



# 32 KHz Watch Circuit with Programmable Output Period and Pulse Width

## PCA2002

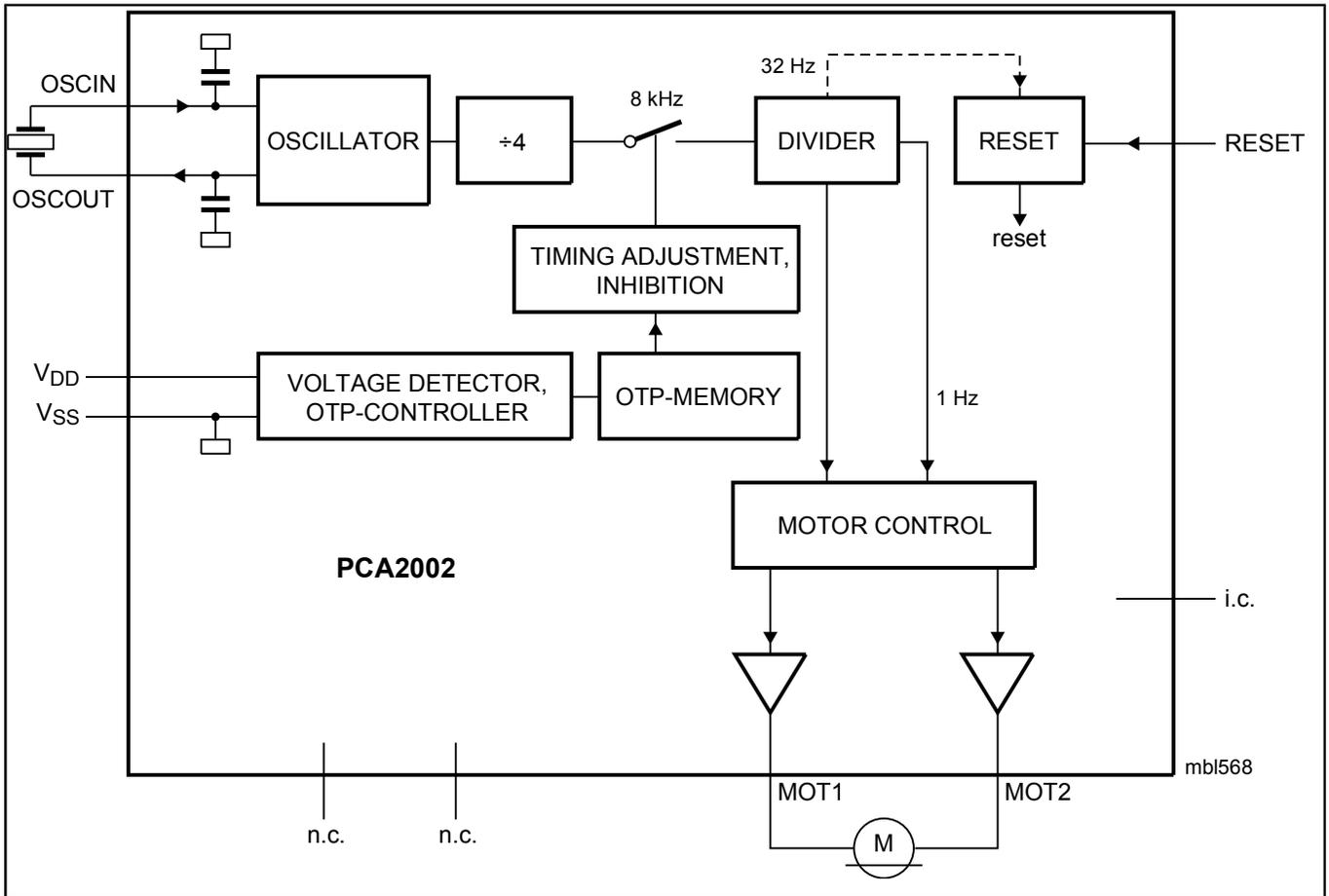
Last Updated: Dec 23, 2025

The PCA2002 is a CMOS integrated circuit for battery operated wrist watches with a 32 kHz quartz crystal as the timing element and a bipolar stepping motor. The quartz crystal oscillator and the frequency divider are optimized for minimum current consumption. A timing accuracy of 1 ppm is achieved with a programmable, digital frequency adjustment.

