

CUSTOMER

JAMES

SPECIFICATION FOR APPROVAL

AC/DC ADAPTOR

CUSTOMER SPEC:INPUT: 100-240V AC 50/60Hz OUTPUT:5V3A/9V2.22A/12V1.66A

CUSTOMER DWG./PART NO. PD20*US*TYPE-C

PART NO. PD20W-B1

SAMPLE NO: SD2023084016 REV.: ISSUE DATE: 2023-8-22

PRDUCT NO:

Unit Color: Black

☐

White



APPROVED SIGNATURES/客户确认

核准/APPROVED BY	审核/ CHECKED BY:	检测/TESTED BY:

Manufacturer/制造商

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A0	First released	2023-08-22	

**** Content ****

1.	SCOPE 概述	4
2.	Input Characteristics 输入特性	4
2.1.	Input Voltage & Frequency 输入电压与频率	4
2.2.	Input AC Current 输入电流	4
2.3.	Inrush Current (cold start)开机浪涌	4
2.4.	Averaged Efficiency 平均效率	4
2.5.	Energy Consumption 空载损耗	4
3.	Output Characteristics 输出特性	4
3.1.	Static Output Characteristics 静态输出特性	4
3.2.	Line/ Load Regulation 线性/负载调整率	5
3.3.	Turn - on Delay Time 开机延迟	5
3.4.	Hold-up Time 关机维持	5
3.5.	Overshoot/Undershoot 过冲	5
3.6.	Dynamic 动态	5
4.	Protection Requirements 保护特性	5
4.1.	Over Current Protection (OCP)过流保护	5
4.2.	Short Circuit Protection (SCP)短路保护	5
4.3.	Over Voltage Protection (OVP)过压保护	5
5.	PD Specification PD 技术参数	5
5.1.	Negative Voltage Transitions.....	5
5.2.	Positive Voltage Transitions.....	5
5.3.	Response to Hard Resets.....	5
6.	Environment Requirements 环境要求	6
6.1.	Operating Temperature and Relative Humidity 工作温度/湿度	6
6.2.	Storage Temperature and Relative Humidity 存储温度/湿度	6
6.3.	Altitude Range 海拔高度	6
7.	Reliability Requirements 可靠性要求	6
7.1.	Burn-in 老化	6
8.	Mechanical Requirements 结构要求	6
8.1.	Vibration 振动	6
8.2.	Drop Test 跌落	6
9.	EMC Standards 电磁兼容	7
9.1.	EMI Standards 电磁干扰	7
9.2.	EMS Standards 电磁抗扰	7
10.	Safety Standards 安规标准	7
10.1.	Dielectric Strength (Hi-pot)高压	7
10.2.	Leakage Current 漏电流	7
10.3.	Insulation Resistance 绝缘阻抗	7
10.4.	Regulatory Standards 标准	7

11. Match. Outline Drawing 外观	8
12. Marking Drawing 铭牌	9
13. Package Drawing 包装	10
14. CERTIFICATE 证书	11

1. SCOPE 概述

The document details the electrical, mechanical and environmental specifications of a SMPS. The power supply provides rated 20W continuous output power with 2Pin input.

2. Input Characteristics 输入特性

2.1. Input Voltage & Frequency 输入电压与频率

The range of input voltage is from 90Vac to 264Vac single phase.

	Minimum	Nominal	Maximum
Input Voltage	90Vac	100Vac~240Vac	264Vac
Input Frequency	47Hz	60Hz/50Hz	63Hz

2.2. Input AC Current 输入电流

0.7A max. @ 100-240Vac input & Full load

2.3. Inrush Current (cold start) 开机浪涌

The inrush current will not exceed 60A at 240Vac input and 5V/3A output for a cold start at 25°C

2.4. Averaged Efficiency 平均效率

81.39% min. @ 115Vac/230Vac input and 5V3A output with 25%, 50%, 75% and 100% load

