# PDAM500 Power Supply Series (500W)

**Features:**

- UL/IEC/EN 60601 3.1 Edition
- UL/IEC/EN 60950 AM2 Safety Approvals
- High power density: 500W in 3” x 5” footprint
- Open Frame or Enclosed Versions Available
- Remote ON/OFF Function
- Built-in 12V/0.3A Auxiliary Output
- Standby 5V @ 1A with Fan, @ 0.4A without Fan
- High Efficiency up to 93%
- P.F.C. Function >0.95

**Description:**

The PDAM500 series of compact, open-framed AC-DC switching power supplies offers a high power density to fit in a small space. This dense 3” x 5” platform offers up to 500W of continuous power across a wide range of operating temperatures, all while maintaining a low emissions profile. All models meet FCC, EN55011, and EN55022 class B emission limits, and comply with UL, IEC, CE, and more.

| Model[1] | Output Voltage | Maximum Load Convection[2] | Maximum Load with 30CFM Forced Air | Output Load Regulation | Ripple & Noise[6] | Average Efficiency (230 VAC) | Fan Output | +5VSB Output[7] |
|---|---|---|---|---|---|---|---|---|
| PDAM500-12A | 12V | 20A | 41.5A | ±1.2% | 160mV | 90.5% | 12A/0.3A | 5V/1A |
| PDAM500-13A | 15V | 14.66A | 33.3A | ±1% | 160mV | 90.5% | 12A/0.3A | 5V/1A |
| PDAM500-14A | 24V | 10A | 20.8A | ±1% | 240mV | 92% | 12A/0.3A | 5V/1A |
| PDAM500-18A | 48V | 5A | 10.41A | ±1% | 480mV | 93% | 12A/0.3A | 5V/1A |

**NOTES:**

1. All models are available in an enclosed version (e.g. PDAM500-12A would be PDAM500-12C)
2. Listed values are taken at 230VAC. At 115VAC, 19.16A, 9.58A, and 4.8A for the models listed as shown.
3. Recommended to add Varistor 14S471K at L/N input side in parallel.
4. Hold-up Time measured at 90% Vout
5. Main Vout >3% Load, 12V (Aux) / 0.3A.
6. Measured at 20MHz bandwidth with a 47uF electrolytic capacitor and 0.1uF ceramic capacitor in parallel at the output connector.
7. 400mA convection rated.


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| Specifications | |
|---|---|
| **Input** | |
| Input Voltage | 90-264VAC or 120-370VDC |
| Input Frequency | 47-63Hz |
| Input Current | <6.0A @ 115VAC; <3.00A @ 230VAC |
| Inrush Current | <40A @ 115VAC; 80A @ 230VAC |
| Power Factor | >0.95 Full load (230VAC) |
| **Output** | |
| Total Output Power | 500W |
| Hold Up Time | 8ms min (Vout = 90% Vnominal) |
| Minimum Load | 0% |
| **Protection Features** | |
| Overvoltage Protection | 110-132% Auto Recovery |
| Overload Protection | 145-170% Auto Recovery |
| Short Circuit Protection | Auto Recovery |
| **Environmental** | |
| Operating Temperature | -40°C to +70°C (with derating) |
| Storage Temperature | -40°C to +85°C |
| Humidity | 95% RH |
| Operating Altitude | <3000 meters for medical use |
| **General Specifications** | |
| Dimensions | 3.0” x 5.03” x 1.38” |
| Weight | 480g |
| MTBF | >160k hours per MIL-HDBK-217F at full load and 25°C ambient temperature |
| Maximum Efficiency | 93% |


