Typical Features

- ◆ Wide input voltage, non-Isolated & regulated single output
- ◆ High Efficiency up to 96%
- ◆ No load input current as low as 0.2mA
- ◆ Short circuit Protection
- ◆ Support negative output
- ◆ Operating Temperature: -40℃～+85℃
- ◆ 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℃.

Typical Product List

Part No.	Input Voltage Range (VDC)	Output		No load input Current (mA)	Capacitive Load (uF)	Ripple & Noise (mVp-p)	Efficiency (%) (Typ.)	
		Voltage (VDC)	Current (mA)	Typ.	Max.	Typ.	Vin (max)	Vin (min)
K783V3-500R3	24 (4.75– 34)	3.3	500	0.2	680	35	91	80
K7805-500R3	24 (6.5 – 34)	5	500	0.2	680	35	92	87
	12 (7 – 31)	-5	-300	1	330	35	80	81
K7809-500R3	24 (12 – 34)	9	500	0.2	680	35	93	90
K7812-500R3	24 (15 – 34)	12	500	0.2	680	35	96	92
	12 (8 – 24)	-12	-150	1	330	35	84	85
K7815-500R3	24 (19 – 34)	15	500	0.2	680	35	96	93
	12 (8 – 21)	-15	-150	1	330	35	85	87

Note: 1. "*" is model under developing.

2. When input voltage exceeds 30Vdc, input terminal needs to be connected to an external 22μF/50V electrolytic capacitor to prevent module damage caused by voltage spikes.

Input Specifications

Item	Operation Conditions	Min.	Typ.	Max.	Unit
No load input current	Positive output	--	0.2	1.5	mA
	Negative output	--	1	4	
Reverse the input		Not allowed			
Input filter		Capacitor filter			

Output Specifications

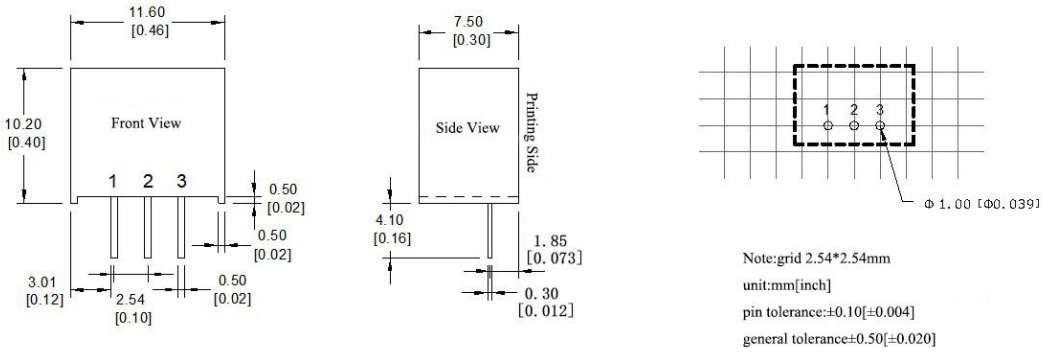
Item	Working Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load		--	±2	±3	%
Ripple & Noise*	Nominal input, full load, 20MHZ bandwidth		--	35	75	mVp-p
Load Regulation	Nominal input voltage, 10% ~ 100% load	Positive o/p	--	±0.4	±0.6	%
		Negative o/p	--	±0.4	±0.8	
Line Regulation	Input Voltage Range		--	±0.2	±0.4	
Temperature Drift Coefficient	100% Load		--	--	±0.03	%/°C
Output Short Circuit Protection			Continuous, Self-recovery			

NOTE: ① Ripple & Noise tested by twisted-pair method;

General Specifications

Switching Frequency	Typical	800KHz (Typ.)
Operating Temperature	Refer to Temperature Derating Curve	-40℃ ~ +85℃
Storage Temperature		-55℃ ~ +125℃
Shell temperature rise during work		100℃(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	Time, 10S(Max)	260℃
MTBF	MIL-HDBK-217F@25℃	20X10^{5}Hrs
Package	Tube(525*18*10mm)	43PCS
	Box(542*110*155mm)	3440pcs(total 80 Tubes)

Packing Dimension



Packing Code	L x W x H	
K78XX-500R3	11.60× 7.50 × 10.20mm	0.457 × 0.295× 0.402inch

Pin-Function

Pin-Out	1	2	3
Positive Output	+Vin	GND	+Vo
Negative Output	+Vin	- Vo	GND

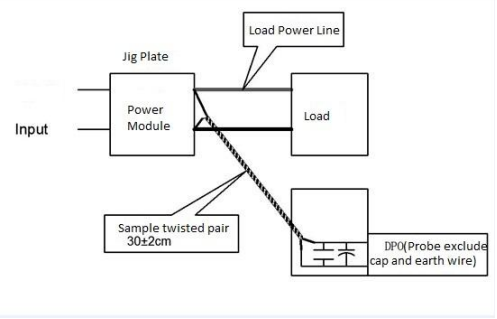
Note: if the definition of pin is not in accordance with the manual, please refer to the label on actual item.

