



SPECIFICATION FOR APPROVAL

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# KSD-45W-250180HU

Class 2 Power Supply

Customer Part NO.

[illegible]

| SALES | QE  | APPROVED BY | MADE BY |
|-------|-----|-------------|---------|
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**TESTED BY**

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# Class 2 Power Supply

KSD-45W-250180HU Manufacturer Part No.: KS240441



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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 and using the Telcordia SR-332 issue 3 method).
- DC output voltage must be Safe Extra Low Voltage (SELV) & Limited Power as defined by UL1310.
- Cooling: natural convection

### 1.2 General Description

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

### 1.3 Chemical Substance Control Laws

PAHS 6P NP REACH ROHS NOP PRO65

### 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) | 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

The inrush current will not exceed 50A at 100Vac input for a cold start at 25 °C.

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## 2. OUTPUT REQUIREMENTS

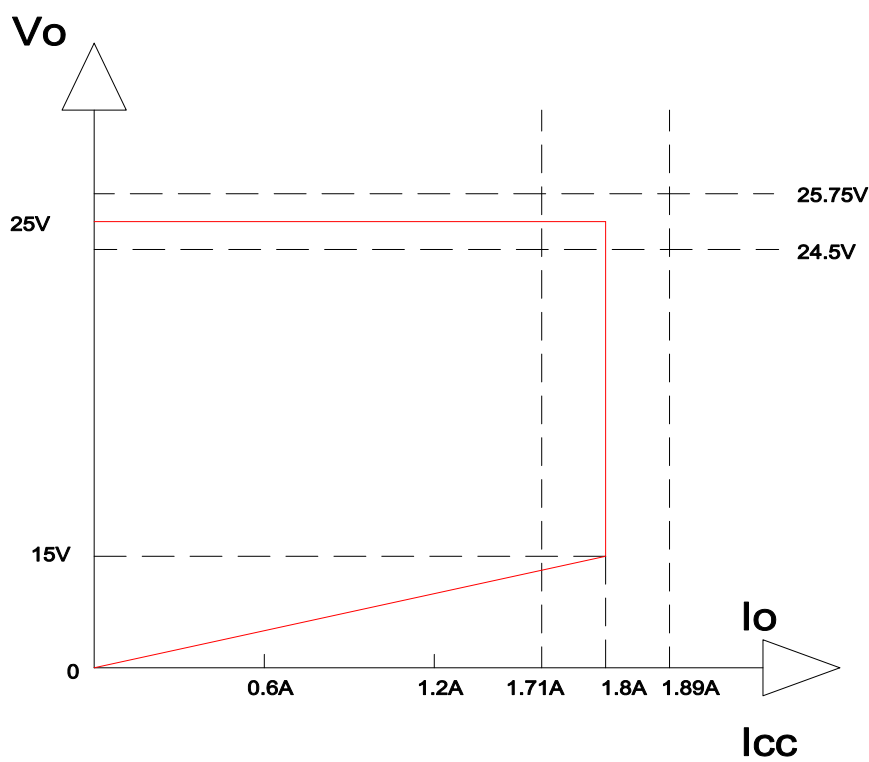
|      |                             |                                                                                                                                                      |
|------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.1  | Nominal DC output voltage   | +25.0V+/-5%                                                                                                                                          |
| 2.2  | Minimum load current        | 0.0A                                                                                                                                                 |
| 2.3  | Rating load current         | 1.8A                                                                                                                                                 |
| 2.4  | Output Condition            | CV: 15V-23.75V;    1.8A+/-5%                                                                                                                         |
| 2.5  | Rating output power         | 45.0W                                                                                                                                                |
| 2.6  | Line regulation             | The line regulation is less than ±1% while measuring at rated load and +/-10% of input voltage changing.                                             |
| 2.7  | Load regulation             | The load regulation for +25.0V is less than +/-5%, at measured output load from 10% to 100% rated load.                                              |
| 2.8  | Ripple and noise            | 250mV nominal input AC voltage at 25°C                                                                                                               |
|      |                             | Add 0.1uF/50V ceramic capacitor and 10uF/50V aluminum electrolytic capacitor across the output terminal. Measured with 20MHz Bandwidth Oscilloscope. |
| 2.9  | Average efficiency          | 87.73% minimum<br>115V/60Hz and 230V/50Hz, output current from 100%, 75%, 50%, 25%.                                                                  |
| 2.10 | Turn on delay time          | 4000ms maximum at nominal input AC voltage and full load.                                                                                            |
| 2.11 | Rise time                   | The supply shall have a start-up rise time of less than 50ms to rise to within regulation limits for all DC outputs.                                 |
| 2.12 | Hold up time                | 10ms minimum at nominal input 100Vac minimum voltage and full load.                                                                                  |
| 2.13 | Output over-shoot           | Less than 5% of nominal voltage value.                                                                                                               |
| 2.14 | LED indication function     | /                                                                                                                                                    |
| 2.15 | 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     | The output shall be protected against the over current conditions.                                                                                   |
|      | Over Temperature protection | The charger has OTP function.                                                                                                                        |

