

0.75W, Fixed input voltage, isolated & regulated single output



UL[®] CE 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 74%
- Isolation voltage: 3K VDC
- International standard pin-out
- Compact SIP package
- Meets UL62368, EN62368 standards(Pending)

IB05_S-W75R3 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)	IB0503S-W75R3	5 (4.75-5.25)	3.3	200/20	64/68	2400
	IB0505S-W75R3		5	150/15	68/72	2400
	IB0509S-W75R3		9	83/9	68/72	1000
	IB0512S-W75R3		12	62/7	69/73	560
	IB0515S-W75R3		15	50/5	70/74	560

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	3.3VDC/5VDC output	--	209/5	221/10	mA
	9VDC/12VDC output	--	208/12	221/20	
	15VDC output	--	202/18	215/30	
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	3.3VDC output	--	±3	%
		Other outputs	--	±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
	Input-output, with the test time of 1 second and the leak current lower than 1mA	3000	--	--	

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. 2)	-40	--	85	°C
Storage Temperature		-55	--	125	
Casing Temperature Rise	T _a =25°C	3.3VDC output	--	30	
		Other outputs	--	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, 30 Min. 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	11.60*6.00*10.16mm
Weight	1.3g(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

Temperature Derating Curve

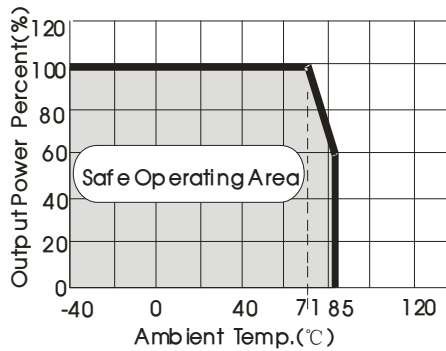
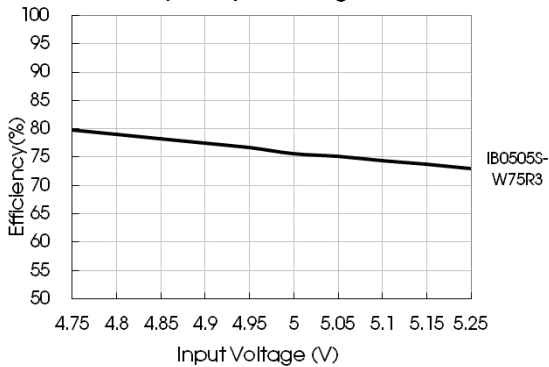
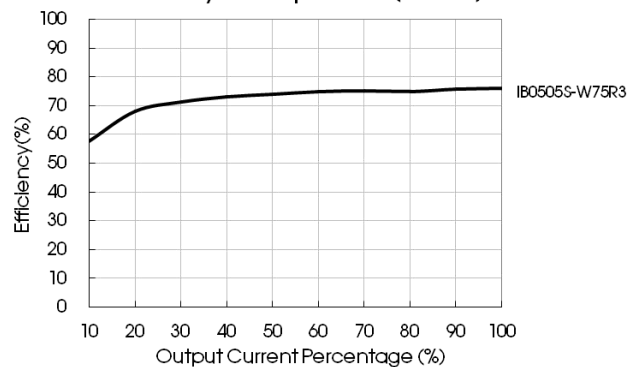


Fig. 1

Efficiency Vs Input Voltage (Full Load)



Efficiency Vs Output Load (Vin=5V)



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.



Fig. 2

Recommended capacitive load value table (Table 1)

Vin(VDC)	Cin(μF)	Vo (VDC)	Cout(μF)
5	4.7	3.3/5	10
--	--	9/12	2.2
--	--	15	1

2. EMC solution-recommended circuit

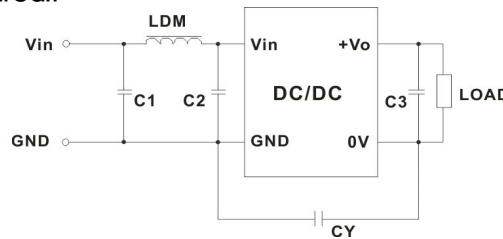


Fig. 3

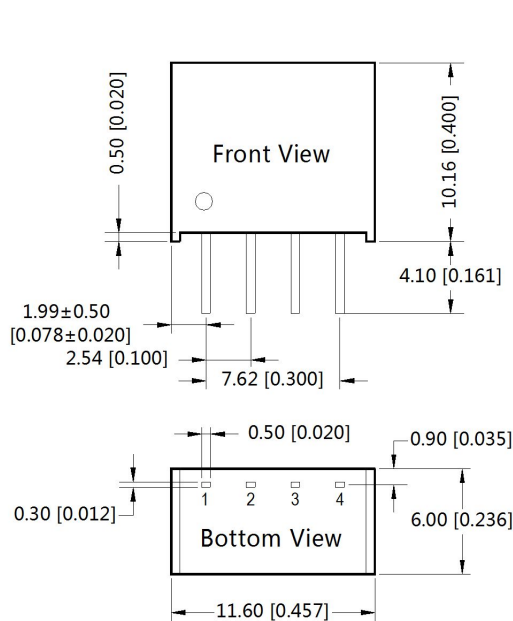
EMC recommended circuit value table (Table 2)

Input voltage 5VDC	Output voltage (VDC)	3.3/5/9		12/15		
		EMI	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.

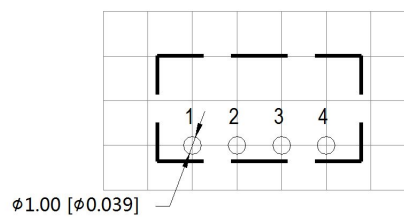
3. For more information please find DC-DC converter application notes on www.mornsun-power.com

Dimensions and Recommended Layout



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

THIRD ANGLE PROJECTION



Note : Grid 2.54*2.54mm

Pin-Out	
Pin	Function
1	GND
2	Vin
3	0V
4	+Vo

Notes:

1. Packing information please refer to Product Packing Information which can be downloaded from www.mornsun-power.com. Packing bag number: 58200003;
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.

MORNSUN Guangzhou Science & Technology Co., Ltd.

Address: No. 5, Kehui St. 1, Kehui Development Center, Science Ave., Guangzhou Science City, Luogang District, Guangzhou, P. R. China
Tel: 86-20-38601850-8801 Fax: 86-20-38601272 E-mail: info@mornsun.cn