HARLOW ONLINE SERVICES LIMITED

H006
LED Torch Board

Build Instructions

Revision: 1.1

Date: 11/07/2025

LED Torch – what you will need

- Kit of Parts (can be purchased from Harlow Online Services)
- Small pliers
- Side Cutters
- Soldering Iron
- Solder
- Optional Assembly Frame

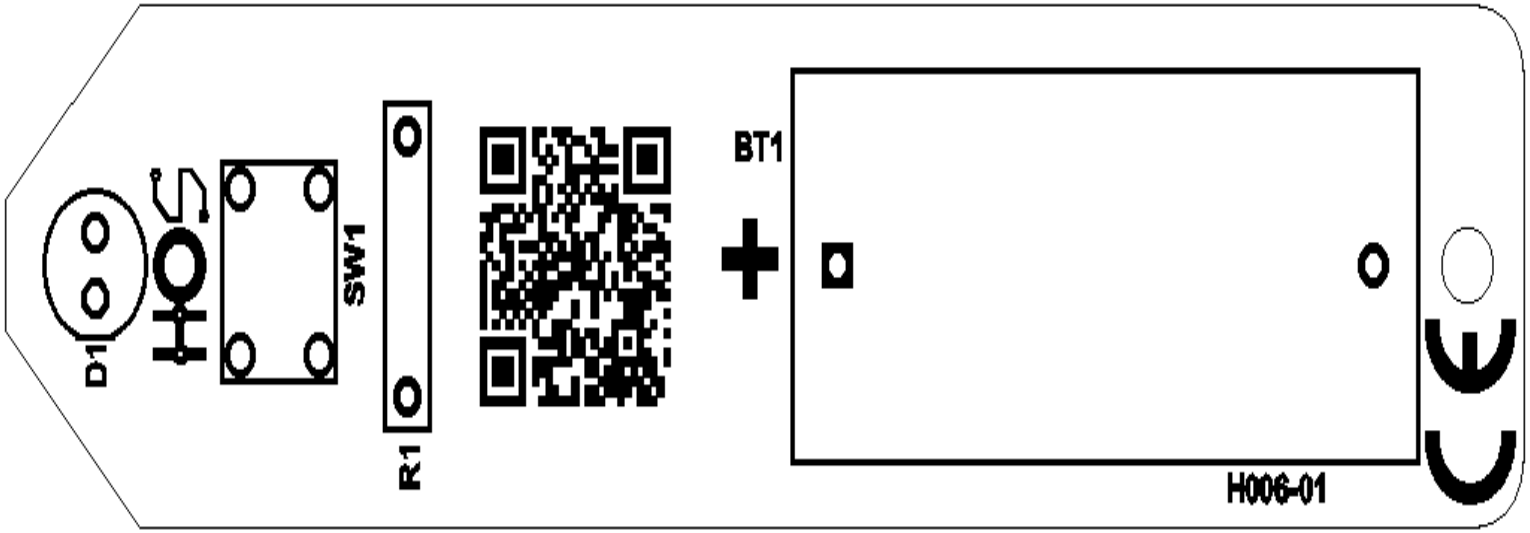
The kit of parts is

- Printed Circuit Board (or PCB) only available from Harlow Online Services.
- 680 Ohm 5% 0.25W Resistor
- 6 x 6 mm Tactile switch
- White LED 3.1V Vf, 25mA current
- N Cell Battery Holder
- 12V N Battery

A full kit of parts is available from Harlow Online Services, including UK postage

