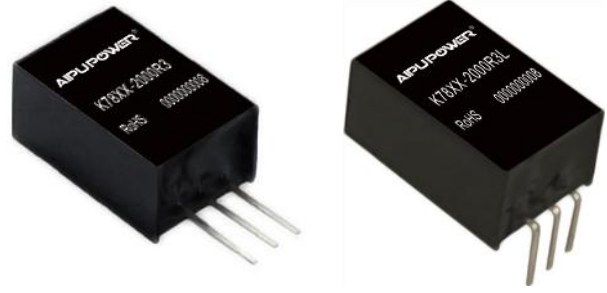


Typical Features

- ◆ Wide input voltage range, un-isolated/regulated output
- ◆ Efficiency up to 95% (Typ.)
- ◆ Mini size SIP package
- ◆ Short circuit protection, Over temperature protection
- ◆ Low Ripple & Noise
- ◆ Operating Temperature from -40°C to +85°C
- ◆ Plastic Case, flame class UL94-V0



Test Condition: Unless otherwise specified, all parameter values had been tested at nominal input voltage, pure resistive rated load, and at room temperature 25°C.

Application Field

This series of products can be widely used in the fields of instrument, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.

Typical Product List

Certificate	Part No.	Input Voltage Range (VDC)		Output Voltage/ Current (Vo/Io)		Input current (mA) Typ. @nominal voltage		Max Capacitive Load uF	Ripple & Noise (20MHz) Max/Typ. mVp-p	Efficiency (%) @full load, nominal Volt.	
		Nom.	Range	Vo (VDC)	Io(mA) Max/Min	Full load	No load			Max	Typ.
-	K7805-2000R3(L)	24	8 - 32	5	2000	460	1	1000	75/30	89	93
-	K7812-2000R3(L)		15 - 32	12	2000	1070	1	1000	100/60	91	95

Note: The Ripple & Noise are tested by the twisted pair method.

Input Specifications

Item	Operation Conditions	Min.	Typ.	Max.	Unit
No load input current	--	--	--	1.0	mA
Input Reversed	Not allowed				
Input filter	Capacitor filter				
Hot Plug	NA				

Output Specifications

Item	Operation Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full input voltage range, full load	--	±2	±3	%
Line Voltage Regulation	Full input voltage range, full load	--	±0.4	±0.8	
Load Regulation	10% ~ 100% load	--	±0.5	±1.5	

Transient response deviation	25% load step change, Nominal input voltage	5V output	--	±5	±8	%
		others	--	±3	±5	
Transient recovery time	25% load step change, nominal input voltage		--	300	500	uS
Ripple & Noise *	Nominal input voltage, rated load		≤100mVp-p (20MHz)			
Temp. Drift Coefficient	100% Load		±0.03%/°C			
Short Circuit Protection			Continuous, Self-recovery			

*Note: The Ripple & Noise are tested by the twisted pair method, refer to the following test instruction.

