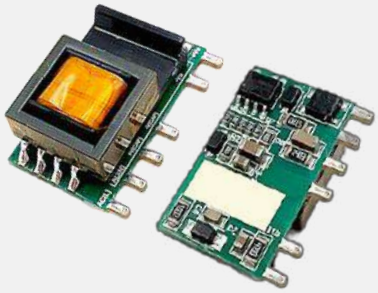
ACW03-23S

Product Feature



- Universal Input：85-305VAC/100-430VDC
- Package Type：SIP
- Operating temperature range：-40℃ - +85℃
- Isolation voltage：4000VAC
- High efficiency up to：81%（Type）
- Output short-circuit protection, overcurrent protection, overvoltage protection mechanism
- Design in compliance with IEC/EN61558 and IEC/EN60335 standards

Selection Guide

Part No.	Input Voltage (VAC)	Output Power（W)	Output Voltage (VDC)	Output Current (mA)MAX	Full Load Efficiency %（Typ.）	Capacitive Load(μF) Max.
ACW03-23S03	85-305	1.98	3.3	600	68	820
ACW03-23S05	85-305	3	5	600	73	680
ACW03-23S12	85-305	3	12	250	77	470
ACW03-23S15	85-305	3	15	200	78	330
ACW03-23S24	85-305	3	24	125	81	220

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage	AC Input	85	--	305	VAC
	DC Input	100	--	430	VDC
Input Current	110VAC	--	--	0.12	A
	230VAC	--	--	0.07	
Input Frequency		47	--	63	Hz
Fuse		1A，slow-blow, required			
Hot Plug		Unavailable			

ACW03-23S

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	10% - 100%load		--	±5	--	%
Linear Regulation	Rated load	<3.3V	--	±2.5	--	%
		Other voltages	--	±1.5	--	
Load Regulation	10% - 100%load		--	±3	--	%
Ripple & Noise	20MHz bandwidth, 10% - 100%load		--	80	150	mV
Temperature Coefficient			--	±0.15	--	%/℃
Stand-by Power Consumption	230VAC		--	0.10	0.15	W
Min. Load			10	--	--	%Io
Over Current Protection			110	--	--	%Io
Short-Circuit Protection			Continuous, Self-Recovery			

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, test time 1 minute, leakage current less than 5mA	4000	--	--	VAC
Power Derating	+55℃ - +85℃	1.67	--	--	%℃
	85VAC - 100VAC	1.33	--	--	%/VAC
Operating Temperature		-40	--	+85	℃
Storage Temperature		-40	--	+105	℃
Soldering Profile	Wave-soldering	260 ± 5℃; time：5 - 10s			
	Manual-welding	360 ± 5℃; time：3 - 5s			
Safety Standard	IEC/UL62368-1、IEC/EN60335-1、IEC/EN61558-1				
Safety Class		CLASS Ⅱ			
MTBF	MIL-HDBK-217F@25℃	>1000Kh			

ACW03-23S

Mechanical Specification

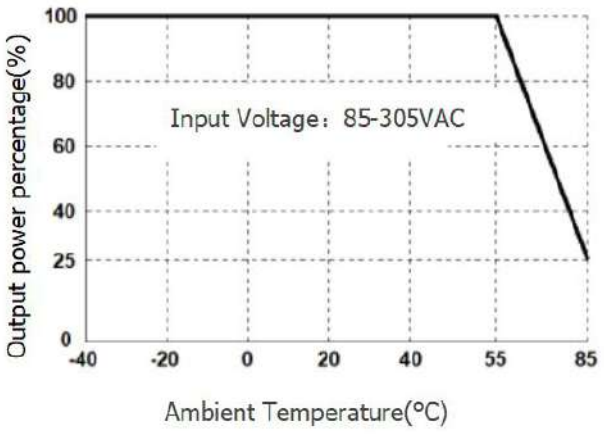
Package Dimensions	26.40 x 11.00 x 17.60mm
Weight	5.9g（Typ.）
Cooling Method	Natural air cooling

