

### ZDK 60W Series Converter

#### Features

- ◆ 2 in.×1in. Compact Size
- ◆ 4:1 Wide input voltage
- ◆ 1500Vdc Isolation Voltage
- ◆ Operating Case Temp:-40 °C to +105 °C
- ◆ Output Short-circuit Protection, hiccup, auto-recovery
- ◆ Applications:Telecom/ datacom system equipments, bus ,metro, tram and Railway & Rail transit ,Industrial control equipments and Instrument
- ◆ Compliance with EN50155 railway standard
- ◆ 5-year. warranty



#### Contact Information

Anhui Hesion Trading Co.,Ltd.  
& Beijing WiEN Electronic Technology Co.,Ltd.

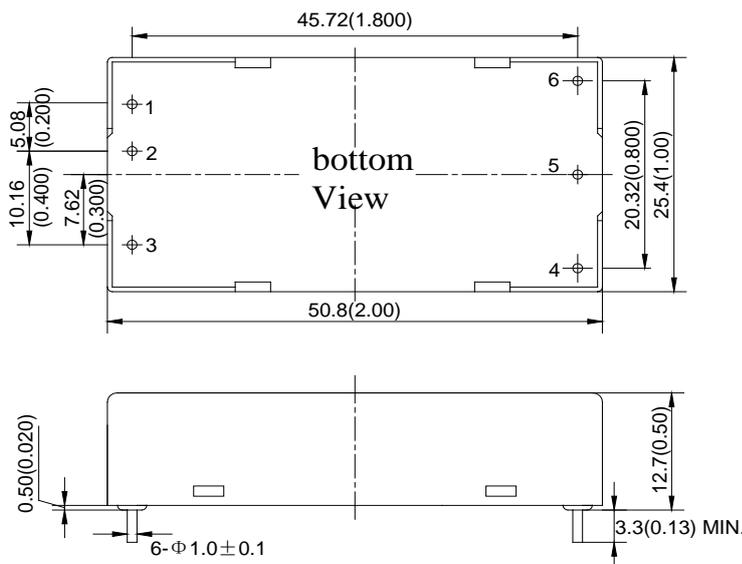
TEL:+86-551-65369069,65369067

Email: [alecz@ahhesion.com](mailto:alecz@ahhesion.com)

Backup:[alecz@126.com](mailto:alecz@126.com)

[www.ahhesionpower.com](http://www.ahhesionpower.com)

#### Outline Diagram



Pin	Sign	Function
1	+Vin	Positive Input Voltage
2	-Vin	Negative Input Voltage
3	CNT	Remote Control Pin
4	TRIM	Output voltage adjust
5	-Vo	Negative Output Voltage
6	+Vo	Positive Output Voltage

Case material: Aluminum, black;  
Pin: copper with gold plating  
Notes: all dimensions in mm(inches)  
Tolerance: x.x mm:±0.5 (x.xx:±0.020)  
x.xx mm:±0.25 (x.xxx:±0.010)

**Performance Specifications And Ordering Guide**

Unless otherwise specified, all values are given at: 25°C, one standard atmosphere pressure, pure resistive load and basic connection.

Model	Output				Input	Efficiency
	Voltage(V)	Current(A)	Ripple and Noise	Capacitive load(uF)	Range-DC (Volts)	
ZDK60-24BS03	3.3	12	100	10000	9-36	89
ZDK60-24BS05	5	12	100	10000	9-36	91
ZDK60-24BS12	12	5	120	3000	9-36	91
ZDK60-24BS15	15	4	150	2200	9-36	91
ZDK60-24BS24	24	2.5	150	750	9-36	91

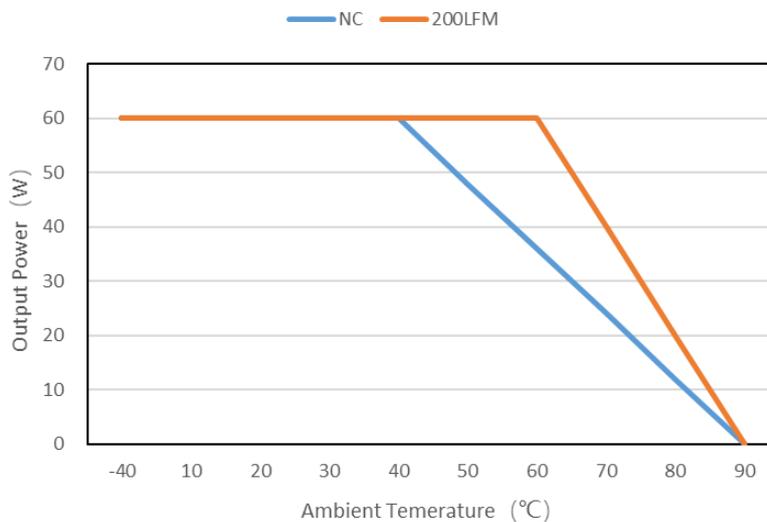
Other Models please contact us.