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| Specifications Continued | |
|---|---|
| **Safety** | |
| Approved to USA/Canada | UL60601-1 3rd Edition<br>UL/cUL60950-1<br>UL62368-1 (Pending) |
| Approved to Europe | IEC/EN60601-1 3rd Edition<br>TUV EN60950-1<br>CB Report<br>EN62368-1 (Pending) |
| Earth Leakage Current | <0.1 mA max. (Input-Output) |
| Isolation | 4000VAC input to output, 2 x MOPP<br>1500VAC input to ground, 1 x MOPP<br>1500VAC output to ground, 1 x MOPP |
| *Consult with TT Electronics for information on additional country safety approvals | |
| **EMC** | |
| EMC (IEC60601-1-2:2014) | FCC Class B Radiated & Conducted<br>EN55011/55022 Class B Radiated & Conducted |
| Harmonic Currents<br>Voltage Flicker<br>Electrostatic Discharge<br>Radiated Immunity<br>EFT<br>Surge Immunity<br>Conducted Immunity<br>Power Frequency Magnetic Field Immunity<br>Dips/Interruptions | IEC 61000-3-2<br>IEC 61000-3-3<br>IEC 61000-4-2: 15kV Air, 8kV contact<br>IEC 61000-4-3: 10V/m<br>IEC 61000-4-4: +/-2kV<br>IEC 61000-4-5: 2005 1kV diff, 2kV com<br>IEC 61000-4-6: 10Vrms<br>IEC 61000-4-8: 30A/m<br>IEC 61000-4-11: 30% reduction for 500ms, 100% reduction for 10ms. |


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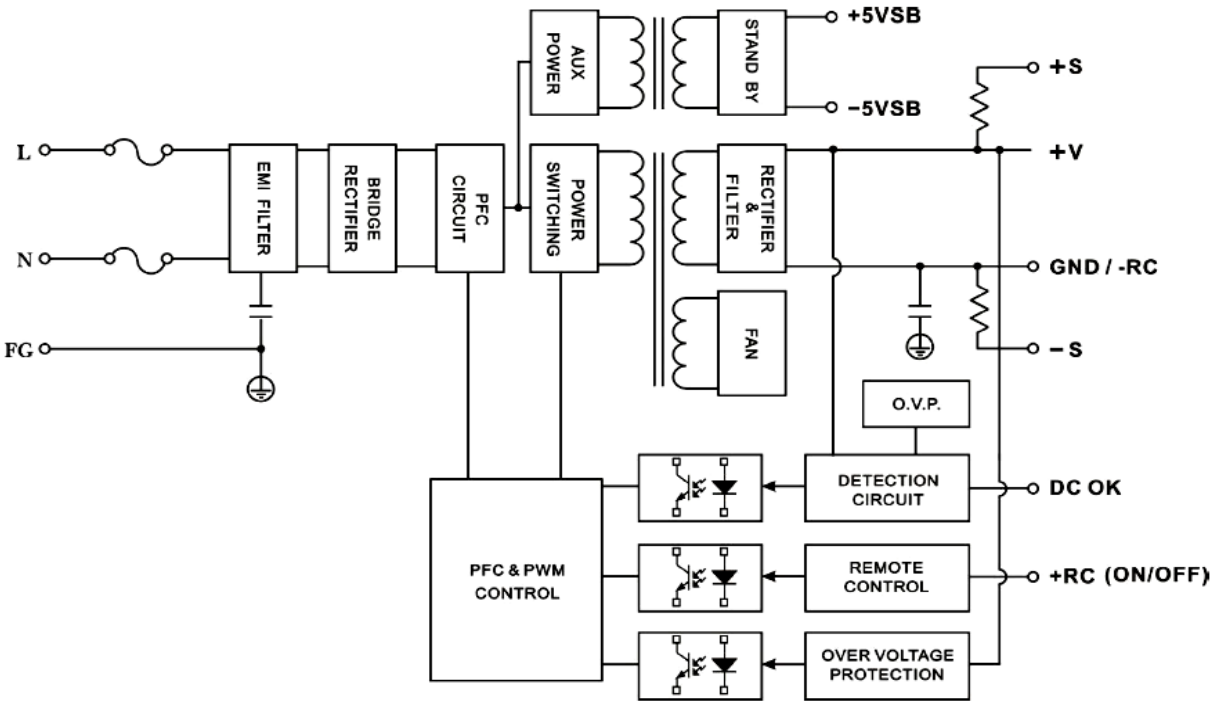
## Diagrams

