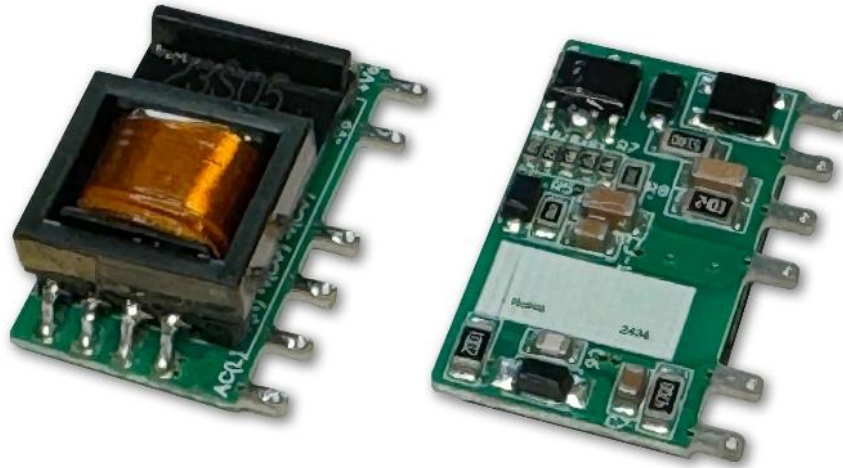


5W, AC/DC Power Converter

SAN05S

SUMMIT
ELECTRONICS



Introduction

SAN05S series are compact size AC/DC power converters, featuring universal input voltage range 85~305VAC, low standby power consumption, high efficiency. They are certified to IEC/EN 62368-1, and EMC performance meets CISPR32, EN55032, ideally suitable for industrial, and critical commercial applications.

Features

- Rated power: 5W
- Universal input: 85~305VAC 47~63Hz
- Regulated single output
- Isolation voltage 4000VAC
- Typical efficiency 69 ... 81%
- Energy saving, standby power only 0.1W
- Operating temperature range: -40~+85°C
- RoHS compliance
- Compact SIP package
- Designed for high reliability and long lifetime
- Certified to IEC EN 62368-1, CISPR32, EN55032
- Suitable for both civil and industrial applications
- 3 year warranty

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Part numbers

Model Number	Input Voltage (VAC)	Output Voltage (VDC)	Output Current (mA) Max	Efficiency (%) Typ.	Capacitive Load (uF) Max.
SAN05S033	85~305VAC 70~430VDC	3.3	800	69	1500
SAN05S050		5	1,000	76	1500
SAN05S090		9	560	77	680
SAN05S120		12	420	78	470
SAN05S150		15	340	79	330
SAN05S240		24	210	81	100

* 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 TA=25°C, humidity <75%, nominal input voltage and rated output load.

Parameter	Condition	Min.	Type	Max.	Unit	Notes
Input Voltage Range	AC in	85	-	305	VAC	
	DC in	70		430	VDC	
Input Frequency		47	-	63	Hz	
Nominal Input Voltage		100	-	277	VAC	
Input current	115VAC	-	0.10	-	A	
	230VAC	-	0.07	-	A	
Inrush current Cold start	115VAC	-	20	-	A	
	230VAC	-	40	-	A	
Output voltage accuracy $I_{OUT}=10\%\sim 100\%$ of $I_{OUT, rated}$		-	± 5	-	%	
Line regulation Full load	$V_{OUT}=3.3V$	-	± 2.5	-	%	
	Others	-	± 1.5	-	%	
Load regulation $I_{OUT}=10\%\sim 100\%$ of $I_{OUT, rated}$		-	± 3	-	%	
Ripple and noise 20MHz bandwidth, peak to peak		-	80	180	mV	
Standby power consumption	230VAC	-	0.10	0.15	W	
Temperature coefficient		-	± 0.15	-	%/°C	

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Hold-up Time	115VAC 23VAC	-	8 40	-	mS	
Minimum load		10	-	-	%	
Over current protection	Automatic recovery	110	-	-	% I _{OUT}	
Short circuit protection	Automatic recovery	Continuous, hiccup mode				
Recommended external fuse		1A, slow blow				

* Ripple and noise measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 1uF ceramic capacitor and a 10uF electrolytic capacitor in parallel.

