

Features

- Ultra-wide 85 - 305V AC and 100 - 430V DC input voltage range
- Operating Temperature Range: -40~+85°C
- Approved to cURus, CE, RoHS
- Safety Standards to IEC/EN/UL62368/EN60335/EN61558
- Efficiency up to 85%
- EMC Class A & B
- Single output 3.3~24V DC



Ideal Power's 36LD10-23Bxx-R2-xx 10W AC/DC Power Supply Converter Series are certified to cURus, 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 |
|----------------|--------------|--|-------------------------------|--------------------------|
| 36LD10-23B03R2 | 8.6W | 3.3V/2600mA | 74 | 6600 |
| 36LD10-23B05R2 | 10W | 5V/2000mA | 79 | 5000 |
| 36LD10-23B09R2 | 10W | 9V/1100mA | 81 | 3600 |
| 36LD10-23B12R2 | 10W | 12V/830mA | 84 | 2000 |
| 36LD10-23B15R2 | 10W | 15V/660mA | 84 | 8200 |
| 36LD10-23B24R2 | 10W | 24V/410mA | 85 | 470 |

Note: * Use suffix "A2S" for chassis and suffix "A4S" for DIN-Rail mounting.

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 | -- | -- | 0.23 | A |
| | 230V AC | -- | -- | 0.15 | A |
| Inrush current | 115V AC | -- | 25 | -- | A |
| | 230V AC | -- | 40 | -- | A |
| Leakage current | 277V AC/50Hz | 0.1mA RMS Max. | | | |
| Recommended External Input Fuse | | 2A/300V, Slow blow required. | | | |
| Hot Plug | | Unavailable. | | | |

Output Specifications

| Parameter | Conditions | Min | Typ | Max | Unit |
|----------------------------|--------------------------------------|---|---------------------------|--------------|---------|
| Output voltage accuracy | | -- | ± 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 | | -- | ± 0.02 | -- | %/°C |
| Stand-by power consumption | 230V AC Input | | 3.3V/5V/9V/12V/15V 24V | 0.10 0.12 | -- W |
| Short circuit protection | | Hiccup, continuous, self-recovery | | | |
| Over current protection | | $\geq 110\%I_o$, self-recovery | | | |
| Over voltage protection | 3.3/5V DC output | $\leq 7.5VDC$ (Output voltage clamp or hiccup) | | | |
| | 9V DC output | $\leq 15VDC$ (Output voltage clamp or hiccup) | | | |
| | 12V/15V DC output | $\leq 20VDC$ (Output voltage clamp or hiccup) | | | |
| | 24V DC output | $\leq 30VDC$ (Output voltage clamp or hiccup) | | | |
| Minimum load | | 0 | -- | -- | % |
| Hold up time | 115V AC | -- | 8 | -- | ms |
| | 230V AC | -- | 40 | -- | |

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

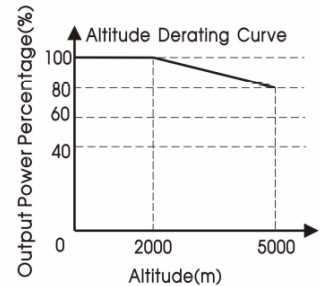
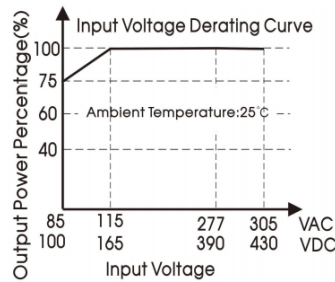
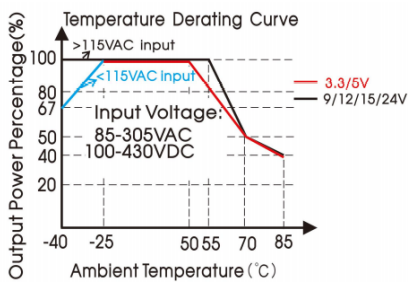
| Parameter | Conditions | Min | Typ | Max | Unit |
|-----------------------|--|---|---|----------|----------|
| Isolation | Input-Output Electric Strength Test for 1min, leakage and current <5mA | 4000 | -- | -- | V AC |
| Insulation Resistance | Input-Output At 500V DC | 100 | -- | -- | |
| Operating Temperature | | -40 | -- | +85 | °C |
| Storage Temperature | | -40 | -- | +85 | °C |
| Storage Humidity | | -- | -- | 95 | %RH |
| Soldering Temperature | Wave-soldering Manual-welding | | 260 \pm 5°C; time: 5 - 10s 360 \pm 10°C; time: 3 - 5s | | |
| Switching Frequency | | -- | 65 | -- | kHz |
| Power Derating | -40°C to -25°C | 85V AC – 115V AC | 2.2 | -- | -- |
| | +50°C to +70°C | 3.3V/5V | 2.5 | -- | -- |
| | +55°C to +70°C | 9V/12V/15V/24V | 3.33 | -- | -- |
| | +70°C ~ +85°C | | 0.66 | -- | -- |
| | 85V AC – 1000V AC 2000m – 5000m | | 0.83 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 \geq 2602,000 h | | | |
| Designed Life | 230V AC | Ta: 25°C 100% load Ta: 55°C 100% load Ta: 55°C 80% load | > 130x10 ³ h > 20x10 ³ h > 27x10 ³ h | | |