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### 3. CHARACTERISTIC



### 4. MECHANICAL

#### 4.1 Enclosure And Layout

|              |              |
|--------------|--------------|
| Plastic case | UL94V-0      |
| Weight       | / g (Max.)   |
| Dimensions   | 80x46x30.2mm |
| Color        | WHITE(WT-07) |

#### 4.2 Input And Output Configuration

|                  |                                                       |
|------------------|-------------------------------------------------------|
| Input pin        | US Pin                                                |
| Output connector | DC plug type: 5.5*2.1*10mm                            |
| Polarity         | Center “+”                                            |
| Cable            | 1.83M   VW-1   80℃   300V   2464   3.5Q 22AWG   WHITE |

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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

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

EN55014-1, Class B for radiated and conducted emissions.

### 5.2 Immunity

#### 5.2.1 Electrostatic Discharge Immunity

EN 55014-2, EN 61000-4-2

Air Discharge:  $\pm 20\text{kv}$

Contact Discharge:  $\pm 6\text{kv}$

Performance Criteria B

Electrostatic-discharge test by contact or air should be conducted with Static-discharge tester (energy storage capacitance of  $150\text{pF}$  and discharge resistance of  $330\Omega$ )  $8\text{kv}$  air discharge,  $6\text{kv}$  contact discharge.

#### 5.2.2 Radiated Field Immunity

EN 55014-2, EN 61000-4-3

Frequency Range:  $80\text{-}1000\text{MHz}$ , still need test singly  $1800\text{MHz}$ ,  $2600\text{MHz}$ ,  $3500\text{MHz}$ ,  $5000\text{MHz}$

Field Strength:  $3\text{V/m}$  with 80% amplitude modulation of  $1\text{kHz}$  Performance Criteria A

Radio-frequency electromagnetic field susceptibility test, RS  $80\text{-}1000\text{MHz}$ ,  $3\text{V/m}$ , 80%AM( $1\text{KHz}$ ).

#### 5.2.3 Conducted Field Immunity

EN 55014-2, EN 61000-4-6

Frequency Range:  $0.15\text{-}80\text{MHz}$ ( $0.15$  to  $10\text{MHz}$  ,  $3\text{V}$  ;  $10$  to  $30\text{MHz}$  ,  $3\text{-}1\text{V}$  ;  $30$  to  $80\text{MHz}$  ,  $1\text{V}$ )

Field Strength:  $3\text{A/m}$  with 80% amplitude modulation of  $1\text{KHz}$

Performance Criteria A

#### 5.2.4 Fast Transient Immunity

EN 55014-2, EN 61000-4-4

Power line:  $1\text{kv}$

Signal line:  $0.5\text{kv}$

Performance Criteria B

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## 5.2.5 Surge Immunity

EN 55014-2, EN 61000-4-5

Line to line:  $\pm 1\text{kv}$ Line to earth:  $\pm 2\text{kv}$  $+ 90^\circ / -270^\circ$ 

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     | /                | UL1310   |

