



SPECIFICATION FOR APPROVAL



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KSA-45P1-VE

USB-C PD CHARGER

Customer Part NO. _____

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USB-C PD CHARGER

KSA-45P1-VE

Manufacturer Part No.: KS260299



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1. INPUT REQUIREMENTS

1.1 Highlight & Features

- Simple design philosophy.
- Reliability level of 50K hours MTBF @ 25° C (rated input voltage, full 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.

1.2 General Description

This specification defines the performance characteristics for a class II adapter, single-phase 15.0-45.0 watts.
Single output level power supply.

1.3 Chemical Substance Control Laws

PAHS 6P NP NOP REACH ROHS

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	1.2A maximum
Power consumption(no-loading at 5V)	0.1W maximum
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.

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2. OUTPUT REQUIREMENTS

2.1	Nominal DC output voltage	Fixed PDO				
		5.0V	9.0V	12.0V	15.0V	20.0V
2.2	Minimum load current	0.0A				
2.3	Rating load current	3.0A	3.0A	3.5A	3.0A	2.25A
2.4	Rating output power	15.0W-45.0W				
2.5	Line regulation	The line regulation is less than $\pm 5\%$ while measuring at rated load and $\pm 10\%$ of input voltage changing.				
2.6	Load regulation	The load regulation for +5.0V, +9.0V, +12.0V, +15.0V, 20.0V is less than $\pm 5\%$, at measured output load from 0% to 100% rated load.				
2.7	Ripple and noise	5V	9V	12V	15V	20V
		150mVp-p	180mVp-p	200mVp-p	200mVp-p	250mVp-p
		Add 0.1uF/50V ceramic capacitor and 10uF/50V aluminum electrolytic capacitor across the output terminal. Measured with 20MHz Bandwidth Oscilloscope.				
2.8	Average efficiency	Meet DOE VI. 115V/60Hz and 230V/50Hz, output load current from 100%, 75%, 50%, 25%. The test point: end PCBA board, no include DC cable.				
2.9	Turn on delay time	3000ms maximum at nominal input AC voltage and full load.				
2.10	Rise time	The supply shall have a start-up rise time of less than 20ms to rise to within regulation limits for all DC outputs.				
2.11	Hold up time	When power off, DC output must be maintained 8mS in regulation limit at 115V/230Vac and full load.				
2.12	Output over-shoot	Less than 10% of nominal voltage value.				
2.13	LED indication function	/				
2.14	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 6A Max.				

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3. MECHANICAL

3.1 Enclosure and Layout

Plastic case	UL94V-0
Weight	/g (Max.)
Dimensions	80.0x31.0x51.0mm
Color	BLACK

3.2 Input and Output Configuration

Input pin	EU 2Pin
Output connector	DC plug Type: USB Type-C 5.0V/3.0A, 9.0V/3.0A, 12.0V/3.5A, 15.0V/3.0A,20.0V/2.25A
Polarity	/

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4. REGULATORY COMPLIANCE

4.1 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.

4.1.1 Radiated and Conducted Emission

FCC part 15: Class B for radiated and conducted emissions.

EN55032, Class B for radiated and conducted emissions.

4.2 Immunity

4.2.1 Electrostatic Discharge Immunity

EN 55035, EN 61000-4-2

Air Discharge: $\pm 15\text{kV}$

Contact Discharge: $\pm 8\text{kV}$

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 330Ω) 15kV air discharge, 8kV contact discharge.

4.2.2 Radiated Field Immunity

EN 55035, EN 61000-4-3

Frequency Range: $80\text{--}1000\text{MHz}$, 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 $80\text{--}1000\text{MHz}$, 3V/m , 80%AM(1kHz).

4.2.3 Fast Transient Immunity

EN 55035, EN 61000-4-4

Power line: 1kV

Signal line: 0.5kV

Performance Criteria B

4.2.4 Surge Immunity

EN 55035, EN 61000-4-5

Line to line: $\pm 6\text{kV}$

Line to earth: $\pm 6\text{kV}$

$+90^\circ$ / -270°

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

4.3 Safety Requirements and Certification

4.3.1 Regulatory Standard

The power supply shall comply with the following international regulatory standards:

for short	Country or Region	Certified Status	Standard
CE	Europe	/	EN 62368-1

4.3.2 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.

