



SPECIFICATION FOR APPROVAL

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KED-150W SERIES

AC-DC POWER SUPPLY

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KED-150W SERIES

Manufacturer Part No.: KS251469



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1. INPUT REQUIREMENTS

1.1 Highlight & Features

- Size: L4.3" x W2.3" x H1.38" (109.0 x 58.5 x 35.0mm)
- Universal AC input with active PFC circuit
- Suited for type BF medical products
- High efficiency up to 93%
- Remote on/off
- Adjustable output voltage(TRIM)
- MTBF up to 250KHrs
- 2 MOPP
- This product is used in medical instruments, industrial equipment, printers and other fields.

1.2 General Description

This specification defines the performance and characteristics of an adaptor 150 watts with a metal case and internal fan cooling. The output voltage can be selected from 12V, 24V, 48V .

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
Rated input current	2.5A max.@100-240Vac
Power consumption	0.21W maximum @230Vac (no-loading)
Input configuration	3 Conductor
Power factor	0.9 minimum at full load

1.5 Ac inrush current

Input inrush current less than 45A for 115VAC input and cold-start at 25°C,
Input inrush current less than 90A for 230VAC input and cold-start at 25°C.

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2. INPUT

2.1	Nominal DC output voltage	12V	24V	48V
2.2	Minimum load current	0A		
2.3	Output current and power	12.5A	6.25A	3.12A
		150W Max.		
2.4	Load regulation	$\pm 2\%$		
2.5	Line regulation	$\pm 1\%$		
2.6	Ripple and noise	12V	24V	48V
		120mVp-p	240mVp-p	480mVp-p
		Add 0.1uF/50V ceramic capacitor and 10uF/50V aluminum electrolytic capacitor in parallel the output terminal. Measured with 20MHz bandwidth oscilloscope at rated load and rated input voltage.		
2.7	Efficiency	up to 93% typical value @ 230VAC		
2.8	Turn on delay time	2000ms maximum at 115VAC and output full load.		
2.9	Rise time	$\leq 20\text{ms}$ 12V output voltage at rated load;		
2.10	Hold up time	10ms minimum for main O/P, measured at Full Load from 115 VAC and Vout reduces to 90% of original value before the AC drop out.		
2.11	Output over-shoot	Less than 10% of nominal voltage value.		
2.12	Protection function			
	Over voltage protection	110% to 150% of nominal output voltage. Latching, recycle AC power to recover.		
	Over current protection	110% to 180% of rated output current value, hiccup mode, auto-recovery		
	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 temperature protection	The output will be turned off when the temperature is too high.		

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3. MECHANICAL

3.1 Enclosure and Layout

Plastic case	UL94V-0
Weight	406g (Max.)
Dimensions	109.0 x 58.5 x 35.0mm
Color	Black

4. Input and Output Configuration

Pin	Definition	Pin Number(s)	Connector Type
AC Input	AC neutral	PIN1	1.2mm PIN
	AC line	PIN2	1.2mm PIN
	PE/ground	PIN3	1.2mm PIN
Remote	ON/OFF	PIN4	1.2mm PIN
DC Output	+V out	PIN5	1.8mm PIN
DC Output	-V out	PIN6	1.8mm PIN
Adjustable	TRIM	PIN7	1.2mm PIN

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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.

EN55015 & EN55032, Class B for radiated and conducted emissions.

Note: Applications that meet Class B requirements for some end products may require additional EMI filters

5.1.2 Harmonic Standard

Meet EN61000-3-2

Performance Criteria A

5.1.3 Voltage fluctuations and Flicker

Meet EN61000-3-3

5.2 Immunity

5.2.1 Electrostatic Discharge Immunity

IEC 60601-1-2, 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.

