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**Operating Instructions
for
PMT Tube
P3**

28mm (1-1/8 Inch) Transmission Mode S-1 Photocathode, Side-on Type

FEATURES

- Wide Photocathode
- High Infrared Sensitivity
- Excellent Spatial Uniformity
- Fast Time Response

APPLICATIONS

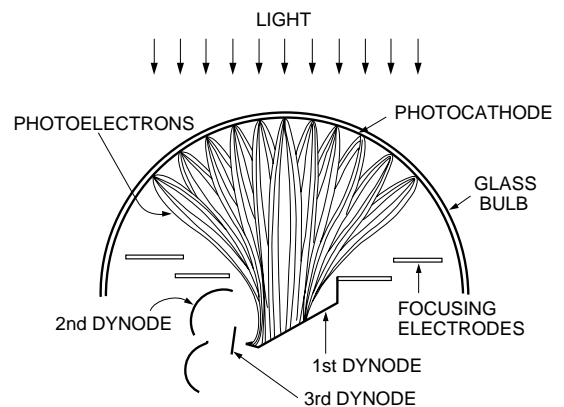
- Near Infrared Spectrophotometer
- Raman Spectrophotometer
- Photo Luminescence Measurement



GENERAL

Parameter	Description	Unit
Spectral Response	400 to 1200	nm
Wavelength of Maximum Response	800	nm
Photocathode Material	Ag-O-Cs	—
Minimum Effective Area	16(H) × 18(W)	mm
Window Material	Borosilicate glass	—
Dynode Structure	Circular-cage	—
Number of Stages	9	—
Direct Interelectrode Capacitances		
Anode to Last Dynode	1.2	pF
Anode to All Other Electrodes	3.4	pF
Base	11-pin base JEDEC No. B11-88	—
Suitable Socket	E678-11A (option)	—
Applicable Socket Assembly	E717-21 (option)	—

Figure 1: Electron Trajectories



TPMSC0003EB

PHOTOMULTIPLIER TUBE R5108

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 ^A	0.1	mA

CHARACTERISTICS (at 25°C)

Parameter	Min.	Typ.	Max.	Unit
Cathode Sensitivity				
Quantum Efficiency at 1060nm	—	0.04	—	%
Luminous ^B	10	25	—	$\mu\text{A/lm}$
Radiant at 800nm	—	2.2	—	mA/W
Anode Sensitivity				
Luminous ^C	3.5	7.5	—	A/lm
Gain ^C	—	3.0×10^5	—	—
Anode Dark Current ^D (after 30min. storage in the darkness)	—	350	1000	nA
Time Response				
Anode Pulse Rise Time ^E	—	1.2	—	ns
Electron Transit Time ^F	—	18	—	ns

NOTES

A: Averaged over any interval of 30 seconds maximum.

B: The light source is a tungsten filament lamp operated at a distribution temperature of 2856K. Supply voltage is 150 volts between the cathode and all other electrodes connected together as anode.

C: Measured with the same light source as Note B and with the voltage distribution ratio shown in Table 1 below.

Table 1: Voltage Distribution Ratio

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

Supply Voltage : 1250Vdc

K : Cathode, Dy : Dynode, P : Anode

D: Measured at the voltage which gives anode luminous sensitivity of 4A/lm.

E: The rise time is the time for the output pulse to rise from 10% to 90% of the peak amplitude when the entire photocathode is illuminated by a delta function light pulse.

F: The electron transit time is the interval between the arrival of delta function light pulse at the entrance window of the tube and the time when the anode output reaches the peak amplitude. In measurement, the whole photocathode is illuminated.

