Hybrid IC Isolation Amplifiers 20 Series

ISOLATION AMPLIFIER

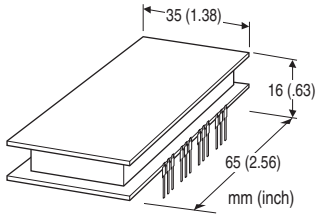
(4 channels, input isolation)

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, × 1 to × 100
- Power 15 V DC

Typical Applications

- Galvanically isolating the I/O circuits of microprocessor from the field side to reduce external noise
- Enabling electronic manufacturers to save efforts and cost for the development of isolation circuits for small-lot products



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 MΩ (10 kΩ 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 kΩ
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 µsec. (0 – 90 %)
Conversion gain: ×1 ±5 %
Gain adjustable range: × 1 to × 100
Line voltage effect: ±0.05 % over voltage range
Insulation resistance: ≥ 100 MΩ 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)

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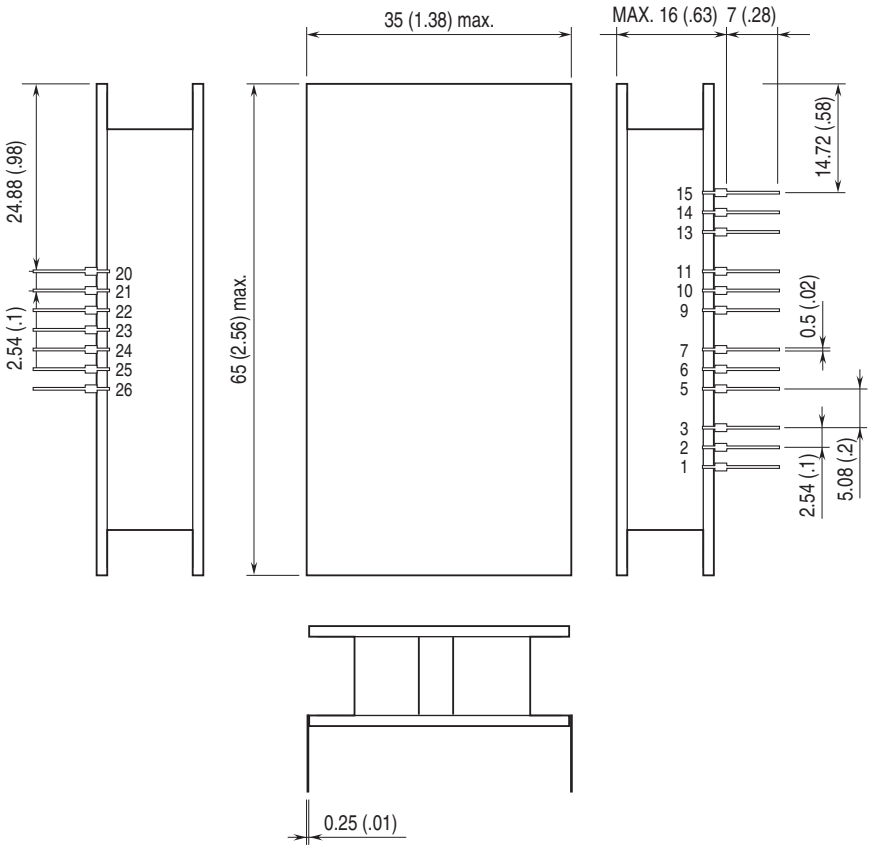
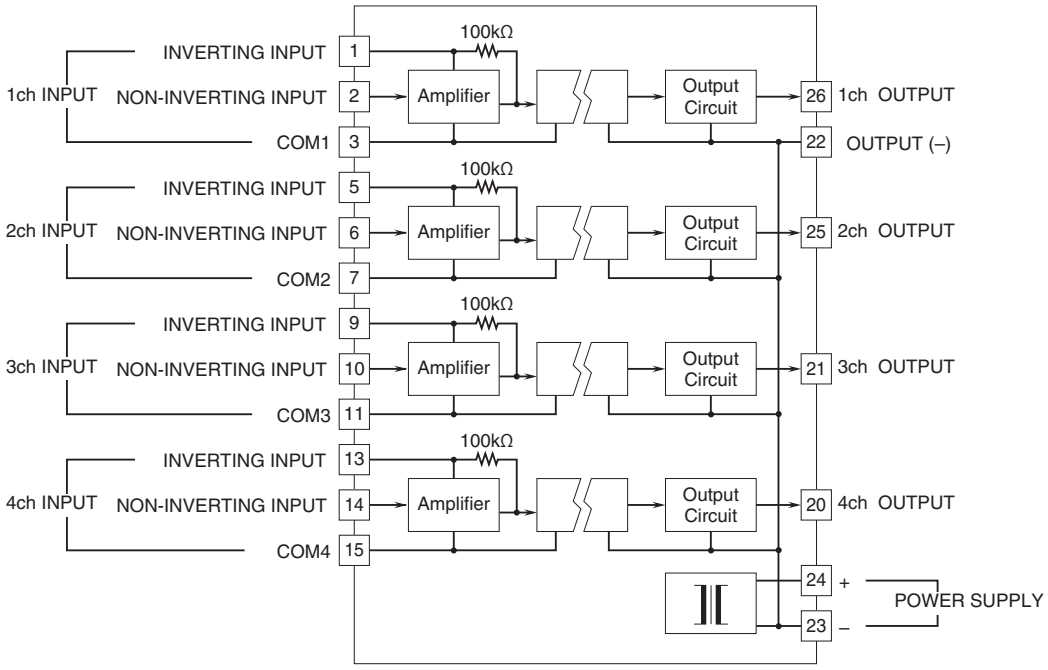
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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