### 5.3.2 Additional Safety Requirements

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

© Insulation Resistance, Input to output: 100M $\Omega$  (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 +65°C             |
| Humidity           | Operating                                                                                                                                                                               | 5%~95% (Non Condensing) |
|                    | Non-Operating                                                                                                                                                                           | 0%~95% (Non Condensing) |
| Altitude           | Sea level to 5000m                                                                                                                                                                      |                         |
| Vibration          | Meet IEC721-3-3                                                                                                                                                                         |                         |
| Drop Test          | At 1m drop on concrete surface, two times on each side                                                                                                                                  |                         |
| Strain relief test | Put the DC cable connector in fixture and apply 30N force on the cable 25 times at 1 time per second.The cable shall not disengage. Long term stretch test is made with 30N for 1 hour. |                         |



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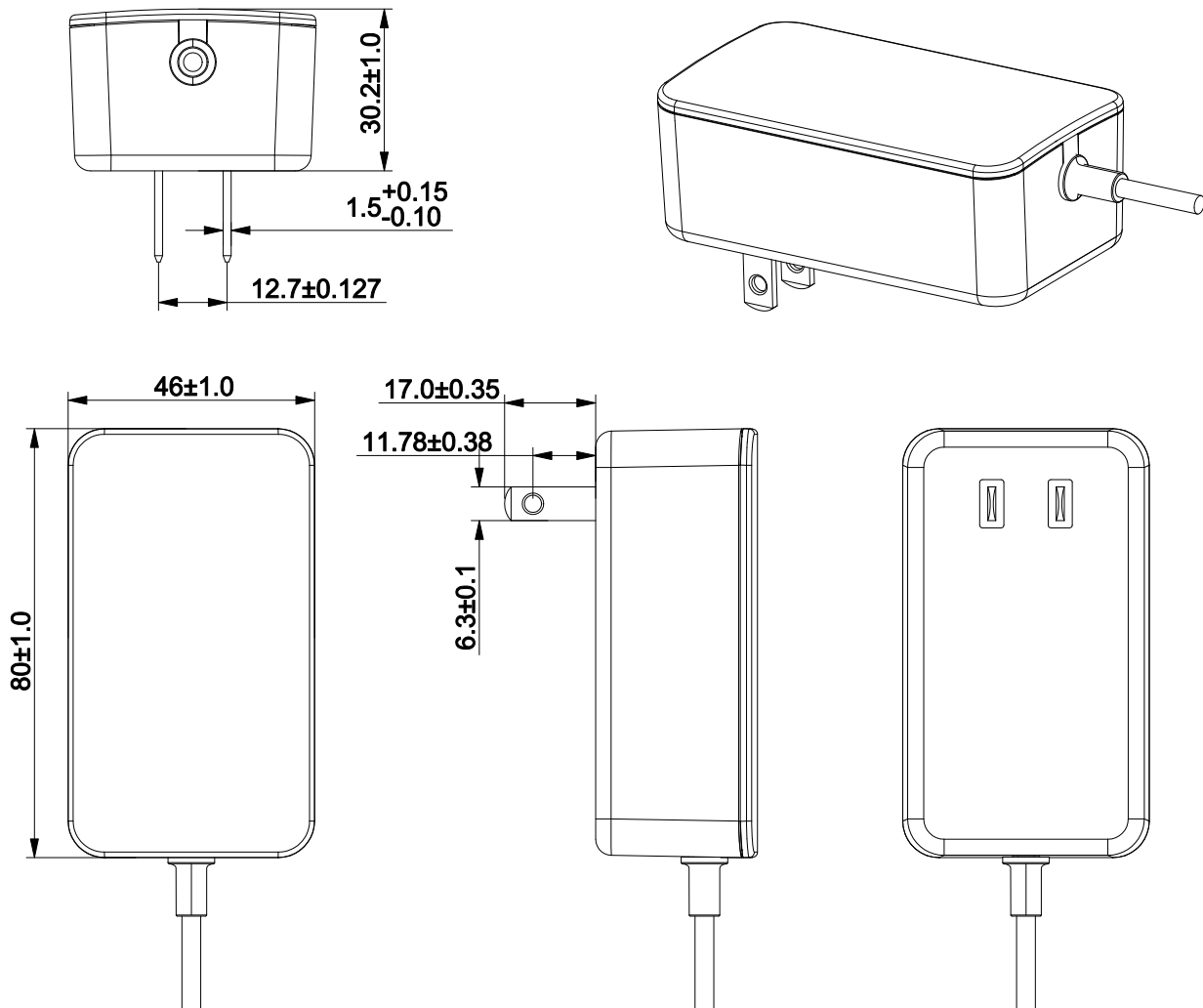
|                   |                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cord bending test | Put the DC cable connector in appropriate fixture and apply 300g/f load to the cable. Then swing theDC cable connector1,000 times from 60°to -60°at a rate of 40 cycles per minute . Any crack in thestrain relief is not allowed, the strain relief shall not detach form DC cable connector, and the conduction resistance shall not change by more than 10% from initial. |
| Product warranty  | 1 Year                                                                                                                                                                                                                                                                                                                                                                       |