EMC Specifications

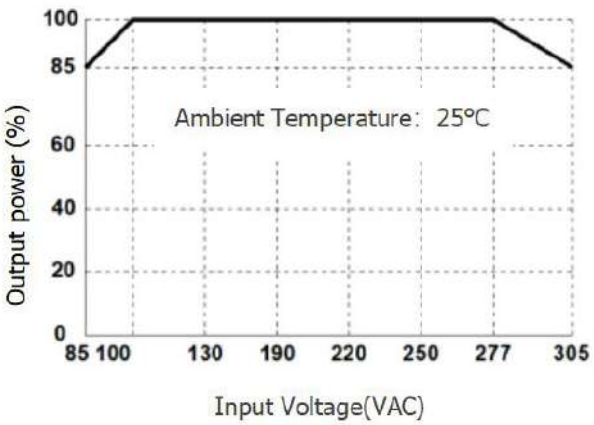
EMI	CE	CISPR32/EN55032 CLASS A（Application circuit 1，4）	
		CISPR32/EN55032 CLASS B（Application circuit 2，3）	
	RE	CISPR32/EN55032 CLASS A（Application circuit 1，4）	
		CISPR32/EN55032 CLASS B（Application circuit 2，3）	
EMS	ESD	IEC/EN61000-4-3 10V/m	perf. Criteria A
	RS	IEC/EN61000-4-4 ±2KV（Application circuit 1、2）	perf. Criteria B
		IEC/EN61000-4-4 ±4KV（Application circuit 3、4）	perf. Criteria B
	EFT	IEC/EN61000-4-5 line to line ±1KV（Application circuit 1、2）	perf. Criteria B
		IEC/EN61000-4-5 line to line ±2KV（Application circuit 3、4）	perf. Criteria B
	Surge	IEC/EN61000-4-6 10Vr.m.s	perf. Criteria A
	CS	IEC/EN61000-4-2 Contact ±6KV	perf. Criteria B

Typical Characteristic Curves

Input voltage Derating Curve

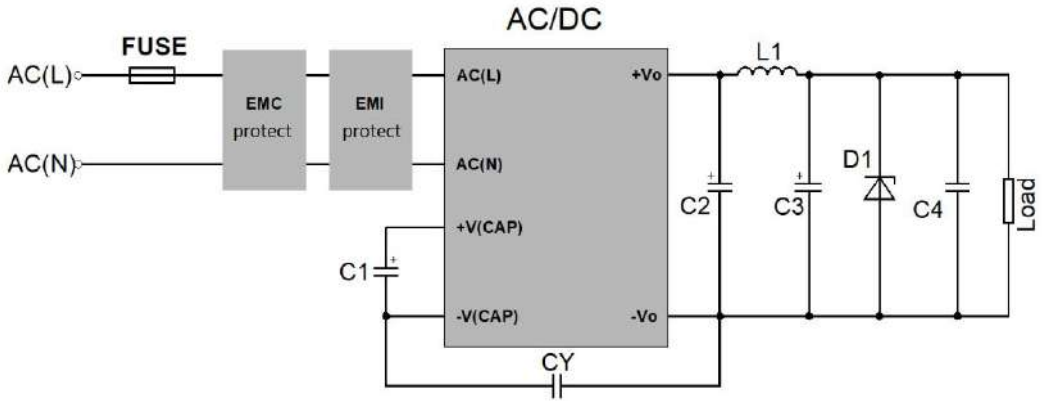


Temperature Derating Curve



Typical Circuit Design And Application

Application circuit



Reference Table for Selection of Peripheral Devices

Output voltage	C1 (required)	C2 (required)	L1 (required)	C3 (required)	C4	CY (required)	D1
3.3/5VDC	10uF/450V	470uF/16V (Solid state capacitor)	2.2uH 3A 15mΩMAX	150uF16V	0.1uF/50V	1nF/400VAC	D1 is a TVS transistor that can protect the downstream circuit in case of module abnormalities. It is recommended to choose a model that is 1.2 times the output voltage
12VDC	10uF/450V	270uF/25V (Solid state capacito)	2.2uH 3A 15mΩMAX	150uF/25V	0.1uF/50V	1nF/400VAC	
15/24VDC	10uF/450V	470uF/35V	3.3uH 3A 25mΩMAX	100uF/35V	0.1uF/50V	1nF/400VAC	

