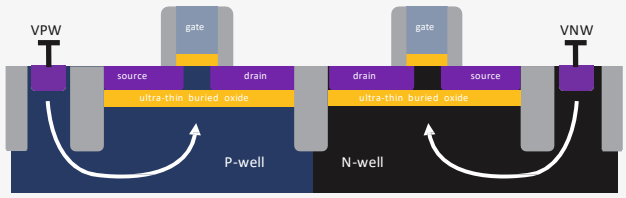
Racyics® ABX® Adaptive Body Bias Generator

GLOBALFOUNDRIES® 22FDX®

CHALLENGE

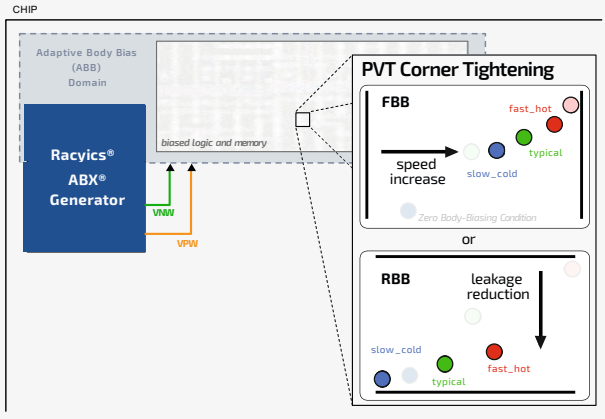
RI_ABB_GF22FDX is a cutting-edge adaptive body bias (ABB) generator for **GLOBALFOUNDRIES® 22FDX®** technology. Featuring patented closed control loops with independent N-well and P-well body bias voltage generation, this silicon-proven IP dynamically compensates for process, voltage, and temperature (PVT) variations during operation.



KEY FACTS

- Integrated adaptive body bias (ABB) control loop
- Charge pumps for N-Well and P-Well voltages, operated from IO supply voltage level
- Integrated PVT monitors for true independent adaption of NMOS and PMOS performance
- Operation from typically 10 MHz, up to 50 MHz reference clock
- Available in forward (FBB) and reverse body bias (RBB) versions
- Available in multiple charge pump drive strengths supporting a wide range of active chip areas
- Delivered as hardmacro for easy and seamless integration
- Supports dynamic bias corners down to 0.40 V nominal
- Interoperable with foundation IP standard cells and SRAM

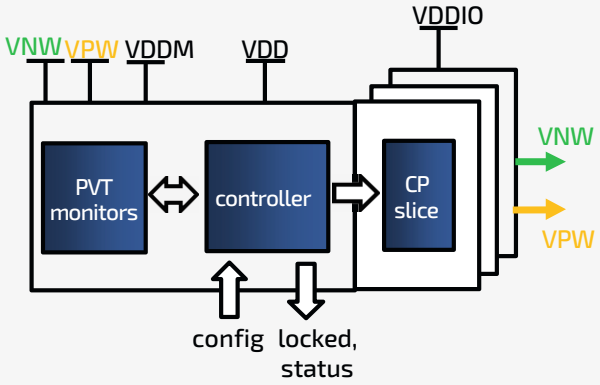
ABX® PVT CORNER TIGHTENING



DESIGN VIEWS

- Verilog simulation models
- .lib /.db timing and power models
- .lef layout abstract views
- NDM and Milkyway libraries
- GDSII layout
- LVS netlist
- EMIR models
- DFT models
- Available for **22FDX®** and **22FDX®** PDKs

ABX® GENERATOR IP SCHEMATIC



IP SPECIFICATION

IP Type	Supplier	Specification	Nominal Supply Voltages
ABB controller IP hardmacro	Racyics®	f_{ref} = < 10MHz to 50 MHz > P_{active} = 12 µW (typical) area < 0.006 mm² (smallest pump strength) - 0.2 V < VNW < 2.4 V - 2.4 V < VPW < 0.2 V	Body bias generation: 1.80 V Control logic: 0.80 V PVT monitors: 0.40 V / 0.50 V / 0.55 V / 0.60 V / 0.65 V / 0.80 V / 0.90 V

Compliant to PDKs 22FDX®-EXT and 22FDX®-PLUS

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