5.2.2 Radiated Field Immunity

IEC 60601-1-2, EN 55035, EN 61000-4-3

Frequency Range: 80MHz -2.7GHz

Field Strength: 3 V/m with 80% amplitude modulation of 1kHz

Performance Criteria A

Radio-frequency electromagnetic field susceptibility test, RS 80MHz -2.7GHz, 3V/m, 80%AM(1kHz).

5.2.3 Fast Transient Immunity

IEC 60601-1-2, EN 55035, EN 61000-4-4

Power line: 2kV

Performance Criteria B

5.2.4 Surge Immunity

IEC 60601-1-2, EN 55035, EN 61000-4-5

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1.2/50 μ s Open circuit voltage8/20 μ s Short circuit current

Power line: 1kv

Line to earth: 2kv

Performance Criteria A

Lightning surge voltage shall be applied in differential and common mode to AC input lines and cross primary AC input and secondary GND..

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
UL	USA	/	IT:UL 62368-1 MEDICAL:UL 60601-1
FCC	America	/	FCC Part 15 subpart B
CB	Global	/	IT:IEC62368-1 MEDICAL:IEC60601-1

5.3.2 Additional Safety Requirements

© Dielectric Withstand Voltage:

Primary(input AC short)-to-Secondary(output DC short): 4000 Vac, 20mA, 1 minute.

Primary input to GND and Secondary output to GND: 1500Vac, 20mA, 1 minute.

© Insulation Resistance, Input to output: 50M Ω (MIN.) at 500 VDC.

© Reinforced insulation system, Primary-to-Ground and Primary-to-Secondary.

© The leakage current shall not exceed 100uA.

AC-DC POWER SUPPLY

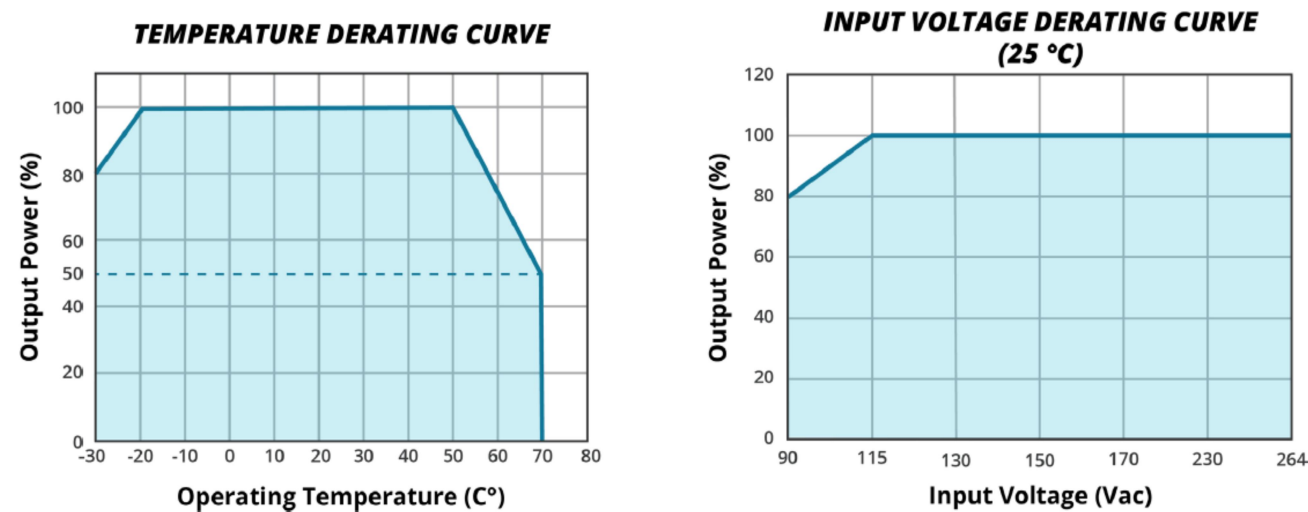
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6. ENVIRONMENTAL REQUIREMENTS

Temperature	Operating	-30℃ +70 ℃
	Non-Operating	-30 ℃ +80 ℃ (Non Condensing)
Note: For details about the operating environment, see 6.6 Derating Curve.		
Humidity	Operating	10%~95% (Non Condensing)
	Non-Operating	0%~90% (Non Condensing)
Altitude	-60 m to 3,000 meters	
Vibration	10Hz-55Hz, 19.6m/s², 3 axes x 2 hours	
	Normal performance after test condition is removed.	