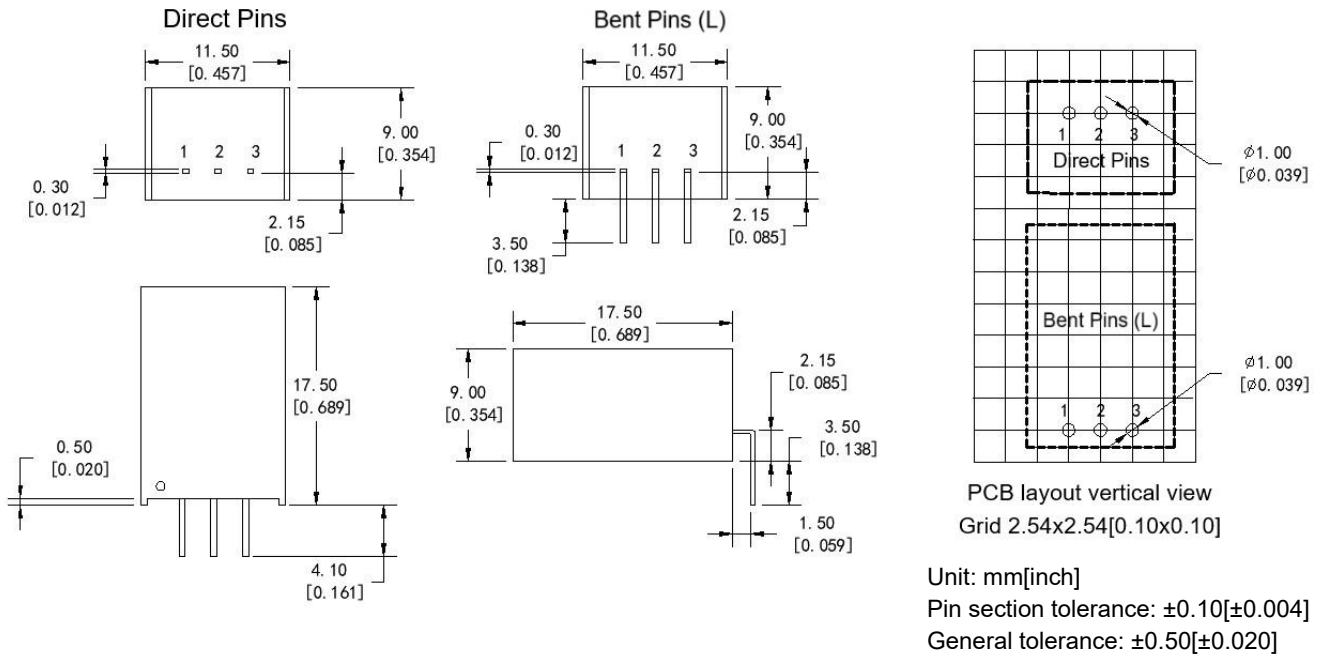
General Specifications

Item	Operation Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	Nominal input voltage, full load	--	410	--	KHz
Operating Temperature	Refer to the Temperature Derating Graphs	-40	--	+85	°C
Storage Temperature		-55	--	+125	
Case temperature rise	Operating at Ta =25°C	--	30°	--	
Pin Soldering Temperature	1.5mm from the case, 10S	--	--	300	
Relative humidity	No condensation	5	--	95	%RH
Vibration		10-150Hz, 5G, 30 Min. along X, Y and Z			
MTBF	MIL-HDBK-217F@25°C	2000	--	--	K hours
Case Material	Plastic in Black, flame class UL94 V-0				
Product Weight	3.8 g (Typ.)				
Cooling Method	Natural air				
Unit Dimensions	L x W x H	11.50× 9.00 × 17.50 mm		0.457 × 0.354 × 0.689 inch	

EMC Performances

EMI	CE	CISPR32/EN55032, CLASS B (with the Recommended EMC Circuit)
	RE	CISPR32/EN55032, CLASS B (with the Recommended EMC Circuit)
EMS	ESD	IEC/EN61000-4-2 Contact±4kV perf.Criteria B
	RS	IEC/EN61000-4-3 10V/m perf. Criteria A
	EFT	IEC/EN61000-4-4 ±1kV perf. Criteria B
	Surge	IEC/EN61000-4-5 Line to line ±1kV perf. Criteria B
	CS	IEC/EN61000-4-6 3 Vr.m.s perf. Criteria A

