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Find the *Hamamatsu C4777-01* at our website: ***Click HERE***

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PHOTON IS OUR BUSINESS

APD module



C4777-01

APD module integrated with peripheral circuits (Low-Light-level detection type)

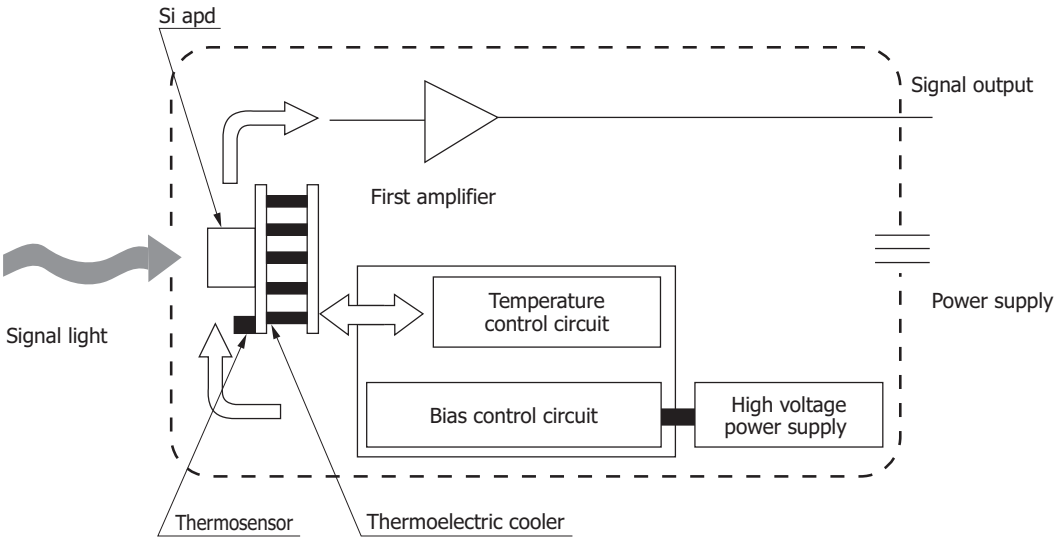
Features

- **Includes a high-sensitivity APD (two-stage thermoelectrically cooled type)**
  C4777-01 provides a high photo-electric sensitivity of 1.25 × 109 V/W and low NEP of 2 fW/Hz$^{1/2}$, making it excellent for fluorescence measurement and NOx monitors where low-light-level detection is essential.
- **Built-in temperature control circuit**
  An APD chip, thermoelectric cooler and thermosensor are sealed in the same package along with the temperature control circuit, to keep the APD chip temperature constant and ensure stable measurements.
- **Simple operation**
  Operates by just connecting to a DC power supply (+5 V, ±15 V).

Applications

- **Fluorescence measurement**
- **NOx monitor sensor**
- **Particle counters**

Block diagram



KACCC0099EA

Absolute maximum ratings

Parameter	Symbol	Condition	Value	Unit
Positive supply voltage	-		+7	V
Positive supply voltage	-		+16	V
Negative supply voltage	-		-16	V
Input power	-		10	mW
Operating temperature	Topr		10 to 40	°C
Storage temperature	Tstg		-10 to +60	°C
Operating/storage humidity	-	No condensation	70% RH below	-

Specification (Typ. Ta=25 °C, Vcc=+5 V, +15 V, unless otherwise noted)

■ Photoelectric section (APD)

Parameter	Symbol	Condition	Value	Unit
Active area	A		φ3.0	mm
Peak sensitivity wavelength	λp		800	nm
Spectral response range	λ		400 to 1000	nm
Photosensitivity	S	λ=800 nm, M=1	0.5	A/W
Gain	M	λ=800 nm	50	times
Thermoelectric cooler	-		Two-stage	-
Cooling temperature	-		0	°C
Temperature stability of gain	-	Ta=10 to 40 °C	±3	%