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## 7. APPEARANCE DRAWING: (UNIT: MM)



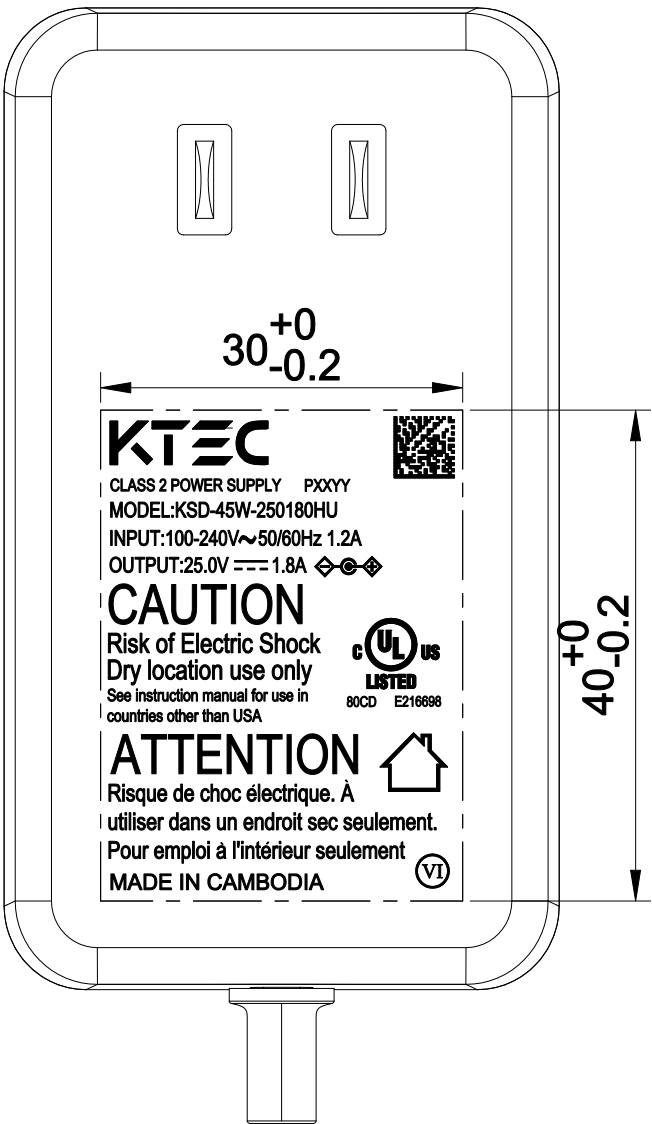
- Note:
1. Case cover & chassis material:  
PC WHITE(WT-07) (NO KTEC)
  2. AC PIN MATERIAL: BRASS (NI PLATED)
  3. PAHS 6P NP REACH ROHS NOP PRO65
  4. Satin Finish
  5. Top mold: MSS024019; Bottom mold: MSS024022

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## 8. 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 SSSSSSSSSS

