

URVA 12v LDR Controlled Light with Auto Charger - List of Parts

NO.	Description	References	Value	QTY
1	Polarized Capacitor	C1	22uf 50v	1
2	15v Zener	D6	15v Zener	1
3	1N4007 Diode	D1 D2 D3 D4	1N4007	4
4	1N4007 / RL207 Diode	D5	RL207	1
5	LED Red	D7	LED	1
6	0-15 VAC Connector	J1	0-15 VAC	1
7	12v Battery Connector	J2	12v Batt	1
8	LED's Connector	J3	LED's	1
9	BC547	Q1 Q2	BC547	2
10	BD139	Q3	BD139	1
11	Resistor 1 or 2 Watt	R4 R5	10R	2
12	Resistor 1/4 watt	R2	220R	1
13	Resistor 1/4 watt	R3	1K	1
14	Resistor 1/4 watt	R6	10K	1
15	LDR	R1	LDR	1
16	Preset - Charging	RV1	5K	1
17	Preset - LDR	RV2	100K	1
18	LM317	U1	LM317	1

Brief Description of Circuit

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 15.5 volts to 16.5 volts via RV1. 12 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.

The LED's are Controlled by LDR, in light LDRs have low resistance so Q3 will not turn on. in Darkness LDRs have high resistance so Q3 will turn on the LED lights. Always keep the LDR in the Shadow of LED's. LDR sensitivity towards light / Darkness can be adjusted via RV2.

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