

Hybrid IC Isolation Amplifiers 20 Series

ISOLATION AMPLIFIER

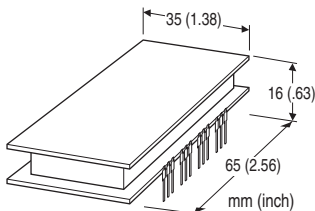
(4 channels, input isolation)

Functions & Features

- Being used for printed wiring board installation
- Up to 2000 V isolation between input to output or power input
- Isolation on 4 input channels
- Small installation area in printed wiring board
- Gain adjustable range, $\times 1$ to $\times 100$
- 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: 20VS1F-4W4W-U

ORDERING INFORMATION

- Code number: 20VS1F-4W4W-U

I/O

4W4W:

INPUT RANGE ± 10 V DC

OUTPUT RANGE ± 10 V DC

POWER INPUT

DC Power

U: 15 V DC

GENERAL SPECIFICATIONS

Construction: Hybrid IC

PWB coating: Silicone

Isolation: Input to output or power input, between inputs

INPUT SPECIFICATIONS

■ DC Voltage

Input : -10 - +10 V DC

Input resistance: ≥ 1 M Ω (10 k Ω in power failure)

Overload input voltage: ± 30 V DC continuous

Input offset voltage: ± 20 mV

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

OUTPUT SPECIFICATIONS

■ DC Voltage: -10 - +10 V DC

Load resistance: ≥ 10 k Ω

Output impedance: ≤ 1 Ω

INSTALLATION

Power input

• **DC:** Operational voltage range: Rating ± 10 %, ripple 2 %p-p max.; approx. 20 mA with no load

Operating temperature: -20 to +70°C (-4 to +158°F)

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

Mounting: Soldering to the printed wiring board

Weight: 30 g (1.1 oz)

PERFORMANCE in percentage of span

Unless otherwise specified, G = 1.

Linearity: ± 0.05 %

Temp. coefficient: 50 ppm/°C (28 ppm/°F)

Frequency characteristics: Approx. 10 kHz, -3 dB

Response time: ≤ 60 μ sec. (0 - 90 %)

Conversion gain: $\times 1 \pm 5$ %

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

Line voltage effect: ± 0.05 % over voltage range

Insulation resistance: ≥ 100 M Ω with 500 V DC

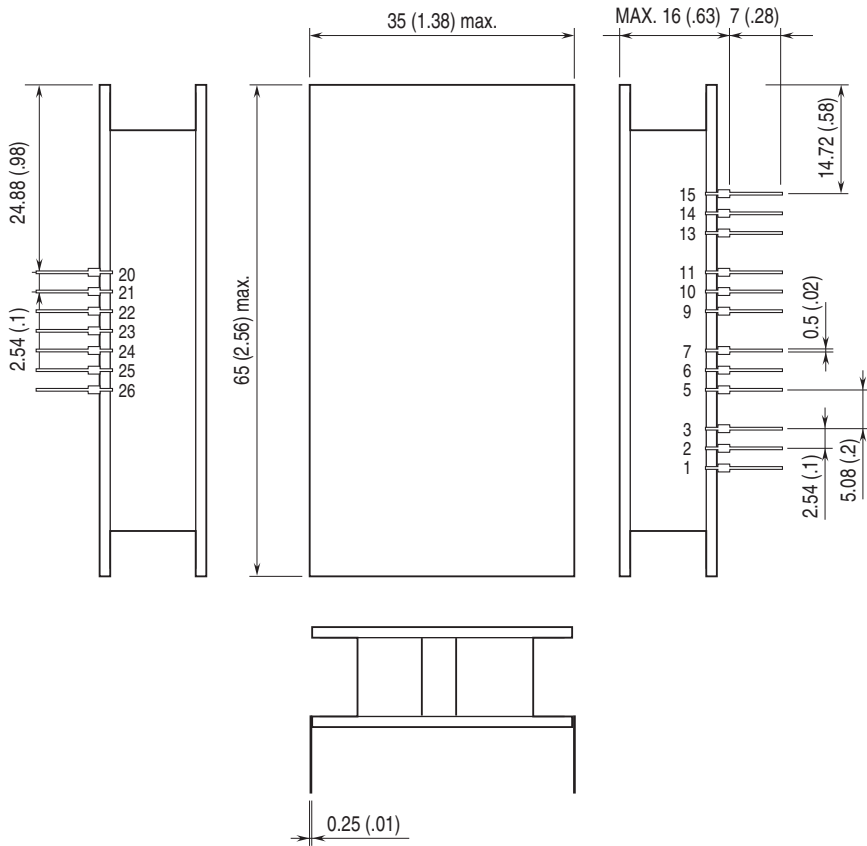
Dielectric strength: 2000 V AC @ 1 minute

