

MR-MINI-RTC™ I²C Real Time Clock Board User Manual

Description

The MR-MINI-RTC is a Real Time Clock (RTC) board. It display time base such as clock, timer, and calendar. Moreover, it can be a counter for an external clock. The data can be interface via I²C bus. There are no external components required. This makes it perfect for embedded systems that need RTC. The board is small can compact in size 2.20 x 1.70 inches.

There are two modes of operation RTC mode and counter mode. When using RTC mode, there is a variable capacitor for frequency crystal adjustment. This makes crystal create correct frequency result in accurate time base. There is a on-board battery backup when there is no power apply to the board. This enable RTC to run continuously even without power supply. When using counter mode (CNT), user can input pulse signal from external generated source via a header pin. Moreover, there is an on-board push button switch so user can generate the pulse to test or experiment with this feature.

The MR-MINI-RTC is designed base on LM2575-5 IC. It is a clock/calendar circuit based on a 2048-bit static CMOS RAM organized as 256 words by 8 bits. Addresses and data are transferred serially via the two-line bidirectional I²C bus. The built-in word address register is incremented automatically after each written or read data byte.

Please take a look at PCF8583 datasheet for more information.

Features:

- I²C bus interface operating supply voltage: 2.5V to 6V
- Clock function with four year calendar
- 24 or 12 hour format
- Thermal shutdown and current limit protection
- On-board variable capacitor for frequency adjustment
- Jumpers setting configuration
- Small and compact in size
- Four mounting holes on each corner
- Male and female output headers

Interfacing:

There are two set of jumpers must be configure. The first set is DIS/ENA jumpers. These jumpers connect R pulled-up to SDA, SCL and INT pins. If there are pulled-up resistors on the bus already, these jumpers need to be in disable (DIS) positions. Otherwise, the jumpers need to be on enable (ENA) position.

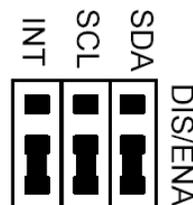


FIG 1: Pulled-up R enable

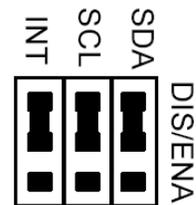


FIG 2: Pulled-up R disable

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The second jumper is RTC/CNT position. It is an operation configuration of I²C. For RTC mode, the jumper must be set to RTC side. In CNT mode, the jumper is set at CNT position. The EXT PULSE pin then takes an input pulse from external source or from push button switch.

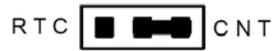


FIG 3: Jumper set for RTC mode FIG 4: Jumper set for CNT mode



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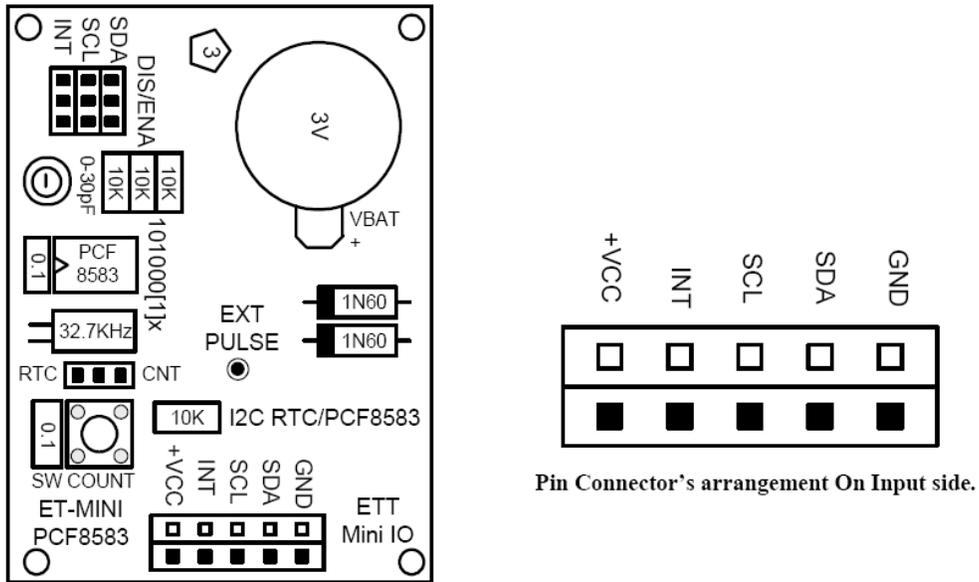


FIG 5: MR-MINI-RTC Board Layout

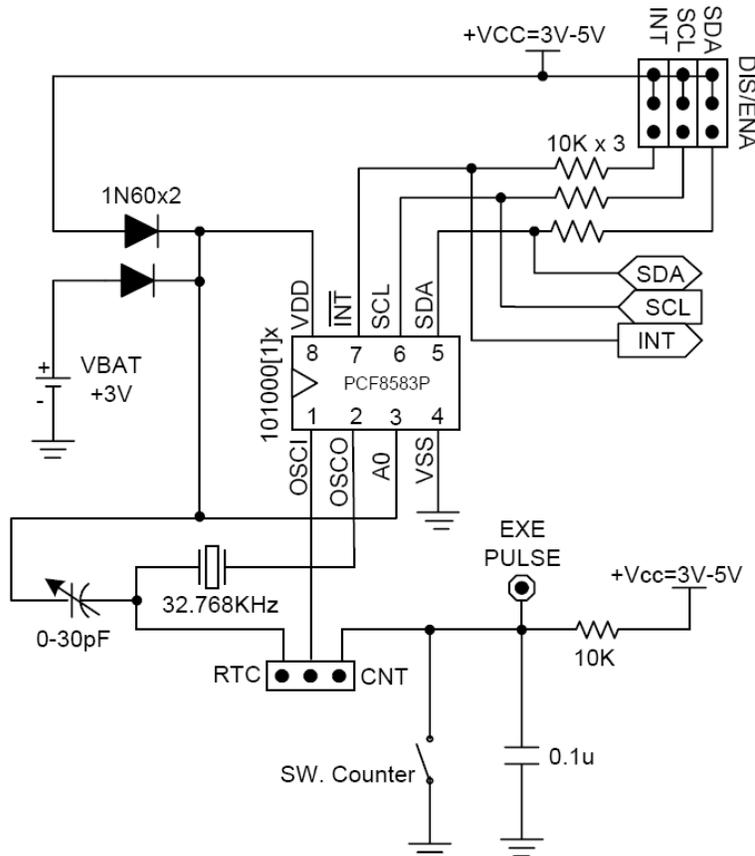


FIG 6: MR-MINI-RTC Schematic

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Notes

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