

Hybrid IC Isolation Amplifiers 20 Series**ISOLATION AMPLIFIER**

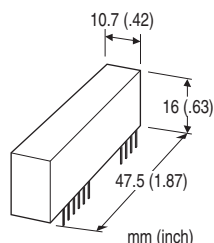
(high-accuracy, input isolation)

Functions & Features

- Being used for printed wiring board installation
- Up to 2500 V isolation between input to output or power input
- High-linearity
- Small installation area in printed wiring board
- Gain adjustable range, $\times 1$ to $\times 10$
- Power 15 V DC

Typical Applications

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

**MODEL: 20VS5-204-U****ORDERING INFORMATION**

- Code number: 20VS5-204-U

INPUT RANGE -10 – +10 V DC

OUTPUT RANGE -10 – +10 V DC

POWER INPUT**DC Power**

U: 15 V DC

GENERAL SPECIFICATIONS

Construction: Hybrid IC

Housing material: Flame-resistant resin (black)

Isolation: Input to output or power

INPUT SPECIFICATIONS**DC Voltage**

Input : -10 – +10 V DC

Input resistance: $\geq 1 \text{ M}\Omega$ (10 k Ω in power failure)Overload input voltage: $\pm 30 \text{ V DC}$ continuousInput offset voltage: $\pm 15 \text{ mV}$

Input bias current: 0.5 nA TYP. (@25°C)

OUTPUT SPECIFICATIONS

■ DC Voltage: -10 – +10 V DC

Load resistance: $\geq 5 \text{ k}\Omega$ Output impedance: $\leq 1 \Omega$ **REFERENCE VOLTAGE SOURCE**Output voltage: $\pm 15 \text{ V DC TYP.}$ Load current: $\leq 2 \text{ mA}$ **INSTALLATION****Power input**

- DC: Operational voltage range: Rating $\pm 10 \%$, ripple 2 %p-p max.; approx. 7 mA with no load

Operating temperature: -10 to +70°C (14 to 158°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Soldering to the printed wiring board

Weight: 10g (0.35 oz)

PERFORMANCE in percentage of spanUnless otherwise specified, $G = 1$.Linearity: $\pm 0.005 \%$ TYP. ($\pm 0.025 \%$ max.)**Temp. coefficient:**

Offset drift 20 ppm/°C

Span drift 40 ppm/°C

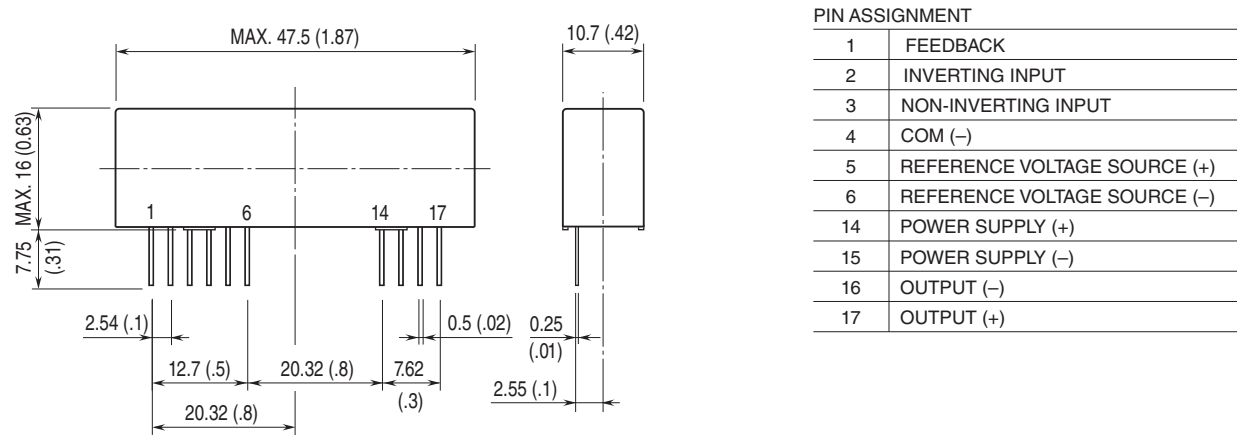
Frequency characteristics: Approx. 3 kHz, -3 dB

Response time: $\leq 150 \mu\text{sec.}$ (0 – 90 %)Conversion gain: $\times 0.98 \pm 5 \%$ Gain adjustable range: $\times 1$ to $\times 10$ Line voltage effect: $\pm 0.05 \%$ over voltage rangeInsulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC

