

FEATURES

1. High efficiency up to 96%
2. No-load input current as low as 0.1mA
3. Operating ambient temperature range -40°C to +85°C
4. Support the negative output
5. Output short-circuit protection
6. Pin compatible with LM78xx series



3 years
Warranty

Selection Guide

Part No.	Input Voltage (VDC)*	Output		Full Load Efficiency (%) Vin Min. / Vin Max.	Capacitive Load (μF) Max.
	Nominal (Range)	Voltage (VDC)	Current (mA) Max.		
K7803-1000R3(L)	24 (6-36)	3.3	1000	90/81	680
K7805-1000R3(L)	24 (8-36)	5	1000	93/86	680
	12 (8-27)	-5	-500	86/82	330
K78X6-1000R3(L)	24 (10-36)	6.5	1000	93/87	680
K7809-1000R3(L)	24 (13-36)	9	1000	95/90	680
K7812-1000R3(L)	24 (16-36)	12	1000	96/93	680
	12 (8-20)	-12	-300	89/88	330
K7815-1000R3(L)	24 (20-36)	15	1000	96/94	680
	12 (8-18)	-15	-300	89/89	330

Note:

- ① For input voltage exceeding 30 VDC, an input capacitor of 22μF/50V is required;
- ② L-suffix: Add L-suffix for horizontal mount with 90 degree angled pins (K78xx-1000R3L).

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
No-load Input Current	Positive output	—	0.1	1	mA
Reverse Polarity Input		Forbidden			
Input Filter		Capacitance filter			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Voltage Accuracy	Full load, input voltage range	K7803-1000R3(L)	—	±2	±4	%
		Other output	—	±2	±3	
Linear Regulation	Full load, input voltage range		—	±0.2	±0.4	
Load Regulation	Nominal input, 10% -100% load		—	±0.4	±0.6	
Ripple & Noise*	20MHz bandwidth, nominal input, 20% -100% load		—	20	75	mVp-p

Temperature Coefficient	Operating ambient temperature -40°Cto +85°C	—	—	±0.03	%/°C
Transient Response Deviation	Nominal input voltage, 25% load step change	—	50	300	mV
Transient Recovery Time		—	0.1	1	ms
Short-circuit Protection	Nominal input	Continuous, self-recovery			
*Note:1. The “parallel cable” method is used for Ripple and Noise test, please refer to DC-DC Converter Application Notes for specific information. 2. With light loads at or below 20%, Ripple & Noise for 3.3/5V output parts increases to 100mVp-p max, and for 9V/12V/15V output parts to 2%Vo max.					

General Specifications

Item	Operating Condition		Min.	Typ.	Max.	Unit
Operating Temperature	Derating if the temperature ≥71°C(see Fig. 1)		-40	—	85	°C
Storage Temperature			-55	—	125	
Pin Soldering Resistance Temperature	Soldering time: 10 seconds		—	—	260	
Storage Humidity	Non-condensing		5	—	95	%RH
Switching Frequency	100% load, input voltage range	K7803-1000R3(L)/K7805-1000R3(L)/K78X6-1000R3(L)	420	520	620	kHz
		Other output	580	680	780	
MTBF	MIL-HDBK-217F@25°C		2000	—	—	k hours

Mechanical Specifications

Case Material		Black plastic; flame-retardant and heat-resistant (UL94V-0)
Dimensions	K78xx-1000R3	11.50 x 9.00 x 17.50 mm
	K78xx-1000R3L	19.00 x 11.50 x 9.00 mm
Weight		3.8g (Typ.)
Cooling Method		Free air convection

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS B (see Fig. 4-② for recommended circuit)	
	RE	CISPR32/EN55032	CLASS B (see Fig. 4-② for recommended circuit)	
Immunity	ESD	IEC/EN 61000-4-2	Contact ±4kV	perf. Criteria B
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	±1kV (see Fig. 4-① for recommended circuit)	perf. Criteria B
	Surge	IEC/EN 61000-4-5	line to line ±1kV (see Fig. 4-① for recommended circuit)	perf. Criteria B
	CS	IEC/EN 61000-4-6	3Vr.m.s	perf. Criteria A