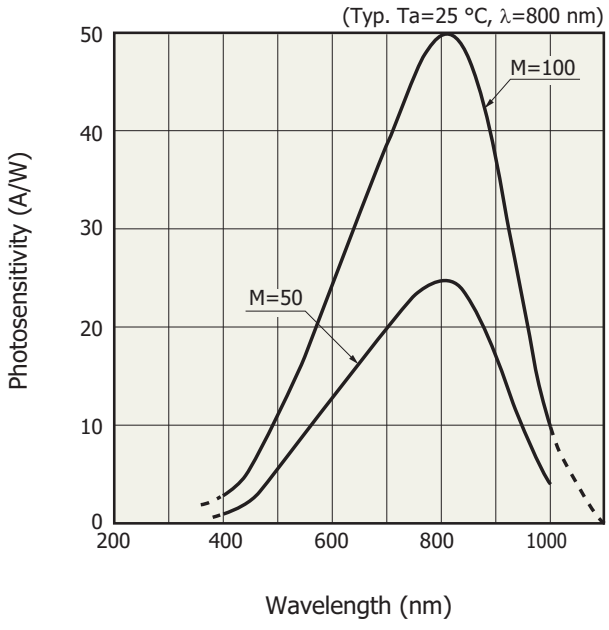
■ Signal amplification section

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Cutoff frequency	High band	fc	-3 dB	4	5	-	kHz
	Low band			-	DC	-	-
Noise equivalent power		NEP	λ=800 nm	-	2	4	$fW/Hz^{1/2}$
Feedback resistance		Rf		-	50	-	MΩ
Photoelectric sensitivity		-	APD include, M=50 λ=800 nm	-1.0	-1.25	-1.5	$\times 10^9$ V/W
Maximum input light level		-		8.8	9.6	-	nW
Minimum detection limit		-		-	0.14	0.28	pWr.m.s.

General ratings

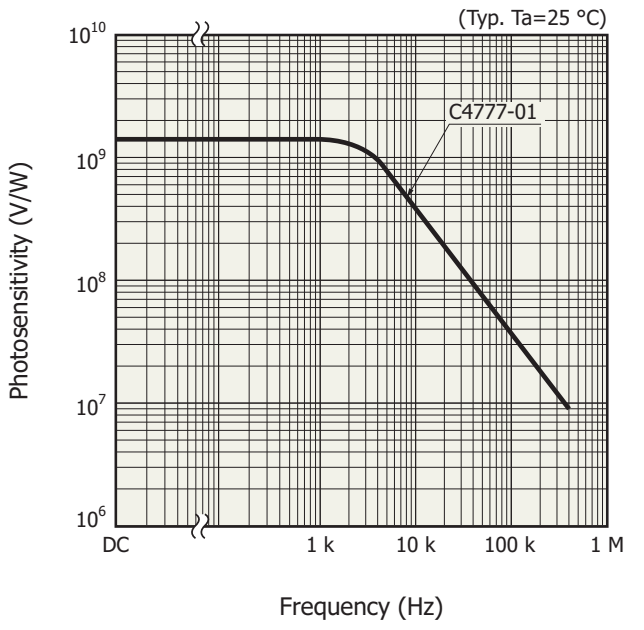
Parameter		Min.	Typ.	Max.	Unit
Power supply	+5 V	+4.4	+5	+5.6	V
	+15 V	+14.4	+15	+15.6	
	-15 V	-14.4	-15	-15.6	
Current consumption	+5 V	-	+0.5	+1.0	A
	+15 V	-	+0.15	+0.30	
	-15 V	-	-0.01	-0.02	
Weight			350		g