(input to output or power)

1000 V AC @ 1 minute (between inputs)

CMRR: ≥ 100 dB (500 V AC 50/60 Hz)

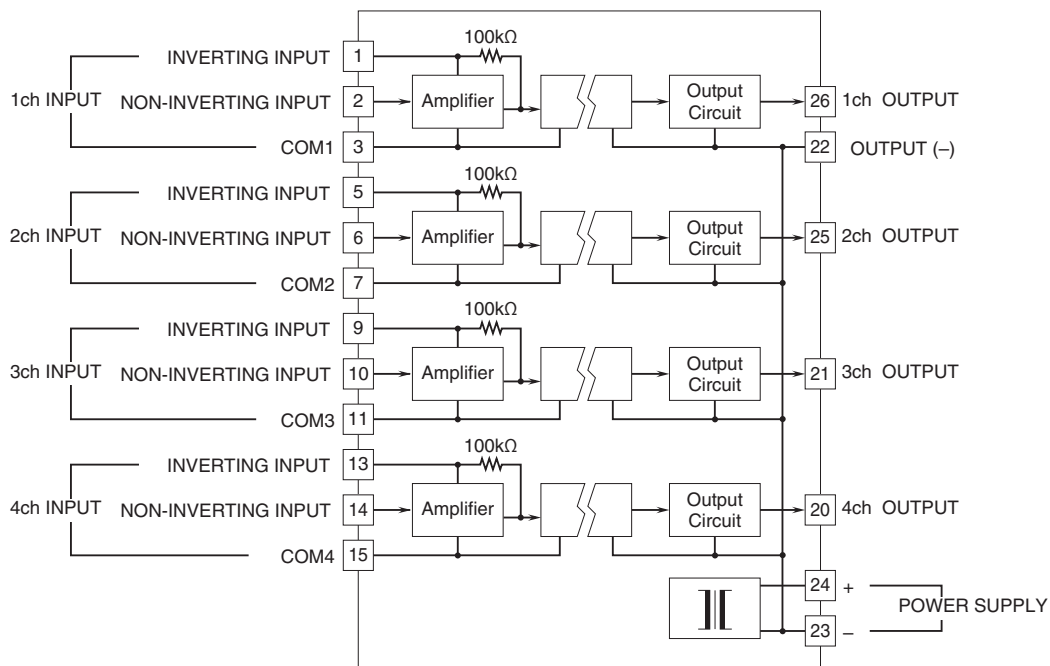
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



PIN ASSIGNMENT

1	INVERTING INPUT 1
2	NON-INVERTING INPUT 1
3	COM 1
5	INVERTING INPUT 2
6	NON-INVERTING INPUT 2
7	COM 2
9	INVERTING INPUT 3
10	NON-INVERTING INPUT 3
11	COM 3
13	INVERTING INPUT 4
14	NON-INVERTING INPUT 4
15	COM 4
20	OUTPUT 4 (+)
21	OUTPUT 3 (+)
22	OUTPUT (-)
23	POWER SUPPLY (-)
24	POWER SUPPLY (+)
25	OUTPUT 2 (+)
26	OUTPUT 1 (+)

