



SPECIFICATION FOR APPROVAL

www.twktec.com

KSA-140P-100W D5

USB-PD CHARGER

Customer Name **KTEC**

Customer Part NO.

Project Modify List

[illegible]

Manufacturer

SALES	QE	APPROVED BY	MADE BY
TAI	徐海鑫	贺洪明	冯朵朵

Approved Signatures

APPROVED BY

CHECKED BY

TESTED BY

--	--	--

USB-PD CHARGER

KSA-140P-100W D5 Manufacturer Part No.: KS240438



1. INPUT REQUIREMENTS	4
1.1 Highlight & Features.....	4
1.2 General Description.....	4
1.3 Chemical Substance Control Laws	4
1.4 Input Conditions.....	4
1.5 Ac inrush current	4
2. OUTPUT REQUIREMENTS.....	5
3. POWER DISTRIBUTION	6
4. MECHANICAL.....	7
4.1 Enclosure and Layout	7
4.2 Input and Output Configuration	7
5. REGULATORY COMPLIANCE	8
5.1 EMC Specifications.....	8
5.1.1Radiated and Conducted Emission.....	8
5.2 Immunity.....	8
5.2.1Electrostatic Discharge Immunity.....	8
5.2.2Radiated Field Immunity	8
5.2.3Conducted Field Immunity.....	8
5.2.4Fast Transient Immunity	8
5.2.5Surge Immunity	9
5.3 Safety Requirements and Certification.....	9
5.3.1Regulatory Standard	9
5.3.2Additional Safety Requirements	9
6. ENVIRONMENTAL REQUIREMENTS	9
7. APPEARANCE DRAWING: (UNIT: MM)	10
8. NAME PLATE	11
9. PACKING (UNIT: MM)	12

USB-PD CHARGER

KSA-140P-100W D5 Manufacturer Part No.: KS240438



1. INPUT REQUIREMENTS

1.1 Highlight & Features

- Simple design philosophy.
- Reliability level of 100K 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 UL62368-1.
- Compliant with Class B USB Type-C Power Delivery Specification.
- The adapter meets PD 3.0.

1.2 General Description

This specification defines the performance characteristics for a class II adapter, single-phase 100.0 watts. Single output level power supply.

1.3 Chemical Substance Control Laws

PAHS 6P NP NOP REACH ROHS PROP65

1.4 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	2.0A max. @ 100Vac to 240Vac
Power consumption (no-loading at 5V)	0.3W max. @ 230Vac
Primary current protection	An adequate internal fuse on the AC input line is provided.
Input Configuration	<u>2</u> Conductor

1.5 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.

USB-PD CHARGER

KSA-140P-100W D5 Manufacturer Part No.: KS240438



2. OUTPUT REQUIREMENTS

2.1	Nominal DC output voltage	Type C1/C2					
			5.0V	9.0V	12.0V	15.0V	20.0V
2.2	Minimum load current		0A				
2.3	Rating load current		3.0A	3.0A	3.0A	3.0A	5.0A
2.4	Rating output power	100.0W Max.					
2.5	Nominal DC output voltage	C3	Fixed PDO				
			5.0V		9.0V	12.0V	
2.6	Minimum load current		0A				
2.7	Rating load current		3.0A		2.22A	1.67A	
2.8	Rating output power	20.0W Max.					
2.9	Line regulation	The line regulation is less than ±5% while measuring at rated load and +/-10% of input voltage changing.					
2.10	Load regulation	The load regulation for +5V,+9V,+12V,+15V,+20V is less than ±5%, at measured output load from 0% to 100% rated load.					
2.11	Ripple and noise	Fixed PDO					
		5.0V		9.0V	12.0V	15.0V	20.0V
		150mVp-p	200mVp-p	250 mVp-p	250mVp-p	300 mVp-p	
		Add 0.1uF/50V ceramic capacitor and 10uF/50V aluminum electrolytic capacitor across the output terminal. Measured with 20MHz Bandwidth Oscilloscope.					
2.12	Efficiency	90% minimum@20V/5A load AC115V/60Hz and 230V/50Hz,full load. The test point: end PCBA board, no include DC cable.115V/60Hz and 230V/50Hz, output current from 100%, 75%, 50%, 25%.					
2.13	Turn on delay time	3000 ms max. at nominal input AC voltage and output full load.					
2.14	Rise time	The supply shall have a start-up rise time of less than 100ms to rise to within regulation limits for all DC outputs.					
2.15	Hold up time	When power off, DC output must be maintained 8 ms in regulation limit at 115V/230Vac and full load.					
2.16	Output over-shoot	Less than 10% of nominal voltage value.					
2.17	LED indication function	/					

USB-PD CHARGER

KSA-140P-100W D5 Manufacturer Part No.: KS240438



	Protection function	
2.18	Over-voltage protection	7.5V max. (5.0V mode); 11.25V max. (9.0V mode); 15.0V max. (12.0V mode); 19.0V max. (15.0V mode); 25.0V max. (20.0V mode), 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 7.0A max.
2.19	Dynamic Response	Output voltage limit shall remain within +/- 10% Adaptor shall be subjected to increases and decreases from 0 to 25% to 50% of maximum load current, 50% to 75% of maximum load current, and 75% to 100% of maximum load current. In all tests, the load slew rate shall be no less than 100mA/us.
2.20	Power reduction	The output will decrease from 100W to 65W after 20 minutes of operation.

