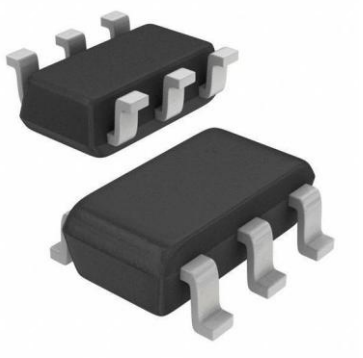
MICRO POWER IC
For Inductive
Proximity Sensors

LS1500

The circuit is CMOS technology that utilizes few external passive components.
The operating voltage range is 1.5V to 3.3V 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 TO "ZERO SPEED"*
- *ELIMINATES THE NEED FOR MAGNETS*



SOT-23 6L

Features:

Low supply voltage [+1.5V to +3.6V]

Ultra-low supply current [1 uA typical at +1V, 4 uA typical at +3.3V]

Fast start up time [600uS]

Fast response time [200uS]

PATENTED
USA 9,140,579

Withstands high vibration and harsh environments

Suitable for light weight, compact consumer electronic devices

Ideal for high density boards

SOT-23 package

RoHS compliant and (Pp.) lead-freeproduct

Applications:

▲ Building Controls ▲ Home Appliances ▲ Motor Controls

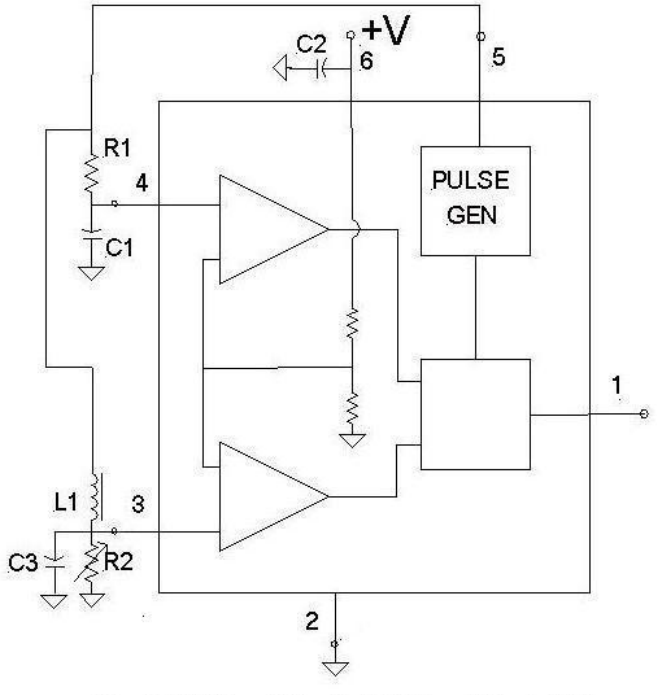
Specifications; Ta=+25°C

1. Power Supply voltage: 1.5V TO 3.6V
2. Power Supply Current: 1 uA typical at +1V, 4 uA typical at +3.3V
3. Switching Frequency: 5KHz typ.
4. Output: CMOS Logic Level
5. Operating Temperature: –40 to +85°C

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.
Operation Junction Temperature	-55°C min.; +125°C max.

TEST CIRCUIT



C1 100pf, C2 0.01uF, C3 10pF,
R1 2.2K, R2 2K, L1 220uH

NOTE; R2 VALUE ADJUSTED FOR CORRECT SENSING DISTANCE

IC PIN OUT FOR SOT-23

Notes;

1. Sensing distance is dependent on inductor size and is approximately equal to ½ the inductors diameter.

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 level changed, the IC output level become 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 increase and most other metals such as copper cause a decrease in inductance level.

HANDLING PRECAUTIONS:

All device pins have limited ESD protection. Normal precautions should be taken to guard against ESD damage.

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 manufacture, 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.