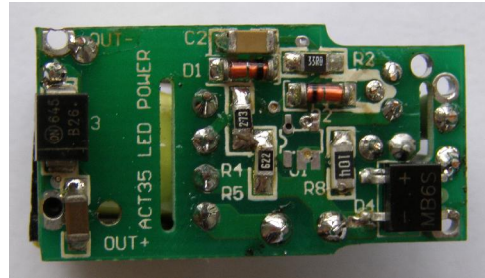
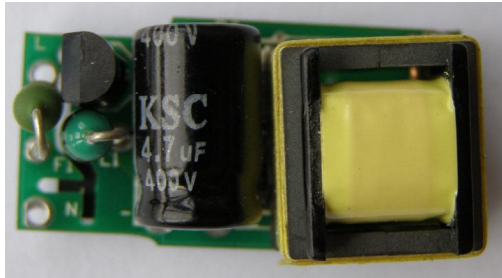
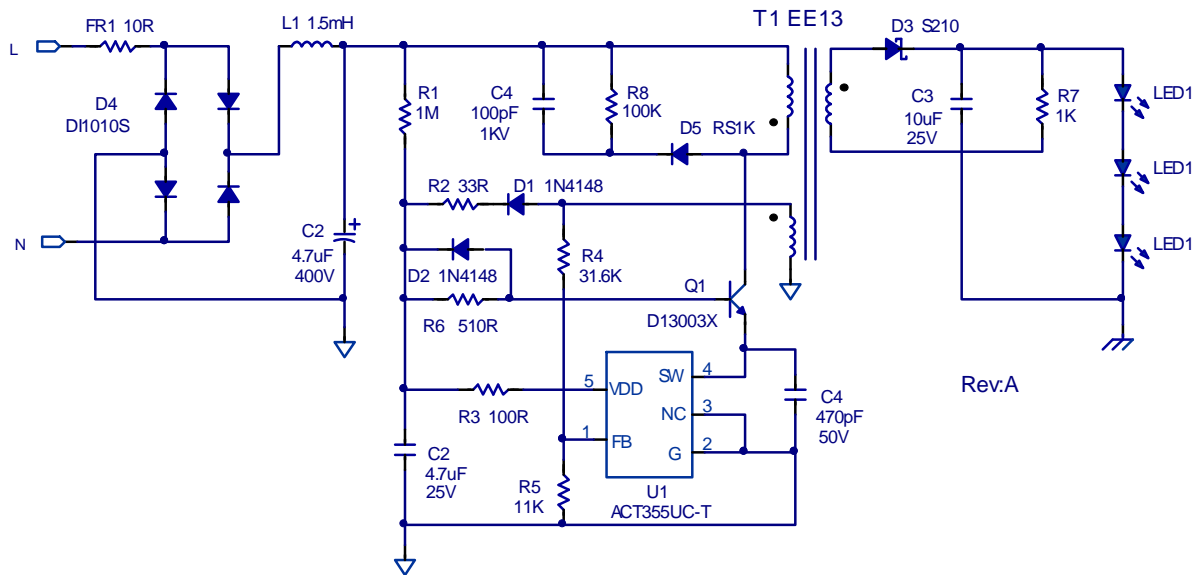


High Efficiency, Low Cost LED Lighting Application

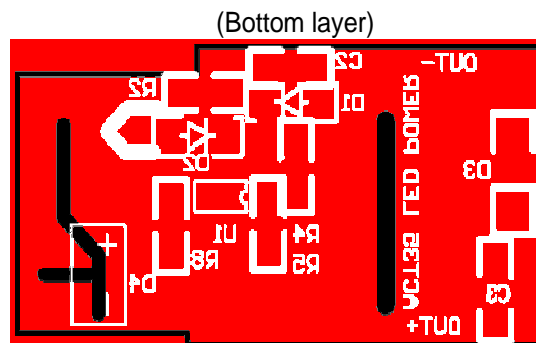
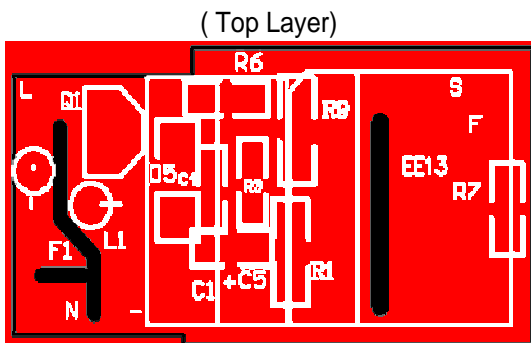
1. Demo Board Photo



