

Features

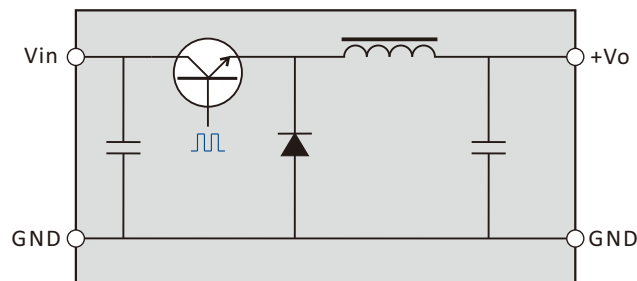
- ◆ Operating temperature: -40 to +85°C
- ◆ 4.75-32Vdc ultra wide input voltage range
- ◆ 3.3/5/9/12/15Vdc multiple output
- ◆ Output current up to 1000mA
- ◆ Efficiency up to 97%
- ◆ Support negative voltage output
- ◆ Pin-compatible LM78xx three-terminal linear regulators
- ◆ Ultra-low noise & ripple
- ◆ Bare module meet CISPR22/EN55022 Class B
- ◆ 100% burn-In
- ◆ No external heat sink
- ◆ Continuous short circuit protection
- ◆ RoHS/CE multiple compliance
- ◆ With 3 years warranty

General Description

KB78xx-1000 series is a new generation of high efficiency switching regulator, which is a ideal substitute for the traditional LM78xx series linear three terminal voltage regulator. The efficiency is up to 97%, it means that very little energy is wasted and the heat is low, so there is no need for any heat sinks with their additional space and costs. The series support negative output. They are widely used in industrial control, instrumentation, and electric power applications.



Functional Diagram



EMC Solution-Recommended Circuit

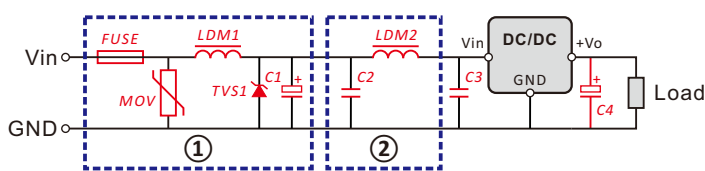


Fig.1

Notes:

Part ① in the Fig.1 is used for EMS test and part ② for EMI filtering; selected based on needs.

Parameter Description	
Component	Specification
FUSE	according to actual current
MOV	10D560
LDM1	82uH
TVS1	SMCJ36A
C1	120uF/50V
C2	4.7uF/50V
LDM2	12uH

KB78xx-1000 Series

1000mA, wide input, non-isolated & regulated single output dc-dc converter



Parameter Specification					
Item	Test Conditions	Min	Typ	Max	Units
Output Current	Operating temp curve range			1000	mA
Load Regulation	10-100% load, nominal input			±0.4	%
Line Regulation				±0.2	
Output Voltage Accuracy	100% load, input low to high		±1	±3	
Switching Frequency		280	330	450	KHz
Ripple & Noise	DC-20MHz bandwidth		10	50	mVp-p
Temperature Drift	100% load, nominal input			0.03	%/°C
Short Circuit Protection		Continuous, Self-Recovery			
Overheat Protection	IC built-in		150		°C
Quiescent Current	no load			3	mA
MTBF	MIL-HDBK 217 @ 25°C	1000			k hours
Hot Plug		Unavailable			

Common Specification					
Item	Test Conditions	Min	Typ	Max	Units
Operating Temperature	More see on derating cruve	-40		+85	°C
Lead Temperature	1.5mm from case for 10 seconds			+260	
Storage Temperature		-50		+130	
Storage Humidity				95	%
Weight			3.8		g
Case Material		Black Plastic (UL94V-0)			

