Hybrid IC Isolation Amplifiers 20 Series

ISOLATION AMPLIFIER

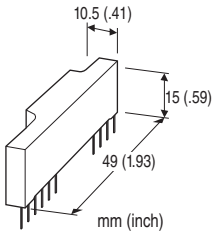
(ultra-high speed response, input isolation)

Functions & Features

- Being used for printed wiring board installation
- Response time 10 µs
- Isolation between input to output or power supply up to 1500 V AC
- Power 15V DC

Typical Applications

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



MODEL: 20VS5–200–U

ORDERING INFORMATION

- Code number: 20VS5-200-U

INPUT RANGE -5 – +5 V DC
OUTPUT RANGE -5 – +5 V DC

POWER INPUT

DC Power

U: 15 V DC

GENERAL SPECIFICATIONS

Construction: Hybrid IC
Housing material: Epoxy resin
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: 30 V DC continuous
Input offset voltage: ±129 mV (15 mV TYP.)
Input bias current: 100 pA TYP. (@25°C)

OUTPUT SPECIFICATIONS

■ **DC Voltage**: -5 – +5 V DC
Load resistance: ≥ 2 kΩ
Output impedance: ≤ 1 Ω

REFERENCE VOLTAGE SOURCE

Output voltage:
±14 V DC TYP. (+15 V power supply)
±10 V DC TYP. (+11.5 V power supply)
Load current: ≤ 2 mA

INSTALLATION

Power input
•**DC**:
Operational voltage range 11.5 – 16 V;
ripple 2 %p-p max.; approx. 40 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: 8 g (0.28 oz)

PERFORMANCE in percentage of span

Linearity: ±0.5 % @ G = 1
Temp. coefficient:
Offset drift 50 ppm/°C
Span drift 200 ppm/°C
Frequency characteristics: Approx. 50 kHz, -3 dB
Response time: ≤ 10 µsec. (0 – 90 %)
Conversion gain: ×1 ±8 % max.
Gain adjustable range: × 1 to × 10
Ripple: ±7 %p-p max. (G = 1)
Line voltage effect: ±0.5 % over voltage range
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 1500 V AC @ 1 minute (input or reference voltage source to output or power)
CMRR: ≥ 100 dB (500 V AC 50/60 Hz)

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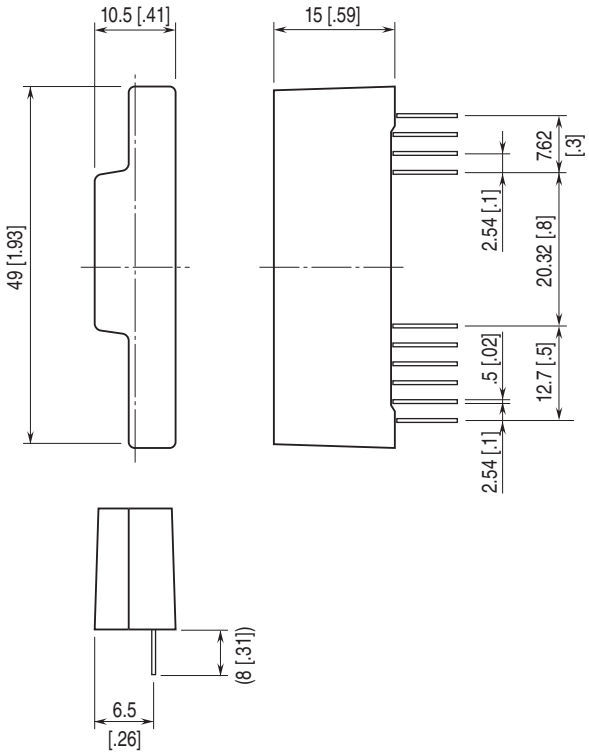
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]

