



Jameco SKU Number: 2101227

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 / Overload / 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(Optional)
- Fixed switching frequency at PFC:67KHz PWM:134KHz
- 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 UP 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	OVERLOAD	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												
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, light industry level, criteria A												
	MTBF	160.6K 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. 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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- 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(Optional)
- Fixed switching frequency at PFC:67KHz PWM:134KHz
- 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 UP 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	OVERLOAD	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											
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, light industry level, criteria A											
	MTBF	160.6K 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. 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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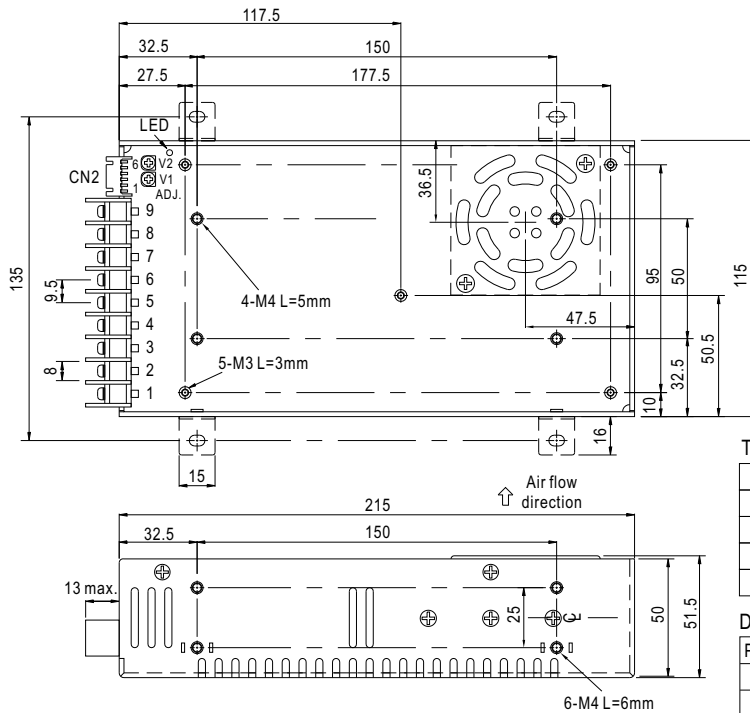


SPECIFICATION

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	OVERLOAD	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 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			
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, light industry level, criteria A			
	MTBF	160.6K 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. 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.				

Mechanical Specification

Case No. 912B Unit:mm



Terminal Pin No. Assignment

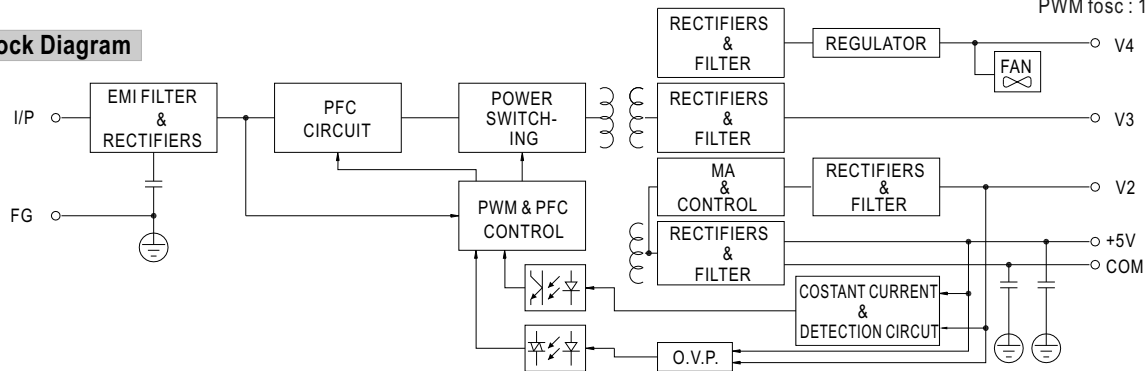
Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5	DC OUTPUT V3
2	AC/N	6	DC OUTPUT V1
3	FG $\perp$	7,8	DC OUTPUT COM
4	DC OUTPUT V4	9	DC OUTPUT V2

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

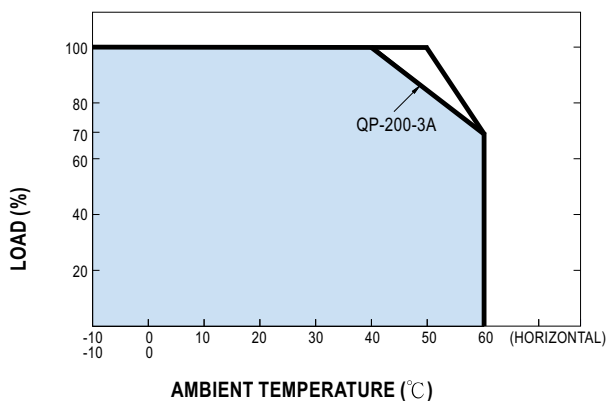
Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	V1(+S)	4	V2(-S)	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	V1(-S)	5	PF/PG		
3	V2(+S)	6	GND		

