

Product Feature

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



Selection Guide

Part No.	Input Voltage (VAC)	Output Power (W)	OutOutput Voltage (VDC)	OutOutput Current (mA)Max.	Full Load Efficiency % (230VAC, Typ)	Capacitive Load (μF)Max.
SLS10-23S03	85-305	6.6	3.3	2000	74	1500
SLS10-23S05	85-305	10	5	2000	78	1500
SLS10-23S09	85-305	10	9	1100	79	1000
SLS10-23S12	85-305	10	12	840	83	680
SLS10-23S15	85-305	10	15	670	83	470
SLS10-23S24	85-305	10	24	420	84	330
SLS15-23S03	85-305	9.9	3.3	3000	75	5000
SLS15-23S05	85-305	14	5	2800	78	5000
SLS15-23S09	85-305	15	9	1670	80	4000
SLS15-23S12	85-305	15	12	1250	84	2000
SLS15-23S15	85-305	15	15	1000	84	1000
SLS15-23S24	85-305	15	24	625	85	680

Note: (1) Output voltage - refers to the voltage value at the load end after adding peripheral application circuits;
 (2) For safer use, it is recommended to use this product for adhesive fixation in addition to welding fixation.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage	AC Input	85	--	305	VAC
	DC Input	100	--	430	VDC
Input Current	110VAC	--	--	0.30	A
	230VAC	--	--	0.30	
Input Frequency		47	--	63	Hz
Fuse		1A, slow-blow, required			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	10% - 100% Load		--	±1	±3	%
Linear Regulation	Rated load	3.3V	--	±2.5	--	%
		Other voltages	--	±1.5	--	
Load Regulation	0% - 100%load, 3.3DC output		--	±3	--	%
Ripple & Noise	20MHz bandwidth, 10% - 100%load		--	80	100	mV
Temperature Coefficient			--	±0.15	--	%/°C
Stand-by Power Consumption	230VAC		--	0.10	0.25	W
Min. Load			0	--	--	%Io
Over Current Protection			110	--	--	%Io
Short-Circuit Protection			Continuous, Self-Recovery			
Hold-up Time	115VAC		--	8	--	ms
	230VAC		--	40	--	

General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, test time 1 minute, leakage current less than 5mA		4000	--	--	VAC
Insulation Resistance	Input-output, insulated voltage 500VDC		1000	--	--	MΩ
Power Derating	+55°C - +85°C	3.3V/5V/9V/24V	1.67	--	--	%°C
	+55°C - +85°C	12V/15V	1.72	--	--	
	85VAC - 100VAC		1.33	--	--	%VAC
	277VAC - 305VAC		0.72	--	--	
Operating Temperature			-40	--	+85	°C
Storage Temperature			-40	--	+85	
Soldering Profile	Wave-soldering		260 ± 5°C; time: 5 - 10s			
	Manual-welding		360 ± 5°C; time: 3 - 5s			
Safety Standard	IEC/UL62368-1、IEC/EN60335-1、IEC/EN61558-1					
Safety Class			CLASS II			
MTBF	MIL-HDBK-217F@25°C		>1000Kh			

Mechanical Specification

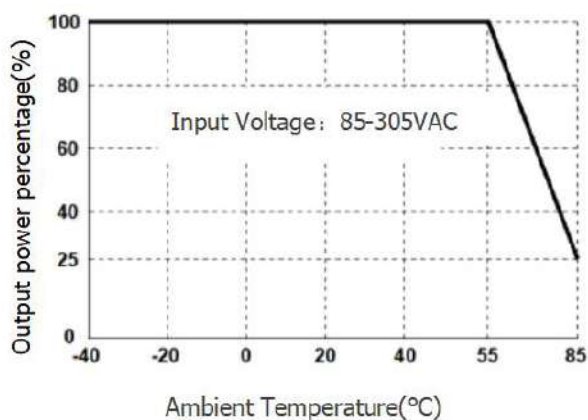
Package Dimensions	32.00 x 14.50 x 20.00mm
Weight	10.2g (Typ.)
Cooling Method	Free air convection

EMC Specifications

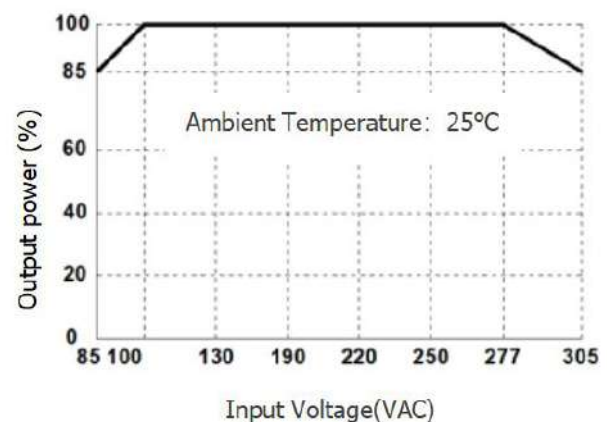
EMI	CE	CISPR32/EN55032 CLASS A (Application circuit 1, 4)	
		CISPR32/EN55032 CLASS B (Application circuit 2, 3)	
	RE	CISPR32/EN55032 CLASS A (Application circuit 1, 4)	
		CISPR32/EN55032 CLASS B (Application circuit 2, 3)	
EMS	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 $\pm 2\text{KV}$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

