

## Hybrid IC Isolation Amplifiers 20 Series

### ISOLATION AMPLIFIER

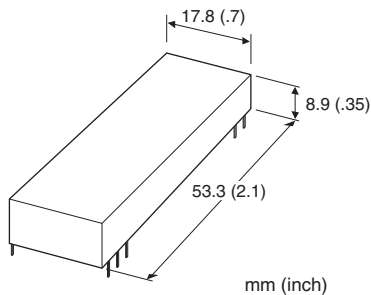
(small size, input isolation, DIP type)

#### Functions & Features

- Being used for printed wiring board installation
- High-linearity
- High speed response of 150 μsec.
- Isolating between input and output or power
- Isolation between input and output or power supply up to 3000 V AC
- Power 15 V DC

#### Typical Applications

- Isolating the field and I/O circuit of microprocessor to reduce noise from field
- Available for manufacturers of small-lot products to omit the development of isolation circuit



### MODEL: 20VS8-202N[1]-U

#### ORDERING INFORMATION

- Code number: 20VS8-202N[1]-U
- Specify a code from below for [1].  
(e.g. 20VS8-202NL-U)

#### TYPE

**202N:** Input isolation  
 INPUT RANGE -5 - +5 V DC  
 OUTPUT RANGE -5 - +5 V DC

#### [1] LINEARITY

J: ±0.05 %  
 K: ±0.025 %  
 L: ±0.012 %

#### POWER INPUT

**DC Power**  
 U: 15 V DC

#### GENERAL SPECIFICATIONS

**Construction:** Hybrid IC  
**Housing material:** Flame-resistant resin (black)  
**Isolation:** Input or reference voltage source to output or power supply

#### INPUT SPECIFICATIONS

■ **DC Voltage**  
**Input :** -5 - +5 V DC  
**Input resistance:** ≥ 1 MΩ (10 kΩ in power failure)  
**Overload input voltage:** ±15 V DC continuous  
**Input offset voltage:** ±2 mV @ G = 1  
**Input bias current:** 25 pA TYP. (@25°C)

#### OUTPUT SPECIFICATIONS

■ **DC Voltage:** -5 - +5 V DC  
**Load resistance:** ≥ 1 MΩ  
**Output impedance:** ≤ 5 kΩ

#### REFERENCE VOLTAGE SOURCE

■ **FOR INPUT**  
**Output voltage:** ±8.5 V DC ±1 V (@ 15 V DC power supply )  
**Load current:** ≤ 1 mA

#### INSTALLATION

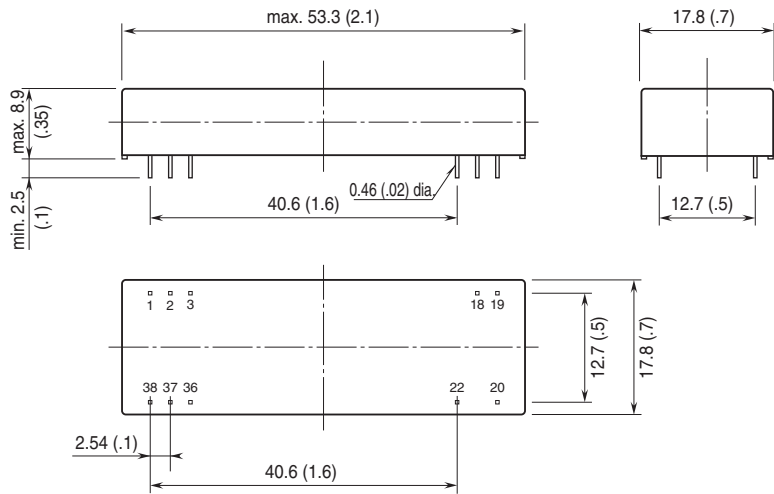
**Power input**  
 • **DC:** Rating ±5 %; approx. 7.5 mA with no load  
**Operating temperature:** -25 to +85°C (-13 to +185°F)  
**Operating humidity:** 30 to 90 %RH (non-condensing)  
**Mounting:** Soldering to the printed wiring board  
**Weight:** 13 g (0.46 oz)

#### PERFORMANCE in percentage of span

Unless otherwise specified, G = 1.  
**Linearity:**  
 ±0.05 % (20VS8-202NJ)  
 ±0.025 % (20VS8-202NK)  
 ±0.012 % (20VS8-202NL)  
**Temp. coefficient:**  
 ±25 ppm/°C (0°C - 70°C; 32 - 158°F)  
 ±50 ppm/°C (-25°C - +85°C; -13 - +185°F)  
**Frequency characteristics:** Approx. 2 kHz, -3 dB  
**Response time:** ≤ 150 μsec. (0 - 90 %)  
**Conversion gain:** ×1 ±1.5 %  
**Gain adjustable range:** × 1 to × 100  
**Line voltage effect:** ±0.02 % over voltage range  
**Insulation resistance:** ≥ 100 MΩ with 500 V DC  
**Dielectric strength:** 3000 V AC @ 1 minute  
 (input or reference voltage source to output or power supply)