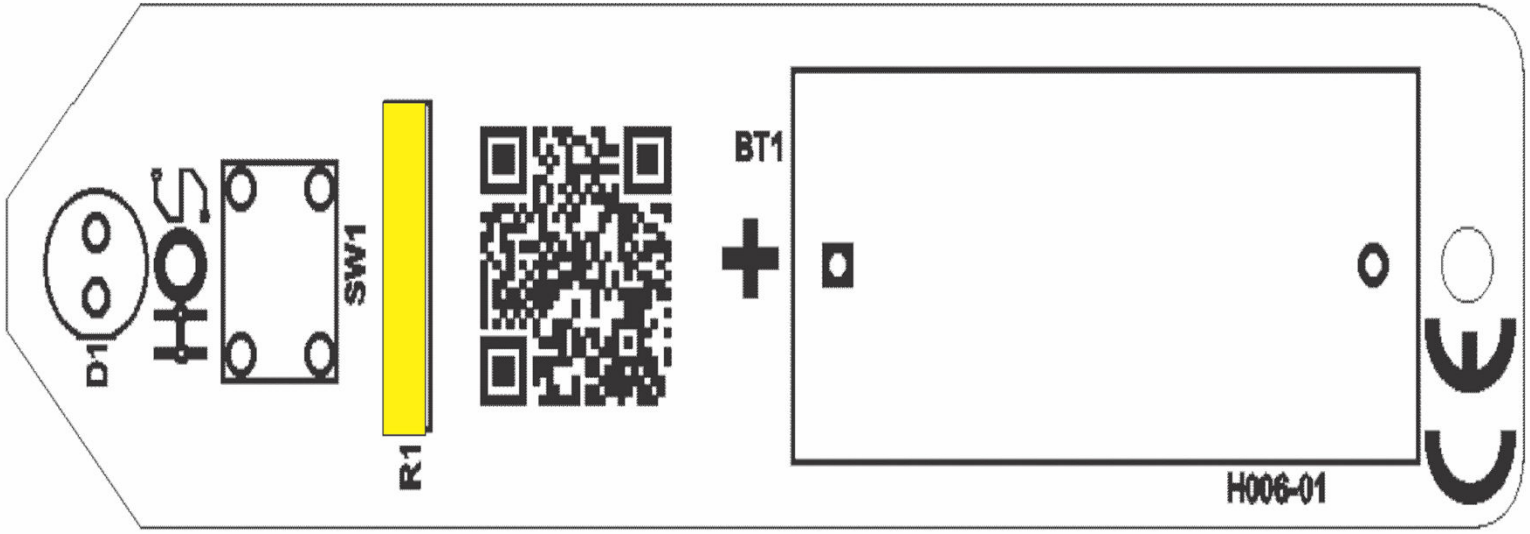
https://d.hos35.uk/h006

Printed Circuit Board

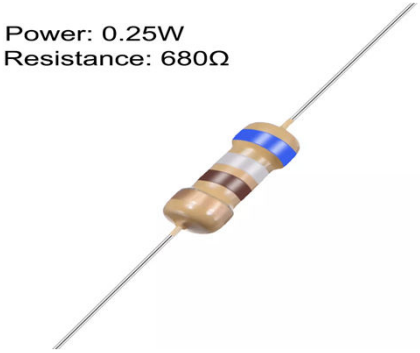


- The Printed Circuit Board is the first component that you need to identify.
- It is a piece of fibre board with white text on the top side and pads, traces and text on the back side in green.

