

AS_OPA4002 FleX™ Op Amp

Quad High-Performance Operational Amplifier

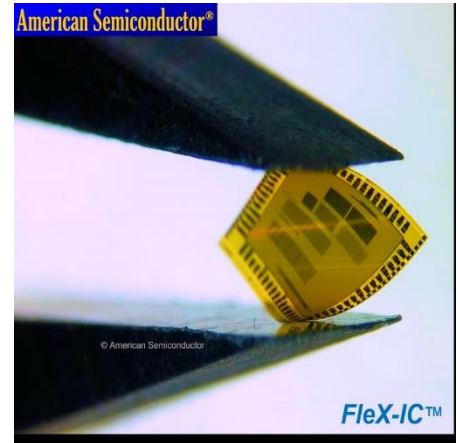


Changing Your World One Flexible Chip at a Time

Overview

The AS_OPA4002 brings low power, high performance operational amplifiers into an ultra-thin, physically flexible form factor. The FleX-OPA4002 is ideal for printed and/or flexible sensor systems that require signal amplification and filtering. Operating at 2.5V, the low-power FleX-OPA4002 simplifies flexible hybrid electronics system integration for applications including wearables, Internet of Things (IoT), and embedded sensors. Ultra-thin (25um) FleX-ICs have demonstrated flexibility below 5mm radius of curvature. Video demonstrations of FleX devices in operation can be viewed at <http://www.americansemi.com/>

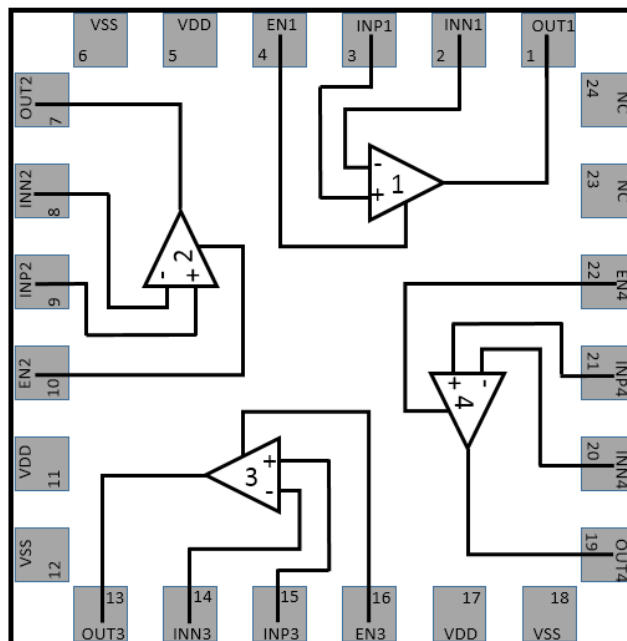
The Flex-OPA4002 is fabricated in the TowerJazz CS18 180nm SOI process and converted to a flexible form factor using the American Semiconductor FleX™ Silicon-on-Polymer process.



Features and Block Diagram

Each of the four on-board operational amplifiers are low noise and high performance to provide maximum utility in a wide range of flexible system applications.

Stability	Unity-gain; internally compensated
Open Loop Gain	>90 dB typical
Gain Bandwidth	4.4MHz typical
Slew Rate	3.8V/μs typical
Input Range	Rail-to-rail
Output Swing	Rail-to-rail
Input Offset Voltage	1.1μV typical
Low Noise	0.1Hz to 10Hz noise is just 0.9μVP-P; 1kHz noise is less than 37nV/√Hz



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Physical Specifications

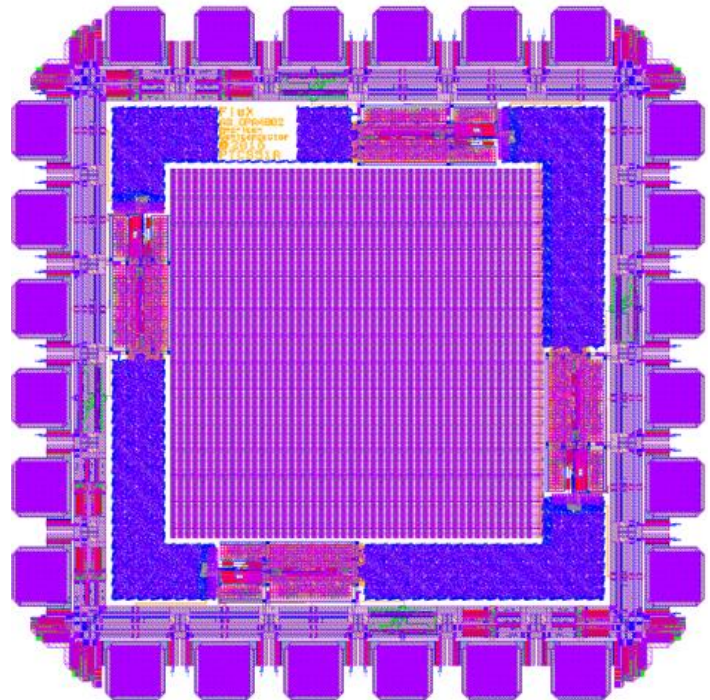
Die Size	2.4mm X 2.4mm
Pin Count	24
Pad Openings	160um X 160um
Pad Pitch	300um
Thickness	25um
Flexible	Yes
Conformal	Yes

Process Details

Technology	TowerJazz 180nm PD-SOI
Interconnect	4-level Aluminum
Flexibility	FleX Silicon-on-Polymer

Pin List

Pin Name	Function
INN _x	Analog Input Inverting
INP _x	Analog Input Non-Inverting
OUT _x	Analog Output
ENABLE _x	Enable Input Signal
VDD	Power
VSS	Ground
x = 1, 2, 3, and 4 for individual op amps	



Ordering Information

Part Number	Description
AS_OPA4002.fxd	FleX Quad Op Amp flexible die with recessed Al bond pads
AS_OPA4002P.fxd	FleX Quad Op Amp flexible die with 10um Ni/Au plated bond pads

Contact Info

For more information or to purchase FleX products, please contact us at:

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NOTE: The information provided in this datasheet is preliminary as the product is still in testing. Changes to the final product specifications based upon the test results are possible.

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