

RR123-1H02-612-C10 TMR Magnetic Sensor Coupon Board



The RR123-1H02-612-C10 Digital Coupon Board contains Coto Technology's RR123-1H02-612 RedRock® TMR magnetic sensor and offers a simple way to evaluate the sensor's operation and capabilities. Dimensioned at 14mm x 10.3mm x 1.6mm, the coupon board provides four through-hole vias for easy connection to the four pins of the LGA-4 sensor.

The RR123-1H02-612 TMR magnetic sensor features a high magnetic sensitivity ($B_{OP}=7$ Gauss), extremely low power consumption (20nA), a sensing frequency of 1Hz and a Latch Control Pin that, when enabled, locks the output state regardless of the presence or absence of a magnetic field. It operates with a voltage range of 1.0-3.6V and a temperature range of -40 to +85°C. The coupon board pinout is shown in Figure 1 below. An application circuit is shown in Figure 2 below.

Suggested Testing Procedure:

- Power the sensor on by applying a voltage of 1.0-3.6V between the V_{DD} and GND terminals. Connect the Output pin to a multimeter or an oscilloscope. Leave the Latch Control Pin (LCP) disconnected.
- Without any magnets near the board, the output voltage should be HIGH ($\sim V_{DD}$).
- Take a magnet and place it about 2-3" from the board, oriented with its North or South pole facing the sensor on the board. Figure 3 shows potential orientations between the magnet and sensor that will ensure proper activation of the sensor. For questions about specific orientations and/or how to orient a given magnet, please contact **Coto Technology**.
- Slowly approach the magnet towards the board. Once the magnet is close enough that the magnetic flux density at the sensor exceeds its B_{OP} threshold, the output will go LOW.
- To test the LCP, assert that pin HIGH by supplying it with a voltage between $0.6 \times V_{DD}$ and V_{DD} and, while keeping it enabled, repeat the steps above. In this case, the sensor's output should remain in whatever state it was before the LCP was enabled, regardless of any changes in magnetic field at the sensor.

Note: when not in use, it is suggested to connect the LCP to ground. If using a manual switch to test this capability, it is recommended to use a SPDT switch toggle the LCP between a HIGH voltage (enable) and ground (disable).

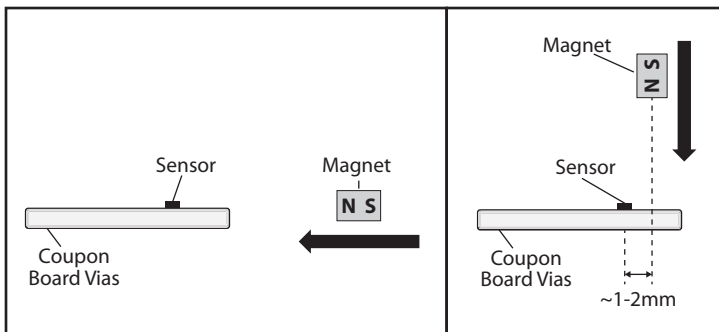


Figure 3: Potential orientations between coupon board and magnet. If using the orientation on the right (magnet approaches from the top of the package), please maintain a small offset (at least 1-2mm) between the center of the sensor package and the center of the magnet face

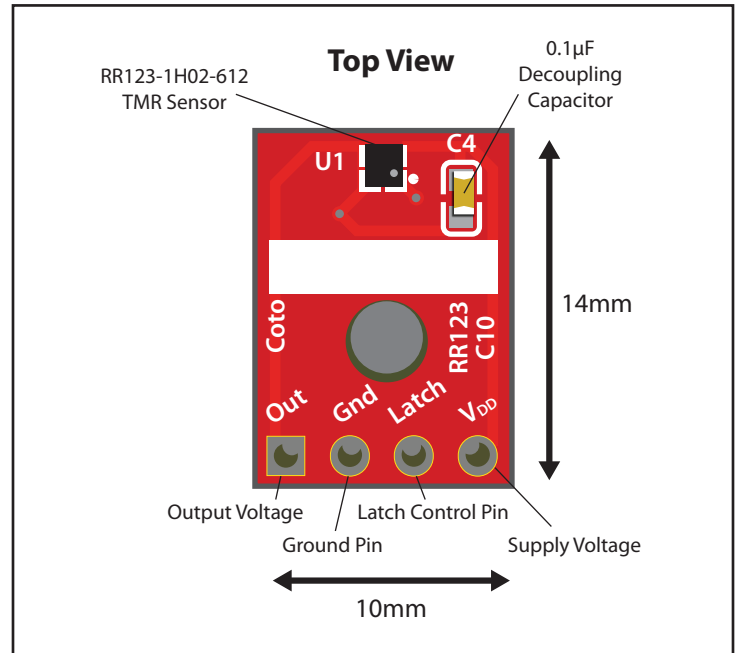


Figure 1: RR123 Coupon Board Pinout and Dimensions

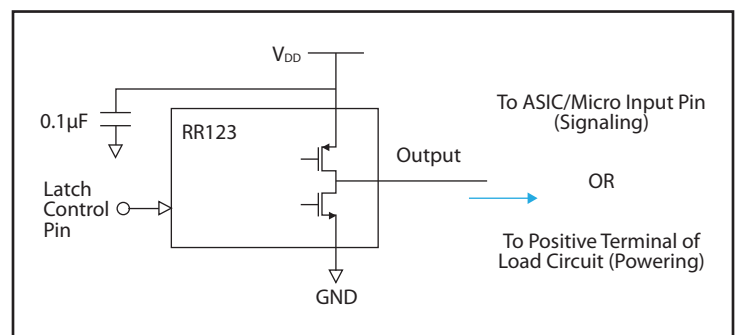


Figure 2: Suggested application circuit for RR123. Note: The 0.1µF decoupling capacitor is already included in the Coupon Board.

For more information about the RR123-1H02's specs and operation, please see the official **Product Datasheet**.