2. Schematics



3. PCB Layout

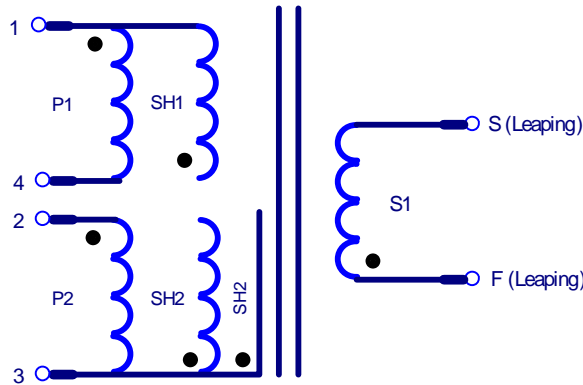


4. Bill OF Materials

| Item | Ref. | Description | QTY | Manuf. |
|------|------|---|-----|-----------|
| 1 | C1 | Capacitor, Electrolytic, 4.7uF/400V, 8x12mm | 1 | KSC |
| 2 | C2 | Capacitor, Ceramic,4.7uF/25V, 1206, SMD | 1 | POE |
| 3 | C3 | Capacitor, Ceramic,10uF/25V,1210, SMD | 1 | TDK |
| 4 | C4 | Capacitor, Ceramic, 470pF/50V,0805, SMD | 1 | POE |
| 5 | C5 | Capacitor, Ceramic,100pF/1KV,0805, SMD | 1 | POE |
| 6 | D1,2 | Diode,Switching,75V/150mA 1N4148 Milimelf | 1 | Good-Ark |
| 7 | D3 | Diode, schottky, 100V/2A, S210, SMB | 1 | PANJIT |
| 8 | D4 | Bridge Rectifier,1000V/1A, DI1010S, SDIP | 1 | PANJIT |
| 9 | D5 | Diode,Ultra Fast, RS1K,800V/1A, SMA | 1 | PAN JIT |
| 10 | FR1 | Fusible Resistor, 1W, 10 ohm, 5%, DIP | 1 | TY-OHM |
| 11 | L1 | Axial Inductor, 1.5mH, 0410,DIP | 1 | |
| 12 | PCB | PCB,L*W*T=30x15.5x1.6mm, FR-4 Rev:A | 1 | Jing tong |
| 13 | Q1 | Transistor, HFE 20-25, NPN, D13003X, TO-220 | 1 | Hua Wei |
| 14 | R1 | Meter Film Resistor, 1M ohm, 1206, 5% | 1 | TY-OHM |
| 15 | R2 | Meter Film Resistor, 33 ohm, 0805, 5% | 1 | TY-OHM |
| 16 | R3 | Meter Film Resistor, 100 ohm, 0805, 5% | 1 | TY-OHM |
| 17 | R4 | Meter Film Resistor, 31.6K ohm, 0805, 1% | 1 | TY-OHM |
| 18 | R5 | Meter Film Resistor, 11K ohm, 0805, 1% | 1 | TY-OHM |
| 19 | R6 | Meter Film Resistor, 510 ohm, 0805, 5% | 1 | TY-OHM |
| 20 | R7 | Meter Film Resistor, 1K ohm, 0805, 5% | 1 | TY-OHM |
| 21 | R8 | Meter Film Resistor, 100K ohm, 1206, 5% | 1 | TY-OHM |
| 22 | T1 | Transformer, Lp=1.7mH, EE-13 | 1 | |
| 20 | U1 | IC, ACT355AUC-T, SOT23-5 | 1 | Active |