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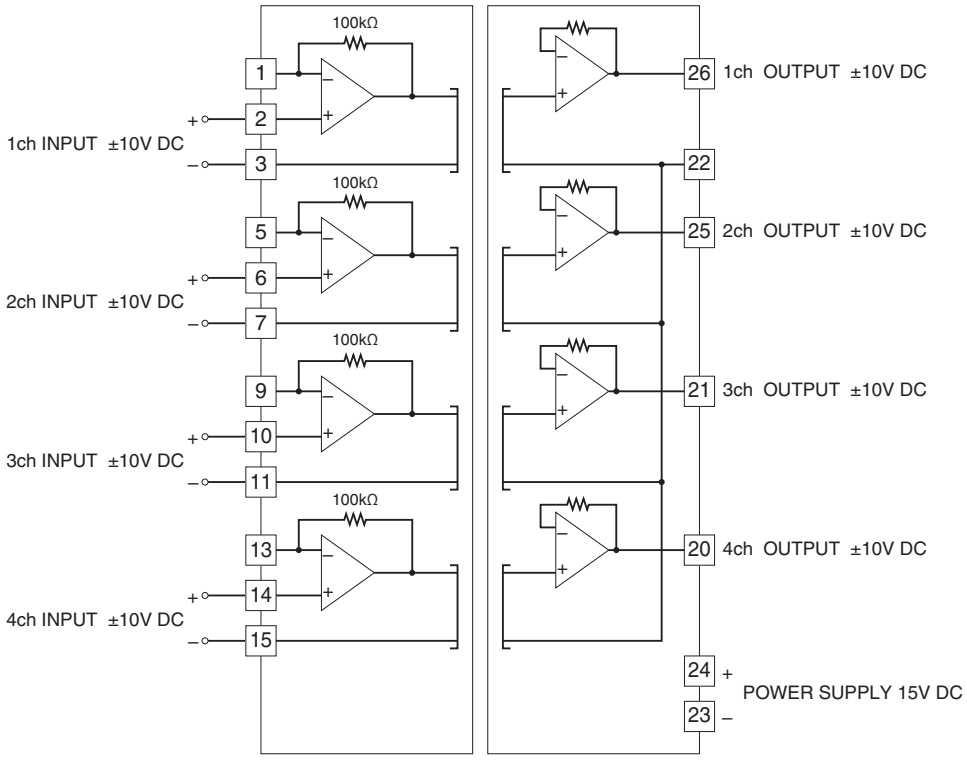
APPLICATION EXAMPLE

