

**For Photon Counting**  
**51 mm (2 Inch) Diameter, 12-Stage, Multialkali Photocathode, Head-On Type**

## GENERAL

Parameter		Description/Value	Unit
Spectral Response		300 to 850	nm
Wavelength of Maximum Response		420	nm
Photocathode	Material	Multialkali	—
	Minimum Effective Area	5 × 8	mm
Window Material		Borosilicate glass	—
Dynode	Structure	Box and Grid	—
	Number of Stages	12	—
Base		21-pin glass base	—
Suitable Socket		E678-21A (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		0.01	mA
Ambient Temperature		-80 to +50	°C

## CHARACTERISTICS (at 25°C)

Parameter		Min.	Typ.	Max.	Unit
Cathode Sensitivity	Luminous (2856K)	80	120	—	μA/lm
	Radiant at 420nm	—	51	—	mA/W
	Red/White Ratio (R-68)	—	0.2	—	—
Anode Sensitivity	Luminous (2856K)	100	800	—	A/lm
	Radiant at 420nm	—	3.4 × 10 <sup>5</sup>	—	A/W
Gain		—	6.7 × 10 <sup>6</sup>	—	—
Anode Dark Counts (after 30min. storage in darkness)		—	200	350	cps
Time Response	Anode Pulse Rise Time	—	13	—	ns
	Electron Transit Time	—	70	—	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	Dy12	P
Ratio	4	0	2.5	1.5	1	1	1	1	1	1	1	1	1	1	1

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

# PHOTOMULTIPLIER TUBE R649

Figure 1: Typical Spectral Response

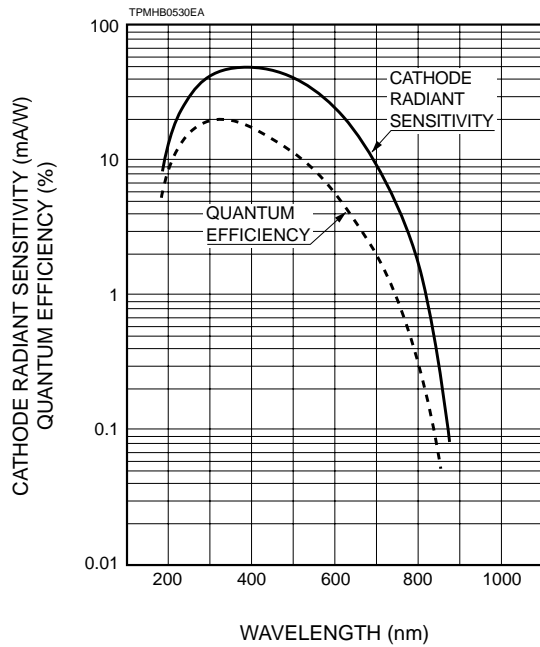


Figure 2: Typical Gain Characteristics

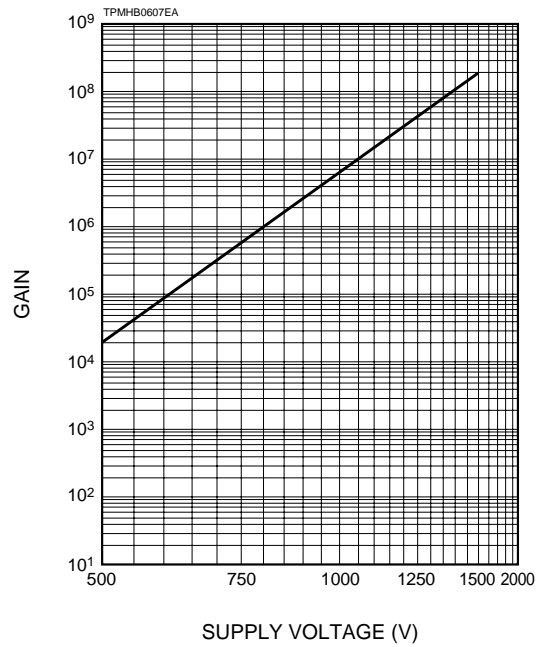
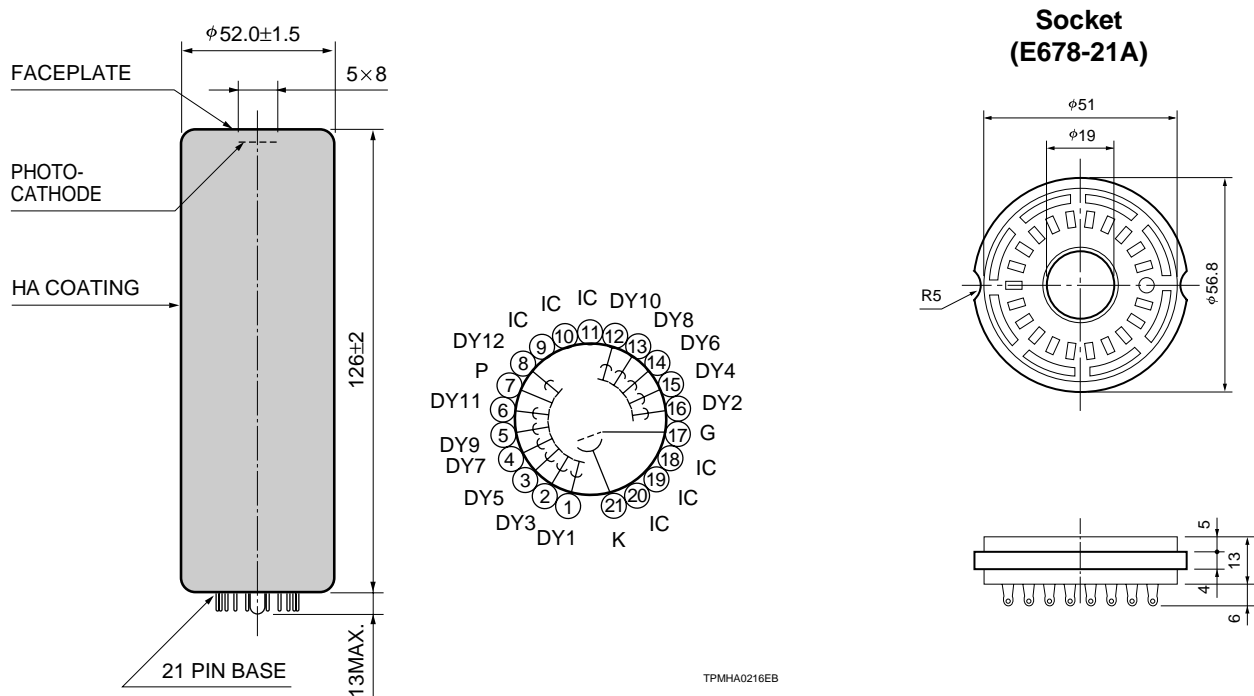


Figure 3: Dimensional Outline and Basing Diagram (Unit: mm)



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