

■ Features :

- Universal AC input/Full range
- Low leakage current<200uA
- Protections: Short circuit / Overload / Over voltage
- Free air convection for rated power and 23.5CFM forced air convection for peak load
- UL60601-1/IEC60601-1/EN60601-1 medical safety approved
- Fixed switching frequency at 65KHz
- 3 years warranty



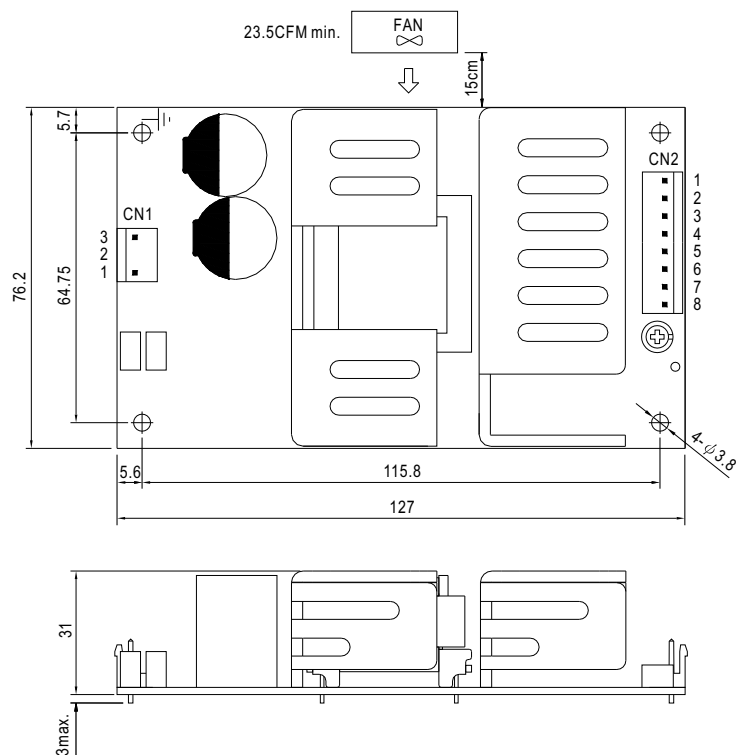
SPECIFICATION

MODEL		RPD-75A		RPD-75B	
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH1	CH2
	DC VOLTAGE	5V	12V	5V	24V
	RATED CURRENT	7A	3A	5A	2A
	CURRENT RANGE	1 ~ 9.5A	0.3 ~ 4A	1 ~ 6.8A	0.2 ~ 2.7A
	RATED POWER	71W		73W	
	PEAK LOAD (23.5CFM)	95.5W		98.8W	
	RIPPLE & NOISE (max.) Note.2	80mVp-p	120mVp-p	80mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	CH1: 4.75 ~ 5.5V		CH1: 4.75 ~ 5.5V	
	VOLTAGE TOLERANCE Note.3	±2.0%	±6.0%	±2.0%	±6.0%
	LINE REGULATION	±0.5%	±1.0%	±0.5%	±1.0%
	LOAD REGULATION	±1.5%	±3.0%	±1.5%	±3.0%
	SETUP, RISE TIME	500ms, 30ms/230VAC 500ms, 30ms/115VAC at full load			
	HOLD UP TIME (Typ.)	80ms/230VAC 20ms/115VAC at full load			
INPUT	VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC			
	FREQUENCY RANGE	47 ~ 63Hz			
	EFFICIENCY (Typ.)	77%		79%	
	AC CURRENT (Typ.)	1.5A/115VAC 1A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 25A/115VAC 50A/230VAC			
	LEAKAGE CURRENT	Earth leakage current <200uA / 264VAC, Patient leakage current <100uA/264VAC			
PROTECTION	OVERLOAD	140 ~ 180% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed			
	OVER VOLTAGE	CH1: 5.75 ~ 6.75V Protection type : Shut down o/p voltage, re-power on to recover			
ENVIRONMENT	WORKING TEMP.	-20 ~ +70℃ (Refer to output load derating curve)			
	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 45℃)			
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes			
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60601-1, TUV EN60601-1, IEC60601-1 approved			
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC I/P-FG:1.5KVAC O/P-FG:1.5KVAC			
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC			
	EMI CONDUCTION & RADIATION	Compliance to EN55011 (CISPR11), 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, EN60601-1-2, EN61000-6-2, EN61204-3, heavy industry level, EN61204-3 medical level, criteria A			
OTHERS	MTBF	569.9K hrs min. MIL-HDBK-217F (25℃)			
	DIMENSION	127*76.2*31mm (L*W*H)			
	PACKING	0.25Kg; 63pcs/16.7Kg/1.35CUFT			
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. 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. 5. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.				

