

SPECIFICATION FOR APPROVAL
AC/DC ADAPTOR

CUSTOMER SPEC: INPUT: 100-240V AC 50/60Hz

OUTPUT: 5V/3A, 9V/2.22A, 12V/1.67A

CUSTOMER DWG./PART NO. _____

KTEC PART NO. KSC-20P-UL (PAHS 6P NP REACH ROHS PROP65)

SAMPLE NO: S99307 REV.: A ISSUE DATE: 2024-06-05

PRODUCT NO: KS240366

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			
业务/SALES	品管/QE	核准/APPROVED BY	制样/MADE BY
Candy	徐海鑫	贺洪明	冯连连

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KTEC 冠德國際科技
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Switching power supply specification (Class B)

KTEC P/N:

PRODUCT NO:

CUSTOMER P/N:

KSC-20P-UL

KS240366

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TITLE:

REVISION: A

DRAWING NO.:

PREPARED : 廖小艳

CHECKED: 陈秋健 明奇

APPROVED : 贺洪明

DATE: 2024-06-05

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1 GENERAL

1.1 Description

This specification defines the performance characteristics for a Class II adapter, single-phase 20.0 watts. Single of two segment voltage output level power supply.

- Simple design philosophy.
- Reliability level of 50K hours MTBF @ 25° C (rated input voltage, 80% load and using the Telcordia SR-332 issue 3 method).
- DC output voltage must be Safe Extra Low Voltage (SELV) & Limited Power as defined by IEC62368-1.
- Compliant with Class B USB Type-C Power Delivery Specification.
- The adapter meet PD2.0, PD3.0, BC1.2

2 INPUT REQUIREMENTS

2.1 Input Conditions

The supply shall operate over the voltage ranges as follows:

Rated input voltage	100-240Vac
Operating range	90-264Vac
Rated input frequency	50/60Hz +/- 3Hz
Rated input current	0.6A max. @ 100Vac to 240Vac
Power consumption (no-loading at 5V)	0.1W Max. @ 230Vac
Primary current protection	An adequate internal fuse on the AC input line is provided.
Input configuration	<u>2</u> Conductor

2.2 AC Inrush Current

No damage shall be occurred and the input fuse shall not be blown up nominal input voltage full load 25°C cold start.

3 OUTPUT REQUIREMENTS

3.1	Nominal DC output voltage	Fixed PDO		
		5.0V	9.0V	12.0V
3.2	Minimum load current	0.0A		
3.3	Rating load current	3.0A	2.22A	1.67A
3.4	Rating output power	20.0W		
3.5	Line regulation	The line regulation is less than ±5% while measuring at rated load		
3.6	Load regulation	The load regulation for +5.0V, +9.0V, +12.0V is less than <u>±5%</u> , at measured output load from 0% to 100% rated load.		

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3.7	Ripple and noise	Fixed PDO		
		5V	9V	12V
		120 mVp-p	180 mVp-p	200 mVp-p
		Add 0.1uF/50V ceramic capacitor and 10uF/50V aluminum electrolytic capacitor in parallel the output terminal. Measured with 20MHz Bandwidth Oscilloscope at full load land rate input voltage 115Vac & 230Vac.		
3.8	Average efficiency	Meet DOE VI.		
		AC115V/60Hz and 230V/50Hz, output load current from 100%,75%,50%,25%. The test point: end PCBA board, no include DC cable.		
3.9	Turn on delay time	3000 mS at nominal input AC voltage and output full load.		
3.10	Rise time	The supply shall have a start-up rise time of less than <u>100 mS</u> to rise to within regulation limits for all DC outputs.		
3.11	Hold up time	When power off, DC output must be maintained <u>8 mS</u> in regulation limit at 115V/230Vac and full load.		
3.12	Output over-shoot	Less than <u>10%</u> of nominal voltage value.		
3.13	Protection function			
	Over-voltage protection	The output voltage shall be clamped by internal protection.		
	Short-circuit protection	The adapter shall not be damaged by short the DC output to Ground. The adapter shall resume normal operation when a short circuited fault condition is removed.		
	Over current protection	When overload is applied to the output, the power supply shall be shut down and enter auto-recovery or latch mode 4.5A Max.		

4 MECHANICAL

4.1 Enclosure and Layout

Plastic case: UL94V-0
 Weight: /g (Max.)
 Dimensions: 48*43*20 mm
 Colour: WHITE(WT-07)

4.2 Input and Output Configuration

Input pin: UL Pin
 Output connector: DC plug Type: USB Type-C
5.0V/3.0A, 9.0V/2.22A, 12.0V/1.67A
 Polarity: /

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5 REGULATORY COMPLIANCE

5.1 EMC Specifications

The external power supply must meet all specification in this section. it is required that the external power supply work closely with the customer's equipment in order to get the best EMC solution.

5.1.1 Radiated and Conducted Emission

The power supply shall comply to:
FCC part 15: Class B for radiated and conducted emissions.
EN55032, Class B for radiated and conducted emissions.