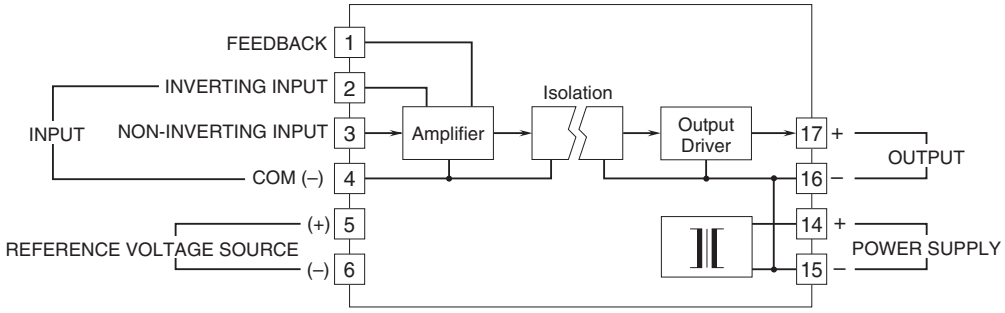


PIN ASSIGNMENT

OUTPUT (+)	17
OUTPUT (–)	16
POWER SUPPLY (–)	15
POWER SUPPLY (+)	14
REFERENCE VOLTAGE SOURCE (–)	6
REFERENCE VOLTAGE SOURCE (+)	5
COM (–)	4
NON-INVERTING INPUT	3
INVERTING INPUT	2
FEEDBACK	1

(BOTTOM VIEW)

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

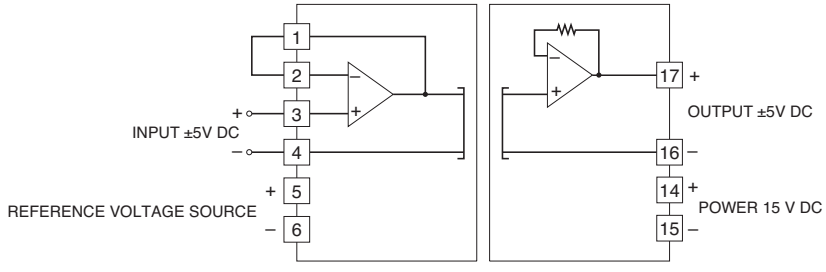


Note. The reference voltage source is common to the COM (–)

APPLICATION EXAMPLE

The total resistance of the resistors connected to the amplifier must be max. 20 kΩ.

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



Non-inverting circuit G = 1

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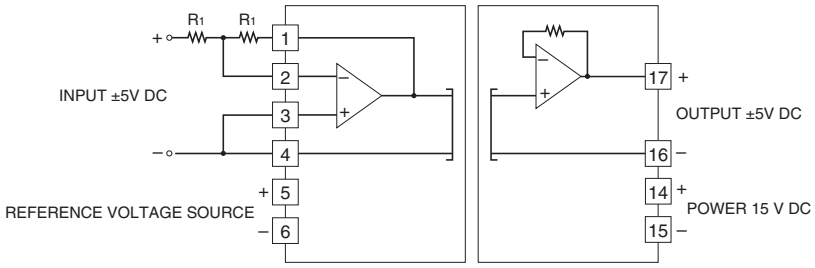
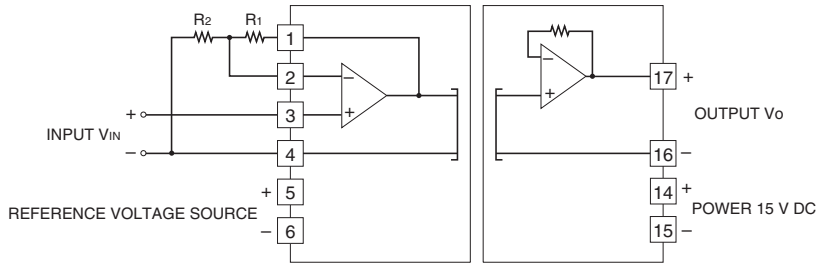
■ Inverting amplifier circuit: Basic example of G = -1 (output inverted to the input)



