



#### ■ Features :

- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- LED indicator for power on
- 100% full load burn-in test
- All using 105°C long life electrolytic capacitors
- Withstand 300VAC surge input for 5 second
- High operating temperature up to 70°C
- Withstand 5G vibration test
- High efficiency, long life and high reliability
- 3 years warranty

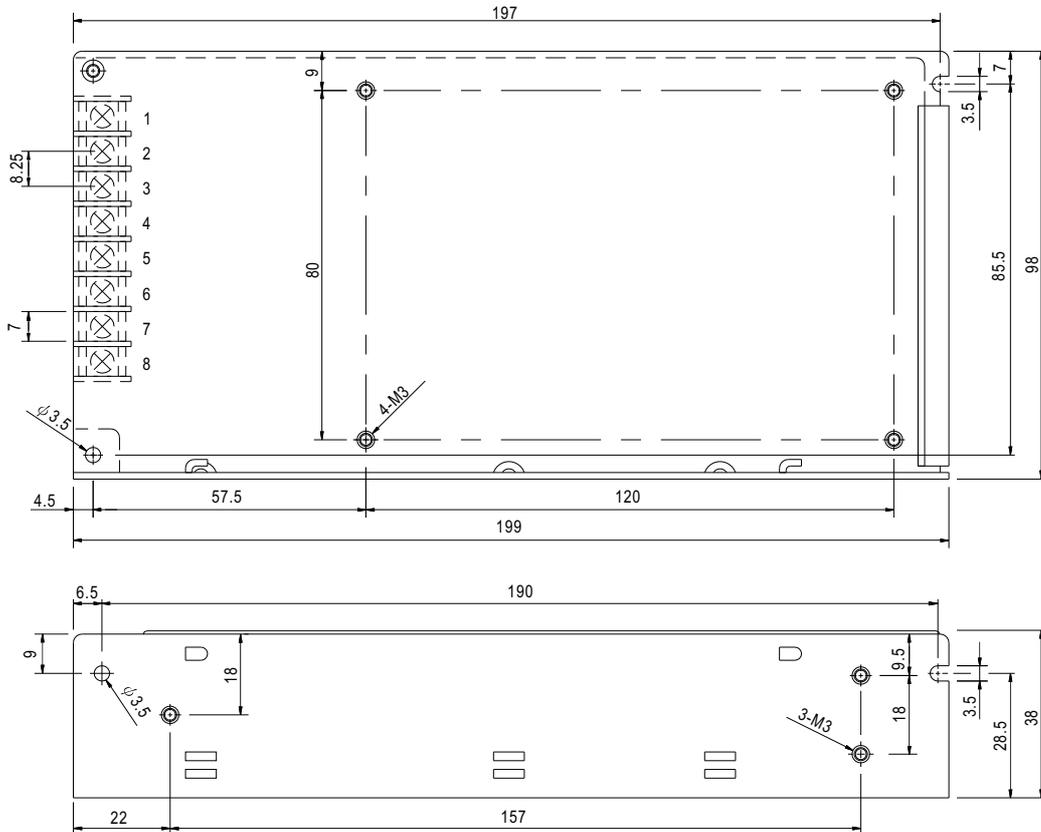


#### SPECIFICATION

MODEL	RQ-125B				RQ-125C				RQ-125D					
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	
	DC VOLTAGE	5V	12V	-5V	-12V	5V	15V	-5V	-15V	5V	12V	24V	-12V	
	RATED CURRENT	11A	4.5A	1A	0.5A	10A	4A	1A	0.5A	8A	2.5A	2A	0.5A	
	CURRENT RANGE <small>Note.6</small>	2 ~ 12A	0.5 ~ 4.5A	0.1 ~ 1A	0 ~ 1A	2 ~ 12A	0.5 ~ 4A	0.1 ~ 1A	0 ~ 1A	2 ~ 12A	0.5 ~ 4A	0.1 ~ 2.5A	0 ~ 1A	
	RATED POWER <small>Note.6</small>	120W				122.5W				124W				
	RIPPLE & NOISE (max.) <small>Note.2</small>	80mVp-p	120mVp-p	80mVp-p	80mVp-p	80mVp-p	120mVp-p	80mVp-p	80mVp-p	80mVp-p	80mVp-p	120mVp-p	150mVp-p	80mVp-p
	VOLTAGE ADJ. RANGE	CH1: 4.75 ~ 5.5V				CH1: 4.75 ~ 5.5V				CH1: 4.75 ~ 5.5V				
	VOLTAGE TOLERANCE <small>Note.3</small>	±2.0%	+8,-3%	+6,-10%	±5.0%	±2.0%	+8,-3%	+6,-10%	±5.0%	±2.0%	+8,-3%	+8.0%	±5.0%	
	LINE REGULATION <small>Note.4</small>	±0.5%	±1.0%	±1.0%	±1.0%	±0.5%	±1.0%	±1.0%	±1.0%	±0.5%	±1.0%	±1.0%	±1.0%	
	LOAD REGULATION <small>Note.5</small>	±1.0%	±3.0%	±6.0%	±2.0%	±1.0%	±3.0%	±6.0%	±2.0%	±1.0%	±3.0%	±5.0%	±2.0%	
SETUP, RISE TIME	500ms, 20ms/230VAC				1200ms, 30ms/115VAC at full load									
HOLD UP TIME (Typ.)	25ms/230VAC				30ms/115VAC at full load									