Mechanical Dimensions

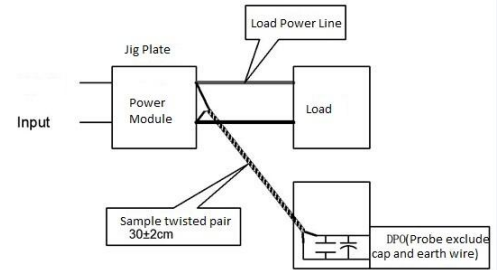


Pin No.	1	2	3
Pin function	+Vin	GND(Common)	+Vout

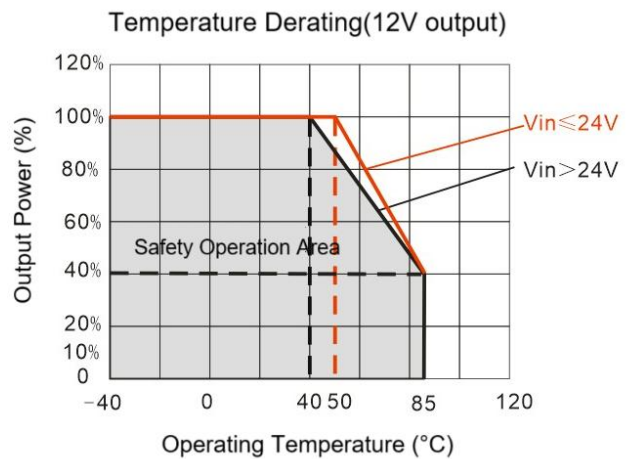
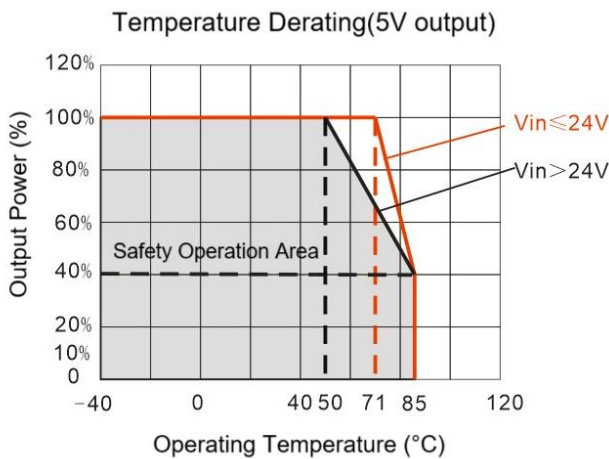
Note: Please take the pin definition on the product label as the right one if there is any difference between the data sheet and the product label.

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

- 1) The Ripple & noise test needs 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHz, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set at the Sample Mode.
- 2) The test diagram is shown on the right. The converter output connects to the electronic load by the jig with cables which size should be defined according to the output current value. The twisted pair (length 30cm \pm 2 cm) should be connected in parallel with the load, the location is as close as possible to the output pins or terminals. The test can be started after input power on.



Product Characteristics Graphs



Recommended Circuits for Application

1. Requirement for Output load

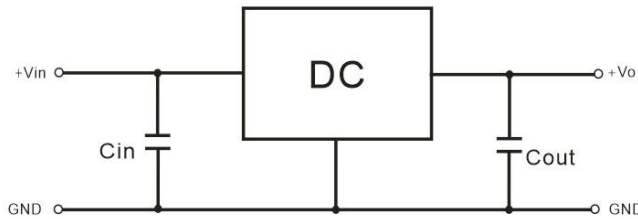
The maximum capacitive load of the product was tested at the Rated full load. The converter may not start or be damaged if the capacitor exceeds this value.

2. Typical application circuit diagram

To effectively decrease the input and output ripple and noise, a capacitor filter can be connected at the input and output as the application circuit shown below. The suitable filter capacitors should be chosen as the recommended capacitive load values in Table 1.

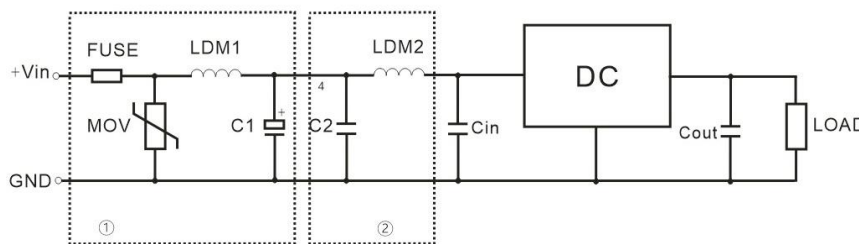
1. The converter could not start if the capacitance is too big.

Recommended Capacitive Load Values (Table 1)



Part No.	Cin	Cout
K7805-2000R3	10 μF/50V	22 μF/10V
K7806-2000R3	10 μF/50V	22 μF/10V
K7809-2000R3	10 μF/50V	22 μF/16V
K7812-2000R3	10 μF/50V	22 μF/25V
K7815-2000R3	10 μF/50V	22 μF/25V

3. Recommended EMC circuit diagram



FUSE	TBD by input current
MOV	20D470K
C1	680 μF / 50V
C2	4.7 μF / 50V
Cin/Cout	Refer to table 1
LDM1	82 μH
LDM2	12 μH

Note: Part ① circuit is for EMS test, part ② for EMI filtering, both can be adjusted according to the actual situation.

Application Notice

- 1.This product cannot be used in parallel, and it does not support hot-plugging.
- 2.The product performance in this manual cannot be guaranteed if it works at a lower load than the minimum load condition.
3. All values or indicators in this manual had been tested based on Aipupower test specifications.

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