MORNSUN®

KRB_P-3W Series

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

RoHS

FEATURES

Efficiency to 85%
Temperature Range: -20°C to +71°C
UL94-V0 Package
No Heat Sink Required
Industry Standard Pinout
MTBF>1,000,000 hours

PRODUCT PROGRAM

Part Number	Input		Output			Efficiency (%, Typ)	Package Style
	Voltage (VDC)		Voltage (VDC)	Current (mA)			
	Nominal	Range		Max	Min		
~~KRB1203P-3W~~	12	9~18	~~3.3~~	~~900~~	~~90~~	~~82~~	~~DIP~~
KRB1205P-3W			5	600	60	85	DIP

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

APPLICATIONS

The KRB_P 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	Refer to recommended circuit		±1	±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_A=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.

MODEL SELECTION

KRB1203P-3W

- Rated Power
- Package Style
- Output Voltage
- Input Voltage
- Product Series

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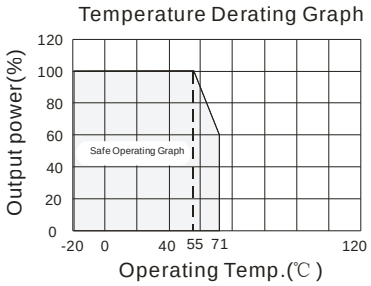
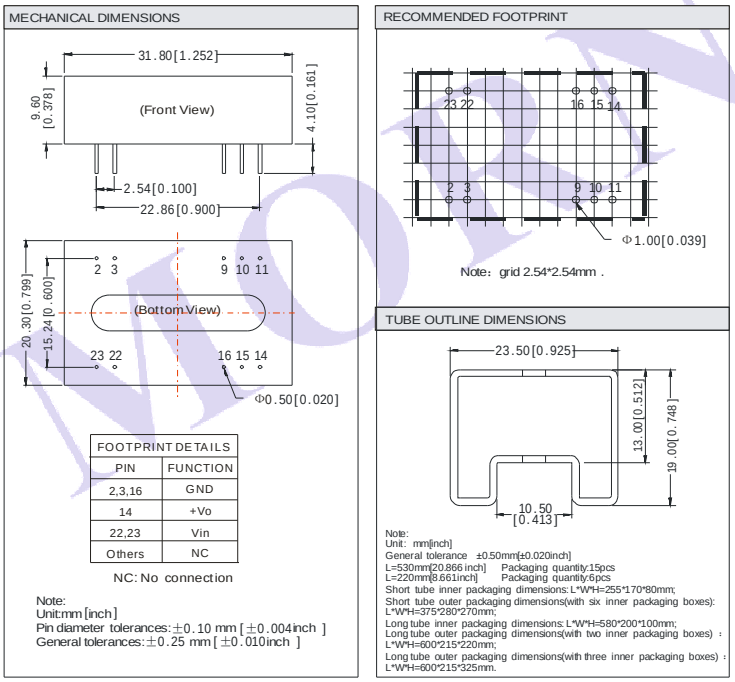
COMMON SPECIFICATIONS

Item	Test Conditions	Min	Typ.	Max	Units
Storage Humidity				95	%
Storage Temperature		-55		125	°C
Operating Temp.		-20		71	
Lead Temperature	1.5mm from case for 10 seconds			300	
Temp. Rise at Full Load			15	25	
Cooling		Free Air Convection			
Case Material		Plastic (UL94V-0)			
MTBF		100			K hours
Weight			15		g

TYPICAL CHARECTERISTICS



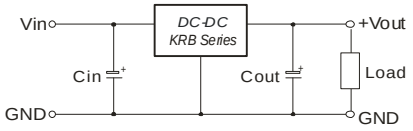
OUTLINE DIMENSIONS & FOOTPRINT DETAILS



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).

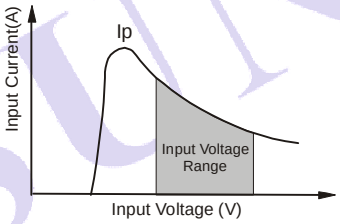
External Capacitor Table(Table 1)

Cin	Cout Normal temp.	Cout (-20°Cto+71°C)
100uF	100uF (electrolytic capacitor)	47uF (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)

Output Load

In order to ensure the product operate efficiently and reliably, in addition to a max load (namely full load), a minimum load is specified for this kind of DC/DC converter. Make sure the specified range of input voltage is not exceeded, the minimum output load ***no less than 10% full load,*** If the actual load is less than the specified minimum load, the output ripple may increase sharply. If the actual output power is very small, please add an appropriate resistor as extra loading, or contact our company for other lower output power products.

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.