CMRR:  $\geq 120$  dB (500 V AC 50/60 Hz)

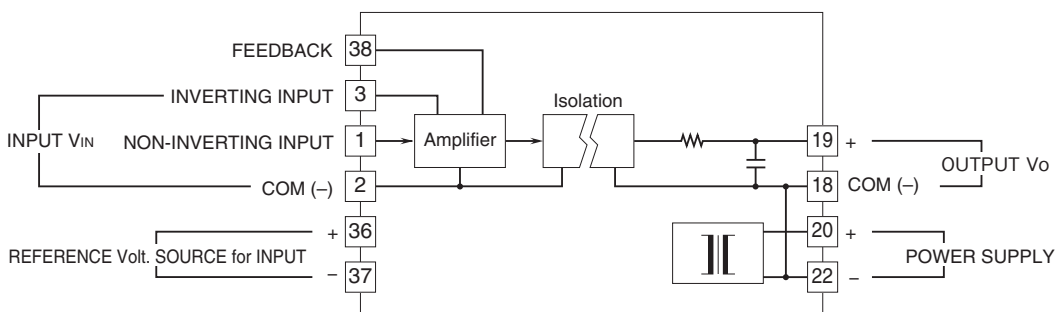
## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



### PIN ASSIGNMENTS

1	Non-inverting Input
2	Input COM (-)
3	Inverting Input
18	Output COM (-)
19	Output (+)
20	Power Supply (+)
22	Power Supply (-)
36	Reference Voltage Source (+)
37	Reference Voltage Source (-)
38	Feedback

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

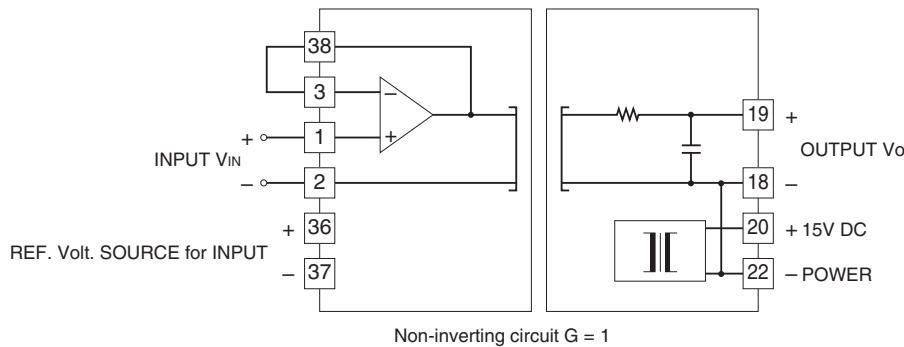


Note. The reference voltage source for input is common to the input COM (-)

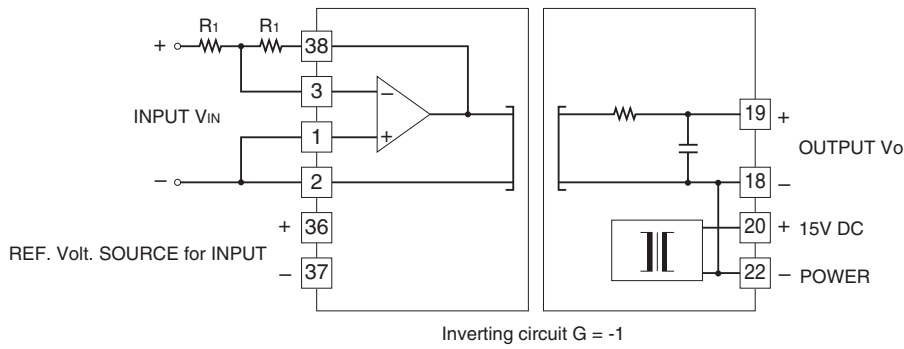
## APPLICATION EXAMPLE

$10 \text{ k}\Omega \leq (R_1 + R_2) \leq 200 \text{ k}\Omega$

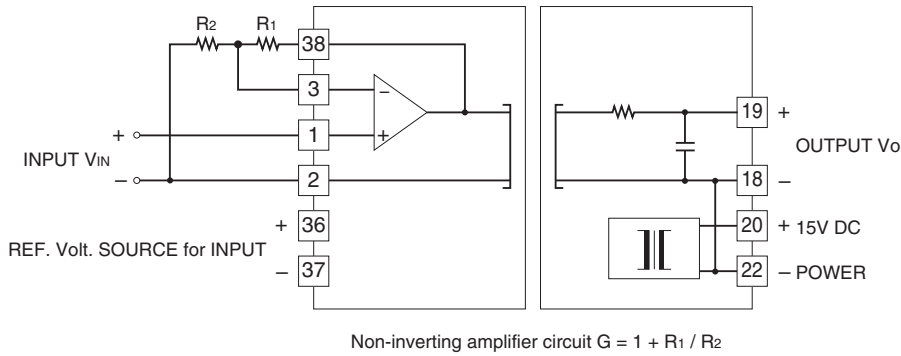
■ Non-inverting amplifier circuit: Basic example of  $G = 1$



