

15W, AC/DC Power Converter

SAP15D

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Introduction

SAP15D series are compact size AC/DC power converters, featuring universal input voltage range, low stand by power consumption, high efficiency. Designed for high reliability industrial applications, these converters are encapsulated to protect from dust and moisture. They meet IEC/EN/UL62368-1, OVC III, EN60335-1, EN61558-1, FCC, UKCA and EMC performance meets CISPR32, EN55032 Class B without support from any external components, ideally suitable for industrial, and critical commercial applications.

Features

- Rated power: 15W Max
- Universal input:
85~305VAC 47~63Hz
- Regulated single output
- Isolation voltage 4000VAC
- Typical efficiency up to 87%
- Energy saving, standby power only less than 0.1W
- Operating temperature range: -40~+85°C
- RoHS compliance
- Compact DIP package
- Over current and short circuit protection
- *Meet IEC/EN/UL62368-1, OVC III, EN60335, EN61558, CISPR32, EN55032 Class B with NO externals
- 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.
SAP15D033	85~305VAC 100~430VDC	3.3	4000	79	5000
SAP15D050		5	3000	80	5000
SAP15D090		9	1670	84	3000
SAP15D120		12	1250	85	2000
SAP15D150		15	1000	85	1500
SAP15D240		24	625	87	680

* 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	Note
Input Voltage Range	AC in	85	-	305	VAC	
	DC in	100		430	VDC	
Input Frequency		47	-	63	Hz	
Nominal Input Voltage		100	-	277	VAC	
Input current	115VAC	-	-	0.5	A	
	230VAC			0.3		
Inrush current Cold start	115VAC	-	30	-	A	
	230VAC		60			
Leakage current	277VAC, 50Hz	-	-	0.1	mA RMS	
Output voltage accuracy		-	±2	-	%	
Line regulation	Full load	-	±0.5	-	%	
Load regulation IOUT=0%~100% of IOUT, rated		-	±1	-	%	
Ripple and noise 20MHz band- width, peak to peak		-	70	150	mV	
Temperature coefficiency		-	±0.02	-	%/°C	
Standby power consumption		-	-	0.10	W	
Hold up time Full load	115VAC	-	10	-	mS	
	230VAC		55			

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Over current protection	Automatic recovery	110	-	-	% I _{OUT}	
Short circuit protection		Continuous, hiccup mode, automatic recovery				
External fuse		2A, 300V slow blow *required*				
Minimum load		No minimum load is required				

* 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	I/P to O/P	4000	-	-	VAC
Isolation resistance 500VDC, 25°C, 70%RH	I/P to O/P	100	-	-	M Ohm
Operating temperature range	See "Derating Curve"	-40	-	85	°C
Storage temperature		-40	-	105	°C
Storage humidity		10	-	95	%RH
Operating altitude		-	-	5000	m
Soldering temperature	5 seconds	-	260	-	°C
Case material		Black plastic UL94-V0			
Cooling method		Free air convection			
Class II power		Yes, no FG			
Vibration		10Hz to 55Hz, 10G, 30 minutes along X, Y and Z axis			
MTBF	MIL-HDBK-217F	> 1,000,000 Hours, 25°C			
Design based on standards		RoHS & REACH directives, IEC/EN/UL 62368-1, OVC III, EN 60335-1, EN 61558-1, UKCA			
Safety certifications		IEC/EN62368			
EMC (1) With External Circuit as shown in "Figure 1" (2) With External Circuit as shown in "Figure 2"	CE	CISPR32, EN55032 Class B			
	ESD	IEC/EN61000-4-2, Contact ±6kV, Air ±8kV, Criteria B			
	RS	IEC/EN61000-4-3, 10V/m, Criteria A			
	EFT	IEC/EN61000-4-4, ±2kV, Criteria B			
	EFT	IEC/EN61000-4-4, ±4kV, Criteria B, (2)			
	Surge	IEC/EN61000-4-5, Line to Line ±1kV, Criteria B			
	Surge	IEC/EN61000-4-5, Line to Line ±2kV, Criteria B, (2)			
	CS	IEC/EN61000-4-6, 10Vrms, Criteria A			
	DIP	IEC/EN61000-4-11, 0%, 70%, Criteria A			

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Size, and Weight		40x25.4x21mm, 40g
Size, and Weight		52.4x27.2x24mm, 55g
Packing		200pcs/Carton, size: 335x345x210mm, 12.5Kg G.W.

