



■ Features :

- Universal AC input / Full range(up to 295VAC)
- Built in active PFC compliance to EN61000-3-2 class C
- Constant Voltage design
- High efficiency up to 93%
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Half encapsulated
- U-bracket low profile:33mm
- ZVS technology to reduce power dissipation
- Suitable for built-in type LED applications
- 3 years warranty

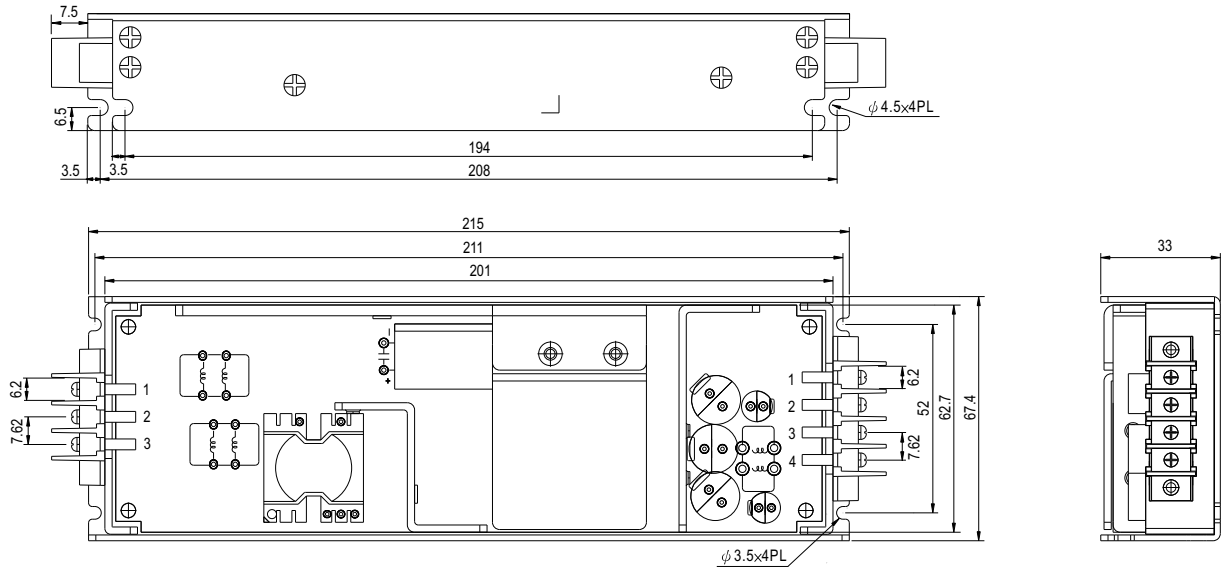


**SPECIFICATION**

| MODEL                 | ULP-150-12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ULP-150-15                                                                                                            | ULP-150-24 | ULP-150-36   | ULP-150-48   |            |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|------------|--------------|--------------|------------|
| OUTPUT                | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 12V                                                                                                                   | 15V        | 24V          | 36V          | 48V        |
|                       | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 12.5A                                                                                                                 | 10A        | 6.3A         | 4.2A         | 3.2A       |
|                       | CURRENT RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0 ~ 12.5A                                                                                                             | 0 ~ 10A    | 0 ~ 6.3A     | 0 ~ 4.2A     | 0 ~ 3.2A   |
|                       | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 150W                                                                                                                  | 150W       | 151.2W       | 151.2W       | 153.6W     |
|                       | RIPPLE & NOISE (max.) Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 100mVp-p                                                                                                              | 150mVp-p   | 150mVp-p     | 250mVp-p     | 250mVp-p   |
|                       | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 11.0~13.2V                                                                                                            | 13.5~16.5V | 21.6~26.4V   | 32.4~39.6V   | 43.2~52.8V |
|                       | VOLTAGE TOLERANCE Note.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ±2.0%                                                                                                                 | ±2.0%      | ±2.0%        | ±2.0%        | ±2.0%      |
|                       | LINE REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ±0.5%                                                                                                                 | ±0.5%      | ±0.5%        | ±0.5%        | ±0.5%      |
|                       | LOAD REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ±1.0%                                                                                                                 | ±1.0%      | ±1.0%        | ±1.0%        | ±1.0%      |
|                       | SETUP, RISE TIME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2000ms, 100ms/230VAC      3000ms, 100ms/115VAC at full load                                                           |            |              |              |            |
| HOLD UP TIME (Typ.)   | 16ms/230VAC      16ms/115VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                       |            |              |              |            |
| INPUT                 | VOLTAGE RANGE Note.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 90 ~ 295VAC      127 ~ 417VDC                                                                                         |            |              |              |            |
|                       | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 47 ~ 63Hz                                                                                                             |            |              |              |            |
|                       | POWER FACTOR (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PF ≅ 0.96/230VAC      PF ≅ 0.98/115VAC      PF ≅ 0.94/277VAC at full load; PF ≅ 0.9/230VAC at 50%~100% load           |            |              |              |            |
|                       | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 91.5%                                                                                                                 | 91.5%      | 93%          | 93%          | 93%        |
|                       | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2A/115VAC      1A/230VAC                                                                                              |            |              |              |            |
|                       | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Cold start 65A/230VAC                                                                                                 |            |              |              |            |
|                       | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <0.75mA/ 277VAC                                                                                                       |            |              |              |            |
| PROTECTION            | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 130~185% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |            |              |              |            |
