

3W, DC/DC Power Converter

SDC03P

SUMMIT
ELECTRONICS



Features

- Rated power: 3W Max
- Input voltage range 2:1
- Regulated single or dual out
- High efficiency up to 86%
- Isolation voltage 3KV
- Operating temperature range: -40 ~ +85°C ambient
- RoHS compliant
- Compact DIP24 package
- Continuous short circuit protection
- Meet IEC/EN/UL 62368
- 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.		
SDC03P0505	5	4.5~9	11	5	600	30	74	4700
SDC03P0512	5	4.5~9	11	12	250	12	77	2700
SDC03P0515	5	4.5~9	11	15	200	10	77	220
SDC03P0505D	5	4.5~9	11	±5	±300	±15	76	2200
SDC03P0509D	5	4.5~9	11	±9	±166	±8	76	1800
SDC03P0512D	5	4.5~9	11	±12	±125	±6	78	1800
SDC03P0515D	5	4.5~9	11	±15	±100	±5	78	1000
SDC03P1203	12	9~18	20	3.3	909	46	74	4700
SDC03P1205	12	9~18	20	5	600	30	81	4700
SDC03P1212	12	9~18	20	12	250	12	83	2700
SDC03P1215	12	9~18	20	15	200	10	82	2200
SDC03P1224	12	9~18	20	24	125	6	83	1800
SDC03P1205D	12	9~18	20	±5	±300	±15	81	2200
SDC03P1209D	12	9~18	20	±9	±166	±8	84	2000
SDC03P1212D	12	9~18	20	±12	±125	±6	84	1800
SDC03P1215D	12	9~18	20	±15	±100	±5	85	1000
SDC03P2403	24	18~36	40	3.3	909	46	78	4700
SDC03P2405	24	18~36	40	5	600	30	81	4700
SDC03P2409	24	18~36	40	9	333	16	81	2700
SDC03P2412	24	18~36	40	12	250	12	86	2700
SDC03P2415	24	18~36	40	15	200	10	86	2200
SDC03P2424	24	18~36	40	24	125	6	85	1800

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SDC03P2405D	24	18~36	40	±5	±300	±15	82	2200
SDC03P2412D	24	18~36	40	±12	±125	±6	84	1800
SDC03P2415D	24	18~36	40	±15	±100	±5	84	1000
SDC03P4803	48	36~75	80	3.3	909	46	76	4700
SDC03P4805	48	36~75	80	5	600	30	82	4700
SDC03P4812	48	36~75	80	12	250	12	86	2700
SDC03P4815	48	36~75	80	15	200	10	86	2200
SDC03P4824	48	36~75	80	24	125	6	84	1000
SDC03P4805D	48	36~75	80	±5	±300	±15	82	2200
SDC03P4812D	48	36~75	80	±12	±125	±6	84	1800
SDC03P4815D	48	36~75	80	±15	±100	±5	85	1000
SDC03P4824D	48	36~75	80	±24	±63	±3	84	680

* Input voltage exceed the Max. value may cause permanent damage.

* 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	$V_{IN, Nom}=5V$		789		mA	
	$V_{IN, Nom}=12V$	-	316	-		
	$V_{IN, Nom}=24V$		152			
	$V_{IN, Nom}=48V$		77			
Input current No load	$V_{IN, Nom}=5V$		40		mA	
	$V_{IN, Nom}=12V$	-	30	-		
	$V_{IN, Nom}=24V$		15			
	$V_{IN, Nom}=48V$		5			
Reflected ripple current	$V_{IN, Nom}=5V$	-	20	-	mA	
	Others		30			
Input voltage surge 1 second max	$V_{IN, Nom}=5V$	-0.7		12	VDC	
	$V_{IN, Nom}=12V$	-0.7	-	25		
	$V_{IN, Nom}=24V$	-0.7		50		
	$V_{IN, Nom}=48V$	-0.7		100		
Startup input voltage	$V_{IN, Nom}=5V$			4.5	VDC	
	$V_{IN, Nom}=12V$	-	-	9		
	$V_{IN, Nom}=24V$			18		
	$V_{IN, Nom}=48V$			36		
Output voltage accuracy	Load=5%~100%	-	± 1.0	± 3	%	
	No load		± 1.5	± 5		
Output voltage balance Dual output with balanced load		-	± 0.5	± 1	%	
Line regulation Full load, $V_{IN} = V_{IN, Min}$ to $V_{IN, Max}$		-	± 0.2	± 0.5	%	
Load regulation	-	-	± 0.2	± 0.5	%	

