

Features

- Ultra-wide 85 - 305V AC and 100 - 430V DC input voltage range
- Accepts AC and/or DC input (dual-use of same terminal)
- Operating Temperature Range: -40~+85°C
- Approved to cURus, CE, RoHS
- Safety Standards to IEC/UL/EN62368-1
- Efficiency up to 81.5%
- EMC Class A & B
- Single output 3.3~24V DC



Ideal Power's 36LD05-23Bxx-R2-A2S 5W Chassis Mount AC/DC Power Supply Converter Series are certified to cRUUs, CE, RoHS & IEC/EN/UL62368/EN60335/EN61558 Standards and comply with the relevant Efficiency Regulations. These are primarily used in ITE, Audio & Video Industries and customised solutions are available upon request.

Models

Model Number	Output Power	Output Voltage and Current (Vo/Io) Nominal	Efficiency at 230V AC (%) Typ	Capacitive Load (µF) Max
36LD05-23B03R2-A2S	5W	3.3V/1515mA	71.5	4000
36LD05-23B05R2-A2S	5W	5V/1000mA	77.5	3000
36LD05-23B09R2-A2S	5W	9V/555mA	80.5	1200
36LD05-23B12R2-A2S	5W	12V/416mA	80.5	1200
36LD05-23B15R2-A2S	5W	15V/333mA	81.5	680
36LD05-23B24R2-A2S	5W	24V/208mA	81.5	220

Input Specifications

	Conditions	Min	Typ	Max	Unit
Input voltage range	AC input	85		305	VAC
	DC input	100		430	VDC
Input frequency		47		63	Hz
Input current	115V AC			0.13	A
	230V AC			0.07	A
Inrush current	115V AC		15		A
	230V AC		25		A
Leakage current	277V AC/50Hz		0.25mA RMS typ.		
Recommended External Input Fuse		1A, slow blow, required (The actual use needs to be selected according to the application environment)			
Hot Plug		Unavailable			

Output Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Output voltage accuracy	3.3V output Others		±3 ±2		%
Line regulation	Full load		±0.5		%
Load regulation	10% - 100% load		±1		%
Ripple and Noise*	20MHz bandwidth (peak to peak value)		50	100	mV
Temperature coefficient			±0.2		%/°C
Stand-by power consumption	230V AC Input		±0.10		W
Short circuit protection		Hiccup, continuous, self-recovery			
Over current protection		≥ 130%Io, self-recovery			
Over voltage protection	3.3/5V DC output		≤7.5V DC		
	9V DC output		≤15V DC		
	12V DC output		≤16V DC		
	15V DC output		≤20V DC		
	24V DC output		≤30V DC		
Minimum load		0			%
Hold up time	115V AC		5		ms
	230V AC		50		

Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 10uF electrolytic capacitor and 1uF ceramic capacitor, please refer to AC-DC Converter Application Notes for specific information.

General Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Isolation test - Input-Output	Electric Strength Test for 1min, leakage and current <5mA	4000			V AC
Operating Temperature		-40		+85	°C
Storage Temperature		-40		+105	°C
Storage Humidity				+95	%RH
Soldering Temperature	Wave-soldering	260 ± 5°C; time: 5 - 10s			
	Manual-welding	360 ±10°C; time: 3 - 5s			
Switching Frequency			65		kHz
Power Derating	-40°C to -25°C		3.0		%/°C
	+50°C to +70°C	3.3V	1.75		
	+55°C to +70°C	5V/9V/12V	2.33		
	+60°C to +70°C	15V/24V	3.5		
	+70°C ~ +85°C	3.3V	1.67		
		Others	1.0		
	85V AC – 1000V AC		1.0		
	277V AC – 305V AC		0.54		
2000m – 5000m		6.7			
Safety Standard		IEC/EN/UL62368/EN60335/EN61558			
Safety Certification		IEC/EN/UL62368/EN60335/EN61558			
Safety Class		Class II			
MTBF		MIL-HDBK-217F@25°C ≥ 2602,000 h			
Designed Life	230V AC	Ta: 25°C 100% load	> 130x10 ³ h		
		Ta: 55°C 100% load	> 41x10 ³ h		

