

HAMAMATSU

PRELIMINARY DATA

APR. 2000

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

PATENT PENDING

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 ^①	5	mm dia.
Window Material		Borosilicate glass	—
Target		φ 3 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	150	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	—	177	—	mA/W
	QE at 550 nm	—	40	—	%
Gain ^②		—	4×10^4	—	—
Time Response ^③		—	1.3	—	ns
Diode (Target)	Leakage Current ^③	—	—	50	nA
	Capacitance ^③	—	120	—	pF

NOTE: ① Without magnetic fields

② Photocathode Voltage : - 8 kV, Avalanche Diode Reverse Bias Voltage : Approx.145 V

③ Avalanche Diode Reverse Bias Voltage : Approx.145V

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Figure 1: Typical Gain

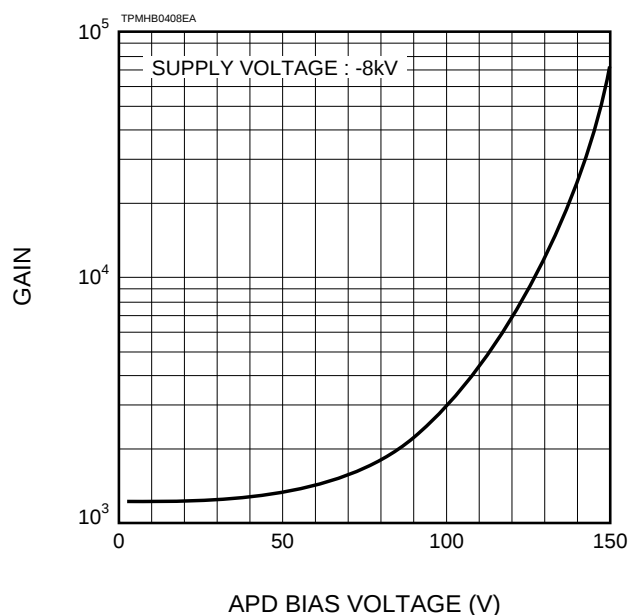


Figure 2: Typical Photoelectron Spectrum

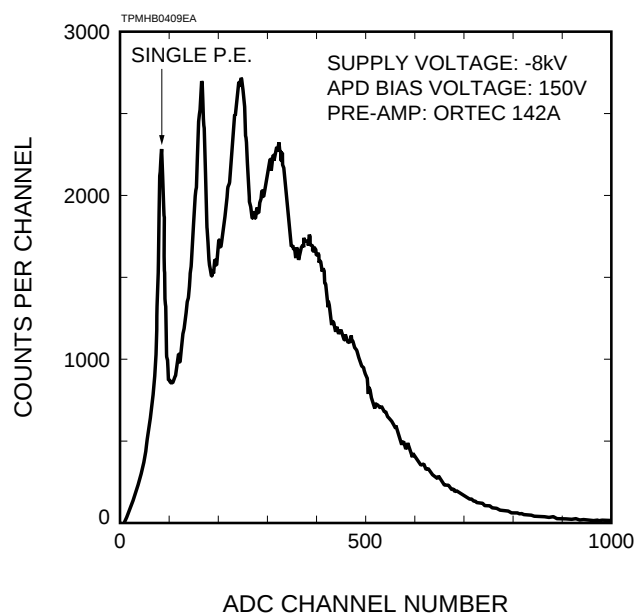


Figure 3: Typical Spectral Response

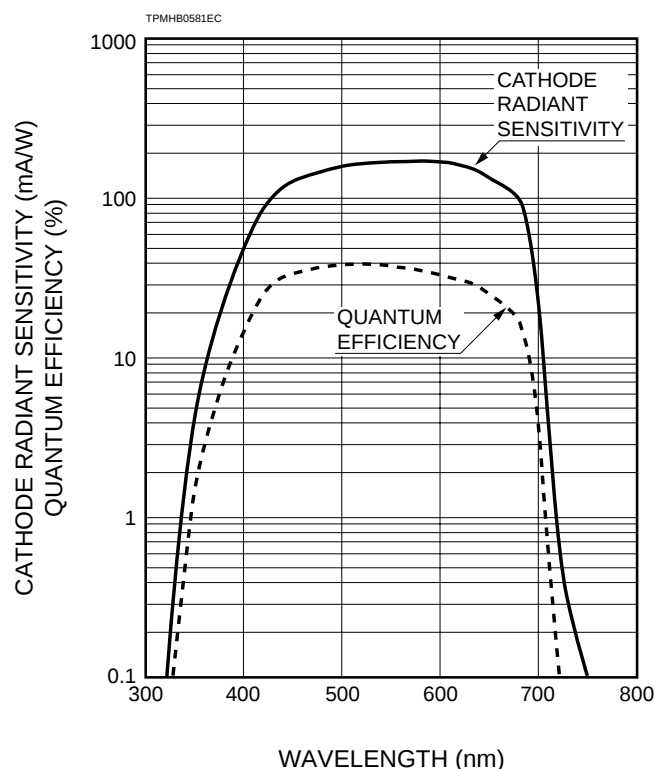
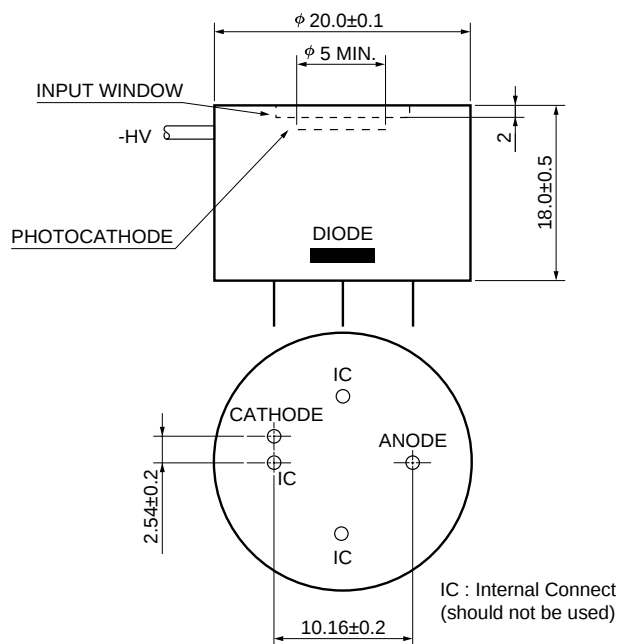


Figure 4: Dimensional Outline (Unit: mm)



*PATENTS PENDING: JAPAN 5, USA 4, EUROPE 3

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