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Jameco Part Number 194897



## Declaration of RoHS Conformity

To minimize the environmental impact and take more responsibility to the earth we live, MEAN WELL hereby confirms that the following product series comply with Directive 2002/95/EC of the European Parliament - RoHS (Restriction of Hazardous Substances).

### Content of Compliance

Lead	<0.1 % by weight (1000 ppm)
Mercury	<0.1 % by weight (1000 ppm)
Cadmium	<0.01 % by weight (100 ppm)
Hexavalent Chrome (Cr <sup>+6</sup> )	<0.1 % by weight (1000 ppm)
PBBs	<0.1 % by weight (1000 ppm)
PBDEs	<0.1 % by weight (1000 ppm)

### Product Series

Please refer to the attached list for details.

### Delivery

**The actual delivery date for RoHS compliance products will depend on our inventory status.**

Please contact our sales representatives for details.

### How to Recognize

The serial number on each PSU originally was Cxxxxxxxx and right now will be changed to Rxxxxxxxx or Exxxxxxxx (or add "R" for serial number that only specify the production weeks) for RoHS compliance products for the ease of identification.

Jerry Lin / President  
MEAN WELL Enterprises Co., Ltd.

<b>Product Family</b>	<b>Series</b>
<b>G3</b>	RS-25/35/50/75/100/150, RD-35/50/65/85/125, RID-50/65/85/125, RT-50/65/85/125, RQ-50/65/85/125
<b>G2</b>	S-25/40/60/100F/150/240, T-40, D/ID/T/IT/Q/IQ-60, D/T/Q-120, SC-150
<b>PFC</b>	SP-75/100/150/200/320/480/500/750, USP-225/350, TP-75/100/150, QP-100/150/200/320/375
<b>AD</b>	ADS-55/155, AD-55/155, ADD-55/155
<b>CL/PL</b>	CLG-60/100, PLN-30/60/100
<b>DIN</b>	MDR-20/40/60, DR-30/45/60/75/100/120, DRH-120, DRP-240/480/480S, DRT-240/480/960, DR-RDN20, DR-UPS40
<b>Modular</b>	MP-450/650/1K0, MS-75/150/300, MD-100
<b>Parallel</b>	PSP-500/600/1000/1500, RSP-1000/1500, RCP-1000, RCP-1U
<b>Open Frame</b>	NFM-05/10/15/20, PM-05/10/15/20, PS/PD-25, PS-35, PS/PD/PT-45, PS/PD/PT-65, RPD/RPT-65, PD-110, PQ-100, PPQ-100, PPS/PPT-125, LPS-50/75/100, LPP-100/150, ASP-150, PPS-200, PID-250, MPS-30, MPS/MPD/MPT-45, RPS/RPD/RPT-60, MPS/MPD/MPT-65, RPS/RPD/RPT-75, MPS/MPD/MPT/MPQ-120, MPS/MPD/MPT/MPQ-200
<b>Charger</b>	GC-30, PA/PB/PS-120, ESC/ESP-120, ESC/ESP-240, PB-300/360
<b>Adaptor</b>	GS-06/15/18/25, ES-18/25, P25, P30, P40, P50, P66, U65S, MES-30/50, ATX-100, AS-120P
<b>PC/IPC Power</b>	YP-350J, IPC-200/250/300
<b>DC/DC Converter</b>	SD-25/50/100/150/200/350, SDM30, ASD10H/15H, NSD10/15, SBT, SFT, DET, SRS, SUS, SPR, SPU, SCW, SLW, SKE SKA, DCW, DLW, DKE, DKA, TKA
<b>Inverter</b>	TN/TS-1500, A301/A302
<b>Power Cord</b>	YP** + YC**

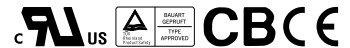
**\*\* For other products not listed above, please contact our sales representatives for availability**

2007.04 update



■ Features :

- Universal AC input / Full range
- Low leakage current < 0.5mA
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- 100% full load burn-in test
- Fixed switching frequency at 65KHz
- 2 years warranty

