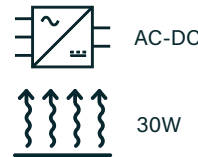
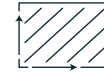


LD30-23BxxR2 SERIES



DIMENSIONS:



PCB: 2.736 x 1.535 x 0.945" (69.5 x 39 x 24mm)
A2S: 3.783 x 2.126 x 1.28" (96.1 x 54 x 32.5mm)
A4S: 3.783 x 2.126 x 1.461" (96.1 x 54 x 37.1mm)



85 - 305 VAC

-40 TO 85°C
OPERATION

4200 VAC ISOLATION

Part numbers

LD30	-23B	12	R2
Series	Input voltage	Output voltage	Version
	85-305VAC	03 = 3.3VDC 05 = 5VDC 09 = 9VDC 12 = 12VDC 15 = 15VDC 24 = 24VDC 48 = 48VDC	

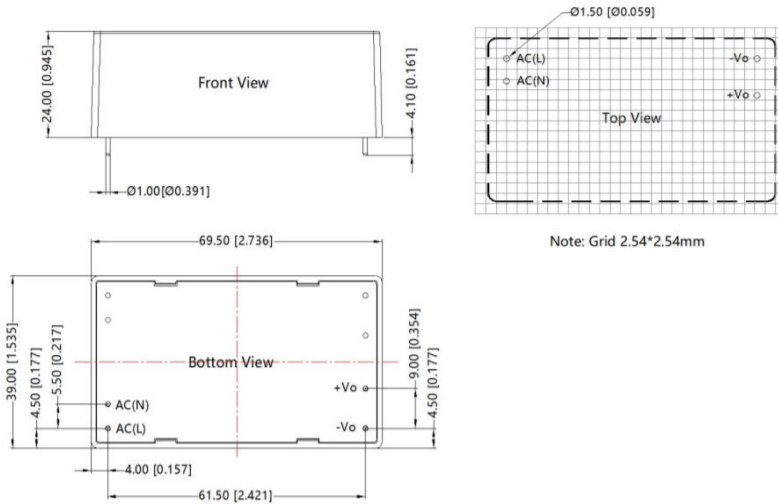
Key specifications

Input range	Safety certification	Efficiency	Environmental performance
85-305VAC	UL / EN 62368-1, Designed to meet IEC / EN 60335-1, CE	85-90%	-40 to 85°C

LD30-23BxxR2 SERIES

Mechanical

Through hole

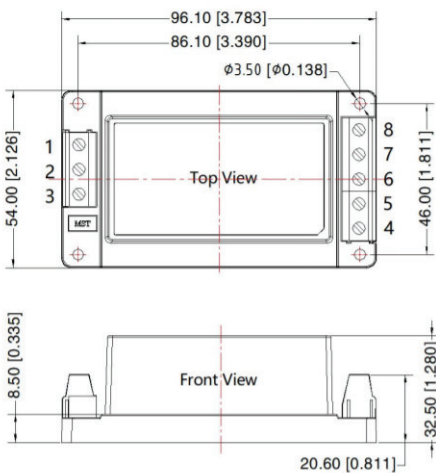


Pin	Function
1	NC
2	AC IN (N)
3	AC IN (L)
4	+DC OUT
5	NC
6	NC
7	NC
8	-DC OUT

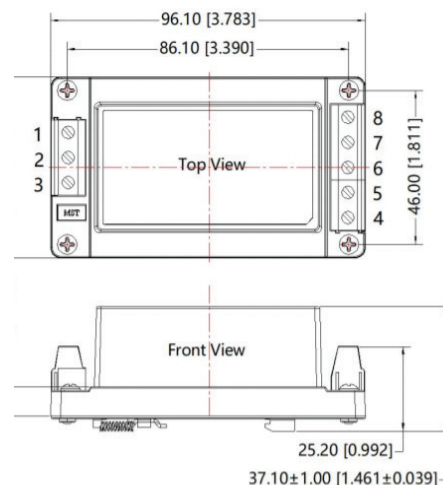
Notes

- All dimensions shown in mm
- Pin diameter ± 0.1 [± 0.004]
- General tolerance ± 0.5 [± 0.02]