(decimal) Total 19 codes

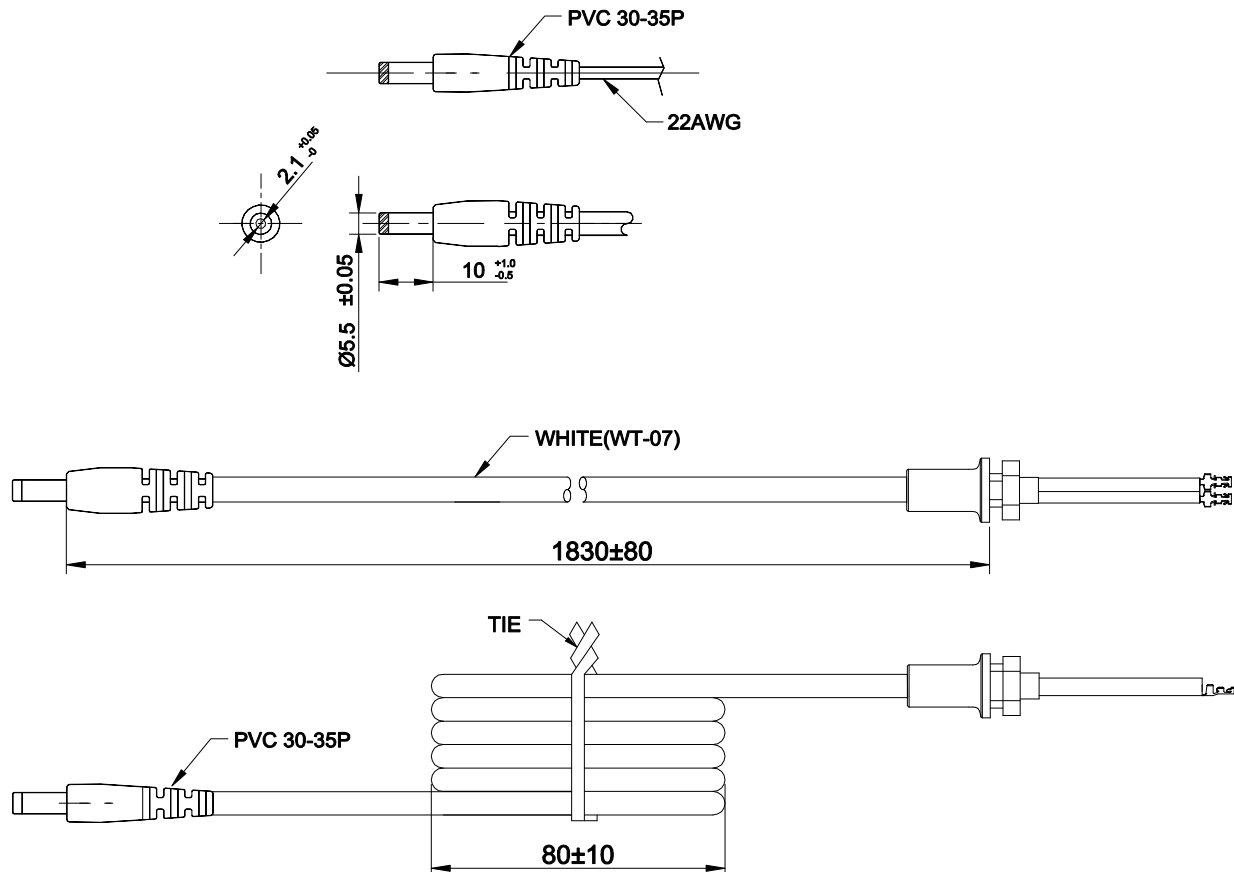
Example : GKS2404410000000001, GKS2404410000000002...GKS2404419999999999

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## 9. DIMENSION OF OUTPUT PLUG & DC CORD (UNIT: MM)