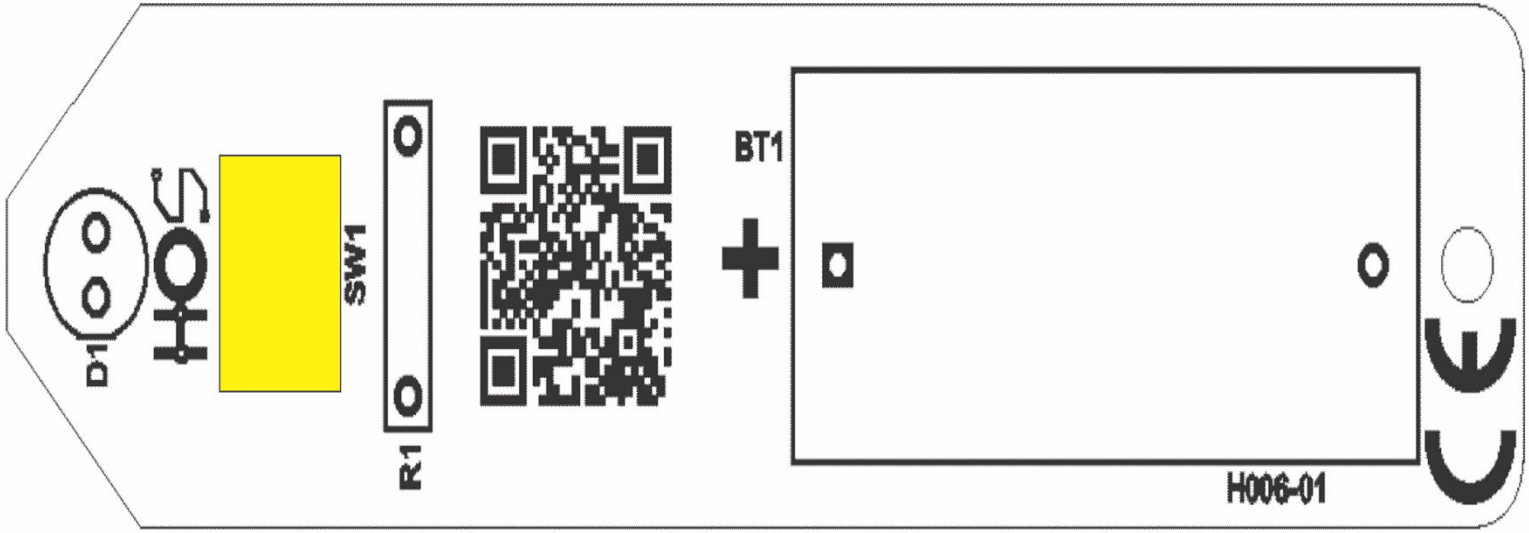
R1



- 680 Ohm Resistor
- Blue, Grey & Brown band as shown
- Bend legs to Right Angle to body
- Fit into PCB position R1 as shown
- It does not matter which way round this part goes.

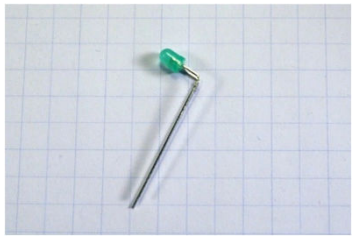


SW1



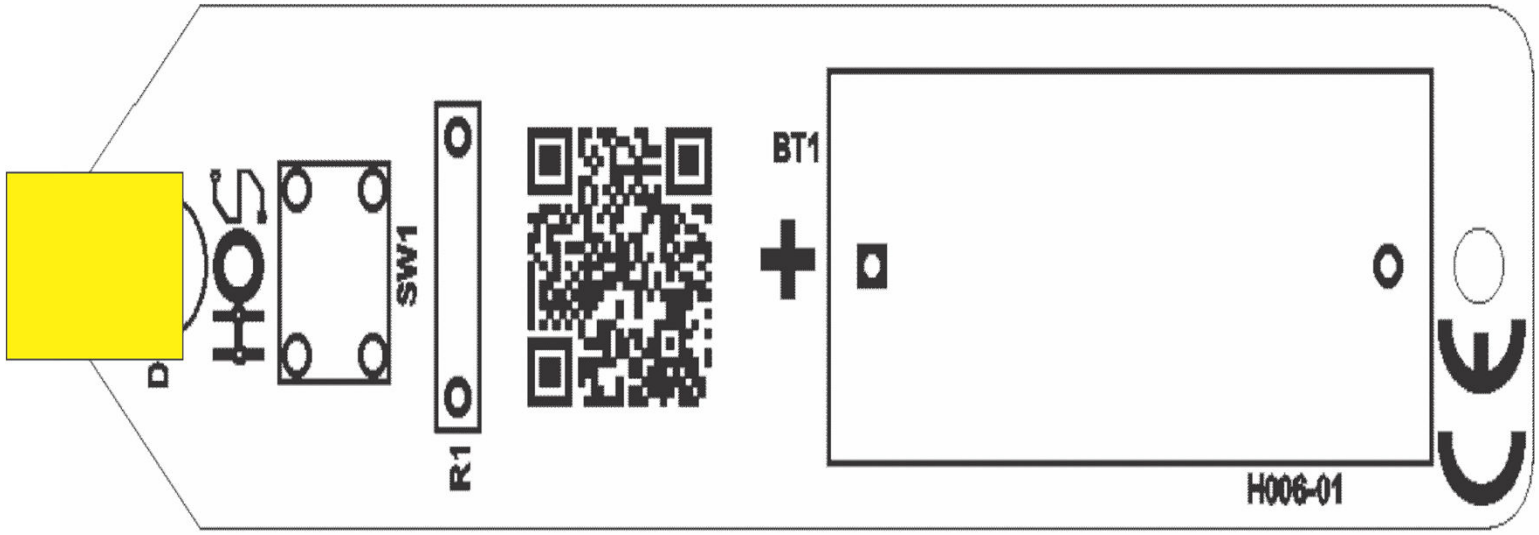
- Tactile Switch
- Due to pin spacing this will only fit into the board two ways round.
- It does not matter which way round it is fitted.
- Fit into PCB in position shown above

D1 – preparing the component

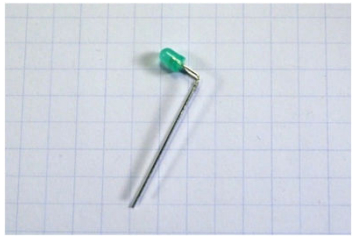


- White LED
- Note that one leg is longer than the other.
- Hold the LED body in your LEFT hand with the SHORT leg nearest your body.
- Take pliers in RIGHT hand. Use pliers to grip LED wires against LED body
- Using LEFT hand bend both LED wires downwards to make a right angle as shown in second picture above (picture shows a green LED, ours is clear).

