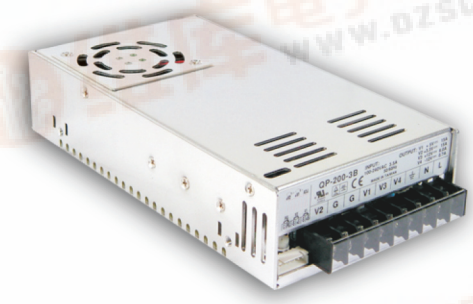
ASTRODYNE

200W Quad Output with PFC Function

QP-200 series



■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- Protections:Short circuit/Over load/Over voltage/Over temperature
- Forced air cooling by built-in DC fan
- CH1,2 can be adjustable from -5~+10%
- With power good and fail signal output(Optional)
- Built-in remote sense function for CH1,2
- 100% full load burn-in test
- CH4 can set to positive after consult us before delivery
- Fixed switching frequency at PFC:67KHz PWM:134KHz(Optional)
- 3 years warranty

SPECIFICATION

MODEL		QP-200D				QP-200F				QP-200-3A			
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
	DC VOLTAGE	5V	12V	24V	-12V	5V	15V	24V	-15V	5V	3.3V	12V	-5V
	RATED CURRENT	15A	4A	3A	0.7A	15A	3A	3A	0.7A	15A	15A	6A	0.7A
	CURRENT RANGE	3 ~ 20A	0 ~ 6A	0.4 ~ 5A	0 ~ 1A	3 ~ 20A	0 ~ 5A	0.4 ~ 5A	0 ~ 1A	3 ~ 20A	0 ~ 20A	0.5 ~ 8A	0 ~ 1A
	RATED POWER	203.4W				202.5W				200W			
	PEAK CURRENT Note.4	20A	7A	6A	1A	20A	6A	6A	1A	20A	20A	8A	1A
	RIPPLE & NOISE (max.) Note.2	100mVp-p	150mVp-p	150mVp-p	150mVp-p	100mVp-p	150mVp-p	150mVp-p	150mVp-p	100mVp-p	100mVp-p	150mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	CH1: 4.75 ~ 5.5V		CH2: 11.4 ~ 13.2V		CH1: 4.75 ~ 5.5V		CH2: 14.25 ~ 16.5V		CH1: 4.75 ~ 5.5V		CH2: 3.14 ~ 3.63V	
	VOLTAGE TOLERANCE Note.3	±3.0%	±3.0%	+10,-6%	±6.0%	±3.0%	±3.0%	+10,-6%	±6.0%	±3.0%	±3.0%	+8,-10%	±6.0%
	LINE REGULATION	±1.0%	±1.0%	±2.0%	±1.0%	±1.0%	±1.0%	±2.0%	±1.0%	±1.0%	±1.0%	±2.0%	±1.0%
	LOAD REGULATION	±2.0%	±2.0%	±6.0%	±2.0%	±2.0%	±2.0%	±6.0%	±2.0%	±2.0%	±2.0%	±6.0%	±2.0%
	SETUP, RISE TIME	800ms, 50ms at full load											
	HOLD TIME (Typ.)	24ms at full load											
INPUT	VOLTAGE RANGE Note.6	90 ~ 264VAC 127 ~ 370VDC											
	FREQUENCY RANGE	47 ~ 63Hz											
	POWER FACTOR (Typ.)	PF>0.95/230VAC PF>0.98/115VAC at full load											
	EFFICIENCY (Typ.)	75%				75%				72%			
	AC CURRENT (Typ.)	3.5A/115VAC 2A/230VAC											
	INRUSH CURRENT (Typ.)	COLD START 30A											
	LEAKAGE CURRENT	<2mA / 240VAC											
PROTECTION	OVER LOAD	105 ~ 150% rated output power											
		Protection type : Constant 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				CH1:5.75 ~ 6.75V CH2:3.8 ~ 4.4V			
		Protection type : Shut down o/p voltage, re-power on to recover											
	OVER TEMPERATURE	95℃ ±5℃ (TSW1) Detect on heatsink of Q1,Q2 power transistor											
		Protection type : Shut down o/p voltage, recovers automatically after temperature goes down											
FUNCTION	POWER GOOD / POWER FAIL(OPTIONAL)	10ms/1ms											
ENVIRONMENT	WORKING TEMP.	-10 ~ +60℃ (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 (Note 5)	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	160.6K hrs min. MIL-HDBK-217F (25℃)											
	DIMENSION	230*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.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. 33.3% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.
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.
6. Derating may be needed under low input voltages. Please check the derating curve for more details.