PFC fosc : 67KHz
PWM fosc : 134KHz

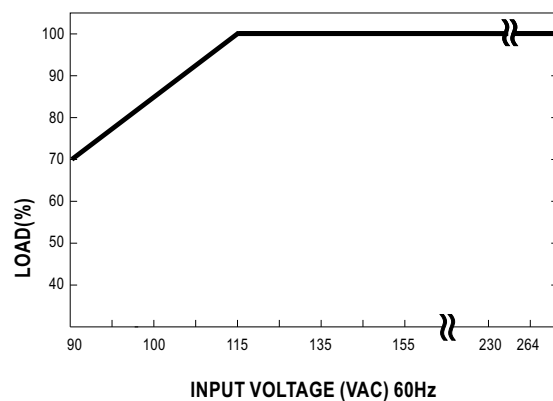
Block Diagram



Derating Curve



Output Derating VS Input Voltage



Quality Engineering Test Report

SERIES: QP-200 200W AC-DC QUAD OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A:QP-200D V1: 5V / 15A
V2: 12V / 4A
V3: 24V / 3A
V4: -12V / 0.7A

B:QP-200F V1: 5V / 15A
V2: 15V / 3A
V3: 24V / 3A
V4: -15V / 0.7A

C:QP-2003B V1: 5V / 15A
V2: 3.3V / 15A
V3: 12V / 6A
V4: -12V / 0.7A

D:QP-2003C V1: 5V / 15A
V2: 3.3V / 15A
V3: 15V / 5A
V4: -15V / 0.7A

E:QP-2003D V1: 5V / 10A
V2: 3.3V / 15A
V3: 24V / 4A
V4: -12V / 0.7A

F:QP-2003E V1: 5V / 10A
V2: 3.3V / 15A
V3: 24V / 4A
V4: -15V / 0.7A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC90~264VAC O/P:FULL LOAD	C:62VAC~267VAC	P
2	LINE REGULATION	I/P:90~264VAC SPEC: O/P:FULL LOAD A: V1: ±1% V2: ±1% V3: ±2% V4: ±1% B: V1: ±1% V2: ±1% V3: ±2% V4: ±1% C: V1: ±1% V2: ±1% V3: ±2% V4: ±1% D: V1: ±1% V2: ±1% V3: ±2% V4: ±1% E: V1: ±1% V2: ±1% V3: ±2% V4: ±1% F: V1: ±1% V2: ±1% V3: ±2% V4: ±1%	A: V1: -0% ~ +0% V2: -0% ~ +0% V3: -0.024% ~ -0.048% V4: -0% ~ +0% B: V1: -0% ~ 0% V2: -0% ~ +0% V3: -0.0246% ~ +0.07% V4: -0% ~ +0% C: V1: -0.12% ~ -0.12% V2: -0.18% ~ +0% V3: -0.052% ~ +0% V4: -0% ~ +0% D: V1: -0% ~ +0% V2: -0% ~ +0% V3: +0.039% ~ +0.039% V4: -0% ~ +0% E: V1: -0% ~ +0% V2: -0.18% ~ +0.18% V3: -0% ~ +0% V4: -0% ~ +0% F: V1: 0% ~ 0% V2: -0% ~ +0.18% V3: -0.024% ~ -0.048% V4: -0% ~ +0%	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:MIN. TO FULL LOAD A: V1: ±2% V2: ±2% V3: ±6% V4: ±2% B: V1: ±2% V2: ±2% V3: ±6% V4: ±2% C: V1: ±2% V2: ±2% V3: ±6% V4: ±2% D: V1: ±2% V2: ±2% V3: ±6% V4: ±2% E: V1: ±2% V2: ±2% V3: ±6% V4: ±2% F: V1: ±2% V2: ±2% V3: ±6% V4: ±2%	A: V1: 0% ~ +0.12% V2: -0.1% ~ +0.05% V3: -0.86% ~ +1.9% V4: -0.1% ~ +0.1% B: V1: -0.24% ~ 0.24% V2: -0.04% ~ +0.12% V3: -0.76% ~ +1.5% V4: -0.079% ~ +0.079% C: V1: -0.12% ~ +0.24% V2: -0.36% ~ +0.36% V3: +0.052% ~ +2.61% V4: -0.1% ~ +0.1% D: V1: +0.12% ~ +0.24% V2: -0.18% ~ +0.55% V3: +1.48% ~ +0.118% V4: -0.119% ~ +0.079% E: V1: -0.12% ~ +0.24% V2: -0.18% ~ +0.55% V3: +1.4% ~ +1.66% V4: -0.1% ~ +0% F: V1: -0.36% ~ +0.24% V2: -0.547% ~ +0.547% V3: +0.025% ~ +1.17% V4: -0.119% ~ +0.12%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:176~264VAC SPEC: O/P:20% TO FULL LOAD A: V1: ±3% V2: ±3% V3: +10%~-6% V4: ±6% B: V1: ±3% V2: ±3% V3: +10%~-6% V4: ±6% C: V1: ±3% V2: ±3% V3: +8%~-10% V4: ±6% D: V1: ±3% V2: ±3% V3: +10%~-6% V4: ±6% E: V1: ±3% V2: ±3% V3: +10%~-6% V4: ±6% F: V1: ±3% V2: ±3% V3: +10%~-6% V4: ±6%	A: V1: -0.38% ~ +0.26% V2: -0.158% ~ +0.09% V3: -2.58% ~ +4.9% V4: -0.21% ~ +0.05% B: V1: -0.49% ~ +0.119% V2: -0.166% ~ +0.039% V3: -2.7% ~ +6.87% V4: -0.126% ~ +0.079% C: V1: -0.38% ~ +0.119% V2: -0.756% ~ +0.36% V3: -6.924% ~ +5.359% V4: -2.12% ~ +0.05% D: V1: -0.38% ~ +0.62% V2: -0.76% ~ +0.36% V3: -4.14% ~ +5.37% V4: -0.16% ~ +2% E: V1: -0.38% ~ +0.5% V2: -0.93% ~ +2% V3: +4.46% ~ +5.2% V4: -1.57% ~ +0.05% F: V1: -0.499% ~ +0.119% V2: -0.94% ~ +0.18% V3: -4.35% ~ -2.78% V4: -0.21% ~ +0.086%	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION		RESULT	VERDICT
5	RIPPLE&NOISE	I/P:230VAC O/P:FULL LOAD	SPEC: A: V1: 100mV V2: 150mV V3: 150mV V4: 150mV B: V1: 100mV V2: 150mV V3: 150mV V4: 150mV O/P:FULL LOAD C: V1: 100mV V2: 100mV V3: 150mV V4: 150mV D: V1: 100mV V2: 100mV V3: 150mV V4: 150mV E: V1: 100mV V2: 100mV V3: 150mV V4: 150mV F: V1: 100mV V2: 100mV V3: 150mV V4: 150mV	A: V1: 34mV V2: 50mV V3: 18mV V4: 17mV B: V1: 50mV V2: 63mV V3: 26mV V4: 29mV C: V1: 49mV V2: 43mV V3: 37mV V4: 43mV D: V1: 35mV V2: 55mV V3: 10mV V4: 10mV E: V1: 37mV V2: 48mV V3: 27mV V4: 20mV F: V1: 40mV V2: 45mV V3: 24mV V4: 15mV	P
6	AC INPUT CURRENT	I/P:230VAC O/P:FULL LOAD	SPEC:2A	C:1.232A	P
7	MAX. INRUSH CURREN	I/P:230VAC O/P: FULL LOAD	SPEC:45A	C:36.5A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC O/P:MIN. LOAD	SPEC:CH1,2:+10,-5%	A: CH1:4.359V~5.601V CH2:10.36V~16.135V B: CH1:4.375V~5.54V CH2:12.368V~17.568V C: CH1:4.11V~5.76V CH2:3.11V~3.76V D: CH1:4.42V~5.67V CH2:3.09V~3.75V E: CH1:4.373V~5.658V CH2:3.158V~3.803V F: CH1:4.51V~5.68V CH2:3.14V~7.16V	P
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD	SPEC:800mS	C: 19mS	P
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD	SPEC:16mS	C: 41mS	P
11	EFFICIENCY	I/P:230VAC O/P:FULL LOAD	SPEC: A:75% B:75% C:72% D:72% E:74% F:74%	A:75% B:78% C:73% D:75% E:76% F:76%	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P:TESTING	SPEC:105%~135%	A:121% B:113% C:117% E:123.7% F:121%	OD:120.9% P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT																																								
13	OVER VOLTAGE PROTECTION	I/P:230VAC SPEC:CH1:5.75~6.75V O/P:FULL LOAD CH2:3.6~4.3V	A : CH1:6.38V CH2:3.9V B : CH1:6.23V CH2:4.0V C : CH1:6.27V CH2:3.9V D : CH1:6.28V CH2:4.1V E : CH1:6.21V CH2:3.8V F : CH1:6.32V CH2:4.0V	P																																								
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<2mA N-FG--<2mA	C: L-FG:0.8mA N-FG:0.8mA	P																																								
15	INSULATION RESISTANCE	SPEC: I/P-O/P: 500VDC/100M Ohms MIN. I/P-FG: 500VDC/100M Ohms MIN. O/P-FG: 500VDC/100M Ohms MIN.	C: O/P-FG >100M Ohms I/P-O/P >100M Ohms I/P-FG >100M Ohms	P																																								
16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3KVAC/ 1 min.(10mA CUT-OFF) I/P - FG: 1.5VAC/ 1 min.(10mA CUT-OFF) O/P - FG: 0.5KVAC/ 1 min.(10mA CUT-OFF)	C: I/P-O/P :6.53mA I/P-FG :5.34mA O/P-FG :7.51mA	P																																								
