# URFC-2501-250

# 0.25㎜ 2.5V Resistance to Frequency Converter

## Features

- **One external resistor sets the frequency**
- **Low power and power down mode configuration available**
- **Frequency ranges from 1MHz to 100MHz in the normal mode**
- **Linearity dependence between period and external resistance for normal mode and low power mode**
- **Duty cycle range from 44% to 56% in the normal mode**
- **Operates from a single supply from 2.25V to 2.75V**
- **Test chip available in 48-lead LQFP package**

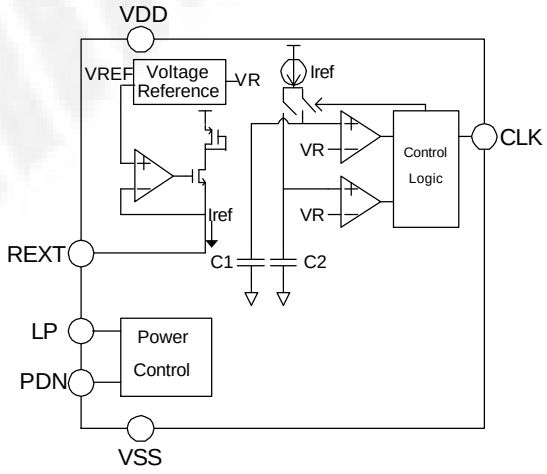
## Applications

- **Microprocessor clock signal**
- **Digital circuit clock signal**

## Overview

URFC-2501-250 is a resistance to frequency converter (RFC) for providing the microprocessor or other digital circuits a 2.5-V clock signal. This operating principle of timing generator is based on a RC oscillation network. The capacitors of the RC network is embedded in the chip and its resistor is placed external for accurate reference frequency.

## Block Diagram





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## Description

URFC-2501-250 features an internal RC network for timing generation. The operating frequency of the URFC-2501-250 is from 1MHz to 100MHz with 50% duty cycle. The reference current is generated from biasing an external resistor at a fixed voltage. The reference current flowing into the external reference resistor is mirrored to control the charging current of the embedded capacitors, thus generating the clock signal. The URFC-2501-250 is fabricated in TSMC 1P3M 0.25μm 2.5V salicide CMOS logic process. The test chip of URFC-2501-250 is available in a 48-lead LQFP package. There is an evaluation board available with the test chip.

## Deliverables

- Comprehensive document set
- Hard macro
- Synopsys™ synthesis model
- Verilog model
- TLF model
- LEF model
- Test chip
- Evaluation board



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