### Block Diagram



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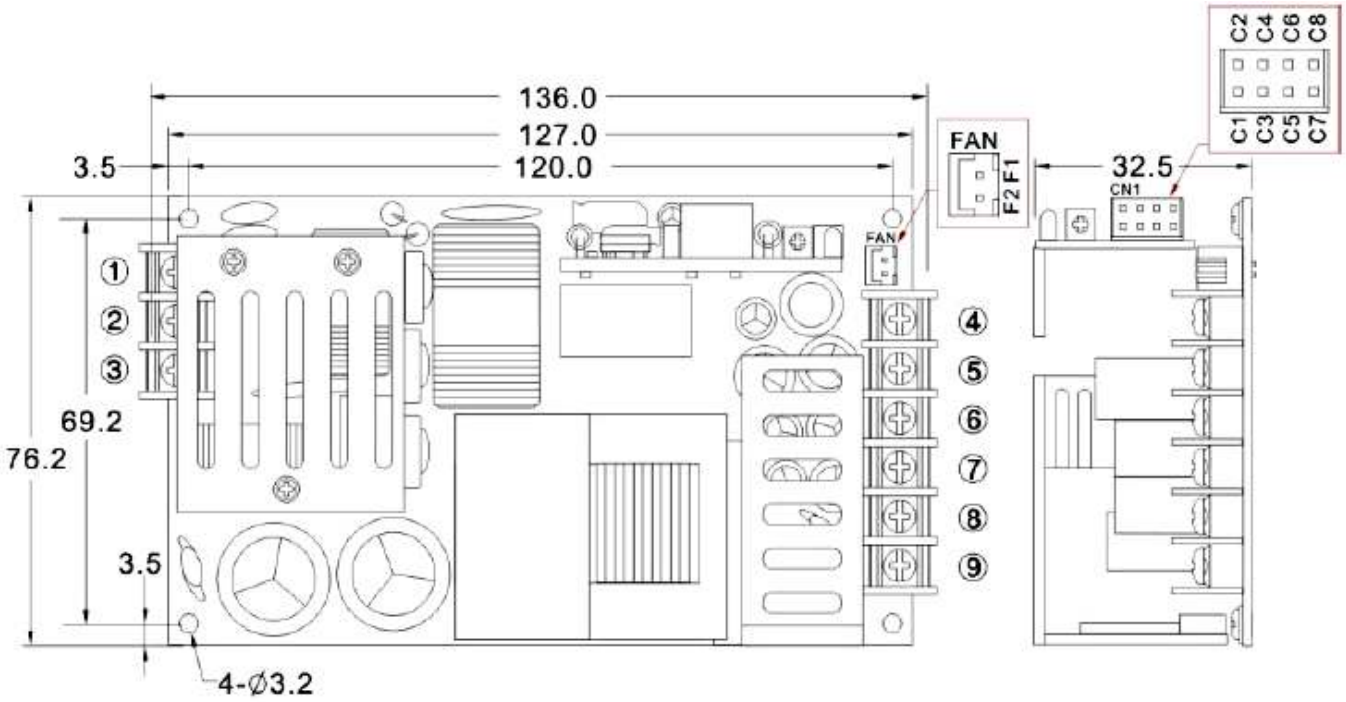
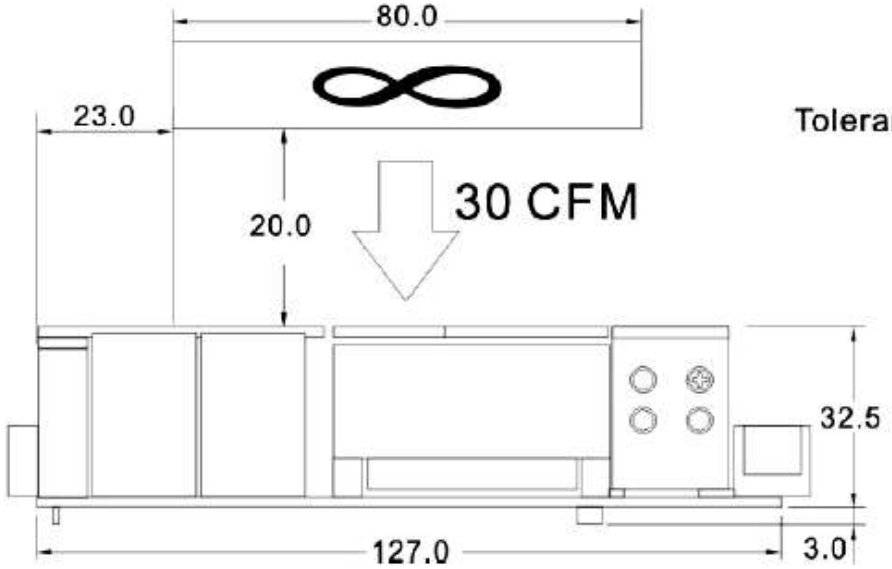
## Diagrams

