具有可编程增益和偏移的单电源、自动置零传感器放大器

查询样品: PGA308-DIE

特性

- 针对桥式传感器的数字校准
- 偏移选择：粗略选择和精准选择
- 增益选择：粗略选择和精准选择
- 桥式故障监控器
- 用于引线交换的输入复用器
- 过程量/欠程量限制
- D_{OUT}/ V_{OUT}钳位功能
- 七组一次性可编程 **(OTP)** 内存
- 一线制数字通用异步收发器 **(UART)** 接口
- 运行电压：**2.7V** 至 **5.5V**

应用范围

- 桥式传感器
- 远程发射器
- 应变、负载、衡器
- 车载传感器

说明

PGA308 是一款可编程模拟传感器信号调节器。 此模拟信号路径放大传感器信号并且为偏移和增益提供数字校准。 校准通过 1W 引脚、一个数字单线制、UART 兼容接口完成。 对于三端传感器模块，1W 可连接至 V_{OUT} 并且此组件可通过 V_{OUT}引脚进行编程。 增益和偏移校准参数被存储在板载一次性可编程 (OTP) 内存的七个组中。 加电复位 (POR) OTP 组总共可编程四次。

全模拟信号路径包含有一个 2 x 2 输入复用器 (mux) 以实现电子传感器引线交换、一个粗略偏移调整、一个自动置零可编程增益测量仪器放大器 (PGA)、一个精准增益调整、一个精准偏移调整、和一个可编程增益输出放大器。 故障监控电路检测并发出传感器烧断、过载、和系统故障状态信号。 过程量/欠程量限制为系统电平诊断提供额外了方法。 此两用 D_{OUT}/V_{CLAMP} 引脚可被用作一个可编程数字输出或者一个 V_{OUT} 过压钳位。

ORDERING INFORMATION(1)

PRODUCT	PACKAGE DESIGNATOR	PACKAGE	ORDERABLE PART NUMBER	PACKAGE QUANTITY
PGA308	TD	Bare die in waffle pack(2)	PGA308TDD1	100
			PGA308TDD2	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.

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PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of the Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

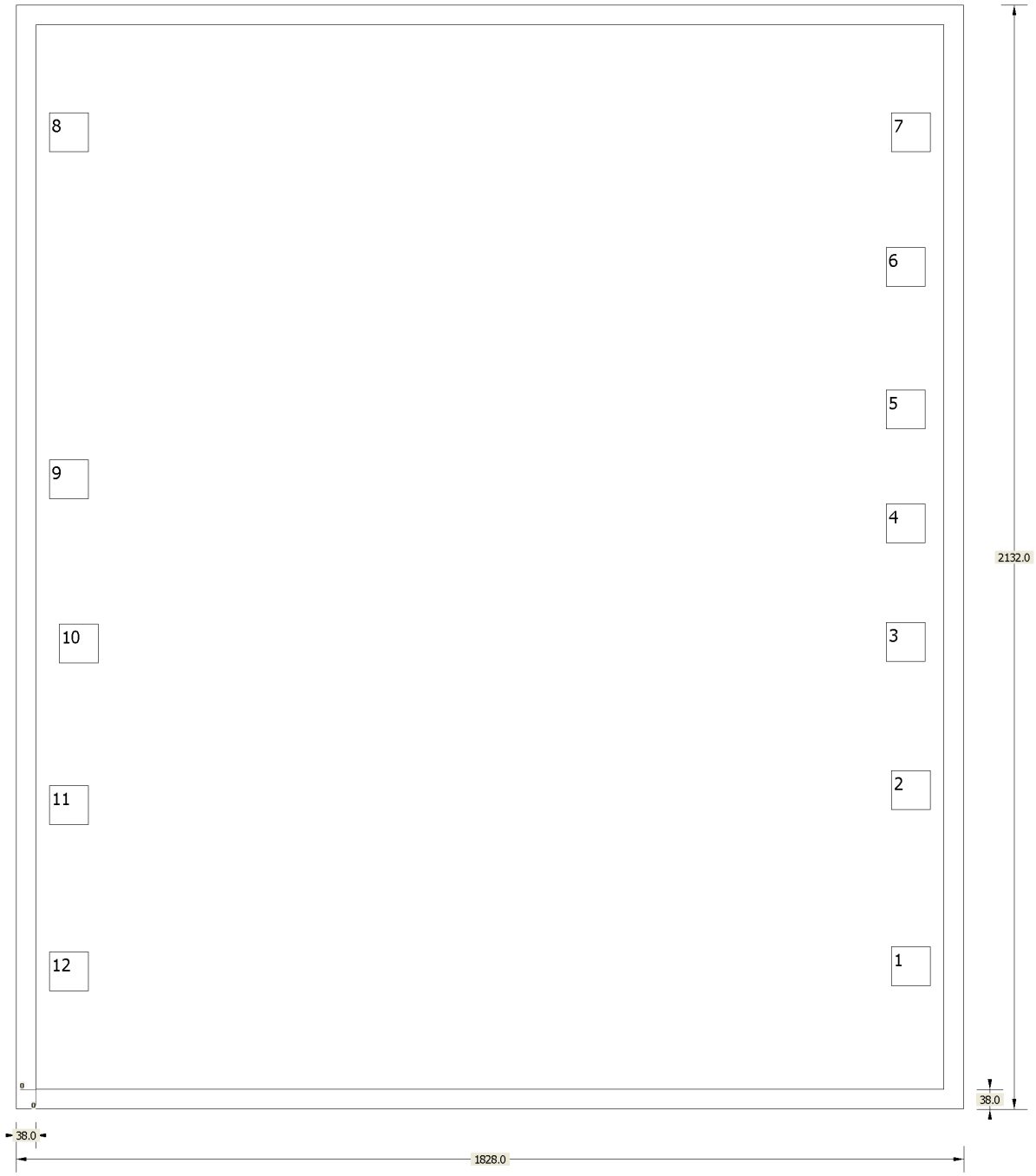
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This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

