2W, DC/DC Power Converter

SDR02S

Introduction

The SDR02S series are SIP7 package DC/DC converters with tightly regulated single output, and 1.5KVDC isolation. These converters feature high efficiency, low ripple and noise, short circuit protection, and wide operating temperature range. They are widely used in distributed power system in industrial applications where isolation and voltage converting is needed.

Features

- → Rated power: 2W Max
- → Input voltage range ±5%
- → Regulated output
- → High efficiency up to 84%
- → Isolation voltage 1.5KVDC
- → Operating temperature range: -40 ~ +85°C ambient
- → RoHS compliant
- → Compact SIP7 package
- → Continuous short circuit protection
- → Meet IEC/EN/UL 62368-1
- → 3 year warranty

2W, DC/DC Power Converter
SDR02S

Part numbers

Model Number	Input Voltage [VDC] ±5%	Output Voltage (VDC)	Output Current (mA) Max	Output Current (mA) Min	Efficiency (%) Typ.	Capacitive Load (uF) Max.
SDR02S0503	5	3.3	400	40	67	2400
SDR02S0505	5	5	400	40	70	2400
SDR02S1203	12	3.3	400	40	69	2400
SDR02S1205	12	5	400	40	72	2400
SDR02S2403	24	3.3	400	40	70	2400
SDR02S2405	24	5	400	40	73	2400

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

Electrical characteristics

Unless otherwise indicated, specifications are measured at T_A=25°C, nominal input voltage, full load after warm up.

Parameter	Condition	Min.	Type	Max.	Unit	Note
Input current Full load	V_{IN}=5V V_{IN}=12V V_{IN}=24V	-	260 110 57	-	mA	
Input current No load	V_{IN}=5V V_{IN}=12V V_{IN}=24V	-	15 8 4	-	mA	
Reflected Ripple Current		-	15	-	mA	
Output voltage accuracy		-	±3	-	%	
Line regulation For V_{IN} change of ±1%		-	±0.25	-	%	
Load regulation I_{OUT}=10% to 100% of $I_{OUT, rated}$	V_{OUT}=3.3V Others	-	±3 ±2	-	%	
Temperature coefficiency	Full load	-	-	±0.02	%/°C	
Output ripple and noise 20 MHz bandwidth	V_{OUT}=24V Others	-	50 30	100 75	mVp-p	
Output short circuit protection		Continuous, automatic recovery				
Input filter		Capacitor				
Hot plug		None				

* Dual output models need to operate with balanced load. The load difference between two outputs over 10% may cause unstable operating of the converter.

2W, DC/DC Power Converter
SDR02S

General Specifications

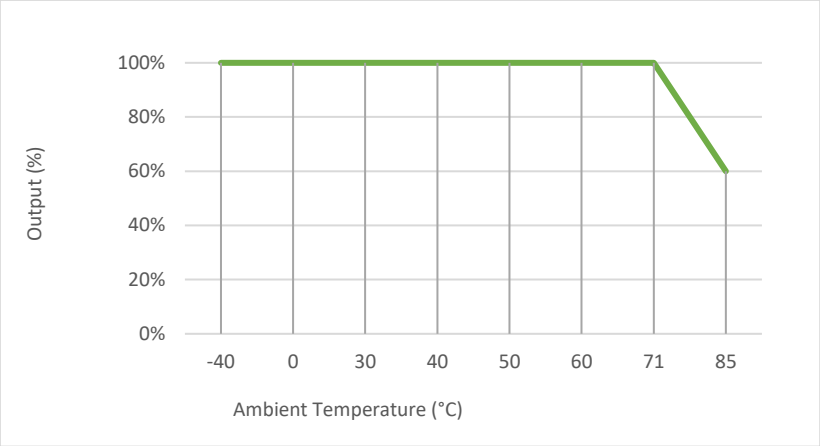
Parameters	Condition	Min.	Typ.	Max.	Unit
Isolation voltage 1 minute, leakage current 1mA max	Input to Output	1500	-	-	VDC
Isolation resistance 500VDC	Input to Output	1000	-	-	M ohm
Isolation capacitance 100KHz, 0.1V	Input to Output	-	20	-	pF
Operating temperature	See "Derating Curve"	-40	-	+85	°C
Storage temperature		-55	-	+125	°C
Temperature rise at case		-	25	-	°C
Storage humidity		-	-	95	%RH
Switching frequency Full load		-	250	-	KHz
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			
Design based on standards		IEC/EN/UL 62368-1			
Safety certifications		IEC/EN 62368-1			
EMC	Emissions Immunity	CISPR32, EN55032 Class B* IEC/EN61000-4-2			
MTBF	MIL-HDBK-217F	>3,500,000 Hours, T_A=25°C			

Size		19.65 x 7.05 x 10.16 mm, 2.4g Typ.
Weight		2.4g Typ.

