

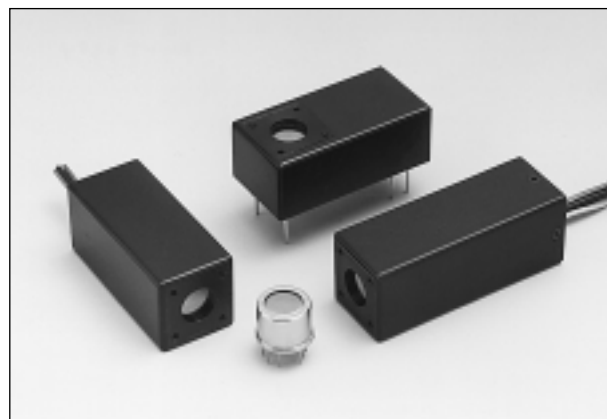
High Sensitivity, Wide Dynamic Range Fast Time Response

The Photosensor Module is an optical sensor with extremely high sensitivity, capable of detecting light levels 1/10000 as low as those detectable with semiconductor photodiodes.

The H5773, H5783 series comprise a Metal Package Photomultiplier tube and a Cockcroft-Walton type high voltage power supply assembled in a compact housing. They feature excellent output linearity and low power consumption, which is low enough to enable battery powered operation. Photon Counting type is also available in these series.

The H6779, H6780 series incorporate an active voltage divider, which provide a faster settling time and lower ripple noise compared to the H5773, H5783 series.

The H5784 series have a low noise amplifier, which eliminates an external amplifier.



▲ Left: H6780 Center: H6779 Right H5784
Front: Metal Package PMT

TPMHF0394

FEATURES

- Low Power Consumption
- Low Voltage Drive
- Easy to Use
- High Sensitivity
- Wide Dynamic Range
- Fast Time Response

APPLICATIONS

- O/E Converter
- Ultra Low Light Level Detection
- Portable Optical Detection Instrument

MODULE SELECTION

Type No. \ Suffix No.	No	-01	-02	-03	-04	-06	-20
H5773/H5783	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
H5773P/H5783P	<input type="radio"/>	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
H6779/H6780	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
H5784	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

: available N.A.: not available

EXPLANATION OF TYPE & SUFFIX NUMBER

Ex) **H5783** - **01** → Suffix
→ Type No.

Type No.	Lead Type	Feature
H5773/P	On-board	Low power consumption Photon Counting type available
H5783/P	Cable Out	
H6779	On-board	Low ripple noise
H6780	Cable Out	Faster settling time
H5784	Cable Out	Built in amplifier

Suffix	Spectral Response
No	300 nm to 650 nm
-01	300 nm to 850 nm
-02	300 nm to 880 nm
-03	185 nm to 650 nm
-04	185 nm to 850 nm
-06	185 nm to 650 nm
-20	300 nm to 900 nm

NOTE: suffix 06 has higher sensitivity at less than 300 nm in comparison with suffix 03.

PHOTOSENSOR MODULES H5773/H5783/H6779/H6780/H5784 SERIES

SPECIFICATIONS

GENERAL

Parameter	H5773 Series H5783 Series	H5773P H5783P	H6779 Series H6780 Series	H5784 Series	Unit
Supply Voltage Range Vcc & Vee	+11.5 to +15.5			±11.5 to ±15.5	V
Supply Current Requirement (Max.)	12		30	12/1 *2	mA
Supply Adjustable Range (Relative Sensitivity)	1: 10 ⁴				—
Settling Time (Sensitivity Control) *1	2		0.2	2	s
Induced Ripple in Signal (Max.) (peak to peak) *3	1.2		0.6	2	mV
Effective Area	8				mm dia.
Weight	H5773/P H6779/P Series Approx. 50 H5783 H6780 Series Approx. 80 H5784 Series Approx. 100				g

*1: Stabilized time in the control voltage adjustment from +1.0 V to +0.5 V.

*2: Vee "Minus Voltage" requires 1 mA current.