85.47% min. @ 115Vac/230Vac input and 9V2.22A output with 25%, 50%, 75% and 100% load

85.48% min. @ 115Vac/230Vac input and 12V1.67A output with 25%, 50%, 75% and 100% load

2.5. Energy Consumption 空载损耗

0.1W max. @ 115/230VAC input with no load

3. Output Characteristics 输出特性

3.1. Static Output Characteristics 静态输出特性

When Port A and Port C are output separately :

Output	Load			Output Range	R+N	Remark
Rate	Min. Load	Rated Load	Max. Load			
+5V	0.0A	3.0A	3.0A	4.75 ~ 5.25V	200mVp-p	100-240Vac
+9V	0.0A	2.22A	2.22A	8.55 ~ 9.45V	200mVp-p	100-240Vac
+12V	0.0A	1.67A	1.67A	11.40 ~ 12.60V	200mVp-p	100-240Vac

When Port A and Port C are both output :

Output	Load			Output Range	R+N	Remark
Rate	Min. Load	Rated Load	Max. Load			
+5V	0.0A	3.0A	3.0A	4.75 ~ 5.25V	200mVp-p	100-240Vac
+9V	0.0A	2.22A	2.22A	8.55 ~ 9.45V	200mVp-p	100-240Vac
+12V	0.0A	1.67A	1.67A	11.40 ~ 12.60V	200mVp-p	100-240Vac

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output

paralleled a 0.1uF ceramic capacitor and a 10uF electrolysis capacitor. (Test under the condition of rated input and rated output at 25°C&burn in 5mins)

3.2. Line/ Load Regulation 线性/负载调整率

Output	Load Condition			Line Regulation	Load Regulation
Rate	Min. Load	Rated Load	Max. Load		
+5V	0.0A	3.0A	3.0A	± 2%	± 5%
+9V	0.0A	2.22A	2.22A	± 2%	± 5%
+12V	0.0A	1.67A	1.67A	± 2%	± 5%

3.3. Turn - on Delay Time 开机延迟

3S max. @115/230Vac input & Full load

3.4. Hold-up Time 关机维持

10ms min @115/230Vac input with Full load at 0 degree.

3.5. Overshoot/Undershoot 过冲

10% max. When the power on or off with 5V3A output

3.6. Dynamic 动态

Output voltage within the scope of ± 10%rate output voltage for load step from 20% to 80%, R/S: 0.1A/uS, T1=T2=50mS

4. Protection Requirements 保护特性

4.1. Over Current Protection (OCP)过流保护

5V3A: OCP>3.05A& Recovery

9V2.22A: OCP>2.27A& Recovery

12V1.67A: OCP>1.72A& Recovery

4.2. Short Circuit Protection (SCP)短路保护

No damage & Recovery

4.3. Over Voltage Protection (OVP)过压保护

No damage & Recovery

5. PD Specification PD 技术参数

5.1. Negative Voltage Transitions

275ms max. When the Vbus changing test from 12V to 5V @no load/full load.

5.2. Positive Voltage Transitions

275ms max. When the Vbus changing test from 5V to 12V @no load/full load.