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■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- Protections:Short circuit/Over load/Over voltage/Over temperature
- Forced air cooling by built-in DC fan
- CH1,2 can be adjustable from -5~+10%
- With power good and fail signal output(Optional)
- Built-in remote sense function for CH1,2
- 100% full load burn-in test
- CH4 can set to positive after consult us before delivery
- Fixed switching frequency at PFC:67KHz PWM:134KHz(Optional)
- 3 years warranty

SPECIFICATION

MODEL		QP-200-3B				QP-200-3C				QP-200-3D			
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
	DC VOLTAGE	5V	3.3V	12V	-12V	5V	3.3V	15V	-15V	5V	3.3V	24V	-12V
	RATED CURRENT	15A	15A	6A	0.7A	15A	15A	5A	0.7A	10A	15A	4A	0.7A
	CURRENT RANGE	3 ~ 20A	0 ~ 20A	0.5 ~ 8A	0 ~ 1A	3 ~ 20A	0 ~ 20A	0.5 ~ 6A	0 ~ 1A	3 ~ 15A	0 ~ 20A	0.4 ~ 5A	0 ~ 1A
	RATED POWER	204.9W				210W				203.9W			
	PEAK CURRENT Note.4	20A	20A	8A	1A	20A	20A	7A	1A	20A	20A	6A	1A
	RIPPLE & NOISE (max.) Note.2	100mVp-p	100mVp-p	150mVp-p	150mVp-p	100mVp-p	100mVp-p	150mVp-p	150mVp-p	100mVp-p	100mVp-p	150mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	CH1: 4.75 ~ 5.5V		CH2: 3.14 ~ 3.63V		CH1: 4.75 ~ 5.5V		CH2: 3.14 ~ 3.63V		CH1: 4.75 ~ 5.5V		CH2: 3.14 ~ 3.63V	
	VOLTAGE TOLERANCE Note.3	±3.0%	±3.0%	+8,-10%	±6.0%	±3.0%	±3.0%	+10,-6%	±6.0%	±3.0%	±3.0%	+10,-6%	±6.0%
	LINE REGULATION	±1.0%	±1.0%	±2.0%	±1.0%	±1.0%	±1.0%	±2.0%	±1.0%	±1.0%	±1.0%	±2.0%	±1.0%
	LOAD REGULATION	±2.0%	±2.0%	±6.0%	±2.0%	±2.0%	±2.0%	±6.0%	±2.0%	±2.0%	±2.0%	±6.0%	±2.0%
	SETUP, RISE TIME	800ms, 50ms at full load											
	HOLD TIME (Typ.)	24ms at full load											
INPUT	VOLTAGE RANGE Note.6	90 ~ 264VAC 127 ~ 370VDC											
	FREQUENCY RANGE	47 ~ 63Hz											
	POWER FACTOR (Typ.)	PF>0.95/230VAC PF>0.98/115VAC at full load											
	EFFICIENCY (Typ.)	72%				72%				74%			
	AC CURRENT (Typ.)	3.5A/115VAC 2A/230VAC											
	INRUSH CURRENT (Typ.)	COLD START 30A											
	LEAKAGE CURRENT	<2mA / 240VAC											
PROTECTION	OVER LOAD	105 ~ 150% rated output power											
		Protection type : Constant current limiting, recovers automatically after fault condition is removed											
	OVER VOLTAGE	CH1:5.75 ~ 6.75V CH2:3.8 ~ 4.4V											
		Protection type : Shut down o/p voltage, re-power on to recover											
	OVER TEMPERATURE	95℃ ±5℃ (TSW1) Detect on heatsink of Q1,Q2 power transistor											
		Protection type : Shut down o/p voltage, recovers automatically after temperature goes down											
FUNCTION	POWER GOOD / POWER FAIL(OPTIONAL)	10ms/1ms											
ENVIRONMENT	WORKING TEMP.	-10 ~ +60℃ (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 (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	160.6K hrs min. MIL-HDBK-217F (25℃)											
	DIMENSION	230*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. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. 33.3% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power. 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. 6. Derating may be needed under low input voltages. Please check the derating curve for more details.												