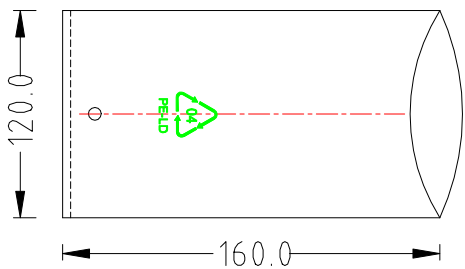
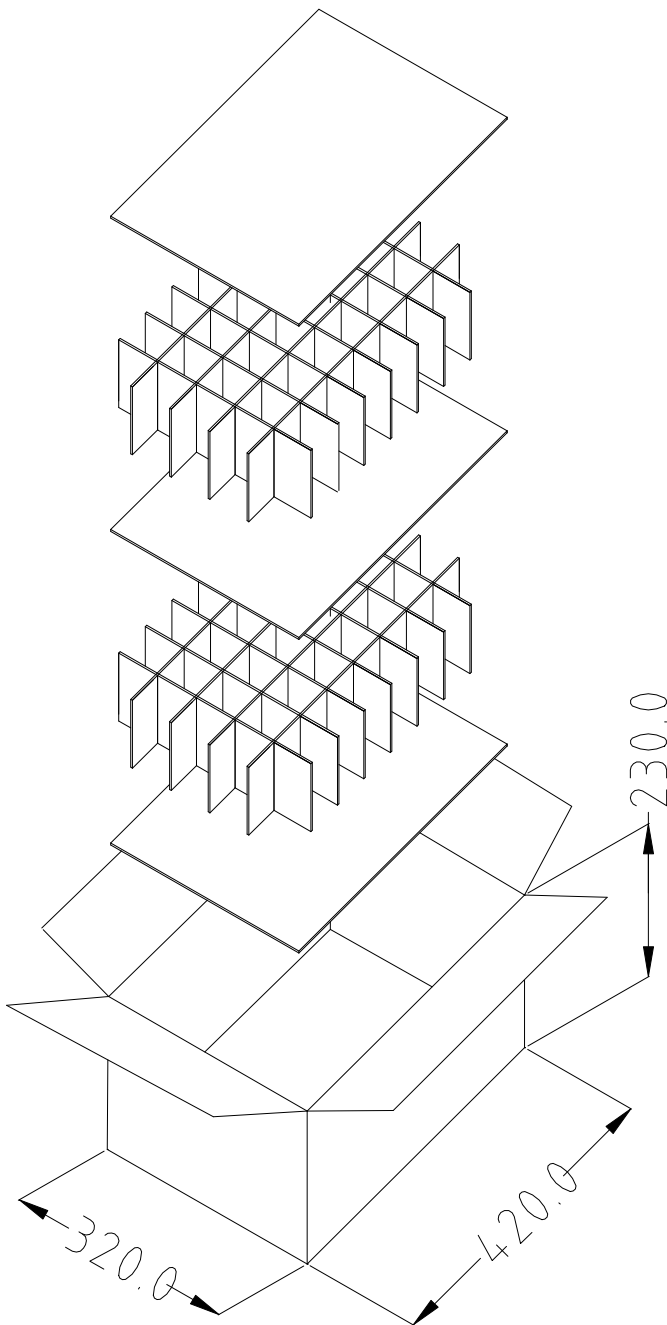
NOTE:1.WIRE TYPE:VW-1 80°C 300V L=1830mm 2464 2C 3.5Ø 22AWG WHITE(WT-07)  
 2.THE POLARITY:   
 3.PAHS 6P NP REACH ROHS NOP PRO65

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10. PACKING (UNIT: MM)



2025-06-24

Nick Cao  
KUANTECH CO., LTD.  
11th Fl 868-3 Zhongzheng Rd  
Zhonghe District  
New Taipei, 235, TW

**Notice of Completion (NoC) and authorization to apply the UL Mark**

Your reference: N/A  
Our reference: File E216698, Volume 1      Order: 15646139  
Project: 4791631297

Project scope: UL and CUL investigation for Class 2 Power Supply, Models KSD-45W-xxxxyyHU and KSD-45W-ssszzzHU series.

Dear Nick Cao:

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

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 Solutions File E216698, Volume 1. You are required to send a copy of this letter to all manufacturing locations authorized under UL Solutions File E216698, Volume 1.

The Follow-Up Services Procedure covering your product(s) will typically be provided by UL Solutions within 10 business days. Any information and documentation provided to you involving the UL Mark services are provided on behalf of UL LLC or any authorized licensee. The UL Solutions certification directory is updated with active certifications shortly after projects are reviewed and completed. Please visit <https://productiq.ulprospector.com/> to search for the certification.

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 **Customer Requirements documents** at [www.ul.com/fus](http://www.ul.com/fus).

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If you have any questions, please contact me or any of our customer service representatives at [www.ul.com/contact-us](http://www.ul.com/contact-us).

Sincerely,

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