75W Dual Output Medical Type

■ Mechanical Specification

Unit:mm



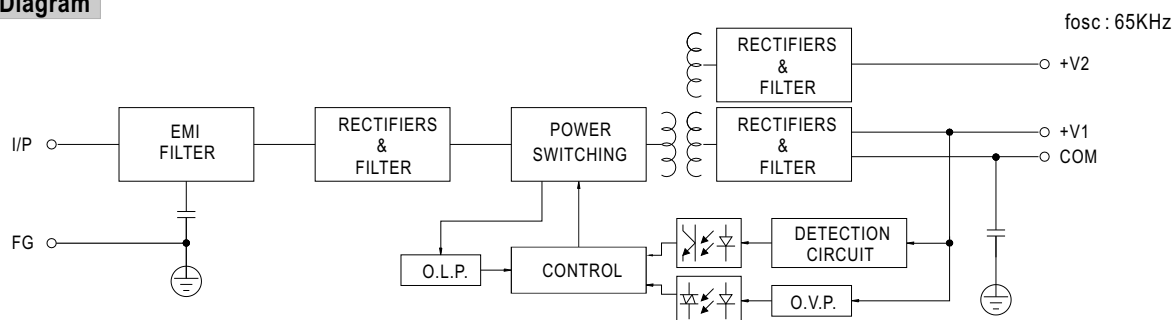
AC Input Connector (CN1) : JST B3P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	AC/N	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2	No Pin		
3	AC/L		

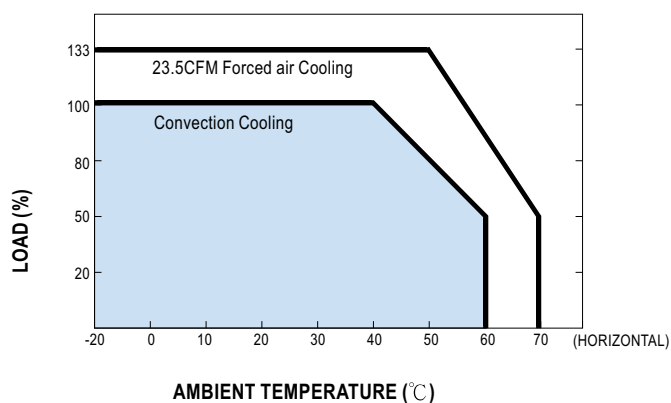
DC Output Connector (CN2) : JST B8P-VH or equivalent

DC Output Connector (CN2): JST BSH or equivalent	
Pin No.	Assignment
1,2	V1
3,4,5	COM
6,7	V2
8	NC

