

1W, DC/DC Power Converter

SDW01S



Introduction

The SDW01S series are 3KV isolated 1Watt DC/DC converters with compact SIP8 footprint. Designed with high efficiency, they operate in a wide temperature range from -40°C to +85°C. Other features include wide 8:1 ultra-wide input voltage range, under voltage, over current and short circuit protections. These converters are ideally suitable for battery operated equipment, measurement equipment, telecom, wireless network, industrial control system.

Features

- Rated power: 1W Max
- Input voltage range: 4.5~36VDC [8:1]
- Regulated output
- High efficiency up to 74%
- Isolation voltage 3KVDC
- Operating temperature range: -40 ~ +85°C ambient
- RoHS compliant
- Compact SIP8 package
- Under voltage, over current and short circuit protection
- Meet UL/EN/IEC 62368-1 CISPR32, EN55032
- 3 year warranty

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Part numbers

Model Number	Input Voltage [VDC]			V _{OUT} [VDC]	Output Current [mA]		Efficiency [%] Typ.	Capacitive Load [uF] Max.
	Nom.	Range	*Max.		Max.	Min.		
SDW01S1205	12	4.5~36	40	5	200	0	71	470
SDW01S1209	12	4.5~36	40	9	111	0	72	220
SDW01S1212	12	4.5~36	40	12	83	0	74	220
SDW01S1215	12	4.5~36	40	15	67	0	74	220
SDW01S1224	12	4.5~36	40	24	42	0	74	220
SDW01S1205D	12	4.5~36	40	±5	±100	0	71	±220
SDW01S1212D	12	4.5~36	40	±12	±42	0	74	±150
SDW01S1215D	12	4.5~36	40	±15	±33	0	74	±68

*Input voltage exceeds the maximum value may cause permanent damage to the converters.

*Only typical models are listed. Other models may be available upon request.

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Electrical characteristics

Unless otherwise indicated, specifications are measured at $T_A=25^{\circ}\text{C}$, nominal input voltage, full load after warm up.

Parameter	Condition	Min.	Type	Max.	Unit	Note
Input current Full load		-	116	-	mA	
Input current No load		-	10	-	mA	
Input reflected ripple current		-	50	-	mA	
Input voltage surge 1 second max		-0.7	-	50	Vdc	
Startup input voltage		-	-	4.5	Vdc	
Input under voltage shutdown		2.5	3.5	-	VDC	
Output voltage accuracy	Main output Other output	-	± 1 ± 3	± 3 ± 5	%	
Line regulation Full load, $V_{IN} = V_{IN, Min}$ to $V_{IN, Max}$	Main output Other output	-	-	± 0.5 ± 1.0	%	
Load regulation $I_{OUT}=5\%$ to 100% of $I_{OUT, rated}$	Main output Other output	-		± 1.0 ± 1.5	%	
Output ripple and noise		-	60	100	mVp-p	

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20MHz bandwidth, peak to peak						
Temperature coefficient	Full load	-	-	±0.03	%/°C	
Dynamic load response I _{OUT} =25%~50%~75% of I _{OUT} , rated	Peak deviation* Peak deviation Recovery time	-	±5 ±3 0.3	±8 ±5 0.5	% V _{OUT} % V _{OUT} mS	*V _{OUT} =5, ±5V
Output over current protection		110	-	300	% I _{OUT}	
Output short circuit protection		Continuous, automatic recovery				
Input filter		Capacitive				
Hot plug		None				

* Operating with less than 5% of rated load will not cause damage to the converters, but the performances data may not fall into the specifications, and stable operating is not assured.

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General Specifications

Parameters	Condition	Min.	Typ.	Max.	Unit	Notes
Isolation voltage 1 minute, leakage current 1mA max	Input to Output	3000	-	-	VDC	
Isolation resistance Tested at 500VDC	Input to Output	1000	-	-	M ohm	
Isolation capacitance 100KHz, 0.1V	Input to Output	-	40	-	pF	
Switching frequency	Full load	-	300	-	KHz	PWM mode
Operating temperature	No derating	-40	-	+85	°C	
Storage temperature		-55	-	+125	°C	
Storage humidity	None condensing	5	-	95	%RH	
Pin soldering resistance 1.5mm away from case for 10 sec		-	-	300	°C	
Case material		Black plastic UL94-V0				
Cooling method		Free air convection				
Vibration		10-150Hz, 5G, 0.75mm along X, Y and Z				
MTBF	MIL-HDBK-217F	>1,000,000 Hours, T _A =25°C				
Design based on standards		IEC/EN/UL 62368-1				
Safety certifications		IEC/EN 62368-1				
EMC	Emission	CISPR32, EN55032 Class B with external circuit				

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	Immunity	IEC/EN61000-4-2, 3, 4, 5, 6
Size & Weight		22x9.5x12mm, 4.5g

* Switching frequency is measured at full load. The converter reduces the switching frequency at low load (less than 50% load) for better efficiency.