3. POWER DISTRIBUTION

PD 2C1A 100W				Output power(Max.)
Output port	C1	C2	C3	
Single port output	PD 100W(The power drop to 65W after reaching the preset temperature)	-		100W
	-	PD 100W(The power drop to 65W after reaching the preset temperature)		100W
	-	-	PD 20W	20W
Two port output	PD 45W	PD 45W	-	90W
	PD 65W	-	PD 20W	85W
	-	PD65W	PD 20W	85W
Combined output	PD 35W	PD35W	PD 20W	90W

USB-PD CHARGER

KSA-140P-100W D5 Manufacturer Part No.: KS240438



4. MECHANICAL

4.1 Enclosure and Layout

Plastic case	UL94V-0
Weight	/ g (Max.)
Dimensions	76x76x33 mm
Color	WHITE(WT-07)

4.2 Input and Output Configuration

Input pin	International Pin
Output connector	USB Type C1/C2: 5.0V 3.0A, 9.0V 3.0A, 12.0V 3.0A, 15.0V 3.0A, 20.0V 5.0A, 100W Max.
	USB Type
	USB Type
	USB Type
	USB Type
USB Type C1+C2+C3: 35.0W+35.0W+20.0W=90.0W Max.	

USB-PD CHARGER

KSA-140P-100W D5 Manufacturer Part No.: KS240438



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

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: $\pm 8\text{kv}$

Contact Discharge: $\pm 4\text{kv}$

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 330 Ω) 8kv air discharge, 4kv 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: 3V/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: 0.15-80MHz(0,15 to 10 MHz , 3V ; 10 to 30 MHz , 3-1V ; 30 to 80 MHz , 1V)

- 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

USB-PD CHARGER

KSA-140P-100W D5 Manufacturer Part No.: KS240438



5.2.5 Surge Immunity

EN 55035, EN 61000-4-5

- 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 or Region	Certified Status	Standard
CE	Europe	/	Declared& CE Mark EN62368-1

5.3.2 Additional Safety Requirements

- © Dielectric Withstand Voltage, Primary(input AC short)-to-Secondary(output DC short): 3000 Vac, 5mA, 1 minute.
- © Insulation Resistance, Input to output: 100M Ω (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