Typical Characteristic Curves

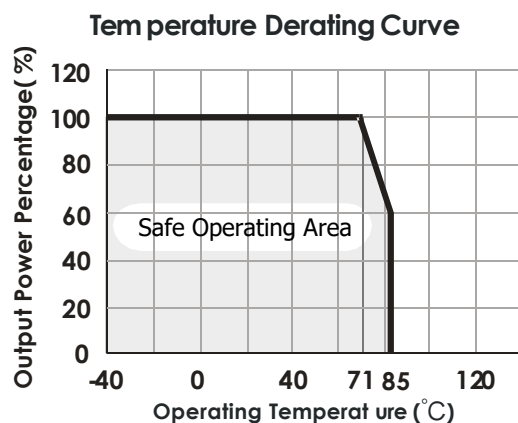
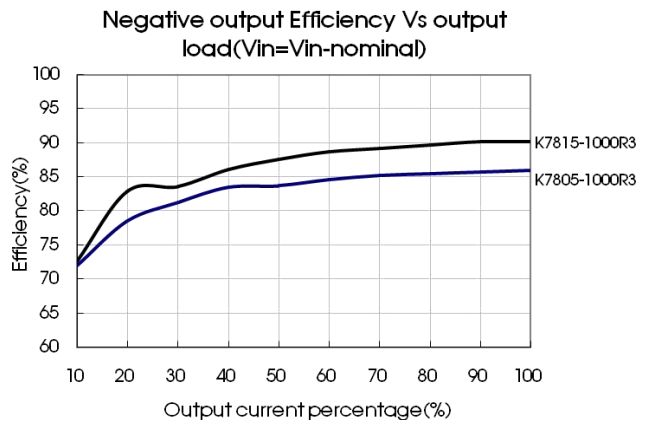
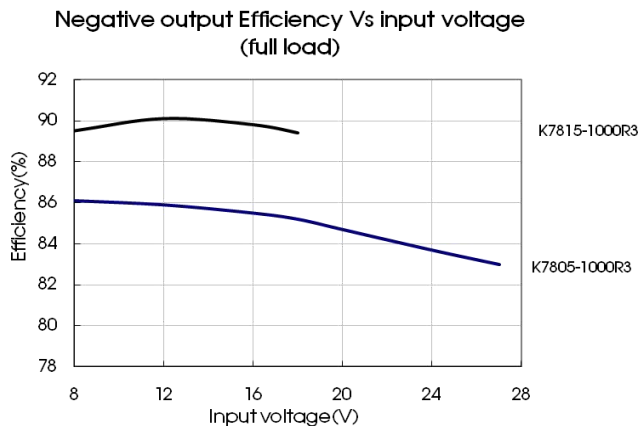
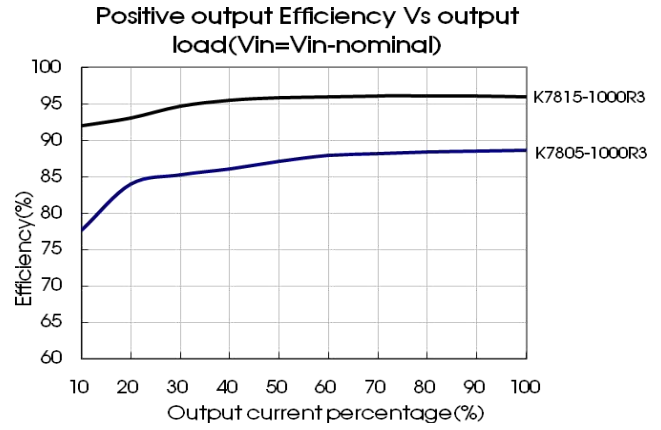
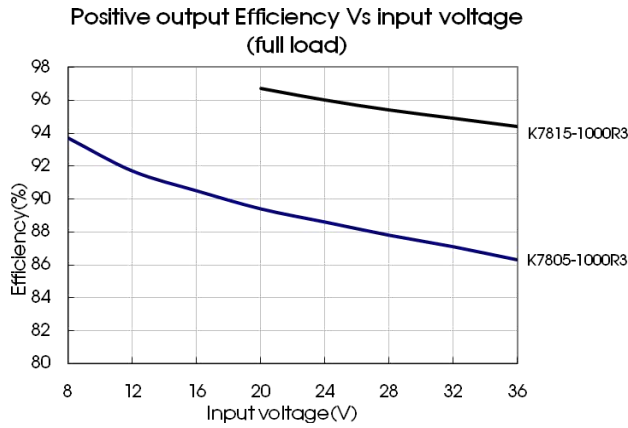
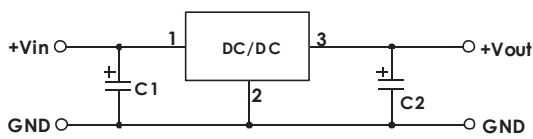


Fig. 1

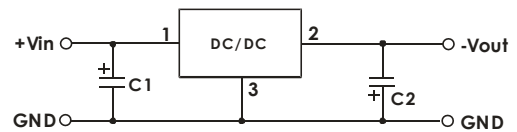


Design Reference

1. Typical application



Positive output application circuit



Negative output application circuit

Fig. 2 Typical application circuit

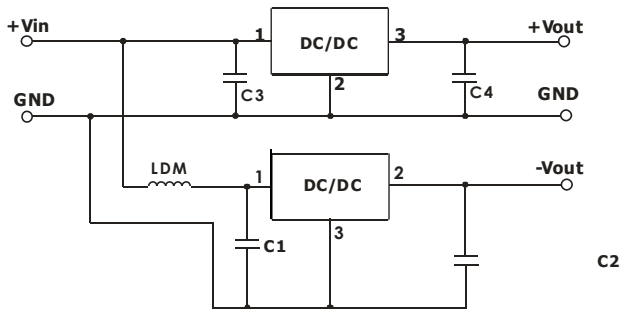


Fig. 3 Positive and Negative output application circuit

Table 1

Part No.	C1/C3 (ceramic capacitor)	C2/C4 (ceramic capacitor)
K7803-1000R3(L)	10μF/50V	22μF/10V
K7805-1000R3(L)		22μF/10V
K78X6-1000R3(L)		22μF/10V
K7809-1000R3(L)		22μF/16V
K7812-1000R3(L)		22μF/25V
K7815-1000R3(L)		22μF/25V

