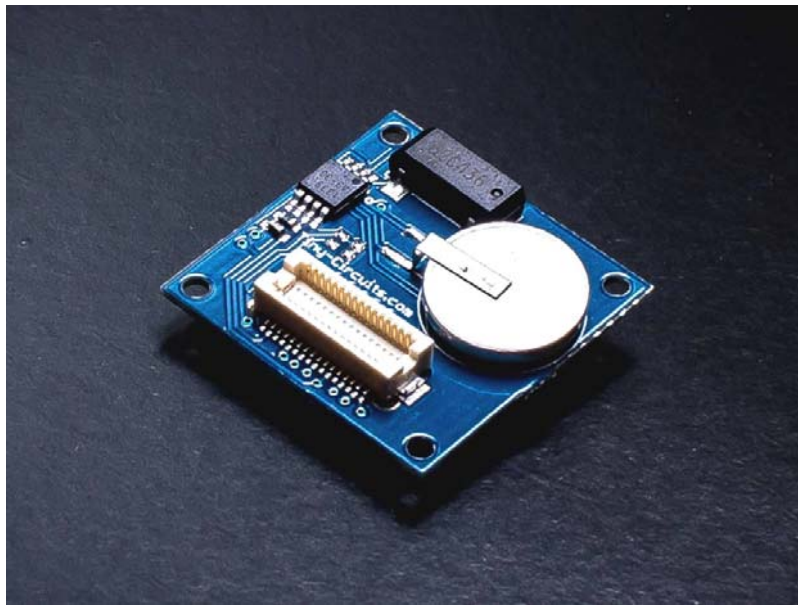# REAL-TIME CLOCK TINYSHIELD

ASD2831-R

DESCRIPTION

This TinyShield lets you add a battery-backed real-time clock (RTC) to your TinyDuino projects. This lets your project keep accurate time even through the TinyDuino being reprogrammed or power losses. It is based around the **Maxim DS1339 RTC** and supports counting in seconds, minutes, hours, days, date, month and year with leap-year compensation (valid up to 2100).

The RTC has two time-of-day alarms that can be set to wake up the main TinyDuino processor from sleep (very useful in long term data logging applications) and will automatically switch to using the backup battery upon power loss. The backup battery is a rechargeable Lithium coin cell which is soldered onto the TinyShield and will keep the RTC time for 2.5 years before being recharged. Trickle charging of the backup battery can be enabled using a software command.

*To learn more about the **TinyDuino Platform,** click **here***
https://tinycircuits.com/pages/tinyduino-overview

TECHNICAL DETAILS

*To see what other TinyShields this will work with or conflict with, check out the **TinyShield Compatibility Matrix***

Maxim DS1339 Real-Time Clock (RTC) Specs

o   Real-Time Clock (RTC) Counts Seconds, Minutes, Hours, Day, Date, Month, and Year with Leap-Year Compensation Valid Up to 2100

o   Two Time-of-Day Alarms

o   Oscillator Stop Flag

o   Automatic Power-Fail Detect and Switch Circuitry

o   Backup battery trickle charge (software controlled)

TinyDuino Power Requirements

o   Voltage: 3.0V - 5.5V

o   Current: 450uA (Active Mode). Due to the low current, this board can be run using the TinyDuino coin cell option

o   Built in Backup Battery

    o   11mAh rechargeable Lithium 3.0V backup battery.

    o   Provides 2.5 years of timekeeping backup

    o   Backup battery trickle charging under software control

  o Backup battery current: 600 nA

Pins Used

o A5/SCL - I2C Serial Clock line

o A4/SDA - I2C Serial Data line

Dimensions

o 20mm x 20mm (.787 inches x .787 inches)

o Max Height (from lower bottom TinyShield Connector to upper top TinyShield Connector): 5.11mm (0.201 inches)

o Weight: 1.58 grams (.06 ounces)

NOTES

o The backup battery can be recharged from the main TinyDuino power supply via a software command, see the example code or the datasheet for more information.