

# HAMAMATSU

PRELIMINARY DATA  
SEPT. 2000

## COMPACT HYBRID PHOTO-DETECTOR with Si-Avalanche Diode Target R7110U-40

### FEATURES

- High Q.E. from 450 to 650 nm
- Low Excess Noise
- High Gain
- Operable in High Magnetic Fields
- Low Hysteresis

### APPLICATIONS

- High Energy Physics
- Medical
- Other High Precision Measurements

### GENERAL

Parameter		Description/Value	Unit
Spectral Response		350 to 720	nm
Wavelength of Maximum Response		450 to 650	nm
Photocathode	Material	GaAsP(Cs)	—
	Minimum Effective Area <sup>Ⓐ</sup>	5	mm dia.
Window Material		Brosilicate glass	—
Target		φ3 mm Single-element Electron Bombarded Si-Avalanche Diode	—
Suitable Socket		E678-12M (supplied)	—

### MAXIMUM RATINGS (Absolute Maximum Values)

Parameter	Value	Unit
Supply Voltage	-8500	Vdc
Avalanche Diode Reverse Bias Voltage	155 <sup>Ⓓ</sup>	V
Ambient Temperature	-40 to +50	°C

### CHARACTERISTICS (at 25 °C)

Parameter		Min.	Typ.	Max.	Unit
Cathode Sensitivity	Luminous (2856K)	—	400	—	μA/lm
	Radiant at 550 nm	—	200	—	mA/W
	QE at 550 nm	—	45	—	%
Gain <sup>Ⓒ</sup>		—	4 × 10 <sup>4</sup>	—	—
Time Response <sup>Ⓒ</sup>	Rise Time	—	1.3	—	ns
	Fall Time	—	15	—	ns
	Width	—	5	—	ns
Diode (Target)	Leakage Current <sup>Ⓓ</sup>	—	—	50	nA
	Capacitance <sup>Ⓓ</sup>	—	120	—	pF

**NOTE:** Ⓐ Without magnetic fields

Ⓑ at 25 °C

Ⓒ Photocathode Voltage: - 8 kV, Avalanche Diode Reverse Bias Voltage: Approx. 145 V

Ⓓ Avalanche Diode Reverse Bias Voltage: Approx. 145 V

Subject to local technical requirements and regulations, availability of products included in this promotional material may vary. Please consult with our sales office.