6.1 DERATING CURVES



AC-DC POWER SUPPLY

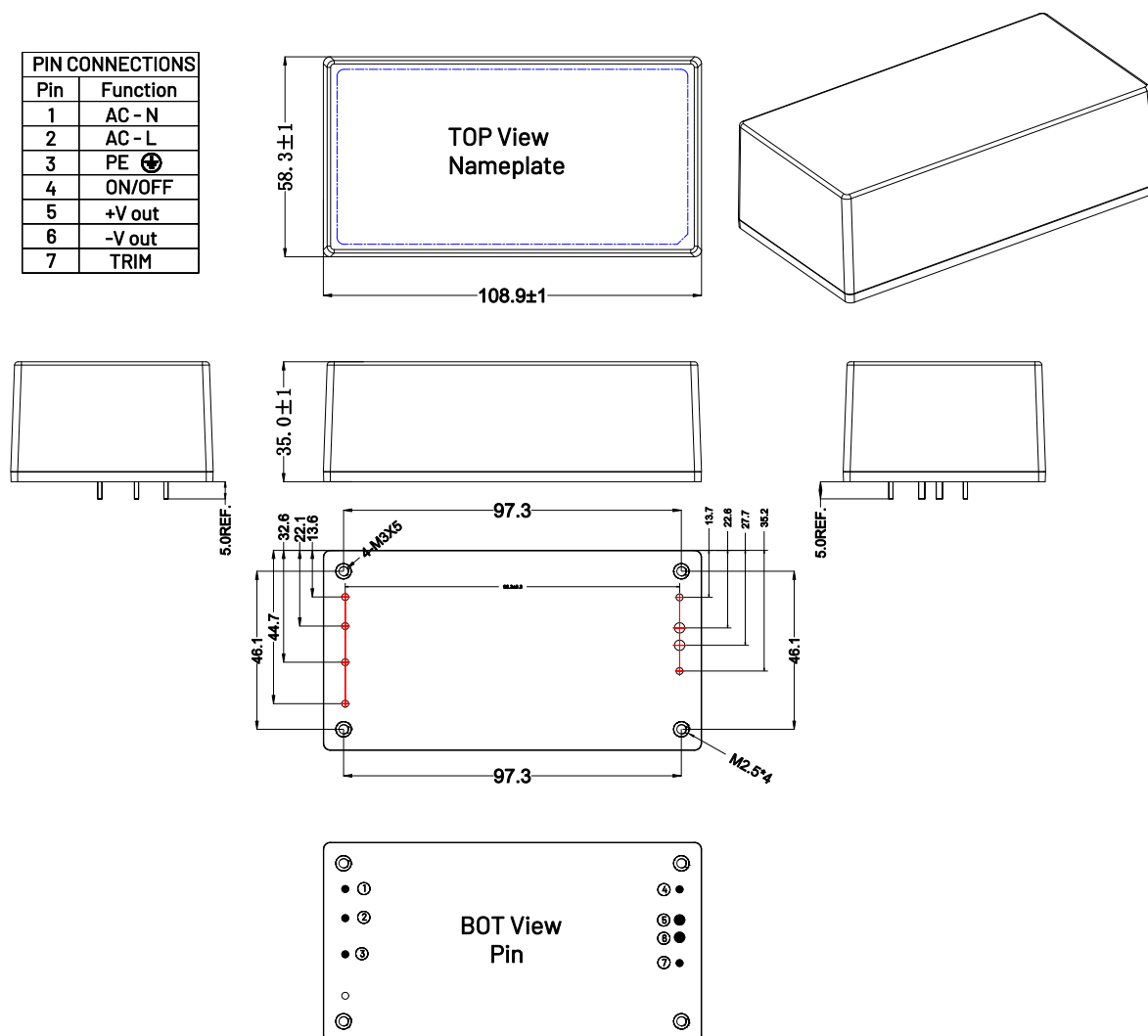
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7. MECHANICAL DRAWING

