



## Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- Protections: Short circuit/Over load/Over voltage/Over temperature
- With power good and fail signal output
- Built-in remote sense function
- LED indicator for power on
- 100% full load burn-in test
- Peak current capability
- 3 years warranty



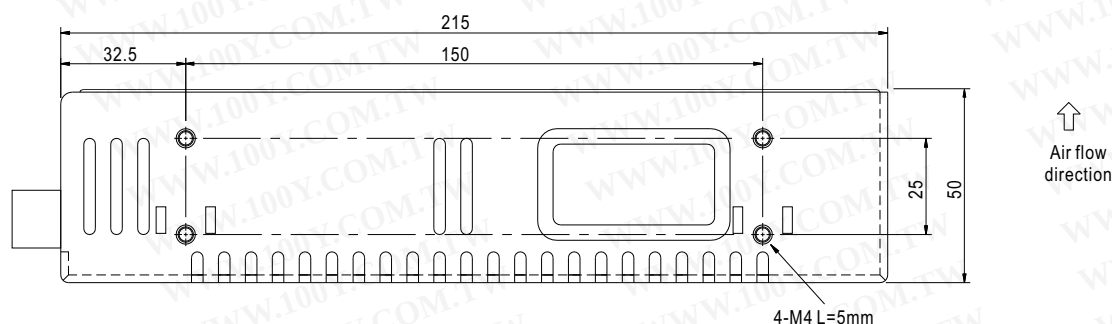
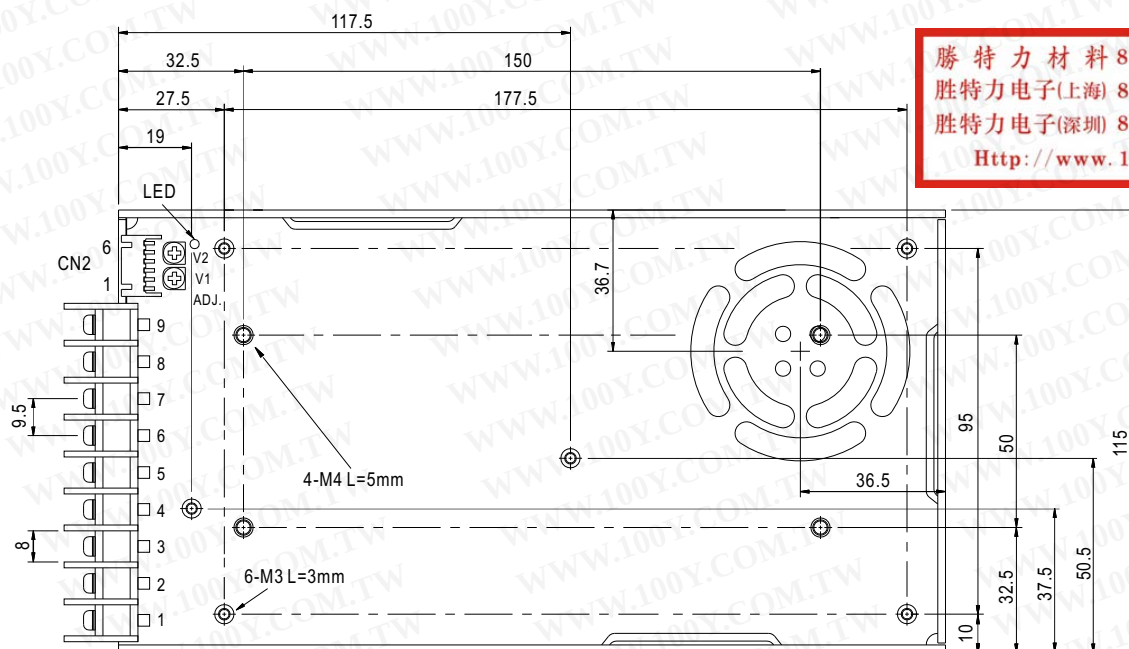
## SPECIFICATION