Mechanical Specifications

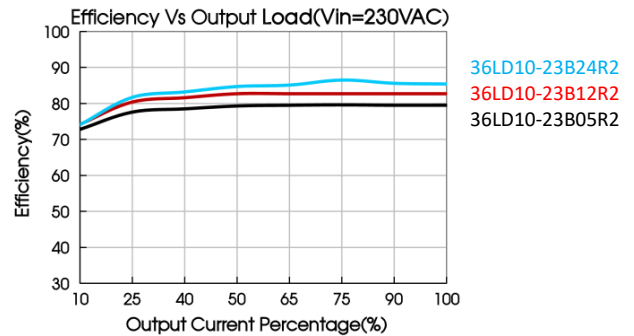
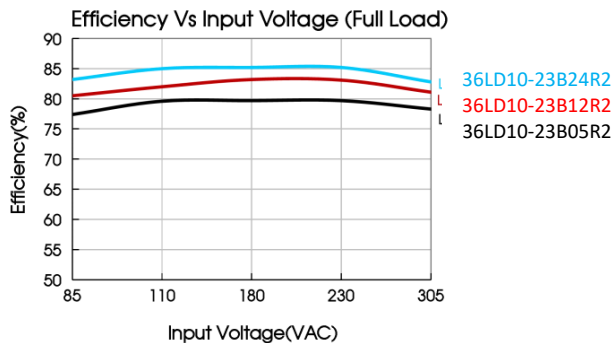
| | | |
|----------------|--|-------------------|
| Case material | Black plastic, flame-retardant and heat-resistant (UL94 V-0) | |
| Dimension | DIP package | 40 x 253.4 x 21mm |
| Weight | DIP package | 34g (Typ.) |
| Cooling method | Free air convection | |

Electromagnetic Compatibility (EMC)

| | | | |
|-----------|--------------|---|------------------|
| Emissions | CE | CISPR32/EN55032 CLASS B | |
| | RE | EN55014-1 | |
| Immunity | ESD | IEC/EN 61000-4-2 Contact ± 8 KV/Air ± 15 KV | 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 ± 2 KV | Perf. Criteria B |
| | | EN55014-2 | Perf. Criteria B |
| | Surge | IEC/EN 61000-4-5 line to line ± 1 kV | Perf. Criteria B |
| | | EN55014-2 | Perf. Criteria B |
| | | IEC/EN 61000-4-5 line to line ± 2 kV (See Fig. 2 for recommended circuit) | Perf. Criteria B |
| | | EN55014-2 | Perf. Criteria B |
| | CS | IEC/EN 61000-4-6 10Vr.m.s | Perf. Criteria A |
| | | EN55014-2 | Perf. Criteria A |
| | Voltage dips | IEC/EN 61000-4-11 0%, 70% | Perf. Criteria B |
| | | EN55014-2 | Perf. Criteria B |

