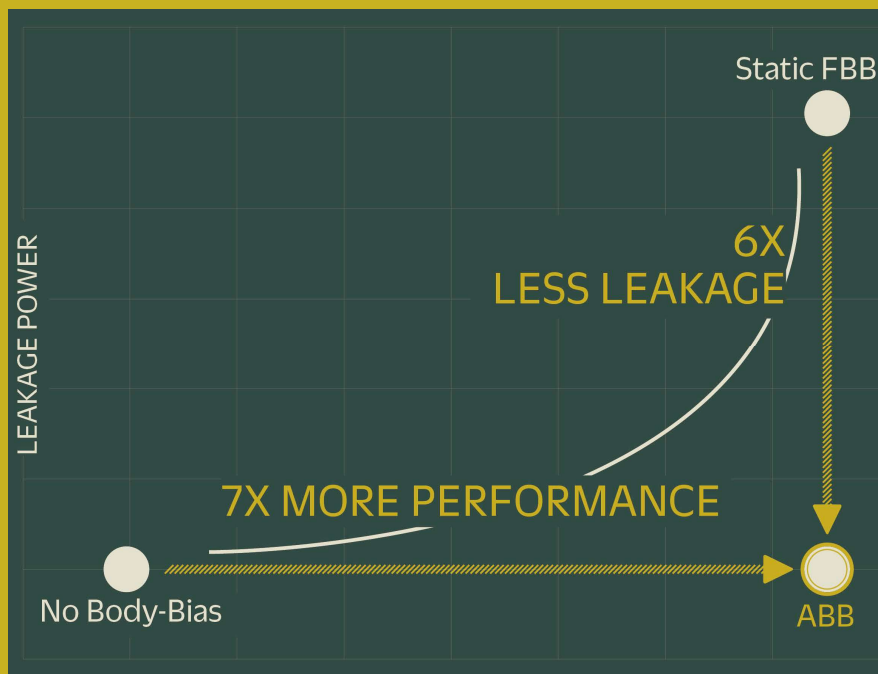


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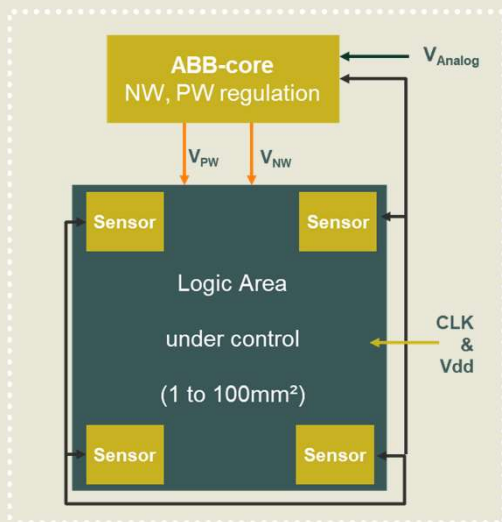
DESIGN

ENERGY-EFFICIENCY WITHOUT LIMITS
WITH OUR TURNKEY 22FDX[®] ADAPTIVE BODY BIAS IP



The ABB IP is an adaptive body bias subsystem designed in FDSOI technology. Its goal is to enable Process, Voltage & Temperature compensation thanks to body bias voltage in order to leverage FDSOI body-biasing capabilities

The ABB IP guarantee the correct operation of a logic island by compensating dynamically process, voltage and temperature Variations and also tracks the operating frequency of the SoC to reduce the biasing when the timing can be reached with a lower biasing. This allows an overall reduction of the power consumption.



In order to cope with IoT, consumer and automotive applications, the ABB-PVT.02 has been developed with the following requirements:

- Integrated control function for N-Well and P-Well voltages
- Integrated drivers for N-Well and P-Well voltages, scalable depending on area of biased wells of the application design
- Integrated ultra low-power PVT sensors
- Support of forward body-biasing (FBB) and reverse body-biasing (RBB) usage
- Support of multi operating voltages and low power operations such as clock gating and standby mode
- Negligible area and power overheads

Main features

- Adaptive body bias compensation for optimization of the application frequency
- Configurable output stage for adaptation to application design wells area
- Active/Shutdown modes
- Embedded steady state OK output

Main operating conditions

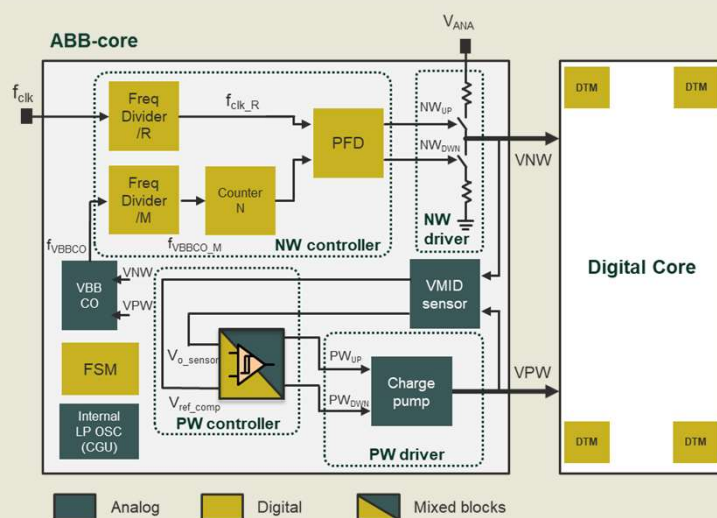
- Single 1.62 V to 1.98 V analog power supply (AVD)
- Single logic power supply (VDD)
- 0.45 V to 0.945 V range with input reference clock: 10 MHz - 200 MHz depending on logic power supply
- Application design wells area (drives) are up to 100mm², depending on configuration.
- Junction temperature range from -40°C to 150°C

Targeted main performances

- Output voltage range (N-Well) from 0 V up to 1.5 V
- Output voltage range (P-Well) from 0 V down to -1.5 V
- Start-up time: 300 μs typical
- Power consumption: 34 μW (@FF 125°C) with 4 DTM sensors

Applications

- Internet of Things
- Automotive



WE TECH IT ON

D_ILPHIN
DESIGN

THE NEW BRAND OF

D_ILPHIN
INTEGRATION