*3: Measured across 1 MΩ/22 pF load

MAXIMUM RATING (Absolute Maximum Values)

Parameter	H5773 Series H5783 Series	H5773P H5783P	H6779 Series H6780 Series	H5784 Series	Unit
Supply Voltage Vcc & Vee	+18			±18	V
Operating Temperature	+5 to +50		+5 to +45	+5 to +50	°C
Storage Temperature	-20 to +50				°C
Output Current	100			—	μA
Output Voltage	—			10	V
Control Voltage *1 Vcontrol	+1.0 (Input Impedance for Vcont. is 100 kΩ)				V

*1: Applying the maximum value for more than 30 seconds continuously may cause a damage.

H5773/H5783/H6779/H6780 SERIES CHARACTERISTICS (at 25 °C)

Parameter	-00, -03, -06	P Type	-01, -04	-02	-20	Unit
Radiant Sensitivity (at peak wavelength) [Ⓐ]	4.3 × 10 ⁻⁵	6.2 × 10 ⁻⁵	3.0 × 10 ⁻⁵	2.9 × 10 ⁻⁵	4.1 × 10 ⁻⁵	A/nW
Dark Current (Typ./Max.) [Ⓐ]	0.2/2	—	0.4/4	2/10	2/20	nA
Dark Count (Typ./Max.)	—	80/400	—	—	—	s ⁻¹
Time Response Anode Pulse Rise Time [Ⓐ]	0.78					ns
Recommended Control Voltage Range Vcontrol	+0.25 to +0.9					V

H5784 SERIES CHARACTERISTICS (at 25 °C)

Parameter	-00, -03, -06	-01, -04	-02	-20	Unit
Radiant Sensitivity (at peak wavelength) [Ⓐ]	43	30	29	41	V/nW
Output Offset [Ⓐ]	±3				mV
Current Voltage Conversion Factor	1				V/μA
Frequency Bandwidth	DC to 20				kHz
Recommended Control Voltage Range	+0.25 to +0.9				V

[Ⓐ] Control voltage +0.8 V

In the output signal, there is a shot noise associated with the signal.

