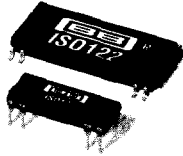


For Immediate Assistance, Contact Your Local Salesperson



ISO122

www.burr-brown.com/databook/ISO122.html

Precision Lowest Cost ISOLATION AMPLIFIER

FEATURES

- 100% TESTED FOR HIGH-VOLTAGE BREAKDOWN
- RATED 1500Vrms
- HIGH IMR: 140dB at 60Hz
- BIPOLAR OPERATION: $V_O = \pm 10V$
- 16-PIN PLASTIC DIP AND 28-LEAD SOIC
- EASE OF USE: Fixed Unity Gain Configuration
- 0.020% max NONLINEARITY
- $\pm 4.5V$ to $\pm 18V$ SUPPLY RANGE

APPLICATIONS

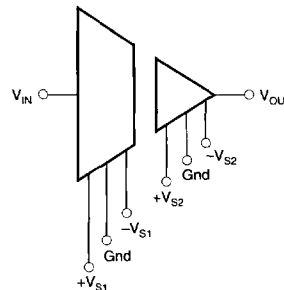
- INDUSTRIAL PROCESS CONTROL:
Transducer Isolator, Isolator for Thermocouples, RTDs, Pressure Bridges, and Flow Meters, 4mA to 20mA Loop Isolation
- GROUND LOOP ELIMINATION
- MOTOR AND SCR CONTROL
- POWER MONITORING
- PC-BASED DATA ACQUISITION
- TEST EQUIPMENT

DESCRIPTION

The ISO122 is a precision isolation amplifier incorporating a novel duty cycle modulation-demodulation technique. The signal is transmitted digitally across a 2pF differential capacitive barrier. With digital modulation the barrier characteristics do not affect signal integrity, resulting in excellent reliability and good high frequency transient immunity across the barrier. Both barrier capacitors are imbedded in the plastic body of the package.

The ISO122 is easy to use. No external components are required for operation. The key specifications are 0.020% max nonlinearity, 50kHz signal bandwidth, and $200\mu V/^\circ C$ V_{OS} drift. A power supply range of $\pm 4.5V$ to $\pm 18V$ and quiescent currents of $\pm 5.0mA$ on V_{S1} and $\pm 5.5mA$ on V_{S2} make these amplifiers ideal for a wide range of applications.

The ISO122 is available in 16-pin plastic DIP and 28-lead plastic surface mount packages.



Or, Call Customer Service at 1-800-548-6132 (USA Only)

SPECIFICATIONS

At $T_A = +25^{\circ}\text{C}$, $V_{S1} = V_{S2} = \pm 15\text{V}$, and $R_L = 2\text{k}\Omega$, unless otherwise noted.

PARAMETER	CONDITIONS	ISO122P, U			ISO122JP, JU			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
ISOLATION Voltage Rated Continuous AC 60Hz 100% Test ⁽¹⁾ Isolation Mode Rejection Barrier Impedance Leakage Current at 60Hz	1s, 5pc PD 60Hz $V_{ISO} = 240\text{Vrms}$	1500 2400	140 $10^{14} \parallel 2$ 0.18	0.5	* * * *	* * *	* *	VAC VAC dB $\Omega \parallel \text{pF}$ μArms
GAIN Nominal Gain Gain Error Gain vs Temperature Nonlinearity ⁽²⁾	$V_O = \pm 10\text{V}$		1 ± 0.05 ± 10 ± 0.016	± 0.50 ± 0.020		* * * ± 0.025	* *	V/V %FSR ppm/ $^{\circ}\text{C}$ %FSR
INPUT OFFSET VOLTAGE Initial Offset vs Temperature vs Supply Noise			± 20 ± 200 ± 2 4	± 50		* * * *	* *	mV $\mu\text{V}/^{\circ}\text{C}$ mV/V $\mu\text{V}/\sqrt{\text{Hz}}$
INPUT Voltage Range Resistance		± 10	± 12.5 200		* *	* *		V k Ω
OUTPUT Voltage Range Current Drive Capacitive Load Drive Ripple Voltage ⁽³⁾		± 10 ± 5	± 12.5 ± 15 0.1 20		* *	* * * *		V mA μF mVp-p
FREQUENCY RESPONSE Small Signal Bandwidth Slew Rate Settling Time 0.1% 0.01% Overload Recover Time	$V_O = \pm 10\text{V}$		50 2 50 350 150			* * * * *		kHz V/ μs μs μs μs
POWER SUPPLIES Rated Voltage Voltage Range Quiescent Current: V_{S1} V_{S2}		± 4.5	± 15 ± 5.0 ± 5.5	± 18 ± 7.0 ± 7.0	* *	* * *	* * *	V V mA mA
TEMPERATURE RANGE Specification Operating Storage θ_{JA} θ_{JC}		-25 -25 -40	100 65	$+85$ $+85$ $+85$	* * *	* * *	* * *	$^{\circ}\text{C}$ $^{\circ}\text{C}$ $^{\circ}\text{C}$ $^{\circ}\text{C/W}$ $^{\circ}\text{C/W}$