### Mechanical Outline (Open Frame)




Tolerance ±0.5 mm

| PIN # | Single |
|---|---|
| 1 | FG |
| 2 | AC IN (N) |
| 3 | AC IN (L) |
| 4-6 | +DC OUT |
| 7-9 | -DC OUT |

**Connector Pin (FAN)**

| PIN # | Single |
|---|---|
| F1 | +12V |
| F2 | GND |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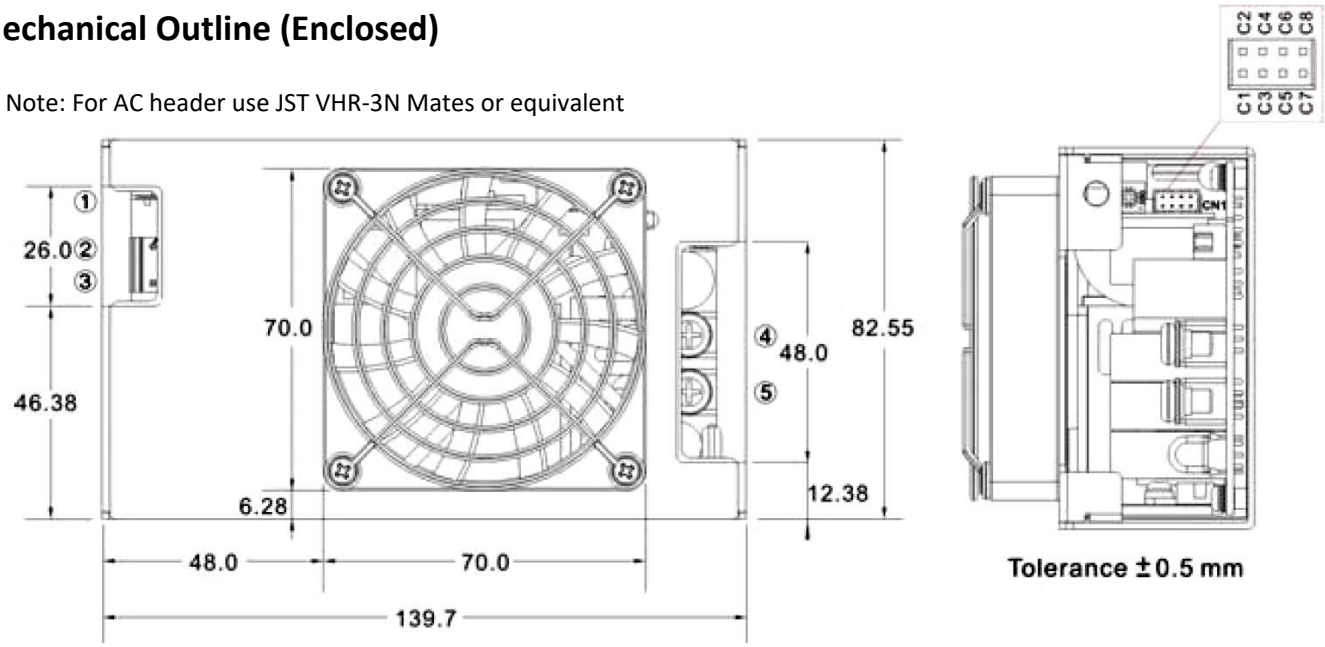
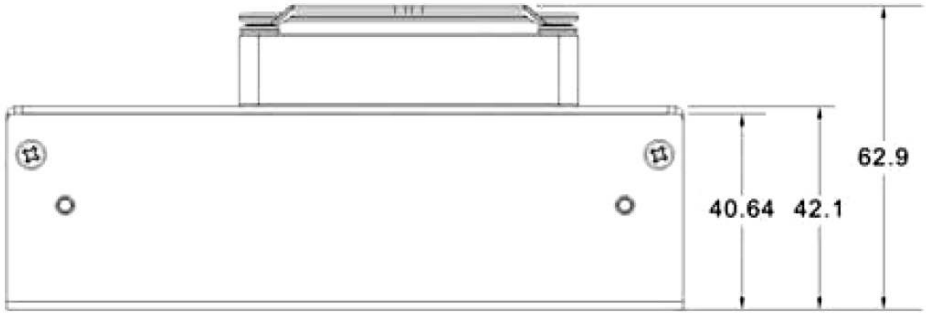
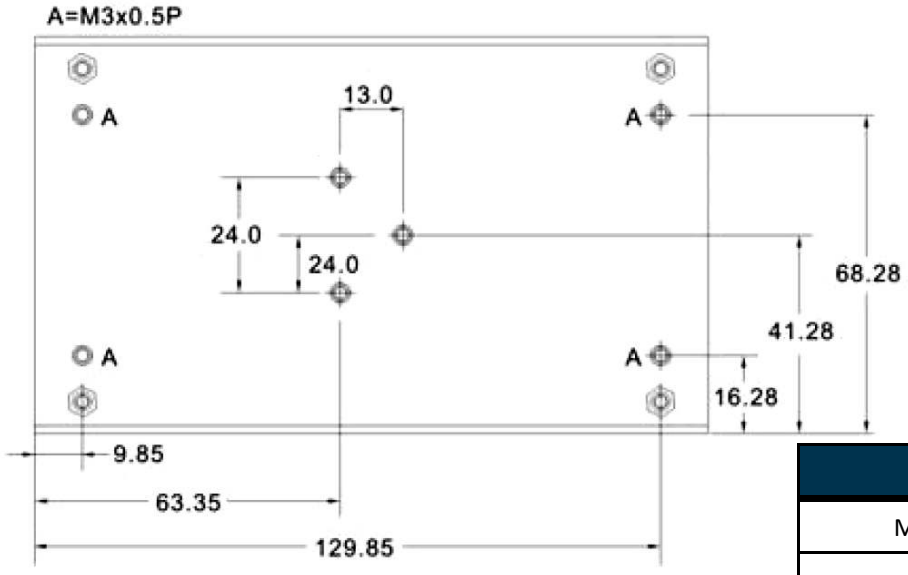
## Diagrams