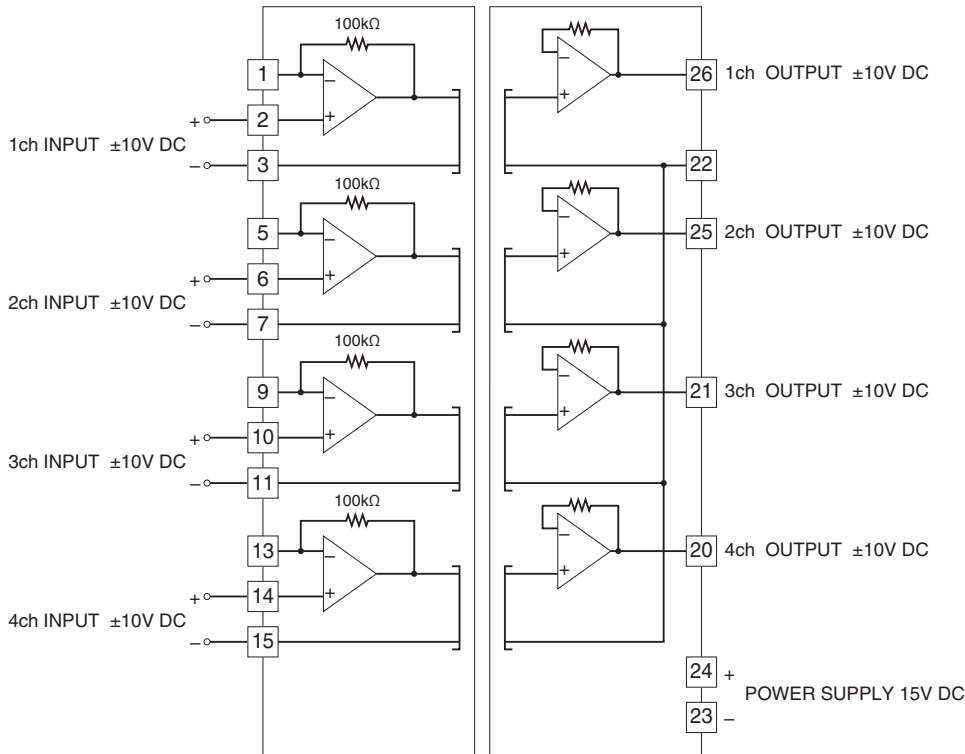
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



APPLICATION EXAMPLE

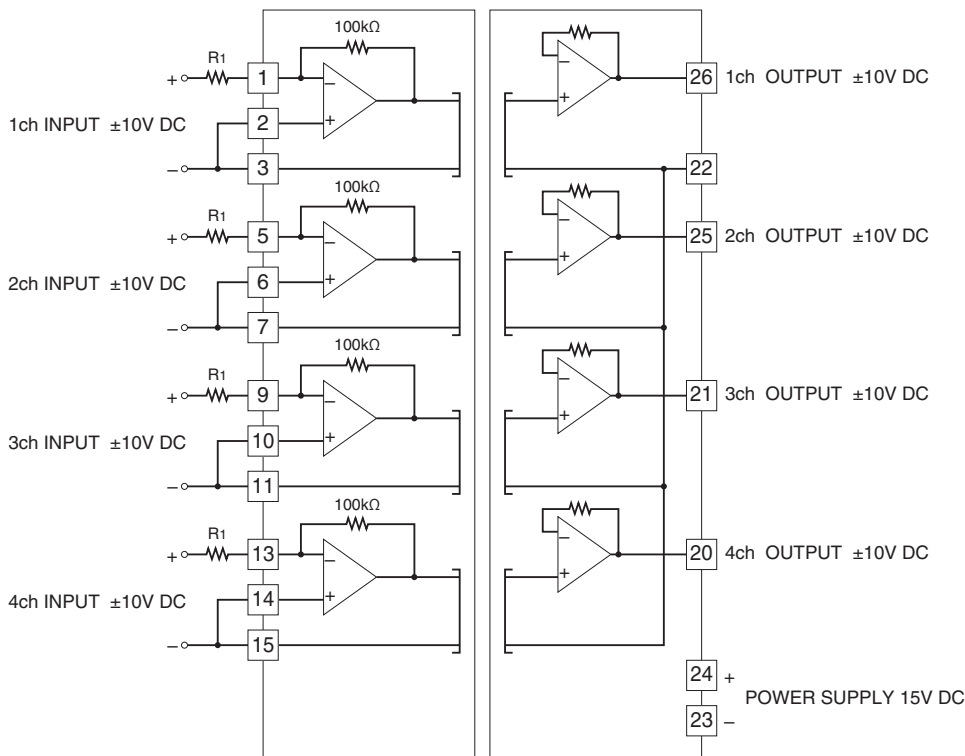
The resistance of R_1 must be between 1 k Ω and 200 k Ω .

