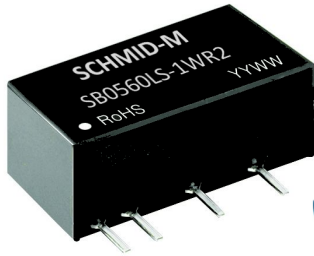


1W, Fixed input voltage, isolated & unregulated single output



Patent Protection RoHS

FEATURES

- Operating temperature range: -40°C to +85°C
- High power density
- Compact SIP package
- Isolation voltage: 1.5K VDC
- Meet automobile electronic standard: EMC specifications requirements
- No external component required
- International standard pin-out

SB0560LS-1WR2 is specially designed for applications where an isolated voltage is required in a distributed power supply system. It is suitable for:

1. Where the voltage of the input power supply is stable (voltage variation: $\pm 10\%V_{in}$);
2. Where isolation between input and output is necessary (isolation voltage $\leq 1500VDC$);
3. Where the output voltage regulation is not strictly required;
4. Typical application: digit circuit, normal low-frequency artificial circuit, data switching circuit and battery management system (BMS) with balance control scheme of power supply circuit condition, etc.

Selection Guide

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.)		
SB0560LS-1WR2	5 (4.5-5.5)	60	17/2	73/77	10

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load / no-load)		--	50/260	75/--	mA
Reflected Ripple Current		-0.7	--	9	mA
Surge Voltage (1sec. max.)		--	100	--	VDC
Input Filter		Filter capacitor			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		See tolerance envelope curve (Fig. 1)			
Line Regulation	Input voltage change: $\pm 1\%$	--	--	± 1.2	--
Load Regulation	10%-100% load	--	--	15	%
Ripple & Noise*	20MHz bandwidth	--	60	200	mVp-p
Temperature Coefficient	Full load	--	--	± 0.03	%/°C
Short Circuit Protection**		--	--	1	s

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

** Supply voltage must be discontinued at the end of short circuit duration.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, with the test time of 1 minute and the leak current lower than 1mA	1500	--	--	VDC
Isolation Resistance	Input-output, isolation voltage 500VDC	1000	--	--	M Ω
Isolation Capacitance	Input-output, 100KHz/0.1V	--	10	--	pF

DC/DC Converter

SB0560LS-1WR2

Operating Temperature	Derating when operating temperature up to 85°C, (see Fig. 2)	-40	--	85	°C
Storage Temperature		-55	--	125	
Casing Temperature Rise	Ta=25°C, nominal input, full load output	--	25	--	
Pin Welding Resistance Temperature	Welding spot is 1.5mm away from the casing, 10 seconds	--	--	300	
Storage Humidity	Non-condensing	--	--	95	%RH
Switching Frequency	Full load, nominal input voltage	--	200	--	KHz
MTBF	MIL-HDBK-217F@25°C	3500	--	--	K hours

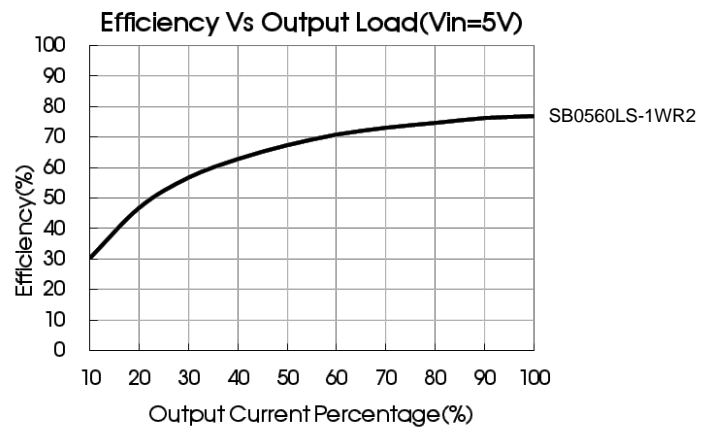
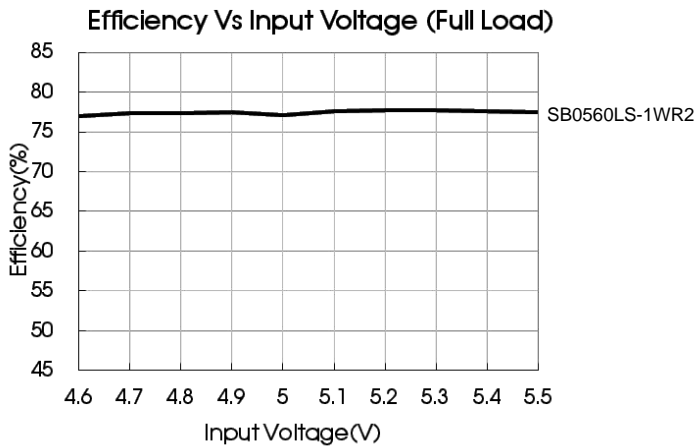
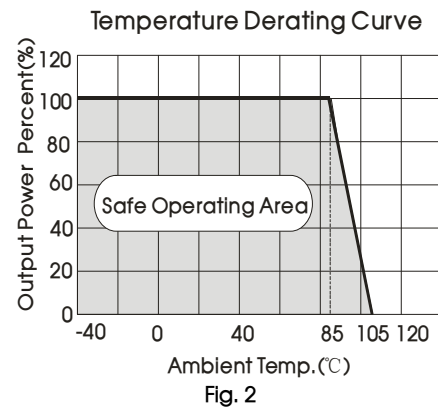
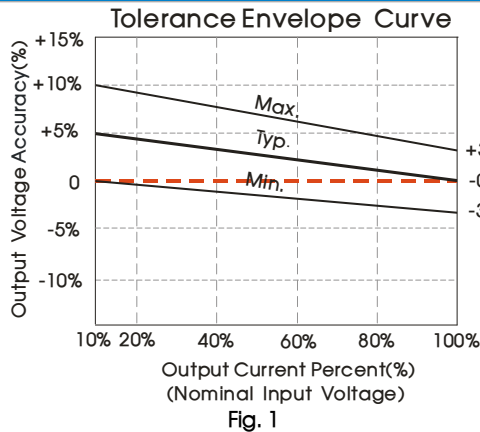
Physical Specifications

