

INSTRUMENTATION AMPLIFIER WITH PRECISION VOLTAGE REFERENCE

FEATURES

- Low Quiescent Current
- Sleep Mode
- Precision Voltage Reference
- Low Offset Voltage
- Low Offset Drift
- Low Input Bias Current
- High CMR
- Low Noise
- Input Protection
- Wide Supply Range

APPLICATIONS

- Pressure and Temperature Bridge Amplifiers
- Industrial Process Control
- Factory Automation
- Multi-Channel Data Acquisition
- Battery Operated Systems
- General Purpose Instrumentation

DESCRIPTION

The INA125 is a low power, high accuracy instrumentation amplifier with a precision voltage reference. It provides complete bridge excitation and precision differential-input amplification on a single integrated circuit.

The voltage reference is externally adjustable with pin-selectable voltages, allowing use with a variety of transducers. Sleep mode allows shutdown and duty cycle operation to save power.

ORDERING INFORMATION⁽¹⁾

PRODUCT	PACKAGE DESIGNATOR	PACKAGE	ORDERABLE PART NUMBER	PACKAGE QUANTITY
INA125	TD	Bare die in waffle pack ⁽²⁾	INA125TDA1	112
			INA125TDA2	10

(1) For the most current package and ordering information, see the Package Option Addendum at the end of this document, or see the TI web site at www.ti.com.

(2) Processing is per the Texas Instruments commercial production baseline and is in compliance with the Texas Instruments Quality Control System in effect at the time of manufacture. Electrical screening consists of DC parametric and functional testing at room temperature only. Unless otherwise specified by Texas Instruments AC performance and performance over temperature is not warranted. Visual Inspection is performed in accordance with MIL-STD-883 Test Method 2010 Condition B at 75X minimum.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.



This integrated circuit can be damaged by ESD. Texas Instruments 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.

BARE DIE INFORMATION

DIE THICKNESS	BACKSIDE FINISH	BACKSIDE POTENTIAL	BOND PAD METALLIZATION COMPOSITION	BOND PAD THICKNESS
10.5 mils.	Silicon with backgrind	Floating	AlCu (0.5%)	1100 nm



Table 1. Bond Pad Coordinates in Microns

DESCRIPTION	PAD NUMBER	X MIN	Y MIN	X MAX	Y MAX
V+	1	-2019.3	-335.2	-1917.7	-233.68
SLEEP	2	-2019.3	-538.48	-1917.7	-436.88
V-	3	-1816.1	-838.2	-1714.5	-736.6
VREFOUT	4	-365.76	-820.42	-264.16	-718.82
IAREF	5	-60.96	-820.42	106.68	-718.82
VIN+	6	673.1	-820.42	774.7	-718.82
VIN-	7	1889.76	-652.78	1991.36	-551.18
RG	8	1897.38	-429.26	1998.98	-327.66
RG	9	1823.72	307.34	1925.32	408.94
VO	10	1892.3	515.62	1993.32	617.22
Sense	11	764.54	718.82	932.18	820.42
VREFCOM	12	393.7	718.82	561.34	820.42
N/C	13	-878.84	718.82	-777.24	820.42
VREFBG	14	-1094.74	713.74	-993.14	815.34
VREF2.5	15	-1544.32	718.82	-1442.72	820.42
VREF5	16	-2001.52	467.36	-1899.92	568.96
VREF10	17	-2001.52	243.84	-1899.92	345.44

PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾	Samples (Requires Login)
INA125TDA1	ACTIVE			0	112	TBD	Call TI	N / A for Pkg Type	
INA125TDA2	ACTIVE			0	10	TBD	Call TI	N / A for Pkg Type	

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSELETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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