17	BURN-IN TEST	I/P: 230VAC O/P: FULL LOAD TA:24.7°C BURN-IN DURATION : 16 hrs	C:NON BREAK	P																																								
18	ENVIRONMENT TEST (SAMPLE A:)	HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:49.9°C	AFTER 3_hrs NON BREAK	P																																								
19	TEMPERATURE RISE TEST T rise OF PARTS	C: I/P :230VAC AFTER 16 hr BURN-IN O/P :FULL LOAD TA:24.7°C <table><tr><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr><tr><td>BD1</td><td>BRIDGE DIODE</td><td>49.2°C</td><td>24.5°C</td></tr><tr><td>Q2</td><td>MAIN TRANSISTOR</td><td>52.0°C</td><td>27.3°C</td></tr><tr><td>T1</td><td>MAIN TRANSFORMER WIRE</td><td>57.7°C</td><td>33.0°C</td></tr><tr><td>D81</td><td>O/P DIODE</td><td>57.9°C</td><td>33.2°C</td></tr><tr><td>D51</td><td>O/P DIODE</td><td>70.2°C</td><td>45.5°C</td></tr><tr><td>C57</td><td>O/P FILTER CAPACITOR</td><td>46.0°C</td><td>21.3°C</td></tr><tr><td>L1</td><td>O/P CHOCK</td><td>52.0°C</td><td>27.3°C</td></tr><tr><td>C5</td><td>I/P FILTER CAPACITOR</td><td>40.7°C</td><td>16.0°C</td></tr><tr><td>LF2</td><td>LIME FILTER TRANSFORMER</td><td>40.5°C</td><td>15.8°C</td></tr></table>		POSITION	P/N	TEMP	T rise	BD1	BRIDGE DIODE	49.2°C	24.5°C	Q2	MAIN TRANSISTOR	52.0°C	27.3°C	T1	MAIN TRANSFORMER WIRE	57.7°C	33.0°C	D81	O/P DIODE	57.9°C	33.2°C	D51	O/P DIODE	70.2°C	45.5°C	C57	O/P FILTER CAPACITOR	46.0°C	21.3°C	L1	O/P CHOCK	52.0°C	27.3°C	C5	I/P FILTER CAPACITOR	40.7°C	16.0°C	LF2	LIME FILTER TRANSFORMER	40.5°C	15.8°C	P
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20	LIFE CYCLE	A: SUPPOSE C57 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc57:46.3°C Life: 355034hrs I/P:230VAC O/P:FULL LOAD Ta:50°C Tc57:70.4°C Life: 66770hrs		P																																								
21	CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)	C: FUSE :5A/250V BRIDGE DIODE :KBJ608G LINE FILTER :TF-730 EI-33 TRANSFOMER TF726 EER-35 POWER SWITCHER :2SK2850 5A/900V OUTPUT DIODE :PA806C03 30A/30V OUTPUT CAPACITOR :RUBYCON 2200uF/10V YXL 105°C INPUT CAPACITOR :220uF/400V HITACH 85°C P.C.B :QP-200 FR-4 20Z-DS																																										
DATE	SAMPLE	TEST RESULT	TEST	APPROVAL																																								
20010205	RD SAMPLE QP-200-3B QP-200-3C QP-200-3D QP-200D QP-200F	PASS	VINCENT	Max Lin																																								
20010308	PRODUCTION SAMPLE A102D29 QP-200-3B QP-200-3C QP-200-3D QP-200D QP-200F	PASS	VINCENT	Max Lin																																								
20010709	PRODUCTION SAMPLE A106B21 QP-200D QP-200F	PASS	VINCENT	Max Lin																																								