Note:

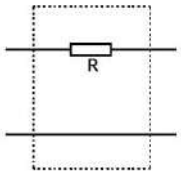
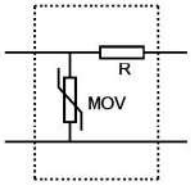
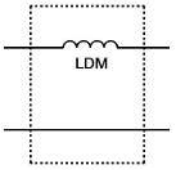
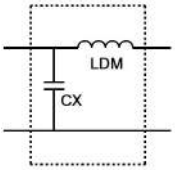
1. FUSE, EMC protection, and EMI protection are selected based on actual application needs;
2. C1 is a filtering electrolytic capacitor, which is a required component. It is recommended to use ripple current> 400mA@100KHz Electrolytic capacitors.
3. C2, C4, and L1 form a Pi type filtering circuit, and it is recommended to use high-frequency low resistance electrolytic capacitors or solid-state capacitors. When selecting L1, ripple requirements can be considered, while paying attention to current and internal resistance values.

Environmental Applications - EMC Solutions

Environmental Application - EMC Solution Selection Table

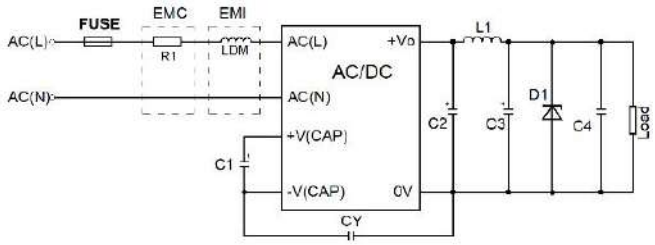
Recommended circuit	Application environment	Application industry	Input Voltage	Ambient Temperature	EMI	EMS
1	Basic applications	-	85-305VAC	-40°C - +85°C	Class A	III level
2	Indoor civilian	Smart Home、Home Appliances	85-305VAC	-25°C - +55°C	Class B	III level
	Indoor ordinary	Intelligent buildings、smart agriculture	85-305VAC	-25°C - +55°C	Class B	III level
3	Indoor industry	Production workshop	85-305VAC	-25°C - +55°C	Class B	IV level
4	Outdoor ordinary	Intelligent transportation, charging stations, communication, security	85-305VAC	-40°C - +85°C	Class A	IV level

ACW03-23S

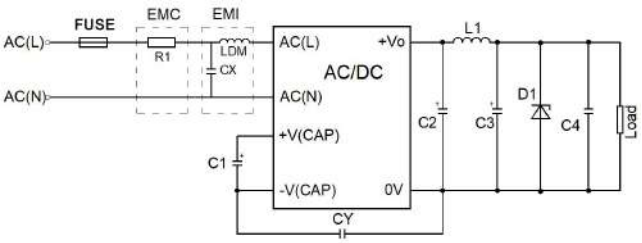
EMS protection circuit design reference		EMI protection circuit design reference	
III level	IV level	Class A level	Class B level
			