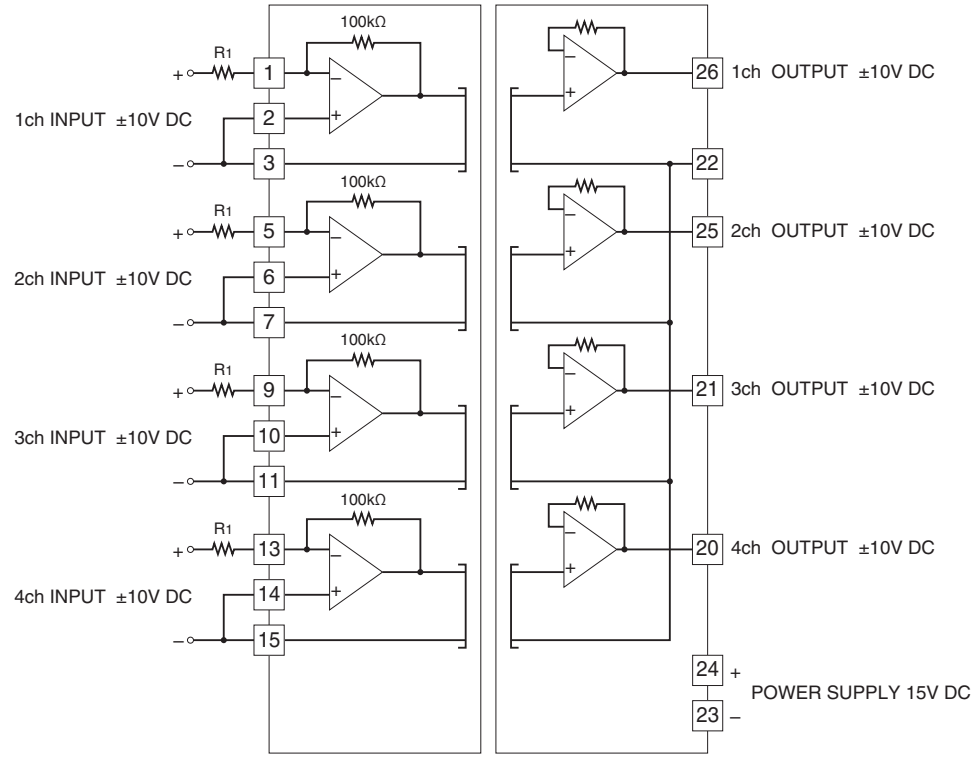
The resistance of R_1 must be between 1 kΩ and 200 kΩ.

