

**DESCRIPTION**

Wide Input voltage, non-isolated and regulated single output.

The AD-K78xx-1000R2/3 series are high-efficiency switching regulators, ideal substitutes for the A78xx series of three-terminal linear regulators.

The features are high efficiency, low loss, and without heat sink. Widely used in industrial control, instrumentation, and electric power.

**FEATURES**

- High efficiency up to 96%.
- -40°C to +85°C Working Temperature Range
- Output short-circuit protection.
- Industry-standard SIP-3 (L) package
- Low ripple and noise.
- No load input current is 0.2mA.
- Support negative output perfectly.
- Widely voltage input with 1000mA output.

**ORDERING INFORMATION**

Part Number*	Input Voltage (VDC)	Output		Full Load Efficiency(%) Min/Max		Capacitive Load (uF) Max.
	Nominal (Range)	Voltage (VDC)	Current (mA) Max/Min			
AD-K7803-1000R3(L)	24 (4.75-36)	3.3	1000	90	81	680
AD-K7805-1000R3(L)	24 (6.5-36)	5	1000	93	86	680
AD-K7809-1000R3(L)	24 (12-36)	9	1000	95	90	680
AD-K7812-1000R3(L)	24 (15-36)	12	1000	96	93	680
AD-K7815-1000R3(L)	24 (19-36)	15	1000	96	94	330
AD-K7803-1000R2(L)	24 (4.75-36)	3.3	1000	90	81	680
AD-K7805-1000R2(L)	24 (6.5-36)	5	1000	93	86	680
AD-K7809-1000R2(L)	24 (12-36)	9	1000	95	90	680
AD-K7812-1000R2(L)	24 (15-36)	12	1000	96	93	680
AD-K7815-1000R2(L)	24 (19-36)	15	1000	96	94	330

\* (L) is a L shape pin

**INPUT SPECIFICATIONS**

Item	Operating Conditions	Min	Typ	Max	Unit
No-load Power Consumption	100% load, input voltage range	--	0.1	1	mA
Reverse Polarity	Input voltage range	Forbidden			
Input Filter	10%-100% load	Capacitor Filter			

**OUTPUT SPECIFICATIONS**

Item	Operating Conditions		Min	Typ	Max	Unit
Output Load	Load Percentage		10	--	100	%
Load Regulation	10~100% Load	3.3/5VDC Output		±0.3		%
		Others		±0.3		
Linear Regulation	Full load, Input voltage range		--	±0.2	±0.5	%
Output Voltage Accuracy	100% load. Input voltage range.	AD-K78xx-1000R2	--	±2.0	±4.0	%
		AD-K78xx-1000R3		±2.0	±4.0	
Ripple & Noise	Pure resistance load, 20MHz bandwidth peak-to-peak value 10~100% load		--	20	80	mVp-p
Temperature Drift Coefficient (Work temperature -40 °C~85 °C)			--	±0.03	--	%/°C
Output Short Circuit Protection			Continuous, self-recovery			
Transient response deviation	Nominal input, 25% load step change.			50	300	mV
Transient recovery time				0.2	1	ms

**GENERAL SPECIFICATIONS**

Item	Test Condition	Min	Typ	Max	Unit
Operating Temperature	Refer to Fig1.	-40	--	+85	°C
Storage Temperature		-55	--	+125	°C
Storage Humidity	No Condensation	--	--	95	%RH
Pin Soldering Temperature Resistance	Solder joint distance from housing 1.5mm, 10s	--	--	+260	°C
Switching Frequency	Full load, nominal voltage input	550	--	850	KHz
Housing Material	Black flame retardant & heat resistant plastic (UL94V-0)				
Weight	3.8g (Standard Value)				
Dimension	11.50x9.00x17.50 (mm)				
MTBF	MIL-HDBK-217F@25°C	2000			KHrs
Cooling Method	Free air Convection				