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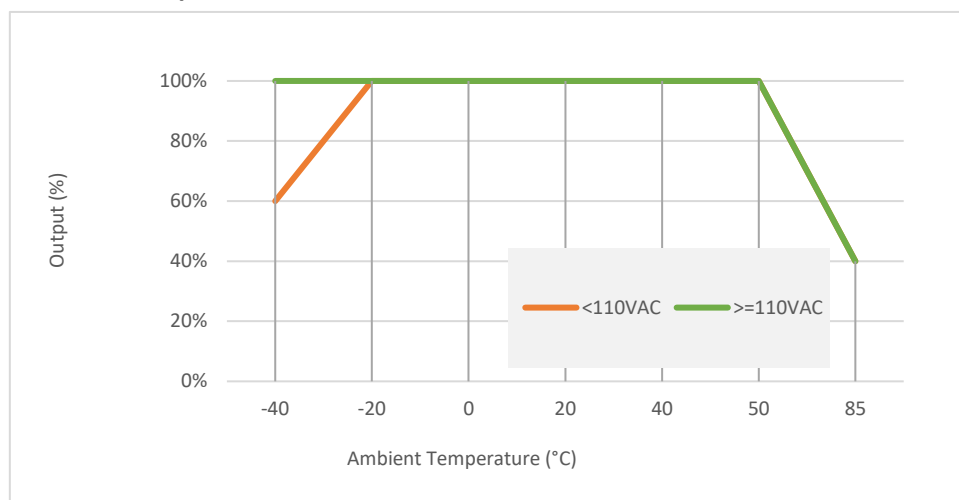
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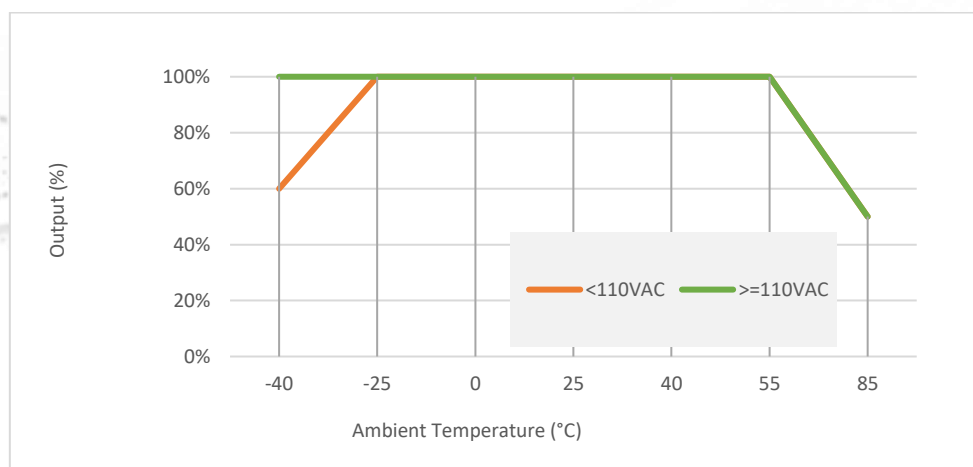
Characteristics Curves

