Features

- Ultra-wide 85~305V AC or 70~430V DC input voltage range
- Operating Temperature Range: -40°C~+85°C
- Approved to UKCA, CE, RoHS
- Compact size, open frame
- Efficiency up to 77%
- Green Power
- Flexible selection of EMC additional circuits, simplify customer PCB layout

Ideal Power's 36LS05-K3BxxSS 5W Open Frame PCB Mount AC/DC Power Supply Converter Series are certified to UKCA, CE, RoHS & EN 62368-1/BS 62368-1 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	Nominal Output Voltage and Current (Vo1/Io1)	Efficiency at 230V AC (%) Typ	Capacitive Load (µF) Max
36LS05-K3B12SS	4W	12V/330mA	75	160
36LS05-K3B15SS	5W	15V/330mA	76	
36LS05-K3B18SS	5W	18V/280mA	77	

Input Specifications

	Conditions	Min	Typ	Max	Unit
Input voltage range	AC input	85	--	305	VAC
	DC input	70	--	430	VDC
Input frequency		47	--	63	Hz
Input current	115V AC	--	--	0.2	A
	230V AC	--	--	0.14	
Inrush current	115V AC	--	25	--	
	230V AC	--	40	--	
Recommended External Input Fuse		1A-300V, Slow blow, required			
Hot Plug		Unavailable			

Output Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Output voltage accuracy	10% - 100% load		--	±2	--	%
Line regulation	**Rated load**		--	±0.5	--	
Load regulation			--	±1	--	
Ripple and Noise*	20MHz bandwidth (Peak-to-peak value)		--	50	100	mV
Temperature coefficient			--	±0.15	--	%/℃
Stand-by Power Consumption	230VAC input	12V	--	0.07	0.1	W
		15V	--	0.12	0.16	
		18V	--	0.16	0.2	
Short circuit protection			Hiccup, Continuous, self-recovery			
Over current protection	Normal temperature, high temperature		≥ 110%Io, self-recovery			
Minimum load			10	--	--	%

Note: * The "parallel cable" method is used for Ripple and noise test. Please refer to AC-DC Converter Application Notes for specific information.

General Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Operating Temperature		-40	--	+85	℃
Storage Temperature		-40	--	+105	
Storage Humidity		--	--	95	%RH
Power Derating	-40℃to -20℃	2	--	--	%/℃
	+65℃to +85℃	2.5	--	--	%/V AC
	85VAC-100VAC	1.33	--	--	
	277VAC-305VAC	1.1			
Safety Standard		EN62368-1, BS EN62368-1(Report) safety approval			
MTBF		MIL-HDBK-217F@25℃ >1000,000 h			

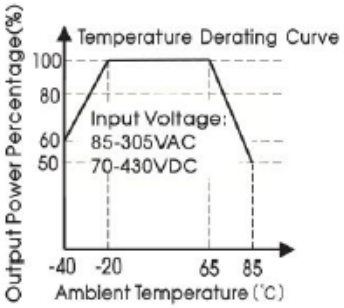
Mechanical Specifications

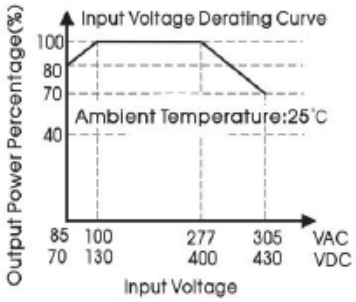
Dimension	16.13 x 15.10 x 9.50 mm
Weight	4.5g (Typ.)
Cooling method	Free air convection

Electromagnetic Compatibility (EMC)

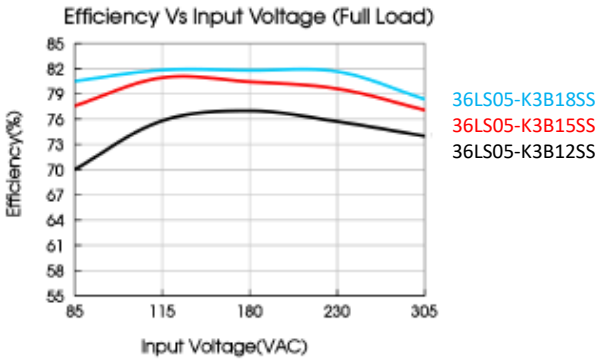
Emissions	CE	CISPR32/EN55032 CLASS A (See Fig. 1 for recommended circuit)	
		CISPR32/EN55032 CLASS B (See Fig. 2 for recommended circuit)	
	RE	CISPR32/EN55032 CLASS B	
Immunity	ESD	IEC/EN 61000-4-2 Contact ±6KV	Perf. Criteria B
	RS	IEC/EN 61000-4-3 10V/m	Perf. Criteria A
	EFT	IEC/EN 61000-4-4 ±2KV (See Fig. 1 for recommended circuit)	Perf. Criteria B
		IEC/EN 61000-4-4 ±4KV (See Fig. 2 for recommended circuit)	Perf. Criteria B
	Surge	IEC/EN 61000-4-5 line to line ± 1kV	Perf. Criteria B
	CS	IEC/EN61000-4-6 10Vr.m.s	Perf. Criteria A
	Voltage dips, short interruptions, and voltage variations	IEC/EN61000-4-11 0%, 70%	Perf. Criteria B

