

# LVDS BiDir I/O cell

## Product description

The BIDIR cell is a high-speed and low-power LVDS bidirectional transceiver IO cell powered at 2.5V/0.9V or 1.8V/0.9V, designed on the TSMC 40 G technology.

## Main characteristics

- TSMC 40 G
- 2.5V/0.9V IO/Core transistors
- Fully compliant with TIA/EIA-644-A-2001

## Deliverables

- GDS II layouts
- LEF abstracts
- CDL netlists
- Liberty timings
- Verilog description
- A full datasheet
- An integration note

## Status

Silicon proven

## Applications

- Multi-purpose reconfigurable IO
- Point-to-point, point-to-multipoint or bus-based IC high-speed data communications
- Intra-package (e.g. MCM or SIP) inter-die high-speed data communications
- Backplane high-speed data communications
- High-speed serial communications (HDMI, SATA, PCIeX, etc.)
- Communication to LCD/OLED screens
- Video sensor digital data interface

## Main features

- Standard-compliant to TIA/EIA-644-A-2001
- Built-in, low parasitic ESD protection
- Easily integrates with TSMC I/O library cells
- All-in-ring® topology, so no core silicon area is used by LVDS
- The same cells operate with 2.5V/0.9V or 1.8V/0.9V power supplies
- Adjustable output common mode voltage (LVDS or SubLVDS mode)
- Adjustable driving current for buses with single or double termination
- Standby/power down mode
- Internal bias voltage generation and bias current distribution circuitry
- Selectable on-chip termination resistor, with optional user tuning
- Digital loopback functions to ease ATE testing
- Up to 2 Gbps data rate



## Further information

For further information about this product and other products of the nSIO\_TS40G\_2V5\_0V9 transmit / receive / combo LVDS IO library, development roadmap, availability and licensing terms, please e-mail to [sales@nsilition.com](mailto:sales@nsilition.com).

## Delivery and support

These LVDS IOs are available as hard macro-cells for reuse in any design based on the TSMC 40 G with 2.5V IO transistors CMOS process. No extra IP license from any third party will be needed for the cells or the cell library.

In addition, full support service is available on request. Support can include close integration follow-up by our design team or custom-made cells or features. nSilitation may provide support to the Customer for qualifying the maximum clocking frequency corresponding to the selected chip package and the PCB LVDS track length and impedance. IBIS models for digital outputs can be provided upon request.

## Porting to another process

The nSIO\_TS40G\_2V5\_0V9 transmit/receive LVDS IO library is silicon proven in the TSMC 40 G 2.5V/0.9V CMOS process. It can be easily ported to another foundry and/or another similar CMOS process node upon request. Please contact us for details and availability.

## About nSilitation

nSilitation is a leading analog and mixed-signal semiconductor IP provider.

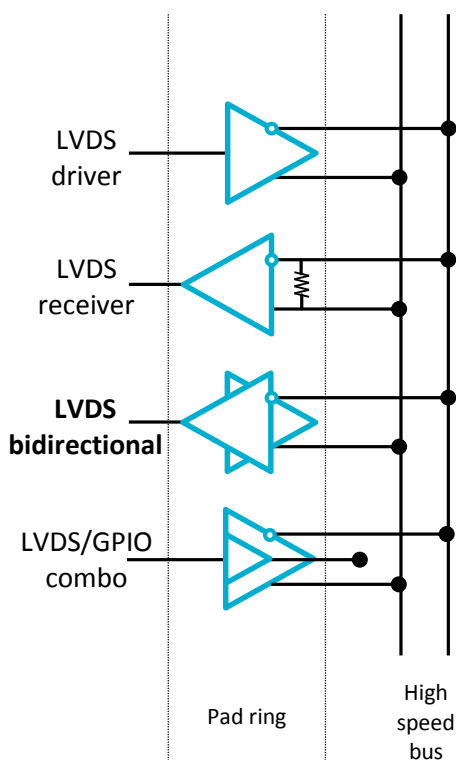
nSilitation specializes in the development of high quality analog and mixed-signal high performance semiconductor IPs. With reference designs available for 10b to 14b A/D and D/A converters, high-speed IO circuits, PFM and PWM high efficiency DC/DC integrated converters and high precision bandgap references; nSilitation enables the highest value analog and mixed-signal functionalities at the lowest risk.

The "IP design" service of nSilitation offers top-class quality, customization and support dedicated to your needs and your specifications.

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*Support can include close integration follow-up by our design team or custom-made cells or features*



*Available LVDS cells in  
nSIO\_TS40G\_2V5\_0V9  
IP library*



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