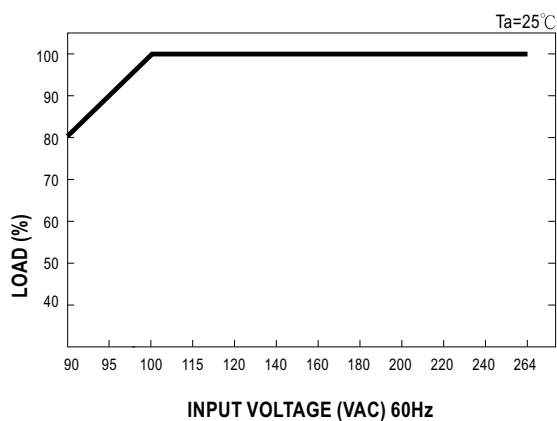
■ Block Diagram



Derating Curve



■ Output Derating VS Input Voltage



MODEL : RPD-75A

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 80 mVp-p (Max) V2: 120 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 15 mVp-p (Max) V2: 18 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	4.57V~ 5.83 V / 230VAC 4.57V~ 5.83 V / 115VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 2 %~ -2 % (Max) V2: 6 %~ -6 % (Max)	I/P: 100 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 0.1 %~ -0.1 % V2: 2.5 %~ -2.5 %	P
4	LINE REGULATION	V1: 0.5 %~ -0.5 % (Max) V2: 1 %~ -1 % (Max)	I/P: 100 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0 %~ 0 % V2: 0.24 %~ -0.24 %	P
5	LOAD REGULATION	V1: 1.5 %~ -1.5 % (Max) V2: 3 %~ -3 % (Max)%	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0 %~ 0 % V2: 0.8 %~ -0.8 %	P
6	CROSS REGULATION	V1: 1.5 %~ -1.5 % (Max) V2: 3 %~ -3 % (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: 2.1 %~ -2.1 %	P
7	SET UP TIME	230VAC: 500 ms (Max) 115 VAC: 500 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 152 ms 115VAC/ 135 ms	P
8	RISE TIME	230VAC: 30 ms (Max) 115VAC: 30 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 4 ms 115VAC/ 4 ms	P
9	HOLD UP TIME	230VAC: 90 ms (TYP) 115VAC: 20 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 100.6 ms 115VAC/ 21.2 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	205 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	52V~264V	P
			I/P: LOW-LINE-3V= 87V 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	47HZ ~63 HZ NO DAMAGE OSC	I/P: 90VAC ~ 264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	77 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	77.08 %	P
4	INPUT CURRENT	230V/ 1 A (TYP) 115V/ 1.5 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.83 A/ 230 VAC I = 1.42 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 50 A (TYP) 115V/ 25 A(TYP) COLD START	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 37 A/ 230 VAC I = 18 A/ 115 VAC	P
6	LEAKAGE CURRENT	< 200 uA / 264 VAC	I/P: 264 VAC O/P:Min LOAD Ta:25°C	L-FG: 111 uA N-FG: 111 uA	P
		< 100 uA/264 VAC for patient	I/P: 264 VAC O/P:Min LOAD Ta:25°C	L-FG: 38 uA N-FG 38 uA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	140%~ 180%	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	165%/ 230 VAC 164%/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 5.75V~ 6.75V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	6.3V/ 230 VAC 6.3V/ 115 VAC Shunt down Re- power ON	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC 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 : RPD-75A WITH FAN 1. ROOM AMBIENT BURN-IN : 1.5 HRS I/P: 230VAC O/P: FULL LOAD Ta=29.6 °C 2. HIGH AMBIENT BURN-IN : 1 HRS I/P: 230VAC O/P: FULL LOAD Ta=54.6 °C <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 29.6 °C</th><th>HIGH AMBIENT Ta= 54.6 °C</th></tr><tr><td>1</td><td>BD1</td><td>US4K80 4A/800V SHI</td><td>47.1°C</td><td>70.1°C</td></tr><tr><td>2</td><td>C6</td><td>100U/400V NCC 105°C</td><td>37.9°C</td><td>60.7°C</td></tr><tr><td>3</td><td>LF2</td><td>TR-719</td><td>47.3°C</td><td>69.9°C</td></tr><tr><td>4</td><td>C36</td><td>47U/63V RUB 105°C YXF</td><td>41.3°C</td><td>64.2°C</td></tr><tr><td>5</td><td>Q1</td><td>STP9NK70ZFP 7.5A/700V</td><td>47.0°C</td><td>71.1°C</td></tr><tr><td>6</td><td>ZD1</td><td>P6KE250A LT</td><td>51.2°C</td><td>72.8°C</td></tr><tr><td>7</td><td>D1</td><td>HER308 3A/1KV REC</td><td>54.3°C</td><td>77.1°C</td></tr><tr><td>8</td><td>T1 