

1W, Fixed input voltage, isolated & regulated single output



Continuous Short Circuit Protection



Patent Protection RoHS



FEATURES

- Continuous short-circuit protection
- No-load input current as low as 5mA
- Operating temperature range: -40°C to +85°C
- High efficiency up to 73%
- Isolation voltage: 1.5K VDC
- International standard pin-out
- SIP package
- Meets UL62368, EN62368 standards(Pending)

IB05_LS-1WR3 series are specially designed for applications where an isolated voltage is required in a distributed power supply system. They are suitable for: preceding-stage interference isolation condition; ground-interference canceled condition; digit circuit condition; Voltage-isolation converting condition; normal low-frequency artificial circuit condition; relay drive circuit condition, etc.

Selection Guide

Certification	Part No.	Input Voltage (VDC)	Output		Efficiency (%Min./Typ.) @ Full Load	Max. Capacitive Load* (μF)
		Nominal (Range)	Output Voltage (VDC)	Output Current (mA) (Max./Min.)		
UL/CE (Pending)	IB0505LS-1WR3	5 (4.75-5.25)	5	200/20	66/70	2400
	IB0509LS-1WR3		9	111/12	67/71	1000
	IB0512LS-1WR3		12	84/9	68/72	560
	IB0515LS-1WR3		15	67/7	69/73	560

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	5VDC output	--	286/5	303/10	mA
	9VDC/12VDC output	--	282/12	299/20	
	15VDC output	--	274/18	290/30	
Reflected Ripple Current*		--	15	--	
Input Filter		Filter capacitor			
Hot Plug		Unavailable			

Note: * Reflected ripple current testing method please see DC-DC Converter Application Notes for specific operation.

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		--	--	±3	%
Line Regulation	Input voltage change: ±1%	--	--	±0.25	%
Load Regulation	10%-100% load	--	--	±2	%
Ripple & Noise*	20MHz bandwidth	--	30	75	mVp-p
Temperature Coefficient	100% load	--	±0.02	--	%/°C
Short Circuit Protection		Continuous, self-recovery			

Note: * Ripple and noise are measured by "parallel cable" method, please see DC-DC Converter Application Notes for specific operation.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Insulation Voltage	Input-output, with the test time of 1 minute and the leak current lower than 1mA	1500	--	--	VDC
Insulation Resistance	Input-output, isolation voltage 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V	--	20	--	pF

Operating Temperature	Derating when operating temperature up to 71°C, (see Fig.1)	-40	--	85	°C
Storage Temperature		-55	--	125	
Casing Temperature Rise	Ta=25°C	--	25	--	
Pin Welding Resistance Temperature	Welding spot is 1.5mm away from the casing, 10 seconds	--	--	300	
Storage Humidity	Non-condensing	--	--	95	%RH
Vibration		10-55Hz, 2G, 30Min. along X, Y and Z			
Switching Frequency	100% load, nominal input voltage	--	270	--	KHz
MTBF	MIL-HDBK-217F@25°C	3500	--	--	K hours

Physical Specifications

Casing Material	Black flame-retardant and heat-resistant plastic (UL94 V-0)
Dimensions	19.65*6.00*10.16mm
Weight	2.1g(Typ.)
Cooling Method	Free air convection

EMC Specifications

EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 3 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 3 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

Product Characteristic Curve

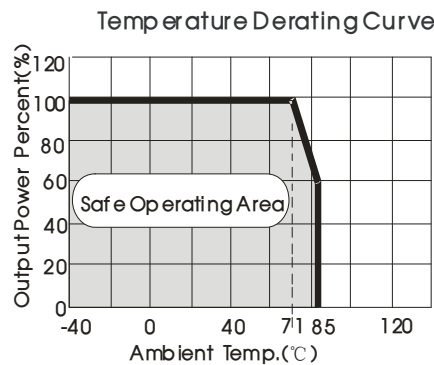
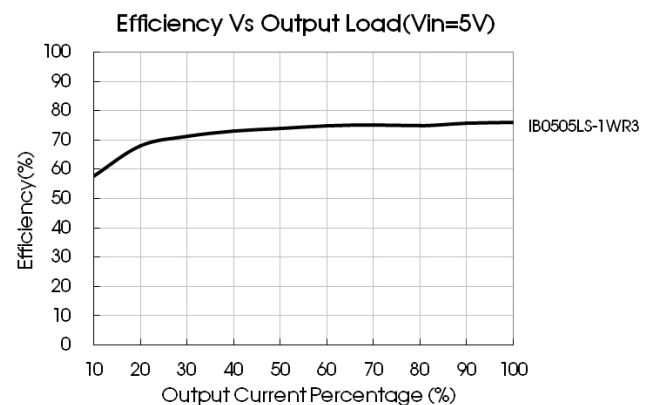
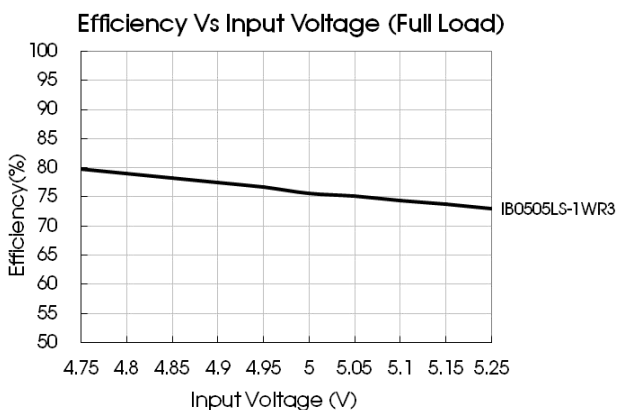


