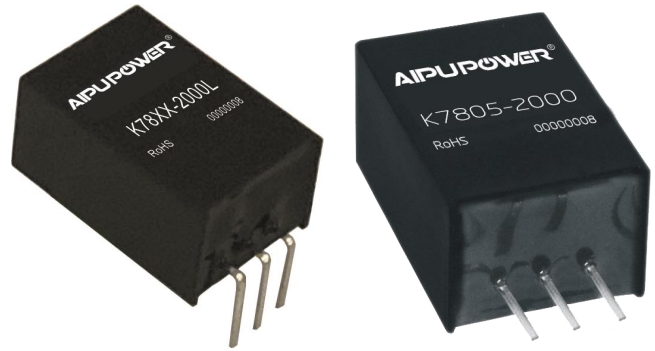


# Non-Isolated DC/DC Converter K78XX-2000(L) Series



## Typical Features

- ◆ Wide input voltage range, non-Isolated & regulated output
- ◆ High transfer efficiency up to 92%
- ◆ Compact SIP package
- ◆ Short circuit, over heat protection
- ◆ Low ripple & Noise
- ◆ Operating Temperature: -40°C ~ +85°C
- ◆ Plastic case, meet UL94 V-0 standard



## Typical Product List

Certificate	Part No	Input Voltage Range(VDC)	Output Specification		Max Capacitive Load(uF)	Ripple & Noise (mVp-p)	Efficiency (%)@output full load, nominal voltage (%) (Typ)	
			Voltage (VDC)	Current (mA)			Vin(min)	Vin(Typ)
-	K783V3-2000(L)	12 (4.75--18)	3.3	2000	1000	45	85	87
-	K7805-2000(L)	12 (7--18)	5	2000	1000	45	87	91
-	K7812-2000(L)	15 (13.5-18)	12	2000	1000	45	92	96

Note: Due to limited space, for more details, please contact with our sales team.

## Output Specifications

Items	Working Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load	-	±2	±3	%
Ripple & Noise	Nominal input, full load, 20MHZ bandwidth	-	25	50	mV
Load Regulation	10% ~100% load	-	±0.5	±0.75	%
Line Regulation	Input voltage range	-	±0.2	±0.5	%
Temperature Drift Coefficient	100% load	-	-	±0.03	%/°C
Over Heat Protection	IC inside	-	150	-	°C
Output short circuit protection	-	Continuous, self-recovery			

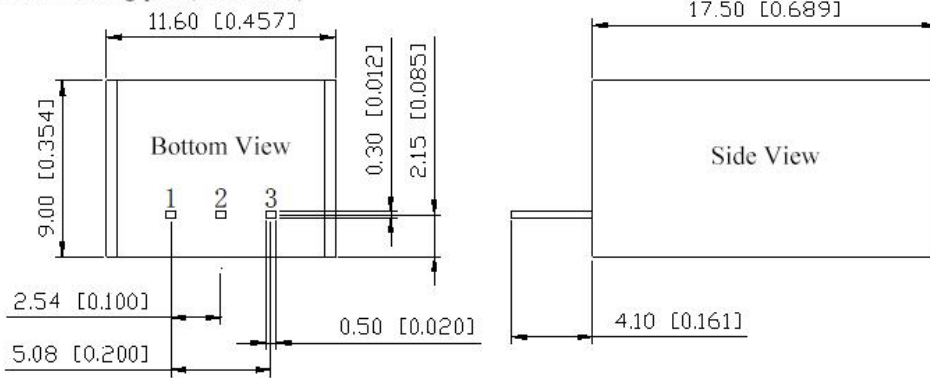
Note: ripple & noise is tested by twisted pair method.

## General Specifications

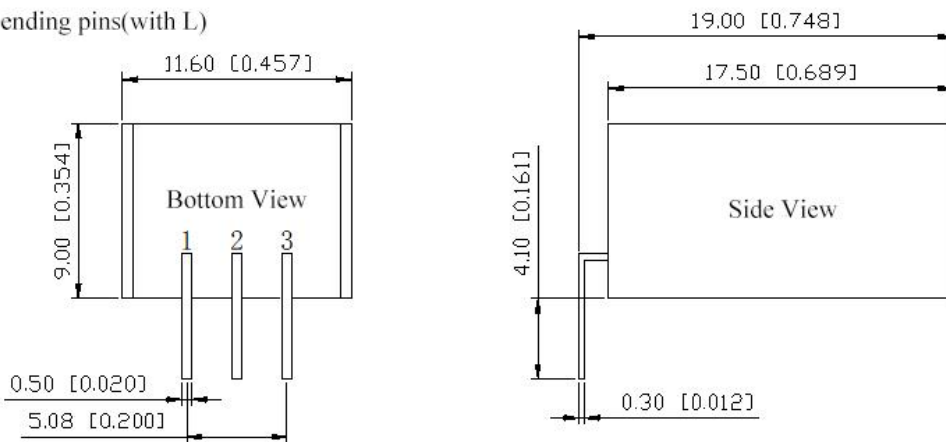
Switching Frequency	Typical	350KHz (Typ.)
Operating Temperature	refer to temperature derating curve	-40°C ~ +85°C
Storage Temperature	-	-50°C ~ +125°C
Case temperature rises during operation	-	35°C (Typ.)
Relative Humidity	No condensing	5%~95%
Case Material	-	Black flame retardant and heat resistant plastic(UL94 V-0)
Product Weight	-	4.0g (Typ.)
Pin Withstand Soldering Temp	Distance to case 1.5mm, 10S	300°C
MTBF	MIL-HDBK-217F 25°C	10X10 <sup>5</sup> Hrs

