

Features

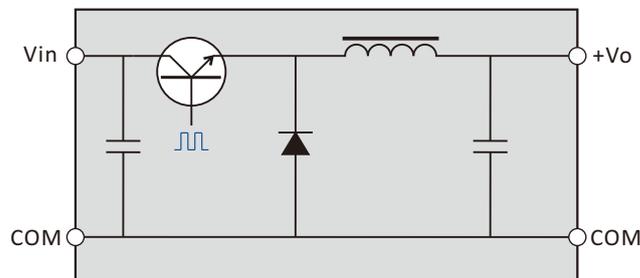
- ◆ Operating temperature: -40 to +85°C
- ◆ Wide input voltage range: 4.75-32Vdc
- ◆ 3.3V/5V/9V/12V/15V output
- ◆ Efficiency up to 97%
- ◆ 100% burn-in
- ◆ No external heat sink
- ◆ Short circuit protection, thermal shutdown
- ◆ UL94V-0 package
- ◆ RoHS compliance
- ◆ Pin-out compatible with LM78XX linear
- ◆ Low ripple and noise

General Description

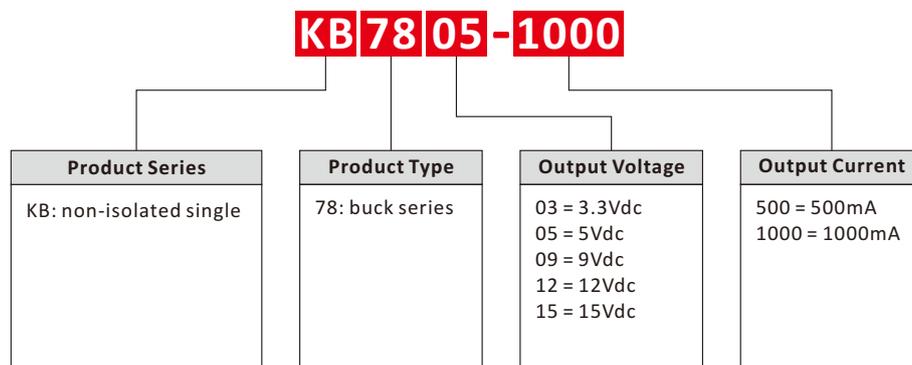
The K78xx-1000 series high efficiency switching regulators are ideally suited to replace 78xx linear regulators and are pin compatible. The efficiency of up to 97% means that very little energy is wasted as heat so there is no need for any heat sinks with their additional space and mounting costs.



Functional Diagram



Selection Guide



KB78xx-1000 Series

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



Output Specifications

| Item | Test Conditions | Min | Typ | Max | Units |
|--------------------------|------------------------------|--------------------------------|-----|------|-------|
| Output Current | Ta=-40-+71°C | | | 1000 | mA |
| Line Regulation | 100% load, input low to high | | | ±0.4 | % |
| Load Regulation | Nominal, 10%-100% load | | | ±0.6 | |
| Output Voltage Accuracy | Nominal, 100% load | | | ±3 | |
| Temperature Drift | Nominal, 100% load | | | 0.03 | %/°C |
| Ripple & Noise | DC-20MHz bandwidth | | 20 | 50 | mVp-p |
| Switching Frequency | Nominal, 100% load | 280 | 330 | 450 | KHz |
| Short Circuit Protection | | Continuous, Automatic Recovery | | | |
| Thermal Shutdown | Internal IC junction | | 150 | | °C |
| Quiescent Current | | | 5 | 8 | mA |

Common Specification

| Item | Test Conditions | Min | Typ | Max | Units |
|-----------------------|--------------------------------|-------------------------|-----|------|-------|
| Operating Temperature | Ta>71°C Derating | -45 | | +85 | °C |
| Maximum Case Temp. | | | | 80 | |
| Storage Temperature | | -50 | | +130 | |
| Lead Temperature | 1.5mm from case for 10 seconds | | | +300 | |
| Storage Humidity | | | | 95 | % |
| Weight | | | 3.7 | | g |
| Case Material | | Black Plastic (UL94V-0) | | | |

Product Program

| Model | Input | | Output | | Efficiency(%) | | Ripple (mVp-p) | Certificate |
|-------------|--------------|---------|---------------|--------------|---------------|-----------|----------------|-------------|
| | Voltage(Vdc) | | Voltage (Vdc) | Current (mA) | Vin (min) | Vin (max) | | |
| | Nominal | Range | | | | | | |
| KB7803-1000 | 24 | 4.75~28 | 3.3 | 1000 | 90 | 83 | | |
| KB7805-1000 | 24 | 6.5~32 | 5 | 1000 | 93 | 88 | | |
| KB7809-1000 | 24 | 12~32 | 9 | 1000 | 95 | 95 | | |
| KB7812-1000 | 24 | 16~32 | 12 | 1000 | 96 | 94 | | |
| Kb7815-1000 | 24 | 20~32 | 15 | 1000 | 97 | 94 | | |

First Angle Projection

| Pin | Function |
|-----|----------|
| 1 | Vin |
| 2 | COM |
| 3 | +Vo |

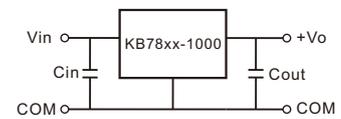
Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm

Application Note

1. Output filter

KB78xx-1000 series of products without any external filter components in the case that can be stable and reliable work. Fully loaded, full range of products, the maximum input ripple does not exceed 500mVp-p, the maximum output ripple of not more than 50mVp-p (typical values 10mVp-p), the normal use without an external filter capacitor.

If you want to further reduce the ripple please connect a external filter circuit at the inputs and outputs (see figure) . Recommended values 10-100uF with input capacitor, and recommended values with output capacitor please see the following table.



| Cin | Cout | Lin, Lout |
|----------|------|--|
| 10~100uF | 3.3V | 22uF |
| | 5V | 22uF |
| | 9V | 10uF |
| | 12V | 10uF |
| | 15V | 10uF |
| | | Not required, Recommended values 4.7~100uH |

2. Input polarity protection

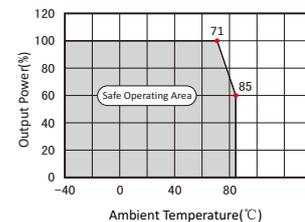
The series product no positive & negative reverse polarity protection, solution is the input series in a diode.

3. This product cannot be used in parallel, can not hot-swappable.

4. On derating

When the environmental temperature exceeds 71°C the module must be derating use, please refer to derating curve.

Temperature Derating Curve



File Release Notes

DBN-302 Technical Data Sheet Version



| No. | Version | Data | Description |
|-----|---------|------------|---------------|
| 1 | V0 | 2011/11/01 | First release |
| 2 | | | |
| 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: www.delus.cn

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