* Specification same as ISO122P, U.

NOTES: (1) Tested at 1.6 X rated, fail on 5pC partial discharge. (2) Nonlinearity is the peak deviation of the output voltage from the best-fit straight line. It is expressed as the ratio of deviation to FSR. (3) Ripple frequency is at carrier frequency (500kHz).

ISO122

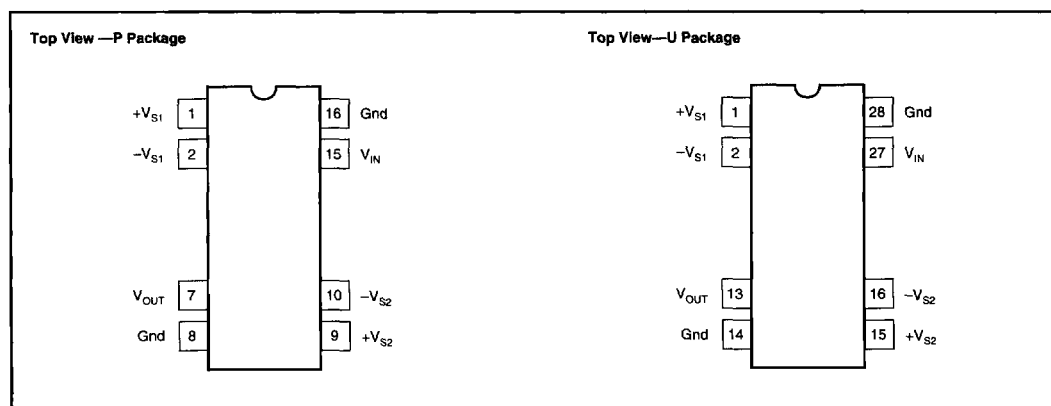
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ISOLATION PRODUCTS

The information provided herein is believed to be reliable; however, BURR-BROWN assumes no responsibility for inaccuracies or omissions. BURR-BROWN assumes no responsibility for the use of this information, and all use of such information shall be entirely at the user's own risk. Prices and specifications are subject to change without notice. No patent rights or licenses to any of the circuits described herein are implied or granted to any third party. BURR-BROWN does not authorize or warrant any BURR-BROWN product for use in life support devices and/or systems.

For Immediate Assistance, Contact Your Local Salesperson

CONNECTION DIAGRAM



PACKAGE INFORMATION

PRODUCT	PACKAGE	PACKAGE DRAWING NUMBER ⁽¹⁾
ISO122P	16-Pin Plastic DIP	238
ISO122JP	16-Pin Plastic DIP	238
ISO122U	28-Pin Plastic SOIC	217-1
ISO122JU	28-Pin Plastic SOIC	217-1

NOTE: (1) For detailed drawing and dimension table, please see end of data sheet, or Appendix C of Burr-Brown IC Data Book.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage	±18V
V_{IN}	±100V
Continuous Isolation Voltage	1500Vrms
Junction Temperature	+150°C
Storage Temperature	+85°C
Lead Temperature (soldering, 10s)	+300°C
Output Short to Common	Continuous

ORDERING INFORMATION

PRODUCT	PACKAGE	NONLINEARITY MAX %FSR
ISO122P	Plastic DIP	±0.020
ISO122JP	Plastic DIP	±0.050
ISO122U	Plastic SOIC	±0.020
ISO122JU	Plastic SOIC	±0.050



ELECTROSTATIC DISCHARGE SENSITIVITY

This integrated circuit can be damaged by ESD. Burr-Brown recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.