

Micro Power Non Magnetic Inductive Proximity Sensor Surface Mount Module

The circuit is CMOS technology that utilizes few external passive components. The operating voltage range is 2V to 3.6V which allows operation from a single Li-Ion cell or 2 AA alkaline cells.

- *IDEAL FOR BATTERY APPLICATIONS*
- *IDEAL FOR LIMITED SPACE APPLICATIONS*
- *SENSE FERROUS & NON-FERROUS METAL OBJECTS DOWN TO "ZERO SPEED"*
- *ELIMINATES THE NEED FOR MAGNETS*

Features:

- Ultra-low supply current [1 uA typical at +1V, 4 uA typical at +3.3V]
- Low supply voltage [+2V to +3.6V]
- Fast start up time [600uS]
- Fast response time [200uS]

Applications:

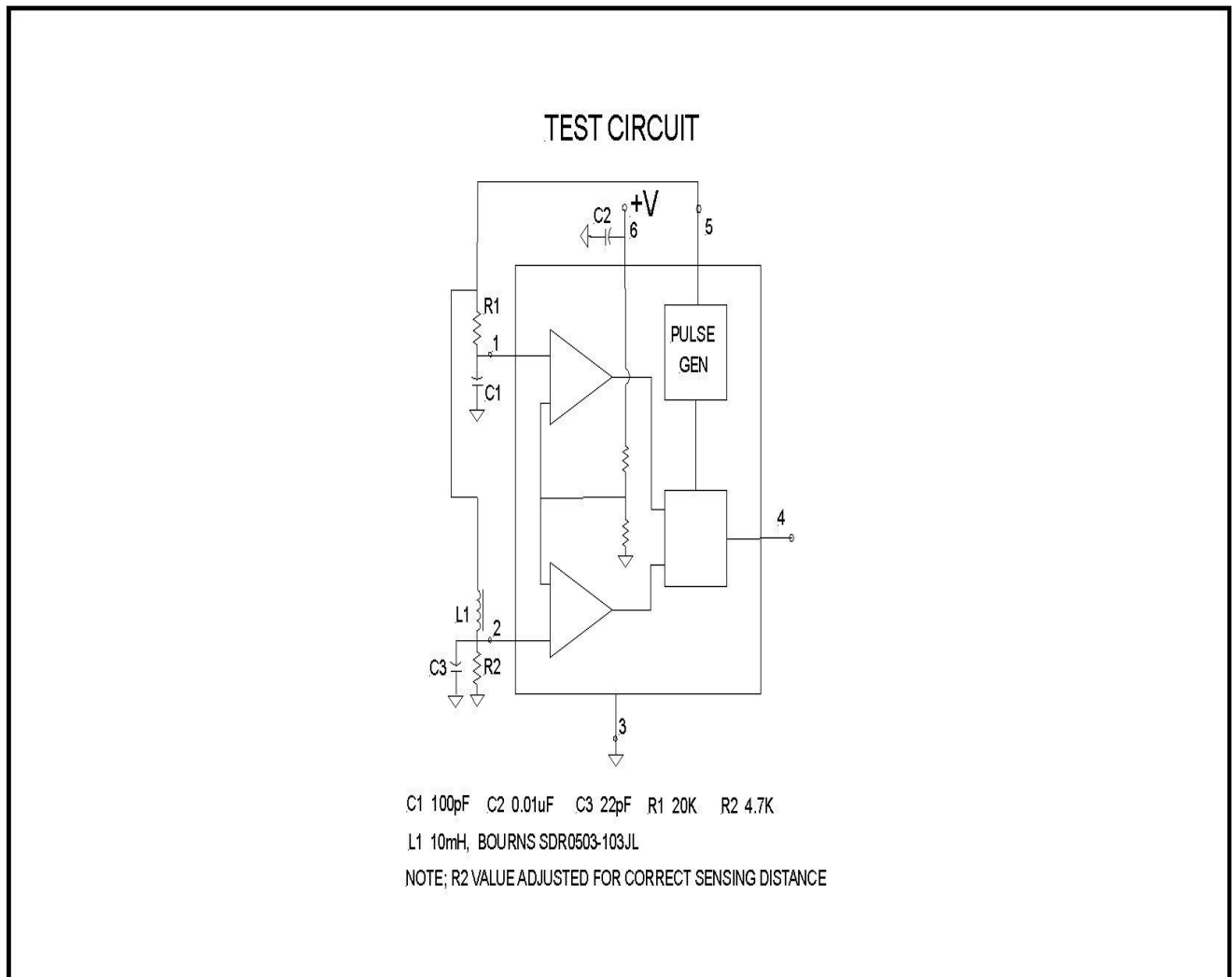
▲ Building Controls ▲ Robotics ▲ Home Appliances ▲ Motor Controls

Specifications; Ta=+25°C, Power Supply voltage: 2V TO 3.6V

1. Sensing distance: 1.5 mm min.
2. Power Supply Current: 1 uA typical at +1V, 4 uA typical at +3.3V
3. Switching Frequency: 5 KHz typ.
4. Output: CMOS Logic Level

Absolute Maximum Ratings:

Power Supply Voltage V_{DD}	+3.6 V max.
Input Voltage	-0V min.; V_{DD} V max.
Output Voltage	-0V min.; V_{DD} V max.
Temperature	-40°C min.; +85°C max.



Circuit Description;

The IC shown in the test circuit compares the network time constant of R1 & C1 to that of R2 & L1 to determine the IC output logic level. The IC internal pulse generator applies a pulse to both network R1 & C1 and R2 & L1 and a repetition rate of about 5 KHz. The output signals of network R1 & C1 and R2 & L1 are applied to the inputs of the two high speed comparators. When either comparator input reaches a predetermined fraction of the supply voltage level the comparator output changes level and the pulse generator output is turned off. Also, depending on which of the comparator output levels changed, the IC output level becomes high or low. The network time constant of R2 & L1 changes as metal approaches L1, in general if the metal is a ferrite the inductance level increases and most other metals such as copper cause a decrease in inductance level.

Notes;

1. Sensing distance is dependent on inductor size and is approximately equal to $\frac{1}{2}$ the inductor's diameter.
2. The sensor can be adjusted to respond to either ferrous (permeability greater than 1) or non-ferrous metals by varying the value of R2. The value of R2 determines if an increase or decrease in the sensor inductance level causes a circuit output level change.

Warranty

Micro Oscillator Inc does not assume any liability arising out of the application or use of any product or circuit described herein. Our products are not authorized for use as components in devices used for life support or other critical application where failure can cause death or bodily injury. In the case of this product being defective in manufacturing, labeling, packaging or shipping, it will be replaced with a satisfactory IC or the purchase price refunded. This is your exclusive remedy even though the defect or damage is caused by negligence or other fault.

Board ID: L5D (SMD). Top view.

Board thickness: 1/32" [0.79 mm] Unit: Inches [mm]

