



RoHS

## KRB\_D-3W Series

**3W, WIDE INPUT, NON-ISOLATED & REGULATED  
SINGLE OUTPUT DC-DC CONVERTER**

### FEATURES

- Efficiency to 86%
- Temperature Range: -20°C to +71°C
- UL94-V0 Package
- No External Component Required
- No Heat sink Required
- Industry Standard Pinout
- MTBF > 1,000,000 hours
- RoHS Compliance

### PRODUCT PROGRAM

| Part Number            | Input          |                    | Output         |                |               | Efficiency (% Typ) | Package Style  |
|------------------------|----------------|--------------------|----------------|----------------|---------------|--------------------|----------------|
|                        | Voltage (VDC)  |                    | Voltage (VDC)  | Current (mA)   |               |                    |                |
|                        | Nominal        | Range              |                | Max            | Min           |                    |                |
| <del>KRB0712D-3W</del> | <del>7.2</del> | <del>6.4-8.4</del> | <del>42</del>  | <del>250</del> | <del>25</del> | <del>86</del>      | <del>DIP</del> |
| KRB1205D-3W            | 12             | 9-18               | 5              | 600            | 60            | 86                 | DIP            |
| <del>KRB2403D-3W</del> | <del>24</del>  | <del>18-35</del>   | <del>3.3</del> | <del>900</del> | <del>90</del> | <del>77</del>      | <del>DIP</del> |
| KRB2405D-3W            | 24             | 18-35              | 5              | 600            | 60            | 80                 | DIP            |

Note: Models listed with strike-through text have been officially discontinued.

### APPLICATIONS

The KRB\_D-3W Series are specially designed for applications where a wide range input voltage power supplies are non-isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is wide range.
- 2) Where the regulation of the output voltage and the output ripple noise are not demanding.
- 3) Where the regulation of the output voltage and the output ripple noise are not demanding.

### OUTPUT SPECIFICATIONS

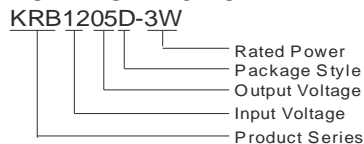
| Item                     | Test conditions                  | Min | Typ  | Max   | Units |
|--------------------------|----------------------------------|-----|------|-------|-------|
| Output power             | See below products program       | 0.3 |      | 3     | W     |
| Voltage accuracy         | From 25% to 100% load            |     |      | ±3    | %     |
| Load regulation          | From 10% to 100% load            |     | ±0.5 | ±0.75 |       |
| Line regulation          | Input Voltage From Low to High   |     | ±0.2 | ±0.5  |       |
| Temperature drift (Vout) | Refer to recommended circuit     |     |      | 0.03  | %/°C  |
| Ripple+Noise**           | 20MHz bandwidth                  |     | 75   | 150   | mvp-p |
| Switching frequency      | 100% load, nominal input voltage | 80  |      | 400   | KHz   |

\*\*Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

Note:

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

### MODEL SELECTION



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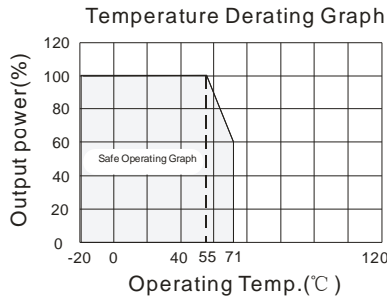
Fax: 86-20-38601272

[Http://www.mornsun-power.com](http://www.mornsun-power.com)