| MODEL                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | QP-320D                                                                                                                                              |          |                  |          | QP-320F                                    |          |                  |            |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------|----------|--------------------------------------------|----------|------------------|------------|
| OUTPUT                   | OUTPUT NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CH1                                                                                                                                                  | CH2      | CH3              | CH4      | CH1                                        | CH2      | CH3              | CH4        |
|                          | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5V                                                                                                                                                   | 12V      | 24V              | -12V     | 5V                                         | 15V      | 24V              | -15V       |
|                          | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 20A                                                                                                                                                  | 10A      | 3A               | 2A       | 20A                                        | 8A       | 3A               | 1.6A       |
|                          | CURRENT RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.5 ~ 20A                                                                                                                                            | 0 ~ 10A  | 0.2 ~ 5A         | 0.2 ~ 2A | 2.5 ~ 20A                                  | 0 ~ 10A  | 0.2 ~ 5A         | 0.2 ~ 1.6A |
|                          | PEAK CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20A                                                                                                                                                  | 10A      | 20A, ≤1ms(Note5) | 2A       | 20A                                        | 10A      | 20A, ≤1ms(Note5) | 1.6A       |
|                          | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 316W                                                                                                                                                 |          |                  |          |                                            |          |                  |            |
|                          | RIPPLE & NOISE (max.) Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 100mVp-p                                                                                                                                             | 150mVp-p | 150mVp-p         | 150mVp-p | 100mVp-p                                   | 150mVp-p | 150mVp-p         | 150mVp-p   |
|                          | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | CH1,2: +10, -5%                                                                                                                                      |          |                  |          |                                            |          |                  |            |
|                          | VOLTAGE TOLERANCE Note.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ±3.0%                                                                                                                                                | ±3.0%    | +10, -6%         | ±10%     | ±3.0%                                      | ±3.0%    | +10, -6%         | ±10%       |
|                          | LINE REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ±1.0%                                                                                                                                                | ±2.0%    | ±2.0%            | ±3.0%    | ±1.0%                                      | ±2.0%    | ±2.0%            | ±3.0%      |
|                          | LOAD REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ±2.0%                                                                                                                                                | ±3.0%    | ±6.0%            | ±8.0%    | ±2.0%                                      | ±3.0%    | ±6.0%            | ±8.0%      |
|                          | SETUP, RISE, HOLD TIME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 800ms, 50ms, 16ms at full load                                                                                                                       |          |                  |          |                                            |          |                  |            |
| INPUT                    | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 90 ~ 264VAC      127 ~ 370VDC                                                                                                                        |          |                  |          |                                            |          |                  |            |
|                          | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 47 ~ 63Hz                                                                                                                                            |          |                  |          |                                            |          |                  |            |
|                          | POWER FACTOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | PF>0.95/230VAC      PF>0.98/115VAC at full load                                                                                                      |          |                  |          |                                            |          |                  |            |
|                          | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 83%                                                                                                                                                  |          |                  |          |                                            |          |                  |            |
|                          | AC CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5A/115VAC      2.5A/230VAC                                                                                                                           |          |                  |          |                                            |          |                  |            |
|                          | INRUSH CURRENT (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 25A/115VAC      45A/230VAC                                                                                                                           |          |                  |          |                                            |          |                  |            |
|                          | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <2mA / 240VAC                                                                                                                                        |          |                  |          |                                            |          |                  |            |
| PROTECTION               | OVER LOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 105 ~ 150% rated output power<br>Protection type : Fold back current limiting, recovers automatically after fault condition is removed               |          |                  |          |                                            |          |                  |            |
|                          | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | CH1: 5.75 ~ 6.75V      CH2: 13.8 ~ 16.2V                                                                                                             |          |                  |          | CH1: 5.75 ~ 6.75V      CH2: 17.25 ~ 20.25V |          |                  |            |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Protection type : Shut down o/p voltage, re-power on to recover                                                                                      |          |                  |          |                                            |          |                  |            |
|                          | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 95℃ ±5℃ (TSW1 )Detect on heatsink of power transistor<br>Protection type : Shut down o/p voltage, recovers automatically after temperature goes down |          |                  |          |                                            |          |                  |            |
| FUNCTION                 | POWER GOOD / POWER FAIL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 10ms/1ms                                                                                                                                             |          |                  |          |                                            |          |                  |            |
| ENVIRONMENT              | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -10 ~ +70℃ (Refer to output load derating curve)                                                                                                     |          |                  |          |                                            |          |                  |            |
|                          | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 20 ~ 90% RH non-condensing                                                                                                                           |          |                  |          |                                            |          |                  |            |
|                          | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | -20 ~ +85℃, 10 ~ 95% RH                                                                                                                              |          |                  |          |                                            |          |                  |            |
|                          | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ±0.03%/℃ (0 ~ 50℃ )                                                                                                                                  |          |                  |          |                                            |          |                  |            |
|                          | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes                                                                                         |          |                  |          |                                            |          |                  |            |
| SAFETY & EMC<br>(Note 4) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | UL60950-1, TUV EN60950-1 Approved                                                                                                                    |          |                  |          |                                            |          |                  |            |
|                          | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | I/P-O/P: 3KVAC    I/P-FG: 1.5KVAC    O/P-FG: 0.5KVAC                                                                                                 |          |                  |          |                                            |          |                  |            |
|                          | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | I/P-O/P, I/P-FG, O/P-FG: 100M Ohms/500VDC                                                                                                            |          |                  |          |                                            |          |                  |            |
|                          | EMI CONDUCTION & RADIATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Compliance to EN55022 (CISPR22) Class B                                                                                                              |          |                  |          |                                            |          |                  |            |
|                          | HARMONIC CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Compliance to EN61000-3-2, -3                                                                                                                        |          |                  |          |                                            |          |                  |            |
|                          | EMS IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; ENV50204, EN55024, Light industry level, criteria A                                                    |          |                  |          |                                            |          |                  |            |
| OTHERS                   | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 213.5K hrs min.    MIL-HDBK-217F (25℃)                                                                                                               |          |                  |          |                                            |          |                  |            |
|                          | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 215*115*50mm (L*W*H)                                                                                                                                 |          |                  |          |                                            |          |                  |            |
|                          | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.2Kg; 12pcs/15.4Kg/0.92CUFT                                                                                                                         |          |                  |          |                                            |          |                  |            |
| NOTE                     | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. Each output provide up to maximum current, but total load can not exceed max. output power.<br>5. CH3(24V) peak current 20A, ≤1ms, repeatable in every 100ms. CH3(24V) output must above 16V in the period of peak current. |                                                                                                                                                      |          |                  |          |                                            |          |                  |            |