Spectral response



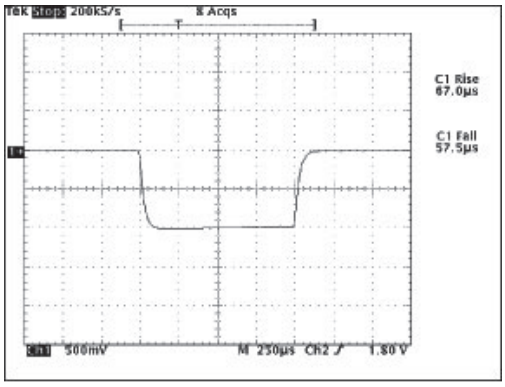
KAPDB0020EB

Frequency response



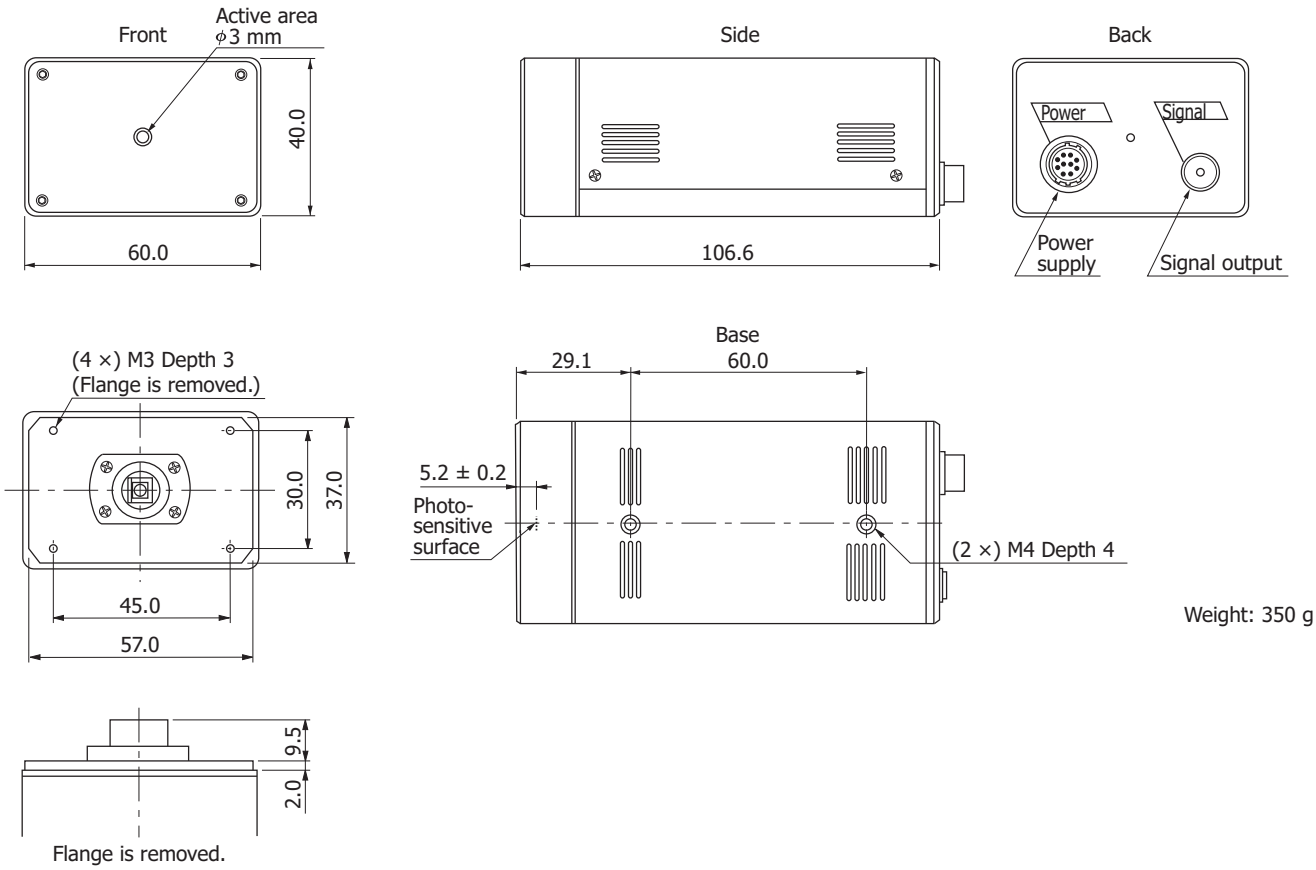
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Response to stepped light



Ta=25 °C, gain M=50, input pulse width=1 ms
X-axis: 250 µs/div., Y-axis: 500 mV/div.

Dimensional outline (unit: mm)



Weight: 350 g

KACCA0080EA

When using C4777-01, do not terminate the output with a 50 Ω load.

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions

· Notice

Information described in this material is current as of July, 2013.
Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.
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