Time response	Anode pulse rise time	—	0.7	—	ns
	Electron transit time	—	10	—	ns
	Transit time spread (FWHM)	—	160	—	ps

NOTE: Anode characteristics are measured with the voltage distribution ratio shown below.

VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE

Electrodes	K	G	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7(Acc)	Dy8	Dy9	Dy10	P
Ratio	1.3	4.8	1.2	1.8	1	1	1	1	1	1.5	3	2.5	

Supply voltage: 2250 V, K: Cathode, Dy: Dynode, P: Anode, G: Grid, Acc: Accelerating electrode

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Figure 1: Typical spectral response

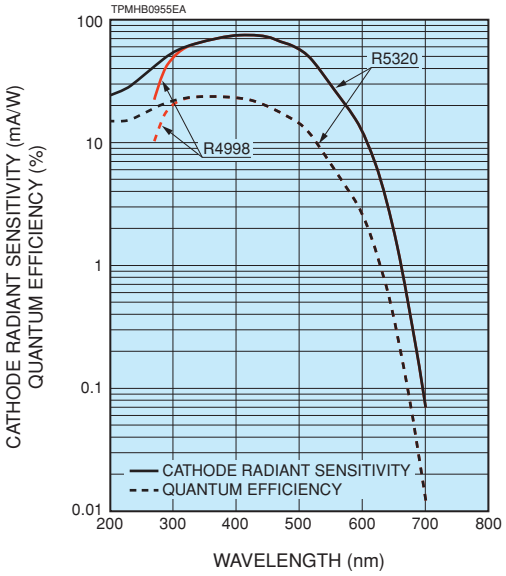


Figure 2: Typical gain characteristics

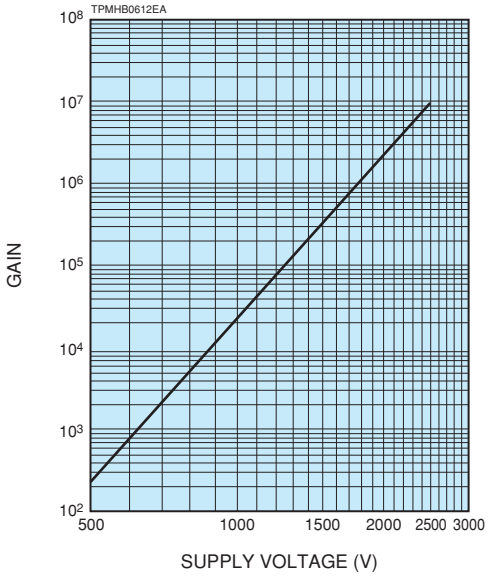
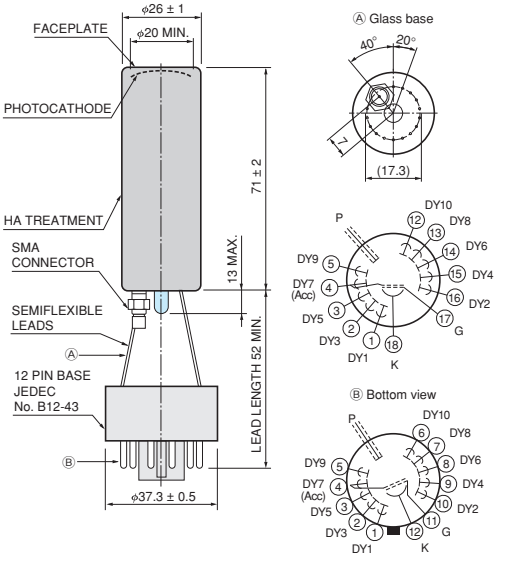
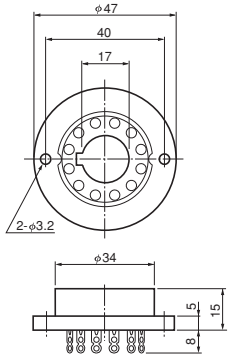


Figure 3: Dimensional outline and basing diagram (Unit: mm)

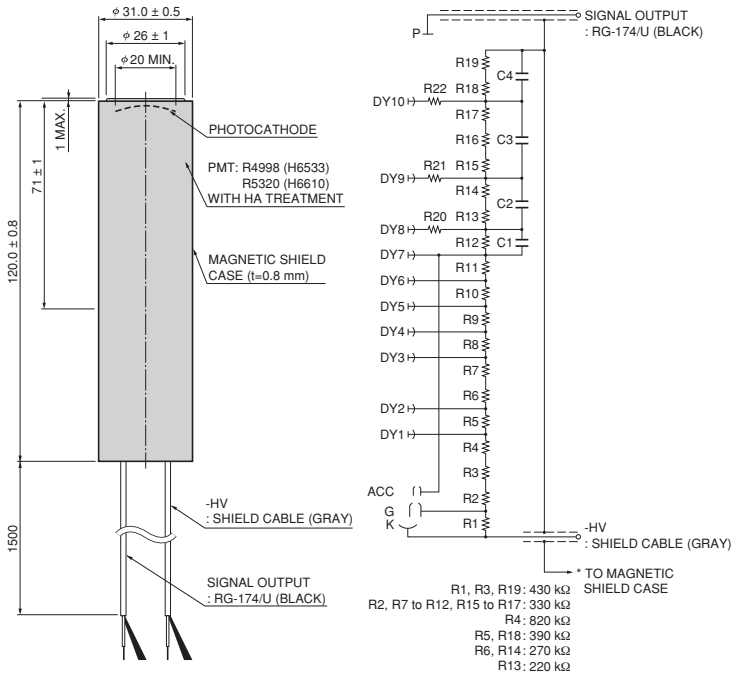


Socket (E678-12A)



RELATED PRODUCTS

PHOTOMULTIPLIER TUBE ASSEMBLY H6533 / H6610



* MAGNETIC SHIELD IS CONNECTED TO GND INSIDE OF THIS PRODUCT.
** HIGH VOLTAGE SHIELDED CABLE CAN BE CONNECTED TO A CONNECTOR FOR RG-174/U.

TPMHA0317EC

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