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

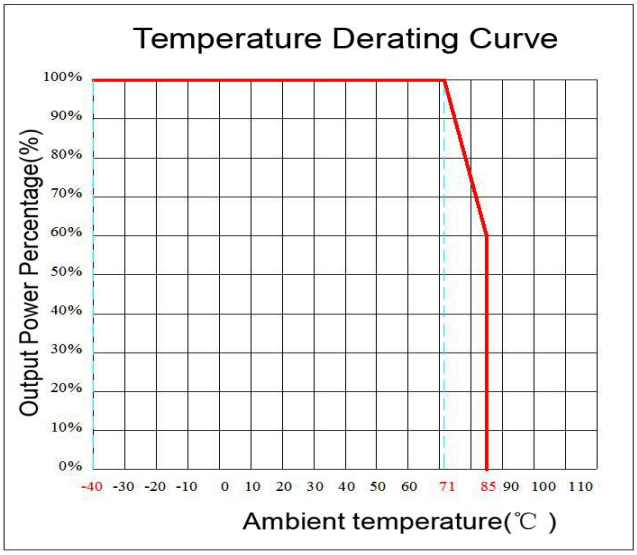
Test Method:

a.12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF 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 Curve



Design and Application Circuit Reference

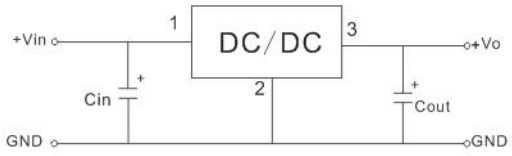
1. Output Load Request

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.

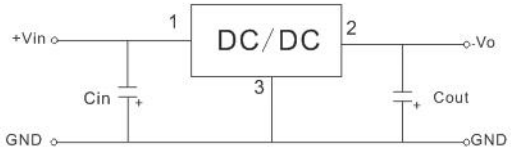
2. Recommended Circuit

To ensure effective reduction of input and output ripple and noise, a capacitor filter network can be connected to the input and output ends. The application circuit is shown in Figure 1 below; the negative output application circuit is shown in Figure 2 below, and the positive and negative output parallel application circuit is shown in Figure 3 below (the recommended LDM value in the figure is 10 μ H). However, a suitable filter capacitor should be selected. If the capacitance is too large, it may affect the startup of the product. To ensure that each output works under safe and reliable conditions, the recommended capacitive load value is detailed in Table 1 below. (The capacitance of C1 and C2 refers to the external capacitor table, which can be appropriately increased as needed. Low ESR tantalum capacitors and electrolytic capacitors can also be used)



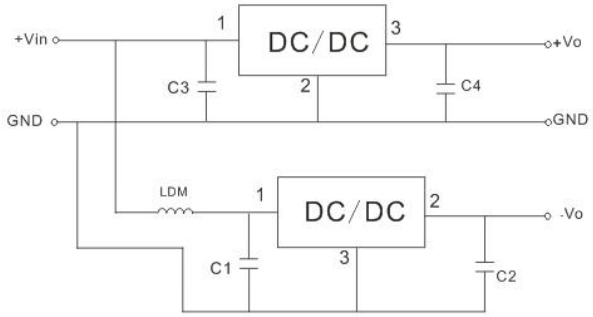
Positive output application circuit

Photo 1



Negative output application circuit

Photo 2



Positive and negative output parallel application circuit

Photo 3

Recommend capacitive load table(Table 1)

Part No	C1/C3 Ceramic capacitor	C2/C4 Ceramic capacitor
K7803-500R3	10μF/50V	22μF/10V
K7805-500R3		22μF/10V
K7809-500R3		22μF/16V
K7812-500R3		22μF/25V
K7815-500R3		22μF/25V

Note:

1. This product does not support hot-swap;
2. If the product operates below the minimum required load, it cannot be guaranteed that the product performance meets all performance indicators in this manual;
3. All indicator test methods in this article are based on the company's corporate standards;
4. Product specifications are subject to change without prior notice.

Guangzhou Aipu Electron Technology Co., Ltd
Address: Building 4, HEDY Park, No.63, Punan Road, Huangpu Dist, Guangzhou, China.
Tel: 86-20-84206763 Fax: 86-20-84206762 HOTLINE: 400-889-8821
E-mail: sales@aipu-elec.com Website: https://www.aipupower.com