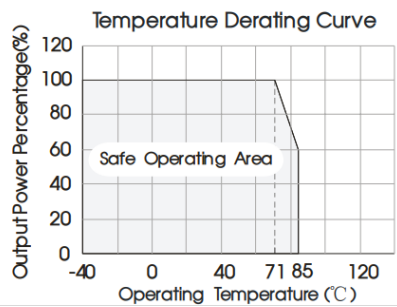


**EMC SPECIFICATIONS**

EMI	Conducted Disturbance	CISPR32/EN55032 CLASS B	See Fig 8.
	Radiated Emission	CISPR32/EN55032 CLASS B	See Fig 8.
EMS	Electrostatic Discharge	IEC/EN 61000-4-2 Contact $\pm 4\text{KV}$	Pert. Criteria B
	Radiation Immunity	IEC/EN 61000-4-3 10V/m	Pert. Criteria A
	EFT	IEC/EN 61000-4-4 $\pm 1\text{KV}$	See Fig 8.
	Surge Immunity	IEC/EN 61000-4-5 $\pm 1\text{KV}$	See Fig 8.
	Conducted Disturbance Immunity	IEC/EN 61000-4-6 3Vr.m.s	Pert. Criteria A
	Voltage dip, Drop and Short interruption	IEC/EN 61000-4-29 0%-70%	Pert. Criteria B

**TYPICAL CHARACTERISTIC CURVES**

Fig 1.



**Temperature Derating Curve**

Fig 2.

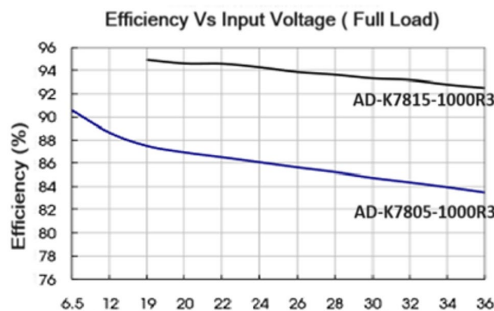


Fig 3.

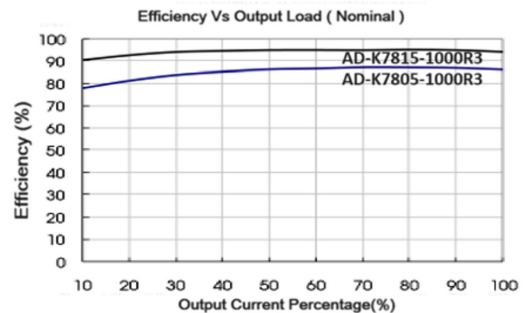


Fig 4.

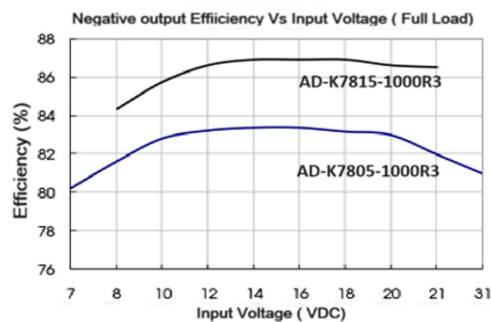
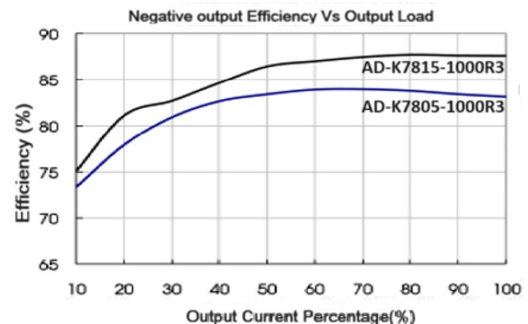


Fig 5.





**DESIGN REFERENCE**

**Typical Application**

Fig 6. Positive output application circuit

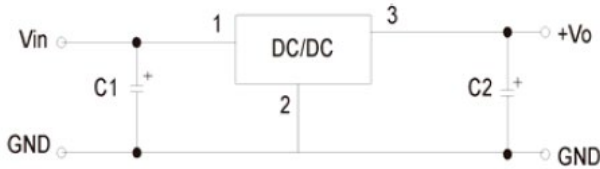
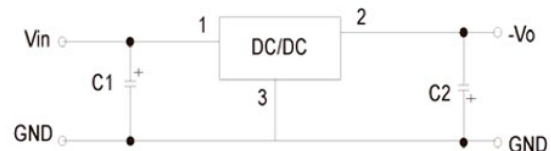


Fig7. Negative output application circuit

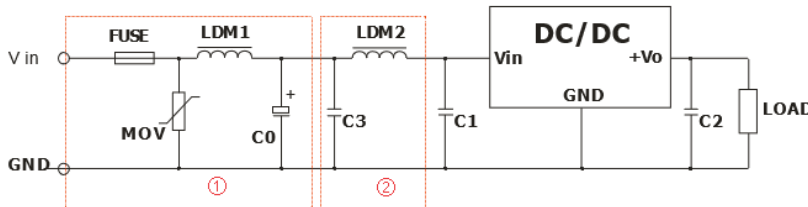


Item	C1 /C3	C2/C4
AD-K7803-1000R2/3	10uF/50V	22uF/10V
AD-K7805-1000R2/3		22uF/10V
AD-K7809-1000R2/3		22uF/16V
AD-K7812-1000R2/3		22uF/25V
AD-K7815-1000R2/3		22uF/25V

Table 1: Recommended capacitive load value

**EMC Recommend Circuit**

Fig 8.



