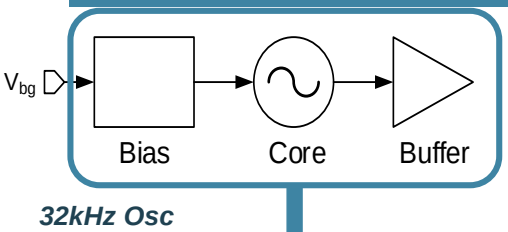
SIVI-RTC18001

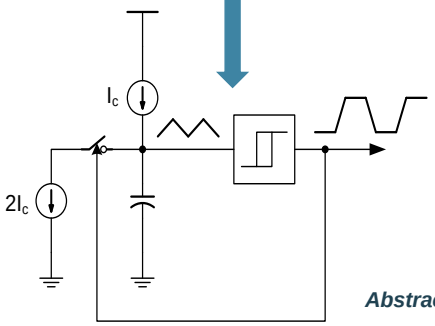
TSMC 180nm-G (1P5M)

MAIN FEATURES

- Designed on TSMC 180nm Generic Process
- 32Khz nominal Oscillation Frequency
- Auto-calibration mode
- Accuracy after calibration is better than +/- 1%
- Power consumption at 32KHz is less than 0.5uA
- Operates from 1.8V supply



32kHz Osc



Abstract Diagram for the Core

IP DESCRIPTION

SIVI-RTC18001is a low power high resolution RC oscillator nominally operates at 32 KHz output clock from a 1.8V supply. The IP consumes only 0.5uA as a worst case at the maximum oscillation frequency. It has an auto-calibration circuit with a bypass option. The IP is silicon verified on 180nm process.

ELECTRICAL SPECIFICATIONS

Spec / Result	Min	Typ	Max	Unit
Supply Voltage		1.8		V
Temperature Range	-40	27	125	°C
Error After Calibration		0.2	1	%
Frequency Drift with Temp		0.03		%/C
Frequency Drift with Supply Voltage		0.96		%/V
Current Consumption @32 KHz		0.25	0.5	uA
Area		0.06		mm^2

IN DESCRIPTION

Pin Name	Direction	Description
rcosc_vdd1p8v	Input	1.8V analog supply rail
rcosc_vss	Input	Analog ground rail
digctrl_startautocal_1p8v	Input	Digital signal used to start the calibration process
digctrl_oscrescalfrc_1p8v<3:0>	Input	External calibration word
Digital_caloveride	Input	Calibration override mode (input will be 1'b1 in this mode)
clkgen_clk13mhz_1p8v	Input	13MHz clock used in calibration mode
bias_vbg1p2v_v	Input	1.0V reference voltage used for calibration
digctrl_oscrescalout_1p8v<3:0>	Output	Calibration word results from calibrator
rcosc_clk32khz_1p8v	Output	Output 32kHz clock
digctrl_oscrescaldone_1p8v	Output	Calibration flag which is raised after the end of the calibration process
rcosc_testclk10mhz_1p8v	Output	Output clock to be tested

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