

MORNSUN®

B0505KLD-1W

**FIXED INPUT, ISOLATED & UNREGULATED
SINGLE OUTPUT DC-DC CONVERTER**



Patent Protection RoHS

FEATURES

- 1KVDC isolation
- DIP package
- Internal SMD construction
- Operating temperature range: -40°C~+85°C
- Low temperature rise
- No external component required

APPLICATIONS

The B0505KLD-1W is designed for application where isolated output is required from a distributed power system.

These products apply to where:

- 1) Input voltage variation $\leq \pm 10\%$;
- 2) 1KVDC input and output isolation;
- 3) Regulated and low ripple noise is not required.

Such as: digital circuits, low frequency analog circuits, and IGBT power device driving circuits.

SELECTION GUIDE

Model Number	Input Voltage(VDC)	Output Voltage (VDC)	Output Current (mA)		Input Current (mA)(typ.)		Max. Capacitive Load(μ F)	Efficiency (% , typ.) @Max. Load
	Nominal(Range)		Max.	Min.	@Max. Load	@No Load		
B0505KLD-1W	5.0(4.5-5.5)	5.0	200	20	287	30	220	70

INPUT SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Input Surge Voltage (1sec.max.)		-0.7	--	9	VDC
Input Filter		Capacitance Filter			

OUTPUT SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Line Regulation	For V_{in} change of $\pm 1\%$	--	--	± 1.2	%
Load Regulation	10% to 100% load	--	12	15	
Temperature Drift	100% load	--	--	± 0.03	%/°C
Ripple & Noise*	20MHz bandwidth	--	75	100	mVp-p
Short Circuit Protection		1 s			

Note:* Ripple and noise tested by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

COMMON SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Tested for 1 minute and leakage current less than 1 mA	1000	--	--	VDC
Isolation Resistance	Test at 500VDC	1000	--	--	M Ω
Isolation Capacitance	Input/Output, 100KHz/0.1V	--	30	--	pF
Switching Frequency	100% load, nominal input	--	100	--	KHz
MTBF	MIL-HDBK-217F @25°C	3500	--	--	K hours
Case Material		Plastic (UL94-V0)			
Weight		--	2.1	--	g

ENVIRONMENTAL SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Storage Humidity	Non condensing	--	--	95	%

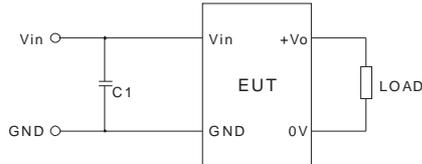
Operating Temperature	Power derating (above 85°C)	-40	--	85	°C
Storage Temperature		-55	--	125	
Temp. rise at full load	Ta=25°C	--	25	--	
Lead Temperature	1.5mm from case for 10 seconds	--	--	300	
Cooling		Free air convection			

EMC SPECIFICATIONS

EMI	CE	CISPR22/EN55022 CLASS A (External Circuit Refer to Figure1)
EMS	ESD	IEC/EN61000-4-2 Contact ±8KV perf. Criteria B

EMC RECOMMENDED CIRCUIT

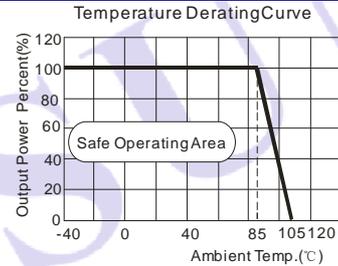
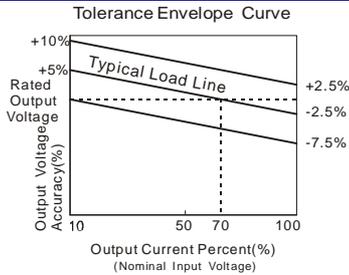
EMI Recommended External Circuit (CLASS A):



Recommended external circuit parameters:
C1: 1μF/50V

(Figure1)

PRODUCT TYPICAL CURVE



OUTLINE DIMENSIONS, RECOMMENDED FOOTPRINT & PACKAGING

MECHANICAL DIMENSIONS

PIN CONNECTION	
Pin	Function
1	GND
6	NC
7	+Vo
8	0V
14	Vin

NC:No connection

Note :
Unit : mm[inch]
Pin section tolerances : ±0.10[±0.004]
General tolerances : ±0.25[±0.010]

RECOMMENDED FOOTPRINT DETAILS

Note : Grid 2.54*2.54mm

TUBE PACKAGING DIMENSIONS

Note :
Unit:mm[inch]
General tolerances:±0.50[±0.020]
L=530[20.866] Tube Quantity:25pcs
L=220[8.661] Tube Quantity:10pcs
Inner carton(S): L*W*H=255*170*80
Outer carton(S): L*W*H=375*280*270, 6 inner cartons(S)
Inner carton(L): L*W*H=580*200*100
Outer carton(L): L*W*H=600*215*220, 2 inner cartons(L)
Outer carton(L): L*W*H=600*215*325, 3 inner cartons(L)

DESIGN CONSIDERATIONS

1) Requirement on output load

To ensure this module can operate efficiently and reliably, During operation, the minimum output load is not less than 5% of the full load. If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load, or use our company's products with a lower rated output power.

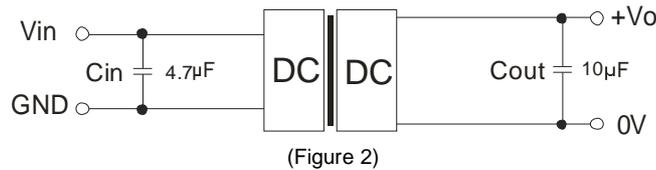
2) Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against overload. The simplest method is to add a circuit breaker to the circuit.

3) Recommended Circuit

If you want to further decrease the input/output ripple, a capacitor filtering network may be connected to the input and output ends of the DC/DC converter, see (Figure 2).

It should also be noted that the capacitance of filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the recommended capacitance of its filter capacitor sees (Figure 2).



It's not recommended to connect any external capacitor in the application field with less than 0.5 watt output.

4) The input and the output of the product are recommended to be connected to ceramic capacitor or electrolytic capacitor. Using tantalum capacitor may cause risk of failure

5) Cannot use in parallel and hot swap

Note:

1. Operation under minimum load will not damage the converter; However, they may not meet all specification listed.
2. Max. Capacitive Load tested at input voltage range and full load.
3. All data in the datasheet are measured according to nominal input voltage, rated output load, $T_A=25^{\circ}\text{C}$, humidity<75%, unless otherwise specified.
4. In this datasheet, all the test methods of indications are based on our corporate standards.
5. The performance in the datasheet is just fit for the part number in the selection guide, and may be different from the customer-designed product, you can get more details from MORNSUN FAE.
6. Contact us for your specific requirement.
7. Specifications subject to change without prior notice.

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