PIN CONNECTIONS	
Pin	Function
1	AC - N
2	AC - L
3	PE 
4	ON/OFF
5	+V out
6	-V out
7	TRIM



NOTE:

1. Case cover & chassis material PC BLACK (NO KTEC)
2. AC PIN MATERIAL: BRASS (NI PLATED)
3. PAHS 6P NP NOP REACH ROHS
4. Satin Finish
5. Top mold: JYM2501; Bottom mold: JYM2502

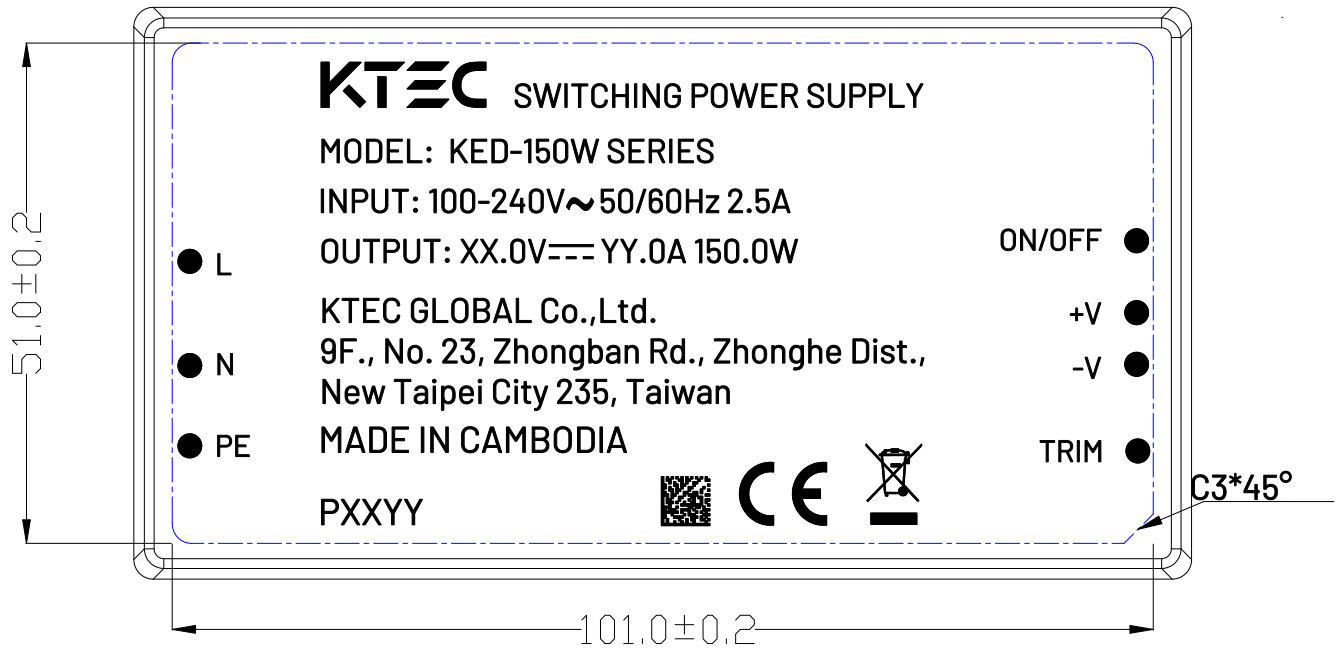
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8. NAME PLATE



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 : GKS2514690000000001, GKS2514690000000002...GKS2514699999999999.

