



### Typical Features

- ◆ Wide input voltage, non-Isolated & regulated single output
- ◆ High Efficiency up to 93%
- ◆ Small compact SIP packing
- ◆ Short circuit, Over-heat Protection
- ◆ No external components needed
- ◆ Operating Temperature: -40°C~+85°C
- ◆ Plastic Case, meet UL94 V-0 standard



**Test Condition:** Unless otherwise specified, data in the datasheet should be tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25°C

### Typical Product List

Part No.	Input Voltage Range (VDC)		Output Voltage/Current (Vo/Io)		Quiescent Current (mA) Typ.	Max Capacitive Load uF	Ripple & Noise Max mVp-p	Efficiency (%) @ output load, nominal input voltage	
	Nominal	Range	Voltage (VDC)	Current(mA) MAX.				Min.	Typ.
K783V3-500	24	4.75-28	3.3	500	5	1000	25	80	90
K7805-500		6.5-32	5	500	5	1000	25	84	93
K7809-500		11-32	9	500	5	1000	25	91	94
K7812-500		15-32	12	500	5	1000	25	92	95
K7815-500		18-32	15	500	5	1000	25	93	96

### Output Specifications

Item	Working Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load	--	±2	±3	%
Ripple & Noise*	Nominal input, full load, 20MHZ bandwidth	--	25	45	mVp-p
Load Regulation	10% ~ 100% load	±0.4	±0.6	--	%
Line Regulation	Input Voltage Change	±0.2	±0.4	--	%
Temperature Drift Coefficient	100% Full Load	--	--	±0.03	%/°C
Over Heat Protection	IC build-in	--	150	--	°C
Output Short Circuit Protection		Continuous, Self-recovery			

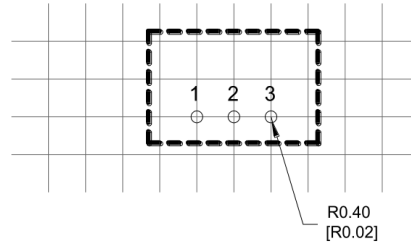
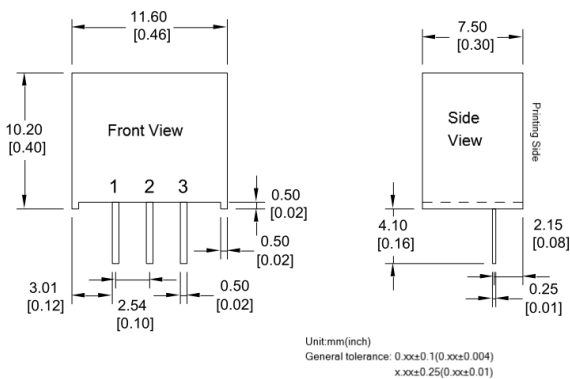
NOTE: Ripple & Noise tested by twisted-pair method;

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**General Specifications**

Switching Frequency	Typical	350KHz (Typ.)
Operating Temperature	Refer to Temperature Derating Curve	-40°C ~ +85°C
Storage Temperature		-55°C ~ +125°C
Shell temperature rise during work		100°C (MAX.)
Relative Humidity	No condensing	5%~95%
Case Material		Black flame-retardant heat-resistant Plastic (UL94 V-0)
Product Weight		2.0g (Typ.)
Pin Withstand Soldering Temp	Distance to case 1.5mm, 10S	300°C
MTBF	MIL-HDBK-217F@25°C	20X10 <sup>5</sup> Hrs

**Packing Dimension**



Printed board vertical view  
Lattice spacing:2.54mm(0.1inch)

Packing Code	L x W x H	
K78XX-500	11.60x 7.50 x 10.20mm	0.457 x 0.295x 0.402inch

**Pin-Function**

Pin-Out	1	2	3
Single(S)	+Vin	GND	+Vo

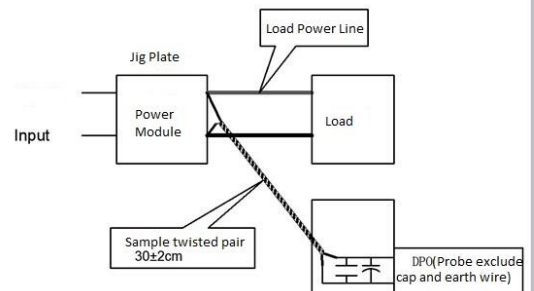
Note: if the definition of pin is not in accordance with the manual, please refer to the label on actual item.

