

Hybrid IC Isolation Amplifiers 20 Series

ISOLATION AMPLIFIER

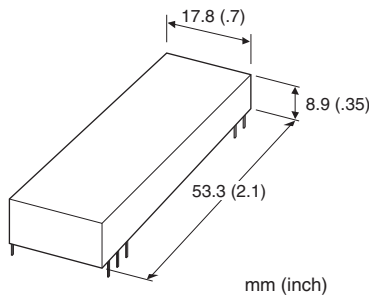
(small size, input isolation, DIP type)

Functions & Features

- Being used for printed wiring board installation
- High-linearity
- High speed response of 150 μ sec.
- 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 M Ω (10 k Ω 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 M Ω

Output impedance: ≤ 5 k Ω

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 μ sec. (0 - 90 %)

Conversion gain: $\times 1 \pm 1.5$ %

Gain adjustable range: $\times 1$ to $\times 100$

Line voltage effect: ± 0.02 % over voltage range

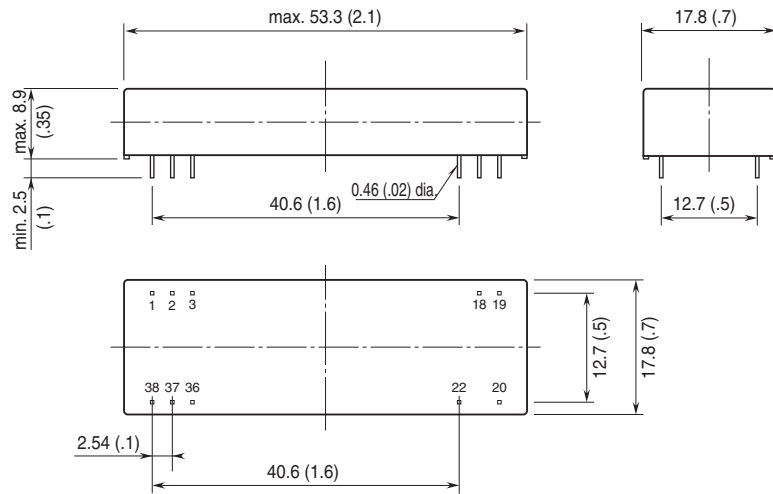
Insulation resistance: ≥ 100 M Ω with 500 V DC

Dielectric strength: 3000 V AC @ 1 minute

(input or reference voltage source to output or power supply)

CMRR: ≥ 120 dB (500 V AC 50/60 Hz)

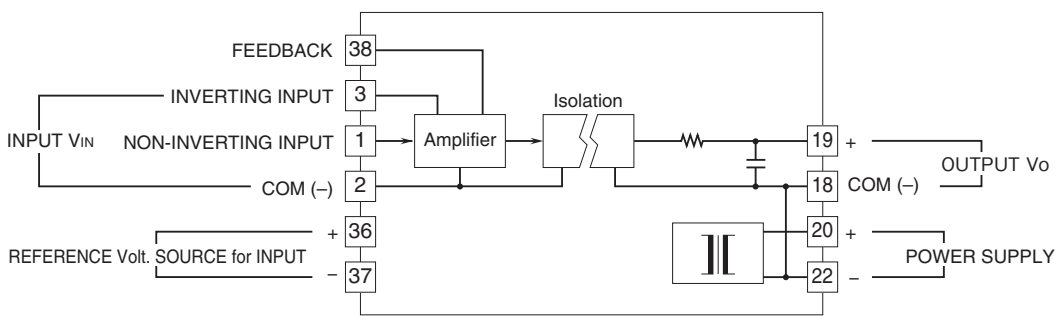
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