5.2 Immunity

5.2.1 Electrostatic Discharge Immunity

EN 55035, EN 61000-4-2
- Air Discharge: ±10kV
- Contact Discharge: ±5kV
- Performance Criteria B
Electrostatic-discharge test by contact or air should be conducted with Static-discharge tester(energy storage capacitance of 150pF and discharge resistance of 330Ω) 10kV air discharge, 5kV contact discharge.

5.2.2 Radiated Field Immunity

EN 55035, EN 61000-4-3
Frequency Range: 80-1000MHz, still need test singly 1800MHz, 2600MHz, 3500MHz, 5000MHz
Field Strength: 3 V/m with 80% amplitude modulation of 1kHz
Performance Criteria A
Radio-frequency electromagnetic field susceptibility test, RS 80-1000MHz, 3V/m, 80%AM(1KHz).

5.2.3 Conducted Field Immunity

EN 55035, EN 61000-4-6
- Frequency Range: 150kHz-230MHz
- Field Strength: 3A/m with 80% amplitude modulation of 1kHz
- Performance Criteria A

5.2.4 Fast Transient Immunity

EN 55035, EN 61000-4-4
- Power line: 1kV
- Performance Criteria B

5.2.5 Surge Immunity

EN 55035, EN 61000-4-5

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- Line to line: $\pm 1\text{kV}$

- Line to Earth: $\pm 2\text{kV}$

- + 90°/ -270°

Lighting Surge Voltage of differential and common modes shall be applies across AC input lines and across input and frame ground.

5.3 Safety Requirements and Certification

5.3.1 Regulatory Standard

The power supply shall comply with the following international regulatory standards

for short	Country	Certified Status	Standard
UL	USA	Meet	UL 62368-1
CUL	Canada	Meet	CSA C22.2 No.62368-1

5.3.2 Additional Safety Requirements

- ⊙ Dielectric Withstand Voltage, Primary(input AC short)-to-Secondary(output DC short): 3000 Vac, 5mA, 1 minute or 3600Vac 5mA 2sec. for produce line
- ⊙ Insulation Resistance, Input to output: 100MΩ(Min.) at 500 VDC.
- ⊙ Reinforced insulation system, Primary-to-Ground and Primary-to-Secondary.
- ⊙ The leakage current shall not exceed 0.25mA.

6 ENVIRONMENTAL REQUIREMENTS

6.1 Temperature

- ⊙ Operating : 0°C -+40°C
- ⊙ Non-Operating : -20°C- +70°C

6.2 Humidity

- ⊙ Operating : 5%~95% (Non Condensing)
- ⊙ Non-Operating : 5%~95% (Non Condensing)

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KTEC P/N:

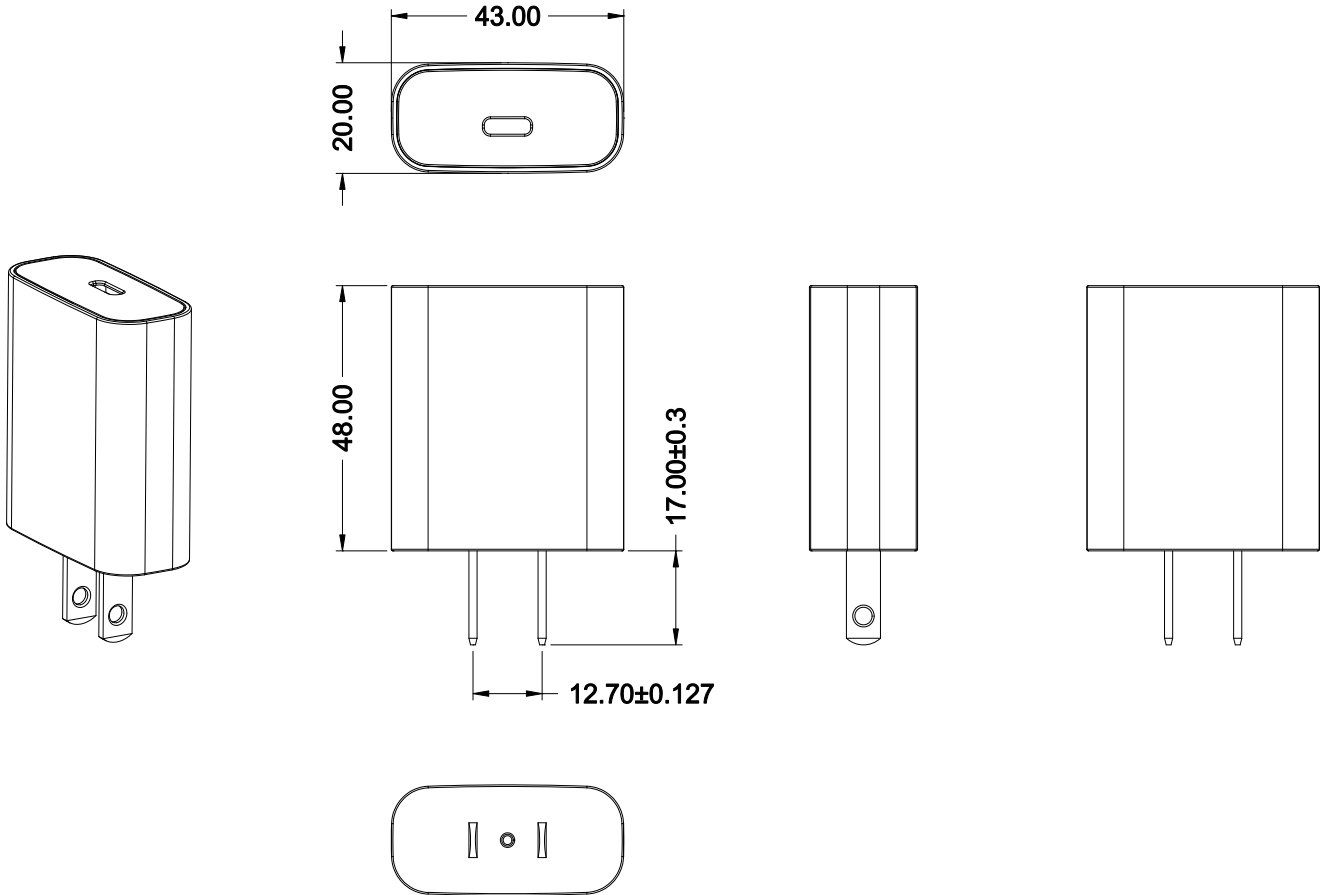
PRODUCT NO:

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KSC-20P-UL

KS240366

7 APPEARANCE DRAWING: (Unit: mm)



- NOTE: 1. Case cover & chassis material:
PC WHITE(WT-07) (NO KTEC)
2. AC PIN MATERIAL: BRASS (NI PLATED)
3. PAHS 6P NP REACH ROHS PROP65
4. Satin Finish 霧面
5. Top mold: MSS019045; Bottom mold: MS019047

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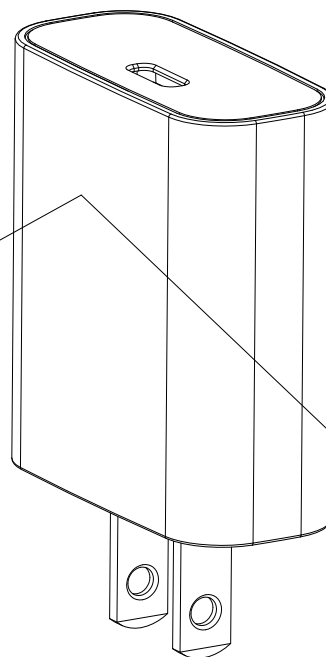
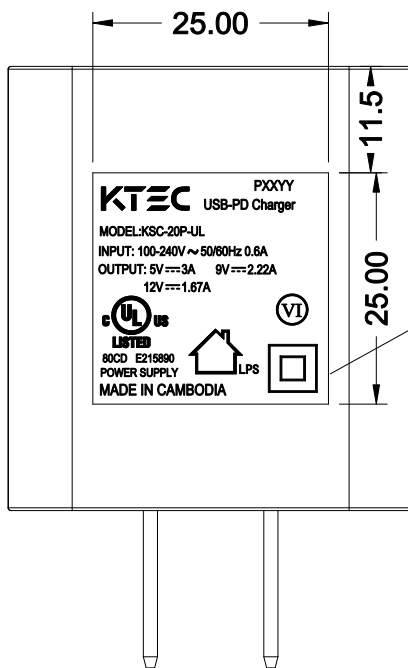
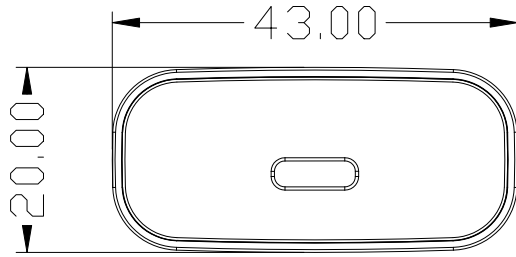
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8 NAME PLATE:



Laser

Note: Laser (鐳射)

PXXYY (PXXYY: P=PAHS 6P NP XX=WEEK, YY=Year) 按实际生产日期制作

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9 PACKING (Unit: mm)

1		2		3		4		5		6		7		8		9		10		11		12	
REVISION																							
ISSUE MARK		DESCRIPTION										DATE		REV		SIGNATURE							
										Carton: 200PCS													

Select		A		B		C		M-A		M-B		M-C		USR		MODEL NO.		PART NO.		DWG. DATE		MATERIAL		PART NAME			
0-6		0.05		0.05		0.10		0.03		0.05		0.10						2021.08.17						*			
6-30		0.10		0.15		0.20		0.05		0.10		0.15															
30-120		0.15		0.20		0.30		0.10		0.15		0.20															
120-300		0.20		0.30		0.40		0.15		0.20		0.25															
300-450		0.25		0.40		0.50		0.20		0.25		0.30															
450-600		0.30		0.50		0.60		0.25		0.30		0.35															
DRAFT TOLERANCE		±0.25																									
		1		2		3		4		5		6		7		8		9		10		11		12			

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