duinotech

learn to solder:
Riding Santa Kit

MEDIUM DIFFICULTY

Thank you for purchasing the Riding Santa Kit

Take your soldering skills to the next level with this Riding Santa Kit. The kit includes 126 multicoloured LEDs that animate the Santa, sleigh and reindeer.

Power from a 9V battery (not included) to keep it portable, or connect a 9-12VDC power supply (sold separately) for a permanent decoration in your room. An on/off switch is included.

If this is the first time you are getting into electronics and handling a soldering iron, please download our Soldering Guide from our website.

A GOOD SOLDER JOINT

The diagram here shows you a good solder joint and two bad solder joints. A good solder joint is clean and shiny with a "volcano" shape, which means the component's leg is fully soldered to the entire solder pad on the circuit board. If your solder joint is like the one shown in the middle, it means you have not applied enough heat to the solder pad on the circuit board. If your solder joint looks like the one on the right, it means the component leg was not heated enough by your soldering iron for the solder to join properly.

GOOD	BAD	BAD
Shiny "Volcano" type shape	The solder pad is too cold	Component leg too cold

**Build Instructions &
Soldering Guide available at:**
www.jaycar.com.au/p/XC3756
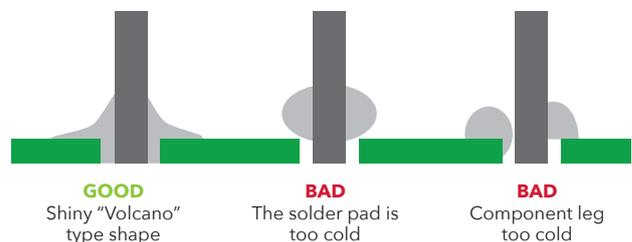
RECOMMENDED TOOLS. You will need the usual Maker essentials, including a soldering iron (TS1652 Soldering Iron Kit), solder (NS3010), and side cutters (TH1897). A third-hand PCB holder (TH1987) is also recommended to make soldering easier.

Disclaimer: Content can change without prior notice. Please visit the website page for the most up-to-date information.

Kit contents:

QTY	PRODUCT	PCB MARKING / COMMENT
1	Circuit Board	
51	Yellow LEDs	◗
47	Red LEDs	▷
28	Green LEDs	◗
1	9V Battery Holder	BATTERY HOLDER
6	BC557 Transistor TO-92	T1 to T6
2	BC547 Transistor TO-92	T7, T8
26	1KΩ Resistors (Brown-Black-Red-Gold)	R7 to R32
6	470Ω Resistors (Yellow-Violet-Brown-Gold)	R1 to R6
4	3.3KΩ Resistors (Orange-Orange-Red-Gold)	R33 to R36
5	47K Resistors (Yellow-Violet-Orange-Gold)	R37 to R41
3	2.2µF 50V Electrolytic Capacitor (5x11mm)	C1, C2, C3
2	10µF 50V Electrolytic Capacitor (5x11mm)	C4, C5
3	M3 x 16mm Round Head Cross Screws	For mounting the Battery Case
3	Round Metal Spacer. 3.3(ID) x 5.0(OD) x 10(L)mm	For mounting the Battery Case
1	2.1mm Round DC Socket	SK1
3	Single strand copper wire	For the SW1 Switch
1	Toggle Switch	SW1 ON/OFF

Components need to be soldered into both sides of the circuit board. Start by soldering the LEDs to the front side first, and then do the components on the rear side after that.

Pay close attention to the way some of these components go in because some of them only work in one direction, including the LEDs.

Cathode (-)   Anode (+)
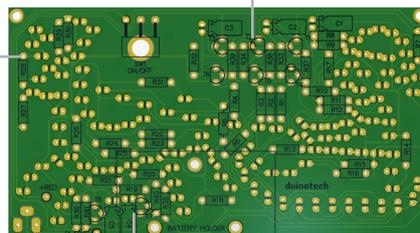(Flat Edge)
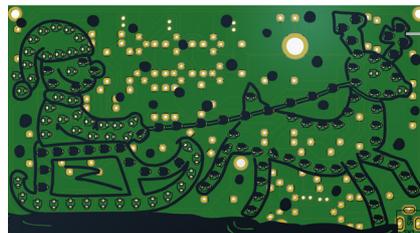
FRONT VIEW
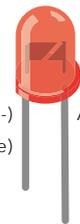
LEDs. The LEDs need to go into the circuit board from the front. Make sure each LED is inserted so the flat edge on the LED's body matches the diagram printed on the circuit board.

▷ Red LED   ◗ Green LED   ◗ Yellow LED

RESISTORS. Resistors can go into the circuit board in either direction. The colour bands indicate the resistor value (See parts list for the colour bands). Make sure you insert the correct ones into the circuit board.

TRANSISTORS. The transistors need to go into the circuit board facing the same way as the diagram printed on the circuit board. There are two transistor types supplied so pay attention not to mix them up.
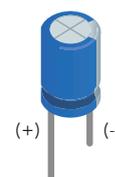
FINAL STEP. Solder three wires between the switch and (SW1) on the circuit board, and then mount the switch into the hole on the circuit board. Solder in the battery holder wires (Red wire to +RED & Black wire to Black-). Insert a 9V battery and the LEDs should flash when you switch the switch. Solder in the DC power socket if you plan to power from a mains power supply.

REAR VIEW

(+)   (-)

ELECTROLYTIC CAPACITORS. The long leg is positive (+) and the short leg with white stripe on the capacitor's body is negative (-). There are two different values supplied so pay attention not to mix them up.