TSB41LV03 to TSB41LV03A Transition Document

TI 1394 Application Group

Texas Instruments has released to production the TSB41LV03A three-port physical layer. This part was designed to replace the current three-port phy, the TSB41LV03 (Datasheet, Literature Number SLLS317 and Errata, Literature Number SLLS316).

Texas Instruments recommends that the TSB41LV03PFP not be considered for new designs and that all new designs use the TSB41LV03APFP. Existing designs may continue to use the TSB41LV03, but may want to consider transitioning to the TSB41LV03A.

The TSB41LV03A offers advantages over the existing TSB41LV03:

- The TSB41LV03APFP is pin-compatible with the TSB41LV03PFP.
- All items described in the TSB41LV03 errata (SLLS316) have been corrected.
- The TSB41LV03APFP has lower active and idle power consumption (as much as 50% lower than the current TSB41LV03PFP).
- The TSB41LV03APFP has an ultra low-power mode, which is less than 150 μA when no ports are active .
- The TSB41LV03A is fully 1394a compliant including extended TPbias mode to accommodate Sony DV camcorder hot-plug connectivity. The extended TPbias is not included in the TSB41LV03 design.
- Dual FAB support for increased capacity

The TSB41LV03A is pin-compatible with the TSB41LV03, and circuit modifications can be made to save components and/or increase functionality with the TSB41LV03A. The changes that can be made are described below:

- The 120 kΩ resistor on the $\overline{\text{Reset}}$ pin can be removed. It is no longer needed because the errata that required this on the TSB41LV03 was corrected.
- The 1 kΩ resistor to GND on the SE pin is optional. The resistor is recommended on the TSB41LV03A to enable a future enhancement.
- For nonisolation applications, when connecting the PHY LPS input pin to the link LPS output pin, the pullup resistor on LPS signal is not needed for the TSB41LV03A or TSB41LV03 devices. For isolation applications the pulldown resistor is still required, but may be changed from a 1 kΩ resistor, for the TSB41LV03, to a resistor with a range of 1 kΩ to 10 kΩ when using the TSB41LV03A.

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