

TSER4905 4K DSI 转 V³Link 桥接串行器

1 特性

- 单端口或双端口 MIPI DSI 接收器
 - 符合 D-PHY v1.2 和 DSI v1.3.1 标准
 - 紧凑型 16/18/24/30 位 RGB 和 16 位 YCbCr
 - 松散型 18 位 RGB 和 20 位 4:2:2
 - 每个 D-PHY 端口 1 个时钟通道和 1-4 个可配置数据通道
 - 高达 2.5Gbps/通道 (带偏斜校准)
 - 支持数据通道交换和极性反转
 - 支持突发和非突发模式
 - 超级帧解包功能
 - 适用于 4K (60Hz) 视频分辨率
- V³Link 增强视频接口
 - 支持每个通道 10.8/6.75/3.375Gbps; 双通道高达 21.6Gbps
 - 同轴/STP 互连支持
 - 端口拆分, 以启用 Y 型电缆接口
- 超低延时控制通道
 - 两个高达 1MHz 的 I2C (本地总线访问高达 3.4MHz)
 - 高速 GPIO
- 兼容性,
 - V³Link 视频和 V³Link 增强视频产品系列
 - V³Link 视觉产品系列
- 安全和诊断
 - 电压和温度监测
 - 线路故障检测
 - BIST 和图形生成
 - CRC 和错误诊断
 - 用于防伪认证的唯一 ID
 - 控制位上的 ECC
- 高级链路稳定性和 EMC 控制
 - 数据换序
 - 展频时钟生成 (SSCG)
- 低功耗操作
 - 1.8V 和 1.1V 双电源
- 资格认证
 - 符合 ISO 10605 和 IEC 61000-4-2 ESD 标准
 - 64 引脚 QFN 可湿性侧面 9mm x 9mm
 - 温度范围: -20°C 至 +85°C

2 应用

- 高分辨率显示:
 - 手术室显示器
 - 座椅靠背娱乐显示屏
 - 高分辨率 HMI

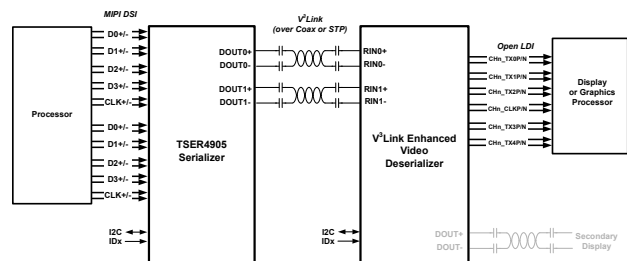
3 说明

TSER4905 是一款 MIPI DSI 转 V³Link 桥接器件。该芯片组与 V³Link 解串器配合使用, 可通过低成本 50 Ω 同轴电缆或 STP 电缆提供高速串行化接口。TSER4905 是一款符合 D-PHY v1.2 标准的器件, 可对 MIPI DSI 输入进行串行化处理, 支持包括 4K 在内的视频分辨率以及 30 位色深。V³Link 接口支持通过单通道或双通道进行视频和音频数据传输和全双工控制, 包括 I2C 和 GPIO 数据。通过两个 V³Link 通道实现视频数据和控制的整合可减小互连线尺寸和重量, 并简化系统设计。通过使用低电压差分信号、数据换序、SSCG 和随机生成最大限度减少了 EMI。该器件可以在 V³Link 模式或 V³Link 增强视频模式下运行。在 V³Link 增强视频模式下, 该器件通过单根同轴电缆/STP 电缆 (线路速率高达 10.8Gbps) 或双同轴电缆/STP 电缆 (线路速率高达 21.6Gbps) 支持 V³Link 增强视频输出, 并支持 4K+ 分辨率。在 V³Link 模式下, 该器件通过单/双链路支持高达 720p 和 1080p 的分辨率以及 24 位色深。在视觉兼容模式下, 该器件可与 V³Link 视觉解串器互操作, 支持高达 8MP+/40fps 的分辨率。