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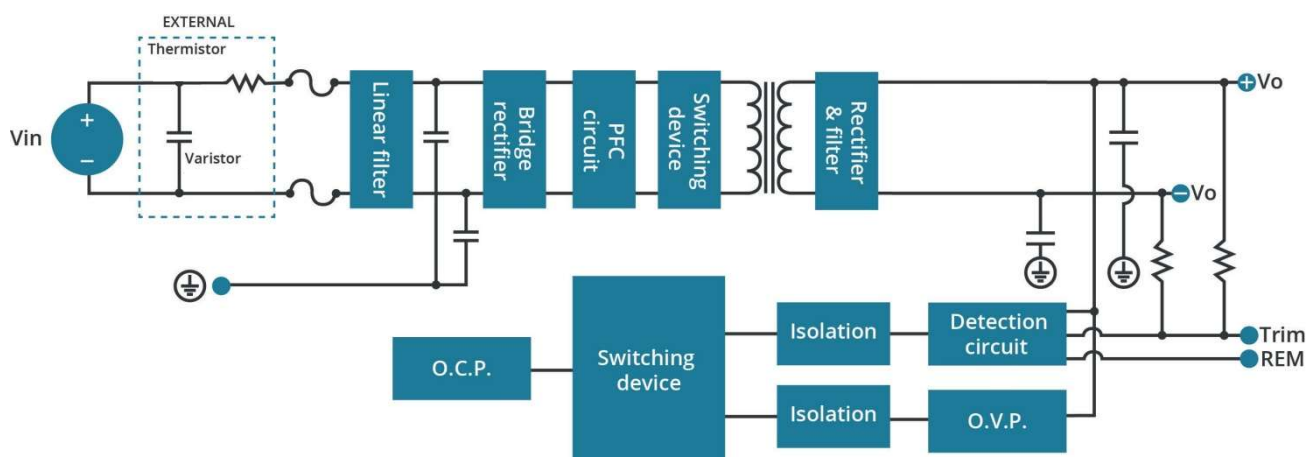
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9. MAIN FUNCTION INTRODUCTION:

9.1 BLOCKDIAGRAM

Figure 1

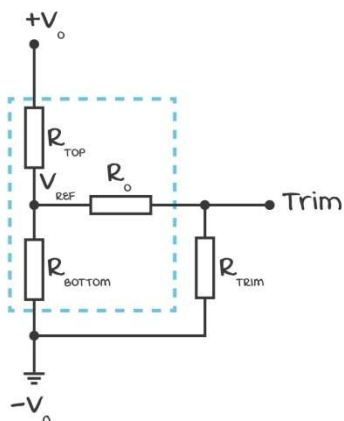


9.2 APPLICATION NOTES

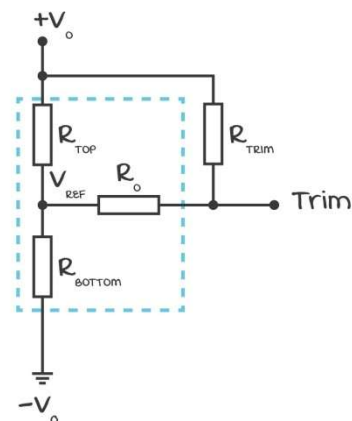
Table1

Part No.	TrimUp	-Vo	TrimDown	+Vo
KED-150W-120EP	5% / 0%	34K Ω ~ 10M Ω	0% / -5%	10M Ω ~ 106K Ω
KED-150W-240EP	5% / 0%	37.4K Ω ~ 10M Ω	0% / -5%	10M Ω ~ 270K Ω
KED-150W-480EP	5% / 0%	38K Ω ~ 10M Ω	0% / -5%	10M Ω ~ 640K Ω

Trim up



Trim down



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10. PACKING (UNIT: MM)