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IOUT=5% to 100% of IOUT, rated						
Cross regulation Dual output, IOUT, main=50% of IOUT, rated, IOUT, other=10% to 100% of IOUT, rated		-	-	±5	%	
Output ripple and noise 20MHz bandwidth, peak to peak	VOUT=24V Others	-	100 50	120 80	mVp-p	
Temperature coefficient	Full load	-	±0.03	±0.03	%/°C	
Dynamic load response IOUT=25%~50%~75% of IOUT, rated	Peak deviation Recovery time	-	±2 0.5	±5 2	% VOUT mS	
Output short circuit protection		Continuous, automatic recovery				
Input filter		PI filter				
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	3000	-	-	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	-	200	-	KHz	
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		Plastic 94-V0				
Cooling method		Free air convection				
Vibration		IEC/EN61373 – Category 1, Grade B				
MTBF	MIL-HDBK-217F	>1,000,000 Hours, T _A =25°C				
Design based on standards		IEC/EN/UL 62368-1				
Safety certifications		EN/IEC 62368-1				

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EMC		CISPR32, EN55032 Class B with external circuit IEC/EN61000-4-2, 3, 4, 5, 6
Size, and Weight		32 x 20 x 12 mm, 13g

* 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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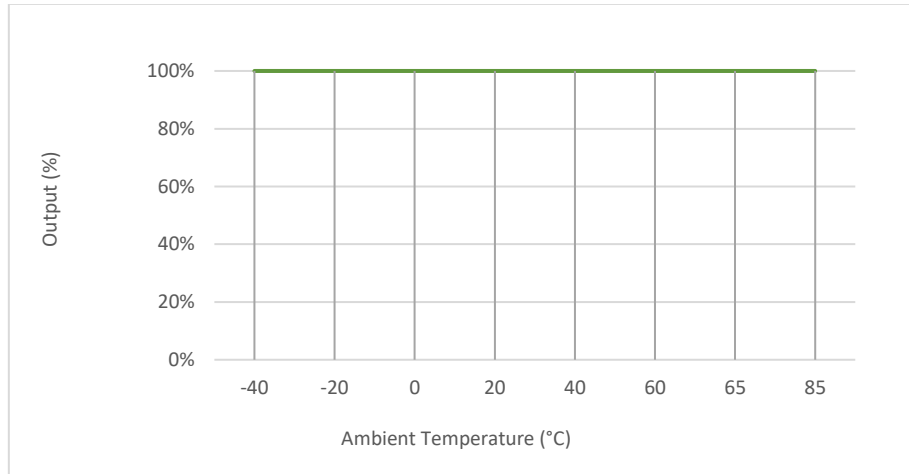
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Characteristics Curves