器件信息

器件型号	封装 (1)	封装尺寸 (标称值)
TSER4905	VQFN (64)	9.00mm x 9.00mm

(1) 如需了解所有可用封装, 请参阅数据表末尾的可订购产品附录。



简化版应用示意图



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
TSER4905RTDR	ACTIVE	VQFN	RTD	64	2000	RoHS & Green	NIPDAUAG	Level-3-260C-168 HR	-20 to 85	TSER4905	Samples
TSER4905RTDT	ACTIVE	VQFN	RTD	64	250	RoHS & Green	NIPDAUAG	Level-3-260C-168 HR	-20 to 85	TSER4905	Samples

(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.

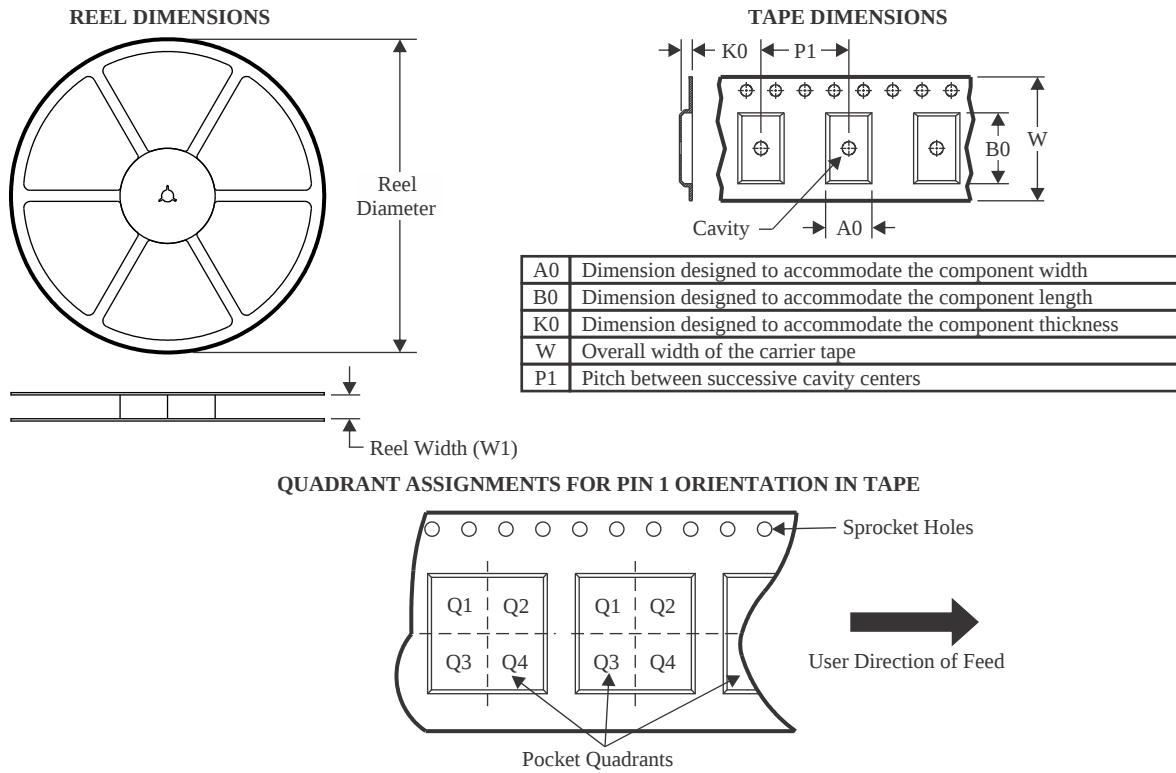
(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(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.