Derating Curve

Output vs Ambient Temperature



V_{OUT}=3.3, 5V



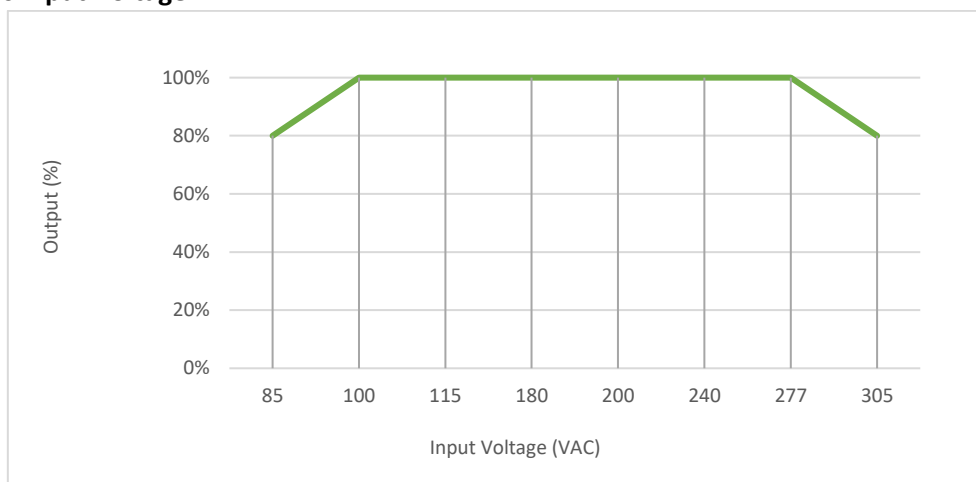
V_{OUT}=9 ... 24V

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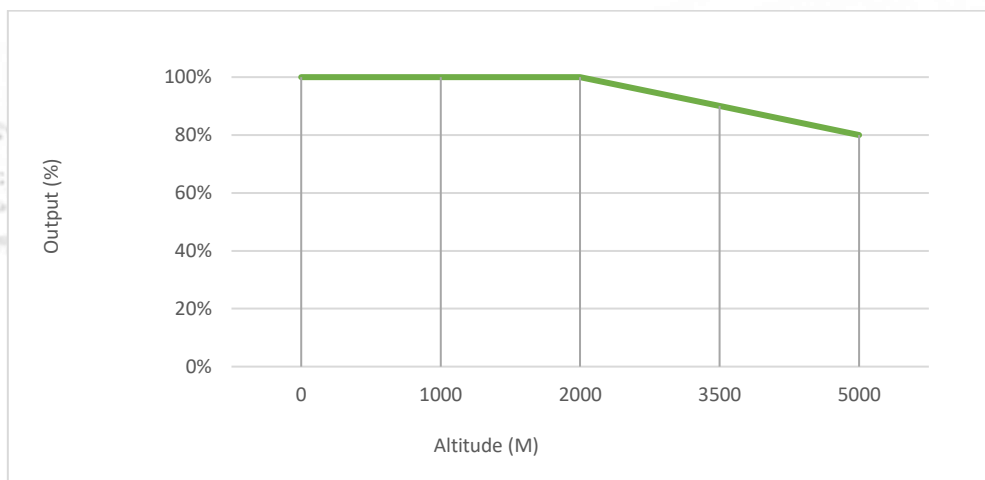
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Output vs Input Voltage