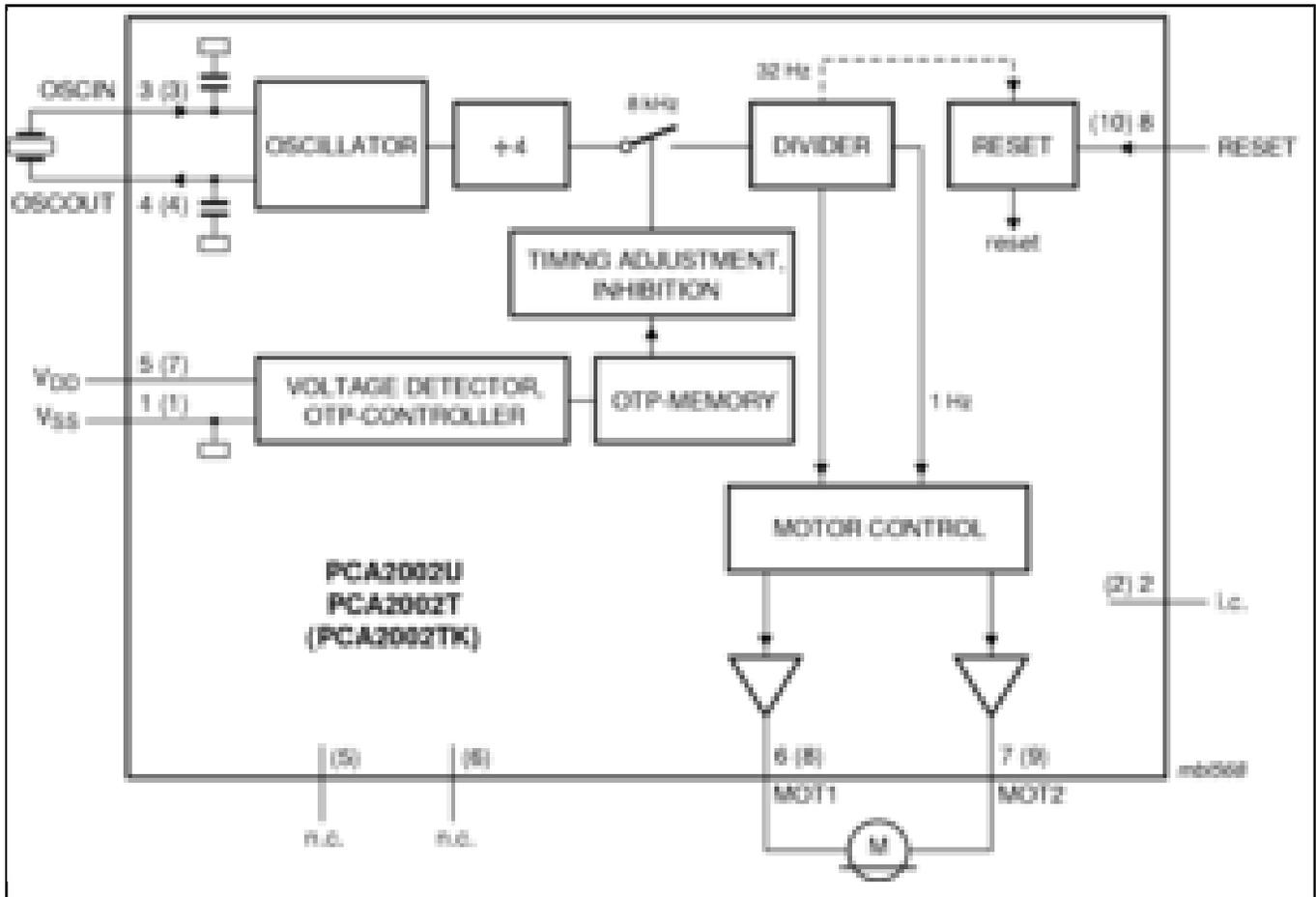
The output period and the output pulse width can be programmed. It can be selected between a full output pulse or a chopped output pulse with a duty cycle of 75 %. In addition, a stretching pulse can be added to the primary driving pulse.

A pad RESET is provided (used for stopping the motor) for accurate time setting and for accelerated testing of the watch.

# PCA2002 Block Diagram Block Diagram



Block diagram: PCA2002CX8, PCA2002U, PCA2003U Block Diagram



View additional information for [32 KHz Watch Circuit with Programmable Output Period and Pulse Width](#).

Note: The information on this document is subject to change without notice.

[www.nxp.com](http://www.nxp.com)

NXP and the NXP logo are trademarks of NXP B.V. All other product or service names are the property of their respective owners. The related technology may be protected by any or all of patents, copyrights, designs and trade secrets. All rights reserved. © 2025 NXP B.V.