Figure 2: Typical Spatial Uniformity

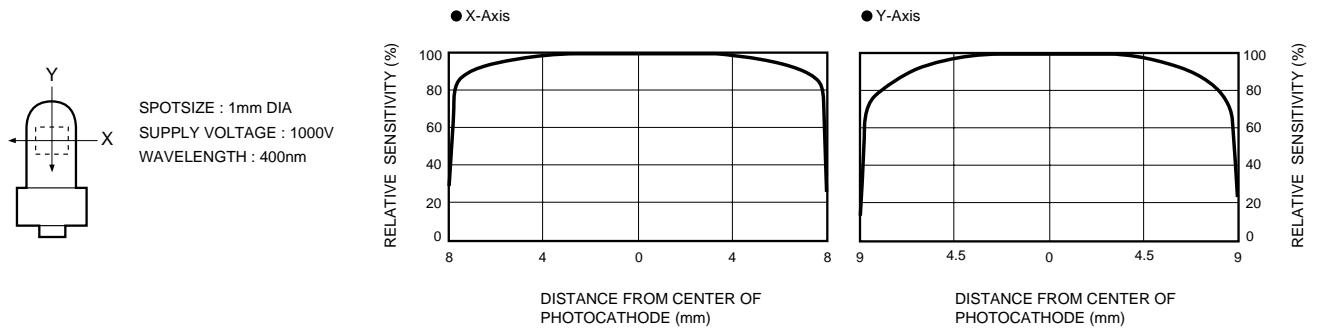


Figure 3: Typical Spectral Response

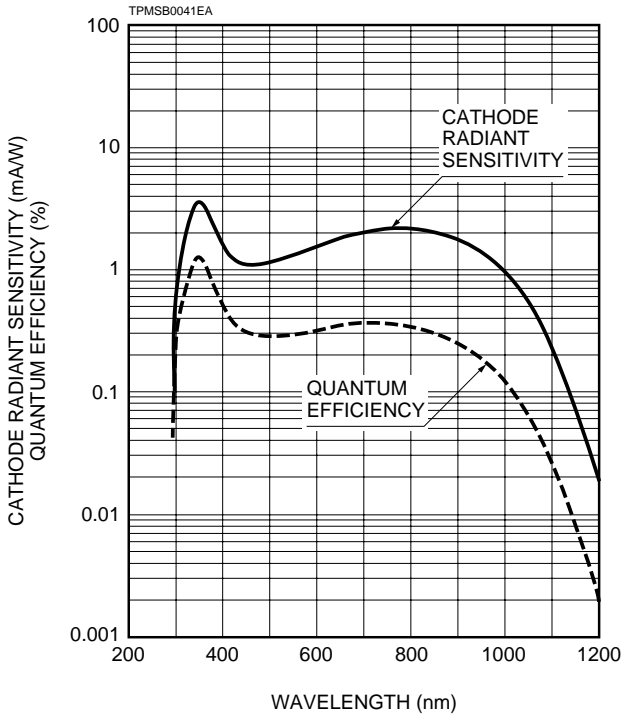


Figure 4: Typical Time Response