Characteristics Curves

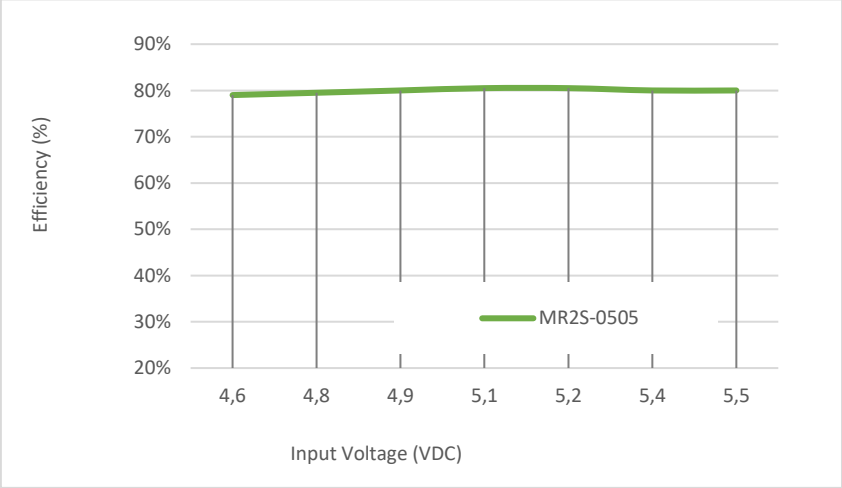
Derating Curve

Output vs Ambient Temperature



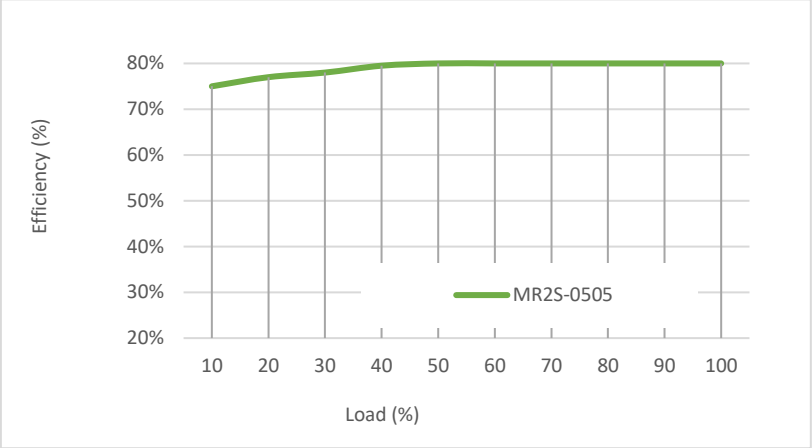
Efficiency Curves

Efficiency vs Input Voltage



Full Load

Efficiency vs Load



Nominal input voltage

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.

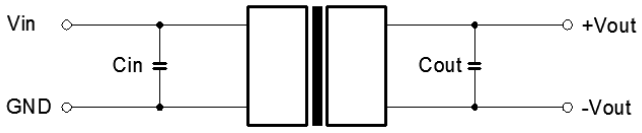


Figure 1: Typical External circuit

Recommended component spec

Input voltage	5V	12V	24V
C_{IN}	4.7uF, 16V	2.2uF, 25V	0.47uF, 50V

Recommended component spec

Output voltage	3.3, 5V
C_{OUT}	10uF, 16V

EMC Enhancement for EN55032 Class B

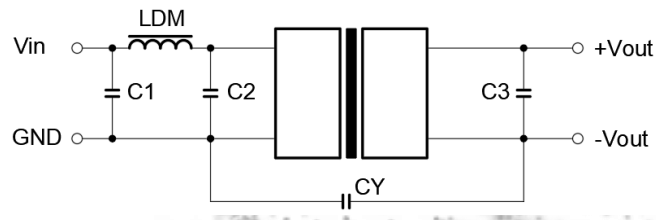


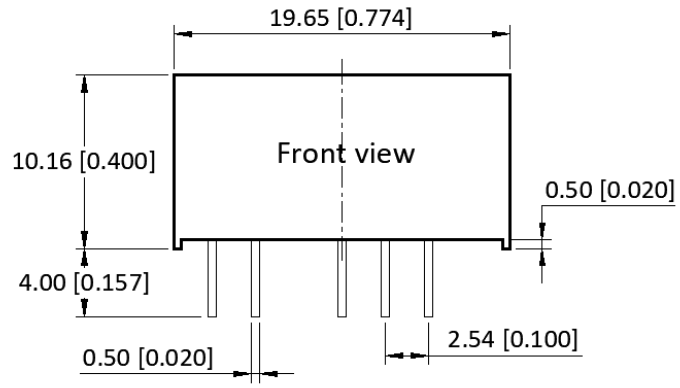
Figure 2: Circuit for EMC Enhancement

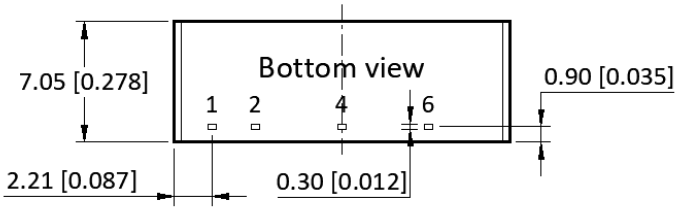
Recommended component spec

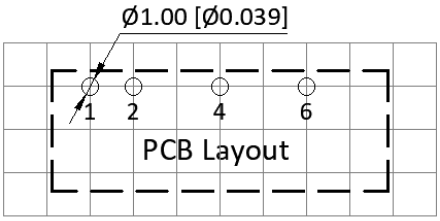
Component	LDM	C1, C2	CY
V_{OUT}=3.3, 5V	6.8uH	4.7uF, 25V	100pF, 2KV

*C3 refer to C_{OUT} in

Mechanical Specifications







Pin Definition

Pin #	Single Out	
1	V_{IN}	
2	GND	
4	0V	
6	$+V_{OUT}$	

*** 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**

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