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General Specifications

Parameters	Condition	Min.	Typ.	Max.	Unit
Isolation voltage 1 minute, leakage current 5mA max	Input to Output	4000	-	-	VAC
Insulation resistance 500VDC	Input to Output	100			M Ohm
Operating temperature range	See “Derating Curve”	-40	-	85	°C
Storage temperature		-40	-	105	°C
Storage humidity		-	-	95	%RH
Switching frequency		-	65	-	KHz
Soldering temperature	Wave Manual	-	260 360	-	°C
Cooling method		Free air convection			
Safety class		Class II, no FG			
MTBF	MIL-HDBK-217F	>1,000,000 Hours, 25°C			
Design based on standards		UL/EN/IEC 62368-1, EN/IEC 60335-1, EN/IEC 61558-1			
Safety certifications		IEC/EN 62368-1			
EMC (1) With External Circuit as	CE ESD RS	CISPR32, EN55032 Class B, (2) IEC/EN61000-4-2, Contact ±6kV, Air ±8kV, Criteria B IEC/EN61000-4-3, 10V/m, Criteria A			

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shown in "Figure 1" (2) With External Circuit as shown in "Figure 2"	EFT	IEC/EN61000-4-4, $\pm 2\text{kV}$, Criteria B, (1)
	EFT	IEC/EN61000-4-4, $\pm 4\text{kV}$, Criteria B, (2)
	Surge	IEC/EN61000-4-5, Line to Line $\pm 1\text{kV}$, Criteria B, (1)
	Surge	IEC/EN61000-4-5, Line to Line $\pm 2\text{kV}$, Criteria B, (2)
	CS	IEC/EN61000-4-6, 10Vrms, Criteria A
Size, and Weight		26.4x11.0x14.8mm, 6g

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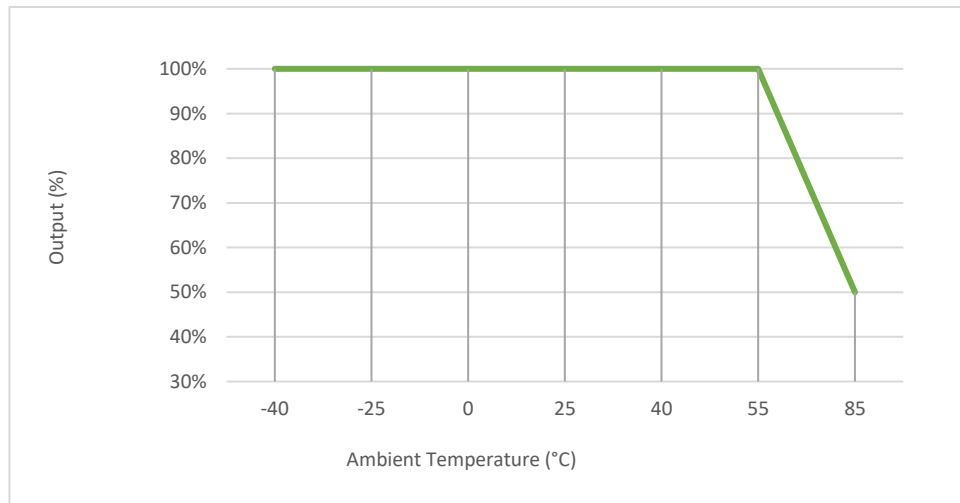
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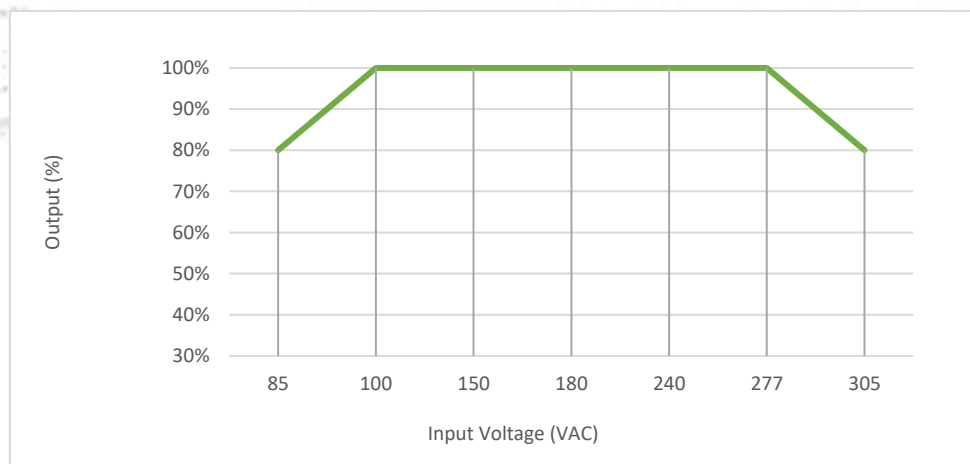
Characteristics Curves

