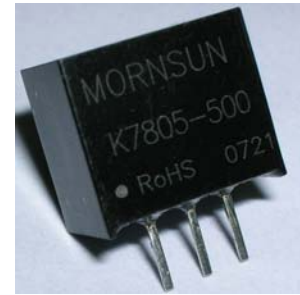


# K78XX-500 Series

## WIDE INPUT NON-ISOLATED

## VERY LOW PROFILE SIP-3 PACKAGE

## REGULATED SINGLE OUTPUT



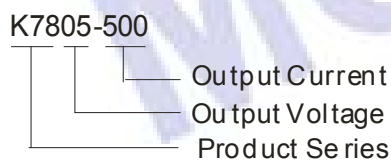
### FEATURES

- Efficiency Up To 96%
- No need for heatsinks
- Pin-out compatible with LM78XX Linears
- Wide input range
- Short circuit protection, Thermal Shutdown
- Low ripple and noise

### APPLICATIONS

The K78xx-500 Series high efficiency switching regulators are ideally suited to replace 78xx linear regulators and are pin compatible. The efficiency of up to 96% 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.

### MODEL SELECTION



#### MORNSUN Science& Technology Ltd.

Address: 2th floor 6th building, Huangzhou Industrial District, Guangzhou, China  
Tel: 86-20-38601850  
Fax: 86-20-38601272  
Http://www.mornsun-power.com

### Product Program

| Part Number | Input             | Output      |              | Efficiency(%) |          |
|-------------|-------------------|-------------|--------------|---------------|----------|
|             |                   | Voltage (V) | Current (mA) | Min. Vin      | Max. Vin |
| SIP-3       | Voltage Range (V) |             |              |               |          |
| K7803-500   | 4.75-28           | 3.3         | 500          | 90            | 80       |
| K7805-500   | 6.5-32            | 5.0         | 500          | 93            | 84       |
| K78X6-500   | 8-32              | 6.5         | 500          | 94            | 87       |
| K7809-500   | 11-32             | 9.0         | 500          | 95            | 91       |
| K7812-500   | 15-32             | 12          | 500          | 95            | 92       |
| K7815-500   | 18-32             | 15          | 500          | 96            | 93       |

If Input voltage above specified may cause permanent damage to the device

### Output Specifications

| Characteristics           | conditions                    | Min | Typ  | Max  | Units |
|---------------------------|-------------------------------|-----|------|------|-------|
| Output Voltage accuracy   | At 100% Load                  |     | ±2   | ±3   | %     |
| Line regulation           | Vin=min. to max. at full load |     | ±0.2 | ±0.4 |       |
| Load regulation           | 10% to 100% load              |     | ±0.4 | ±0.6 |       |
| Ripple Noise              | 20MHZ bandwidth               |     | 20   | 35   | mVp-p |
| Short Circuit Input Power |                               |     | 0.3  | 0.8  | w     |
| Short circuit protection  | Continuous,automatic recovery |     |      |      |       |
| Output Current Limit      |                               |     |      | 2000 | mA    |
| Switching frequency       |                               | 280 | 330  | 450  | KHz   |
| Dynamic Load Stability    | 100%<->10% load               |     |      | ±100 | mV    |
| Quiescent current         | Vin=min. to max. at 0%l load  |     | 5    | 7    | mA    |
| Thermal Shutdown          | Internal IC junction          |     | 150  |      | °C    |
| Temperature coefficient   | -40 °C ~+85 °C ambient        |     |      | 0.02 | %/°C  |

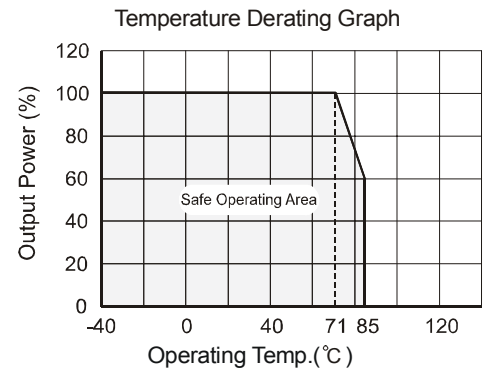
#### Note:

- 1.All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.

## COMMON SPECIFICATION

|                                                   |                     |
|---------------------------------------------------|---------------------|
| Operating Temperature Range                       | -40 °C ~+85°C       |
| Operating CaseTemperature                         | +100°C (max)        |
| Storage Temperature Range                         | -55 °C ~+125 °C     |
| Cooling                                           | Free Air Convection |
| Lead Temperature*                                 | 300 °C (max)        |
| Storage Humidity Range                            | ≤ 95%               |
| Case Material                                     | Plastic (UL94-V0)   |
| MTBF (+25 °C)                                     | 2,000,000 hours     |
| Package Weigh                                     | 2.0 g               |
| *Lead Temperature 1.5mm from case for 10 seconds. |                     |

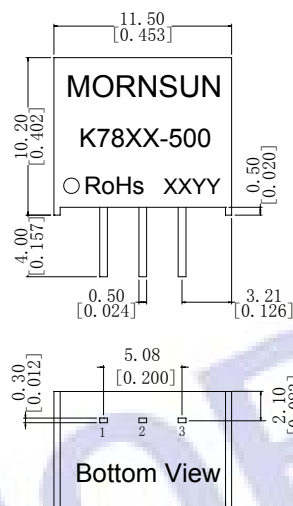
## TYPICAL CHARECTERISTICS



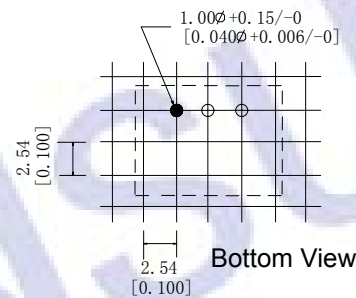
## PACKAGE STYLE AND PINNING

SIP-3 PIN Package

3rd angle projection



Recommended Footprint Details



Pin Connections

|   |       |
|---|-------|
| 1 | +Vin  |
| 2 | GND   |
| 3 | +Vout |

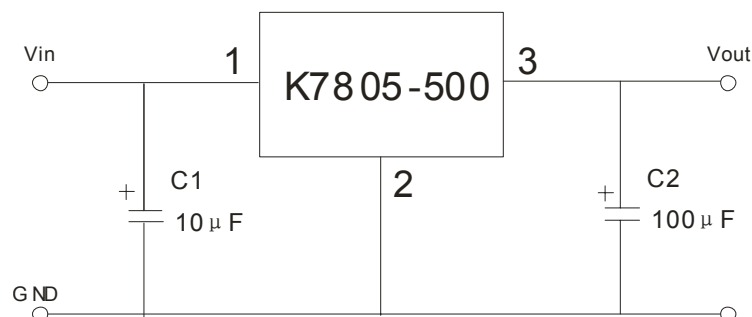
Note:

Unit: mm (inch)

Pin tolerances: ±0.10mm (0.004 inch)

General tolerances: ±0.25mm (0.01 inch)

## STANDARD APPLICATION CIRCUIT



**C1:** a low ESR capacitor is required to keep the noise at the converter to a minimum. Ceramic capacitors are preferred, but tantalum or low ESR electrolytic capacitors may also suffice; General used 10μF/50V ceramic capacitor.

**C2:** Optional, General used 100μF/25V electrolytic capacitor.

**Note:** No parallel connection or plug and play.