

Hybrid IC Isolation Amplifiers 20 Series

ISOLATION AMPLIFIER

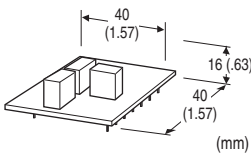
(current output, 3-port isolation)

Functions & Features

- Being used for printed wiring board installation
- High-linearity
- Low power consumption
- Small installation area in printed wiring board
- Isolating between input, output and power
- Isolation between input, output and power supply up to 1500V AC
- 12 V DC power supply
- Current output

Typical Applications

- Isolating the fields and output circuit of microprocessor to reduce common mode noise
- Available for manufacturers of small-lot products to omit the development of isolation circuit



MODEL: 20VS5-301-S

ORDERING INFORMATION

- Code number: 20VS5-301-S

INPUT RANGE 0 - 5 V DC

OUTPUT RANGE 0 - 20 mA DC

POWER INPUT

DC Power

S: 12 V DC

GENERAL SPECIFICATIONS

Construction: Hybrid IC

PWB coating: Silicone

Isolation: Input or reference voltage source to output to power supply

INPUT SPECIFICATIONS

■ DC Voltage

Input : 0 - 5.5 V DC

Input resistance: 20 kΩ with 20 kΩ externally attached

(Gain varies depending on the input resistance. For details, refer to APPLICATION EXAMPLE.)

Overload input voltage: 10 V DC continuous

Input offset voltage: ±30 mV

Input bias current: 2 nA TYP. (@25°C) (which is the internal amplifier's value (not measurable from the outside))

OUTPUT SPECIFICATIONS

■ **DC Current:** 0 - 22 mA DC

Load resistance: ≤ 550 Ω @ 12 V power input and 20 mA output

Output impedance: ≥ 1 MΩ

REFERENCE VOLTAGE SOURCE

Output voltage: ±10 V DC ±10 %

Load current: ≤ 5 mA

INSTALLATION

Power input

• **DC:** Operational voltage range: Rating ±10 %, ripple 2 %p-p max.; ≤ 70 mA with 20 mA output

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: 20 g (0.71 oz)

PERFORMANCE in percentage of span

Linearity: ±0.05 % (at output 0 - 20 mA) @G = 1

Temp. coefficient: ±80 ppm/°C

Frequency characteristics: Approx. 950 Hz (-3 dB)

Response time: ≤ 600 μsec. (0 - 90 %)

Conversion gain: ×1 ±10 % @ 250 Ω load

Gain adjustable range: G = × 1 to × 10

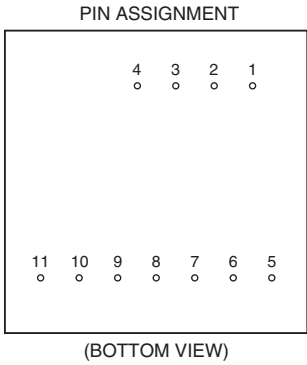
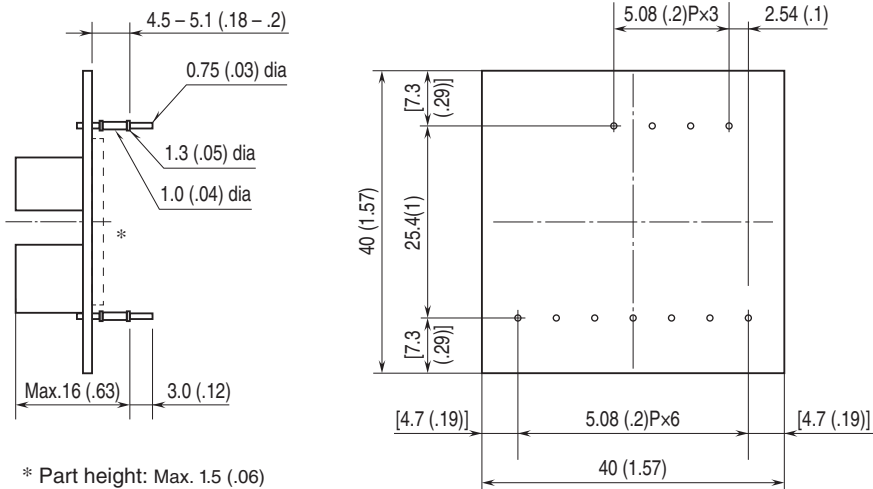
Line voltage effect: ±0.05 % over voltage range