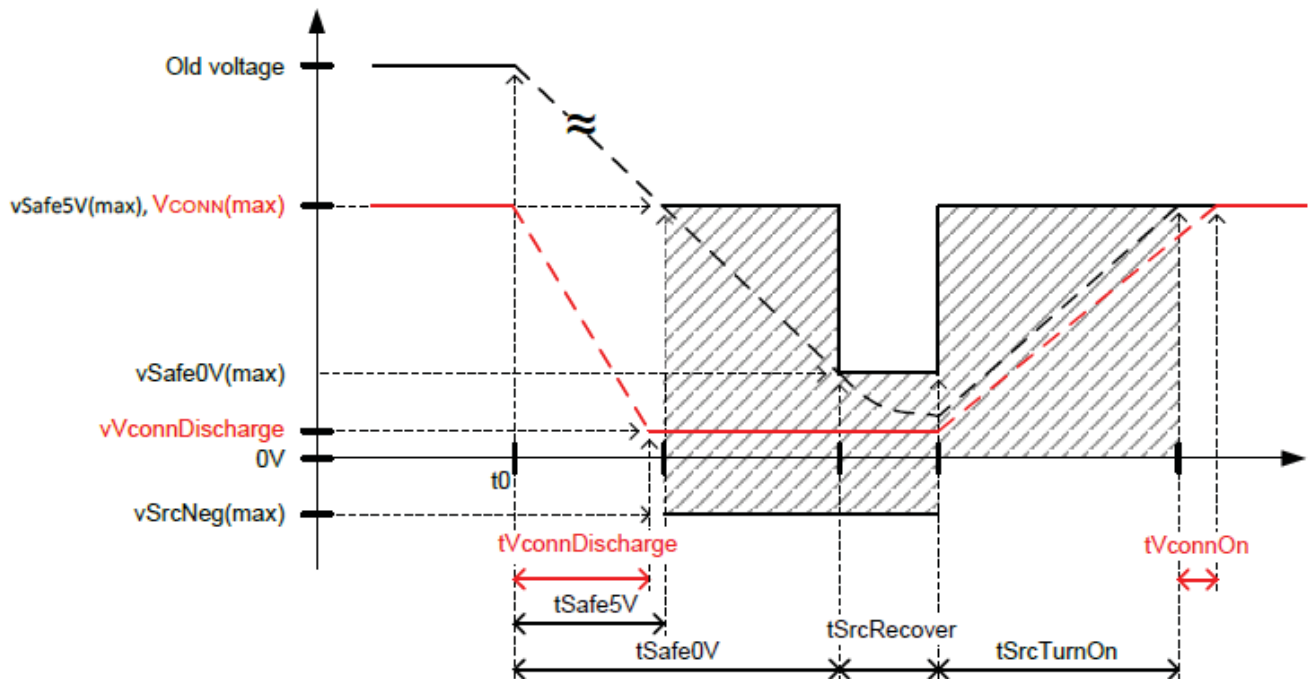
5.3. Response to Hard Resets

275ms max. @ t0 to tSafe5V.

650ms max. @ t0 to tSafe0V.

660ms< tSrcRecover<1s. @ tSrcRecover.

275ms max. @ tSafe0V to tSafe5V.



6. Environment Requirements 环境要求

6.1. Operating Temperature and Relative Humidity 工作温度/湿度

-10°C ~ +25°C

5%RH ~ 95%RH non-condensing

6.2. Storage Temperature and Relative Humidity 存储温度/湿度

-20°C ~ +70°C

5%RH ~ 95%RH non-condensing

6.3. Altitude Range 海拔高度

Sea level shall be lower than 2000m

7. Reliability Requirements 可靠性要求

7.1. Burn-in 老化

The power supply shall be burn-in for 2 Hours under variable voltage of 100V,240V input and 12V1.5A output at 20°C~ 30°C

8. Mechanical Requirements 结构要求

8.1. Vibration 振动

Freq: 10Hz-500Hz

Displacement: 0.35mm peak

Acceleration: 49m/s²

Number of Sweeps: 2

Sweep Duration: 15 min cycles in each axis X,Y,Z

8.2. Drop Test 跌落

Height: 1m; the product should be fell off on the hardwood with the thickness of 20mm, and the hardwood should be put on the base of the cement or on the ground without flexibility. Apply 10 drops (6 faces + 3 edges+ 1 corner).