Chassis mount



DIN rail mount



Weight

Through hole	A2S	A4S
100g	147g	190g

LD30-23BxxR2 SERIES

Models & Ratings

Model Number (1)	Output Power	Output Voltage	Output current	Efficiency (2)	Max Capacitive Load
LD30-23B03R2	19.8W	3.3V	6A	85%	6600uF
LD30-23B05R2	30W	5V	6A	86%	6000uF
LD30-23B09R2	30.6W	9V	3.4A	88%	4400uF
LD30-23B12R2	30W	12V	2.5A	90%	4400uF
LD30-23B15R2	30W	15V	2A	90%	3300uF
LD30-23B24R2	31.2W	24V	1.3A	88%	1000uF
LD30-23B48R2	30.2W	48V	0.63A	90%	470uF

1. Add A2S for chassis mount and A4S for DIN rail mount
2. Typical efficiency at 230VAC

3. Unless stated, figures are at 25°C <75RH and nominal line/ load.

Input

Parameter	Min	Typical	Max	Unit	Notes/Conditions
Input voltage	85		305	VAC	100-430 VDC slow blow fuse required. See page 6 for derating curve
Input frequency	47		63	Hz	
Power factor					EN61000-3-2 class A
Input current	500		750	mA rms	750mA 115VAC / 500mA at 230VAC
Inrush current	30		60	A	30A at 115VAC and 60A at 230VAC. Cold start at 25°C
No load input power			0.3	W	5V version only
		0.1	0.12		33-24V version only
		0.1	0.2		48V version only
Leakage current			0.1	mA	277VAC 50Hz

Output

Parameter	Min	Typical	Max	Unit	Notes/Conditions
Output voltage	3.3		48	VDC	See Models & Ratings table
Set point accuracy		±2		%	
Line regulation		±0.5		%	
Load regulation		±1		%	0 to 100% load
Minimum load	0			%	
Ripple and noise		80	150	mV pk-pk	All models measured with 10uF and 0.1uF capacitor. 20 MHz bandwidth
Hold up time	10		50	mS	10ms for 115VAC and 50ms for 230VAC

LD30-23BxxR2 SERIES

Protections

Parameter	Min	Typical	Max	Unit	Notes/Conditions
Overload	110			%	Trip and restart. Automatic recovery
Short circuit					Trip and restart. Automatic recovery
Over voltage			6.3 16 25 35 60	VDC	3.3 units 5/9/12V units 15V units 24V units 48V units

Safety

Parameter	Min	Typical	Max	Unit	Notes/Conditions
Safety standards	IEC/EN/UL62368-1/EN60335-1				
Isolation: Input to output	4200			VAC	

EMC: Immunity

	Standard	Test level	Criteria	Notes/Conditions
ESD	EN61000-4-2	4	A	±8kV contact / ±15kV Air
	EN55014-2		A	
Radiated	EN61000-4-3	3	A	10V/m
	EN55014-2		A	
EFT	EN61000-4-4	3	A	±2kV Circuit 1
	EN61000-4-4	3	A	±4kV Circuit 2 & 3
	EN55014-2		A	
Surges	EN61000-4-5	Installation class 3	A	±2kV
	EN61000-4-5	Installation class 3	A	±2kV Line-Line, 4kV Line-Ground Circuit 2 & 3
	EN55014-2		A	
Conducted	EN61000-4-6	2	A	10Vrms
	EN55014-2		A	
PFMF	EN61000-4-8	1	A	1A/m
Voltage dips and interruptions	EN61000-4-11	0% interruptions 70% dips performance criteria B		
	EN55014-2	Performance criteria B		