5. 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 5000m	

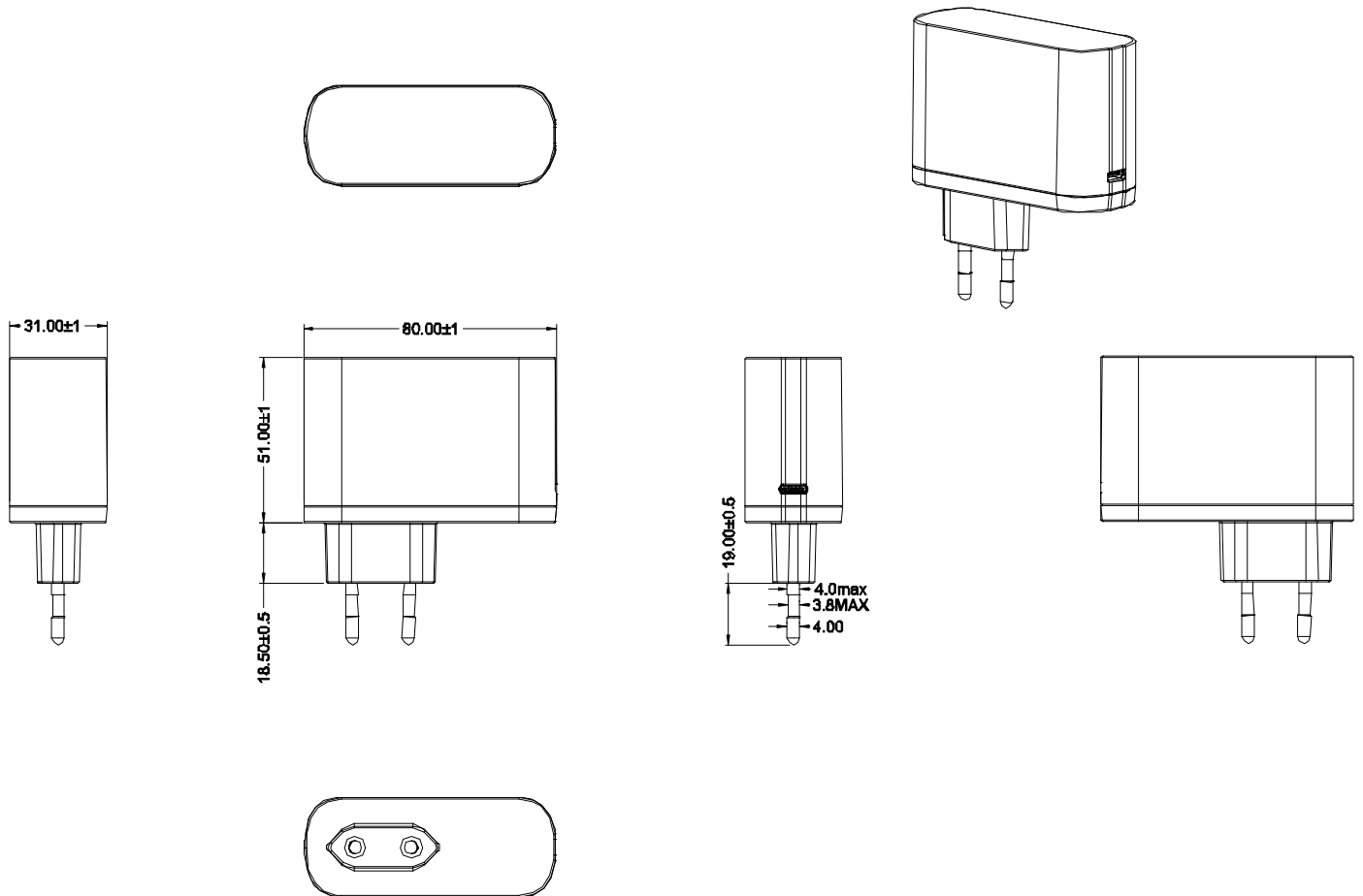
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6. APPEARANCE DRAWING: (UNIT: MM)



NOTE:

1. Case cover & chassis material: PC BLACK (NO KTEC)
2. AC PIN MATERIAL: BRASS (NI PLATED)
3. PAHS 6P NP REACH ROHS NOP
4. Satin Finish 霧面
5. Top mold: MSC026024 Bottom mold: MSC026025

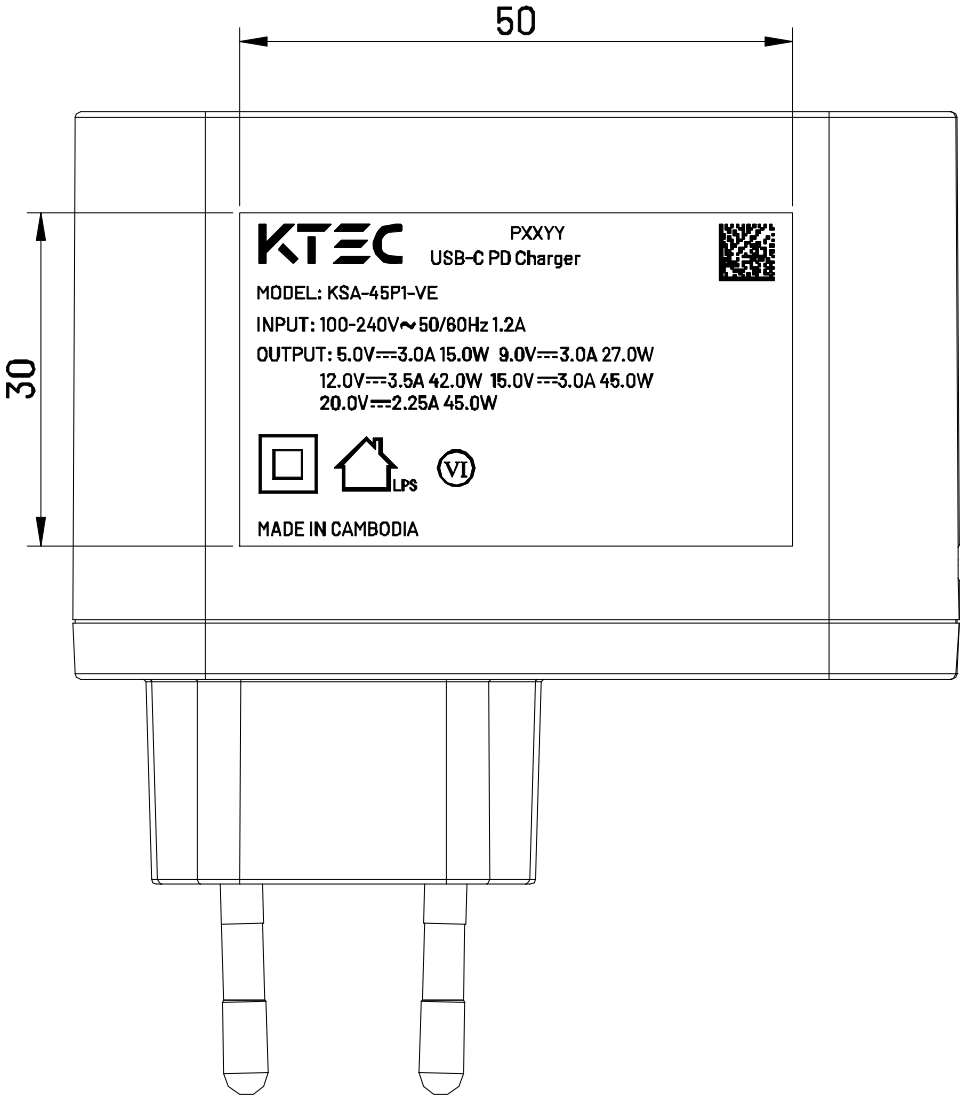
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7. NAME PLATE



Note: Laser

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

SN (Data Matrix Code size: 5*5mm):

First code G(Ktec) + Production part number (Product code) + Ten yards of flow code SSSSSSSSS (decimal) Total 19 codes

Example : GKS2602990000000001, GKS2602990000000002...GKS2602999999999999.

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8. PACKING (UNIT: MM)

