

HAMAMATSU

PRELIMINARY DATA
SEPT. 2000

COMPACT HYBRID PHOTO-DETECTOR with Si-Avalanche Diode Target R7110U-07

FEATURES

- 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		160 to 850	nm
Wavelength of Maximum Response		420	nm
Photocathode	Material	Multialkali	—
	Minimum Effective Area [Ⓐ]	8	mm dia.
Window Material		Synthetic Silica	—
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 [Ⓐ]	V
Ambient Temperature	-40 to +50	°C

CHARACTERISTICS (at 25 °C)

Parameter		Min.	Typ.	Max.	Unit
Cathode Sensitivity	Luminous (2856K)	100	130	—	μA/lm
	Radiant at 420 nm	—	51	—	mA/W
Gain [Ⓒ]		—	4 × 10 ⁴	—	—
Time Response [Ⓒ]	Rise Time	—	1.3	—	ns
	Fall Time	—	15	—	ns
	Width	—	5	—	ns
Diode (Target)	Leakage Current [Ⓓ]	—	—	50	nA
	Capacitance [Ⓓ]	—	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

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Figure 1: Typical Gain

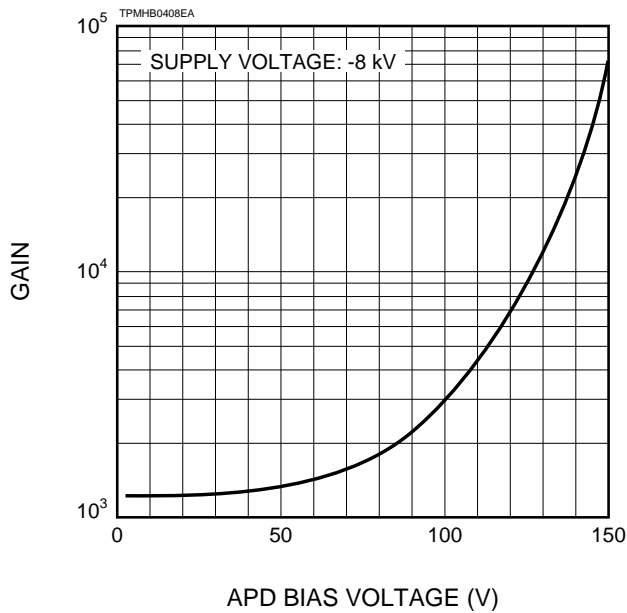


Figure 2: Typical Photoelectron Spectrum

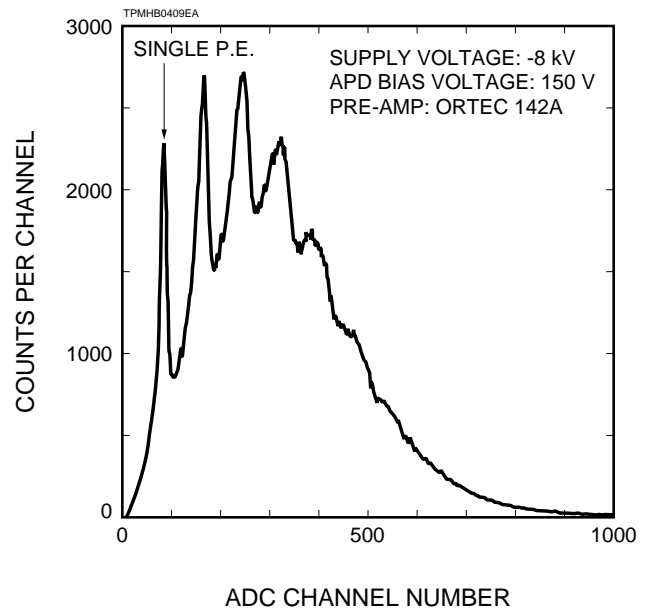
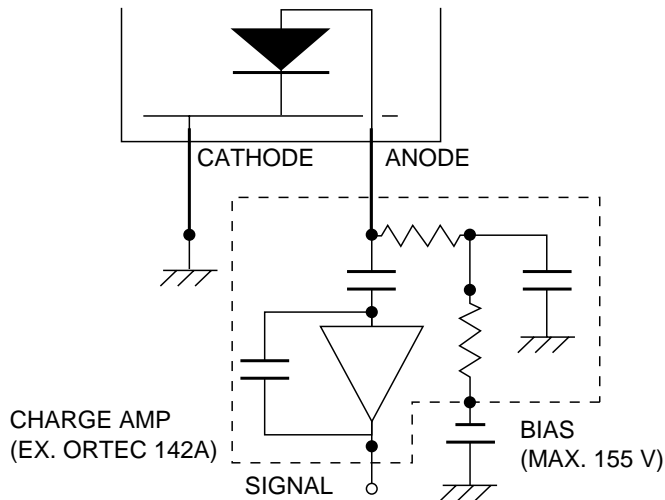
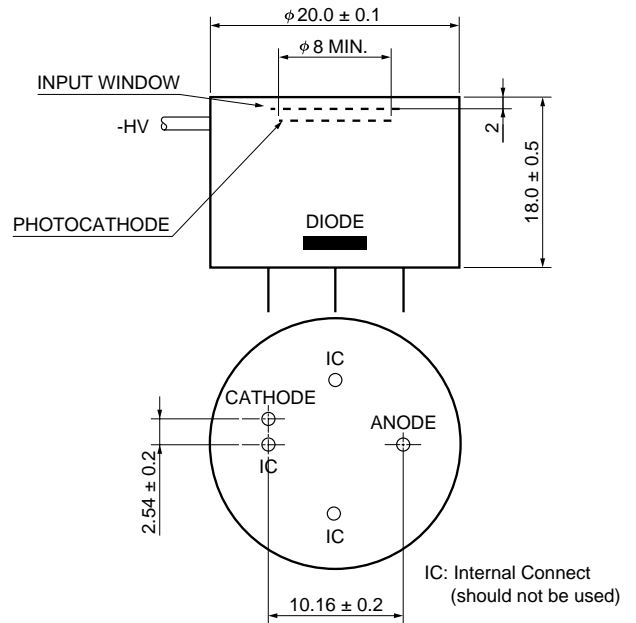


Figure 3: Connection Example for Pulse Height Analysis



TPMHC0145EC

Figure 4: Dimensional Outline (Unit: mm)



TPMHA0397EC

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