5. Transformer Specification

5.1 Schematics

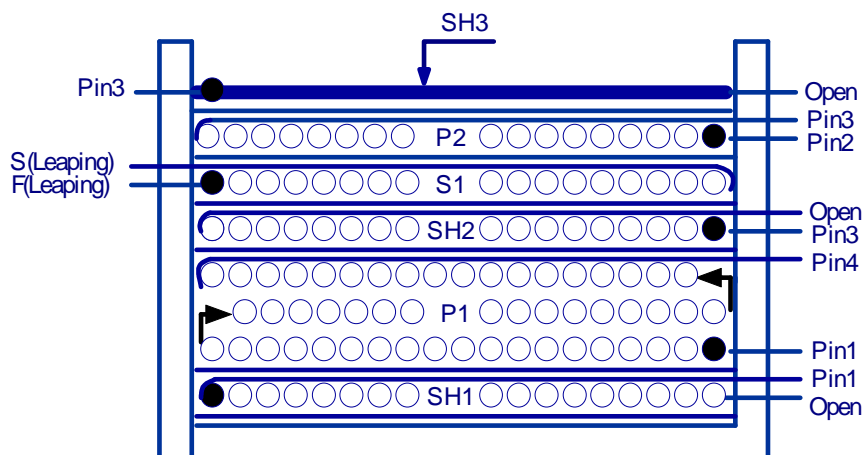


Build-up Table

| Winding | Terminal | | Turns | Wire | | | Insulation | |
|---------|------------|------------|-------|------|----------|-------|------------|-------|
| | Start | Finish | | Type | Size*QTY | Layer | Thick/Wide | Layer |
| SH1 | open | 1 | 10 | 2UEW | 0.15Φ*4 | 1 | 25u/8.5mm | 2 |
| P1 | 1 | 4 | 120 | 2UEW | 0.12Φ*1 | 3 | 25u/8.5mm | 2 |
| SH2 | 3 | open | 10 | 2UEW | 0.15Φ*4 | 1 | 25u/8.5mm | 2 |
| S1 | F(Leaping) | S(Leaping) | 24 | 2UEW | 0.45Φ*1 | 1 | 25u/8.5mm | 2 |
| P2 | 2 | 3 | 26 | 2UEW | 0.15Φ*1 | 1 | 25u/8.5mm | 3 |
| SH3 | 3 | open | 10 | 2UEW | 0.15Φ*4 | 1 | 25u/8.5mm | 2 |

Note: P1 & P2 are primary and S1 is secondary (Bobbin: EE-13 Horizontal)

5.2 Build-up Diagram



5.3 Electrical Specifications

| Item | Description | Condition | Limits |
|------|----------------------|---|------------|
| 1 | Electrical Strength | 50Hz, 1 minute, from primary and secondary | 3000 Vac |
| 2 | P1 Inductance | Inductance between pins 1 and 2 at 1Vac & 1kHz | 1.7mH ± 7% |
| 3 | P1Leakage Inductance | Inductance between pins 1 and 2 with pins 3-4 and 7-8 shorted | 75μH |

6. ACT355 Test Data

1.1 Efficiency

| VIN (V _{AC}) | 2LED | 3LED | 4LED | PCS |
|------------------------|-------|-------|-------|-----|
| 110 | 73.39 | 74.28 | 72.98 | % |
| 220 | 73.63 | 73.74 | 74.29 | % |

1.2 Current Limit and Constant Current

| Condition | 2LED | 3LED | 4LED |
|-----------|------|------|------|
| 85 | 345 | 342 | 334 |
| 110 | 352 | 346 | 338 |
| 220 | 358 | 349 | 343 |
| 264 | 353 | 347 | 334 |

1.3 Short Circuit Protection and Release

| Protection | 85 V _{AC} | 110 V _{AC} | 220V _{AC} | 264 V _{AC} |
|------------|--------------------|---------------------|--------------------|---------------------|
| ■ Pin (W) | 0.01 | 0.14 | 0.26 | 0.30 |