

DC/DC Converter

SIB05_S-W75R3 Series

SCHMID-M

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



Continuous Short
Circuit Protection

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)

SIB05_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)	SIB0503S-W75R3	5 (4.75-5.25)	3.3	200/20	64/68	2400
	SIB0505S-W75R3		5	150/15	68/72	2400
	SIB0509S-W75R3		9	83/9	68/72	1000
	SIB0512S-W75R3		12	62/7	69/73	560
	SIB0515S-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	--	--	

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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

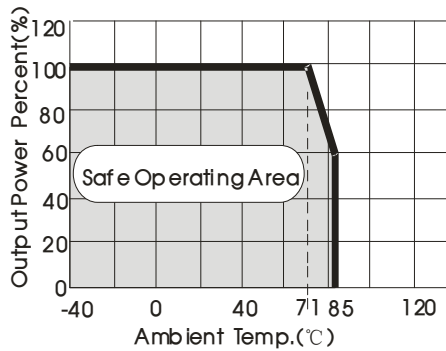
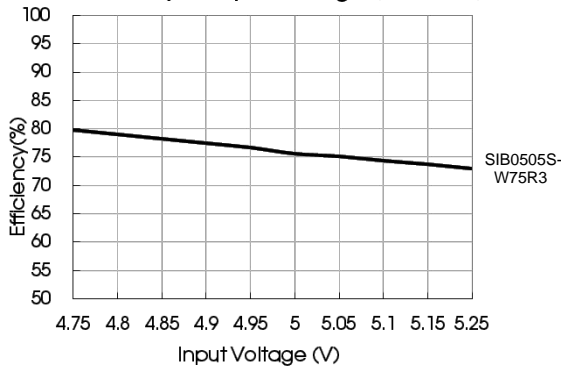
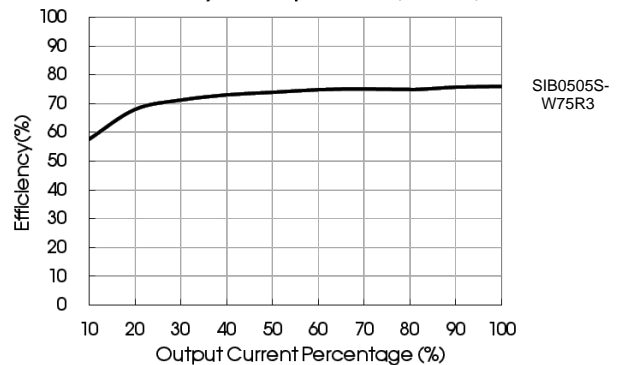


Fig. 1

Efficiency Vs Input Voltage (Full Load)



Efficiency Vs Output Load (V_{in}=5V)



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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(μ F)	Vo (VDC)	Cout(μ F)
5	4.7	3.3/5	10
--	--	9/12	2.2
--	--	15	1

2. EMC solution-recommended circuit

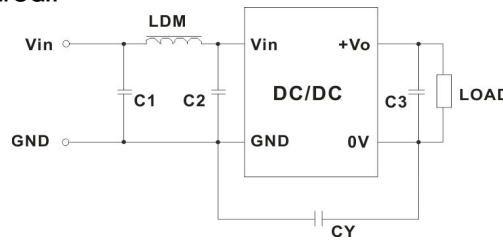


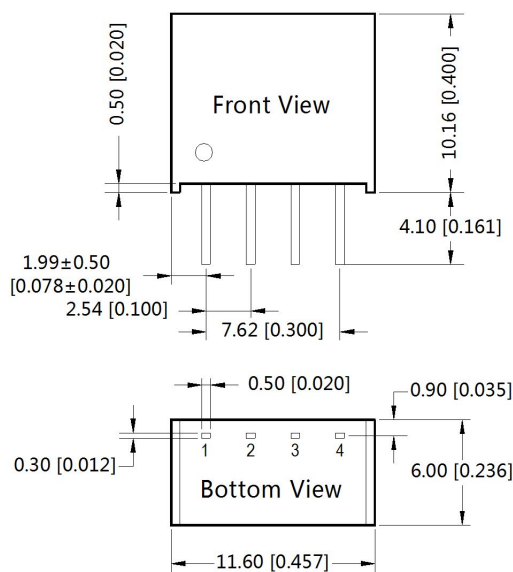
Fig. 3

EMC recommended circuit value table (Table 2)

Input voltage 5VDC	Output voltage (VDC)	3.3/5/9		12/15		
		EMI	C1/C2	4.7 μ F /25V		4.7 μ F /25V
		CY	--		1nF/4KVDC VISHAY HGZ102MBP TDK CD45-E2GA102M-GKA	
		C3	Refer to the Cout in table 1			
		LDM	6.8 μ H		6.8 μ H	

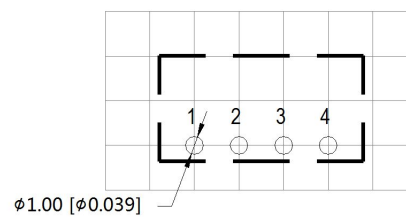
Note: In the case of actual use, the requirements for EMI are high, it is subject to CY.

Dimensions and Recommended Layout



Note:
Unit :mm[inch]
Pin section tolerances : $\pm 0.10[\pm 0.004]$
General tolerances: $\pm 0.25[\pm 0.010]$

THIRD ANGLE PROJECTION



Note : Grid 2.54*2.54mm

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

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Notes:

1. 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;
2. The maximum capacitive load offered were tested at input voltage range and full load;
3. 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;
4. All index testing methods in this datasheet are based on our Company's corporate standards;
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Products are related to laws and regulations: see "Features" and "EMC";
7. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.