

## 单线制 16 位 DAC

查询样品: **DAC161P997-DIE**

### 特性

- 16 位线性
- 支持握手的单线制接口 (SWIF)
- 数字数据传输 (无保真度损耗)
- 引脚可编程加电条件
- 输入数据速率自调节
- 环路错误检测和报告
- 可编程输出电流误差电平
- 无外部精密组件
- 到可寻址远程传感器高速通道 (HART) 调制器的简单接口

### 应用范围

- 电流环路发送器
- 工业过程控制
- 致动器控制
- 工厂自动化
- 楼宇自动化
- 精密仪器
- 数据采集系统
- 测试系统

### 说明

DAC161P997-DIE 是一款用于传输一个模拟输出电流的 16 位三角积分 ( $\Sigma\Delta$ ) 数模转换器 (DAC)。

到 DAC161P997-DIE 的数据连接是一个单线制接口 (SWIF)，此接口使一个单个隔离组件能够跨过一个隔离边界以数字格式传输传感器数据。

DAC161P997-DIE 的数字输入与标准隔离变压器和光耦合器兼容。SWIF 协议内的错误检测和握手特性确保隔离边界上的无错通信。对于不需要隔离的应用，DAC161P997-DIE 接口与一个微控制器直接对接。

DAC161P997-DIE 的环路驱动与一个可寻址远程传感器高速通道 (HART) 模块对接，这可以使频移键控 (FSK) 已调制数字数据注入到电流环路中。这个技术规范和特性的组合使得 DAC161P997-DIE 成为 2 线制和 4 线制工业发送器的理想选择。

### ORDERING INFORMATION<sup>(1)</sup>

PRODUCT	PACKAGE DESIGNATOR	PACKAGE	ORDERABLE PART NUMBER	PACKAGE QUANTITY
DAC161P997	TD	Bare die in waffle pack <sup>(2)</sup>	DAC161P997TDA1	324
			DAC161P997TDA2	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](http://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.

All trademarks are the property of their respective owners.

