

Product Feature

- ◆ Ultra-wide input voltage range: 85-305VAC (100-430VDC)
- ◆ Operating temperature range: -40°C - +85°C
- ◆ Small size, high efficiency
- ◆ Output short-circuit protection
- ◆ Low power consumption, environmental protection
- ◆ Industrial product technical design

Selection Guide

Part No.	Input Voltage (VAC)	Out Power (W)	Out Voltage (VDC)	Out Current (mA)MAX	Full Load Efficiency % (230VAC,Typ.)	Capacitive Load(μF) Max.
LD05-23B05R2	85-305	5	5	1000	76	3000
LD05-23B09R2		5	9	550	78	1000
LD05-23B12R2		5	12	420	80	820
LD05-23B15R2		5	15	330	81	680
LD05-23B24R2		5	24	210	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	--	0.11	--	A
	230VAC	--	0.07	--	
Input Frequency		47	--	63	Hz
Fuse		1A, slow-blow, required			
Leakage Current		0.3mA RMS typ. 230VAC/50Hz			
Hot Plug		Unavailable			

Output Specifications

AC/DC CONVERTER——LD05-23BxxR2 Series

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	10% - 100%load	--	±2	--	%
Linear Regulation	Rated load	--	±0.5	--	
Load Regulation	10% - 100%load	--	±1.0	--	
Ripple & Noise	20MHz bandwidth, 10% - 100%load	--	60	120	mV
Temperature Coefficient		--	±0.02	--	%/°C
Stand-by Power Consumption	230VAC	--	0.1	--	W
Min. Load		0	--	--	%
Over Current Protection		110	--	--	%Io
Short-Circuit Protection		Continuous, Self-Recovery			
Hold-up Time	230VAC	--	50	--	ms

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	100	--	--	MΩ
Power Derating	-40°C - -25°C	2.8	--	--	%°C
	+55°C - +85°C	5V/9V/24V	2.2	--	
	+55°C - +85°C	12V/15V	3.0	--	
	85VAC - 100VAC	1.0	--	--	%/VAC
Operating Temperature		-40	--	+85	°C
Storage Temperature		-40	--	+85	
Storage Humidity		--	--	95	%RH
Soldering Profile	Wave-soldering	260 ± 5°C; time: 5 - 10s			
	Manual-welding	360 ± 5°C; time: 3 - 5s			
Safety Standard		IEC/UL62368-1			
Safety Class		CLASS II			
MTBF	MIL-HDBK-217F@25°C	>2600,000h			

Mechanical Specification

AC/DC CONVERTER——LD05-23BxxR2 Series **AMCHARD**

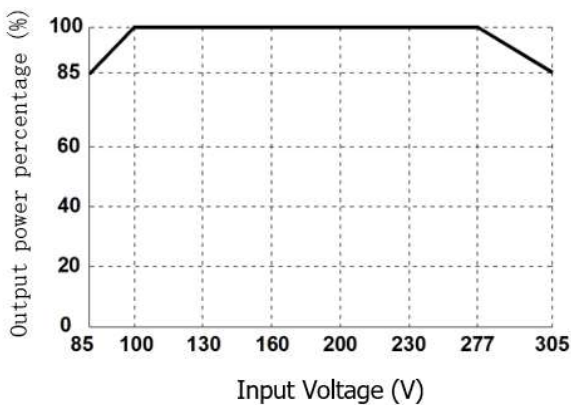
Package Dimensions	25.40 x 25.40 x 17.6mm
Weight	23g (Typ.)
Cooling Method	Free air convection

