

The output signal from a photomultiplier tube can be directly input to the C6438-02 and it provides a voltage output signal with 50 Ω load at a conversion factor of 5 mV/μA.

The C6438-02 has a selecting switch to get the amplified non inverting-inverting output.

## FEATURES

- Wide Bandwidth: DC to 50 MHz
- Current-to-voltage Conversion Factor:  
5 mV/μA at 50 Ω load resistance
- Non-inverting / Inverting Output Switchable
- Rise Time: 7 ns (Typ.)
- Compact · Light Weight

## SPECIFICATIONS

| Parameter                            |                       | Description / Value                           |
|--------------------------------------|-----------------------|---|
| Frequency Bandwidth (-3 dB)          |                       | DC to 50 MHz                                  |
| Voltage Gain <sup>Ⓐ</sup>            |                       | 40 dB ± 3 dB<br>(Approx. 100 times)           |
| Current-to-voltage Conversion Factor | Load Resistance: 1 MΩ | 10 mV/μA                                      |
|                                      | Load Resistance: 50 Ω | 5 mV/μA                                       |
| Rise Time                            | Typ.                  | 7 ns  |
| Input Polarity                       |                       | Positive / Negative                           |
| Amplifying Method                    |                       | Non-inverting / Inverting Output <sup>Ⓑ</sup> |
| Input Impedance                      |                       | 50 Ω  |
| Recommended Load Resistance          |                       | 50 Ω  |
| Maximum Output Signal Voltage        | Load Resistance: 1 MΩ | ±3.0 V Min.                                   |
|                                      | Load Resistance: 50 Ω | ±1.3 V Min.                                   |
| Output Offset Voltage <sup>Ⓐ</sup>   | Typ.                  | ±1 mV   |
| Output Noise Voltage <sup>Ⓐ</sup>    | Max.                  | 2 mV rms                                      |
| Connector                            | Input                 | BNC-R   |
|                                      | Output                | BNC-R   |
|                                      | Power                 | DIN (6-pin)                                   |
| Power Supply Voltage                 |                       | ±5 V  |
| Max. Power Supply Voltage            |                       | ±6.5 V  |
| Power Supply Current                 | Max.                  | ±140 mA                                       |
| Operating Temperature                |                       | 0 °C to +40 °C                                |
| Storage Temperature                  |                       | -10 °C to +60 °C                              |
| Weight                               |                       | Approx. 165 g                                 |