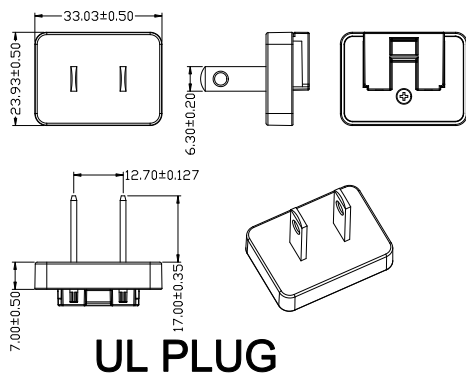
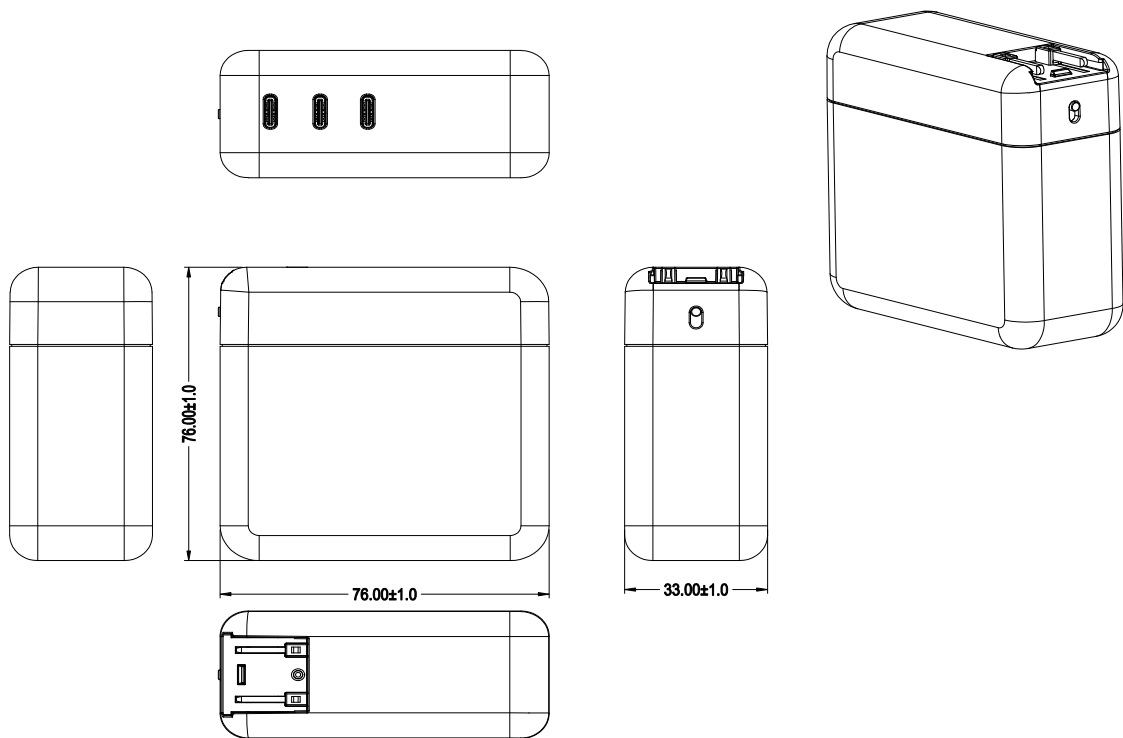
Temperature	Operating	0 °C +40 °C
	Non-Operating	-20 °C +70 °C
Humidity	Operating	5%~95% (Non Condensing)
	Non-Operating	5%~95% (Non Condensing)
Altitude	Sea level to 2000m	

USB-PD CHARGER

KSA-140P-100W D5 Manufacturer Part No.: KS240438



7. APPEARANCE DRAWING: (UNIT: MM)



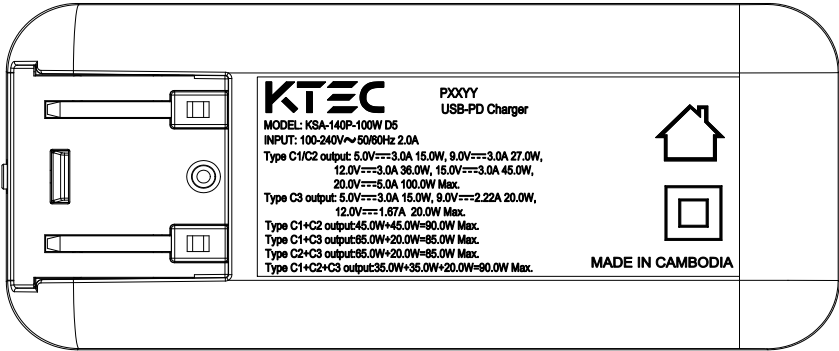
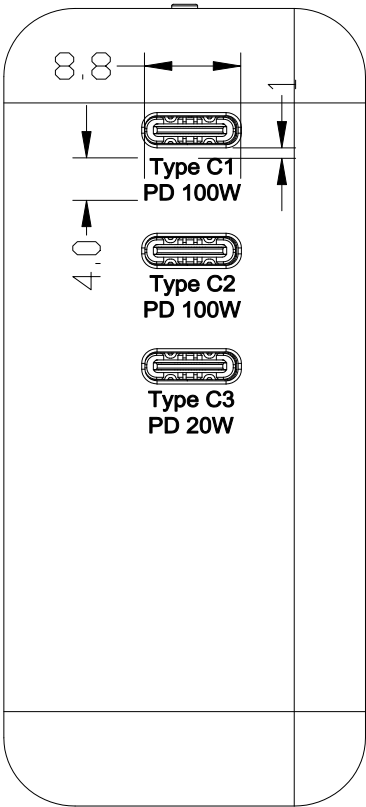
- NOTE:
1. Case cover & chassis material PC WHITE(WT-07)(NO KTEC)
 2. AC PIN MATERIAL: BRASS (NI PLATED)
 3. PAHS 6P NP NOP REACH ROHS PROP65
 4. Satin Finish
 5. Top mold:MSS024014; Bottom mold:MSS024015

USB-PD CHARGER

KSA-140P-100W D5 Manufacturer Part No.: KS240438



8. NAME PLATE



Note: Laser

PXXYY (P=PAHS, 6P, NP XX=Week, YY=Year), use the actual production date.

USB-PD CHARGER

KSA-140P-100W D5 Manufacturer Part No.: KS240438



9. PACKING (UNIT: MM)

