

8 通道 DAS，内置 16 位、1 MSPS、双极性输入、同步采样 ADC

1 特性

- GD30AD3380-I10: 16 位、1 MSPS ADC
- GD30AD3380-I05: 16 位、500 KSPS ADC
- 具有 1 MΩ 模拟输入阻抗的输入缓冲器
- 工作温度范围: -40°C 至+125°C
- 5V 单模拟电源, VDRIVE 电源电压: 1.71 V 至 5 V
- ±21 V 输入箝位保护, 8 kV ESD
- 软件模式下提供额外模式
- 每通道可选模拟输入范围
 - 单端、双极性
 - GD30AD3380-I10: ±12.5 V、±10 V、±5 V 和±2.5 V
 - GD30AD3380-I05: ±10 V、±5 V
- 两种带宽选项: 25kHz 和 220kHz
- 每通道系统相位、失调和增益校准
- 模拟输入开路检测特性
- 开路代码误差<100LSB (RPD = 10kΩ)
- 自诊断和监控特性
- 读/写数据和寄存器的 CRC 差错校验

2 应用

- 电力线路监控
- 保护继电器
- 多相电机控制
- 仪器仪表和控制系统
- 数据采集系统

3 概述

GD30AD3380 是一款 16 位、同步采样、模数转换数据采集系统 (DAS)，具有 8 个通道，每个通道均内置模拟输入箝位保护、可编程增益放大器 (PGA)、低通滤波器和 16 位逐次逼近寄存器 (SAR) 模数转换器 (ADC)。GD30AD3380 还内置了灵活的数字滤波器、低漂移 2.5V 精密基准电压源和基准电压缓冲器 (用于驱动 ADC) 以及灵活的并行和串行接口。

GD30AD3380 采用 5 V 单电源供电，当所有通道均以 1 MSPS (GD30AD3380-I10) 的吞吐速率采样时，支持 ±12.5 V、±10V、±5 V 和±2.5 V 真双极性输入范围。输入箝位保护可承受高达±21V 的电压。GD30AD3380 具有 1 MΩ 模拟输入阻抗，当输入信号断开并通过 10 kΩ 外部电阻拉至地时，双极性零代码小于 100 LSB。单电源操作、片内滤波和高输入阻抗使得应用时无需外部驱动运算放大器 (需要双极性电源)。对于吞吐率较低的应用，GD30AD3380 灵活的数字滤波器可用来改善噪声性能。在硬件模式下，GD30AD3380 与某主流型号完全兼容。在软件模式下，可以使用如下高级特性：

- GD30AD3380-I10: 增加 ±12.5 V、±2.5 V 模拟输入范围，每个通道可选
- 高带宽模式 (220kHz), 每个通道可选
- 额外的过采样 (OS) 选项，最高 OS×256
- 每个通道的系统增益、系统失调和系统相位校准
- 模拟输入开路检测器
- 诊断多路复用器
- 监控功能 (串行外设接口 (SPI) 无效读/写、循环冗余校验 (CRC)、过压和欠压事件、忙碌阻塞监控和复位检测)

请注意，在整篇数据手册中，多功能引脚 (如 RD/SCLK 引脚) 通过完整引脚名称或引脚的单个功能来引用；例如 SCLK 引脚即表示仅与此功能相关。

产品信息¹

料号	封装类型
GD30AD3380	LQFP 64

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