INPUT	VOLTAGE RANGE	88 ~ 132VAC / 176 ~ 264VAC selected by switch				248 ~ 373VDC(Withstand 300VAC surge for 5sec. Without damage)								
	FREQUENCY RANGE	47 ~ 63Hz												
	EFFICIENCY (Typ.)	79%				80%				82%				
	AC CURRENT (Typ.)	3A/115VAC		2A/230VAC										
	INRUSH CURRENT (Typ.)	COLD START 40A/230VAC												
	LEAKAGE CURRENT	<2mA / 240VAC												
PROTECTION	OVERLOAD	110 ~ 150% rated output power				Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	OVER VOLTAGE	CH1: 5.75 ~ 6.75V				Protection type : Hiccup mode, recovers automatically after fault condition is removed								
ENVIRONMENT	WORKING TEMP.	-25 ~ +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 ~ 50°C) on +5V output												
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes												
SAFETY & EMC (Note 7)	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, EN61000-6-2 (EN50082-2) heavy industry level, criteria A												
OTHERS	MTBF	203.1Khrs min. MIL-HDBK-217F (25°C)												
	DIMENSION	199*98*38mm (L*W*H)												
	PACKING	0.7Kg, 20pcs/14Kg/0.8CUFT												
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. Line regulation is measured from low line to high line at rated load.</li> <li>5. Load regulation is measured from 20% to 100% rated load, and other output at 60% rated load.</li> <li>6. Each output can work within current range. But total output power can't exceed rated output power.</li> <li>7. 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>8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply very quickly may lead to increase of the set up time.</li> </ol>													