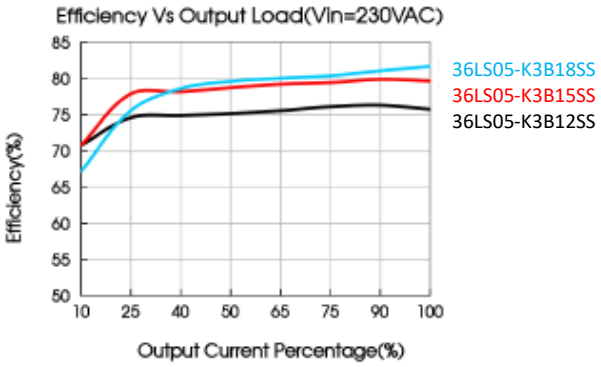
Characteristic Curve





Note:
① With an AC input between 85 - 100VAC/277- 305VAC and a DC input between 70 - 130VDC/400 - 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

1. Recommended Circuit 1

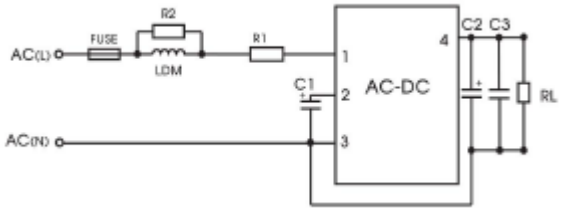


Fig. 1

	FUSE (required)	C1 (required)	C2 (required)	LDM (required))	R1 (wire-wound resistor, required)	C3	R2
36LS05-K3B12SS	1A/300V (slow-blow)	10uF/400V (165-264VAC) 10uF/450V (165-305VAC) 22uF/400V (85-264VAC) 22uF/450V (85-305VAC)	470uF/16V (solid-state capacitor)	4.7mH/0.2A (C1=10uF) 2.2mH/0.24A (C1=22uF)	12Ω/3W (C1=10uF) 2Ω/2W (C1=22uF)	0.1uF/50V	8.2kΩ/0.25W
36LS05-K3B15SS			470uF/35V				
36LS05-K3B18SS							

Note:
1. C1 is used as input filter capacitor (required).
2. Output filter: We recommend using an electrolytic capacitor with high frequency, high ripple current and low ESR rating for C2 refer to manufacturer's datasheet). Combined with LDM, they form a pi-type filter circuit. Choose a Capacitor voltage rating with at least 20% margin, in other words, not exceeding 80%.
3. Recommend R2 to use 1206 package chip resistor.