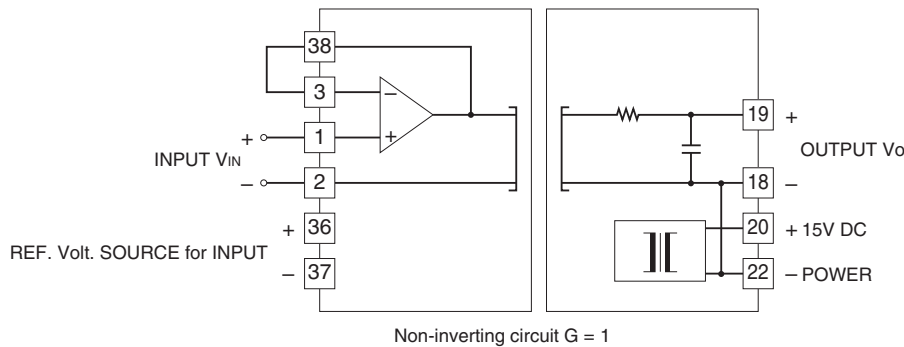


Note. The reference voltage source for input is common to the input COM (-)

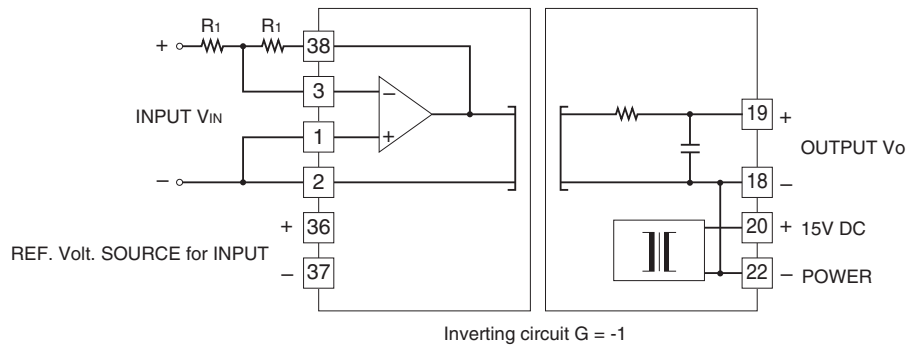
APPLICATION EXAMPLE

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

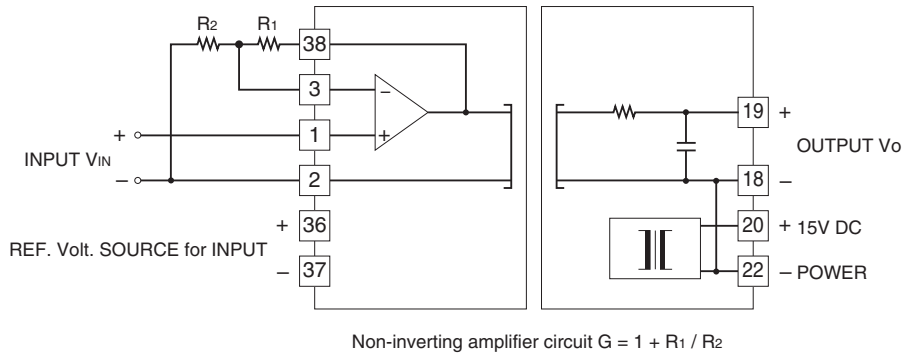
■ Non-inverting amplifier circuit: Basic example of $G = 1$



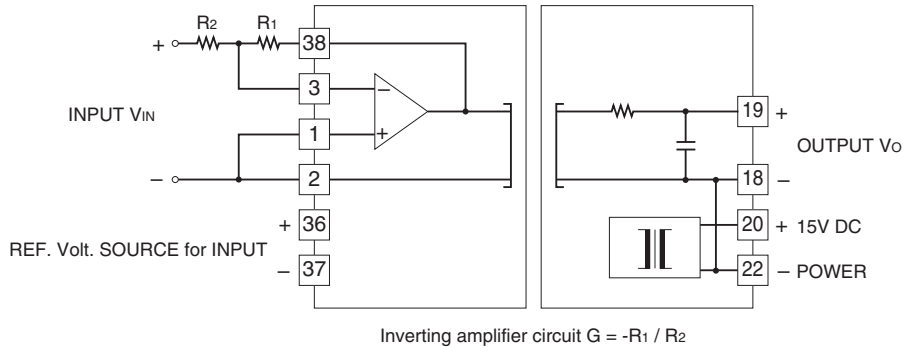
■ Inverting amplifier circuit: Basic example of $G = -1$ (output is inverted from the input)