Casing Material	Black flame-retardant and heat-resistant plastic (UL94 V-0)
Dimensions	19.65*7.05*10.16mm
Weight	2.4g(Typ.)
Cooling Method	Free air convection

EMC Specifications

EMI	CE	CISPR25 CLASS 3 (see Fig. 4 for recommended circuit)
	RE	CISPR25 CLASS 3 (see Fig. 4 for recommended circuit)
EMS	ESD	ISO 10605 Contact ±8KV perf. Criteria B

Product Characteristic Curve



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.

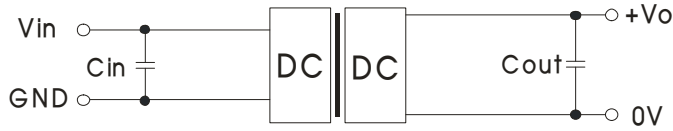


Fig.3

Recommended capacitive load value table (Table 1)

Vin (VDC)	Cin (μF)	Single Vo (VDC)	Cout (μF)
5	4.7	60	10

2. EMC solution-recommended circuit

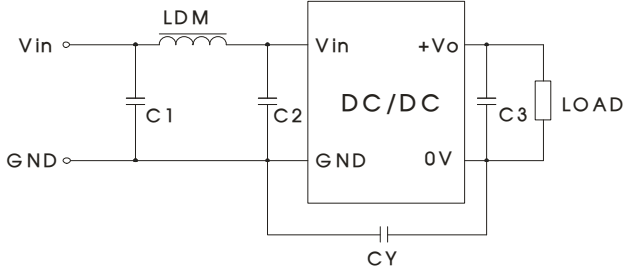


Fig. 4

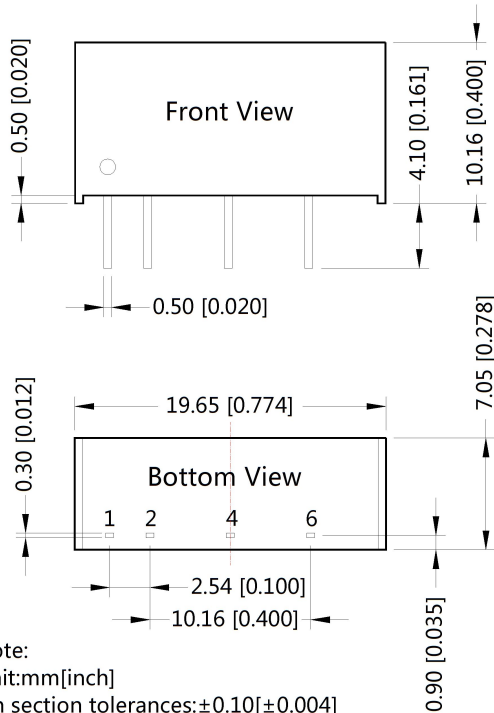
Input voltage (VDC)		5
EMI	C1	4.7μF /25V
	C2	100pF/50V
	C3	Refer to the Cout in Fig.3
	LDM	6.8μH
	CY	100pF/2000V

3. Output load requirements

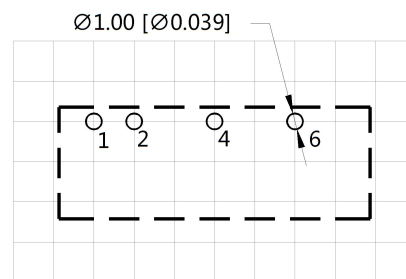
In order to ensure the converter can work reliably with high efficiency, the minimum load should not less than 10% rated load when it is used. If the needed power is indeed small, please parallel a resistor on the output side (The sum of the efficient power and resistor consumption power is not less than 10%).

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



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



Note : Grid 2.54*2.54mm

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

DC/DC Converter

SB0560LS-1WR2

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. Specifications are subject to change without prior notice.