EMC Specifications

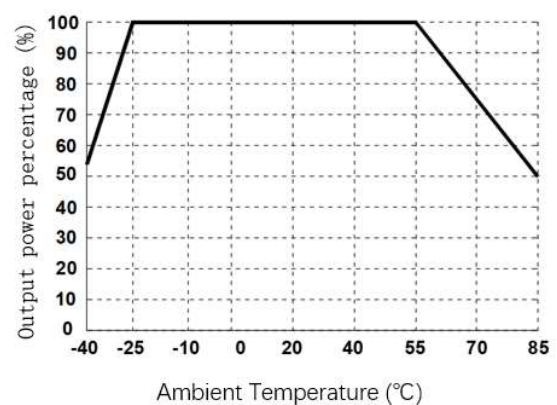
EMI	CE	CISPR32/EN55032 CLASS B		
	RE	CISPR32/EN55032 CLASS B		
EMS	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A	
	EFT	IEC/EN61000-4-4 ±4KV	perf. Criteria B	
	Surge	IEC/EN61000-4-5 line to line ±1KV		perf. Criteria B
		IEC/EN61000-4-5 line to line ±2KV (application circuit 2)		perf. Criteria B
	CS	IEC/EN61000-4-6 10Vr.m.s	perf. Criteria A	
ESD	IEC/EN61000-4-2 Contact ±6KV/±8KV	perf. Criteria B		

Typical Characteristic Curves

Input voltage Derating Curve

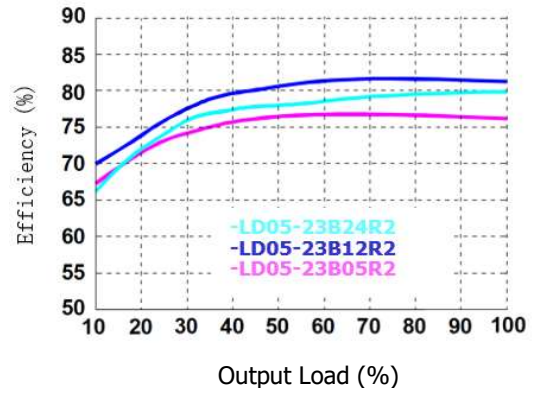
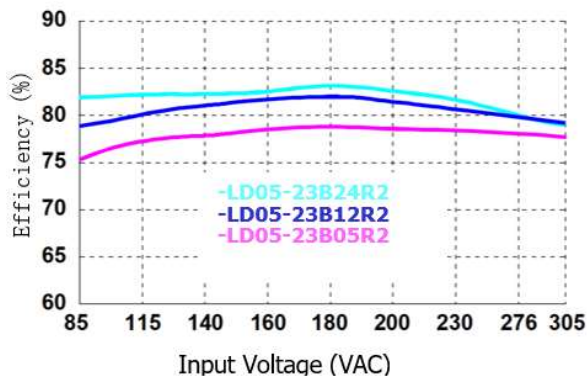


Temperature Derating Curve



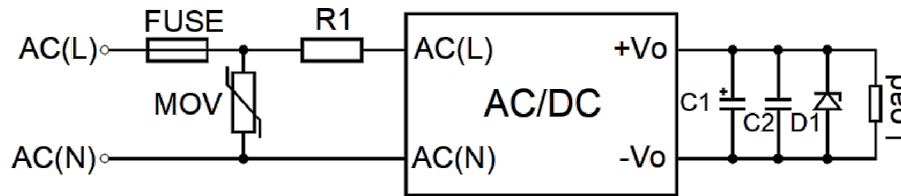
Efficiency VS input voltage (Full load)

Efficiency VS out load (Vin=230VAC)



Typical Circuit Design And Application

Application circuit (Figure 1)