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- Built-in remote sense function for CH1,2
- 100% full load burn-in test
- CH4 can set to positive after consult us before delivery
- Fixed switching frequency at PFC:67KHz PWM:134KHz(Optional)
- 3 years warranty

SPECIFICATION

MODEL		QP-200-3E			
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH4
	DC VOLTAGE	5V	3.3V	24V	-15V
	RATED CURRENT	10A	15A	4A	0.7A
	CURRENT RANGE	3 ~ 15A	0 ~ 20A	0.4 ~ 5A	0 ~ 1A
	RATED POWER	206W			
	PEAK CURRENT Note.4	20A	20A	6A	1A
	RIPPLE & NOISE (max.) Note.2	100mVp-p	100mVp-p	150mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	CH1: 4.75 ~ 5.5V	CH2: 3.14 ~ 3.63V		
	VOLTAGE TOLERANCE Note.3	±3.0%	±3.0%	+10,-6%	±6.0%
	LINE REGULATION	±1.0%	±1.0%	±2.0%	±1.0%
	LOAD REGULATION	±2.0%	±2.0%	±6.0%	±2.0%
	SETUP, RISE TIME	800ms, 50ms at full load			
	HOLD TIME (Typ.)	24ms at full load			
INPUT	VOLTAGE RANGE Note.6	90 ~ 264VAC	127 ~ 370VDC		
	FREQUENCY RANGE	47 ~ 63Hz			
	POWER FACTOR (Typ.)	PF>0.95/230VAC	PF>0.98/115VAC at full load		
	EFFICIENCY (Typ.)	74%			
	AC CURRENT (Typ.)	3.5A/115VAC	2A/230VAC		
	INRUSH CURRENT (Typ.)	COLD START 30A			
	LEAKAGE CURRENT	<2mA / 240VAC			
PROTECTION	OVER LOAD	105 ~ 150% rated output power			
		Protection type : Constant current limiting, recovers automatically after fault condition is removed			
	OVER VOLTAGE	CH1:5.75 ~ 6.75V	CH2:3.8 ~ 4.4V		
		Protection type : Shut down o/p voltage, re-power on to recover			
	OVER TEMPERATURE	95℃ ±5℃ (TSW1) Detect on heatsink of Q1,Q2 power transistor			
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FUNCTION	POWER GOOD / POWER FAIL(OPTIONAL)	10ms/1ms			
ENVIRONMENT	WORKING TEMP.	-10 ~ +60℃ (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			
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	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	160.6K hrs min. MIL-HDBK-217F (25℃)			
	DIMENSION	230*115*50mm (L*W*H)			
	PACKING	1.2Kg; 12pcs/15.4Kg/0.92CUFT			
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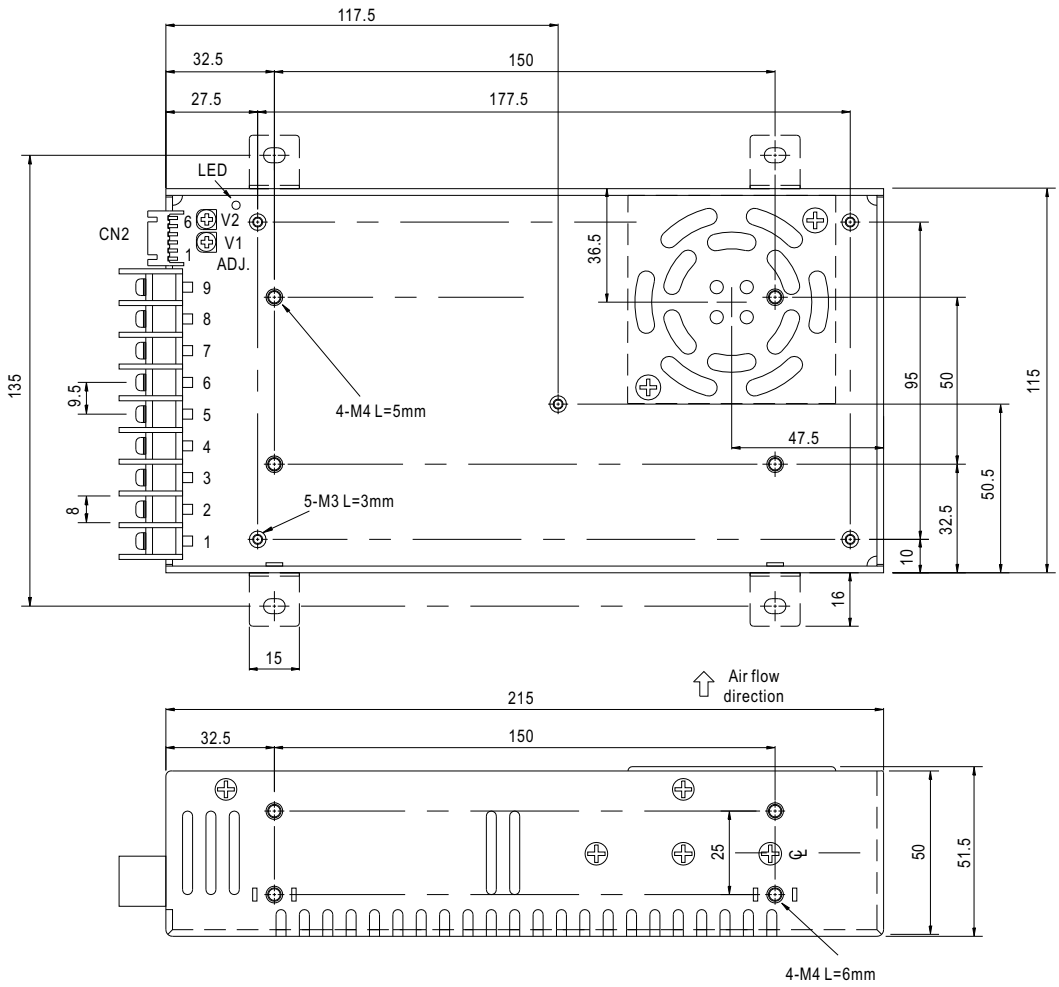
■ Mechanical Specification