9. EMC Standards 电磁兼容

9.1. EMI Standards 电磁干扰

FCC Part15 B

9.2. EMS Standards 电磁抗扰

8.2.1 Standard

EN 61000-4-2	(ESD)Electrostatic Discharge: air $\pm 8\text{kV}$, contact $\pm 4\text{kV}$, (Criteria A)
EN 61000-4-4	(EFT)Electrical Fast Transient/Burst: 1KV (Criteria A)
EN 61000-4-5	(Surge)Differential Mode : $\pm 1\text{kV}$;Common Mode: $\pm 2\text{kV}$ (Criteria A)

8.2.2 Assessment criteria

Acceptance criteria	performance
A	Agreed operational behavior within the specified limits
B	Time limited functional diminishment or malfunction during the tests is permitted. The function is self-reactivated by the unit following completion of the tests.
C	Malfunction is permitted .The function can be reactivated either by reconnection to the mains or by operator intervention.

10. Safety Standards 安规标准

10.1. Dielectric Strength (Hi-pot)高压

Primary to Secondary: 3000Vac /10mAMax /60second (3S for production)

10.2. Leakage Current 漏电流

0.25mA max. at 264Vac / 50Hz

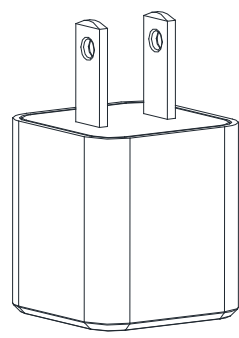
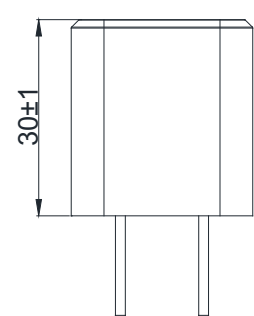
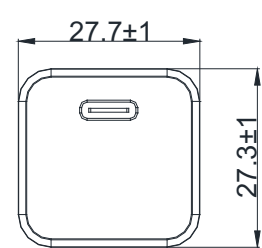
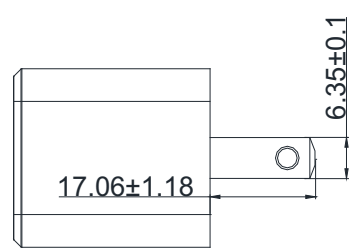
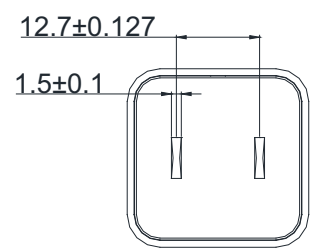
10.3. Insulation Resistance 绝缘阻抗

100M Ω min. at primary to secondary add 500Vdc test voltage.

10.4. Regulatory Standards 标准

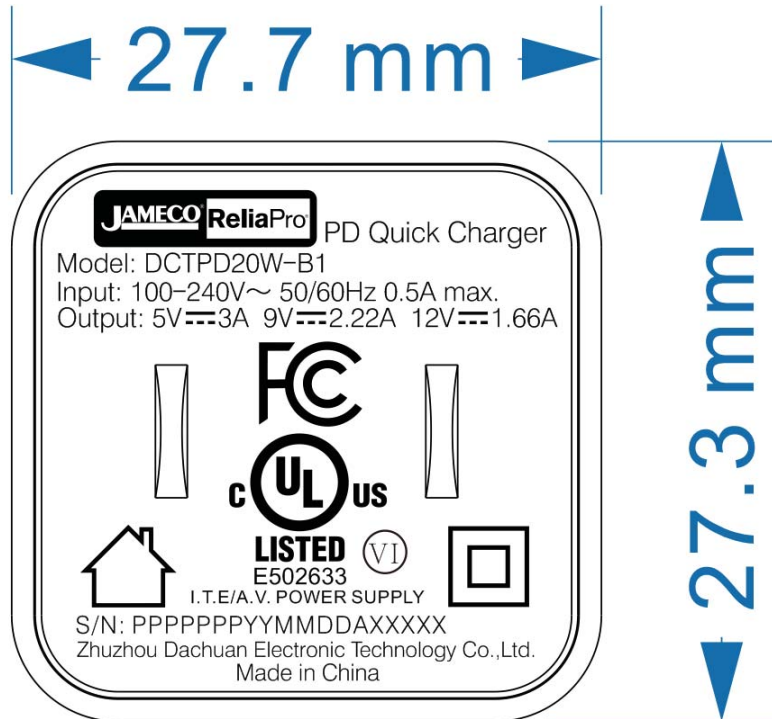
Type	Country	Standard	State	Note
UL	USA	UL62368	Approved	