D1



- White LED
- This part will ONLY WORK if fitted the correct way round.
- Take the LED as bent in previous slide and fit it into the position D1 as above with the LED body pointing AWAY from SW1



Solder parts into PCB

No Assembly Frame

Lift the Printed Circuit board up carefully and without tipping the board open the legs on the back of the board to hold the RESISTOR and LED in place.

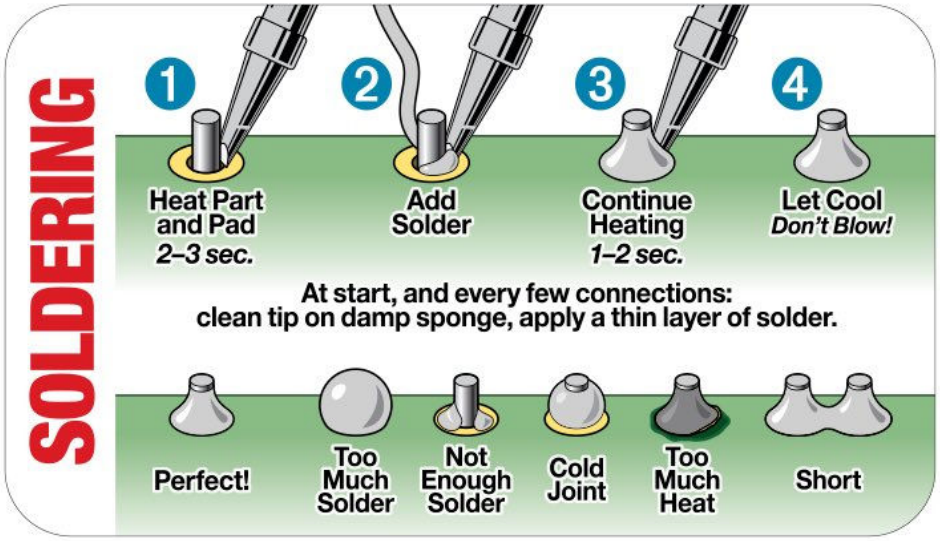
You can now turn the Printed Circuit Board over and solder each of the legs.

Using an Assembly Frame

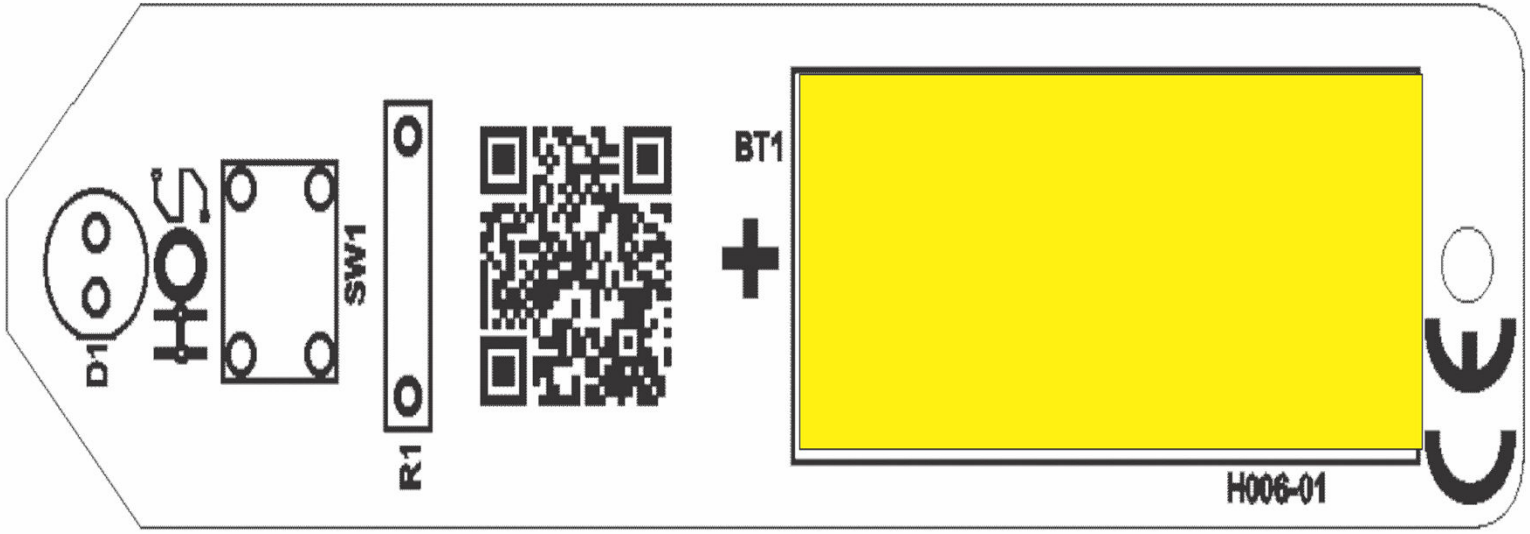
Fit the Assembly Frame top and adjust to component height