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



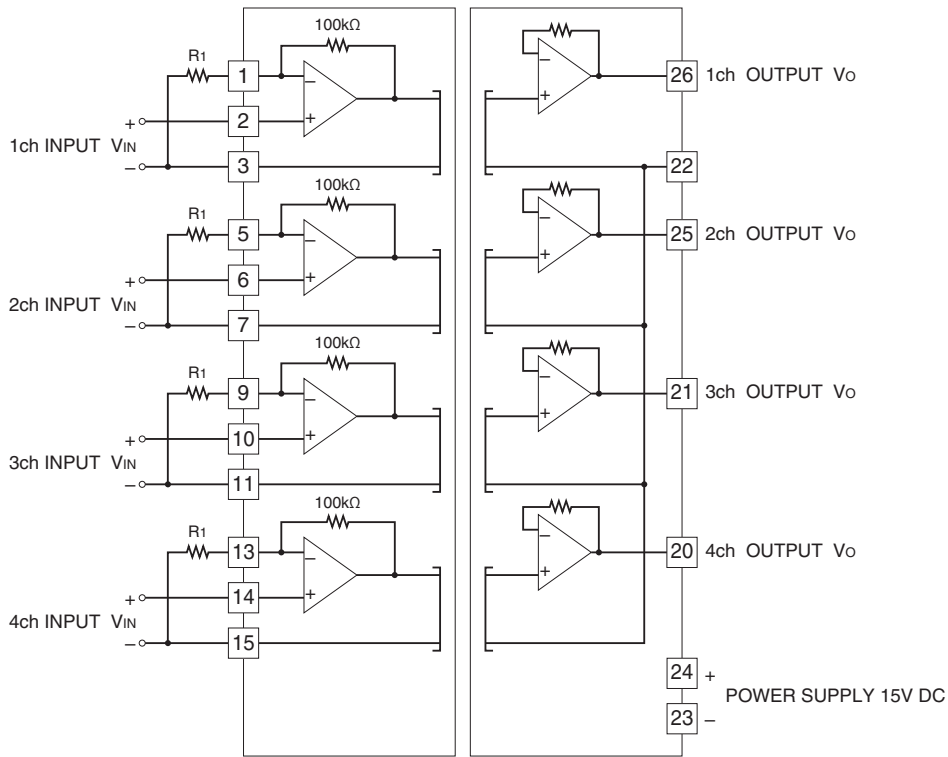
NON-INVERTING CIRCUIT $G = 1$

■ Inverting amplifier circuit: Basic example of $G = -1$ (output inverted to the input) ($R_1 = 100 \text{ k}\Omega$)



INVERTING CIRCUIT $G = -1$

■ Non inverting amplifier circuit: Example of $G = 1 + 100 \text{ k}\Omega / R_1$



■ Inverting amplifier circuit: Example of $G = -100 \text{ k}\Omega / R_1$