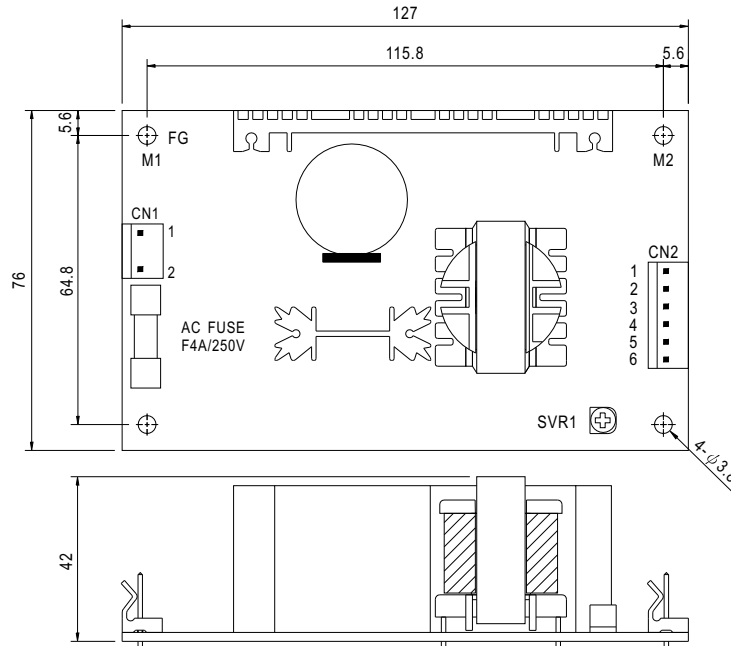


SPECIFICATION

MODEL		PD-65A		PD-65B	
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH1	CH2
	DC VOLTAGE	5V	12V	5V	24V
	RATED CURRENT	5.5A	2.8A	3.5A	2A
	CURRENT RANGE	0.4 ~ 7A	0.2 ~ 3.2A	0.4 ~ 6A	0.2 ~ 2.6A
	RATED POWER	61.1W		65.5W	
	OUTPUT POWER (max.)	Rated output power for convection; 72W with 18CFM min. Forced air			
	RIPPLE & NOISE (max.) Note.2	50mVp-p		120mVp-p	
	VOLTAGE ADJ. RANGE	CH1:4.75 ~ 5.5V		CH1:4.75 ~ 5.5V	
	VOLTAGE TOLERANCE Note.3	±4.0%	±7.0%	±4.0%	±7.0%
	LINE REGULATION	±1.0%	±2.0%	±1.0%	±2.0%
	LOAD REGULATION	±3.0%	±4.0%	±3.0%	±4.0%
	SETUP, RISE TIME	800ms, 20ms at full load			
HOLD UP TIME (Typ.)	60ms at full load				
INPUT	VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC			
	FREQUENCY RANGE	47 ~ 440Hz			
	EFFICIENCY(Typ.)	78%		81%	
	AC CURRENT (Typ.)	1.5A/115VAC 0.9A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 20A/115VAC 40A/230VAC			
	LEAKAGE CURRENT	<0.75mA			
PROTECTION	OVERLOAD	73 ~ 105W rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed.			
	OVER VOLTAGE	CH1: 5.75 ~ 6.75VDC on CH1 Protection type : Hiccup mode, recovers automatically after fault condition is removed.			
ENVIRONMENT	WORKING TEMP.	-10 ~ +60°C (Refer to output load derating curve)			
	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.04%/°C (0 ~ 50°C) on +5V output			
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, Period for 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	288.1K hrs min. MIL-HDBK-217F (25°C)			
	DIMENSION	127*76*42mm (L*W*H)			
	PACKING	0.24Kg; 54pcs/15Kg/1.35CUFT			
NOTE	<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>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.</p> <p>3. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>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.</p> <p>5. Mounting holes M1 and M2 should be grounded for EMI purposes.</p>				

