Evaluation Board User Guide

# MAX20433 Evaluation Kit

Evaluates: MAX20433

## General Description

The MAX20433 evaluation kit (EV kit) is a fully assembled and tested application circuit for the MAX20433 high-efficiency, four-output power management IC (PMIC). This EV kit can test all outputs to full load within the normal operation input range of 3.5V to 36V. The IC features two modes of watchdog operation—challenge/response and simple windowed mode—which can also be disabled for simplified evaluation.

To configure the MAX20433 and monitor errors, I²C communication must be used. Using a PC-to-I²C interface such as the MINIQUSB or MAX32625PICO and software such as Simple I²C for reading and writing to I²C registers simplifies testing. Windows®-based graphical-user interface (GUI) software is available for use with the EV kit and can be downloaded from the Analog Devices website at www.analog.com/MAX20433 (under the Design & Development tab). Windows 7 or newer is required to use the EV kit software.

## Features and Benefits

- Integrated IC Minimizes Board Area and Layout
- Input Voltage Range from 3.5V to 36V
- User-Programmable Settings through I²C
- Challenge/Response or Simple Windowed Watchdog
- 2.1MHz Fixed-Frequency Switching with Spread-Spectrum Option
- Status Monitoring through $\overline{\text{RESET}}$ Pin and I²C Status Registers
- Fully Assembled and Tested
- Proven PCB Layout with Automotive-Grade Components Tested

## MAX20433 EV Kit Files

| FILE | DESCRIPTION |
|---|---|
| Simple I2C.exe | Installs EV kit files onto computer |

*Ordering Information* ***appears at end of data sheet.***

## Quick Start

### Required Equipment

- MAX20433 EV Kit
- I²C Read/Write Software such as Simple I²C
- I²C Interface such as MINIQUSB or MAX32625PICO (PICO Board)
- DC Power Supply (Capable of 0 to 36V Output)
- Digital Multimeters (DMM)
- Electronic Load

Note: In the following sections, software-related items are identified by bolding. Text in bold refers to items directly from the EV kit software.

## Procedure

The MAX20433 EV kit is fully assembled and tested. Follow these steps to install the EV kit software, make required hardware connections, and start the operation of the kit. The EV kit software can be run without hardware. Note that after communication is established, the IC must still be configured correctly for the desired operation mode. Make sure the PC is connected to the internet throughout the process so that the USB driver can be automatically installed.

1. Verify that all jumpers are in their default configuration according to *Table 1*.
2. If using the MINIQUSB, connect the USB cable from the PC to the MINIQUSB board and then plug it into J1 on the EV kit. If using the PICO board, separate cables must be used to connect the SDA, SCL, GND, and $V_{DD}$ pins to the EV kit.
3. Connect the positive and negative terminals of the power supply to $V_{SUP}$ and PGND test pads, respectively.
4. Set the power supply voltage to 13.5V, and then turn on the power supply.
5. If using Simple I²C, open the software and load in the register map for MAX20433 by selecting Regmap in the menu bar and then Load Regmap. Check and enable Auto Read on the left menu bar.
6. To establish a connection to the EV kit, select Device in the menu bar and then Scan for Address. The software should find the default address (0x38). Click OK.

*Visit Web Support to complete the nondisclosure agreement (NDA) required to receive additional product information.*



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## Notes