

3W, DC/DC Power Converter

SDW03S

SUMMIT
ELECTRONICS



Introduction

The SDW03S series are 3KV isolated 3Watt 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: 3W Max
- Input voltage range: 4.5~36VDC [8:1]
- Regulated output
- High efficiency up to 79%
- 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.		
SDW03S1205	12	4.5~36	40	5	600	0	77	1000
SDW03S1212	12	4.5~36	40	12	250	0	79	330
SDW03S1215	12	4.5~36	40	15	200	0	79	220
SDW03S1205D	12	4.5~36	40	±5	±300	0	77	±470
SDW03S1212D	12	4.5~36	40	±12	±125	0	79	±220
SDW03S1215D	12	4.5~36	40	±15	±100	0	79	±100

*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	$V_{OUT}=5V$, $\pm 5V$	-	325	-	mA	
			317			
	Others					
Input current No load		-	8	-	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	-	± 1	± 3	%	
	Other output		± 3	± 5		
Line regulation Full load, $V_{IN} =$ $V_{IN, Min}$ to $V_{IN, Max}$	Main output	-	-	± 1.0	%	
	Other output			± 1.0		
Load regulation $I_{OUT}=5\%$ to 100% of I_{OUT} , rated	Main output	-		± 1.0	%	
	Other output			± 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 IOUT=25%~50% ~75% of IOUT, rated	Peak deviation*	-	±5	±8	% V _{OUT}	*V _{OUT} =5, ±5V
	Peak deviation		±3	±5	% V _{OUT} uS	
	Recovery time		300	500		
Output over current protection		110	-	300	% I _{OUT}	
Output short circuit protection		Continuous, automatic recovery				
Input filter		Capacitor				
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				

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EMC	Emission Immunity	CISPR32, EN55032 Class B with "External Circuit" IEC/EN61000-4-2, 3, 4, 5, 6
Size & Weight		22x9.5x12mm, 4.5g

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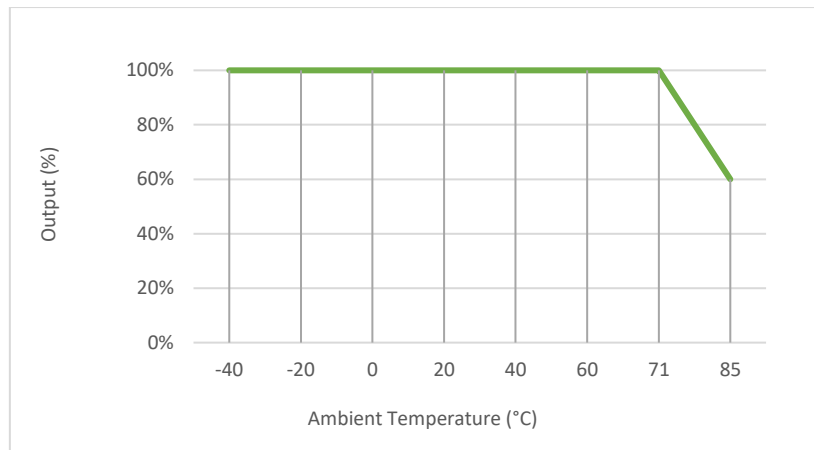
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Characteristics Curves

Derating Curve

Output vs Ambient Temperature



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Recommended External Circuit

Typical Application Circuit

*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.

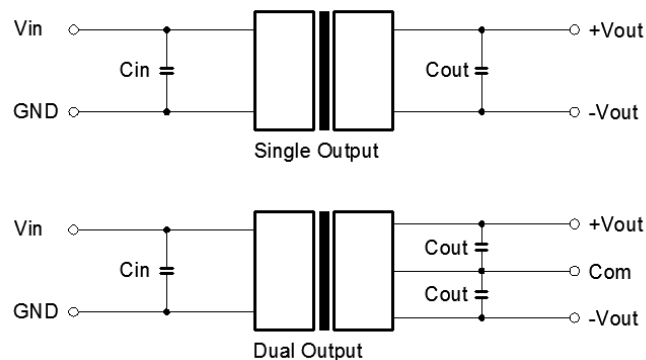


Figure 1: Typical External circuit

Recommended component spec

C_{IN}	100uF, 50V
C_{OUT}	22uF, 50V

EMC Enhancement for EN55032 Class B

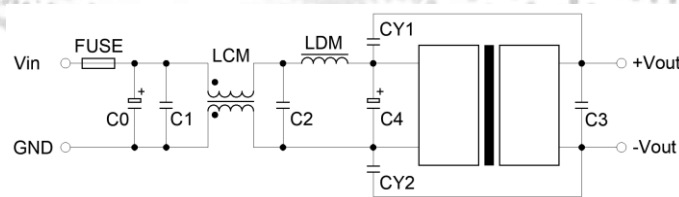


Figure 2: Circuit for EMC Enhancement

Recommended component spec

Items	C0	C1, C2	C3	C4	LCM	LDM	CY1, CY2
Spec	1000uF, 50V	10uF, 50V	22uF, 50V	100uF, 50V	3.3mH	4.7uH	1nF, 3KV

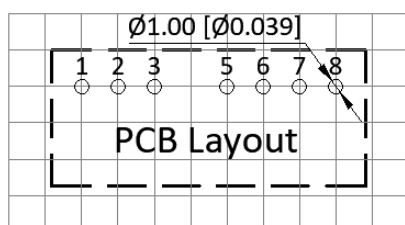
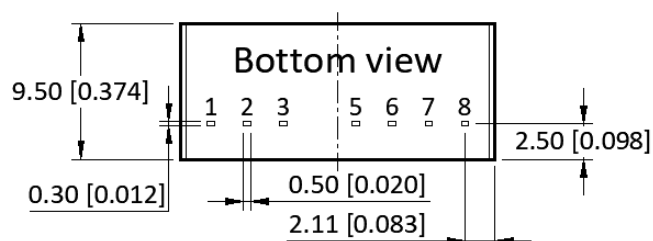
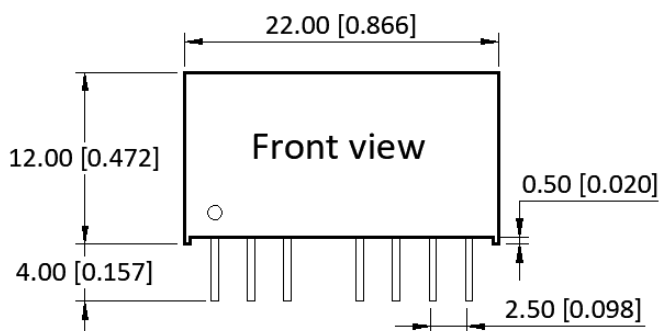
*FUSE to be selected according to application needs.

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Mechanical Specifications



Pin Definition

Pin #	Single Out	Dual Out
1	GND	GND
2	V _{IN}	V _{IN}
3, 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	26-08-2025	First issue of document