Derating Curve

Output vs Ambient Temperature



Output vs Voltage



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Recommended External Circuit

Typical External Circuit

This circuit is the basic design reference, components with “” are required for the converter’s operating.

*FUSE to be 1A, slow blow and is also required for safety.

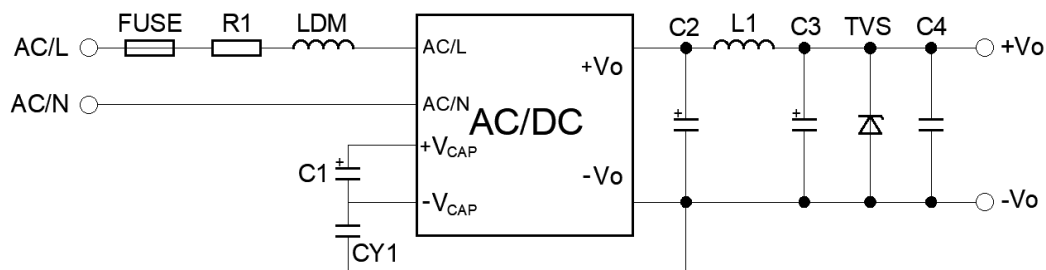


Figure 1: Typical external circuit

Recommended Component Spec [Table 1]

V _{OUT} [V]	C1*	C2*	C3*	C4	CY1*	L1*	TVS
3.3, 5	10uF, 450V	560uF, 16V	100uF, 35V	0.1uF, 50V	1nF, 400VAC	2.2uH, 3A	SMBJ7.0A
9, 12	10uF, 450V	330uF, 25V	100uF, 35V	0.1uF, 50V	1nF, 400VAC	2.2uH, 3A	SMBJ12A
15, 24	10uF, 450V	330uF, 35V	47uF, 35V	0.1uF, 50V	1nF, 400VAC	3.3uH, 2A	SMBJ20A

* For further questions contact one of our sales representatives.

Circuit for EMC Enhancement

*This application circuit is recommended for EMC enhancement. It is not mandatory if this is not critical in the application.

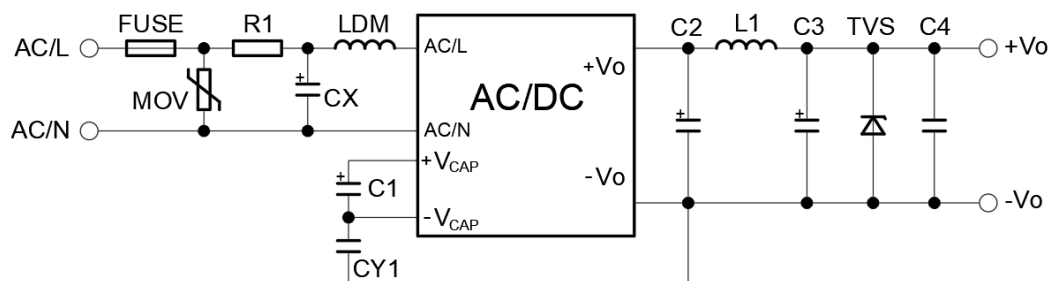


Figure 2. Circuit for EMC Enhancement

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Recommended Component Spec [Table 2]

Item	FUSE*	MOV	CX	R1*	LDM
Spec	2A, 300V	14D561	0.1uF, 310VAC	12 Ohm, 3W	2.2mH, 0.24A

Components above with "" are required for the converter's operating. "R1" is wire-wound resistor.

