

2.5V GPIO WITH LVDS TX/RX AND ANALOG CELL

IN GLOBALFOUNDRIES 65NM LPE TECHNOLOGY



A GlobalFoundries 65nm LPe Wirebond IO library with 2.5V GPIO, LVDS TX & RX and 2.5V analog/RF cell with associated ESD

SUMMARY

Key attributes of this IO library include dual selectable drive strengths and independent input & output enable / disable. The GPIO cell can be configured as input, output or open-drain with a Schmitt trigger input and selectable internal 60K ohm pull-up or pull-down resistor. Cells for IO power, core power and ground with built-in ESD are included. 2.5V LVDS RX & TX cells capable of data rates up to 1.5Gbps with no external reference, along with a 2.5V low-capacitance RF analog cell (and associated ESD) complement the GPIO offering. The library is enriched with filler, corner and domain-break cells to allow for flexible pad ring construction. ESD design targets are 2KV HBM and 500V CDM, yet this library has demonstrated up to 4KV HBM / 800V CDM.

OPERATING CONDITIONS

Parameter	Value
VDDIO	2.5V
Core VDD	1.2V
Tj	-40°C to 125°C
Max_Load	15pF (10pF at speed)

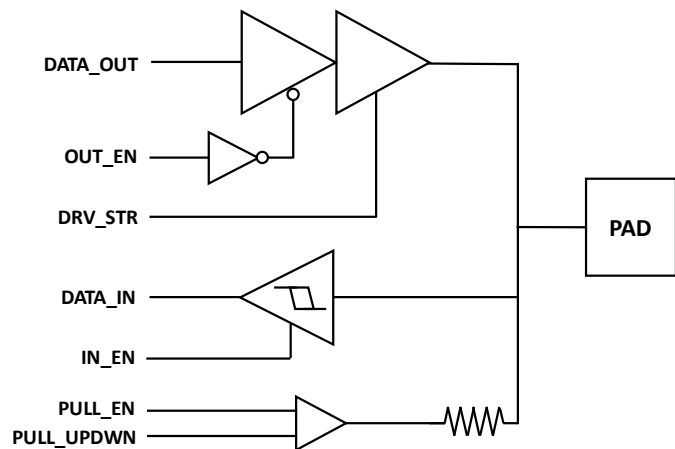
CELL SIZE & METAL STACK

Cell size	Type	Metal Stack	WB pitch
45x200um	GPIO	8M_1B1_1EA	45um dual
90x200um	LVDS		

LIBRARY CELL SUMMARY

Cell Type	Feature
Supply / ESD	2.5V IO; 1.2V core; GND
GPIO ¹	12mA 24mA (up to 200 MHz)
LVDS TX & RX	1.5Gbps, no external reference
2.5V Analog	Low-C RF
Break cells	VDDIO, VDD
Filler cells	1um, 5um
Corner	Corner cell

GPIO BLOCK DIAGRAM



GPIO FEATURES

- 2.5V IO operation
- Selectable 12mA | 24mA drive strength options
- Up to 200MHz operation (@24mA, 10pF)
- Output enable / disable (HiZ when disabled)
- Input enable / disable (input low when disabled)
- Schmitt trigger receiver
- 60KΩ selectable pull-up or pull-down resistor
- ESD: 2KV HBM, 500V CDM²

Certus also supports IO libraries in TSMC 180nm, 130nm, 65nm, 40nm, 28nm, 22nm, and 16/12nm. Additional Certus libraries are available across technologies supported by Global Foundries & Samsung. Certus is particularly suited at providing custom variants in a cost-efficient framework. Feel free to inquire about supplementary physical or electrical features to suit your needs.

1. 12mA when DRV_STR=0, 24mA if DRV_STR=1.
2. CDM rating is a function of package size. Rating shown is for nominal packages.