AC40-23Sxx

Product Feature

- Universal Input ： 85-305VAC/100-430VDC
- Package Type ： DIP
- Operating Temperature Range ： -40℃ - +85℃
- Isolation Voltage：4000VAC
- Full Load Efficiency：90% (Typ.)
- Input undervoltage protection
- Output short circuit protection and over current protection
- According to safety standards：EN61558、EN62368

Selection Guide

Part No.	Input Voltage (VAC)	Output Power (W)	Output Voltage (VDC)	Output Current (mA)Max.	Full Load Efficiency % (230VAC,Typ)	Capacitive Load(μF) Max.
AC40-23S05	85-305	35	5	7000	86	6600
AC40-23S09	85-305	36	9	4000	89	4400
AC40-23S12	85-305	40	12	3330	90	4400
AC40-23S15	85-305	40	15	2666	90	3300
AC40-23S24	85-305	40	24	1670	89	1500
AC40-23S48	85-305	40	48	833	90	470

Note:
1. Suffix plus "CW" for extended wiring package, suffix plus "CR" for extended rail type package;
2. The Efficiency is typical.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage	AC Input		85	--	305	VAC
	DC Input	5/9/12/15/24V	100	--	430	VDC
		48V	120	--	430	VDC
Input Current	115VAC		--	--	1	A
	230VAC		--	--	0.6	
Inrush current	115VAC		--	30	--	A
	230VAC		--	60	--	
Input Frequency			47	--	63	Hz
Built-in Fuse			2A/300V, slow-blow, required			
Leakage Current	230VAC/50Hz		0.1mA RMS Max.			
Hot Plug			Unavailable			

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Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			--	±2	--	%
Linear Regulation Rate	Vin=Min. to Max. @Full Load		--	±0.5	--	%
Load Regulation Rate	0%-100% load	5V	--	±2.0	--	%
		9/12/15/24/48V	--	±1.0	--	
Ripple Noise	20MHz bandwidth,5%-100% load		--	100	150	mV
Temperature Drift Coefficient			--	±0.02	--	%/℃
Stand-by Power Consumption	230VAC		--	0.3	0.55	W
Min. Load			0	--	--	%
Over Current Protection			110	--	--	%Io
Short-Circuit Protection			Continuous, Self-Recovery			
Hold-up Time	230VAC		--	55	--	ms

Note:The ripple and noise test method is based on the reliability method, and the output is a parallel 10uF electrolytic capacitor and a 1uF ceramic capacitor.

General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Insulation Voltage	Input-output, test time 1 minute, leakage current less than 5mA		4000	--	--	VAC
Insulation Resistance	Input-output, insulated voltage 500VDC		100	--	--	MΩ
Power Derating	-40℃ - -25℃	Input voltage<200VAC	2.67	--	--	%/℃
	+50℃ - +70℃		2.5	--	--	
	+70℃ - +85℃		0.67	--	--	
	85VAC - 100VAC		1.67	--	--	%/VAC
	277VAC - 305VAC		0.72	--	--	
Operating Temperature			-40	--	+85	℃
Storage Temperature			-40	--	+85	℃
Storage Humidity			--	--	95	%RH
Soldering Profile	Wave-soldering		260 ± 5℃; time: 5 - 10s			
	Manual-welding		360 ± 10℃; time: 3 - 5s			
Safety Standard			EN62368-1,EN60335-1,EN61558-1			
Safety Class			CLASS Ⅱ			
MTBF	MIL-HDBK-217F@25℃		>500,000h			

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Mechanical Specifications

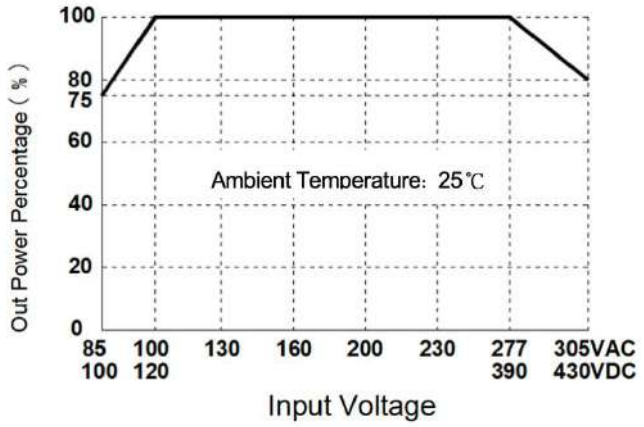
Case Material	Black plastic; flame-retardant and heat-resistant (UL94V-0)
Package Dimensions	69.50 x 39.00 x 24.00mm
Weight	102g (Typ.)
Cooling Method	Free air convection

