HAMAMATSU

PRELIMINARY DATA
JUL. 1998

PHOTOMULTIPLIER TUBES
R7311, R7511

For Vacuum Ultraviolet Light Detection
Cs-Te (R7311), Cs-I (R7511) Photocathode, MgF_2 Window, 13mm (1/2 Inch) Diameter, 9-stage, Side-on Type

FEATURES

- **Sensitivity in the Vacuum Ultraviolet Region**
  - **R7311.....115 to 320nm**
  - **R7511.....115 to 195nm**
- **High Quantum Efficiency (at 121.6nm)**
  - **R7311.....17.3% (Typ.)**
  - **R7511.....26.5% (Typ.)**
- **High Anode Sensitivity**
  - **R7311 (at 200nm).....3.8×10^5 A/W (Typ.)**
  - **R7511 (at 121.6nm).....5.2×10^4 A/W (Typ.)**

APPLICATIONS

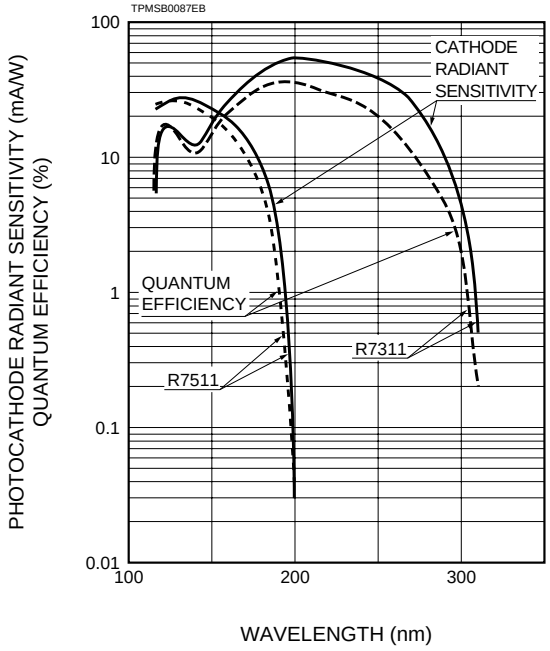
- **Emission Spectroscopy, etc.**

TPMSF0077

GENERAL

Parameter		R7311	R7511	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_2		—
Minimum Effective Area		4×5		mm
Dynode	Structure	Circular-cage		—
	Number of Stage	9		—
	Material	Sb-Cs		—
Direct Interelectrode Capacitances	Anode to Dynode No.9	Approx. 1.7		pF
	Anode to All Other Electrodes	Approx. 2.0		pF
Base		11-pin base		—
Weight		7		g
Suitable Socket for Base (supplied)		E678-11H		—

Figure 1: Typical Spectral Response



PHOTOMULTIPLIER TUBES R7311, R7511

MAXIMUM RATINGS (Absolute Maximum Values)

Parameter		Value	Unit
Supply Voltage	Between Anode and Cathode	1250	Vdc
	Between Each Succeeding Electrode	150	Vdc
Average Anode Current		0.01	mA
Ambient Temperature		-80 to +50	°C

CHARACTERISTICS (at 25°C)

Parameter			R7311			R7511			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Cathode Sensitivity	Radiant Ⓐ		—	55	—	—	26	—	mA/W
	Quantum Efficiency	at 121.6nm	—	17.3	—	—	26.5	—	%
		at 200nm	—	34.1	—	—	—	—	%
Anode Sensitivity	Radiant	at 121.6nm	—	1.2×10^5	—	—	5.2×10^4	—	A/W
		at 200nm	—	3.8×10^5	—	—	—	—	A/W
Gain			—	7.0×10^6	—	—	2.0×10^6	—	—
Anode Dark Current			—	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: Ⓐ R7311 at 200nm, R7511 at 121.6nm

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

Figure 2: Typical Gain Characteristics

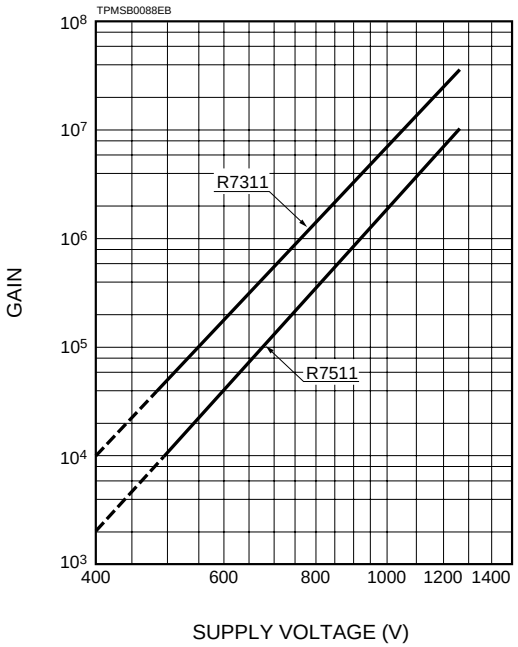
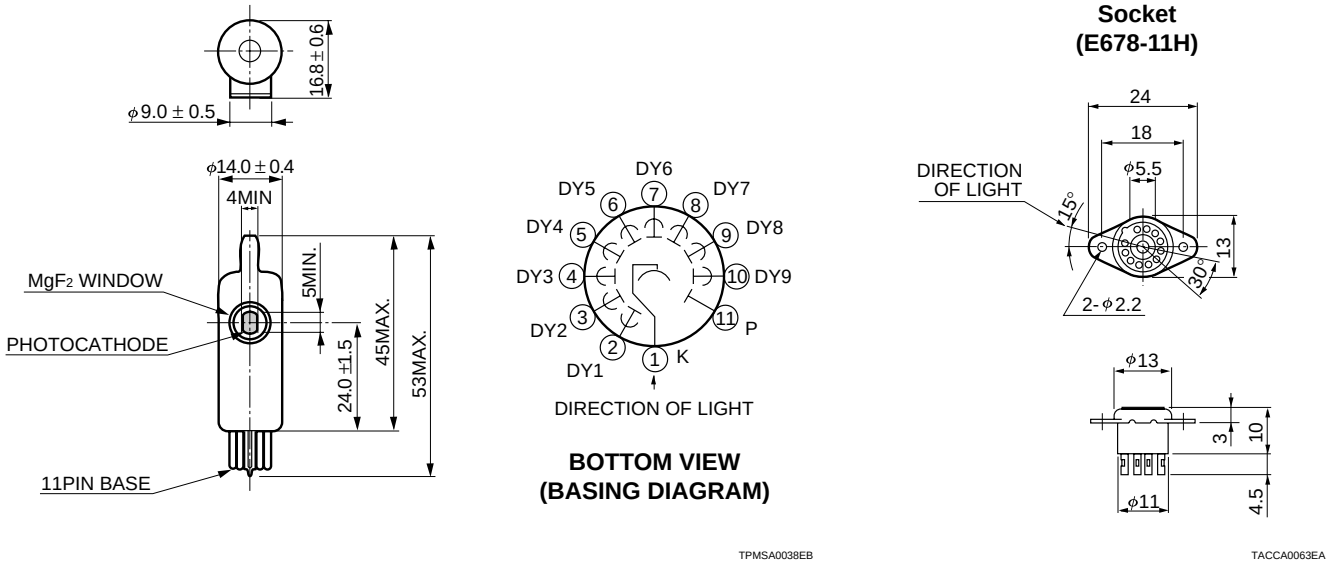


Figure 3: Dimensional Outline and Basing Diagram (Unit: mm)



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