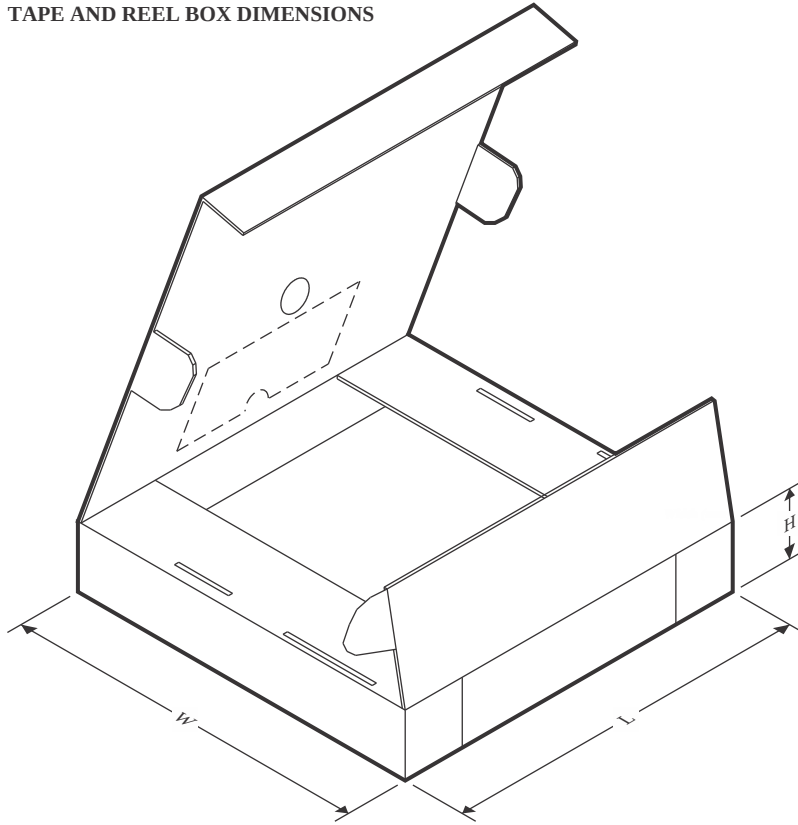
TAPE AND REEL INFORMATION



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
TSER4905RTDR	VQFN	RTD	64	2000	330.0	16.4	9.3	9.3	1.1	12.0	16.0	Q2
TSER4905RTDT	VQFN	RTD	64	250	180.0	16.4	9.3	9.3	1.1	12.0	16.0	Q2

TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

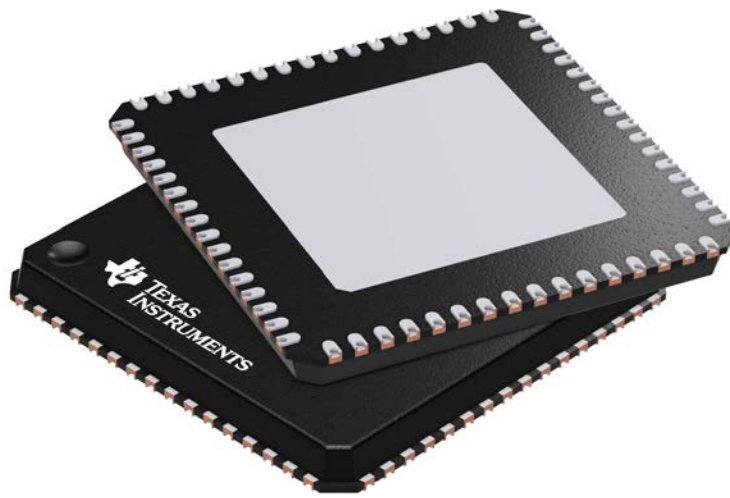
Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
TSER4905RTDR	VQFN	RTD	64	2000	367.0	367.0	38.0
TSER4905RTDT	VQFN	RTD	64	250	210.0	185.0	35.0

GENERIC PACKAGE VIEW

RTD 64

VQFNP - 0.9 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



Images above are just a representation of the package family, actual package may vary.
Refer to the product data sheet for package details.

4205146/D

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 © 2024，德州仪器 (TI) 公司