

HAMAMATSU

PHOTOMULTIPLIER TUBE R2228

**For Visible to Near IR Low Light Detection
Extended Red Multialkali Photocathode
28mm(1-1/8 Inch) Diameter, 11-stage, Head-On Type**

GENERAL

Parameter		Description/Value	Unit
Spectral Response		300 to 900	nm
Wavelength of Maximum Response		600	nm
Photocathode	Material	Extended red multialkali	—
	Minimum Effective Area	25	mm dia.
Window Material		Borosilicate glass	—
Dynode	Structure	Box-and-grid	—
	Number of Stages	11	—
Direct Interelectrode Capacitances	Anode to Last Dynode	3.0	pF
	Anode to All Other Electrodes	3.5	pF
Base		14-pin glass base	—
Suitable Socket		E678-14C(supplied)	—

MAXIMUM RATINGS (Absolute Maximum Values)

Parameter		Value	Unit
Supply Voltage	Between Anode and Cathode	1500	Vdc
	Between Anode and Last Dynode	250	Vdc
Average Anode Current		0.1	mA
Ambient Temperature		-80 to +50	°C

CHARACTERISTICS (at 25°C)

Parameter		Min.	Typ.	Max.	Unit
Cathode Sensitivity	Luminous (2856K)	100	200	—	μA/lm
	Radiant at 600nm	—	40	—	mA/W
	Red/White Ratio (R-68)	—	0.3	—	—
Anode Sensitivity	Luminous (2856K)	20	150	—	A/lm
	Radiant at 600nm	—	3.0×10^4	—	A/W
Gain		—	7.5×10^5	—	—
Anode Dark Current (after 30min. storage in darkness)		—	8	30	nA
Time Response	Anode Pulse Rise Time	—	15	—	ns
	Electron Transit Time	—	60	—	ns

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	Dy8	Dy9	Dy10	Dy11	P
Ratio	1	—	1	1	1	1	1	1	1	1	1	1	1	1

Supply Voltage : 1000Vdc, K : Cathode, Dy : Dynode, P : Anode, G:Grid



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Figure 1: Typical Spectral Response

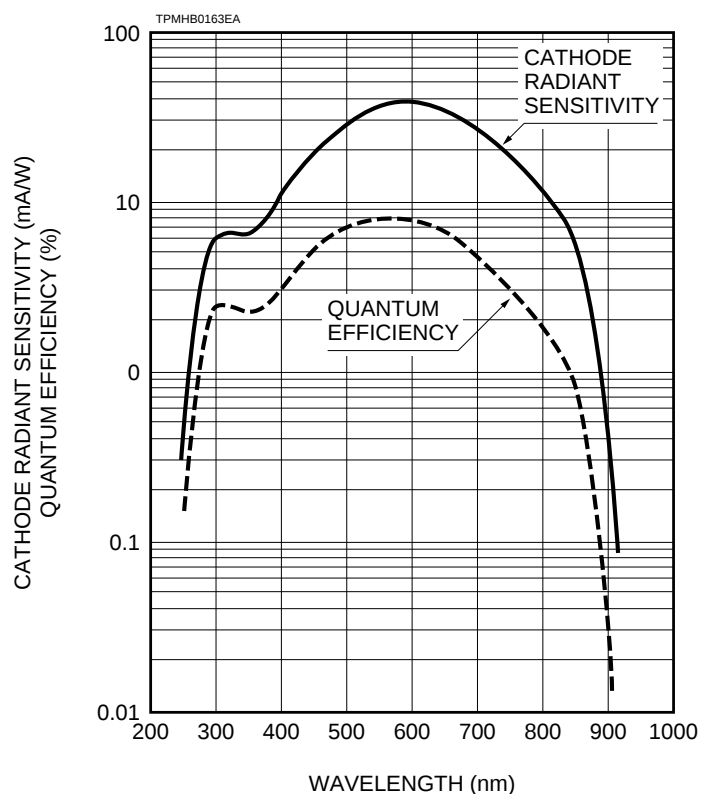
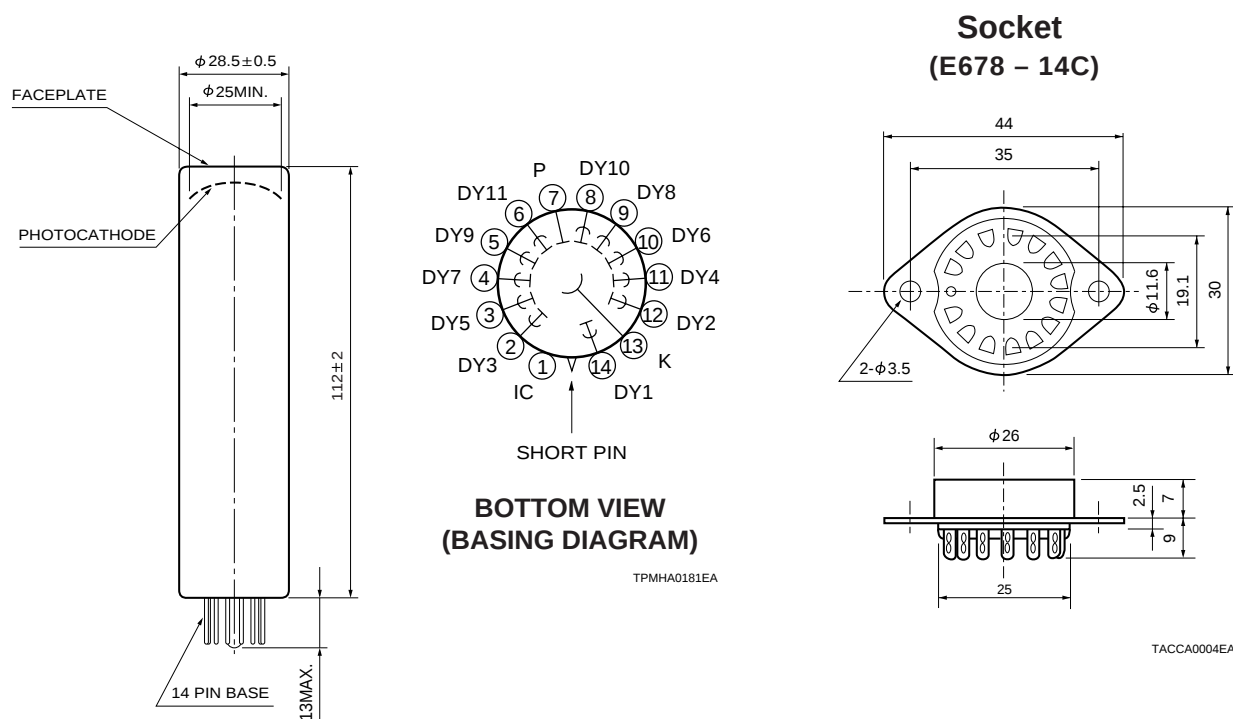


Figure 2: Dimensional Outline and Basing Diagram (Unit : mm)



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TPMH1062E01