11. Match. Outline Drawing 外观



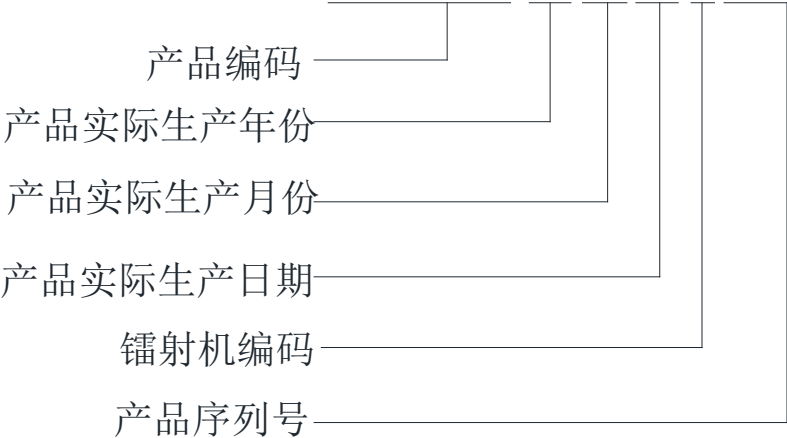
Unit:mm
Other tolerance: ± 0.5

12. Marking Drawing 铭牌



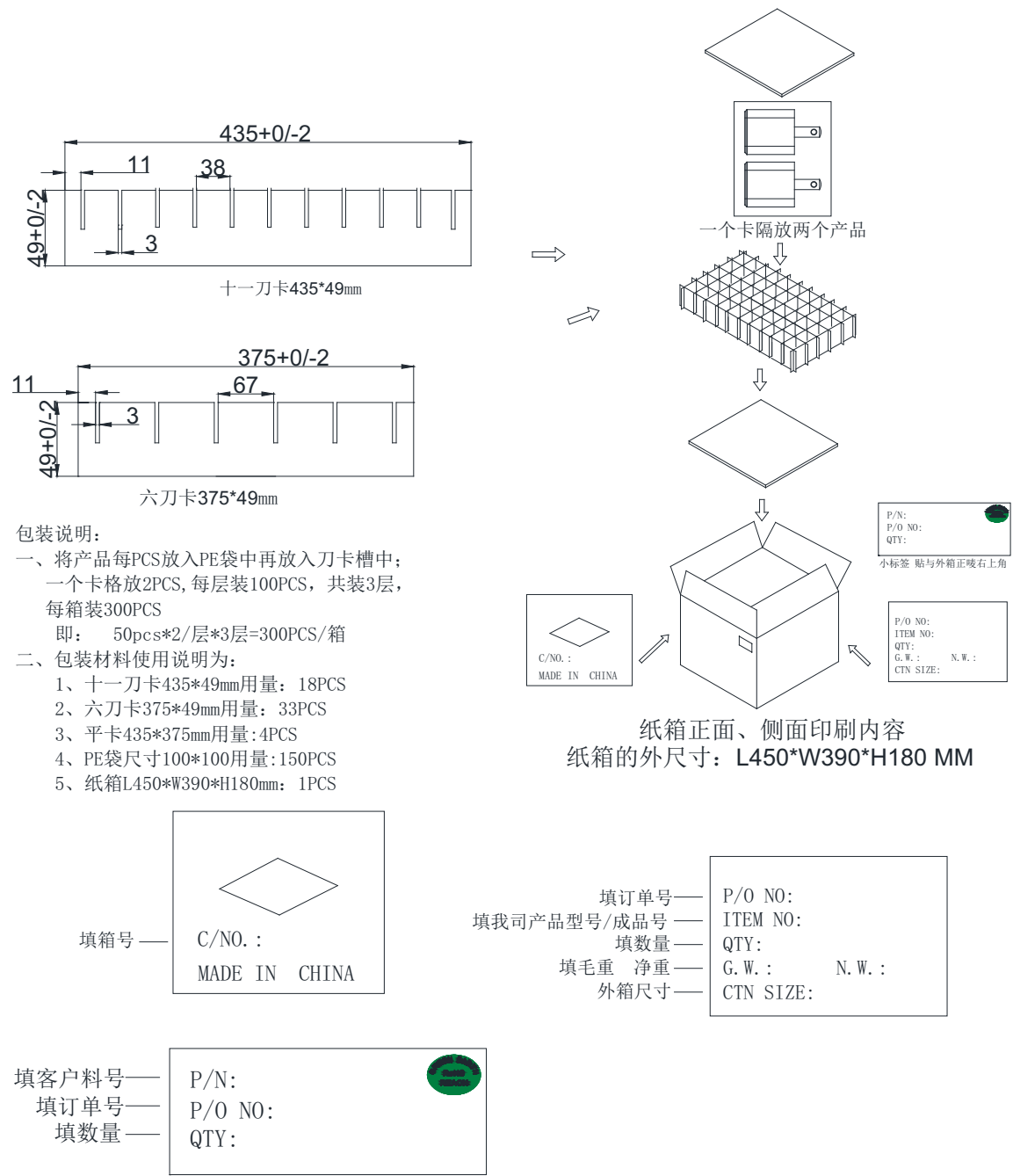
镭雕标签

S/N: PPPPPPPYYMMDDAXXXX



- 产品编码;例如：90001-00283-US为00283US
- 日期按实际生产日期填写, 例如：2020年09月20日为200920
- 镭射机编码；例如：1、2、3……
- 产品序列号；例如：00001、00002……

13.Package Drawing 包装



14.CERTIFICATE 证书

NOTICE OF COMPLETION AND AUTHORIZATION TO APPLY THE UL MARK



2021-06-15

MR. Weijin Lin
Zhuzhou Dachuan Electronic Technology Co Ltd
Building A5 Nanzhou Industrial Park
Zhuzhou, Hunan, 412101, CN

Your Reference:

Our Reference: File E502633, Volume X1

Order: 13722186

Project: 4789909852

Project Scope: UL Project 4789909852 - Order #13722186 - UL/CUL [62368-1] application for PD Quick Charger, models DCTPD20W-A1, DCTPD20W-B1 under #E502633 (QQJQ/7)

Dear Mr. Weijin Lin:

UL has completed the investigation under the above project and confirmed compliance of your product(s) with UL requirements. We appreciate that you have a choice of certification providers and thank you for choosing UL.

This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Mark at the factory location(s) identified on the Authorization Page of UL File E502633, Volume X1. You are required to send a copy of this letter to all manufacturing locations authorized under UL File E502633, Volume X1.

The Follow-Up Services Procedure covering your product(s) will typically be provided by UL within 10 business days. Any information and documentation provided to you involving the UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Products that bear the UL Mark must be identical to those submitted to UL for evaluation and certification and must comply with the Follow-Up Services Procedure covering your product(s). Additional requirements related to the responsibilities of the Applicant and Manufacturer can be found under Additional Resources at <https://www.ul.com/fus>.

A UL certification is a valuable marketing tool meaning your product or company has successfully met stringent requirements. We encourage you to use your UL Mark and certification in your marketing activities. You can find information on how to accurately promote your UL certification at <https://www.ul.com/marketing>.

If you have any questions, please contact me or any of our customer service representatives. And, congratulations again on your achievement!

Sincerely,

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Page 1 of 1