Figure 1: Typical Spectral Response

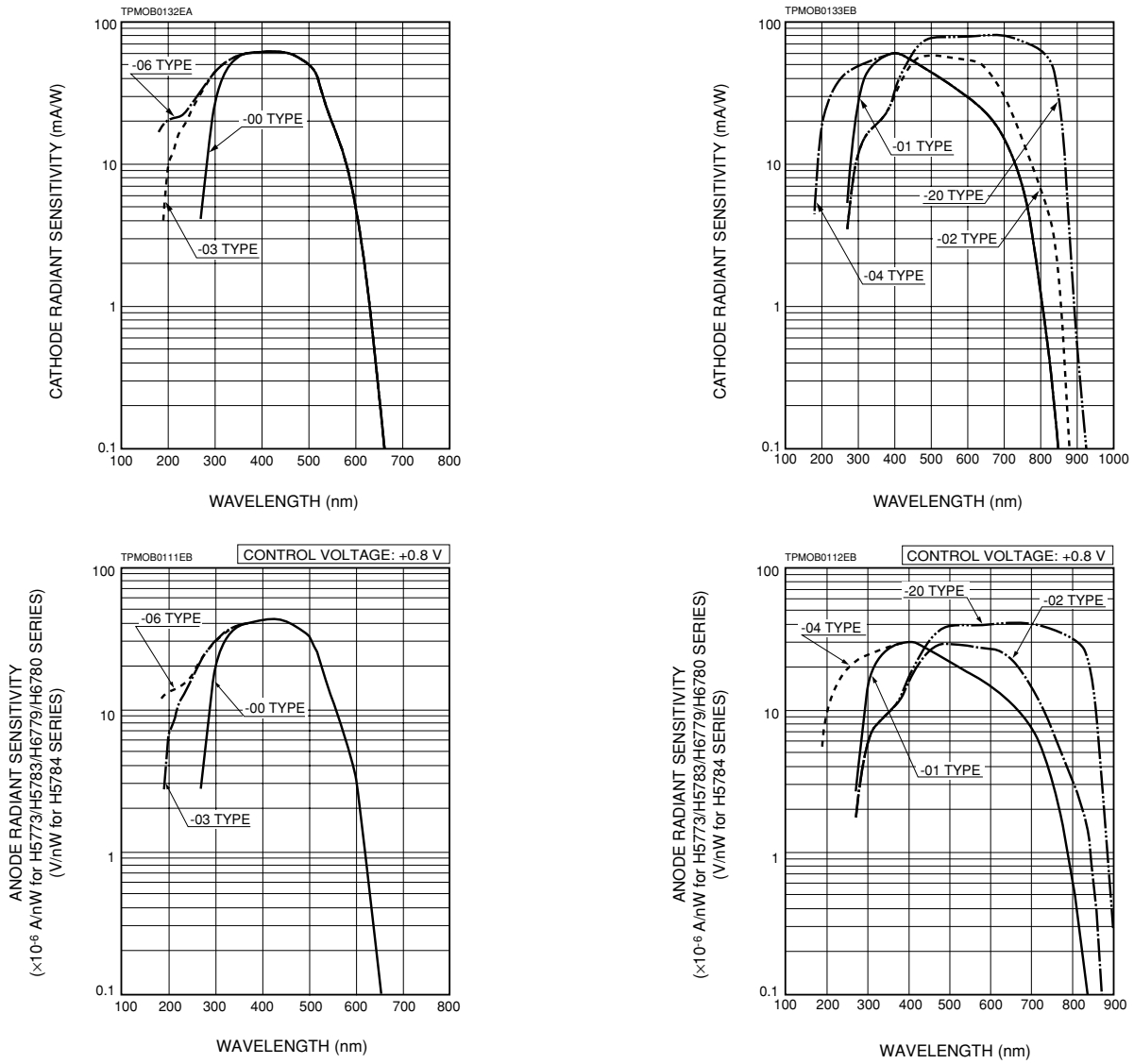


Figure 2: Typical Sensitivity Adjustable Characteristics

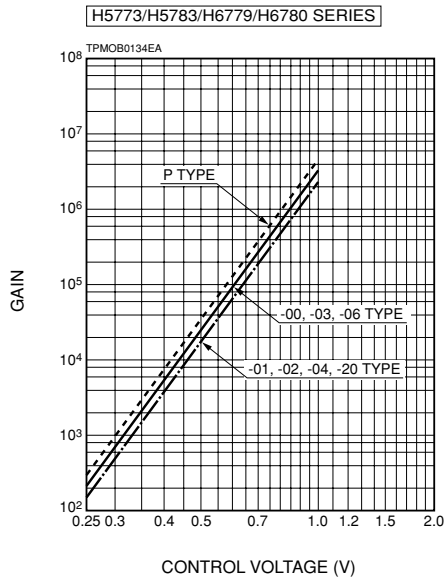
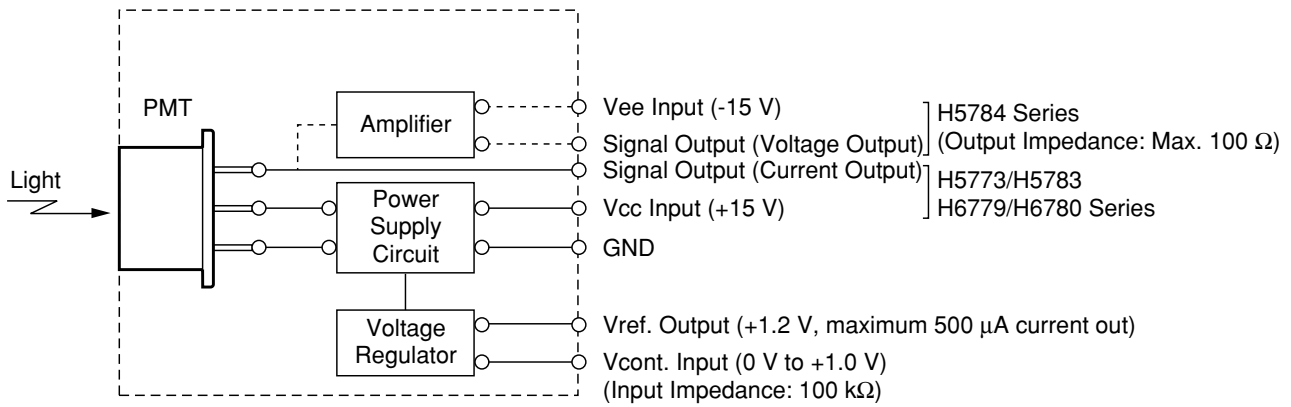
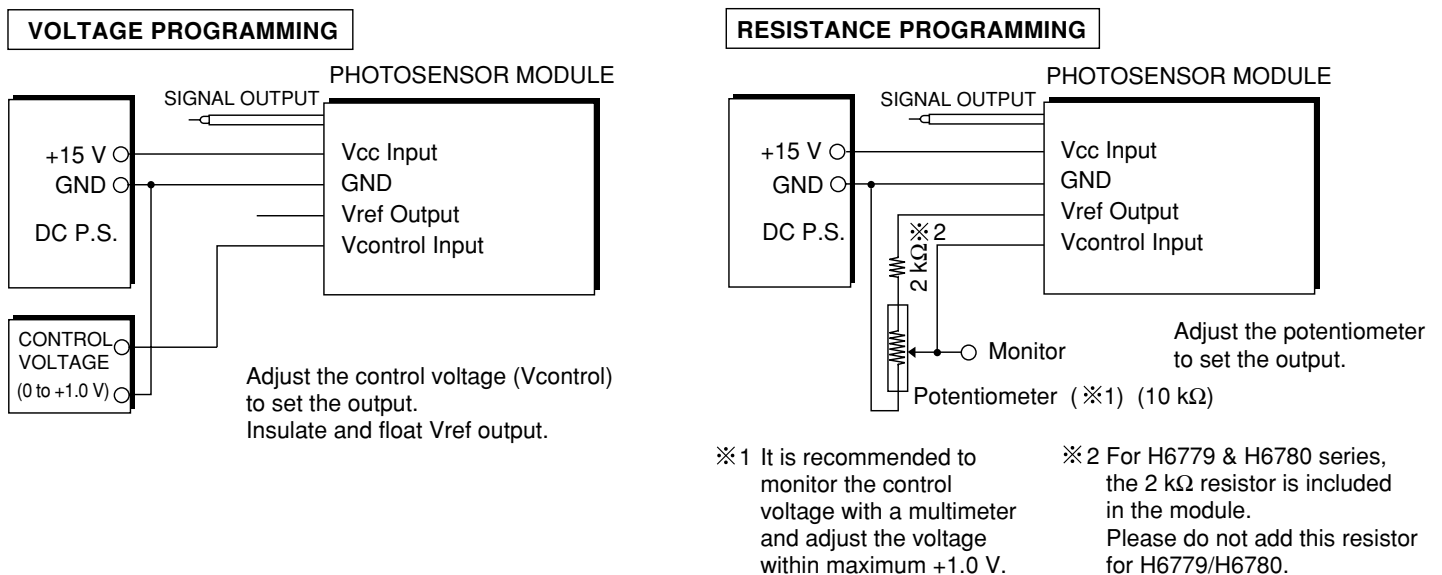