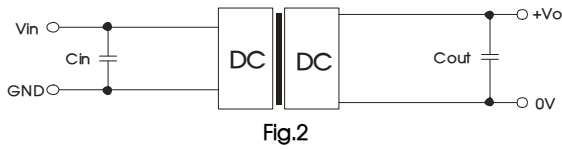
Fig. 1



Design Reference

1. Typical application circuit

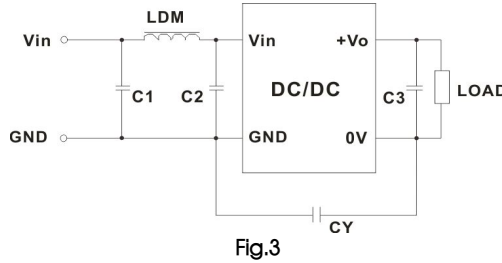
If it is required to further reduce input and output ripple, a filter capacitor may be connected to the input and output terminals, see Fig.3. Moreover, choosing a suitable filter capacitor is very important, start-up problems may be caused if the capacitance is too large. Under the condition of safe and reliable operation, the recommended capacitive load values are shown in Table 1.



Recommended capacitive load value table (Table 1)

Vin(VDC)	Cin(μF)	Vo (VDC)	Cout(μF)
5	4.7	5	10
--	--	9/12	2.2
--	--	15	1

2. EMC solution-recommended circuit



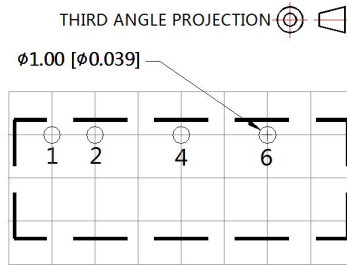
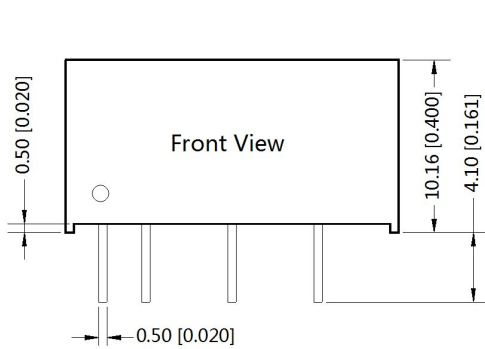
EMC recommended circuit value table (Table 2)

Input voltage 5VDC	EMI	Output voltage (VDC)	5/9	12/15
		C1/C2	4.7μF /25V	4.7μF /25V
		CY	--	1nF/4KVDC VISHAY HGZ102MBP TDK CD45-E2GA102M-GKA
		C3	Refer to the Cout in table 1	
		LDM	6.8μH	6.8μH

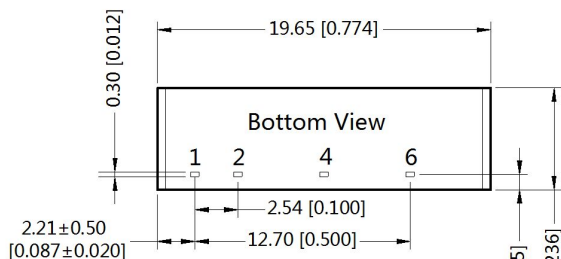
Note: In the case of actual use, the requirements for EMI are high, it is subject to CY .

3. For more information please find DC-DC converter application notes on www.mornsun-power.com

Dimensions and Recommended Layout



Note : Grid 2.54*2.54mm



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

Pin-Out	
Pin	Function
1	Vin
2	GND
4	0V
6	+Vo

Notes:

1. Packing information please refer to Product Packing Information which can be downloaded from www.mornsun-power.com. Packing bag number: 58200001;
2. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
3. The maximum capacitive load offered were tested at input voltage range and full load;
4. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75%RH with nominal input voltage and rated output load;
5. All index testing methods in this datasheet are based on our Company's corporate standards;
6. We can provide product customization service, please contact our technicians directly for specific information;
7. Products are related to laws and regulations: see "Features" and "EMC";
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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