

TSER4905 4K DSI to V³Link Bridge Serializer

1 Features

- Single or dual port MIPI DSI receiver
 - Compliant to D-PHY v1.2 and DSI v1.3.1
 - Packed 16/18/24/30-bit RGB and 16-bit YCbCr
 - Loosely packed 18-bit RGB and 20-bit 4:2:2
 - 1 clock lane and 1-4 configurable data lanes per D-PHY Port
 - Up to 2.5 Gbps/lane with skew calibration
 - Supports data lane swap and polarity inversion
 - Supports both burst and non-burst mode
 - SuperFrame Unpacking Capability
 - Suitable for 4K @ 60 Hz video resolution
- V³Link Enhanced Video interface
 - Supports 10.8/6.75/3.375 Gbps per channel; Up to 21.6 Gbps over dual channels
 - Coax/STP interconnect support
 - Port Splitting to enable Y-cable interfaces
- Ultra-low latency control channel
 - Two I2C up to 1MHz (up to 3.4 MHz for local bus access)
 - High speed GPIOs
- Compatibility
 - V³Link Video and V³Link Enhanced Video product families
 - V³Link Vision product family
- Security and diagnostics
 - Voltage and temperature monitoring
 - Line Fault Detection
 - BIST and pattern generation
 - CRC and error diagnostics
 - Unique ID for counterfeit protection
 - ECC on control bits
- Advanced link robustness and EMC control
 - Data scrambling
 - Spread spectrum clocking generation (SSCG)
- Low power operation
 - 1.8-V and 1.1-V dual power supply
- Qualifications
 - ISO 10605 and IEC 61000-4-2 ESD compliant
 - 64 pin QFN Wettable flanks 9 mm x 9 mm
 - Temperature Range: -20°C to +85°C

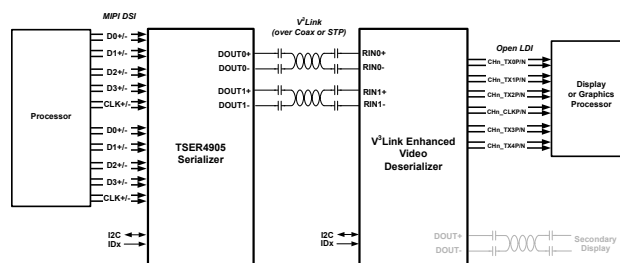
3 Description

TSER4905 is a MIPI DSI to V³Link bridge device. In conjunction with an V³Link deserializer, the chipset provides a high-speed serialized interface over low-cost 50Ω coax or STP cables. The TSER4905 is a D-PHY v1.2 compliant device that serializes a MIPI DSI input supporting video resolutions including 4K with 30-bit color depth. The V³Link interface supports video and audio data transmission and full duplex control, including I2C and GPIO data over a single channel or dual channels. Consolidation of video data and control over two V³Link lanes reduces the interconnect size and weight and simplifies system design. EMI is minimized by the use of low voltage differential signaling, data scrambling, SSCG, and randomization. This device can operate either in V³Link Mode or V³Link Enhanced Video Mode. In V³Link Enhanced Video Mode, the device supports V³Link Enhanced Video output over a single coax/STP cable operating up to 10.8 Gbps line rate or Dual Coax/STP cable operating up to 21.6 Gbps line rate, supporting 4K+ resolutions. In V³Link mode, the device supports up to 720p and 1080p resolutions with 24-bit color depth over a single/dual link. In Vision compatible mode, the device is interoperable with V³Link Vision deserializers supporting resolutions up to 8MP+/40fps.

Device Information

PART NUMBER	PACKAGE (1)	BODY SIZE (NOM)
TSER4905	VQFN (64)	9.00 mm × 9.00 mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.



Simplified Application Diagram

2 Applications

- High Resolution Display:
 - Operating room displays
 - Seatback entertainment displays
 - High resolution HMI



PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package Pins	Package qty Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
TSER4905RTDR	Active	Production	VQFN (RTD) 64	2000 LARGE T&R	Yes	NIPDAUAG	Level-3-260C-168 HR	-20 to 85	TSER4905
TSER4905RTDR.A	Active	Production	VQFN (RTD) 64	2000 LARGE T&R	Yes	NIPDAUAG	Level-3-260C-168 HR	-20 to 85	TSER4905
TSER4905RTDT	Active	Production	VQFN (RTD) 64	250 SMALL T&R	Yes	NIPDAUAG	Level-3-260C-168 HR	-20 to 85	TSER4905
TSER4905RTDT.A	Active	Production	VQFN (RTD) 64	250 SMALL T&R	Yes	NIPDAUAG	Level-3-260C-168 HR	-20 to 85	TSER4905

⁽¹⁾ **Status:** For more details on status, see our [product life cycle](#).

⁽²⁾ **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

⁽³⁾ **RoHS values:** Yes, No, RoHS Exempt. See the [TI RoHS Statement](#) for additional information and value definition.

⁽⁴⁾ **Lead finish/Ball material:** Parts 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.

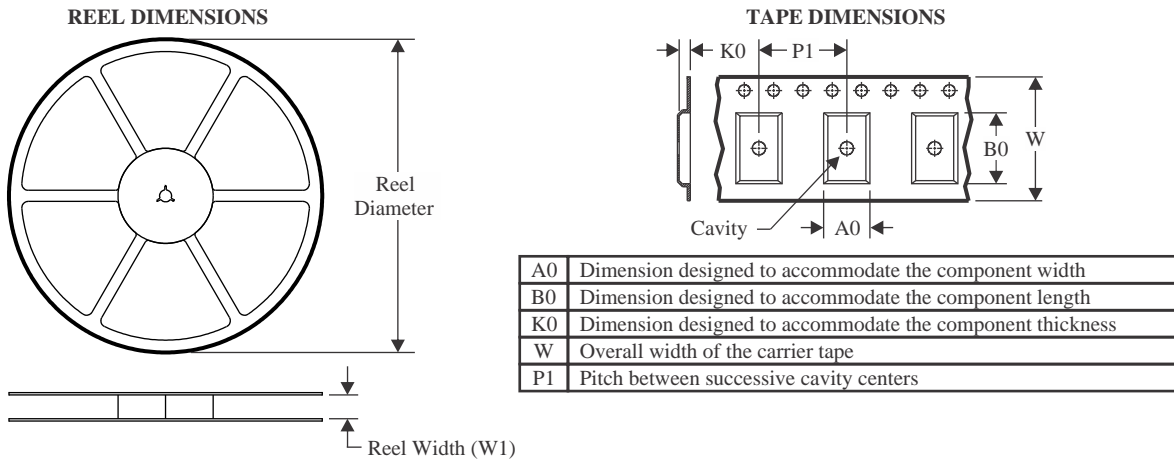
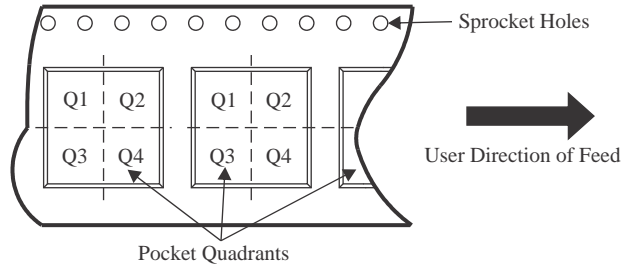
⁽⁵⁾ **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

⁽⁶⁾ **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "-" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

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TAPE AND REEL INFORMATION

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE


*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
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)
TSER4905RTDT	VQFN	RTD	64	250	210.0	185.0	35.0

GENERIC PACKAGE VIEW

RTD 64

VQFN - 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.

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