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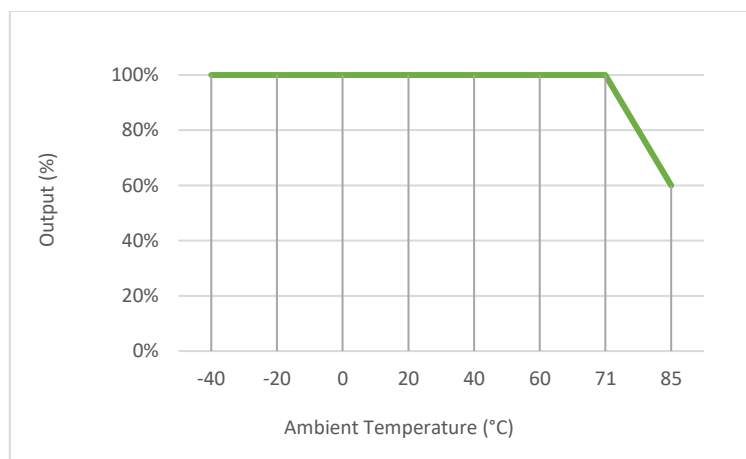
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Characteristics Curves

Derating Curve

Output vs Ambient Temperature



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Recommended External Circuit

Note

*Typical application circuit is to further lower the input and output ripple. It is not required for general use.

*Recommended component specifications are typical values. Excessive external capacitive load may cause startup problem.

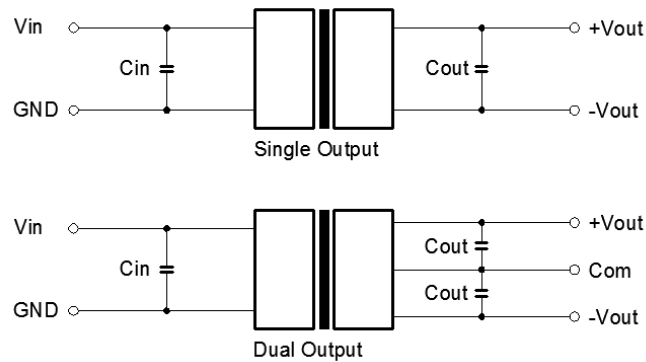


Figure 1: Typical Application Circuit

Recommend component spec

C_{IN} 100uF, 50V

C_{OUT} 22uF, 50V

EMC Enhancement for EN55032 Class B

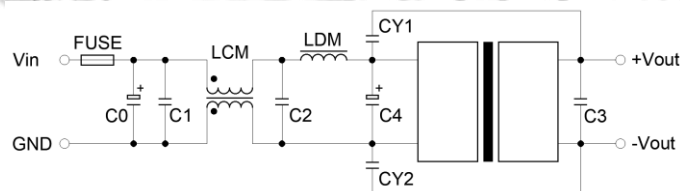


Figure 2. Circuit for EMC enhancement

Recommended component spec

Items	C0	C1, C2	C3	C4	LCM	LDM	CY1, CY2
Spec	1000uF, 50V	4.7uF, 50V	22uF, 50V	100uF, 50V	2.2mH	4.7uH	1nF, 3KV

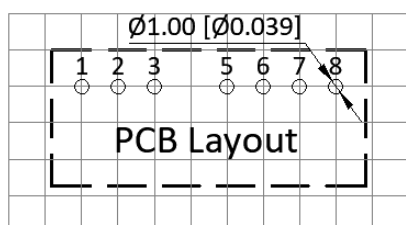
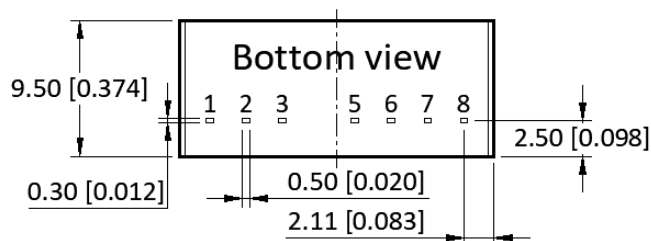
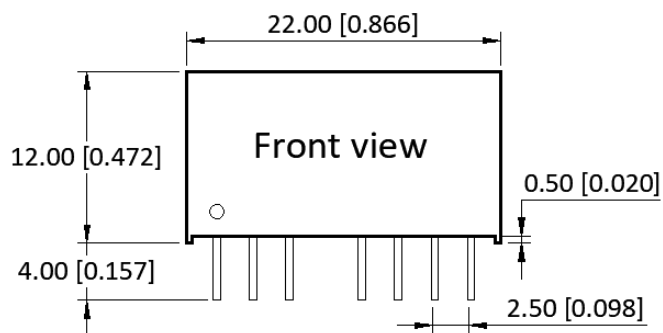
* Fuse to be selected according to application needs.

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Mechanical Specifications



Pin Definition

Pin #	Single Out	Dual Out
1	GND	GND
2	V _{IN}	V _{IN}
3	NC	NC
5	NC	NC
6	+V _{OUT}	+V _{OUT}
7	0V	COM
8	NC	-V _{OUT}

* Unless otherwise specified unit:
mm [inch]

* General tolerance: ± 0.50 [± 0.020]

* Pin thickness: ± 0.10 [± 0.004]

* Footprint grid 2.54 x 2.54 mm

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Ordering information

Ordering can be done via www.summit-electronics.com or via info@summit-electronics.com. Please contact us for more information. Customisation of the product is available on request.

Technical support

For all product questions please contact us via info@summit-electronics.com

Document revision

Rev	Date	Changes
2025v0.1	27-08-2025	First issue of document