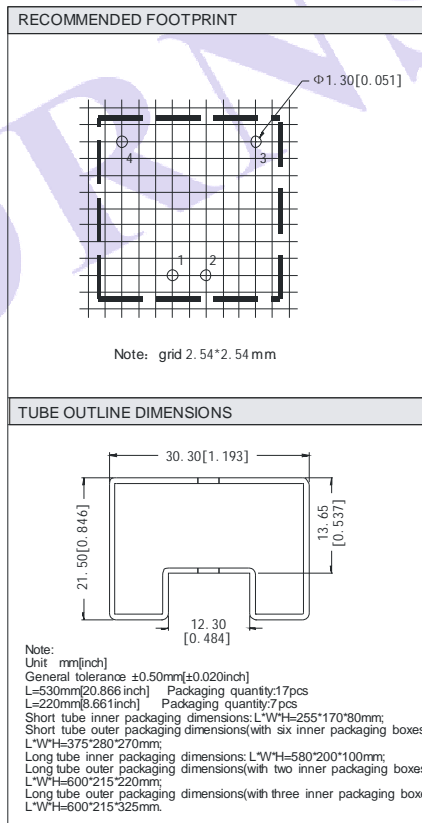
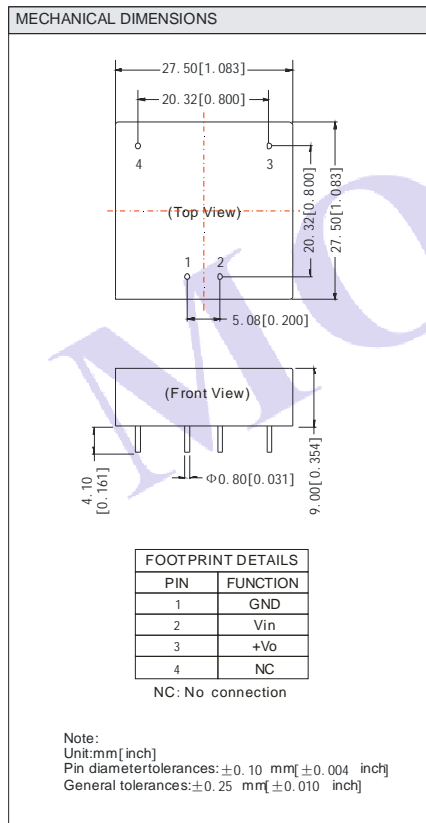
## COMMON SPECIFICATIONS

| Item                    | Test Conditions                | Min                 | Typ. | Max | Units   |
|-------------------------|--------------------------------|---------------------|------|-----|---------|
| Storage Humidity        |                                |                     |      | 95  | %       |
| Storage Temperature     |                                | -55                 |      | 125 | °C      |
| Operating Temperature   | Power derating (above 55°C)    | -20                 |      | 71  |         |
| Lead Temperature        | 1.5mm from case for 10 seconds |                     |      | 300 |         |
| Temp. rise at full load |                                |                     | 30   |     |         |
| Cooling                 |                                | Free Air Convection |      |     |         |
| Case Material           |                                | Plastic (UL94V-0)   |      |     |         |
| MTBF                    | 25°C(MIL-HDBK-217F)            | 1000                |      |     | K hours |
| Weight                  |                                |                     | 13   |     | g       |

## TYPICAL CHARACTERISTICS



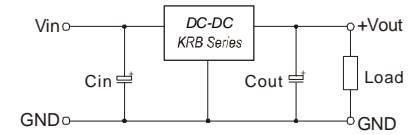
## OUTLINE DIMENSIONS & FOOTPRINT DETAILS



## APPLICATION NOTE

### Recommended Circuit

All the KRB\_P Series have been tested according to the following recommended testing circuit before leaving factory. (Figure 1).



(Figure 1)

If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance should not be too high, recommended parameter sees (Table 1).

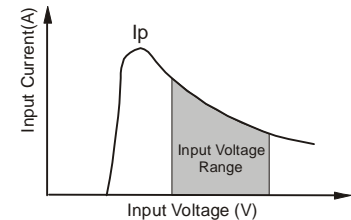
### External Capacitor Table (Table 1)

| Cin    | Cout Normal temp.              | Cout (-20 to +71°C)       |
|--------|--------------------------------|---------------------------|
| 100 μF | 100μF (electrolytic capacitor) | 47μF (tantalum capacitor) |

### Input Current

When it is used in unregulated power supply, be sure that the fluctuating range of the power supply and the rippled voltage do not exceed the module standard.

Input current of power supply should afford the startup current of this kind of DC/DC module (Figure 2)



(Figure 2)

### Input polarity protection

Under normal operating conditions, the output circuit of these products has no protection against positive and negative reverse connection. The simplest method is to connect a diode in series at the input end.

No parallel connection or plug and play.