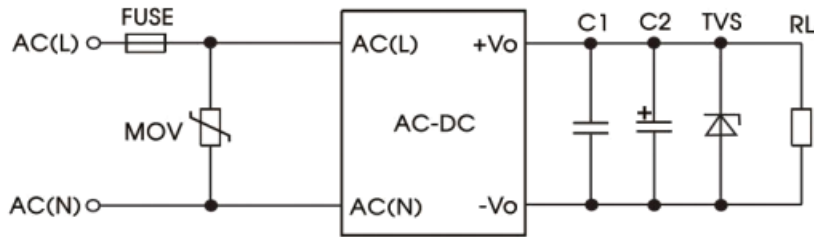
Characteristic Curve


Note: ① With an AC input between 85-115VAC and a DC input between 100-165VDC, the output power must be derated as per temperature derating curve
 ② This product is suitable for applications using natural air cooling.



Design Reference (Figure 1)

1. Typical



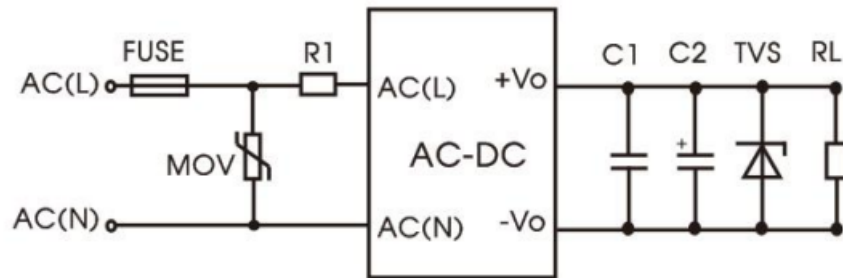
| Element Model | MOV1 | C1 | C2 | Fuse | TVS |
|----------------|---------|---------------|-----------------|-----------------------------------|----------|
| 36LD10-23B03R2 | S10K350 | 1 μ F/50V | 220 μ F/16V | 2A/300V, slow blow required | SMBJ7.0A |
| 36LD10-23B05R2 | S10K350 | 1 μ F/50V | 220 μ F/16V | | SMBJ7.0A |
| 36LD10-23B09R2 | S10K350 | 1 μ F/50V | 100 μ F/25V | | SMBJ12A |
| 36LD10-23B12R2 | S10K350 | 1 μ F/50V | 100 μ F/25V | | SMBJ20A |
| 36LD10-23B15R2 | S10K350 | 1 μ F/50V | 100 μ F/25V | | SMBJ20A |
| 36LD10-23B24R2 | S10K350 | 1 μ F/50V | 100 μ F/35V | | 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)

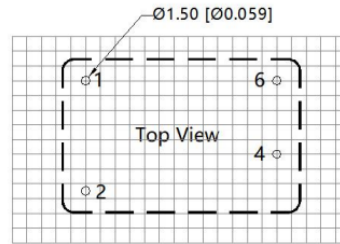
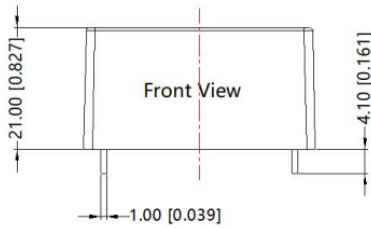
2. EMC compliance recommended circuit



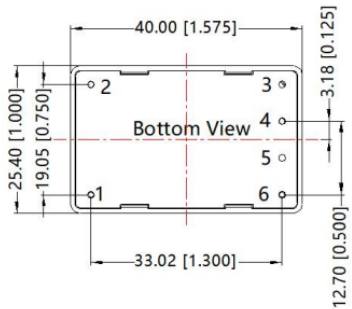
| Element Model | Component Values |
|---------------|------------------------------|
| MOV | S14K350 |
| R1 | 6.8 Ω /3W |
| FUSE | 2A/300V, slow blow required. |