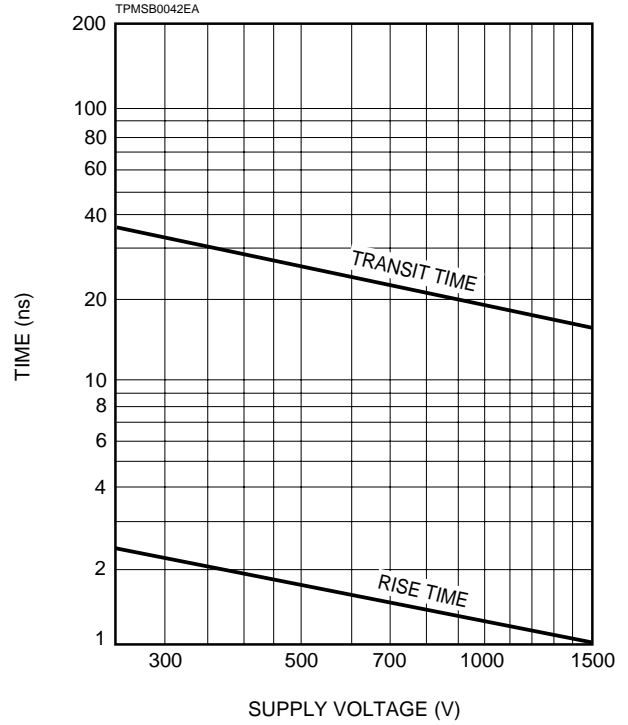


Figure 5: Typical Gain and Anode Dark Current

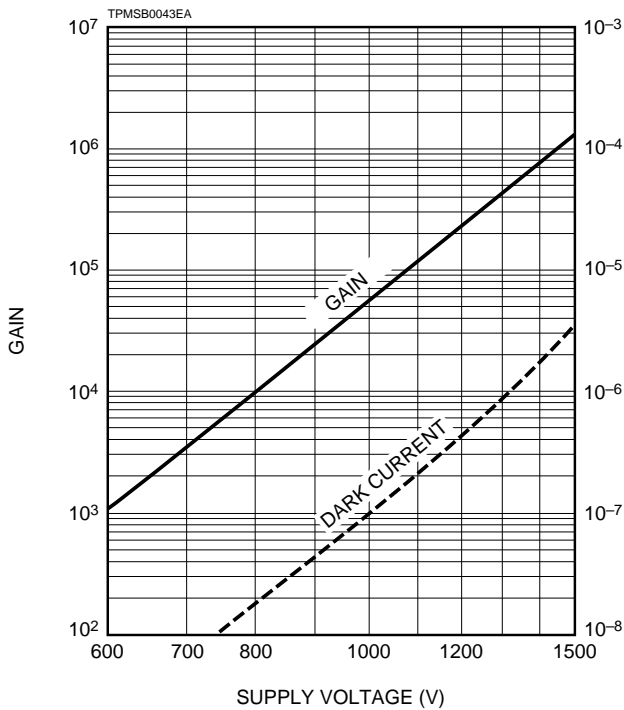
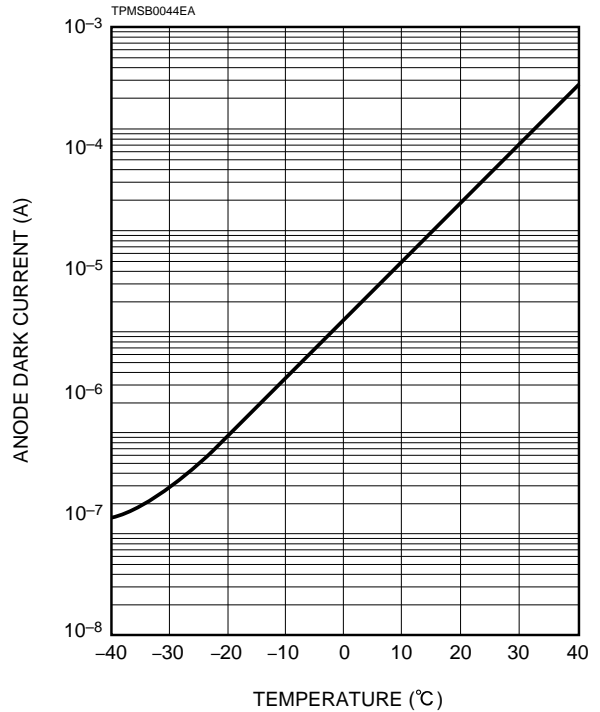
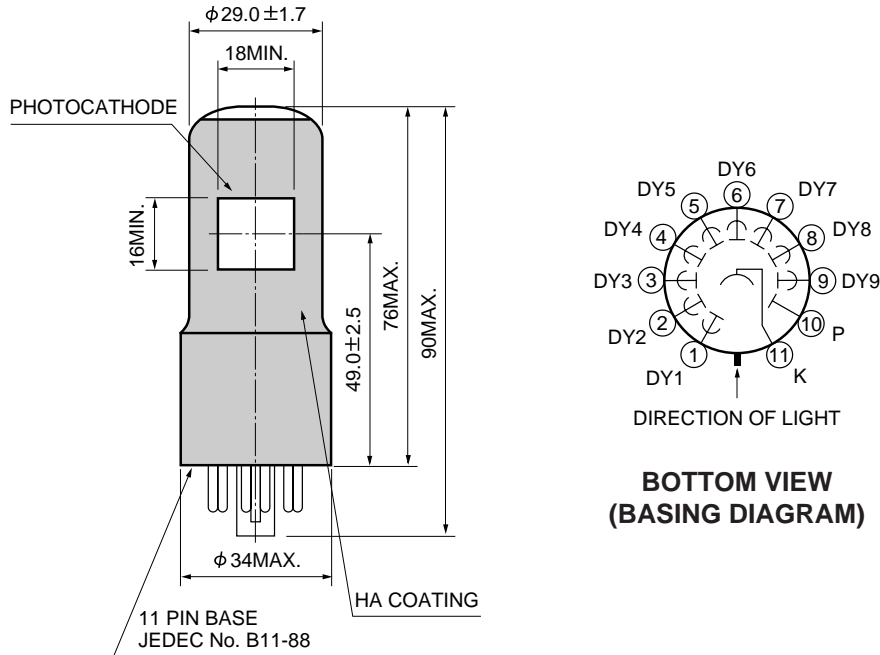


