

10W, DC/DC Power Converter

SDU10S

SUMMIT
ELECTRONICS



Introduction

The SDU10S series are 1.5KV isolated 10Watt 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 4:1 input voltage range, remote On/Off control, 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: 10W Max
- Input voltage range 4:1
- Regulated output
- High efficiency up to 86%
- Isolation voltage 1.5KVDC
- Low ripple and noise
- Operating temperature range: -40 ~ +85°C ambient
- RoHS compliant
- Compact SIP8 package
- Optional remote On/Off
- Under voltage, over current and short circuit protection
- Meet IEC/EN/UL 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.		V _{IN} <9V	V _{IN} = 9...42V		
SDU10S2403	24	9-36	40	3.3	2400	0	82	2200
SDU10S2405	24	9-36	40	5	2000	0	82	2200
SDU10S2406	24	9-36	40	6	1667	0	84	1500
SDU10S2409	24	9-36	40	9	1111	0	86	680
SDU10S2410	24	9-36	40	10	1000	0	86	680
SDU10S2412	24	9-36	40	12	833	0	86	470
SDU10S2415	24	9-36	40	15	667	0	86	330
SDU10S2424	24	9-36	40	24	417	0	86	220
SDU10S2415D	24	9~36	40	±15	±330	0	86	100

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

* Input voltage exceed the Max. value may cause permanent damage. For dual output models, max capacitive load stipulated in the above list is for each output.

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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	$V_{OUT}=3.3\text{V}$ Others	-	389 474	-	mA	
Input current No load	$V_{OUT}=3.3\text{V}$, 5V Others	-	25 10	-	mA	
Reflected ripple current		-	50	-	mA	
Input voltage surge 1 second max	$V_{IN, Nom} = 24\text{V}$	-0.7	-	50	VDC	
Startup input voltage		-	-	9	VDC	
Input under voltage shutdown	$V_{IN, Nom} = 24\text{V}$	5.5	6.5	-	VDC	
Remote On/Off control "Ctrl" pin open or logic high [ON] "Ctrl" pin grounded or logic low [OFF]	Logic high Logic low Ctrl pin current	3.5 0 -	- - 6	12 1.2 10	VDC VDC mA	Positive Logic
Output voltage accuracy	$I_{OUT}=0$ to 100%	-	± 1	± 2	%	
Line regulation Full load, $V_{IN} = V_{IN, Min}$ to $V_{IN, Max}$		-	± 0.5	± 1.0	%	
Load regulation		-	± 0.5	± 1.0	%	
Output ripple and noise $I_{OUT}=5\%$ to 100% of $I_{OUT, rated}$	20MHz bandwidth	-	75	150	mVp-p	
Temperature coefficient	Full load	-	-	± 0.03	%/ $^{\circ}\text{C}$	

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Dynamic load response $I_{OUT}=25\%\sim 50\%\sim 75\%$ of $I_{OUT, rated}$	Peak deviation** Peak deviation Recovery time	-	± 5 ± 3 300	± 8 ± 5 500	% V_{OUT} % V_{OUT} μS	** $V_{OUT}=3.3, 5$
Output over current protection		110	160	230	% 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.	I/P to O/P	1500	-	-	VDC	
Isolation resistance Tested at 500VDC	I/P to O/P	1000	-	-	M ohm	
Isolation capacitance 100KHz, 0.1V	I/P to O/P	-	1000	-	pF	
Switching frequency*	Full load	-	500	-	KHz	PWM mode
Operating temperature	See "Derating Curve"	-40	-	+85	°C	
Storage temperature		-55	-	+125	°C	
Storage humidity	None condensing	5	-	95	%RH	
Pin soldering temperature		-	-	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	CE	CISPR32, EN55032 Class B with "External Circuit"
	ESD	IEC/EN61000-4-2, Contact $\pm 6\text{kV}$, Criteria B
	RS	IEC/EN61000-4-3, 10V/m , Criteria A
	EFT	IEC/EN61000-4-4, $\pm 2\text{kV}$, Criteria B
	Surge	IEC/EN61000-4-5, Line to Line $\pm 2\text{kV}$, Criteria B
	CS	IEC/EN61000-4-6, 3Vrms , Criteria A
Size, and Weight		22.0x9.5x12.0mm, 5.5g