Typical Characteristic Curves

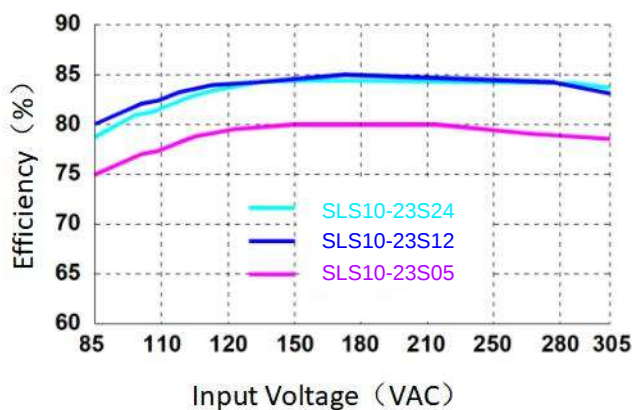
Input voltage Derating Curve



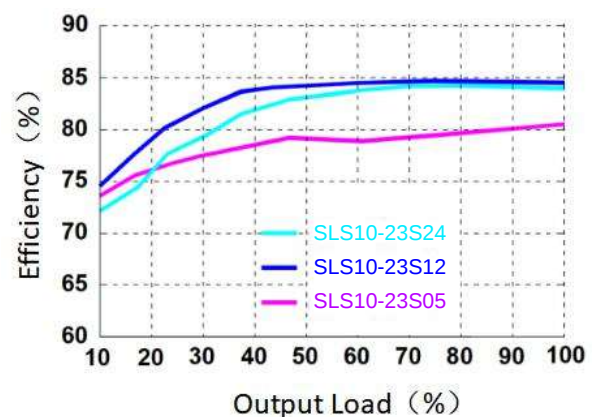
Temperature Derating Curve



Efficiency VS Input Voltage (Full Load)

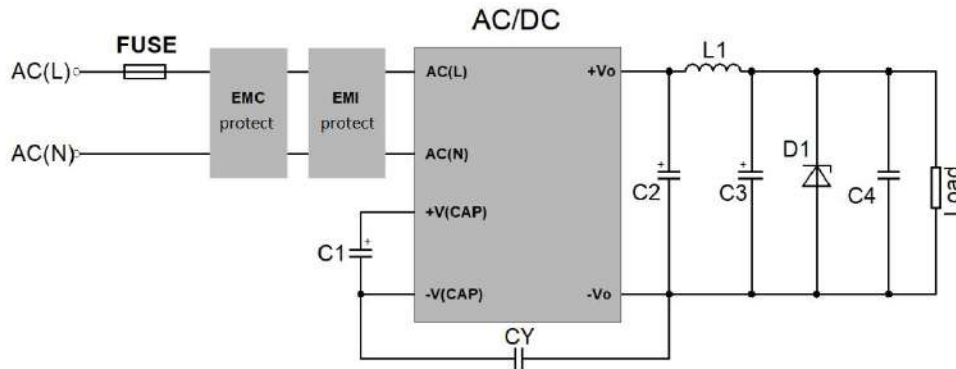


Efficiency VS Output Load (Vin=230VAC)



Typical Circuit Design And Application

Application circuit



Reference Table for Selection of Peripheral Devices

Output voltage	C1*	C2*	L1*	C3*	C4	CY*	D1
3.3/5VDC 10W	22uF/450V	820uF/16V (Solid state capacitor)	2.2uH 6.5A 15mΩ MAX	150uF/25V	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
9/12VDC 10W	22uF/450V	470uF/25V (Solid state capacitor)	2.2uH 6.5A 15mΩ MAX	150uF/25V	0.1uF/50V	1nF/400VAC	
15/24VDC 10W	22uF/450V	470uF/35V	3.3uH 5A 25mΩ MAX	100uF/35V	0.1uF/50V	1nF/400VAC	
3.3/5VDC 15W	33uF/450V	1000uF/16V (Solid state capacitor)	2.0uH 6.5A 15mΩ MAX	470uF/25V	0.1uF/50V	2.2nF/400VAC	
9/12VDC 15W	33uF/450V	470uF/25V (Solid state capacitor)	2.0uH 6.5A 15mΩ MAX	220uF/25V	0.1uF/50V	1nF/400VAC	
15/24VDC 15W	33uF/450V	470uF/35V	3.3uH 5A 25mΩ MAX	150uF/35V	0.1uF/50V	1nF/400VAC	

Note:

- * : Must be connected.
- FUSE, EMC protection, and EMI protection are selected based on actual application needs;
- C1 is a filtering electrolytic capacitor, which is a required component. It is recommended to use ripple current > 400mA@100KHz Electrolytic capacitors.
- 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.