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
15 mils.	Silicon with backgrind	Floating	Al-Cu (0.5%)	598 nm



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Table 1. Bond Pad Coordinates in Microns(1)

DESCRIPTION	PAD NUMBER	X MIN	Y MIN	X MAX	Y MAX
D_{out}/V_{clamp}	1	1649.8	200.1	1725.8	276.1
1W	2	1649.8	540	1725.8	616
GND	3	1639.7	826	1715.7	902
GND	4	1639.7	1055	1715.7	1131
V_S	5	1639.7	1275	1715.7	1351
V_S	6	1639.7	1550	1715.7	1626
V_{in1}	7	1649.8	1810.1	1725.8	1886.1
V_{in2}	8	26.2	1810.1	102.2	1886.1
V_{sj}	9	26.2	1140	102.2	1216
V_{fb}	10	44.55	823	120.55	899
V_{out}	11	26.2	510.85	102.2	586.85
V_{ref}	12	26.2	189.9	102.2	265.9

(1) Substrate N/C.

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PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package | Pins	Package qty | Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
PGA308TDD1	Active	Production	null (null) | 0	100 | OTHER	Yes	Call TI	N/A for Pkg Type	0 to 70	
PGA308TDD1.A	Active	Production	null (null) | 0	100 | OTHER	Yes	Call TI	N/A for Pkg Type	0 to 70	
PGA308TDD2	Active	Production	null (null) | 0	10 | OTHER	Yes	Call TI	N/A for Pkg Type	0 to 70	
PGA308TDD2.A	Active	Production	null (null) | 0	10 | OTHER	Yes	Call TI	N/A for Pkg Type	0 to 70	

(1) **Status:** For more details on status, see our product life cycle.

(2) **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

(3) **RoHS values:** Yes, No, RoHS Exempt. See the TI RoHS Statement for additional information and value definition.

(4) **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

(5) **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

(6) **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

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OTHER QUALIFIED VERSIONS OF PGA308-DIE :

- Automotive : PGA308-Q1

NOTE: Qualified Version Definitions:

- Automotive - Q100 devices qualified for high-reliability automotive applications targeting zero defects

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