Reference Table for Selection of Peripheral Devices

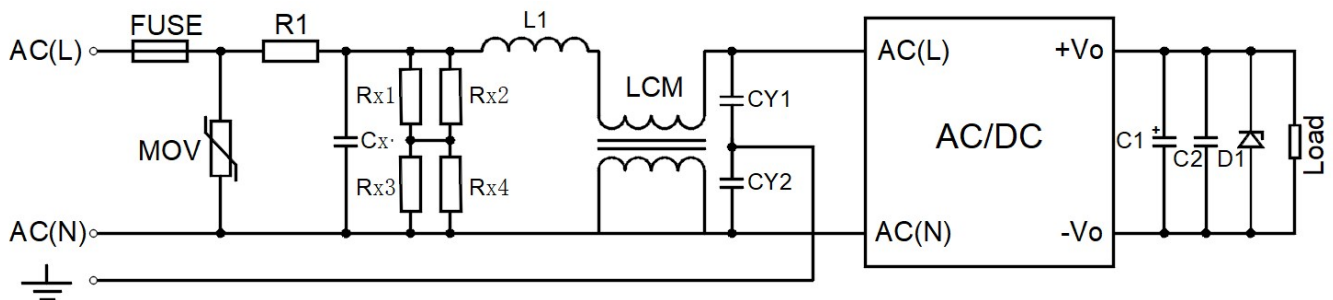
Out Voltage	FUSE	MOV	R1	C1	C2	D1
5VDC	1A/300VAC	10D561K	12Ω/3W	150uF/25V	0.1uF/25V	See Note2
9/12VDC	slow-blow, required		(wire-wound resistor, required)	150uF/25V	0.1uF/25V	
15/24VDC				100uF/35V	0.1uF/50V	

Note:

1. FUSE, Mov and NTC Can be selected based on actual needs.
1. 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.

EMS Solutions - Recommended Circuits

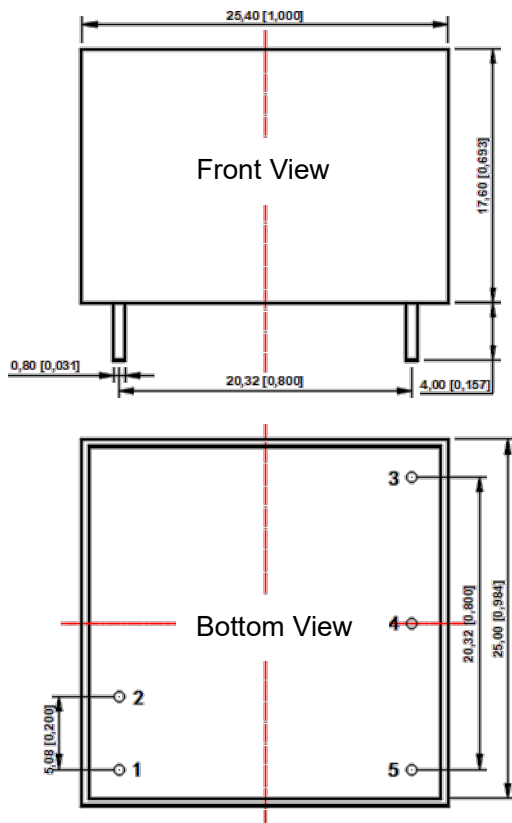
EMS Solutions - Recommended Circuits (Figure 2)



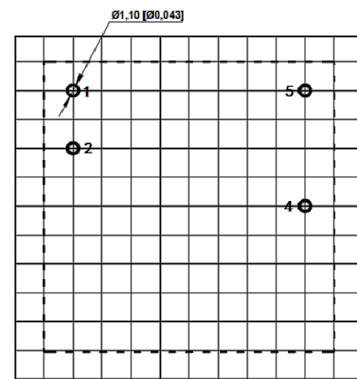
Recommended parameter values for EMC solution circuits	
Model	Recommended value
FUSE	2A/300VAC, slow-blow, required
MOV	14D561K
Cx	0.1uF/275VAC
L1	1.2mH/0.3A
CY1、CY2	1nF/400VAC
LCM	20mH Common mode Choke
Rx1,Rx2,Rx3,Rx4	2MΩ/1206

Dimensions and Recommended Layout

Dimensions



PCB Printing Layout



Grid size: 2.54*2.54mm

Pin Function Table

Pin	Function
1	AC(N)
2	AC(L)
3	No Pin
4	-Vo
5	+Vo

Note:

Unit: mm[inch]

Pin section tolerances: $\pm 0.10 [\pm 0.004]$

General tolerances: $\pm 0.50 [\pm 0.020]$

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Note:

1. The input voltage cannot exceed the specified range value, otherwise permanent and irreparable damage may be caused;
2. Unless otherwise specified, the parameters in this datasheet were measured at 25°C, humidity 40%~75%, input nominal voltage and output pure resistance mode under full load;
3. All index test methods are based on our company's enterprise standards.