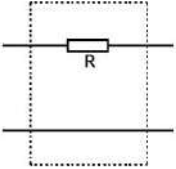
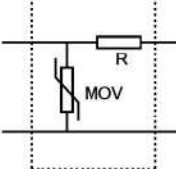
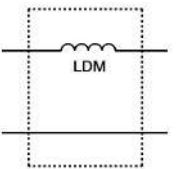
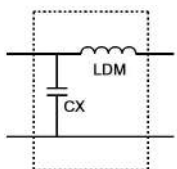
EMS Solutions - Recommended Circuits

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

EMS protection circuit design reference

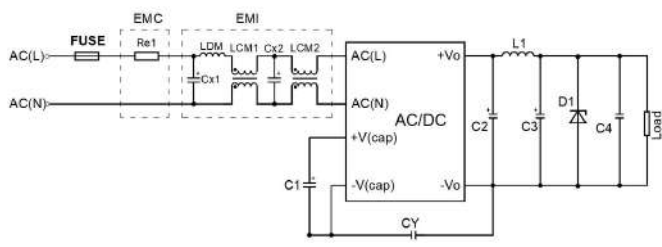
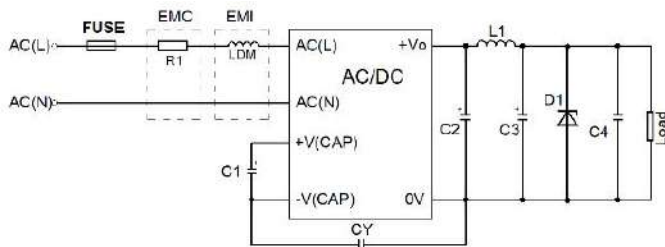
EMI protection circuit design reference

III level	IV level	Class A level	Class B level
			

EMC Solutions - Recommended Circuits

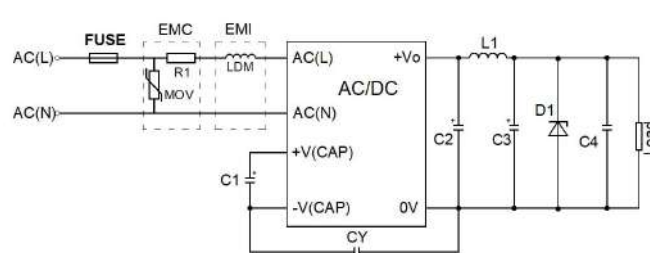
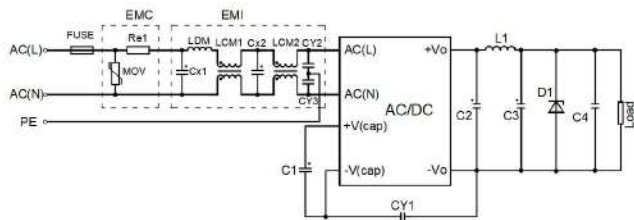
Recommended circuit 1

Recommended circuit 2



Recommended circuit 3

Recommended circuit 4



EMC Recommended Circuit Device Selection Reference Table

Components	Recommended circuit 1	Recommended circuit 2	Recommended circuit 3	Recommended circuit 4
FUSE (Must be connected.)	1A/300V, Slow melting		2A/300V, Slow melting	
R1	6.8Ω/3W (Winding resistance, Must be connected.)			
MOV	14D561			
LDM1	2.2mH/Max: 4Ω/Min:0.24A			
LCM1	200uH 0.8A			
LCM2	12.6mH/MIN 0.5A			
Cx1,Cx2	0.1uF/310VAC			
CY1,CY2,,CY3	1nF/400VAC			

Dimensions and Recommended Layout

Dimensions

Front View dimensions: 32,00 [1,260] (width), 20,00 [0,787] (height), 30,50 [1,201] (inner width), 2,80 [0,110] (pin pitch), 4,50 [0,177] (pin offset).

Bottom View dimensions: Max 14,50 [0,571] (height), 1,00 [0,039] (pin offset).

PCB Printing Layout

Grid size: 2.54 x 2.54 mm

Pin FunctionTable

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

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;
- ✦ 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.