Note:

1. The required capacitors C1 and C2 (C3 and C4) must be connected as close as possible to the terminals of the module;
2. Refer to Table 1 for C1 and C2 (C3 and C4) capacitor values.
3. For certain applications, increased values for C2 and C4 and/or tantalum or low ESR electrolytic capacitors may also be used instead;
4. When using configurations as shown in figure 3, we recommended to add an inductor (LDM) with a value of up to 10μH which helps reducing mutual interference;
5. Converter cannot be used for hot swap and with output in parallel.

2. EMC compliance circuit

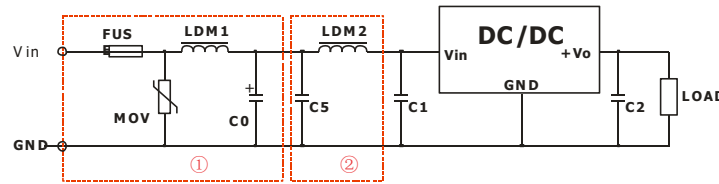
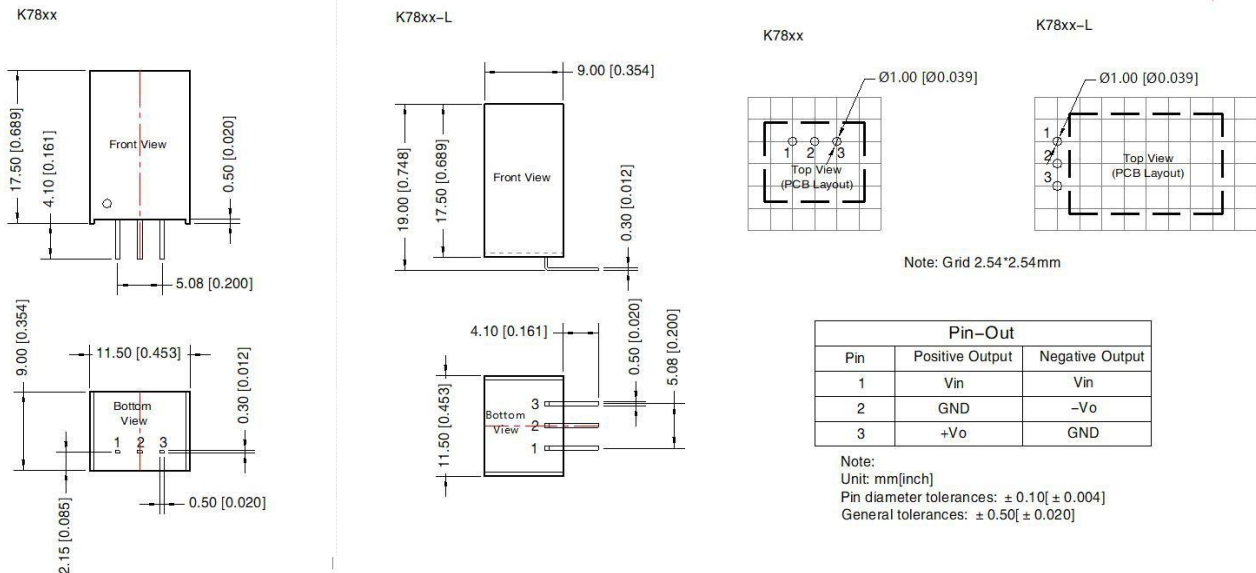


Fig. 4 EMC recommended circuit

FUSE	MOV	LDM1	C0	C1/C2	C5	LDM2
Select fuse value according to actual input current	S20K30	82 μ H	680 μ F /50V	Refer to table 1	4.7 μ F /50V	12 μ H

Note: Part ① in Fig. 4 shows EMS compliance filter and part ② filter for EMI compliance; depending on requirement both filters ① and ② can be used in series as shown.

Dimensions and Recommended Layout



Note:

1. If the product works under the minimum required load, it cannot guarantee that the performance of the product complies with all the performance indicators in this manual;
2. The maximum capacitive load is tested under the input voltage range and full load condition;
3. Unless otherwise stated, all indexes in this manual are measured at Ta=25°C, humidity <75%RH, nominal input voltage and rated output load;
4. All index testing methods in this manual are based on the enterprise standards of the company;
5. Our company can provide product customization, specific needs can directly contact our technical staff;