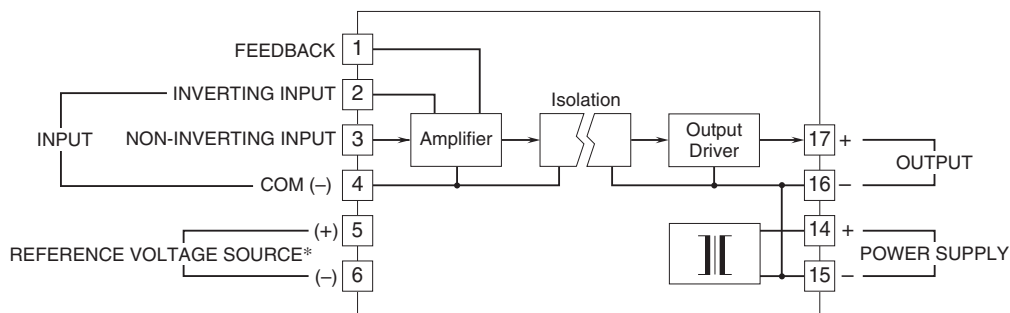
Dielectric strength: 2500 V AC @1 minute (input or reference voltage source to output or power)

CMRR: $\geq 100 \text{ dB}$ (500 V AC 50/60 Hz)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

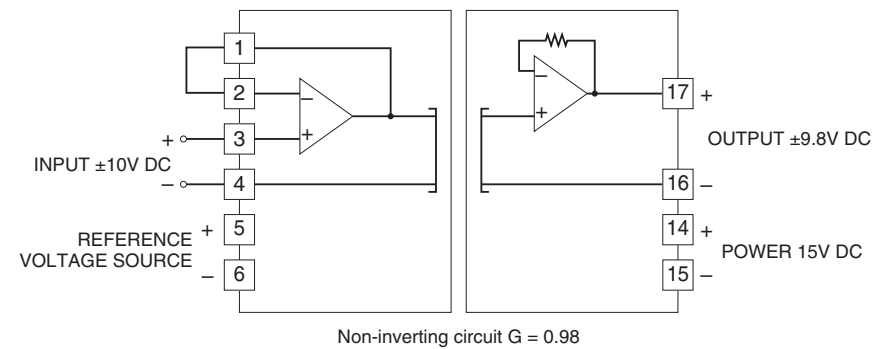


*To be used in the printed wiring board on which the unit is mounted.
Note. The reference voltage source is common to the COM (-), terminal 4.

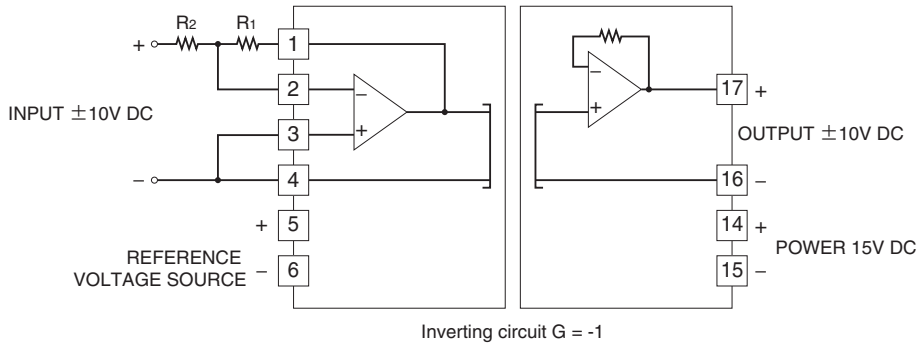
APPLICATION EXAMPLE

The series resistance of the amplifier, R1 + R2 must be between 10 kΩ and 200 kΩ.

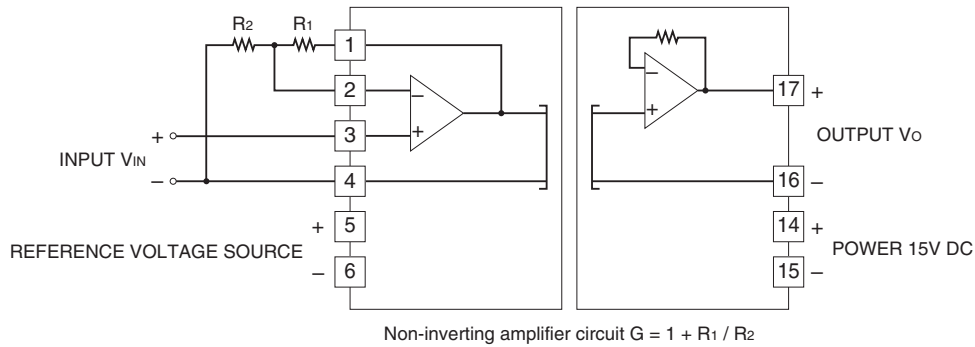
■ Non-inverting amplifier circuit: Basic example of G = 0.98