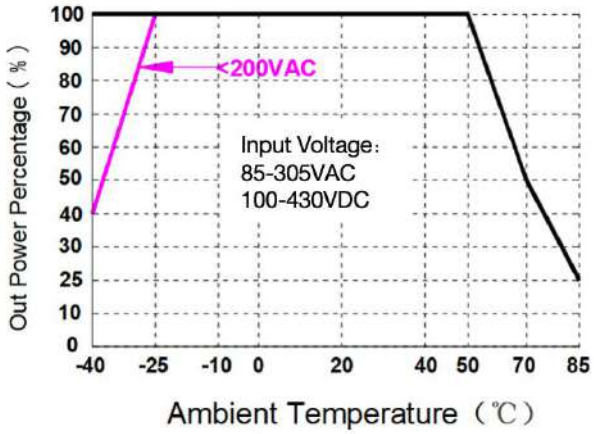
EMC Specifications

EMI	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
EMS	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV	perf. Criteria B
		IEC/EN61000-4-4 ±4KV (Recommended Circuit Figure 2)	perf. Criteria A
	Surge	IEC/EN61000-4-5 line to line ±2KV	perf. Criteria B
		IEC/EN61000-4-5 line to line ±2KV/line to PE ±4KV (Recommended Circuit Figure 2)	perf. Criteria A
	CS	IEC/EN61000-4-6 10Vr.m.s	perf. Criteria A
	ESD	IEC/EN61000-4-2 Contact ±6KV / Air ±8KV	perf. Criteria A

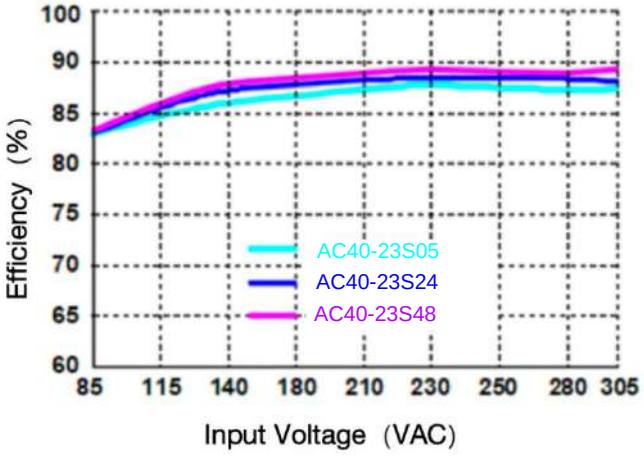
Typical Characteristic Curves

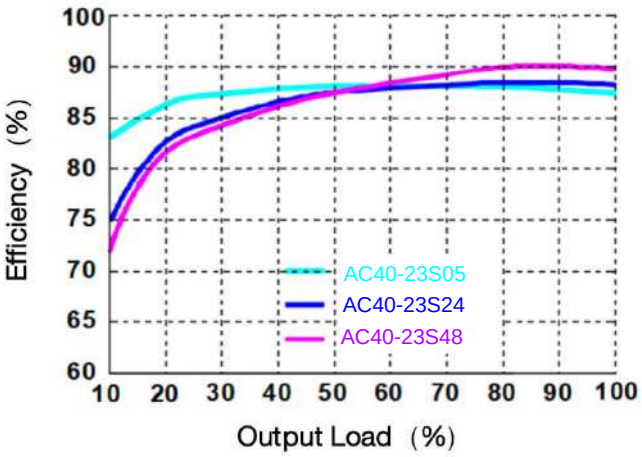
Input Voltage Derating Curve	Temperature Derating Curve





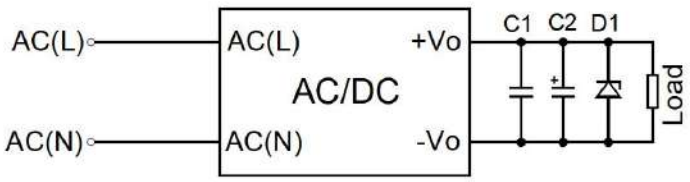
Efficiency VS Input Voltage Curve (Full load)	Efficiency VS Output Load Curve (Vin=230VAC)





