

# CT23301

## 28n-TSMC Process Monitor

### Status

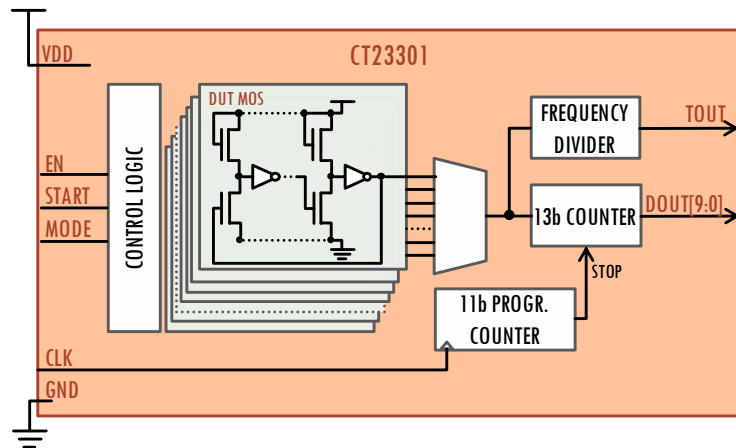
- Silicon-Proven on 28HPC+ TSMC technology
- PVT characterized
- Easy portability
- In mass-production

### Deliverables

- Datasheet
- Integration guidelines
- GDS2 and LVS Netlist
- Footprint (.LEF)
- Test Specifications

### Applications

- General Purposes IP



### Features

- Supply 0.9V
- SVT, HVT and ULVT P and N devices

### Description

CT23301 provides means to determine the process corner speed of some pre-defined MOS devices in the TSMC 28n technology node. The process corner (fast or slow) can be evaluated using the measured output value of CT23301 to calculate the frequency result, which has to be compared with a defined table.

The IP has been designed to have the capability of monitoring both core NMOS or PMOS process corner for the ultra-low Vt, standard Vt and high Vt devices

The ring oscillators (one for each of the selected DUTs) are connected to digital part which is composed of 2 counters and a finite-state machine (FSM), which enables the oscillator of the device under test (DUT) and properly controls the counters to perform the frequency measure of the selected oscillator.

The output result is a value proportional to the frequency of the DUT oscillator.

# Analog-BIST Aux. block TSMC 28n

## Application Example Frequently-Asked Questions

### Application Example

In this application example, the bundle of the CT20407 (12bits, 100KSps ADC), the CT23301 (Process Monitor) and the CT23302 (Leakage Monitor), constitutes the Analog-BIST section of a product in TSMC 28HPC+ process (Silicon-Proven and in mass-production implementation).

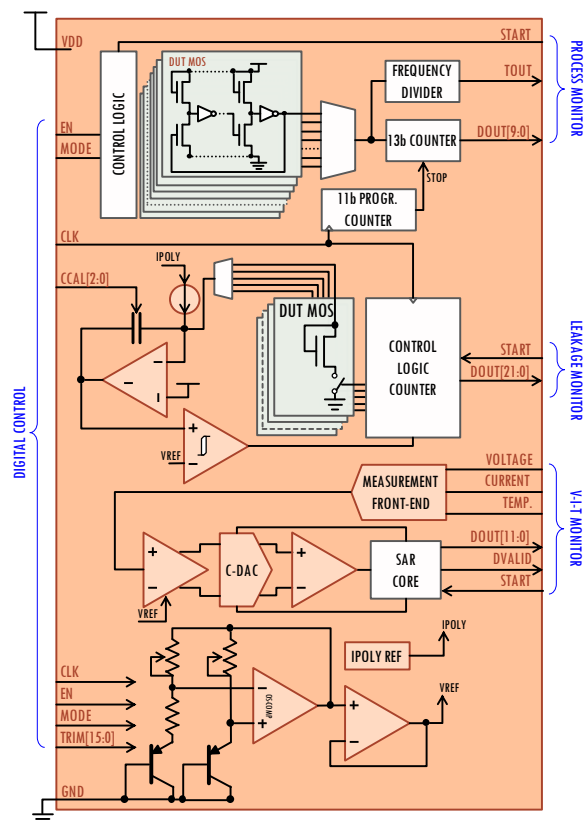
The bundle provides to the Analog-BIST section of the IC Product the following:

- A measure of the mosfet transistors performances (CT23301)
- A measure of the leakage of the mosfet transistors (CT23302)

The Measurement Front-End of the CT22406, designed to meet overall 12bits accuracy after conversion, is able to measure:

- Voltage and Current in different ranges
- internal/external Temperature Sensor

CT22406 ADC Readout can be used for checking the whole system during operation and to provide Analog-BIST support during final testing at ATE,



### FAQs

**Q: May I ask Canova Tech to migrate the IPs to a different manufacturing foundry and process?**

**A:** Yes, you can. Our business model includes porting of the IPs to your preferred silicon foundry supplier.

**Q: May I ask Canova Tech to develop custom and dedicated analog and/or digital on top of the IPs?**

**A:** Yes, you can. Our business model includes custom and dedicated Design Services to facilitate the integration of our IPs into your chip architecture. This business model includes the possibility for you to assign Canova the responsibility for design of a complete integrated circuit (GDS IP) based upon our IPs and your requirements.

**Q: Which options do I have for licensing the Canova Tech silicon IPs solution?**

**A:** You can have several licensing options which includes:

- single-use/multiple-use license: the IPs (single or in bundle) are delivered as object-code and licensed for the use on a well-defined product code (single-use) or for unlimited product codes (multiple-use).
- manufacturing license: here Canova Tech can develop your entire product, based upon our IPs (single or in bundle) and your product specifications. The GDS IP is licensed and delivered to you (including all necessary documentation and support) for you to manufacture your product and brand it.

**Q: What kind of Support and IP Maintenance will I get from Canova?**

**A:** You will get all required Support and IP Maintenance to ensure proper IP integration into your products for 12 months following the IP licensing. You can then subscribe, at your option, annual renewals of the Support and Maintenance agreement.