Derating Curve

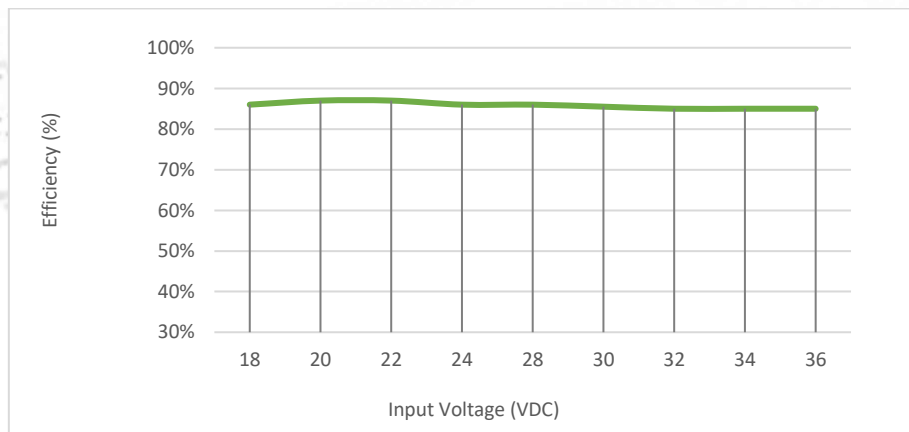
Output vs Ambient Temperature



No heatsink

Efficiency Curve

Efficiency vs Input Voltage



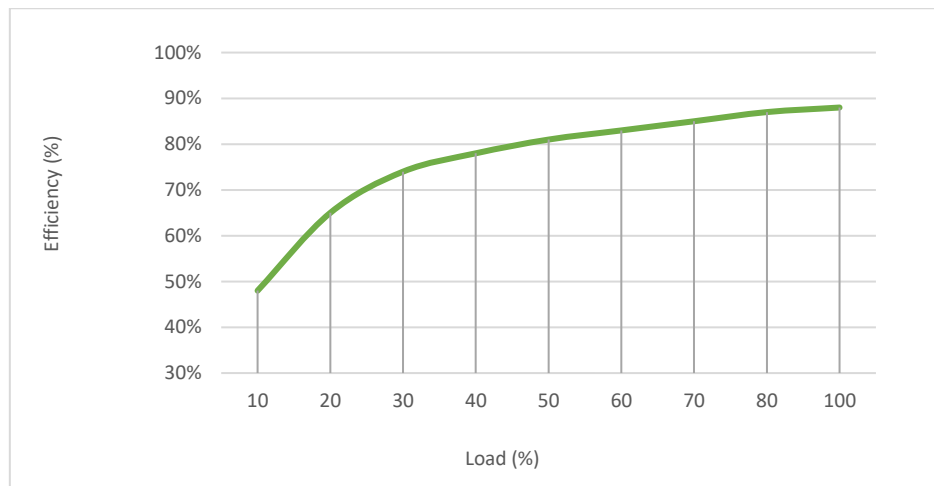
SDC03P2405, with Full Load

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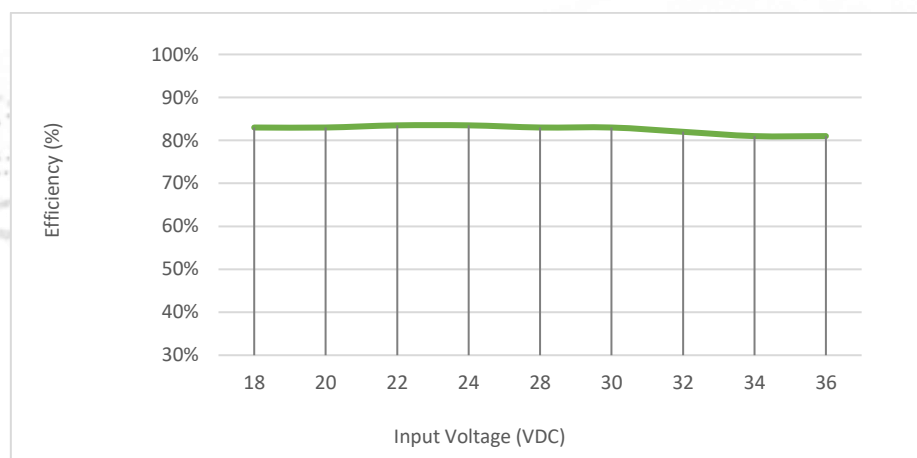
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Efficiency vs Load



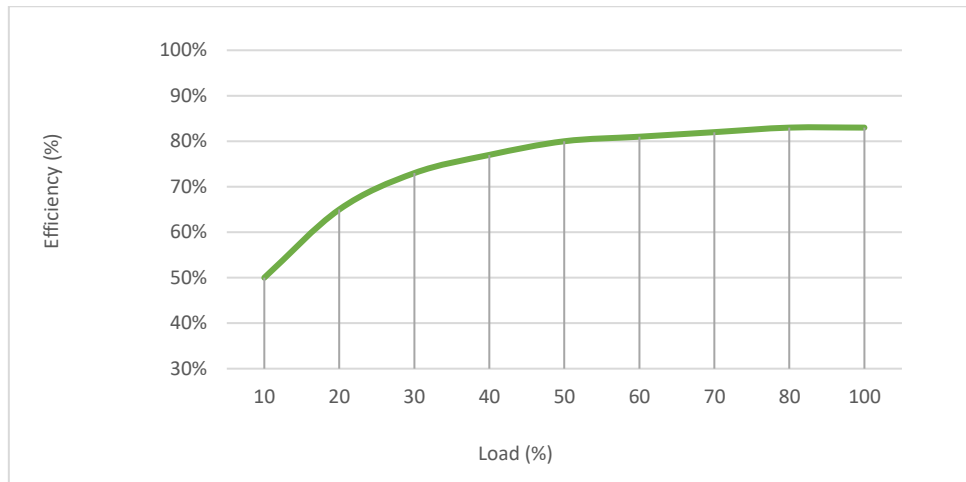
SDC03P2405, with nominal input voltage



SDC03P2415D, with full Load

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SDC03P2415D, with nominal input voltage

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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.