Output vs Altitude



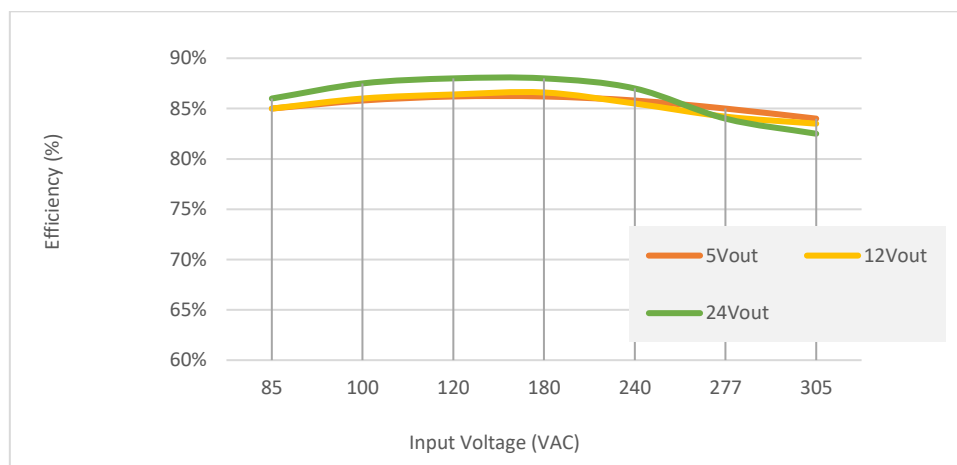
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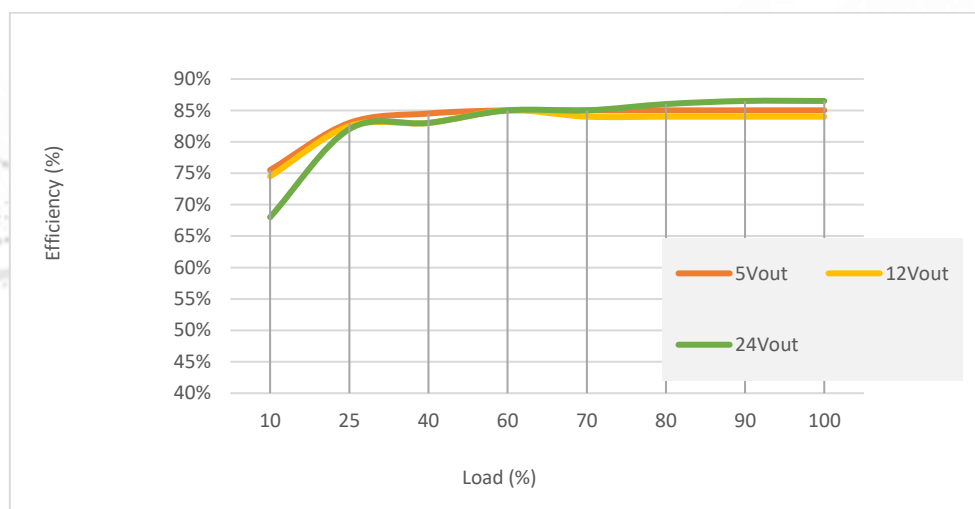
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Efficiency Curves

Efficiency vs Input Voltage



Efficiency vs Load

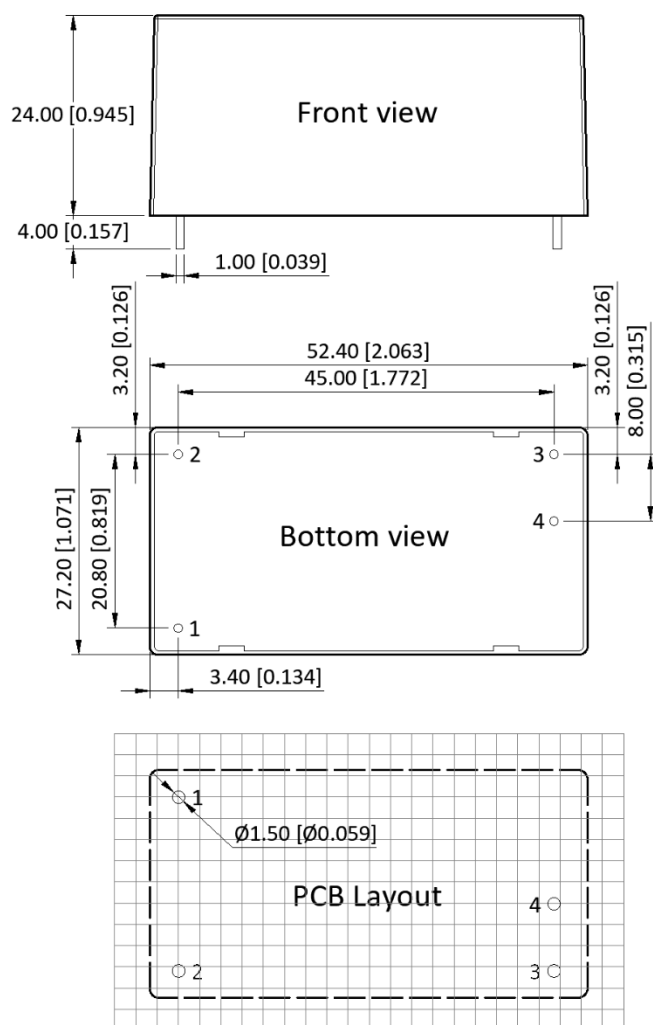


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Mechanical Specifications



Pin Definition

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

* Unless otherwise specified unit:
mm [inch]

* General tolerance: ± 1.00 [± 0.040]

* Pin thickness: ± 0.15 [± 0.006]

* Pin distance: ± 0.50 [± 0.020]

* 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