■ Mechanical Specification

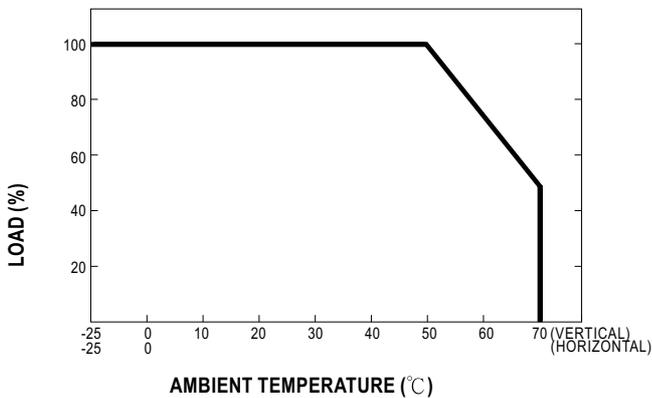
Case No. 902 Unit:mm



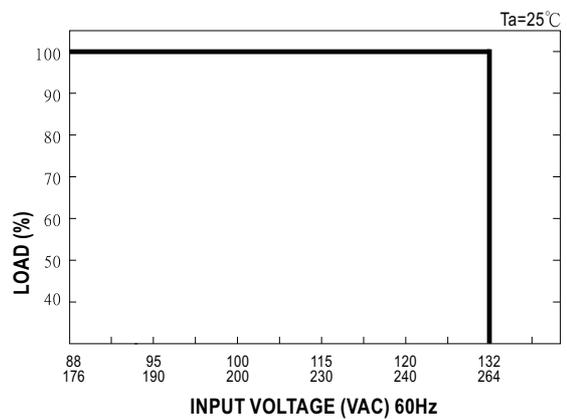
Terminal Pin No. Assignment

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

■ Derating Curve



■ Static Characteristics



MODEL : RQ-125C

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 80 mVp-p (Max) V2: 120 mVp-p (Max) V3: 80 mVp-p (Max) V4: 80 mVp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	V1: 5 mVp-p (Max) V2:14 mVp-p (Max) V3: 20 mVp-p (Max) V4: 11 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 4.75 V- 5.5 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	4.65V-5.55 V/230VAC 4.65V-5.55 V/115VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: -2 %~ 2 % (Max) V2: 8 %~ -3 % (Max) V3: 6 %~ -10 % (Max) V4: 5 %~ -5 % (Max)	I/P: 176 VAC / 264 VAC O/P:FULL/ MIN 40 % LOAD Ta:25°C	V1: 0.3 %~ -0.3 % V2: 1.6 %~ -1.6 % V3: 5 %~ -5 % V4: 0.05 %~ -0.05 %	P
4	LINE REGULATION	V1:0.5 %~ 0.5 % (Max) V2: -1 %~ 1 % (Max) V3: -1 %~ 1 % (Max) V4: -1 %~ 1 % (Max)	I/P: 176 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0 %~ -0.15 % V2: 0 %~ -0.05 % V3: 0 %~ 0 % V4: 0 %~ -0.05 %	P
5	LOAD REGULATION	V1: -1 %~ 1 % (Max) V2: -3 %~ 3 % (Max) V3: -6 %~ 6 % (Max) V4: -2 %~ 2 % (Max)	I/P: 230 VAC O/P:FULL -MIN LOAD Ta:25°C	V1: 0.15 %~ -0.15 % V2: 1.1 %~ -1 % V3: 0 %~ -2.2 % V4: 0 %~ -0.05 %	P
6	CROSS REGULATION	V1: -1 %~ 1 % (Max) V2: -3 %~ 3 % (Max) V3: -6 %~ 6 % (Max) V4: -2 %~ 2 % (Max)	I/P: 230 VAC O/P: Testing O/P 60%LOAD Other O/P 40%LOAD Change Ta:25°C	V1: 0 %~ 0 % V2: 1.8 %~ -1.3 % V3: 3.7 %~ -2.6 % V4: 0.05 %~ 0 %	P
7	SET UP TIME	230 VAC/ 500 ms (Max) 115 VAC/ 1200 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 165 ms 115 VAC/ 90 ms	P
8	RISE TIME	230 VAC/ 20 ms (Max) 115 VAC/ 30 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 8 ms 115 VAC/ 8 ms	P
9	HOLD UP TIME	230 VAC/ 20 ms(TYP) 115 VAC/ 10 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 36 ms 115 VAC/ 33 ms	P
10	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: < 5 %	P
11	DYNAMIC LOAD	V1: 1000 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	136 mVp-p	P

**INPUT FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	176 VAC~ 264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	115 V~ 264 V	P
			I/P: LOW-LINE-3V= 173 V HIGH-LINE+15%= 300 V O/P:FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN ( AC POWER ON/OFF NO DAMAGE )	TEST: OK	
2	INPUT FREQUENCY RANGE	47 HZ ~ 63 HZ NO DAMAGE OSC	I/P: 176 VAC ~ 264 VAC O/P:FULL-MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	80 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	80.1 %	P
4	INPUT CURRENT	230 V/ 2 A(TYP) 115 V/ 3 A(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I =1.3 A/230 VAC I =2.3 A/115 VAC	P
5	INRUSH CURRENT	230 V/ 50 A(TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 34 A/230 VAC	P
6	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.62 mA N-FG: 0.66 mA	P