**Performance/Functional Specifications**

Input		General	
<b>Input Voltage:</b>	See Ordering Guide	<b>Isolation Voltage:</b>	1500Vdc/1min/1mA (Input-Output)
<b>Output</b>		<b>Switching Frequency:</b>	300kHz(typ.)
<b>Voltage Accuracy:</b>	±1% Vo1 ±3% Vo2	<b>MTBF:</b>	2×10 <sup>6</sup> h(Bellcore tr332)
<b>Line Regulation:</b>	±0.2%max.	<b>Temperature Coefficient:</b>	±0.02% per°C(Max)
<b>Load Regulation:</b>	±0.5% max.	<b>Case Temperature:</b>	-40°C ~ +105°C(Industry)
<b>Ripple and Noise:</b>	See Ordering Guide	<b>Storage Temperature:</b>	-55°C ~ +125°C
<b>Efficiency:</b>	See Ordering Guide	<b>Relative Humidity:</b>	10%~90%
<b>Transient Response Recovery Time(μs):</b>	see respective data sheet	<b>Short-circuit Protection:</b>	Hiccup mode, automatic recovery
<b>Transient Response Voltage Deviation (%):</b>	see respective data sheet	<b>Isolation Resistance:</b>	50MΩmin(500Vdc,90%RH)
<b>Start-up Delay Time:</b>	see respective data sheet	<b>Manual Soldering:</b>	425°C max (5s Max)
<b>Rise Time:</b>	see respective data sheet	<b>Wave Soldering:</b>	255°C max (10s Max)

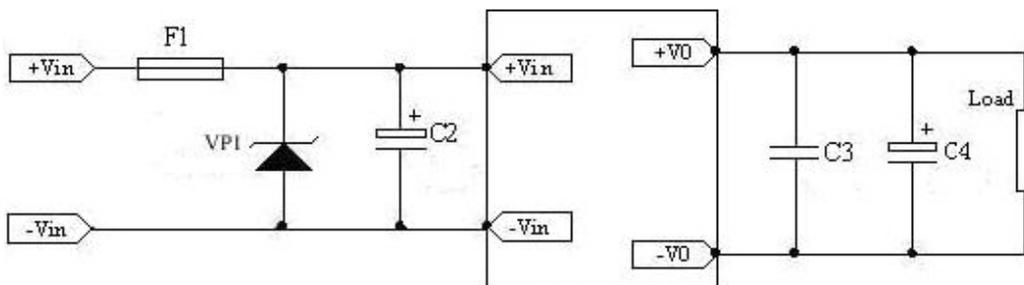
**Characteristic Curves**

**Derating**



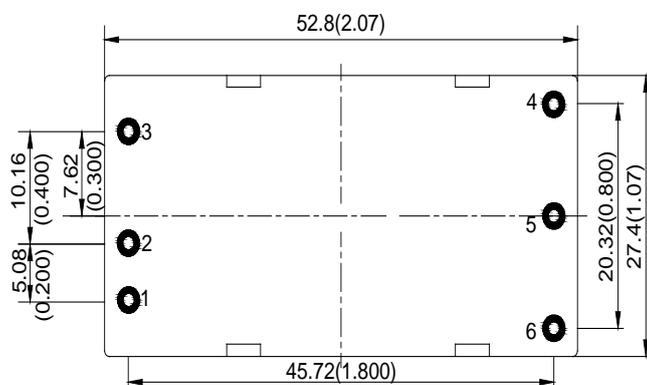
## Design Considerations

### Basic Connection



Notes: Please see the application information followed for the further information.

### Recommended Layout



NO.	Recommendation & Notes
Pad Design	Pad holes 1~6:1.2mm, pad diameter including hole:2.5mm
Mounting Direction	heatsink face up, for natural convection
Safety	Isolated Converters, care to the spacing between input and output
Electrical	The Vin(-) and Vo(-) planes should be placed under of the converter separately. Avoid routing sensitive signal or high disturbance AC signal under the converter

### Thermal Consideration

The converters operate in a variety of thermal environments; however, sufficient cooling should be provided to ensure reliable operation of the unit. Heat is removed by conduction, convection and radiation to the surrounding environment.

When ambient temperature is higher than the permitted operating, the derating curves should be referred or external heat dissipation measures. Forced air cooling or heatsink, should be used. The air tunnel should be considered for forced air cooling, to avoid heated air be hindered or forming swirl; when heatsink used, it should be attached the converter closely, through double-side thermal conductivity insulation adhesive or thermal conductivity silicone for heat exchange.

### Safety Consideration

The module, as one component for the end user, should be installed into the equipment. It is required to meet safety requirements in the system design.

To avoiding fire and be protected when short circuit occurred, it is recommended that a fast blow fuse with rating 1.5 to 2.5 times of converter's continuous input peak current is used in series at the input terminal.(Inrush current suppression circuit is required for greater filter capacitance at input terminal, or it will result in the misoperation of the fuse ).

### Series and Parallel Operation

The converters should not be paralleled directly to

increase power, but they can be paralleled each other through o-ring switches or diodes. Make sure that every converter's maximum load current should not exceed the rated current at anytime if they are paralleled without using external current sharing circuits. The converters can operate in series. To prevent against start-up failure due to start up time difference,

SBD with low voltage difference can be paralleled at the output pins(SBD negative terminal connect to the positive pin of the output) for each converter.

### **Cleaning Notice**

The converter case is not a hermetically-sealed construction, a sufficient drying process is required after the converter cleaning, make sure the liquid congregated is removed, or it will damage the converter or degradation of performance

After surface treatment, the appearance of the converter may be affected by the organic solvent, protection measures should be taken before cleaning when appearance is concerned.

### **Quality Statement**

The converters are manufactured in accordance with ISO 9001 system requirements, in compliant with YD/T1376-2005, and are monitored 100% by auto-testing system, 100% burn in.

The warranty for the converters is 5-year.