

For Vacuum Ultraviolet Light Detection  
Cs-Te (R10824), Cs-I (R10825) Photocathode, MgF<sub>2</sub> Window,  
13mm (1/2 Inch) Diameter, 9-stage, Side-on Type

## FEATURES

- Sensitivity in the Vacuum Ultraviolet Region
  - R10824..... 115 nm to 320 nm
  - R10825..... 115 nm to 195 nm
- High Quantum Efficiency (at 121.6 nm)
  - R10824..... 19.0 % (Typ.)
  - R10825..... 23.5 % (Typ.)
- High Anode Sensitivity
  - R10824 (at 254 nm).....  $2.0 \times 10^5$  A/W (Typ.)
  - R10825 (at 121.6 nm).....  $9.2 \times 10^4$  A/W (Typ.)

## APPLICATIONS

- Atomic Emission Spectrophotometer
- VUV-UV Spectrophotometer

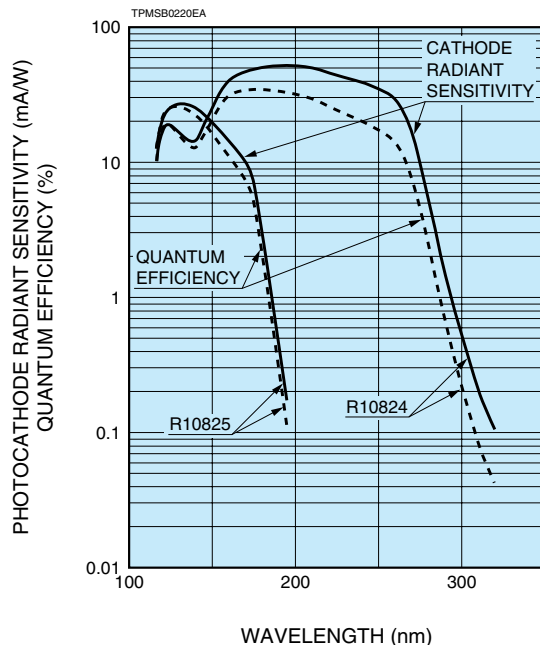


## SPECIFICATIONS

### GENERAL

Parameter		R10824	R10825	Unit
Spectral Response		115 to 320	115 to 195	nm
Wavelength of Maximum Response		200	130	nm
Photocathode Material		Cs-Te	Cs-I	—
Window Material		MgF <sub>2</sub>		—
Minimum Effective Area		4 × 9.5		mm
Dynode	Structure	Circular-cage		—
	Number of Stage	9		—
	Material	Sb-Cs		—
Direct Interelectrode Capacitances	Anode to Dynode No.9	Approx. 1.7		pF
	All Other Electrodes	Approx. 2.0		pF
Base		11-pin base		—
Weight		7.2		g
Suitable Socket for Base (supplied)		E678-11U		—

Figure 1: Typical Spectral Response



# PHOTOMULTIPLIER TUBES R10824, R10825

## MAXIMUM RATINGS (Absolute Maximum Values)

Parameter		Value	Unit
Supply Voltage	Between Anode and Cathode	1250	V
	Between Each Succeeding Electrode	150	V
Average Anode Current		0.01	mA
Ambient Temperature		-30 to +50	°C

## CHARACTERISTICS (at 25°C)

Parameter	R10824			R10825			Unit	
	Min.	Typ.	Max.	Min.	Typ.	Max.		
Cathode Sensitivity	Radiant <sup>(A)</sup>	—	33	—	—	23	mA/W	
	Quantum Efficiency at 121.6 nm	—	19.0	—	—	23.5	%	
Anode Sensitivity	Radiant at 121.6 nm	—	$1.1 \times 10^5$	—	—	$9.2 \times 10^4$	A/W	
	at 254 nm	—	$2.0 \times 10^5$	—	—	—	A/W	
Gain	—	$6.0 \times 10^6$	—	—	$4.0 \times 10^6$	—	—	
Anode Dark Current (after 30 min storage in darkness)		—	0.3	3	—	0.3	3	nA
Time Response	Anode Pulse Rise Time	—	1.4	—	—	1.4	—	ns
	Electron Transit Time	—	15	—	—	15	—	ns

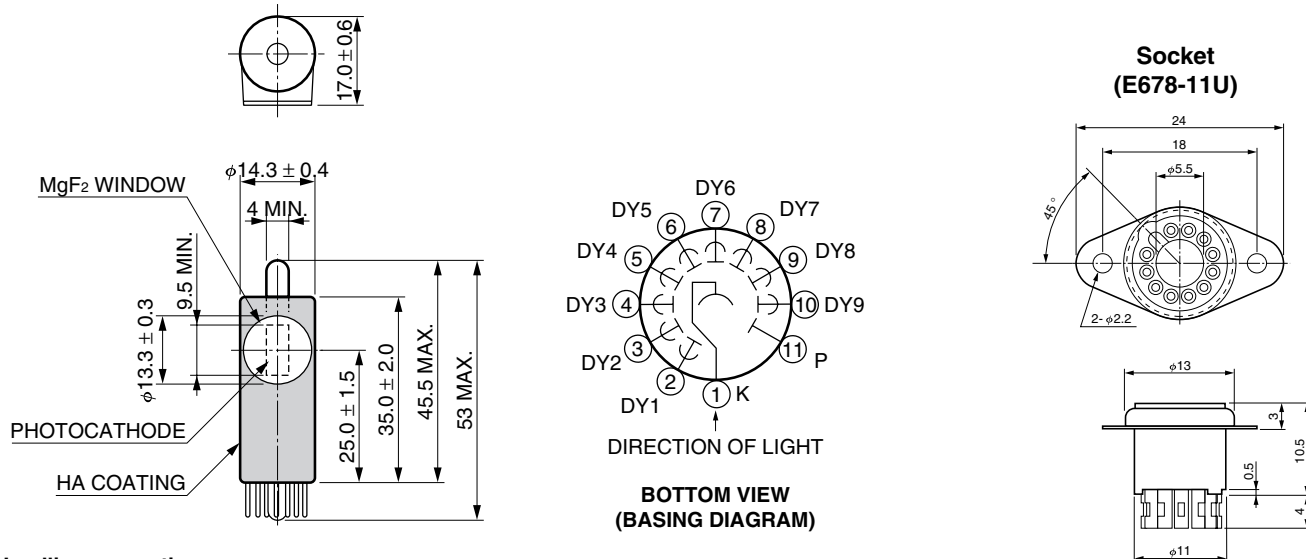
NOTE: (A) R10824 at 254 nm, R10825 at 121.6 nm

## 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: 1000 V, K: Cathode, Dy: Dynode, P: Anode

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



### Handling precautions

- Operate below  $10^{-1}$  Pa condition or atmospheric pressure.

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Figure 2: Typical Gain Characteristics