Design Reference

2. Recommended Circuit 2

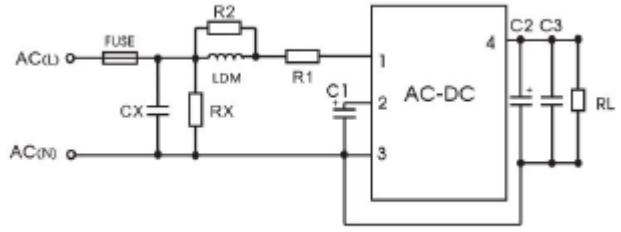
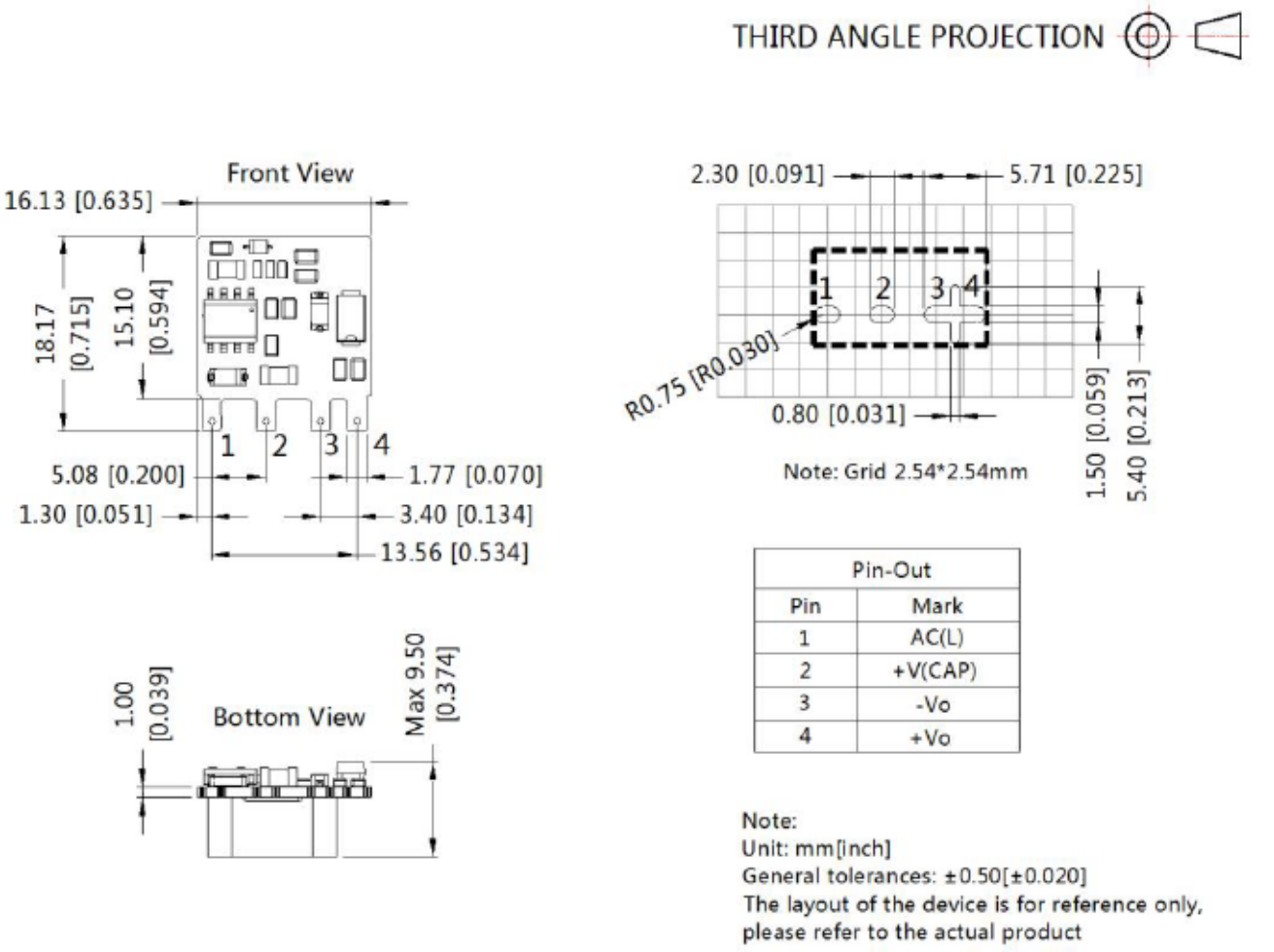


Fig. 2

	FUSE (required)	C1 (required)	C2 (required)	LDM (required))	R1 (wire-wound resistor, required)	CX	RX*	C3	R2
36LS05-K3B12SS	1A/300V (slow-blow)	**10uF/400V (165-264VAC) 10uF/450V (165-305VAC) 22uF/400V (85-264VAC) 22uF/450V (85-305VAC)**	470uF/16V (solid-state capacitor)	4.7mH/0.2A (C1=10uF) 2.2mH/0.24A (C1=22uF)	12Ω/3W (C1=10uF) 2Ω/2W (C1=22uF)	104K/ 310VAC	5MΩ-8MΩ	0.1uF/ 50V	8.2kΩ/ 0.25W
36LS05-K3B15SS			470uF/35V						
36LS05-K3B18SS									

***Note:** The X capacitor needs to be connected in parallel with the bleeder resistance(RX). The recommended resistance value is between 5MΩ~8MΩ, and the actual need to be selected as a series-parallel connection according to the certification standard.

Dimensions and Recommended Layout



Pin-Out	
Pin	Mark
1	AC(L)
2	+V(CAP)
3	-Vo
4	+Vo

Note:
Unit: mm[inch]
General tolerances: ±0.50[±0.020]
The layout of the device is for reference only, please refer to the actual product

Note:

1. For additional information on Product Packaging, please refer to www.idealpower.co.uk. Packaging bag number: 58220098.
2. External electrolytic capacitors are required to modules; more details refer to typical applications.
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%, nominal input voltage (115Vac and 230Vac) and rated output load.
4. Audible noise will be generated to improve efficiency at light load, but it will not affect product performance and reliability.
5. The module needs to be glued and fixed after assembly.
6. All index testing methods in this datasheet are based on our company's corporate standards.
7. We can provide product customisation service. Please get in touch with our technicians directly for specific information.
8. Products are related to laws and regulations: see "Features" and "EMC";
9. Our products shall be classified according to ISO14001 and related environmental laws and regulations and shall be handled by qualified units.