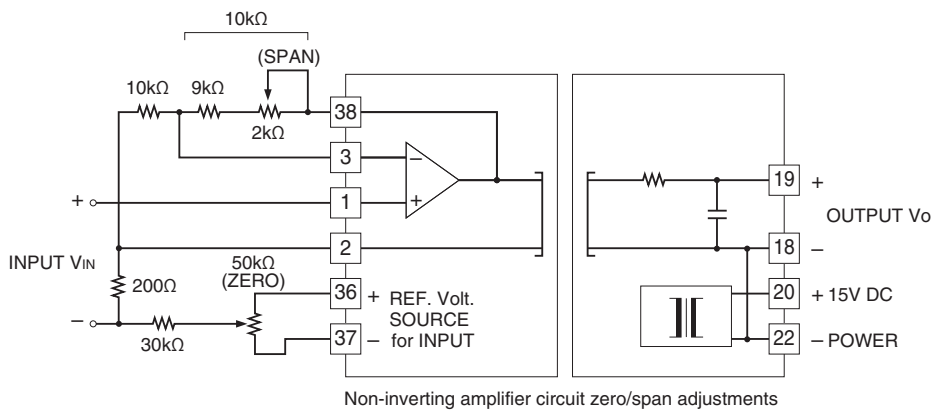
■ Non-inverting amplifier circuit: Example of $G = 1 + R_1 / R_2$



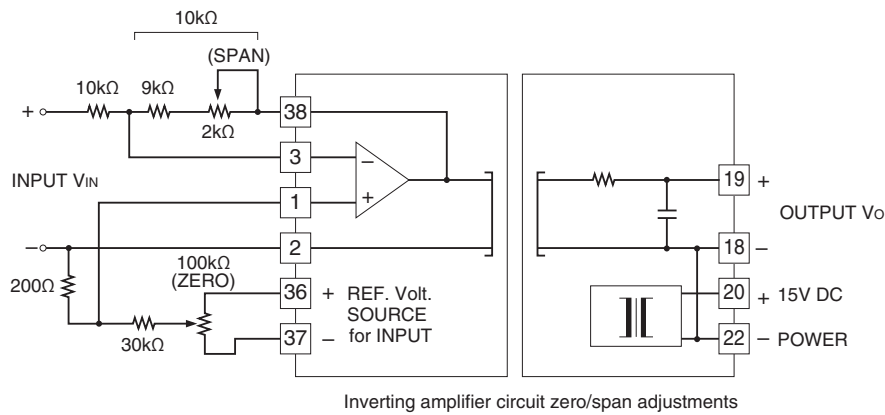
■ Inverting amplifier circuit: Example of $G = -R_1 / R_2$ (output is inverted from the input)



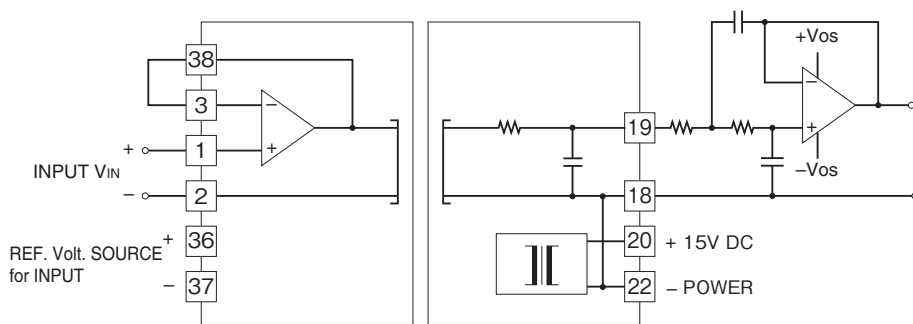
■ Non-inverting amplifier circuit with external adjustments: Example of $G = 2$



■ 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.