Turn the frame over and solder each of the legs in place.

Once soldered, flip back and remove frame top.



BT1



- Battery Holder
- This part will ONLY WORK if fitted the correct way round.
- Fit the battery holder into the PCB as shown with the SPRING next to the Mounting Hole on the Right (as shown above)

Solder all parts into PCB

No Assembly Frame

Lift the Printed Circuit board up carefully and without tipping the board open the legs on the back of the board to hold the BATTERY HOLDER in place.

You can now turn the Printed Circuit Board over and solder each of the legs.

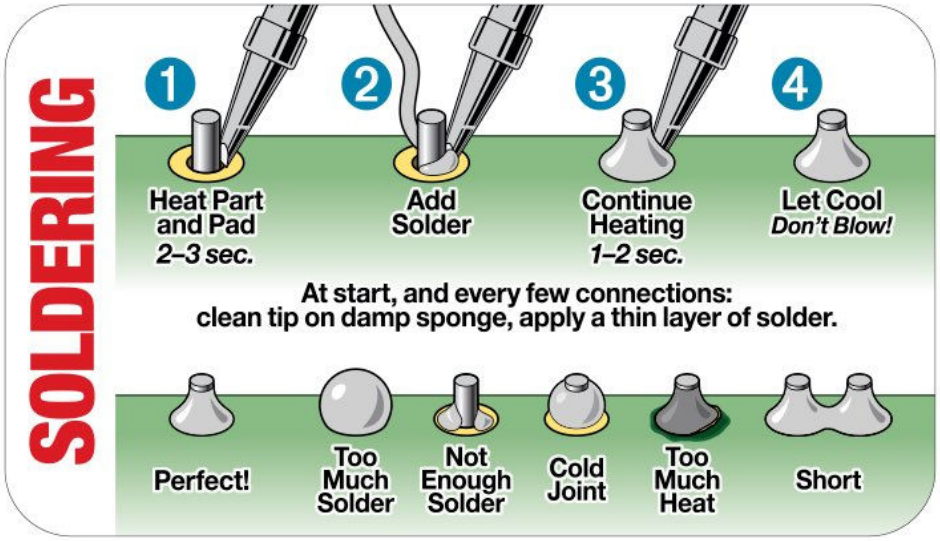
Using an Assembly Frame

Fit the Assembly Frame top and adjust to component height

Turn the frame over and solder two BATTERY HOLDER legs in place.

Once soldered, flip back and remove frame top.

Now remove the PCB from the solder frame.



Assembly Completed

We have now completed our build.

Now check that ALL components are fitted correctly paying particular attention to the LED and the BATTERY holder.

If anything is incorrect make sure you correct it before going any further.

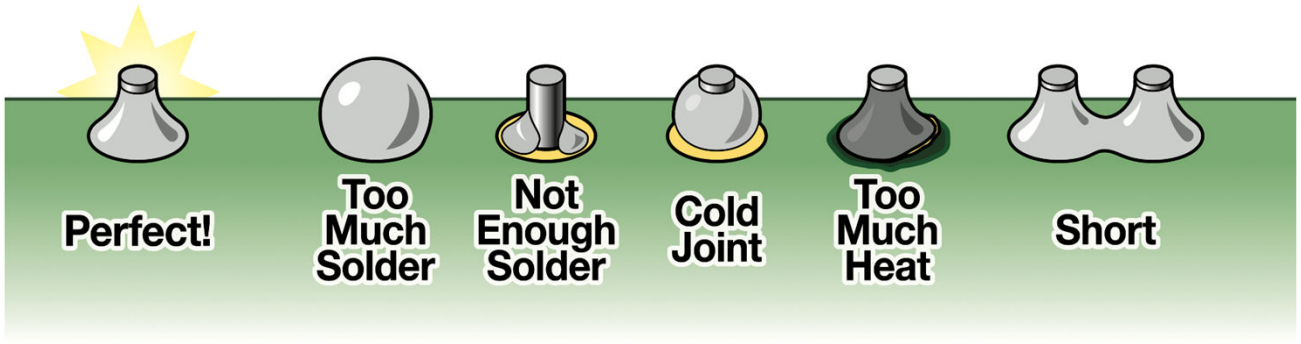
Assembly Completed – check solder

Turn the board over.