NOTE: <sup>Ⓐ</sup>Load Resistance: 50 Ω    <sup>Ⓑ</sup>Switchable

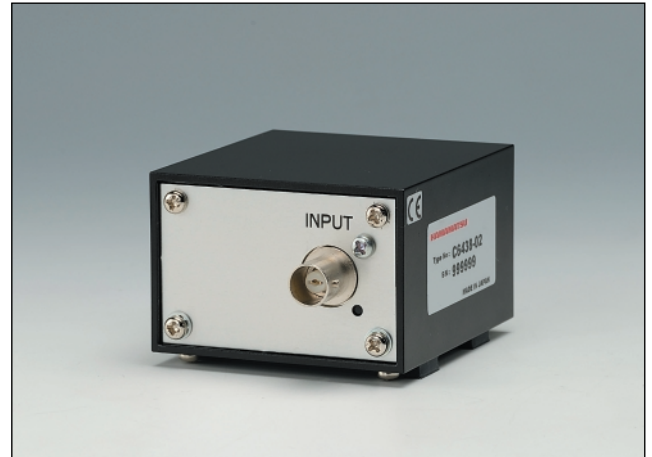
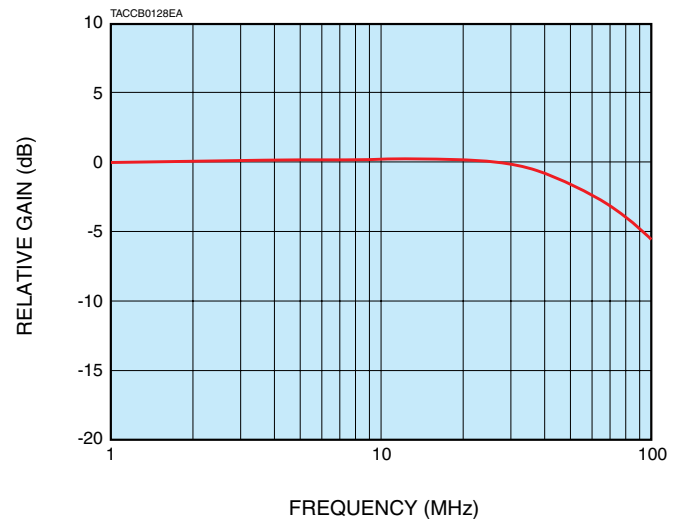
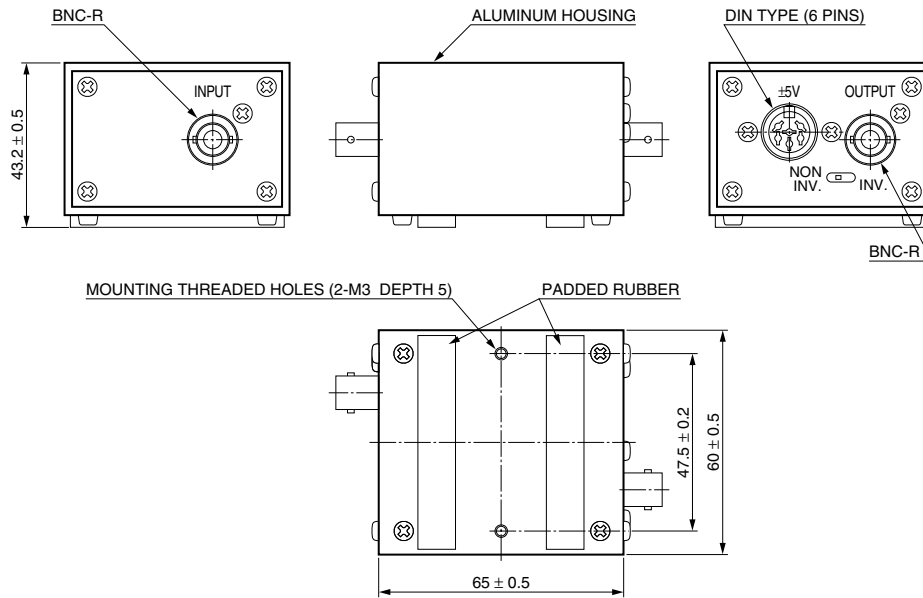


Figure 1: Typical Frequency Response



# WIDE BANDWIDTH AMPLIFIER UNIT C6438-02

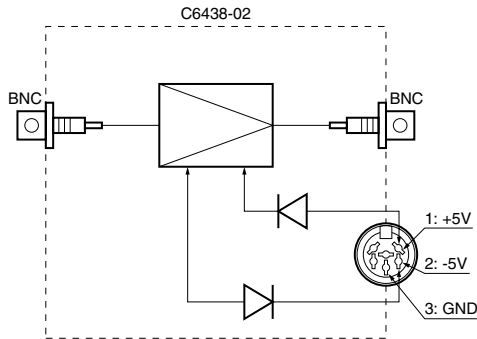
Figure 2: Dimensional Outline (Unit: mm)



\* Power cable with a plug connector attached at one end is supplied with the C6438-02.

TACCA0321EA

Figure 3: Internal Connection Diagram



TACCC0163EA

| 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        | C6438<br>C6438-01<br>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    | +0.5 mV/μA (C6438)<br>+25 mV/μA (C6438-01)<br>±5 mV/μA (C6438-02) | +4 mV/μA      | +1.25 mV/μA   | +3.15 mV/μA       |

\* Load Resistance: 10 kΩ

Refer to the individual catalogs for detailed information.

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