CT20308

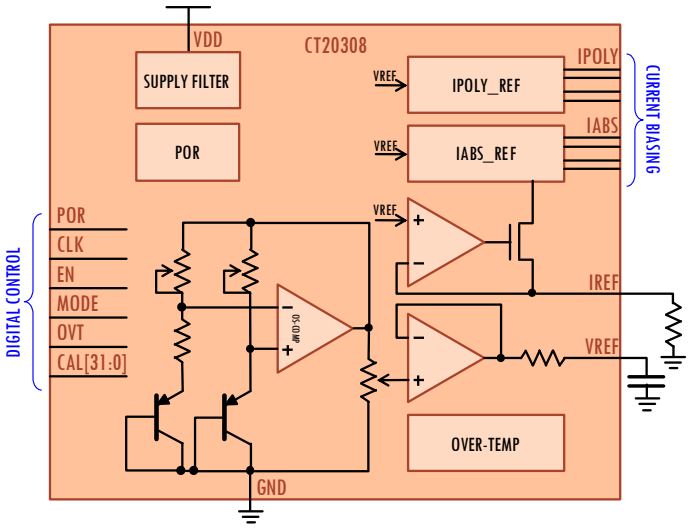
Accurate BandGap Voltage/Current Reference Generator

Status

- Silicon-Proven on 0.13um 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

- VDD = 2.5 ÷ 5V
- Reference Voltage at VREF = 1.0V
- Reference voltage accuracy: ±0.4% in high performance (HP) mode, ±1% in low performance (LP) mode
- VREF integrated noise from 10Hz to 100kHz: <29µVrms in HP mode, <157µVrms in LP mode
- 7 bits trimming for VREF, 6 bits trimming for temperature drift correction. Both trimmings performed at the same single temperature
- Reference currents: 1µA ± 1.5% (typical) in HP mode, ±2.5% in LP mode
- Current consumption: 41µA in HP mode, 22 in LP mode
- Operating temperature: -25 ÷ 125°C

Description

CT20308 is a buffered accurate reference voltage generator, including a low pass filter with an external capacitor for noise reduction and PSRR improvement. In order to achieve a total error <1%, the amplifier in the bandgap core block implements an offset cancellation circuitry.

Reference voltage thermal drift is minimized by means of 7 bits trimming so that the voltage reaches the “golden point”. Additional 6 bits are used to flatten the output thermal characteristic while performing trimming at one single temperature.

CT20308 includes reference currents generators, both using an external accurate resistor and a completely internal one tied to poly resistor values.

CT20308 also includes an over temperature detection circuit and Power On Reset.

Related Ips

- CT20115 – Frequency adjustable 32MHz RC Oscillator
- CT22406 – Ultra-Low Power 12bits, 35KSps SAR ADC

PMIC Auxiliary block
TSMC 130n-BCD

Application Example
Frequently-Asked Questions

Application Example

In this application example, the bundle of the CT20115, the CT20308 and the CT22406, constitutes the auxiliary section of a PMIC product in TSMC 130n-BCD process (Silicon-Proven and in mass-production implementation).

The bundle provides to the whole PMIC system the following references:

- The buffered reference voltage of 1V ±0.4% (CT20308)
- The reference current (both IPOLY and IABS) of 1µA ±1.5% including current distributors (CT20308)
- The reference clock of 32MHz ±5% (CT20115)

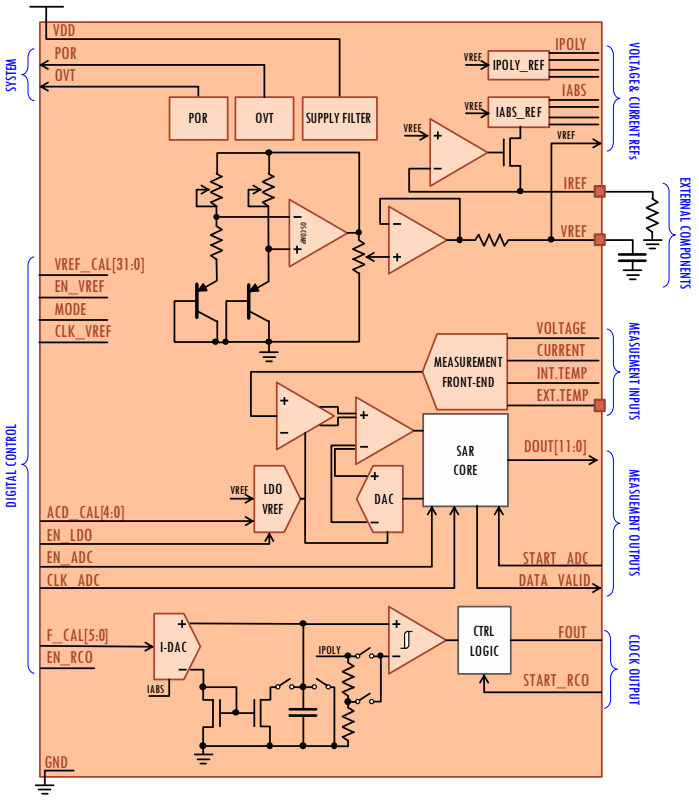
The following controls are also provided by the CT20308:

- Precise Power-On Reset signaling
- 140°C ±10°C Over-Temperature protection signaling

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 you preferrable 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.