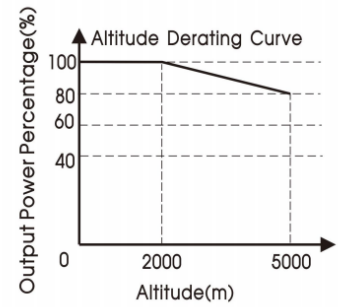
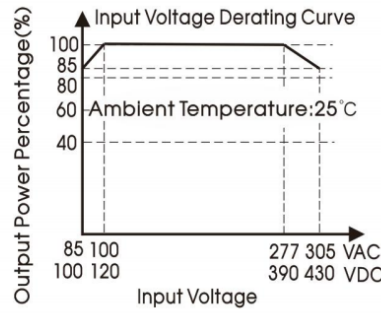
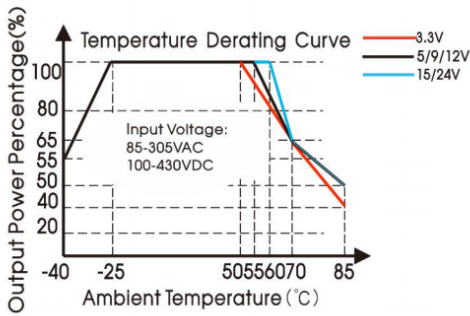
Mechanical Specifications

Case material		Black plastic, flame-retardant and heat-resistant (UL94 V-0)
Dimension	A2S mounting	76 x 31.5 x 26.4mm
Weight	A2S mounting	38.0g (Typ.)
Cooling method		Free air convection

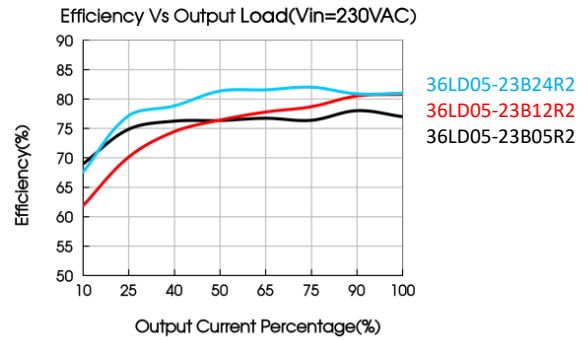
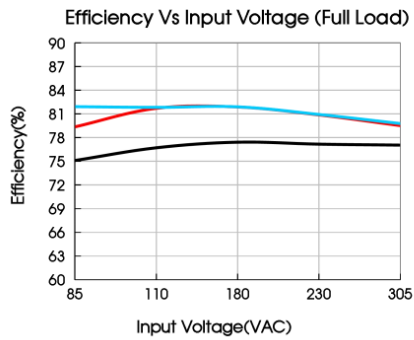
Electromagnetic Compatibility (EMC)

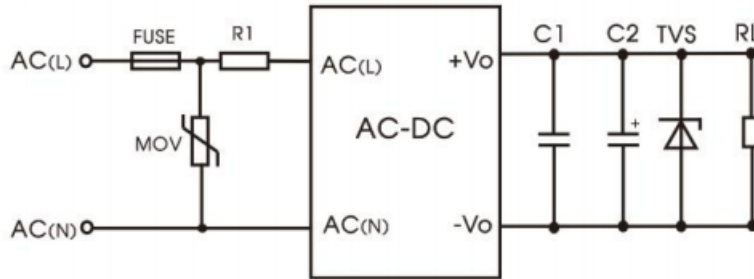
Emissions	CE	CISPR32/EN55032 CLASS B	
		EN55014-1	
RE		CISPR32/EN55032 CLASS B	
		EN55014-1	
Immunity	ESD	IEC/EN 61000-4-2 Contact $\pm 6\text{KV}/\text{Air } \pm 8\text{K}$	Perf. Criteria B
		EN55014-2	Perf. Criteria B
	RS	IEC/EN 61000-4-3 10V/m	Perf. Criteria A
		EN55014-2	Perf. Criteria A
	EFT	IEC/EN 61000-4-4 $\pm 2\text{KV}$ (See Fig. 1 for typical application circuit)	Perf. Criteria B
		EN55014-2	Perf. Criteria B
	Surge	IEC/EN 61000-4-5 line to line $\pm 1\text{kV}$ (See Fig. 1 for typical application circuit)	Perf. Criteria B
		EN55014-2	Perf. Criteria B
	CS	IEC/EN61000-4-6 10Vr.m.s	Perf. Criteria A
		EN55014-2	Perf. Criteria A
Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11 0%, 70%	Perf. Criteria B	
	EN55014-2	Perf. Criteria B	

Characteristic Curve



Note: ① With an AC input between 85-100V/277-305VAC and a DC input between 100-120V/390-430VDC, the output power must be derated as per temperature derating curves;
② This product is suitable for applications using natural air cooling;

