

英飞凌XDPE19284C 数字多相控制器

8相双路输出电压调节器

特性

- 数字控制器配备高性能模拟前端，配备完全可编程的 ARM® Cortex™-M0 处理器
- 符合Intel™ VR13、VR13HC 和 VR14 服务器 VR 供应商 PWM 启用规范修订版 1.88（2021 年 10 月）
- 符合Intel™ SVID 协议规范修订版 1.94（2021 年 4 月）
- 符合Intel™ IMVP9.1 修订版 0.9（2020 年 9 月）和 IMVP9.2修订版 0.7（2021 年 3 月）
- 符合 PMBus 修订版 1.3.1（2015 年 3 月）串行接口协议
 - 支持查询电压、电流、温度故障
 - 故障上报
 - 最大支持总线速度为1 MHz
 - 支持1.8/3.3 V运行
- 输出电压调节范围
 - 0.25 V 至 1.52 V（5 mV/步进）
 - 0.5 V 至 3.04 V（10 mV/步进）
- 数字控制相位中的环路配置和相位触发顺序方面都具有充分的灵活性
- 支持TLVR 电感器拓扑的数字电流拟合
- 可配置的自主相数增加和减少
- 启机时自动检测每相是否正常
- 支持预偏置电压启机
- 集成功率级电流检测
- 差分输出电压检测
- 通过电流模式控制实现快速电流平衡
- 数字可编程 PID（比例、积分、微分）环路补偿
- 数字可编程LoadLine
- 数字温度补偿
- 直接输入（+12 V）电压和电流检测
- 广泛的故障检测和保护能力
 - IUVP、OUVP 和 OOV（固定和跟随）
 - OCP瞬时（总电流）
 - 多个 OTP 阈值
 - 峰值相电流脉冲限制
 - 负电流限制保护
 - TLVR二次侧开路/短路检测
- 内部非易失性存储器 (NVM) 可存储多个自定义配置
- 符合 RoHS 要求且无卤素的 40 引线 QFN 塑料封装

本数据手册的原文使用英文撰写。为方便起见，英飞凌提供了译文；由于翻译过程中可能使用了自动化工具，英飞凌不保证译文的准确性。为确认准确性，请务必访问 infineon.com 参考最新的英文版本（控制文档）。

潜在应用

潜在应用

- 适用于基于 Intel™ VR13、VR13HC、VR14 微处理器的 Vcore 功率调节
 - 服务器
 - 工作站
 - 高端台式机
- 高电流 ASIC、PMBus POL

产品验证

符合JEDEC47/20/22/78 相关测试的工业应用要求

描述

XDPE19284 数字双输出 8 相控制器为Intel™ VR13、VR13HC、VR14 服务器、工作站和高端台式机的应用提供电源。核心电压由多相降压转换器提供，该转换器最多可并联 8 个同步整流通道，而第二个环路为 I/O 提供电压。XDPE19284 相位配置非常灵活，可以灵活地将相位分配给 2 个环路。任何一相都可以分配给任一环路，并且相序完全可编程，以提供最大的相序配置灵活性。通常支持8+0、7+1、6+2、5+3或4+4相的配置。

命令和监控功能通过 PMBus 和 SVID 接口进行控制，支持英特尔模式下 5 mV/step 或 10 mV/step 的动态电压识别调整，输出电压范围高达 3.04 V，偏移和调整分辨率为 625 μ V，精度优于 0.5%。

XDPE19284控制器利用数字技术实现所有控制功能，在灵活性和稳定性方面提供了终极的系统解决方案。先进的控制环路功能（例如电流模式控制、变频工作、主动瞬态响应 (ATR/FATR)、快速 DVID 响应、自动增减相和脉冲频率调制 (PFM)）可实现对高动态负载的最佳响应，并在很宽的负载电流范围内实现快速 di/dt 负载瞬态。

XDPE19284 控制器支持多供应商引脚兼容的集成功率级，具有三价 PWM 接口、快速响应、集成电流感应、集成温度感应以及先进的故障检测功能、接口和信号传输。

除了支持功率级故障保护功能外，XDPE19284 控制器还包括一组先进的过压、欠压、过温、过流和相位故障保护。这些属性为微处理器和电源系统提供了完整而先进的保护功能集。

英飞凌强烈建议将英飞凌的功率级与我们的数字XDP™系列控制器配对，以确保正确的互操作性。英飞凌无法保证与其他供应商功率级/分立功率元件配对时的互操作性，需要功率级/分立功率元件供应商进行彻底的评估和特性分析。

表 1 部件编号和封装概要

Base Part Number	Package
XDPE19284C	40-lead 5 mm x 5 mm QFN PG-VQFN-40



目录

目录

特性..... 1

潜在应用 2

产品验证..... 2

描述..... 2

目录..... 3

1 订购信息 4

2 包装标记 5

3 环境资质 6

1 订购信息

表 2 订购信息

Base Part Number	Package Type	Standard Pack Form and Quantity		Orderable Part Number
XDPE19284C	QFN 5 mm x 5 mm	Tape and Reel	4000	XDPE19284C0000XTMA1 Note 1
				XDPE19284CxyzzXTMA1 Note 2

注意:

- 具有默认配置的标准零件编号
- 客户定制物料编号，其中 x = 固件ID， yz = 客户自定义配置文件ID（由产品营销分配的代码）。

示例编程

客户可以使用英飞凌提供的软件/硬件或其他第三方控制器编程服务（请联系英飞凌获取建议）对部件进行编程，以满足其特定的系统需求。英飞凌现场应用工程师可协助进行系统和配置文件的优化以及控制器的编程。或者，客户也可以订购工厂预编程的客户特定配置样品，但此类样品的交付周期会比标准默认配置样品长得多。通用部件编号格式如下所示：