■ **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 kΩ)**



INVERTING CIRCUIT G = –1

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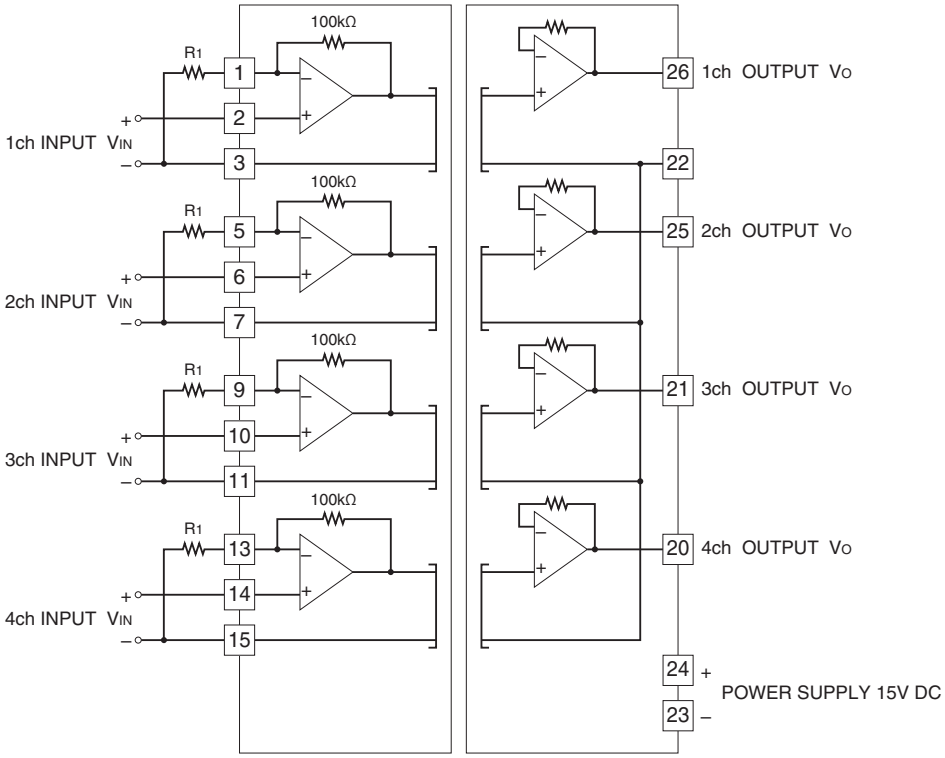
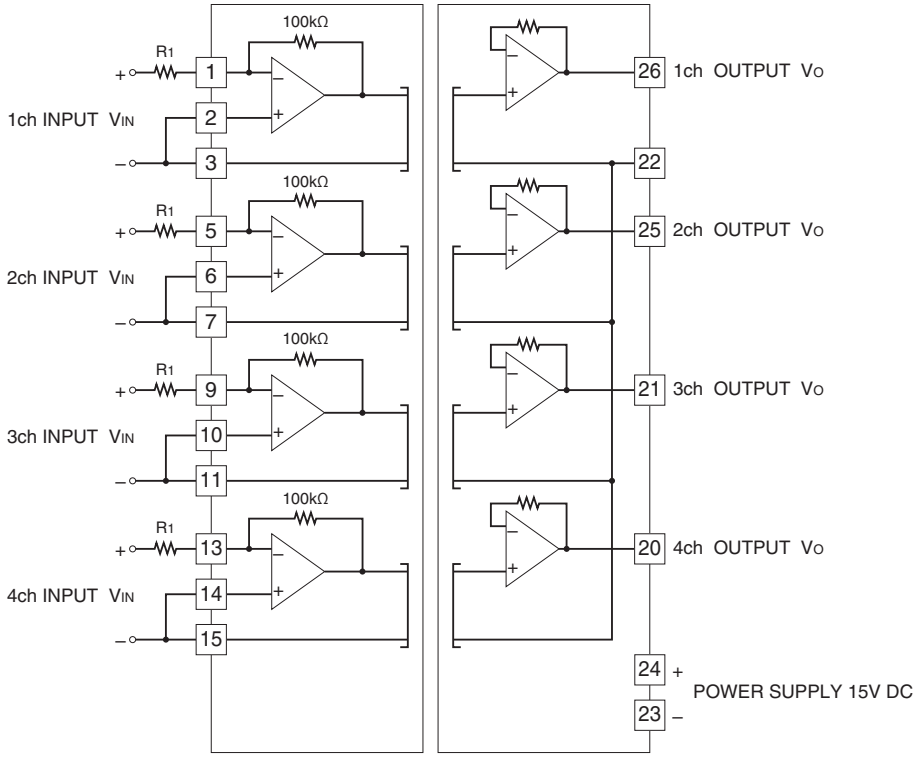
■ **Non inverting amplifier circuit: Example of G = 1 + 100 kΩ / R1**



NON-INVERTING CIRCUIT G = 1 + 100 kΩ / R1

■ **Inverting amplifier circuit: Example of G = –100 kΩ / R1**



INVERTING CIRCUIT G = –100 kΩ / R1

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⚠ Specifications are subject to change without notice.

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