

NEVLA 12 Volt Emergency Light List of Components

SR.NO	Description	References	Value	Quantity Per PCB
1	Polarized capacitor	C1	2200uf 25v	1
2	1N4007	D1 D2 D3 D4 D5	1N4007	5
3	Zener diode	D6	15v	1
4	indicator LED	D7	5mm LED	1
4	Transformer Connector	J1	0 - 9 volts	1
5	Battery Connector	J2, J4	Battery 6 volts	1
6	LED Penal Connector	J3	LED's Output	1
7	BC547	Q1	BC547	1
8	BD140	Q2	BD140	1
9	Resistor 1 Watt	R4 R5	10R 1watt	2
10	Resistor 1/4 Watt	R2	180R	1
11	Resistor 1/4 Watt	R1 R3 R6	1K	2
12	Potentiometer	RV1	2K	1
13	LM317	U1	LM317	1

How the Circuit works

When Mains Power is applied via 0 - 15 volts transformer, it is rectified via D1,D2,D3,D4 Diodes and given to U1 voltage regulator. The output voltage of U1 is set between 16 volts to 18 volts via RV1. 6 volts Battery is charged by this constant voltage variable current through D5 and R4. when the Battery Voltage reaches 15volts, zener D6 turns on transistor Q1, cutting off U1 and stopping charging current.

When mains power fails transistor Q2 turns on the LED's. after mains power comes back, Q2 is turned off via R1 and charging cycle begins.

Simple Emergency Light circuit diagram