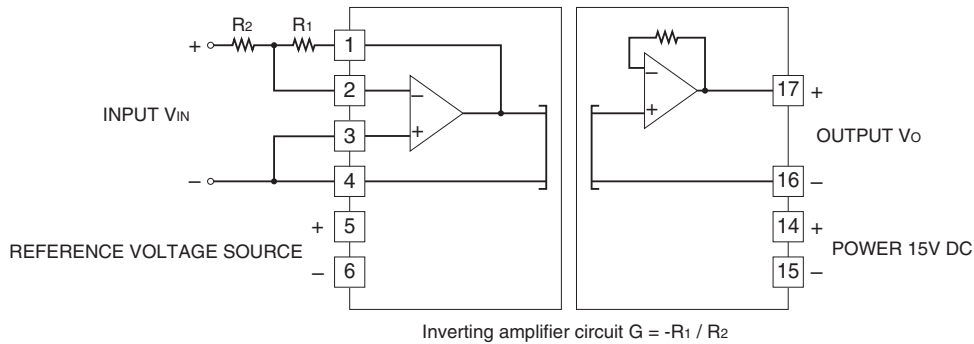
■ Inverting amplifier circuit: Basic example of $G = -1$ (output inverted to the input) ($R_1 \approx R_2$)



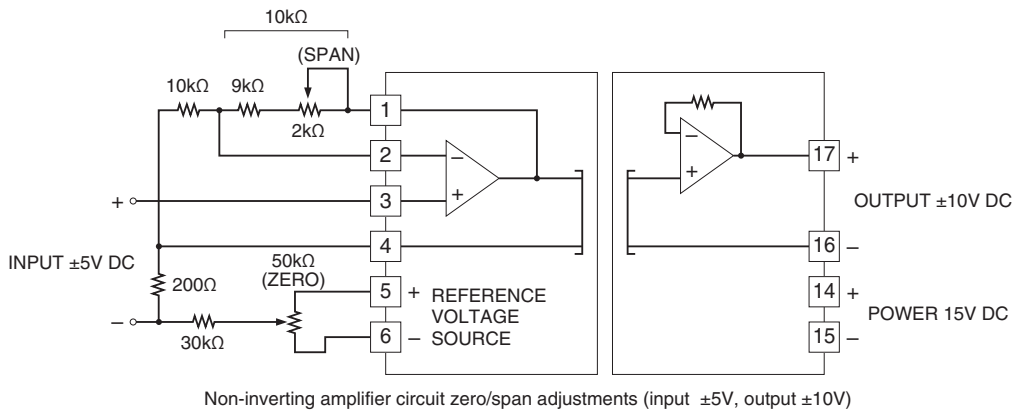
■ Non-inverting amplifier circuit: Example of $G = 1 + R_1 / R_2$



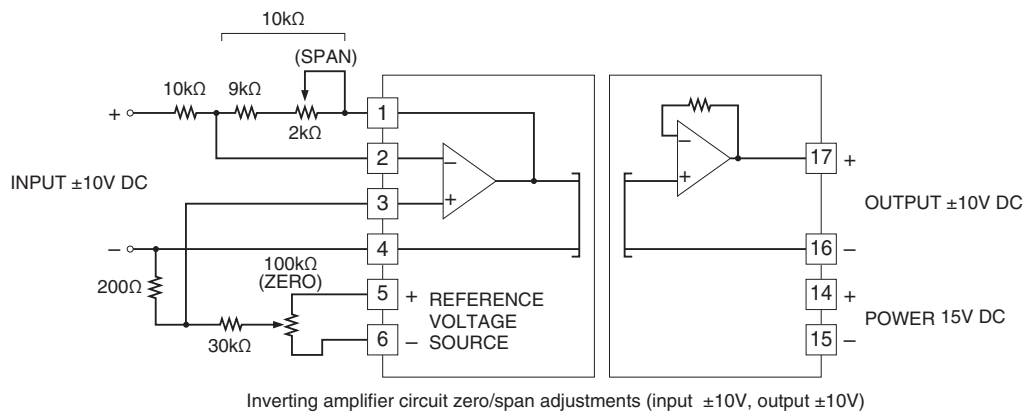
■ Inverting amplifier circuit: Example of $G = -R_1 / R_2$ (output inverted to the input)



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



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



Specifications are subject to change without notice.