Figure 3: Module Functional Diagram



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Figure 4: Wiring Examples For Sensitivity Adjustment

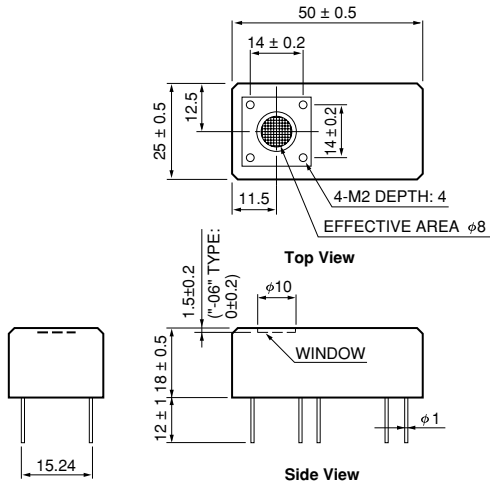


Note: DC -11.5 V to -15.5 V power supply is also necessary for Vee of H5784series.

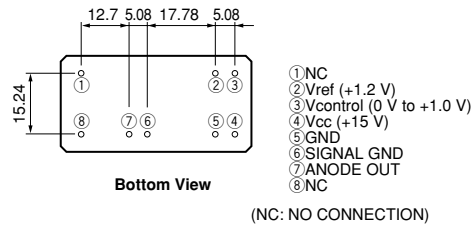
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Figure 5: Dimensional Outlines (Unit: mm)