|                       | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Protection type : Hiccup mode, recovers automatically after fault condition is removed                                |            |              |              |            |
|                       | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 13.6 ~ 16.3V                                                                                                          | 17 ~ 21V   | 26.7 ~ 32.4V | 41.4 ~ 48.6V | 53 ~ 64.8V |
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Protection type : Shut down o/p voltage with auto-recovery or re-power on to recovery                                 |            |              |              |            |
|                       | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 95°C±5°C (RTH2)<br>Protection type : Shut down o/p voltage, recovers automatically after temperature goes down        |            |              |              |            |
| ENVIRONMENT           | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | -30 ~ +70°C (Refer to output load derating curve)                                                                     |            |              |              |            |
|                       | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 20 ~ 90% RH non-condensing                                                                                            |            |              |              |            |
|                       | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | -40 ~ +85°C, 10 ~ 95% RH                                                                                              |            |              |              |            |
|                       | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ±0.03%/°C (0 ~ 60°C)                                                                                                  |            |              |              |            |
|                       | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes                                                          |            |              |              |            |
| SAFETY & EMC (Note 5) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Compliance to EN61347-2-13, IEC61347-2-13; design refer to UL8750                                                     |            |              |              |            |
|                       | WITHSTAND VOLTAGE Note.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | I/P-O/P:3.75KVAC      I/P-FG:1.88KVAC      O/P-FG:0.5KVAC                                                             |            |              |              |            |
|                       | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC/25°C / 70%RH                                                                 |            |              |              |            |
|                       | EMI CONDUCTION & RADIATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Compliance to EN55015 Class B                                                                                         |            |              |              |            |
|                       | HARMONIC CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Compliance to EN61000-3-2 Class C(≅ 60% load), EN61000-3-3                                                            |            |              |              |            |
|                       | EMS IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN61547, EN55024, light industry level (surge 4KV), criteria A      |            |              |              |            |
| OTHERS                | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 216.3K hrs min.      MIL-HDBK-217F (25°C)                                                                             |            |              |              |            |
|                       | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 215*67.4*33mm (L*W*H)                                                                                                 |            |              |              |            |
|                       | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.67kg; 24PCS/17.5kg/0.65CUFT                                                                                         |            |              |              |            |
| NOTE                  | <ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>4. Derating may be needed under low input voltages. Please check the static characteristics for more details.</li> <li>5. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.</li> <li>6. Please remove the component D1 before conducted Hipot test.</li> </ol> |                                                                                                                       |            |              |              |            |

**Mechanical Specification**

Case No. 988 Unit:mm



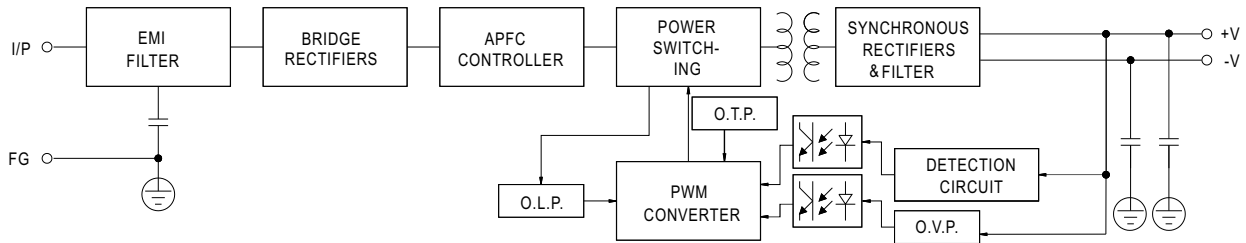
AC Terminal pin NO. Assignment

| Pin No. | Assignment | Terminal               |
|---------|------------|------------------------|
| 1       | FG         | DECA<br>T31-C032033702 |
| 2       | AC/L       |                        |
| 3       | AC/N       |                        |

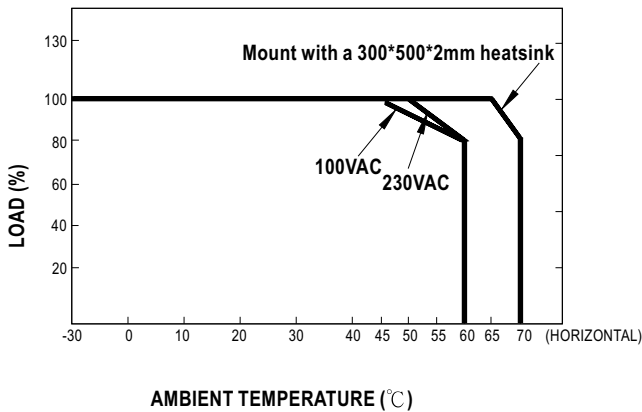
DC Terminal pin NO. Assignment

| Pin No. | Assignment | Terminal               |
|---------|------------|------------------------|
| 1       | V-         | DECA<br>T31-C032043702 |
| 2       | V-         |                        |
| 3       | V+         |                        |
| 4       | V+         |                        |

**Block Diagram**



**Derating Curve**



**Static Characteristics**