### Mechanical Outline (Enclosed)

Note: For AC header use JST VHR-3N Mates or equivalent




**Connector Pin (CN1)**

| PIN # | Single |
|---|---|
| C1 | -5VSB |
| C2 | +5VSB |
| C3 | GND |
| C4 | DC OK |
| C5 | -RC |
| C6 | +RC |
| C7 | -S |
| C8 | +S |

| CN1 Header | JST Part |
|---|---|
| Mating Housing | PHDR-08VS |
| Terminal | SPHD-001TP0.5 |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## Diagrams

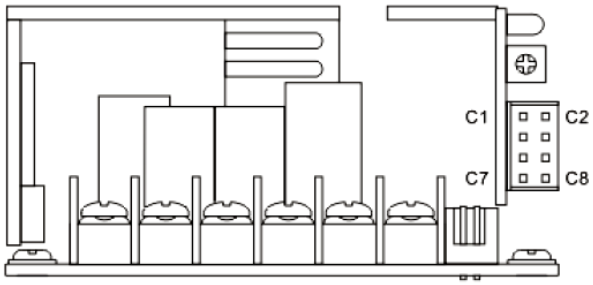
### Function Description of CN1

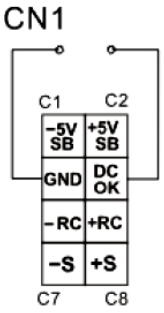
| Pin No. | Function | Description |
|---|---|---|
| C1 | -5VSB | This pin connects to the negative terminal (-V). Return for DC-OK and –RC signal output. |
| C2 | +5VSB | Stand by voltage output ground 3.7~6V, referenced to pin C8 (+5VSB). The maximum load current is 0.6A. |
| C3 | GND | This pin connects to the negative terminal (-V). Return for DC-OK and –RC signal output. |
| C4 | DC OK | DC-OK signal is a DC output, referenced to pin C6 (DC-OK GND). |
| C5 | -RC | This pin connects to the negative terminal (-V). Return for DC-OK and –RC signal output. |
| C6 | +RC | Turns the output on and off by electrical or dry contact between pin C4 (-RC), Short: Power OFF, Open: Power ON. |
| C7 | -S | Negative sensing. The –S Signal should be connected to the negative terminal of the load. The –S and +S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.3V. |
| C8 | +S | Positive sensing. The +S Signal should be connected to the negative terminal of the load. The +S and –S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.3V. |