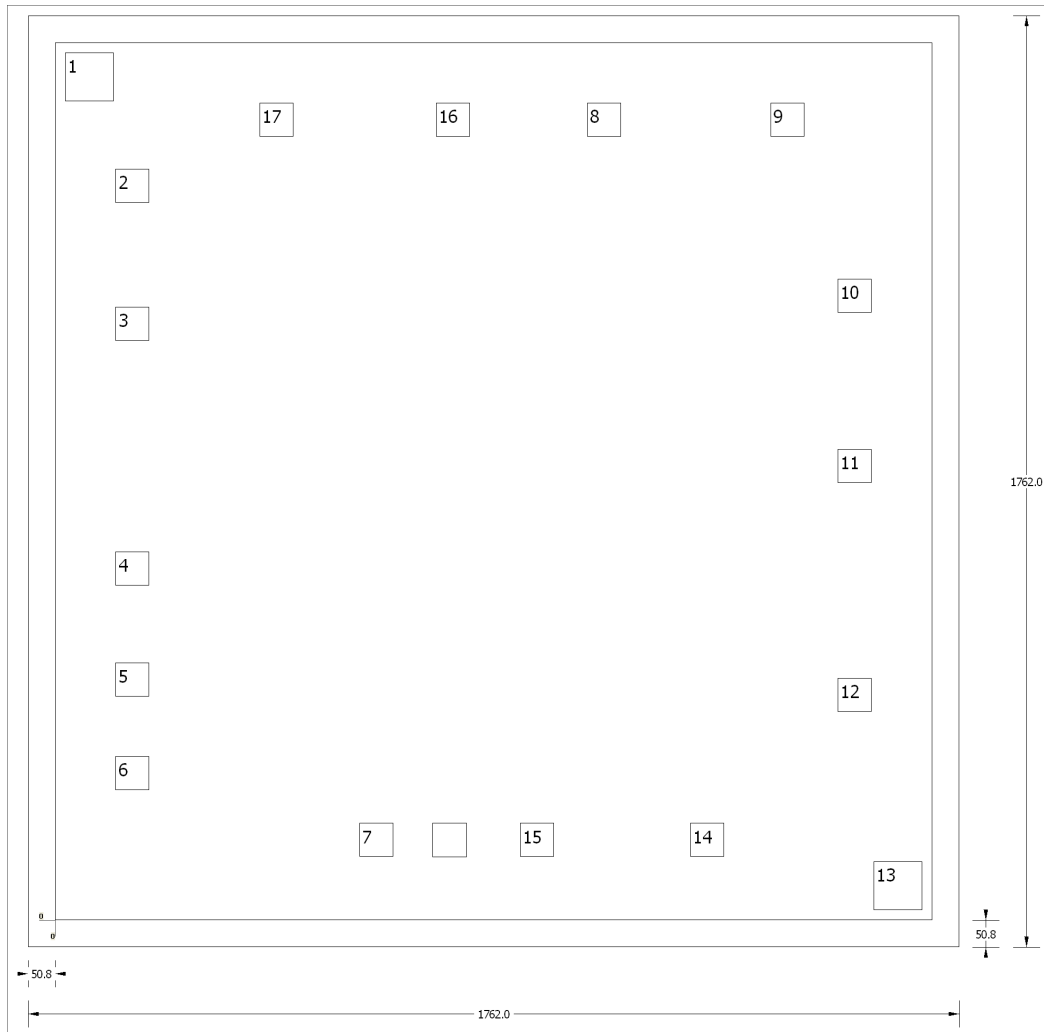


This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

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%)	850 nm



**Table 1. Bond Pad Coordinates in Microns**

DESCRIPTION	PAD NUMBER	X MIN	Y MIN	X MAX	Y MAX
COMA	1	-811	719	-719	811
COMA	2	-715.5	527	-651.5	591
COMD	3	-715.5	266.25	-651.5	330.25
VD	4	-715.5	-196.95	-651.5	-132.95
DIN	5	-715.5	-406.95	-651.5	-342.95
DBACK	6	-715.5	-583.55	-651.5	-519.55
ACKB	7	-254.2	-710.5	-190.2	-646.5
C1	8	177.15	651.6	241.15	715.6
C2	9	524	651.6	588	715.6
C3	10	650.95	319	714.95	383
NC	11	650.95	-3.15	714.95	60.85
LOW	12	650.95	-436.2	714.95	-372.2
OUT	13	719	-811	811	-719
ERRLVL	14	371.9	-710.5	435.9	-646.5
ERRB	15	49.6	-710.5	113.6	-646.5
VA	16	-108.65	651.6	-44.65	715.6
BASE	17	-443.1	651.6	-379.1	715.6

**PACKAGING INFORMATION**

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
DAC161P997TDA1	ACTIVE			0	324	RoHS & Green	Call TI	N / A for Pkg Type	25 to 25		<a href="#">Samples</a>
DAC161P997TDA2	ACTIVE			0	10	RoHS & Green	Call TI	N / A for Pkg Type	25 to 25		<a href="#">Samples</a>

(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.

**OBSOLETE:** TI has discontinued the production of the device.

(2) **RoHS:** TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".

**RoHS Exempt:** TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.

**Green:** TI defines "Green" to mean the content of Chlorine (Cl) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

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

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead finish/Ball material - Orderable Devices 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.

**Important Information and Disclaimer:**The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.



## 重要声明和免责声明

TI“按原样”提供技术和可靠性数据（包括数据表）、设计资源（包括参考设计）、应用或其他设计建议、网络工具、安全信息和其他资源，不保证没有瑕疵且不做任何明示或暗示的担保，包括但不限于对适销性、某特定用途方面的适用性或不侵犯任何第三方知识产权的暗示担保。

这些资源可供使用 TI 产品进行设计的熟练开发人员使用。您将自行承担以下全部责任：(1) 针对您的应用选择合适的 TI 产品，(2) 设计、验证并测试您的应用，(3) 确保您的应用满足相应标准以及任何其他功能安全、信息安全、监管或其他要求。

这些资源如有变更，恕不另行通知。TI 授权您仅可将这些资源用于研发本资源所述的 TI 产品的应用。严禁对这些资源进行其他复制或展示。您无权使用任何其他 TI 知识产权或任何第三方知识产权。您应全额赔偿因在这些资源的使用中对 TI 及其代表造成的任何索赔、损害、成本、损失和债务，TI 对此概不负责。

TI 提供的产品受 [TI 的销售条款](#) 或 [ti.com](#) 上其他适用条款/TI 产品随附的其他适用条款的约束。TI 提供这些资源并不会扩展或以其他方式更改 TI 针对 TI 产品发布的适用的担保或担保免责声明。

TI 反对并拒绝您可能提出的任何其他或不同的条款。

邮寄地址：Texas Instruments, Post Office Box 655303, Dallas, Texas 75265

Copyright © 2022，德州仪器 (TI) 公司