Insulation resistance: ≥ 100 MΩ with 500 V DC

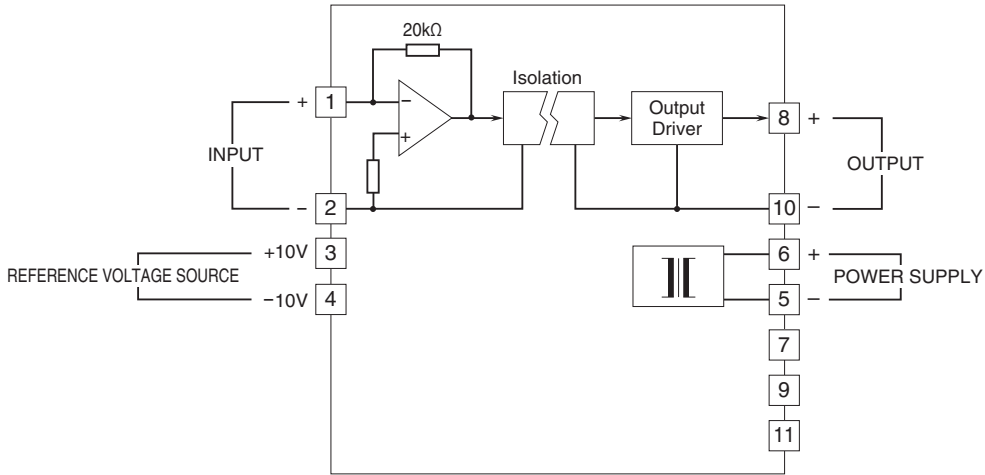
Dielectric strength: 1500 V AC @1 minute (input or reference voltage source to output to power)

CMRR: ≥ 100 dB (500 V AC 50/60 Hz)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



APPLICATION EXAMPLE

$$I_o = 20 \text{ K}\Omega / (R_1 + VR_1) \times (V_{in} / 120 \text{ }\Omega)$$

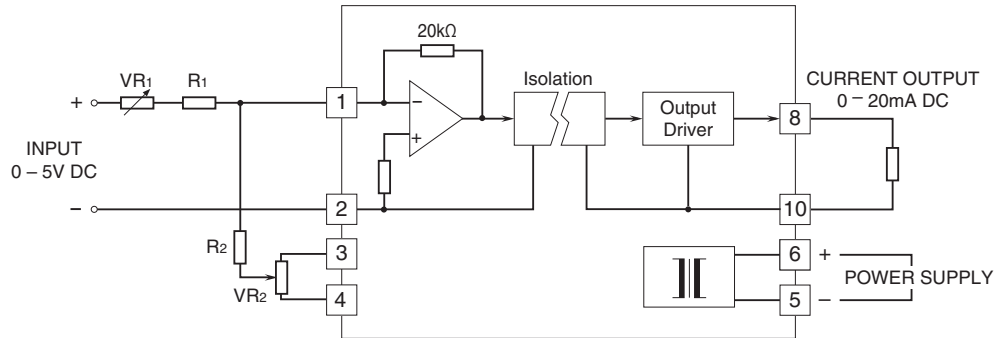
R_2 : approx. 2 M Ω , VR_2 : 50 k Ω

$R_1 + VR_1 = 41.6 \text{ k}\Omega$; 20 mA output with 5 V input

$R_1 + VR_1 = 20.8 \text{ k}\Omega$; 20 mA output with 2.5 V input

R_1 's and R_2 's resistance temperature coefficients: $\pm 20 - \pm 50 \text{ ppm}/^\circ\text{C}$ with tolerance of $\pm 1\%$

VR_1 's and VR_2 's resistance temperature coefficients: $\pm 100 \text{ ppm}/^\circ\text{C}$



Specifications are subject to change without notice.