EMS Solutions - Recommended Circuits

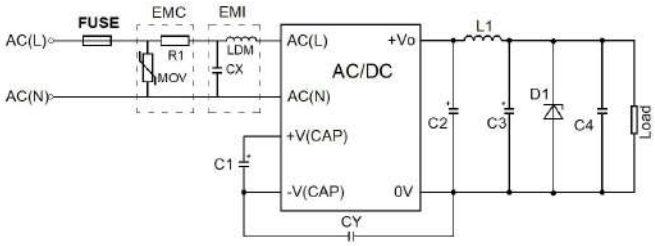
Recommended circuit 1



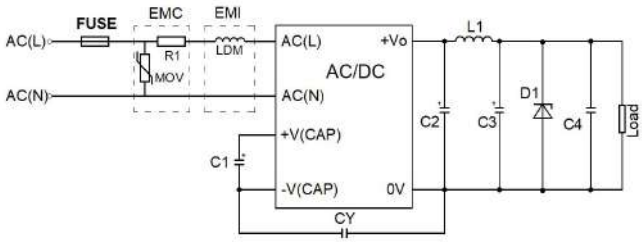
Recommended circuit 2



Recommended circuit 3



Recommended circuit 4



EMC Recommended Circuit Device Selection Reference Table

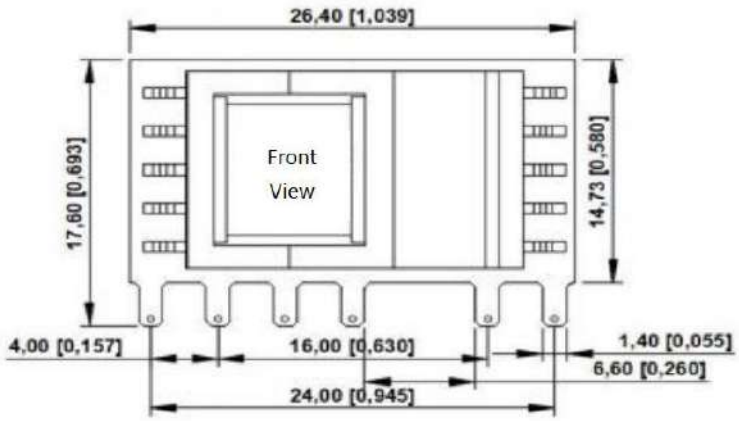
Model	Recommended circuit 1	Recommended circuit 2	Recommended circuit 3	Recommended circuit 4
FUSE	1A/300V，slow-blow， required		2A/300V，slow-blow， required	
R1	12Ω/3W，Winding resistance，required			
MOV	14D561			
LDM	2.2mH/Max: 4Ω/Min:0.20A			
CX	0. 1uF/310VAC			

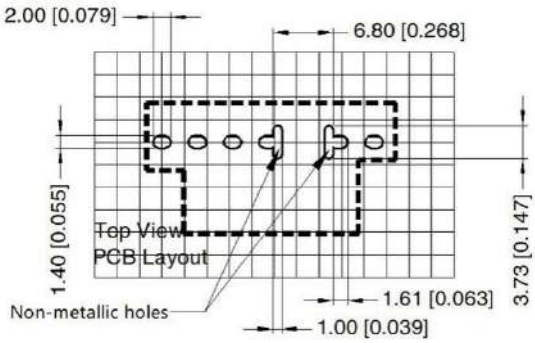
ACW03-23S

Dimensions and Recommended Layout

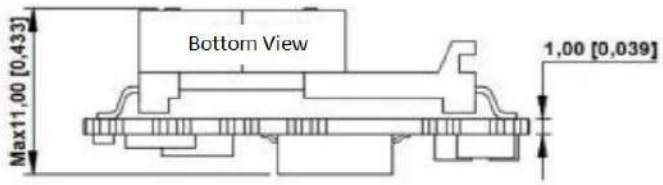
Note：

Dimensions	PCB Printing Layout





Grid size：2.54 x 2.54mm



Note:

Unit: mm[inch]

Pin section tolerances:±0.10[±0.004]

General tolerances:±0.50[±0.020]

Pin FunctionTable

Pin	Function
1	AC(L)
2	AC(N)
3	+V(CAP)
4	-V(CAP)
5	-Vo
6	+Vo

- The input voltage should not exceed the specified range value, otherwise it may cause permanent and irreparable damage;
- It is recommended to use at a load of over 5%. If the load is below 5%, the ripple index of the product may exceed the specifications, but it does not affect the reliability of the product;
- Suggested dual output module load imbalance: ≤ ± 5%. If it exceeds ± 5%, it cannot be guaranteed that the product performance meets all performance indicators in this manual;
- The maximum capacitive load is tested within the input voltage range and under full load conditions;
- Unless otherwise specified, all indicators in this manual are measured at Ta=25 °C, humidity<75% RH, nominal input voltage, and output rated load;
- All indicator testing methods in this manual are based on our company's corporate standards;
- Our company can provide product customization, and specific requirements can be directly contacted by our technical personnel;
- Product specifications are subject to change without prior notice.