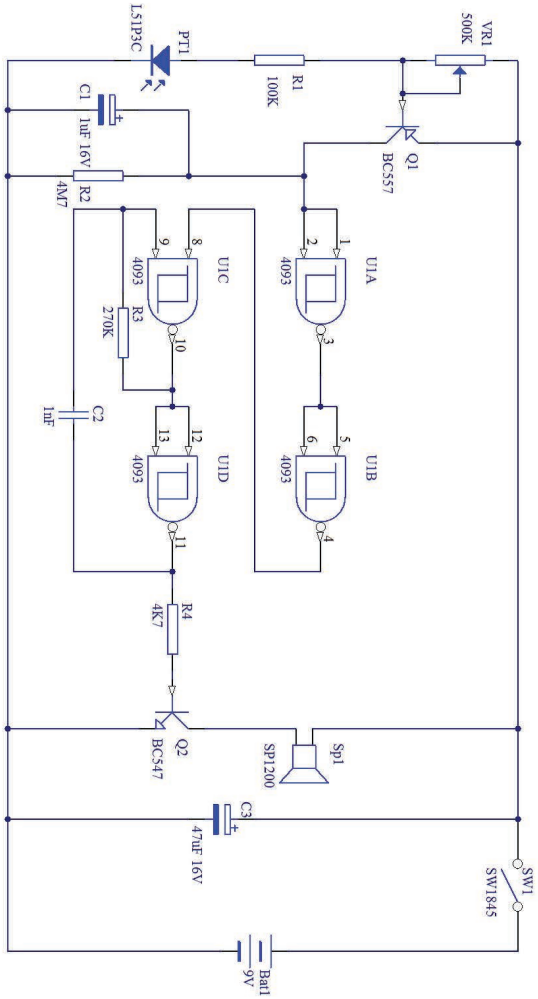
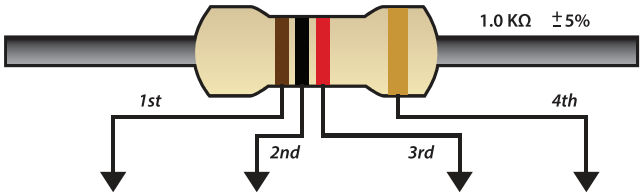
Schematic Diagram



RESISTOR COLOUR CODE GUIDE



Colour	1st Band	2nd Band	Decimal Multiplier	Tolerance
Black	0	0	1	
Brown	1	1	10	± 1%
Red	2	2	100	± 2%
Orange	3	3	1K	
Yellow	4	4	10K	
Green	5	5	100K	
Blue	6	6	1M	
Violet	7	7	10M	
Grey	8	8	100M	
White	9	9	1000M	
Gold			0.1	± 5%
Silver			0.01	± 10%
None				± 20%

More Kits In The Range

KI0205 Ding Dong Door Chime Kit
KI0236 Wailing Siren Kit
KI0208 Light Alarm Kit
KI0211 Moisture Sensor Kit
KI0213 Electronic Dice Kit
KI0231 9V DC Siren Kit

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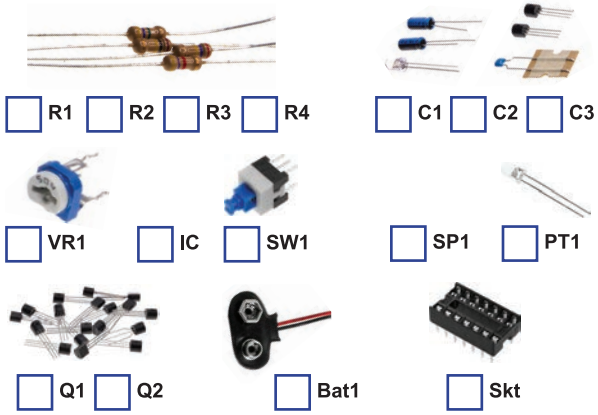
Light Alarm Kit

Tekky Kit

Component List

Designator	Part Description	Part No.
R1	100K 0.25W 5 % Resistor (Brown, Black, Yellow)	RS1725
R2	4M7 0.25W 5 % Resistor (Yellow, Purple, Green)	RS1925
R3	240K 0.25W 5 % Resistor (Red, Purple, Yellow)	RS1775
R4	4K7 0.25W 5 % Resistor (Yellow, Purple, Red)	RS1565
C1	1uF, 50V RB Capacitor	CC1401
C2	1nF, Ceramic Capacitor	CC0011
C3	47uF, 16V RB Capacitor	CC1438
VR1	500K Horizontal Trimpot	PT8175
IC	4093 CMOS IC	X-4093
SW1	DPDT Push ON-OFF Switch	SW1845
SP1	Miniature PCB Speaker	SP1200
PT1	IR Photo Diode	L51P3C
Q1	PNP TO-92 Transistor	BC557
Q2	NPN TO-92 Transistor	BC547
Bat1	9V Battery Snap	BA9000
Skt	14 Pin IC Socket	IC1014



Circuit Description

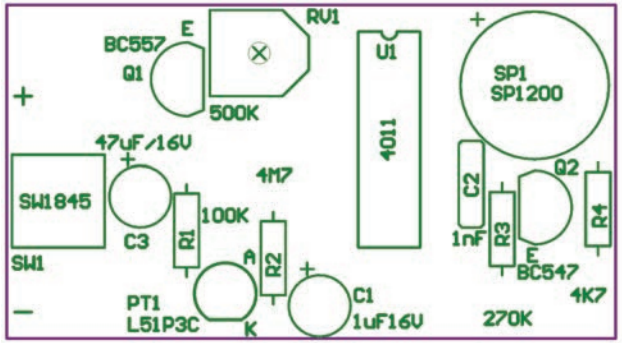
The light alarm circuit uses an L51P3C photo-diode. It is an opto sensor, its' electrical characteristics change in the presence of light.

The light sensed may or may not be in the visible spectrum. In dark conditions their resistance is high; typically millions of ohms.

In light conditions, the resistance falls to something like 30 ohms in bright sunlight.

Many practical uses of this property are possible.

PCB Component Overlay



THE DETECTOR

In dark conditions the L51P3C is virtually an open circuit. No Current flows through the 500k potentiometer into the base of the transistor. Thus the diode is OFF and the logic level on the input line to the 4093 is LOW.

THE 4093 TANK CIRCUIT

The 4093 CMOS IC is a quad 2 input NAND SCHMITT TRIGGER IC (there are four of the gates in them), and the four gates shown on the diagram are all in the one IC. It is wired up to oscillate when the input to it goes high, that is the BC557 transistor turns on after light is detected by the L51P3C. The oscillating output from the 4093 turns the BC547 on and off. This creates a square wave signal which drives the speaker.

Fig.2 Assembled Light Alarm

In digital logic a HIGH is also referred to as a "1" and a LOW as a "0".

After the alarm has been operating and it is put back into dark conditions again, the alarm will continue to sound for about 3 seconds. This is due to the 1uF capacitor C1 keeping the input to the 4093 HIGH. To increase the delay, increase the value of this component..