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

Test Method:

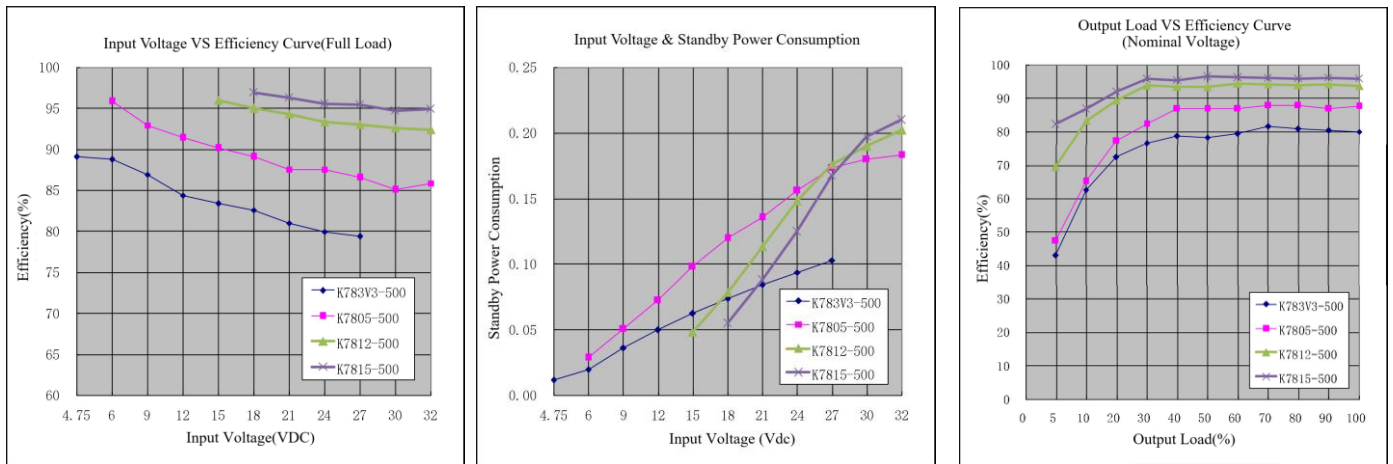
a. 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

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.

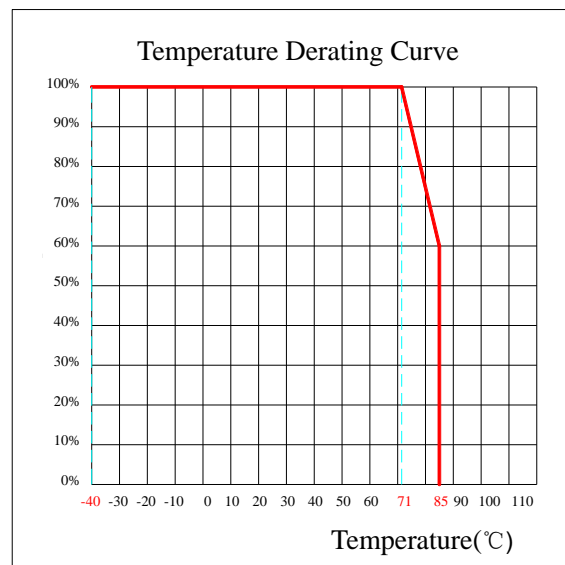
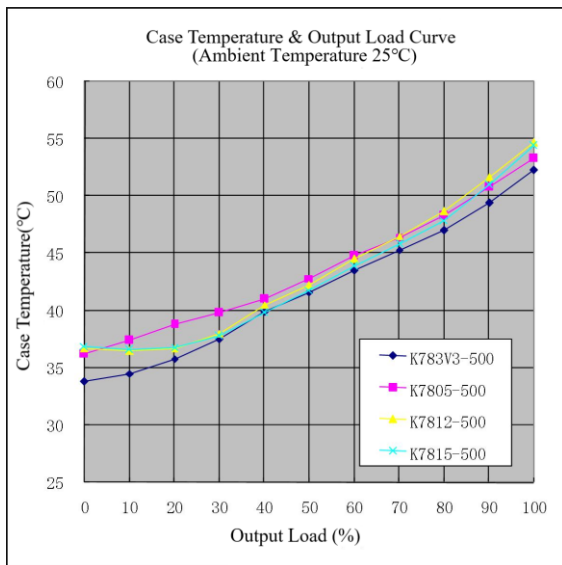




**Characteristic Curve**



**Temperature Curve**



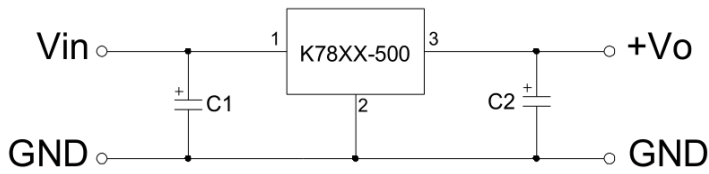
**Design and Application Circuit Reference**

**1. Output Load Request**

- a. 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.
- b. 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.

**2. Recommended Circuit**

In order to ensure that the ripple& noise of input and output be decreased, a capacitor filter net could be connected to input output side, application circuit see photo 1; But a proper filter capacitor should be chosen, start up problem maybe caused by too big capacitance; to ensure each circuit work safely and reliably, recommended capacitive load value see below table 1.(The capacitance of C1,C2 refer to external capacitor table, and could be increased properly, also could use low ESR of tantalum capacitor and electrolytic capacitor)



Model	C1 Ceramic capacitor	C2 Ceramic capacitor
K783V3-500	10uF/50V	22uF/6.3V
K7805-500	10uF/50V	22uF/10V
K7812-500	10uF/50V	10uF/25V
K7815-500	10uF/50V	10uF/25V

**Note:**

- 1.This product cannot be used in parallel, and do not support hot-plugging;
- 2.All index testing methods in this datasheet are based on our Company's corporate standards
- 3.The product specification may be changed at any time without prior notice.