FUSE	MOV	LDM1	LDM2	C0	C1/C2	C3
Select fuse value according to actual input current	20D470K	82uH	12uH	680uF	Table 1	4.7uF

Table 2: Recommended circuit parameter value table

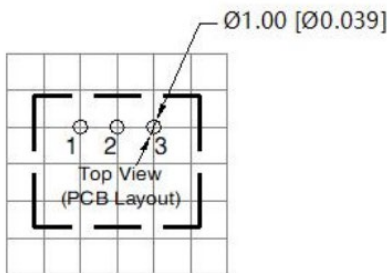
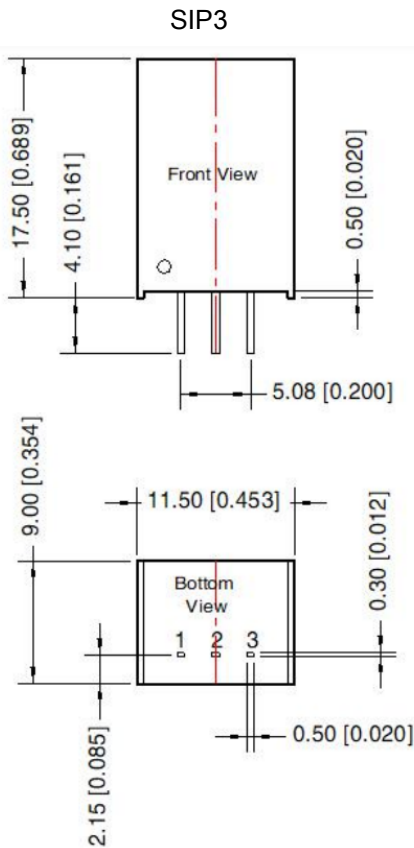
**Note:**

1. The input voltage cannot exceed the specified range, otherwise it may cause permanent and unrecoverable damage.
2. If the product operates below the minimum required load, there is no guarantee that the product performance will meet all the performance indicators in this manual.
3. Unless otherwise specified, the parameters in this manual are measured at 25°C, humidity 40%~75%, input nominal voltage, and output pure resistance mode at full load.
4. All index testing methods are based on our company's corporate standards.
5. The product's copyright and final interpretation rights belong to the product provider.

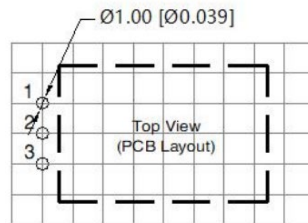
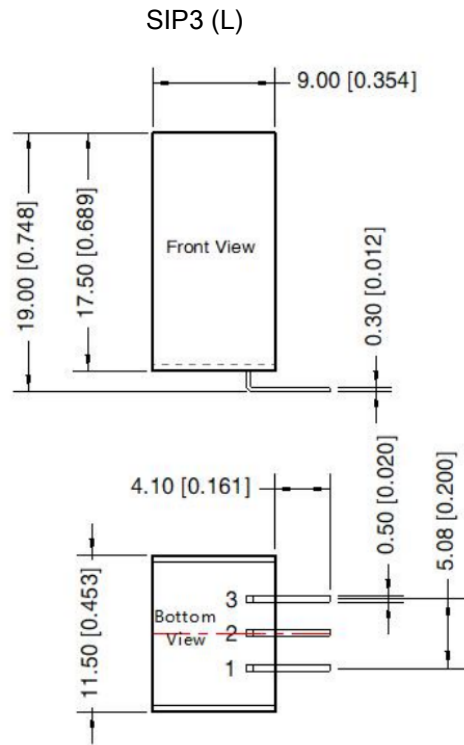


**PACKAGE INFORMATION**

SIP3 (L) Package Dimension: 11.50x9.00x17.5 mm (0.453x0.354x0.689 inch)



Grid 2.54 \* 2.54mm



Grid 2.54 \* 2.54mm

Pin-Out	
Pin #	Function
1	Vin
2	GND
3	+Vo

Note:

Unit: mm (inch)

General tolerance:  $\pm 0.5$  ( $\pm 0.02$ )