**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	110 %~ 150 %	I/P: 230 VAC I/P: 115 VAC O/P: TESTING Ta:25°C	116.5%/230VAC 116.5%/115VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 5.75 V~ 6.75 V	I/P: 230 VAC I/P: 115 VAC O/P: MIN LOAD Ta:25°C	5.9V/ 230 VAC 5.9V/ 115 VAC Hiccup Model	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC 132VAC O/P: Full LOAD Ta:25°C	NO DAMAGE Hiccup Mode	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : RQ-125D 1. ROOM AMBIENT BURN-IN : 1 HRS I/P: 230 VAC O/P: Full LOAD Ta= 31.3 °C 2. HIGH AMBIENT BURN-IN : 3 HRS I/P: 230 VAC O/P: Full LOAD Ta= 52.0 °C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 230 VAC O/P: 119 % LOAD Ta:25°C	TEST : OK	P
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: 100 % LOAD Ta= -25 °C	TEST : OK	P
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50°C NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta=50°C HUMIDITY= 95 %R.H	TEST : OK	P
5	TEMPERATURE COEFFICIENT	± 0.03 %(0-50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.01 %(0-50°C)	P
6	VIBRATION TEST	1 Set Operating at I/P: 230 VAC NO LOAD (1) Waveform: Sine Wave (2) Frequency:10-500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:5G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25°C		TEST : OK	P

**SAFETY TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3 KVAC/min I/P-FG: 1.5 KVAC/min O/P-FG: 0.5 KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C	I/P-O/P: 5.8 mA I/P-FG: 4.2 mA O/P-FG: 2.9 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P: 5 G Ω I/P-FG: 4G Ω O/P-FG: 5G Ω NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	54 mΩ	P
4	APPROVAL	TUV: Certificate NO : R50046942 UL: File NO : E183223			P

**E.M.C TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	P
4	E.S.D	EN61000-4-2 INDUSTRY AIR:8KV / Contact: 4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
5	E.F.T	EN61000-4-4 INDUSTRY INPUT:2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 INDUSTRY L-N: 2KV L,N-PE: 4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

**M.T.B.F & LIFE CYCLE CALCULATION**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C 62 IS THE MOST CRITICAL COMPONENT I/P: 230 VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 110070 HRS I/P: 230 VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 30575 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 203.1K HRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) <b>Peak Voltage</b>	Q 1 Rated 2SK2082 : 900 V 9 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 524 V (2) 576 V (3) 692 V	P
2	Diode Peak <b>Voltage</b>	D 60 Rated D83-004 : 40 V 30 A  D 55 Rated BYQ-28X-200: 200V 10A  D 50 Rated BYQ28X-200:200V 10A  D 52 Rated HER303: 200V 3A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short  (1)Full Load Turn on (2) Full Load (3)Output Short  (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C  (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 26.4 V (2) 32.3 V (3) 29.6 V  (1) 53.6 V (2) 66.8 V (3) 61.2 V  (1) 27.8 V (2) 29.2 V (3) 28.1 V  (1) 146 V (2) 133 V (3) 137 V	P
3	Clamp Diode Peak <b>Voltage</b>	C 7 Rated HER208: 1K V 2A	I/P:High-Line +3V = 267 V O/P: (1)Full Load (2) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 578 V (2) 578 V	P
4	Input Capacitor <b>Voltage</b>	C 5 Rated :330 u / 200 V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta:25°C	(1) 192 V (2) 192 V (3) 190 V	P
5	Control IC <b>Voltage Test</b>	U 1 Rated 1203P : 16V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta:25°C	(1) 13.4 V (2) 13.9 V (3) 13.2 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2004/2/18	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2004/8/2	PRODUCT SAMPLE A407B37	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023