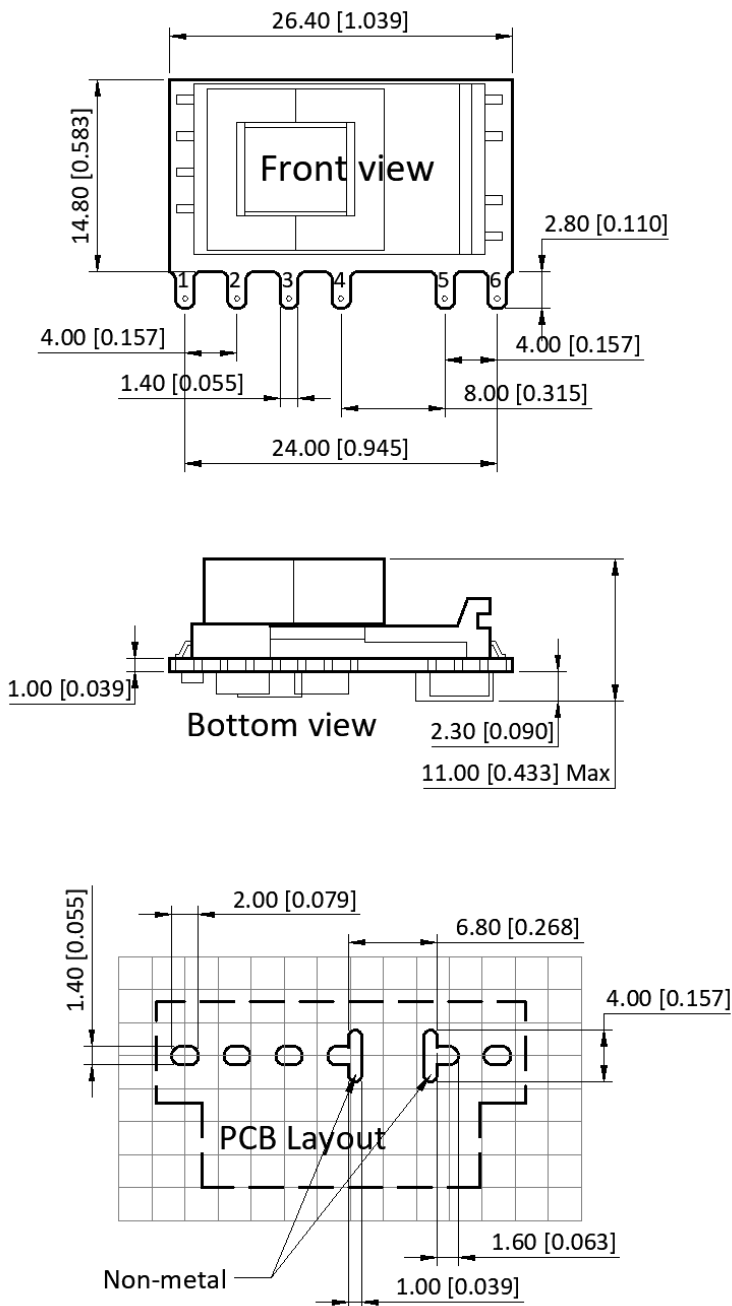
*Refer to Table 1 for components at the output.

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Mechanical Specifications



Pin Definition

Pin #	Single Out	
1	AC (L)	
2	AC (N)	
3	+V (CAP)	
4	-V (CAP)	
5	-V _{OUT}	
6	+V _{OUT}	

* Unless otherwise specified unit:
mm [inch]

* General tolerance: ± 1.00 [± 0.040]

* 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