* 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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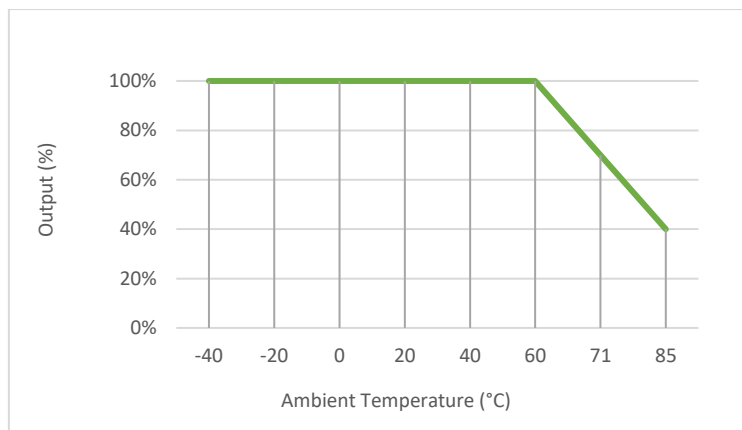
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Characteristics Curves

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.

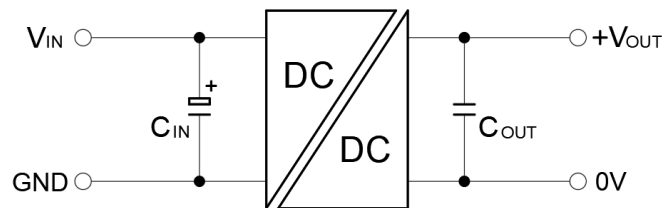


Figure 1: Typical External Circuit

Recommend component spec

Item	C_{IN}	C_{OUT}
Spec	47uF, 100V	22uF, 50V

EMC Enhancement for EN55032 Class B

*Use this application circuit to meet Class B EMC performance

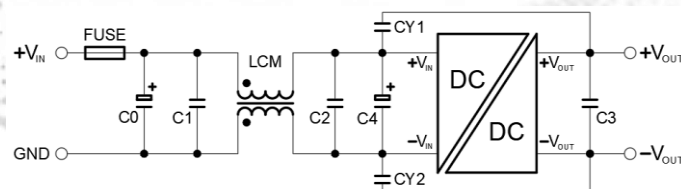


Figure 2. Circuit for EMC enhancement

Recommended component spec

Items	$C0, C4$	$C1, C2$	LCM	$CY1, CY2$	$C3$
Spec	330uF, 100V	10uF, 100V	470uH	1nF, 2KV	22uF, 50V

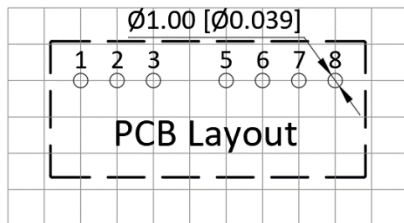
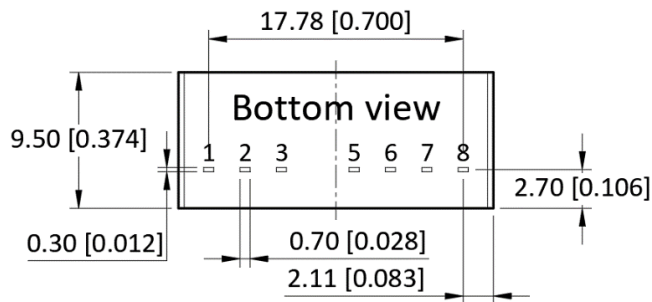
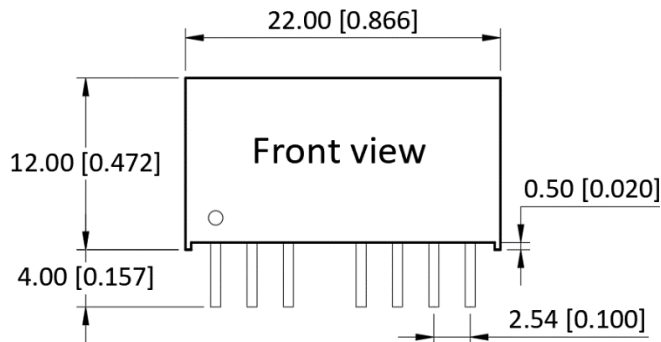
* Fuse to be selected according to application needs.

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Mechanical Specifications



Pin Definition

Pin #	Single Out	Dual Out
1	GND	GND
2	V _{IN}	V _{IN}
3	Ctrl	Ctrl
5	No connection	No connection
6	+V _{OUT}	+V _{OUT}
7	0V	0V
8	No connection	-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