

## 具有传感器激励和线性化的 4-20mV 电流发送器

### 特性

- 低未调整误差
- 两个精准电流源
- 线性化
- **2 线制**或者 **3 线制**远程电阻温度检测器 (RTD) 操作
- 低偏移漂移
- 低输出电流噪声
- 高电源抑制 (PSR)
- 高共模抑制 (CMR)

- 宽电源电压

### 应用范围

- 工业过程控制
- 工厂自动化
- 监视控制与数据采集系统 (SCADA) 远程数据采集
- 远程温度和压力变换器

### 说明

XTR105 是一款带有两个精准电流源的单片 4-20mV, 2 线制电流发送器。它提供针对铂 RTD 温度传感器和桥、仪表放大器、和一个单集成电路上的电流输出电路的完整电流激励。

多用途线性化电流提供一个对 RTD 的第二阶修正, 通常可以实现一个 40:1 的线性改进。

仪器放大器增益可针对宽范围的温度或者压力测量进行配置。整个电流发送器的总体未调整误差足够低以允许在未经调整的情况下用于很多应用。这包括零输出电流漂移, 和非线性。XTR105 在环路电源电压上运行。

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

PRODUCT	PACKAGE DESIGNATOR	PACKAGE	ORDERABLE PART NUMBER	PACKAGE QUANTITY
XTR105	TD	Bare die in waffle pack <sup>(2)</sup>	XTR105TDC1	80
			XTR105TDC2	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.

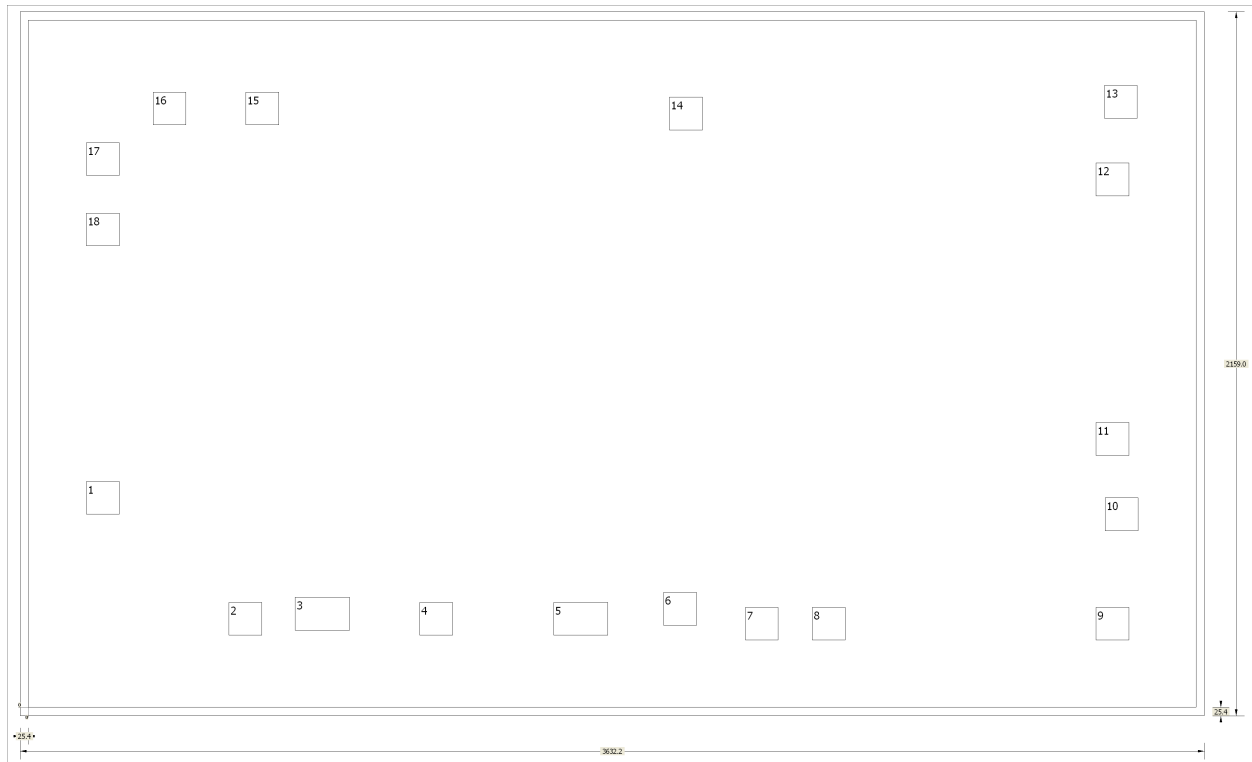


This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

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
IR1	1	-1612.9	-462.28	-1511.3	-360.68
VIN-	2	-1176.02	-833.12	-1074.42	-731.52
RG	3	-972.82	-817.88	-805.18	-716.28
RG	4	-590.55	-833.12	-488.95	-731.52
RG	5	-180.34	-833.12	-12.7	-731.52
RG	6	157.48	-802.64	259.08	-701.04
N/C	7	407.67	-848.36	509.27	-746.76
N/C	8	613.41	-848.36	715.01	-746.76
IRET	9	1483.36	-848.36	1584.96	-746.76
IO	10	1511.3	-513.08	1612.9	-411.48
E (Emitter)	11	1483.36	-281.94	1584.96	-180.34
B (Base)	12	1483.36	514.35	1584.96	615.95
V+	13	1508.76	751.84	1610.26	854.44
VREG	14	175.26	716.28	276.86	817.88
VLIN	15	-1123.95	731.52	-1022.35	833.12
VIN+	16	-1408.43	731.52	-1306.83	833.12
N/C	17	-1612.9	576.58	-1511.3	678.18
IR2	18	-1612.9	360.68	-1511.3	462.28

**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
XTR105TDC1	ACTIVE			0	80	RoHS & Green	Call TI	N / A for Pkg Type			<a href="#">Samples</a>
XTR105TDC2	ACTIVE			0	10	RoHS & Green	Call TI	N / A for Pkg Type			<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.

**OBSELETE:** 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 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安全、安保或其他要求。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 (<https://www.ti.com.cn/zh-cn/legal/termsofsale.html>) 或 [ti.com.cn](https://www.ti.com.cn) 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。

邮寄地址：上海市浦东新区世纪大道 1568 号中建大厦 32 楼，邮政编码：200122

Copyright © 2021 德州仪器半导体技术（上海）有限公司