COIL</td><td>TF-1522</td><td>61.0°C</td><td>83.3°C</td></tr><tr><td>9</td><td>D100</td><td>STPS2045CT 20A/45V ST</td><td>58.4°C</td><td>79.4°C</td></tr><tr><td>10</td><td>D200</td><td>SF10SC6 10A/60V SHI</td><td>64.8°C</td><td>83.3°C</td></tr><tr><td>11</td><td>C105</td><td>22000U/16V RUB 105°C</td><td>43.8°C</td><td>65.7°C</td></tr><tr><td>12</td><td>C205</td><td>1000U/16V RUB 105°C ZLH</td><td>55.3°C</td><td>77.6°C</td></tr><tr><td>13</td><td>U1</td><td>NCP1230D165R2 ON</td><td>38.1°C</td><td>61.0°C</td></tr><tr><td>14</td><td>R205</td><td>150Ω/2W R/MO</td><td>62.9°C</td><td>85.8°C</td></tr></table>			NO	Position	P/N	ROOM AMBIENT Ta= 29.6 °C	HIGH AMBIENT Ta= 54.6 °C	1	BD1	US4K80 4A/800V SHI	47.1°C	70.1°C	2	C6	100U/400V NCC 105°C	37.9°C	60.7°C	3	LF2	TR-719	47.3°C	69.9°C	4	C36	47U/63V RUB 105°C YXF	41.3°C	64.2°C	5	Q1	STP9NK70ZFP 7.5A/700V	47.0°C	71.1°C	6	ZD1	P6KE250A LT	51.2°C	72.8°C	7	D1	HER308 3A/1KV REC	54.3°C	77.1°C	8	T1 COIL	TF-1522	61.0°C	83.3°C	9	D100	STPS2045CT 20A/45V ST	58.4°C	79.4°C	10	D200	SF10SC6 10A/60V SHI	64.8°C	83.3°C	11	C105	22000U/16V RUB 105°C	43.8°C	65.7°C	12	C205	1000U/16V RUB 105°C ZLH	55.3°C	77.6°C	13	U1	NCP1230D165R2 ON	38.1°C	61.0°C	14	R205	150Ω/2W R/MO	62.9°C	85.8°C	P
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P:V1=11A V2=5A 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= -20°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	± 0.003 %(0-50°C)	P																																																																											
6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10-500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:2G (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: 4 KVAC/min I/P-FG: 1.5 KVAC/min O/P-FG: 1.5 KVAC/min	I/P-O/P: 4.2 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 1.8 KVAC/min Ta:25°C	I/P-O/P: 2.01 mA I/P-FG: 1.29 mA O/P-FG: 1.34 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: 6 GΩ I/P-FG: 13 GΩ O/P-FG: 14 GΩ NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO : TA 50096088 UL: File NO : E227340			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 MEDICAL AIR:8KV / Contact:6KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
5	E.F.T	EN61000-4-4 MEDICAL INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 MEDICAL L-N :1KV L,N-PE:2KV	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 105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME=997838HRS I/P: 230VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME=265547HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 569.9K HRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated STP9NK70ZFP : 700V 7.5A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25℃	(1) 692 V (2) 715 V	P
2	Diode Peak Voltage	D100 Rated STPS2045CT : 45V 20A D200 Rated SF10SC6 : 60V 10 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short Ta:25℃	(1) 38.8 V (2) 32.6 V (1) 50 V (2) 42 V	P
3	Clamp Diode Peak Voltage	D1 Rated HER308 : 1000V 3A	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25℃	(1) 630 V	P
4	Input Capacitor Voltage	C5 Rated : 100u / 400V/ 105℃	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℃	(1) 384 V (2) 388 V (3) 388 V	P
5	Control IC Voltage Test	U1 Rated 1230D165R2G : 18V	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℃	(1) 12.84 V (2) 11.69 V (3) 12.84 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2006/9/5	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2006/11/14	PRODUCT SAMPLE W0610A20	PASS	VINCENT TSENG	MAX LIN
2007/5/7	PRODUCT SAMPLE W0703A31	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023