H5773/H6779 SERIES, H5773P



Pin Connection

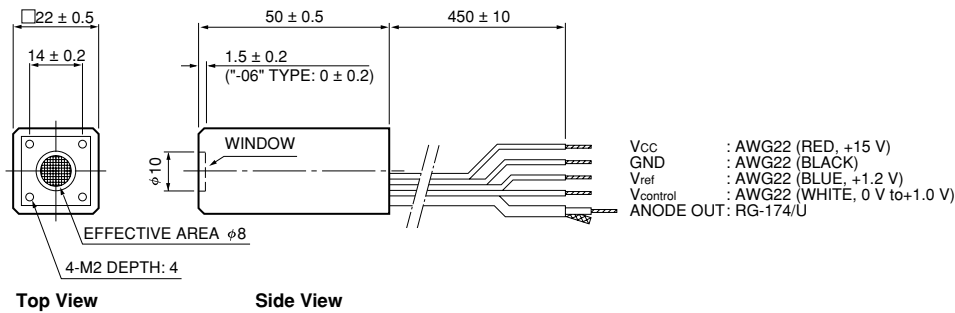


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H6779/H6780/H5784 Series

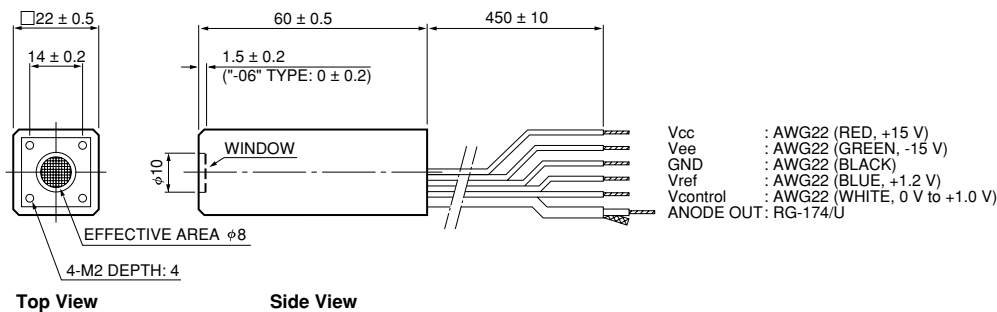
Note: Suffix -06 type has the depth of 0 mm ± 0.2 mm for the detector window position instead of 1.5 mm ± 0.2 mm for the other types. Mis-wiring will damage the module.

H5783/H6780 SERIES, H5783P



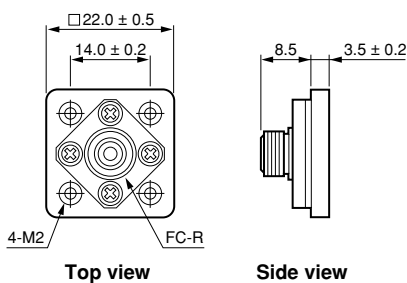
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H5784 SERIES



TPMOA0012EA

E5776 Optical Fiber Adapter (FC Type) **OPTION** SMA (E5776-51) type is available.



TACCA0055EA

- Reference:
 - [Technical information]
METAL PACKAGE PHOTOMULTIPLIER TUBES R7400U SERIES and PHOTOSENSOR MODULES (TPMH9003E01)
 - [Individual Data Sheet]
METAL PACKAGE PHOTOMULTIPLIER TUBES R7400U SERIES (TPMH1204E06)

PHOTOSENSOR MODULES H5773/H5783/H6779/H6780/H5784 SERIES

RELATED PRODUCTS

POWER SUPPLY FOR PHOTOSENSOR MODULES C7169

C7169 is the power supply unit which can be used for various photosensor module produced by Hamamatsu commonly. The unit can provide both the driving voltage and the control voltage.



SPECIFICATIONS

Parameter	Value	Unit
Output Voltage	± 15	V
Output Current	0.3(+15 V) 0.2(-15 V)	A (Max.)
Control Voltage	+0.25 to +1.2	V
Input Voltage	AC 100 to 240	V
Power Consumption	7.5	VA
Input Line Voltage Frequency	50/60	Hz
Operating Temperature	+5 to +50	$^{\circ}\text{C}$
Storage Temperature	-20 to +50	$^{\circ}\text{C}$
Dimensions	147 \times 61 \times 200	mm
Weight	Approx. 1.2	kg

* PATENT: USA Pat.No. 5410211

PATENT PENDING: JAPAN 13, USA 8, EUROPE 9

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