Case No. 912B Unit:mm



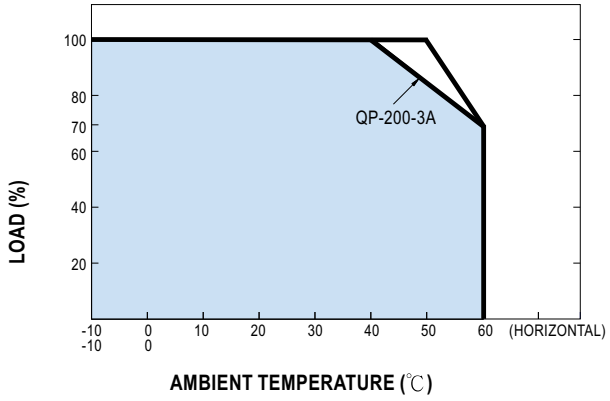
Terminal pin number assignment :

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		

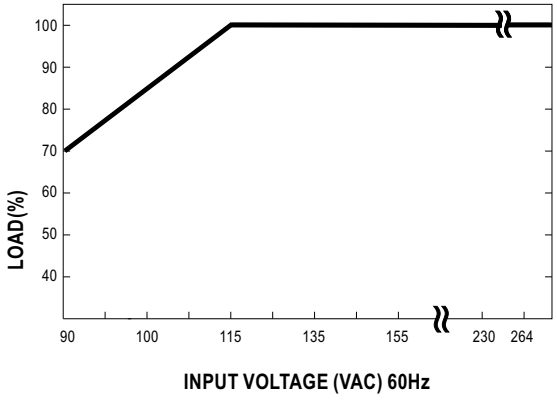
DC Output Connector (CN2) : JST S6B-XH-A-1 or equivalent

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	G		

■ Derating Curve



■ Output Derating VS Input Voltage



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