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Figure 1: Typical Gain

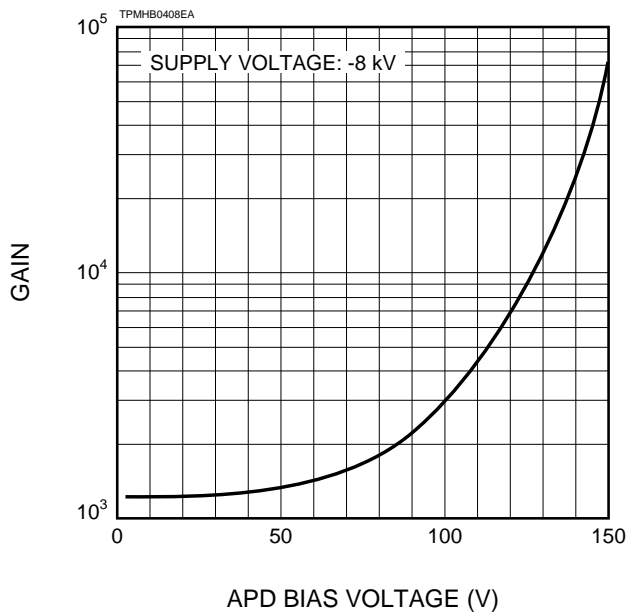


Figure 2: Typical Photoelectron Spectrum

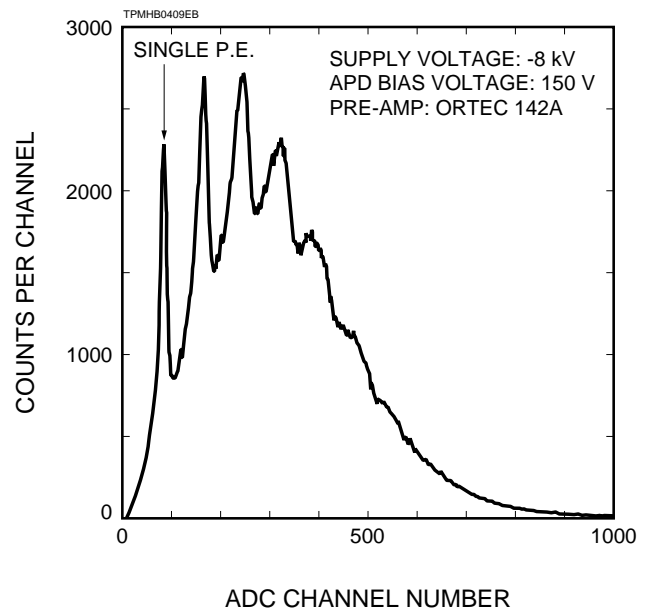


Figure 3: Typical Spectral Response

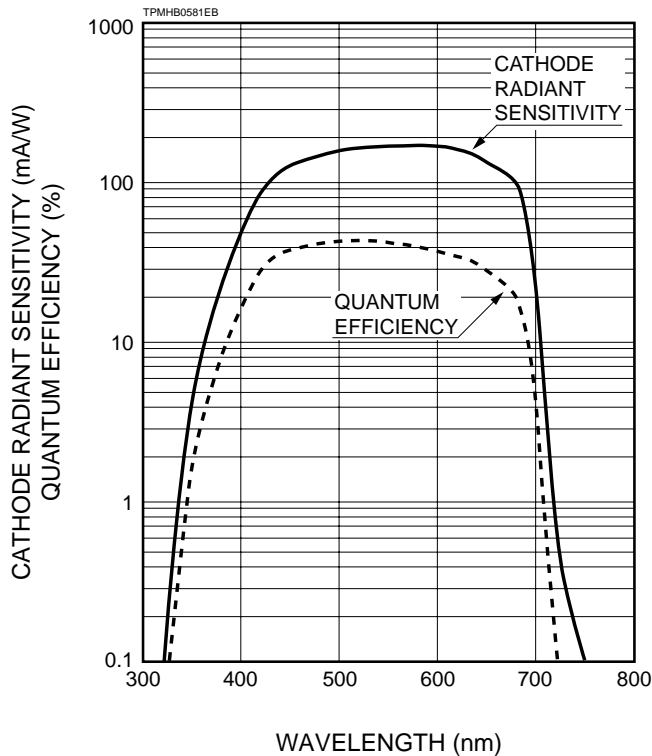
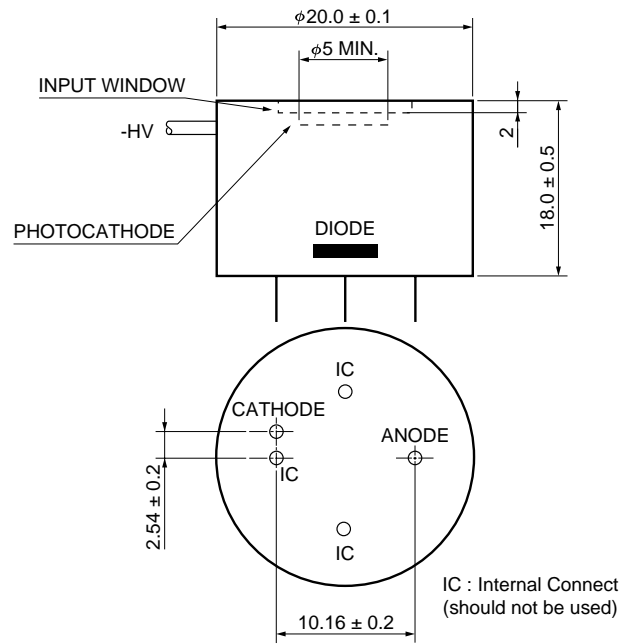


Figure 4: Dimensional Outline (Unit: mm)



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