

The output signal from a photomultiplier tube can be directly input to the C6438 and it provides a voltage output signal with 50 Ω load at a conversion factor of 0.5 mV/μA. This amplifier is recommended when the gain of the PMT is insufficient for photon counting.

## FEATURES

- Wide bandwidth: DC to 50 MHz
- Current-to-voltage conversion factor:  
0.5 mV/μA at 50 Ω load resistance
- Rise time: 7 ns (Typ.)
- Non-inverting output
- Ideal for photon counting measurement

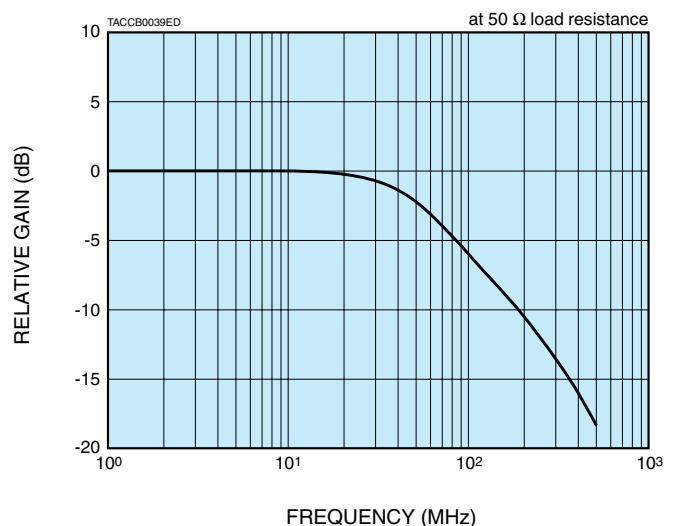


## SPECIFICATIONS

Parameter		Description / Value
Frequency bandwidth (-3 dB)		DC to 50 MHz
Voltage gain <sup>(A)</sup>		20 dB ± 3 dB (Approx. 10 times)
Current-to-voltage conversion factor	Load resistance: 1 MΩ	1 mV/μA
	Load resistance: 50 Ω	0.5 mV/μA
Rise time	Typ.	7 ns
Input polarity		Positive / Negative
Amplifying method		Non-inverting output
Input impedance		50 Ω
Recommended load resistance		50 Ω
Maximum output signal voltage	Load resistance: 1 MΩ	±2.0 V Min.
	Load resistance: 50 Ω	±1.0 V Min.
Output offset voltage <sup>(A)</sup>	Typ.	0.5 mV
Output noise voltage <sup>(A)</sup>	Max.	0.5 mV rms
Connector	Input	BNC-R
	Output	BNC-R
	Power	DIN (6-pin)
Power supply voltage		±5 V
Max. power supply voltage		±6 V
Power supply current	Max.	±55 mA
Operating temperature		0 °C to +40 °C
Storage temperature		-10 °C to +60 °C
Weight (exclude cables)		Approx. 160 g

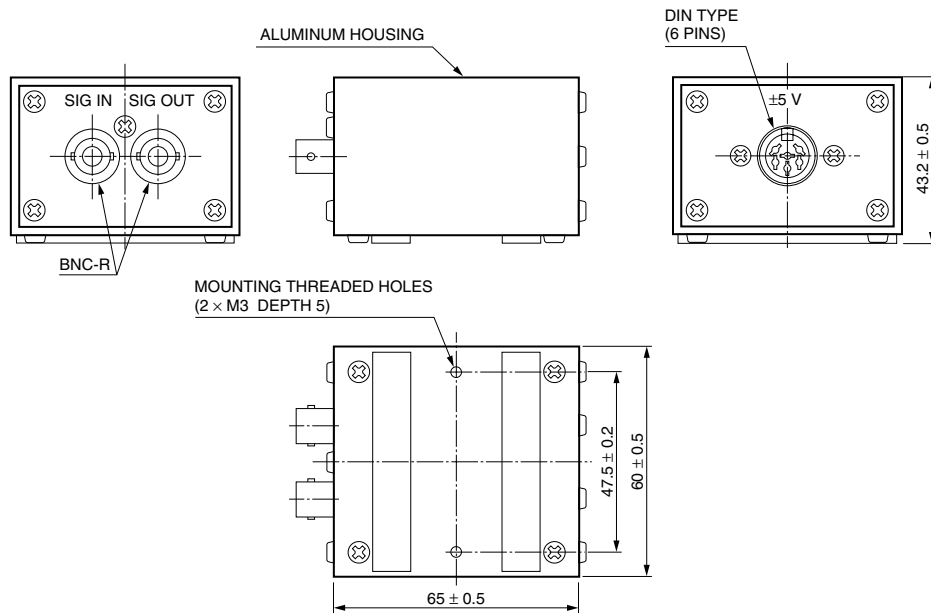
NOTE: <sup>(A)</sup>Load resistance: 50 Ω

Figure 1: Typical frequency response



# WIDE BANDWIDTH AMPLIFIER UNIT C6438

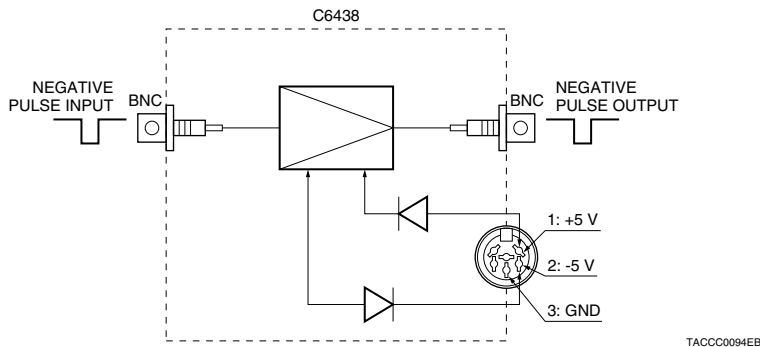
Figure 2: Dimensional outline (Unit: mm)



\* Power cable with a plug connector attached at one end is supplied with the C6438.

TACCA0134EC

Figure 3: Internal connection diagram



TACCC0094EB

CONNECTOR PIN	WIRE COLOR	CONNECTION
1	Red	+5 V
2	White	-5 V
3	Yellow	GND
4	Blue	—
5	Green	—
6	Black	—
External conductor	Shield	GND

## RELATED PRODUCTS

### AMPLIFIER UNITS SELECTION GUIDE

Parameter	C7319	C12419	C9999 C9999-01	C6438 C6438-01 C6438-02	C9663	C11184	C5594
Frequency bandwidth (-3 dB)	DC to 20 kHz or DC to 200 kHz (switchable)	DC to 1 MHz	DC to 10 MHz	DC to 50 MHz	DC to 150 MHz	DC to 300 MHz	50 kHz to 1.5 GHz
Current-to-voltage conversion factor (Load resistance: 50 Ω)	-0.1 V/μA -1 V/μA, -10 V/μA (switchable) *	-1 V/μA **	+50 mV/μA (C9999) ±10 mV/μA (C9999-01)	+0.5 mV/μA (C6438) +25 mV/μA (C6438-01) ±5 mV/μA (C6438-02)	+4 mV/μA	+1.25 mV/μA	+3.15 mV/μA

\* Load resistance: 10 kΩ

\*\* Load resistance: 1kΩ

Refer to the individual catalogs for detailed information.

## HAMAMATSU PHOTONICS K.K. [www.hamamatsu.com](http://www.hamamatsu.com)

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