# qOSC-RC-LP-32k-co.01

**Low Power RC Oscillator**

180 to 40 nm

**q: low quiescent - LP: low power - co: core transistor - 0x: release**

## Challenge - Optimization

Low power consumption for IoT and wearables implies that logic blocks in the SoC operate at very different optimal frequencies.

A clock network must be controlled to ensure the right timing of operations constrained by BoM cost, silicon area, power consumption, accuracy and stability.

The Always-On domain, over which the power islets emerge, requires a specific panoply of voltage regulators and clocks. The availability of extremely low power oscillators is therefore a must.

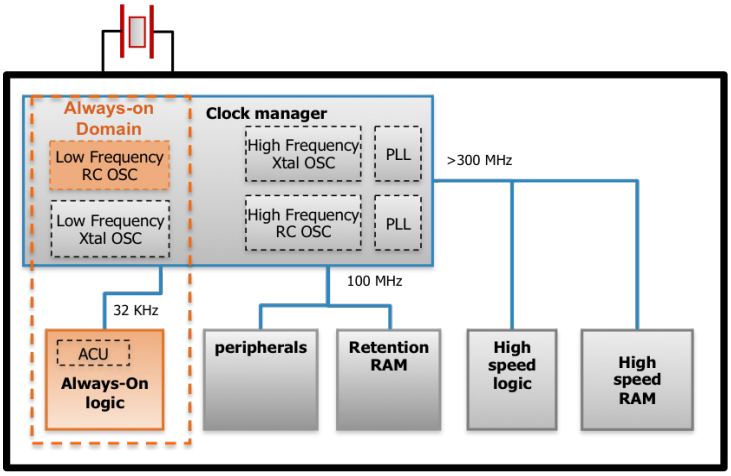
In low power modes, low speed clocks are generally used. The qOSCRC-LP-32k-co.01 - low frequency crystal oscillator - is an excellent choice for application combining the needs of ultra-low power consumption and reduced BoM cost.

It can also be suitably combined with a crystal oscillator in order to benefit at once from fast wake-up time of the RC oscillator and from accuracy of the crystal.

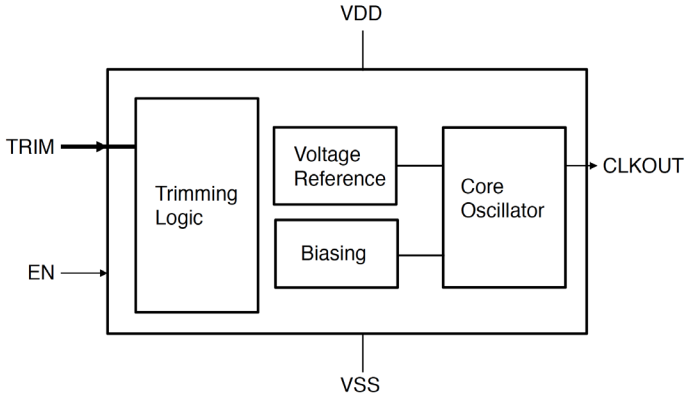
## Key Benefits

- Low power consumption
  - ➟ Support of low power and backup modes thanks to its 70 nA typical power consumption
- A cost-efficient solution
  - ➟ No external component is needed thanks to on-chip integrated capacitors, thus enabling to offer a low BoM solution for end-users and to minimize the PCB area
- Suitable for fast wake-up
  - ➟ Thanks to a startup time of 200 us, the RC oscillator allows SoCs reaching high performances of wake-up time
- Digital trimming
  - ➟ Allows to compensate process errors in order to obtain the nominal frequency

## Synopsis of a typical Clock Network




## Block Diagram




## Applications

- IoT, wearables
- Battery powered systems
- RTC