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## Mechanical Specification

Case No. 912I Unit:mm



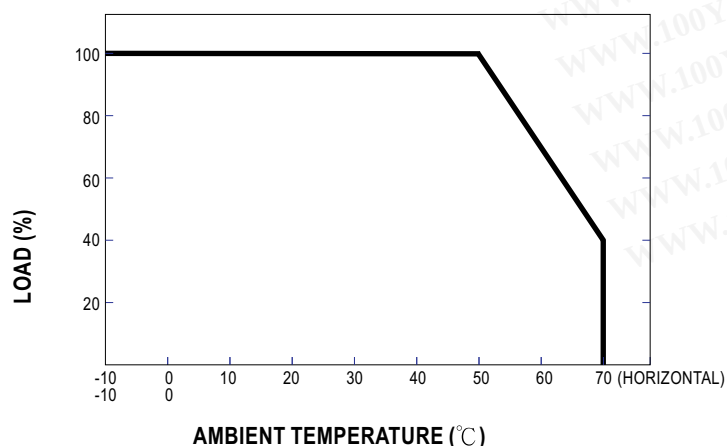
Terminal pin number assignment :

| Pin No. | Assignment | Pin No. | Assignment   | Pin No. | Assignment    |
|---------|------------|---------|--------------|---------|---------------|
| 1       | AC/L       | 4       | DC OUTPUT V4 | 7,8     | DC OUTPUT COM |
| 2       | AC/N       | 5       | DC OUTPUT V3 | 9       | DC OUTPUT V2  |
| 3       | FG         | 6       | DC OUTPUT V1 |         |               |

DC Output Connector (CN2) : JST S6B-XH-A-1 or equivalent

| Pin No. | Assignment | Pin No. | Assignment | Mating Housing        | Terminal                        |
|---------|------------|---------|------------|-----------------------|---------------------------------|
| 1       | V1(+S)     | 4       | V2(-S)     | JST XHP or equivalent | JST SXH-001T-P0.6 or equivalent |
| 2       | V1(-S)     | 5       | PF/PG      |                       |                                 |
| 3       | V2(+S)     | 6       | GND        |                       |                                 |

## Derating Curve



## Output Derating VS Input Voltage