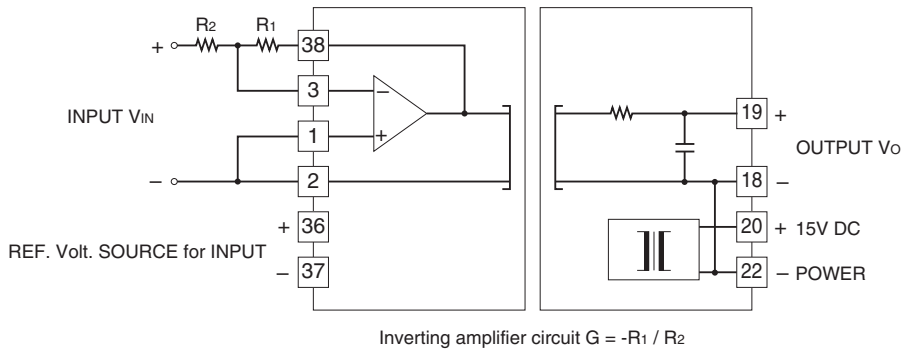
■ Inverting amplifier circuit: Basic example of  $G = -1$  (output is inverted from the input)



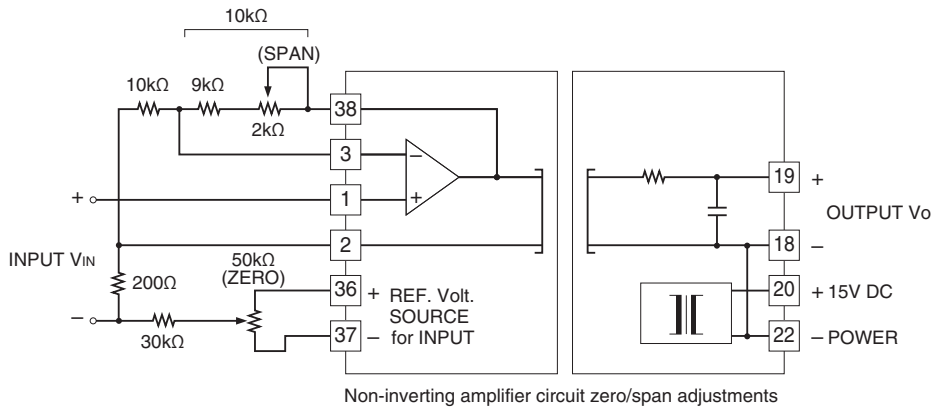
■ Non-inverting amplifier circuit: Example of  $G = 1 + R_1 / R_2$



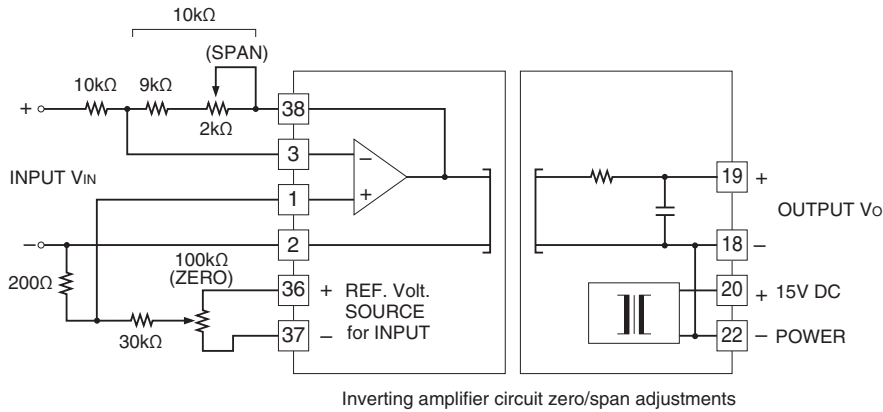
■ Inverting amplifier circuit: Example of  $G = -R_1 / R_2$  (output is inverted from the input)



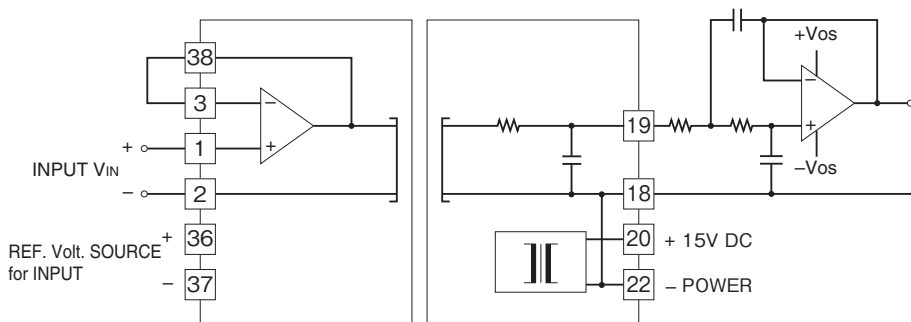
■ Non-inverting amplifier circuit with external adjustments: Example of  $G = 2$



■ Inverting amplifier circuit with external adjustments: Example of  $G = -1$  (output is inverted from the input)



■ Non-inverting amplifier circuit: With noise filter



Specifications are subject to change without notice.