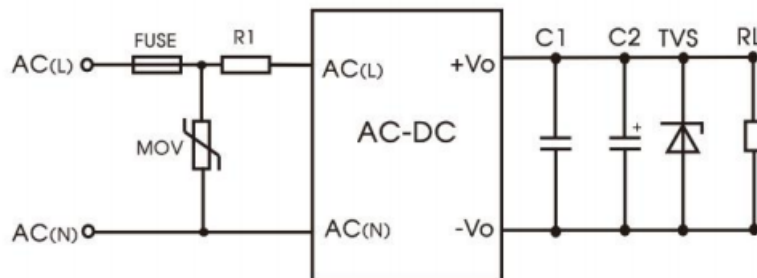


Design Reference (Figure 1)
1. Typical application


Element Model	MOV1	C1	C2	Fuse	TVS
36LD05-23B03R2-A2S	S10K350	1 μ F	150 μ F	A/300V, slow blow required	SMBJ7.0A
36LD05-23B05R2-A2S	S10K350	1 μ F	150 μ F		SMBJ7.0A
36LD05-23B09R2-A2S	S10K350	1 μ F	120 μ F		SMBJ12A
36LD05-23B12R2-A2S	S10K350	1 μ F	120 μ F		SMBJ20A
36LD05-23B15R2-A2S	S10K350	1 μ F	120 μ F		SMBJ20A
36LD05-23B24R2-A2S	S10K350	1 μ F	68 μ F		SMBJ30A

Output Filter Components:

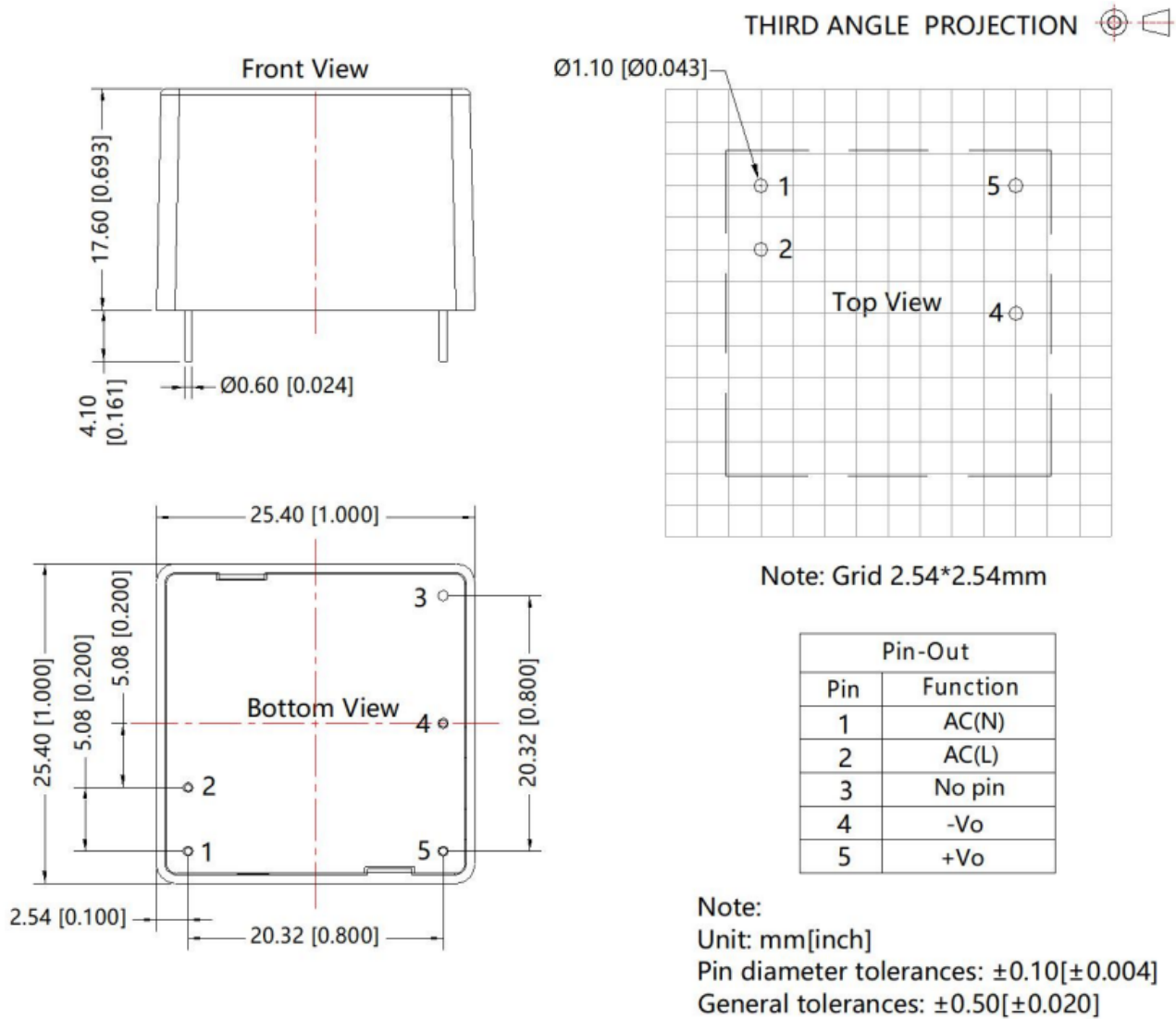
We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (refer to manufacture's datasheet). Choose a capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