## Dimensions, Pin-Out

without bending pins(without L)



bending pins(with L)



Pin-out	
Pin	Positive Out
1	V <sub>in</sub>
2	GND
3	+V <sub>o</sub>

Note:

unit:mm[inch]

pin tolerance:±0.10[±0.004]

general tolerance±0.50[±0.020]

Note:

1. The maximum capacitive load is tested under input voltage range and full load conditions;
2. Unless otherwise specified, the data in this article are measured at Ta=25°C, humidity <75%, nominal input voltage and rated output load;
3. The above are the performance indicators of the product models listed in this manual. Some indicators of non-standard model products will exceed the above requirements. For specific circumstances, please contact our technical personnel directly;

Packing Code	Lx W x H	
K78-2000	11.5*9.0*17.5mm	0.453 × 0.354 × 0.689inch

### Pin-Definition

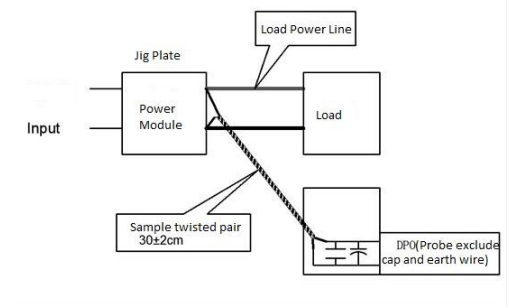
Pin-Out	1	2	3
Single(S)	+V <sub>in</sub>	GND	+V <sub>o</sub>

### Ripple& Noise Test: (Twisted Pair Method, 20MHz bandwidth)

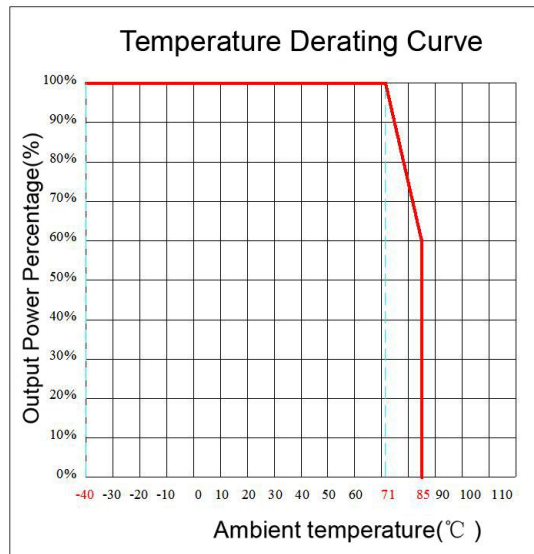
Test Method:

a. 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

b. Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.



## Temperature Characteristic Curve



## Design and Application Circuit Reference

### 1. Output Load Request

- To ensure this module operate efficiently and reliably, the minimum load could not be less than 10% of the nominal load. If the actual power is too small, please parallel a resistor at output terminal, the resistance equal to 10% of nominal load.
- The maximum capacitive load is tested under nominal input voltage with full load, and cannot exceed the maximum capacitive load of output side when using, or it will be difficult to start up and damage the product.

\* Note:

This product cannot be used in parallel, do not support hot plug.

Note:

- The product should be used within the specification range, otherwise it will cause permanent damage to the product;
- Fuse at input terminal is needed.
- Unless otherwise specified, the data in this article are measured at  $T_a=25^{\circ}\text{C}$ , humidity  $<75\%$ , input nominal voltage and output rated load;
- All index test methods in this article are based on the company's corporate standards;
- The above are the performance indicators of the product models listed in this manual. Some indicators of non-standard products will exceed the above requirements. For details, please contact our technical staff directly;
- Our company can provide product customization;
- Product specifications are subject to change without notice.