Typical Circuit Design and Application

Application circuit（Figure 1）



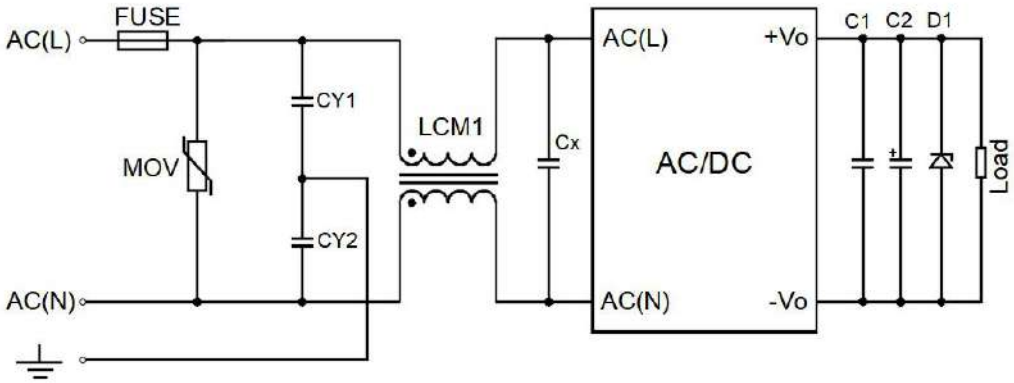
Reference Table for Selection of Peripheral Devices

Out Voltage (VDC)	C1	C2	D1
5	1uF/100V	330uF/16V	See Note
9/12/15		330uF/25V	
24		100uF/35V	
48		47uF/63V	

Note：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.

EMC Solutions - Recommended Circuitst

EMC Recommended Circuit（Figure 2）



Recommended parameter values for EMC solution circuits	
Model	Recommended value
FUSE	3.15A/300VAC，slow-blow, required
MOV	14D561K
Cx	0.68uF/310VAC
CY1、CY2	1.0nF/400VAC
LCM1	20mH，Common mode inductance

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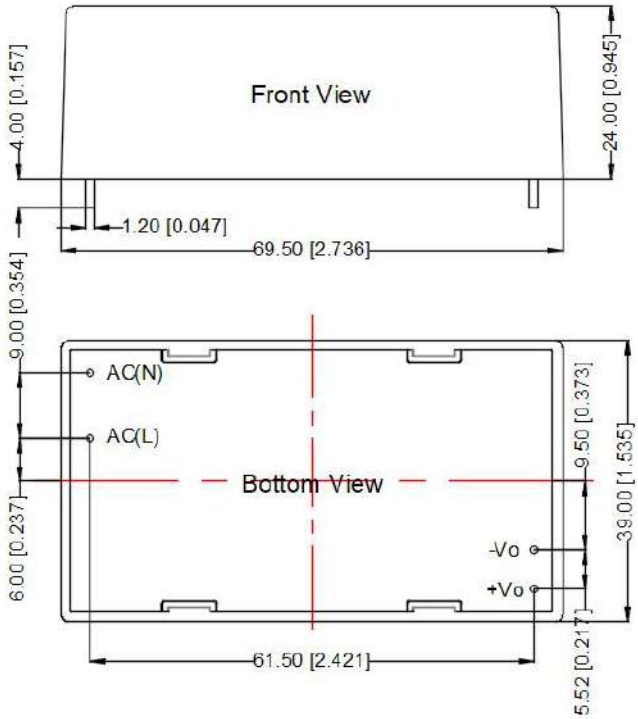
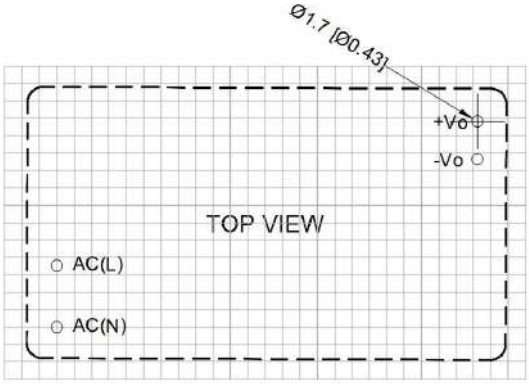
Dimensions and Recommended Layout

Dimensions	PCB Printing Layout





Grid size：2.54*2.54mm

Note:

Unit: mm[inch]

Pin section tolerances:±0.10[±0.004]

General tolerances:±0.50[±0.020]

Note:

- 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;
- 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 ℃, 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.