**Mechanical Specification**

Unit:mm



AC Input Connector (CN1) : Molex 5277-02 or equivalent

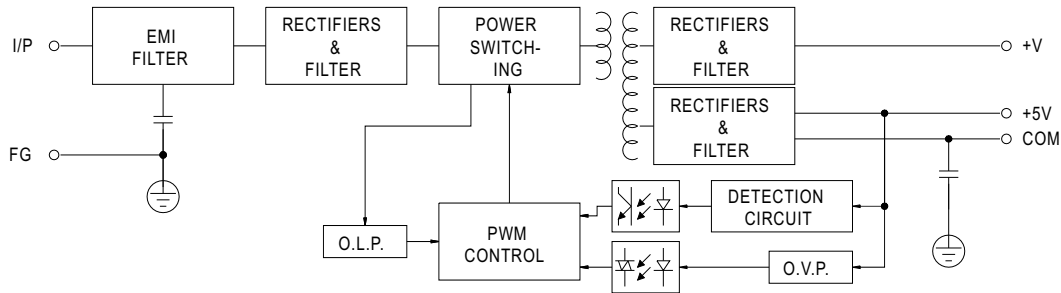
Pin No.	Assignment	Mating Housing	Terminal
1	AC/N	Molex 5195 or equivalent	Molex 5194 or equivalent
2	AC/L		

DC Output Connector (CN2) : Molex 5273-06 or equivalent

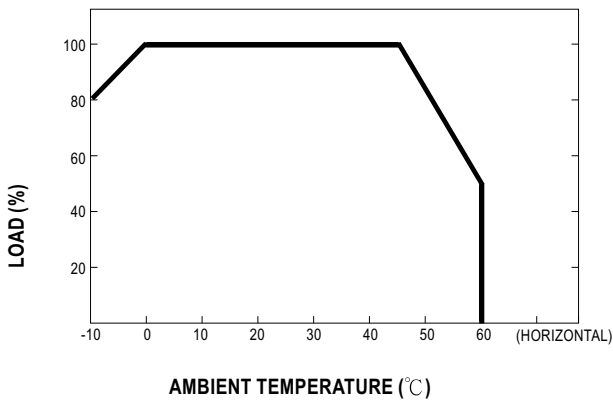
Pin No.	Assignment	Mating Housing	Terminal
1	+V	Molex 5195 or equivalent	Molex 5194 or equivalent
2,3	+5V		
4,5	COM		
6	NC		