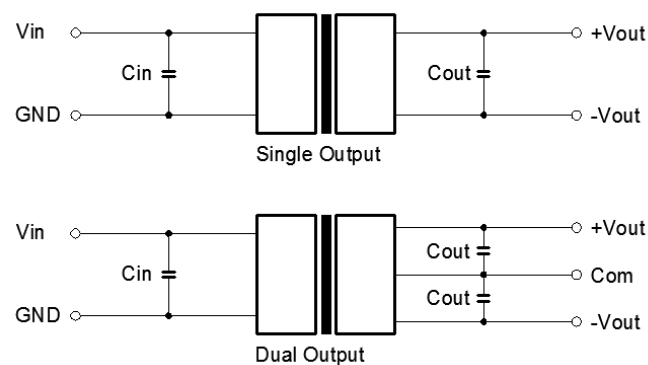


Figure 1: Typical External circuit

Recommend component spec

Input voltage	5, 12V	24, 48V
C _{IN}	100uF, 25V	10...47uF, 100V
C _{OUT}	10uF, 50V	

EMC Enhancement for EN55032 Class B

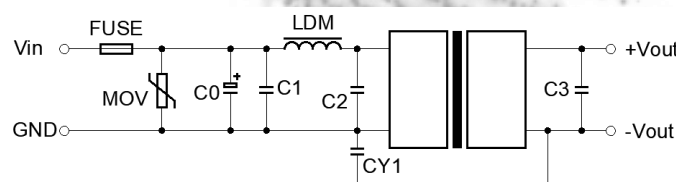


Figure 2: Circuit for EMC Enhancement

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Recommended component spec

Items	MOV	LDM	C0	C1, C2	CY1
V_{IN}=5V	-	12uH	1000uF, 16V	4.7uF, 50V	1nF, 3KV
V_{IN}=12V	14D330K	12uH	1000uF, 25V	4.7uF, 50V	1nF, 3KV
V_{IN}=24V	20D470K	12uH	330uF, 50V	4.7uF, 50V	1nF, 3KV
V_{IN}=48V	14D101K	12uH	330uF, 100V	4.7uF, 100V	1nF, 3KV

* Fuse to be selected according to application needs.

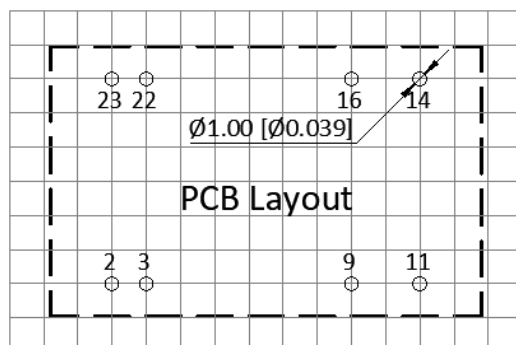
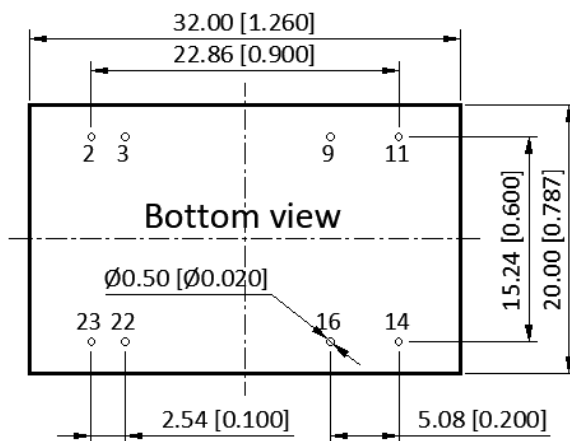
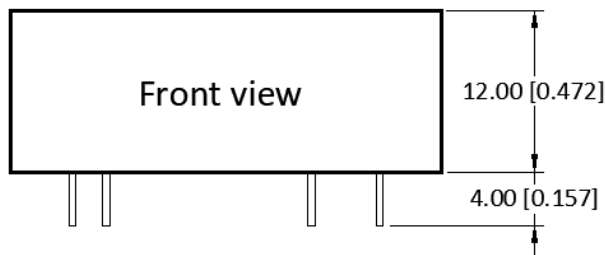
* C3 refer to C_{OUT} in Table 1.

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Mechanical Specifications



Pin Definition

Pin #	Single Out	Dual Out
2, 3	GND	GND
9	No pin	COM
11	No connection	-V _{OUT}
14	+V _{OUT}	+V _{OUT}
16	0V	COM
22, 23	V _{IN}	V _{IN}

* 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