Using a pair of cutters cut off the long legs that are sticking out of the back of the board. Aim to have about 2mm of leg sticking out of the solder (see ‘Perfect!’ picture below)

Check that all pins have been soldered correctly.

Make sure that there are not any solder splashes.



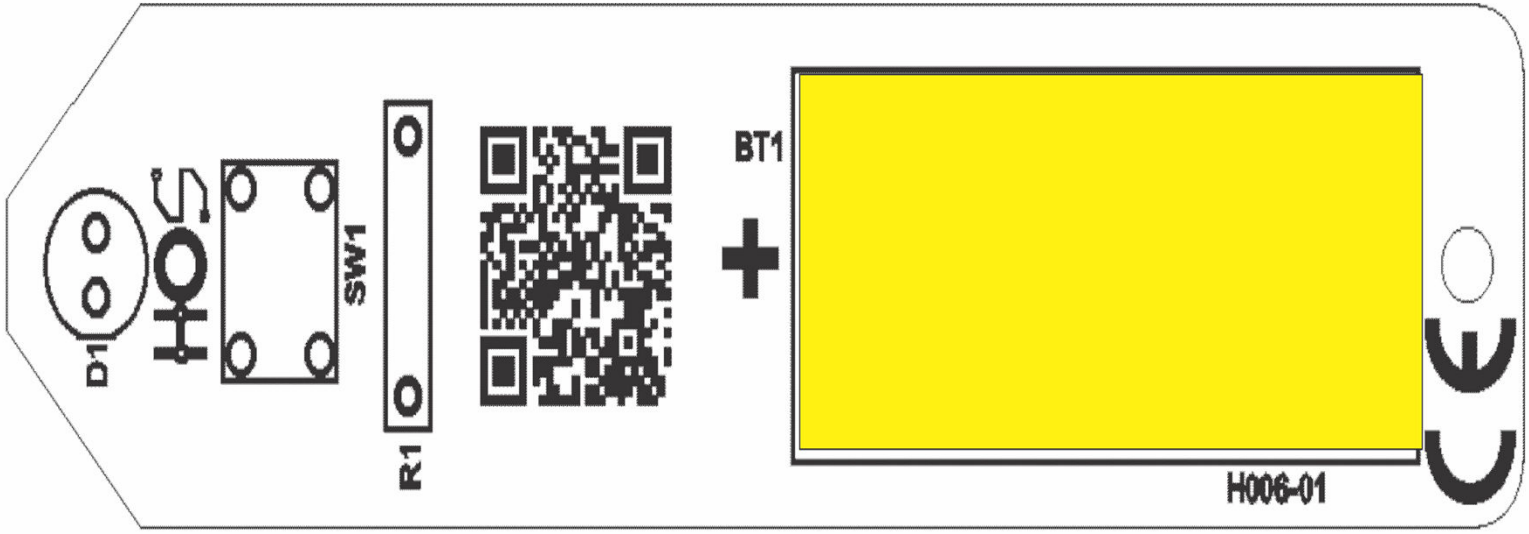
Final Checks !

Just have one FINAL check that everything is as it should be.

If anything is fitted incorrectly once you move on it COULD damage your torch beyond repair.

If you are happy all is OK then proceed to the NEXT slide.

BT1 battery



- N Size Battery. Different Manufacturers.
- This part will ONLY WORK if fitted the correct way round.
- Fit the battery into the BATTERY HOLDER with the FLAT end against the SPRING.

Testing

- Test your Torch by pressing the button SW1.
- Does the LED light up when you press the button and go out when you release the button?
- If so

WELL DONE YOU HAVE JUST COMPLETED YOUR FIRST ELECTRONIC PROJECT.

- Otherwise go back to check everything once again.

H006 Assembly Revision History

Revision	Date	Changes
1	30/05/2025	Original
1.1	15/07/2025	Corrected Polarity on LED