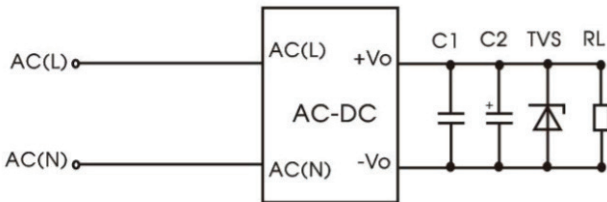
EMC: Emissions

	Standard	Test level	Criteria	Notes/Conditions
Conducted	EN55014	B		
Radiated	EN55014	B		
Harmonic current	EN61000-3-2	Class A		
Voltage flicker	EN61000-3-3			

LD30-23BxxR2 SERIES

Application Notes

Circuit 1

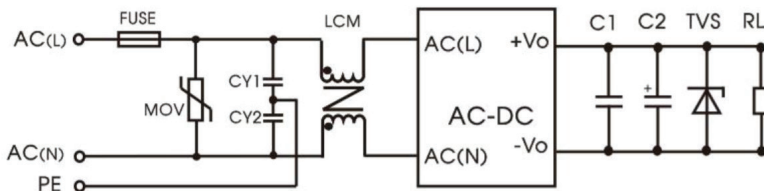


Typical Application: Circuit 1

1. For a typical application we recommend placing these additional components close to the converter
2. In circuit 1, C1 should be a ceramic cap for HF noise and C2 an electrolytic with low ESR
3. Both caps should have a minimum 20% voltage margin on the output voltage
4. The TVR is placed to protect the load should the converter fail

Part no	C1	C2	TVS
LD30-23B03R2	1uF/100V	10uF/50V	SMBJ7.0A
LD30-23B05R2			SMBJ7.0A
LD30-23B09R2			SMBJ12A
LD30-23B12R2			SMBJ20A
LD30-23B15R2			SMBJ20A
LD30-23B24R2			SMBJ30A
LD30-23B48R2		10uF/63V	SMBJ64A

Circuit 2



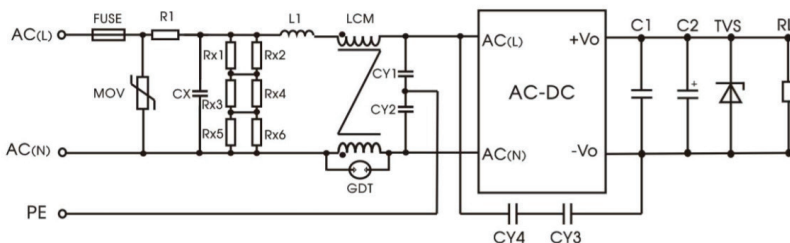
Suggested EMC: Circuit 2

1. The neighbouring circuit 2 is recommended to pass EMC emission and immunity.
2. Place components as close to the converter as possible
3. For better EMC performance fit MOV S14K350, 3.15A/300V fuse, 1nF/4000V Y caps and 10mH LCM.

Suggested EMC for class I systems: Circuit 3

1. Circuit 3 is recommended to pass EMC emission and immunity
2. Place components as close to the converter as possible

Circuit 3



Component

Recommended value

Fuse	3.15A/300V slow blow
MOV	S14K350
CX	334K/305VAC
R1	6.8Ω/5W (wire round resistor required)
L1	1.2mH/0.5A
CY1/2	2.2nF/400VAC
CY3/4	1nF/400VAC
GDT	300V/1KA
LCM	20mH

Rx1-6 bleed resistor for CX discharge 1.5M/150VDC

Environmental

Parameter	Min	Typical	Max	Unit	Notes/Conditions
Operating temperature	-40		85	°C	See derating curve
Storage temperature	-40		85	°C	
Altitude	2000		5000	m	Derate from 2km 6.7%/km
Temperature coefficient			±0.02	%/°C	
Storage Humidity			95	% RH	
MBTF		>0.5		MHrs	As per MIL-HDBK-217F, 25°C GB