Product Program								
Certificate	Model	Input		Output		Eff [%]		Max Capacitive Load [uF]
		Voltage [Vdc]		Voltage [Vdc]	Current [mA]	Vin (min)	Vin (max)	
		Nominal	Range					
CE/RoHS	KB7803-1000	24	4.75~28	3.3	1000	90	83	680
		12	4.75~25	-3.3	-500	74	78	470
	KB7805-1000	24	6.5~32	5	1000	93	88	680
		12	6.5~27	-5	-500	86	82	470
	KB7809-1000	24	12~32	9	1000	95	93	680
		12	7~23	-9	-500	85	86	470
	KB7812-1000	24	16~32	12	1000	95	94	680
		12	7~20	-12	-300	83	87	330
	KB7815-1000	24	20~32	15	1000	97	94	470
		12	7~17	-15	-300	81	87	330

Dimensions

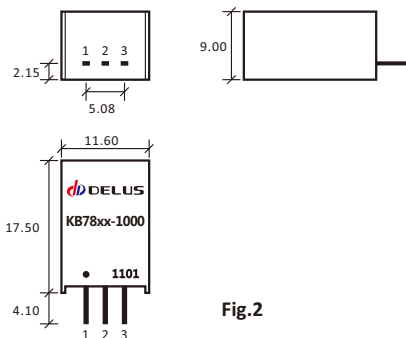


Fig.2

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

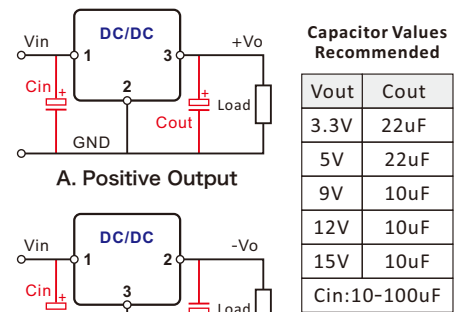
Note:
All size units mm,
Diameter of all terminal 0.5mm;
Distance between all adjacent terminal 2.54mm

Application Note

1. Typical Application Circuit

All products of this series have tested according to Fig.3(A) before delivery (but no external Cin and Cout capacitors). In general applications, KB78xx-1000 series products can operate steadily and reliably without any external filter. Under condition of full load, full range of products, the maximum input ripple does not exceed 300mVp-p, and the maximum output ripple is not more than 50mVp-p (typical values 10mVp-p). There is no need for external filter capacitors in normal usage. If you want to further reduce the ripple, please connect a external filter circuit at the inputs and outputs(as the figure below). Recommended values of external capacitors please see the following table.

If the input voltage exceeds 30V, external capacitors must be connect to inputs to protect the module from voltage spike.



A. Positive Output

B. Negative Output

Capacitor Values Recommended	
Vout	Cout
3.3V	22uF
5V	22uF
9V	10uF
12V	10uF
15V	10uF
Cin:10-100uF	

Fig.3

2. Input polarity protection

The series product has no positive & negative reverse polarity protection, and the solution is that a diode connects to input in series.

3. On derating

When the environmental temperature exceeds 70°C, the module should be derating used according to the following figure.

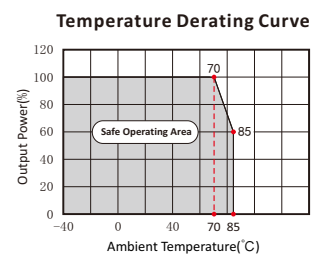


Fig.4

4. The series product cannot be used in parallel and hot-swappable.

File Release Notes

DBN-302 Technical Data Sheet Version



No.	Version	Date	Description
1	V0	2011/11/01	First release
2	A/0	2016/07/01	Fixed bug and change document version definition
3			
4			
5			

1. All data in addition to particular things, are Ta = 25°C, humidity<75%, nominal input voltage and output measured at rated load;
2. Non-standard models with some of the following indicators may be different from the specific circumstances of the Secretary to direct contact with me;
3. In the use of this manual, if some of them do not quite understand terms please refer to our <<DC/DC Converter Application Guide>>;
4. The Company focused on technological improvements, product specifications and parameter updates without notice, to pay attention to the latest information on website.

All Delus Corporation's products are manufactured, assembled and tested utilizing ISO9001 quality systems.
For information regarding Delus Corporation and its products please see website: www.delus-power.com

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