### Function Manual & Application

**1. DC-OK Signal**

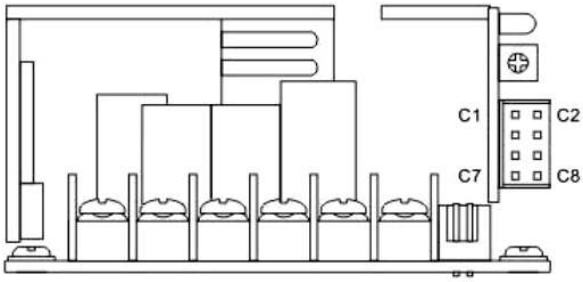
| Between DC-OK and GND | Output Status |
|---|---|
| 3.7~6V | ON |
| 0~1V | OFF |

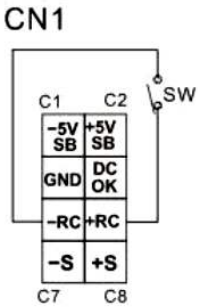



**1. Remote Control**

| Between +RC and -RC | Output Status |
|---|---|
| SW ON (Short) | OFF |
| SW OFF (Open) | ON |



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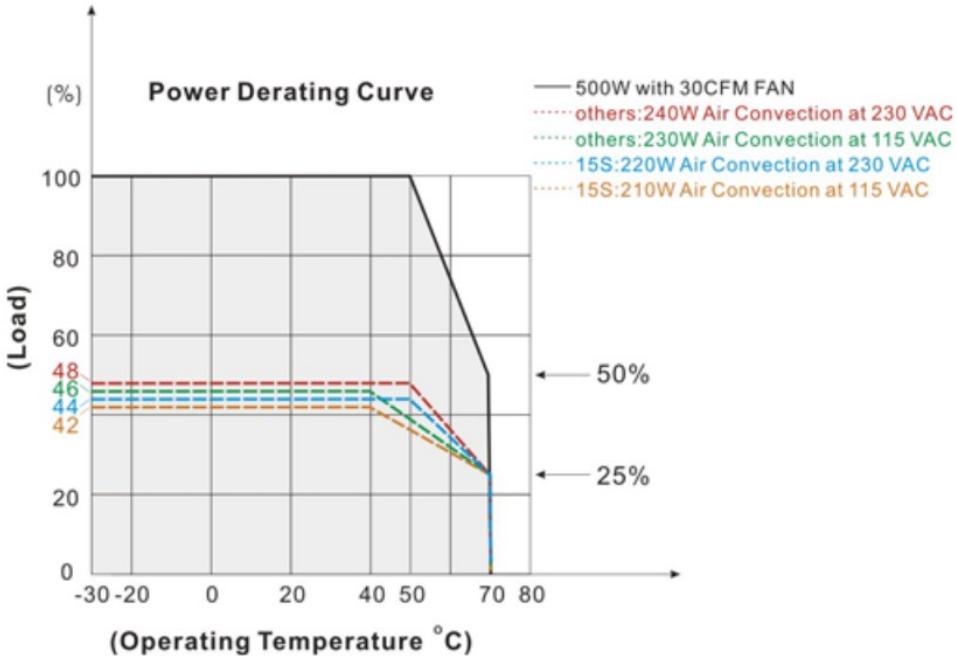
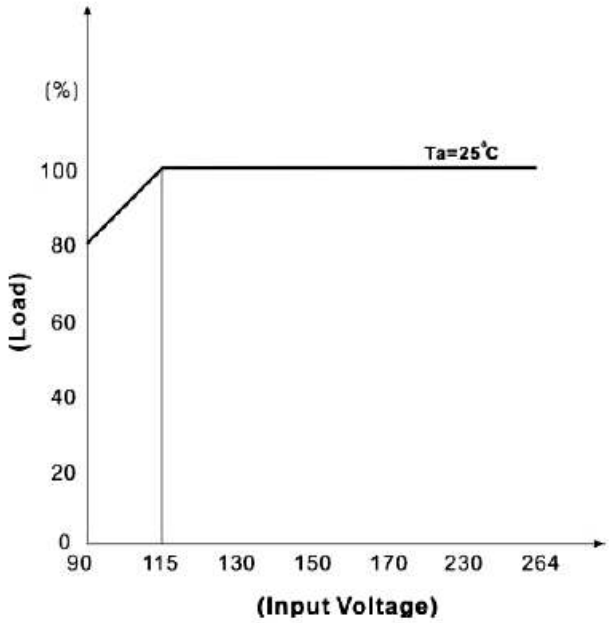
## Diagrams

### Power Derating





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