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



Note: Grid 2.54*2.54mm

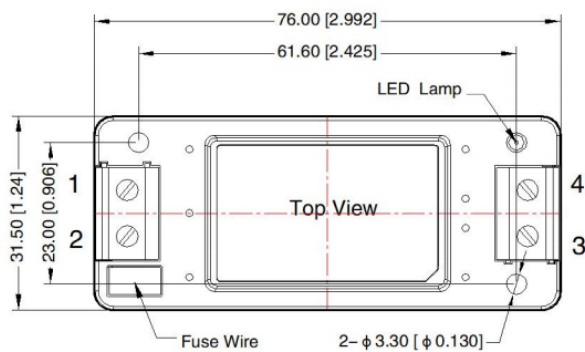


| Pin-Out | |
|---------|----------|
| Pin | Function |
| 1 | AC(L) |
| 2 | AC(N) |
| 3 | No Pin |
| 4 | +Vo |
| 5 | No Pin |
| 6 | -Vo |

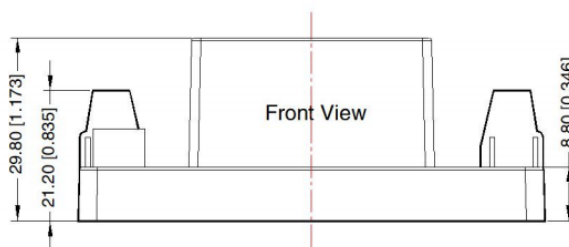
Note:
Unit: mm[inch]
Pin diameter tolerances: $\pm 0.10[\pm 0.004]$
General tolerances: $\pm 0.50[\pm 0.020]$

A2S Dimensions

THIRD ANGLE PROJECTION 

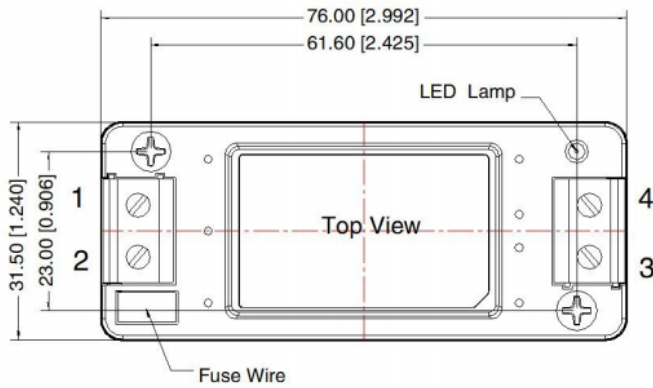


| Pin-Out | |
|---------|----------|
| Pin | Function |
| 1 | AC(N) |
| 2 | AC(L) |
| 3 | -Vo |
| 4 | +Vo |



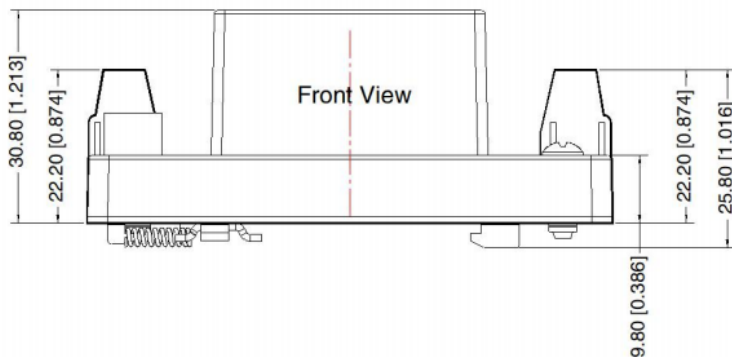
Note:
Unit: mm[inch]
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N-m
General tolerances: $\pm 1.00[\pm 0.039]$

A4S Dimensions



THIRD ANGLE PROJECTION

| Pin-Out | |
|---------|----------|
| Pin | Function |
| 1 | AC(N) |
| 2 | AC(L) |
| 3 | -Vo |
| 4 | +Vo |



Note:
Unit: mm[inch]
Wire range: 24–12 AWG
Tightening torque: Max 0.4 N·m
Mounting rail: TS35, rail needs to connect safety ground
General tolerances: $\pm 1.00[\pm 0.039]$

Notes:

- For additional information on Product Packaging, please refer to www.Idealpower.co.uk. Packaging bag number: 58220135 (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 $T_a=25^\circ\text{C}$, humidity $<75\%$ with nominal input voltage.
- All index testing methods in this datasheet are based on our company's corporate standards.
- We can provide product customisation 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 handled by qualified units.