Figure 6: Typical Temperature Characteristics of Anode Dark Current (at 4A/lm)



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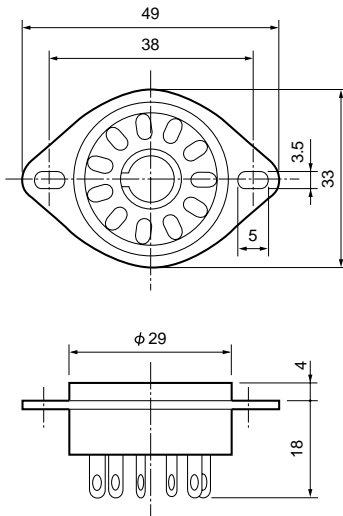
Figure 7: Dimensional Outline and Basing Diagram (Unit: mm)



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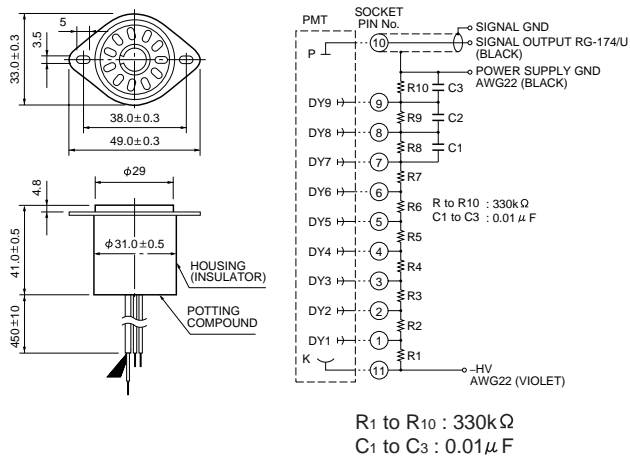
Figure 8: Optional Accessories (Unit: mm)

Socket E678-11A



TACCA0008EB

D Type Socket Assembly E717-21



R1 to R10 : 330kΩ
C1 to C3 : 0.01μF

TACCA0002ED

※Hamamatsu also provides C4900 series compact high voltage power supplies and C6270 series DP type socket assemblies which incorporate a DC to DC converter type high voltage power supply.

Warning—Personal Safety Hazards
Electrical Shock—Operating voltages applied to this device present a shock hazard.

HAMAMATSU

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