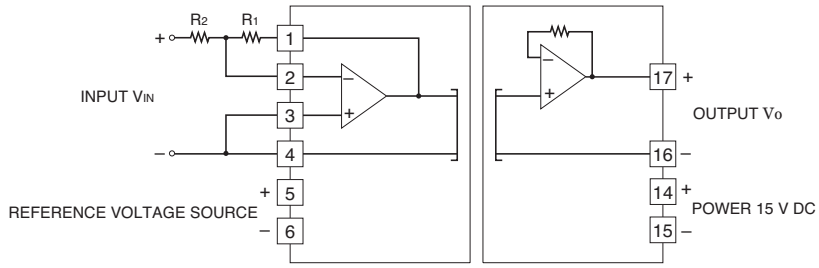
Inverting circuit G = -1

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



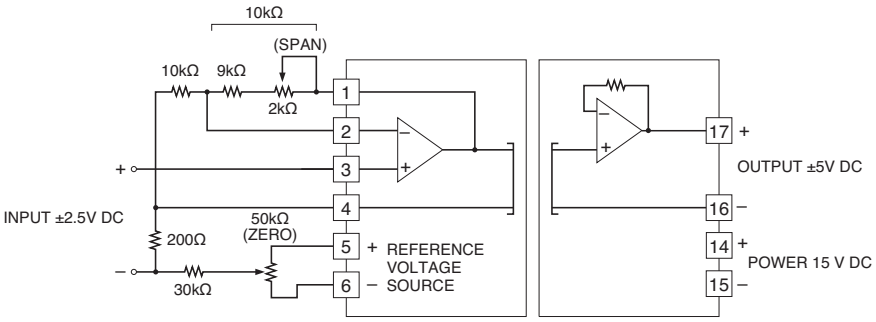
Non-inverting amplifier circuit G = 1 + R_1 / R_2

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



Inverting amplifier circuit G = -R_1 / R_2

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



Non-inverting amplifier circuit zero/span adjustments (input ±2.5V, output ±5V)

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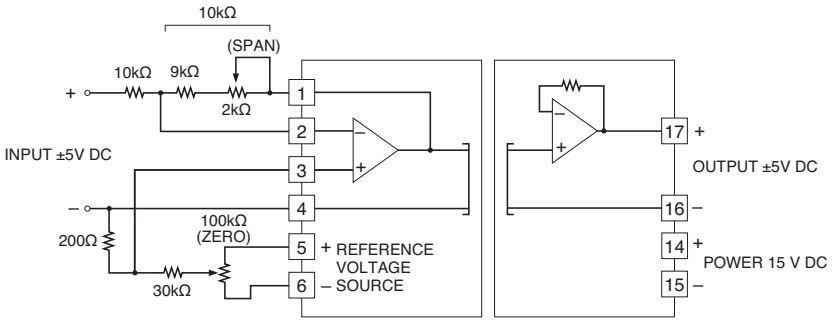
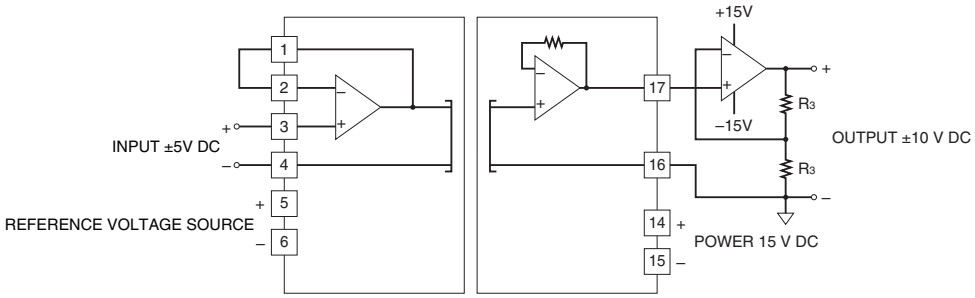
■ Inverting amplifier's circuit with external adjustments: Example of G = -1 (output inverted to the input)



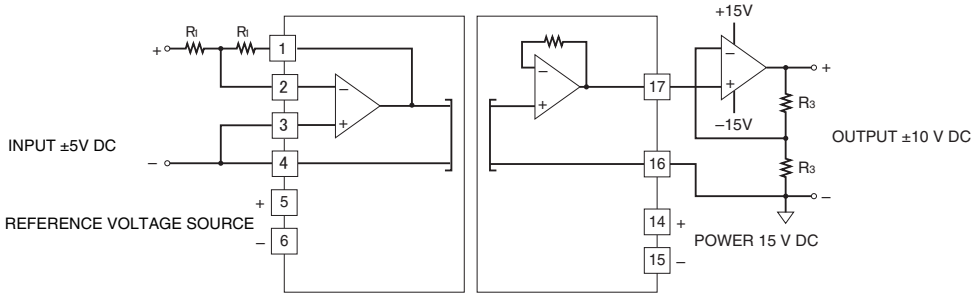
Inverting amplifier circuit zero/span adjustments (input ±5V, output ±5V)

■ Non-inverting amplifier circuit: Example of ±10V DC output (±10V DC to the input ±5V DC)



Non-inverting circuit G = 1+ R_3 / R_3 = 2

■ Inverting amplifier circuit: Example of ±10V DC output (output inverted to the input)



Inverting circuit G = -(1+ R_3 / R_3) = -2

⚠ Specifications are subject to change without notice.

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