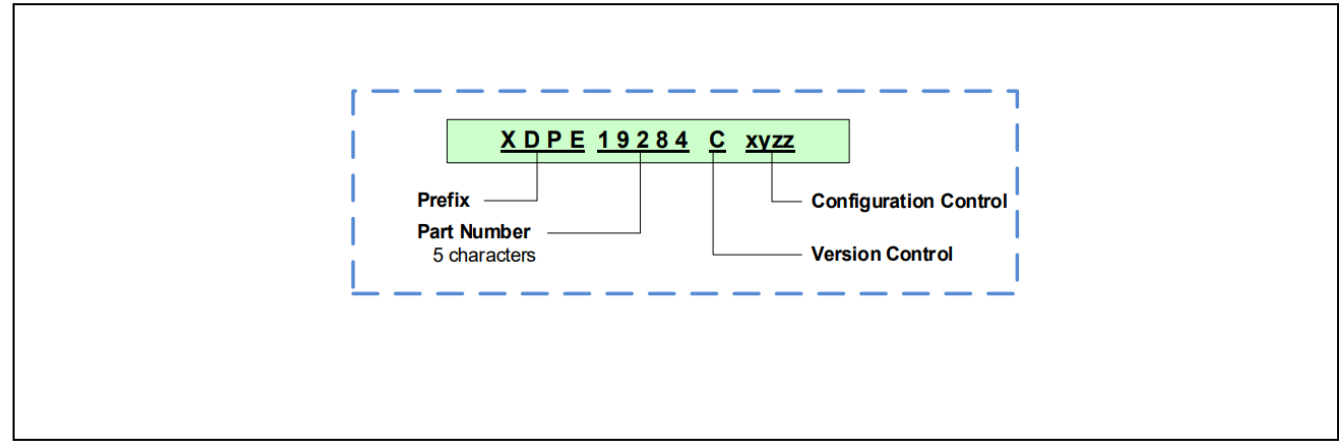


图1 零件编号解码

2 包装标记

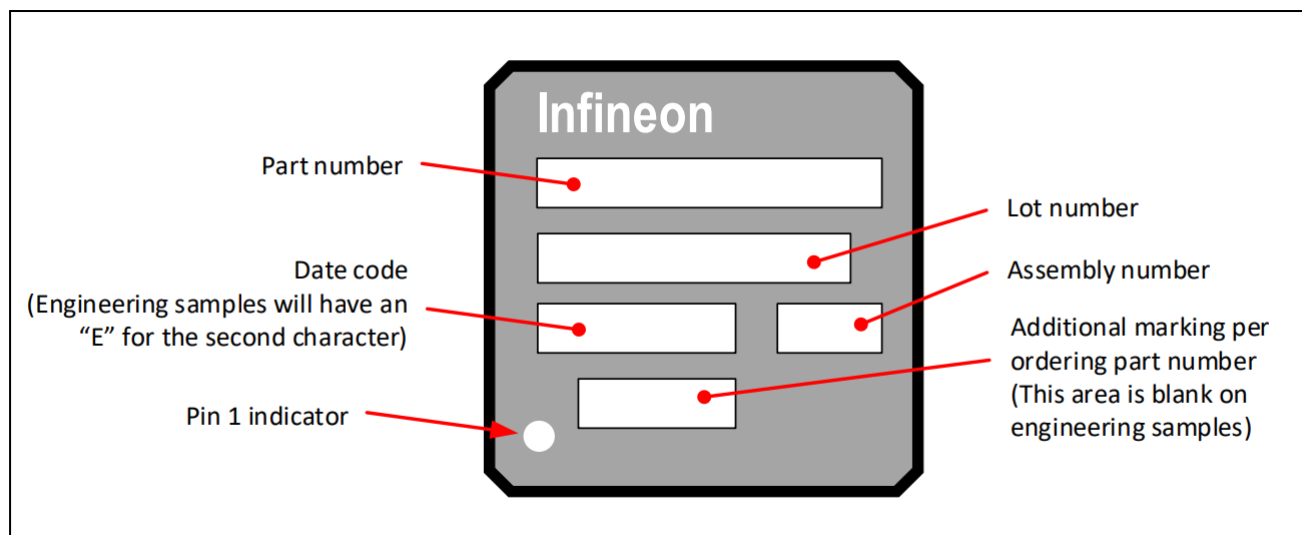


图2 封装标记

注意:

3. 所有尺寸均参考 JEDEC TO-281，不包括模具毛边、突起或浇口毛刺。浇口毛刺小于0.5毫米

3 环境资质

表 3

Qualification Level		Industrial	
Moisture Sensitivity		QFN Package	MSL1
ESD	Human Body Model	JS-001, Class 2	
	Charged Device Model	JS-002, Class C3	
	Latch-up	JESD78, Class 2	
RoHS Compliant		Yes	

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Document reference

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修订记录

XDPE19284C short

Revision 2024 - 09 - 12 , Rev. 2 . 3

历史修订版本

Revision	Date	Subjects (major changes since last revision)
2.0	2023-12-19	Release of final version
2.1	2024-03-18	Based on revision 2.1
2.2	2024-04-08	Removed 'Restricted' from the header.
2.3	2024-09-12	Updated orderable part number

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