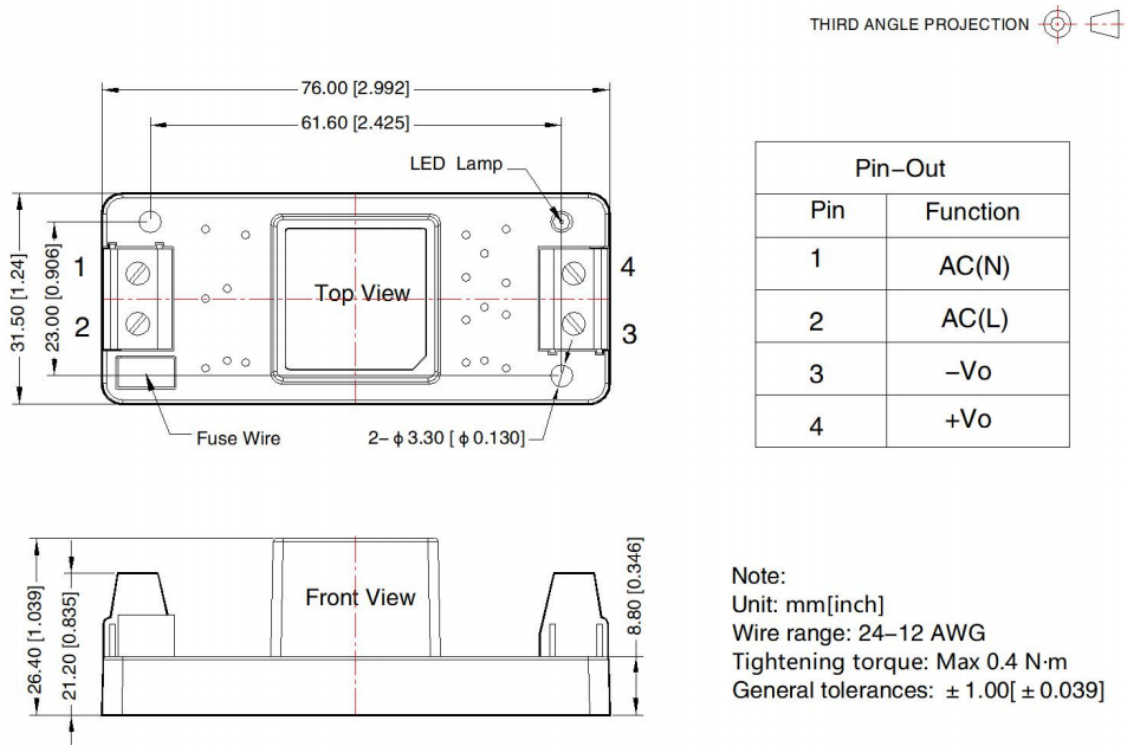
Design Reference (Figure 2)
2. EMC compliance recommended circuit


Element Model	Component Values
MOV	S14K350
R1	33 Ω /3W
FUSE	2A/300V, slow blow required.

Dimensions and Recommended Layout

AC – DC



A2S Dimensions

Notes:

- For additional information on Product Packaging please refer to www.idealpower.co.uk. Packaging bag number: 58220003(DIP package); 58220022 (A2S/A4S package).
- If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet.
- Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity <75% with nominal input voltage.
- All index testing methods in this datasheet are based on our company corporate standards.
- We can provide product customization service, please contact our technicians directly for specific information.
- Products are related to laws and regulations: see "Features" and "EMC".
- Our products shall be classified according to ISO14001 and related environmental laws and regulations and shall be handled by qualified units.