**Block Diagram**

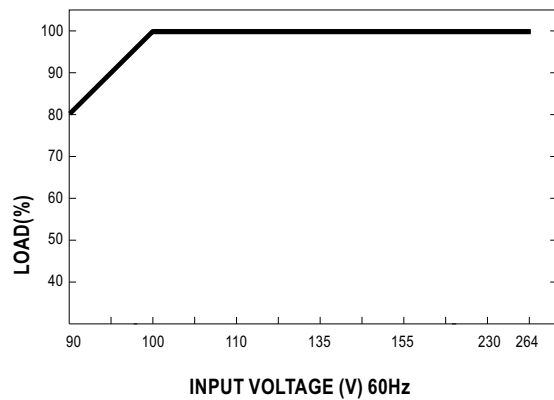
fosc : 65KHz



**Derating Curve**



**Output Derating VS Input Voltage**



MODEL : PD-65B

## OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 50 mVp-p (Max) V2: 150 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 3 mVp-p (Max) V2: 16 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	4.35V- 6.02 V/ 230 VAC 4.35V- 6.02 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 4 %~ -4 % (Max) V2: 7 %~ -7 % (Max)	I/P: 90 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 1.7 %~ -1.7 % V2: 4 %~ -4 %	P
4	LINE REGULATION	V1: 1 %~ -1 % (Max) V2: 2 %~ -2 % (Max)	I/P: 90 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0 %~ -0.15 % V2: 0.05 %~ -0.25 %	P
5	LOAD REGULATION	V1: 3 %~ -3 % (Max) V2: 4 %~ -4 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.3 %~ -0.3 % V2: 0.4 %~ -0.7 %	P
6	CROSS REGULATION	V1: 3 %~ -3 % (Max) V2: 4 %~ -4 % (Max)	I/P: 230 VAC O/P: Testing O/P 60%LOAD Other O/P 40%LOAD Change Ta:25°C	V1: 0.5 %~ -0.5 % V2: 1.1 %~ -1.4 %	P
7	SET UP TIME	230 VAC/ 800 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 601 ms	P
8	RISE TIME	230 VAC/ 20 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 9 ms	P
9	HOLD UP TIME	230 VAC/ 20 ms (Min)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 83 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	116 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	70 V~264V	P
			I/P: LOW-LINE-3V=        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	47HZ ~63 HZ NO DAMAGE OSC	I/P:        VAC ~ 264 VAC O/P:FULL-MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	81 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	82 %	P
4	INPUT CURRENT	230V/ 0.9 A (Max) 115V/ 1.5 A (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.74 A/ 230 VAC I = 1.2 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 40 A (Max) 115V/ 20 A (Max) COLD START	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 28 A/ 230 VAC I = 14 A/ 115 VAC	P
6	LEAKAGE CURRENT	< 0.5 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.34 mA N-FG: 0.34 mA	P

## PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	73W- 105W	I/P: 230 VAC I/P: 115 VAC O/P: TESTING Ta:25°C	86W/ 230 VAC 86W/ 115 VAC 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	6.16 V/ 230 VAC 6.14 V/ 115 VAC Hiccup Model	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 : PD-65B 1. ROOM AMBIENT BURN-IN : 3.5 HRS I/P: 230 VAC O/P: FULL LOAD Ta= 33.7 °C 2. HIGH AMBIENT BURN-IN : 38 HRS I/P: 230 VAC O/P: FULL LOAD Ta= 48.4 °C			P	
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 230 VAC O/P: 132 % 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= -10°C	TEST : OK	P	
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 45 °C NO DAMAGE	I/P: 272 VAC O/P: FULL LOAD Ta= 45°C HUMIDITY= 95 %R.H	TEST : OK	P	
5	TEMPERATURE COEFFICIENT	± 0.04 % (0-50°C)	I/P: 230 VAC O/P: FULL LOAD	± 0.01 % (0-50°C)	P	
6	VIBRATION TEST	1 Carton & 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: 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: 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: 2.67 mA I/P-FG: 2.05 mA O/P-FG: 3.88 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: 6G Ω I/P-FG: 6G Ω O/P-FG: 5G Ω NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO : R9754834 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 LIGHT 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 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 LIGHT INDUSTRY 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 &amp; LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C21 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 75841 HRS I/P: 230VAC O/P:FULL LOAD Ta= 45 °C LIFE TIME= 24849 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 288.1K HRS			P

## COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) <b>Peak Voltage</b>	Q 1 Rated K2545 : 600V 6 A	I/P:High-Line +3V =267 V O/P: (1)Full Load Turn on (2) Full Load Ta:25°C	(1) 518 V (2) 478 V	P
2	Diode <b>Peak Voltage</b>	D4 Rated YG802C04 : 40 V 10 A  D5 Rated FMX-12S : 200 V 10 A	I/P:High-Line +3V =267 V O/P: (1)Full Load Turn on (2) Full Load Ta:25°C	(1) 37.8 V (2) 37.8 V  (1) 168 V (2) 171 V	P
3	<b>Input Capacitor Voltage</b>	C5 Rated RUBYCON : 150u / 400V 85°C	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) 376 V (2) 392 V (3) 392 V	P
4	<b>Control IC Voltage Test</b>	U 1 Rated TI3842 : 30 V	I/P:High-Line +3V =267V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change (4) Output Short Ta:25°C	(1) 16.3 V (2) 16.5 V (3) 12.4 V (4) 16.1 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
1997/9/24	RD SAMPLE	PASS	GASPAR	MAX LIN
2004/8/12	PRODUCT SAMPLE CA45052710	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023