



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 86%
- EMC Class A & B
- Single output 3.3~24V DC



Ideal Power's 36LD15-23Bxx-R2-A2S 15W 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 | Capacitive Load (µF) Max |
|--------------------|--------------|--------------------------------------------|-----------------------|--------------------------|
| | W | (Vo1/Io1) | (%) Typ | (Vo1/Vo2) |
| 36LD15-23B03R2-A2S | 13.2W | 3.3V/4000mA | 82 | 6600 |
| 36LD15-23B05R2-A2S | 15W | 5V/3000mA | 85 | 5000 |
| 36LD15-23B09R2-A2S | 15W | 9V/1670mA | 84 | 3000 |
| 36LD15-23B12R2-A2S | 15W | 12V/1250mA | 85 | 2000 |
| 36LD15-23B15R2-A2S | 15W | 15V/1000mA | 85 | 1500 |
| 36LD15-23B24R2-A2S | 15W | 24V/625mA | 86 | 680 |

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 | |
| | DC input | 100 | | 430 | VDC |
| Input Frequency | | 47 | | 63 | Hz |
| Input Current | 115VAC | | | 0.45 | |
| | 230VAC | | | 0.30 | |
| | 115VAC | | 30 | | |
| | 230VAC | | 60 | | |
| Leakage Current | 277VAC/50Hz | | | | 0.1mA RMS Max. |
| Built In Fuse | | | | | 2A/300V, slow blow |
| Hot Plug | | | | | Unavailable |

**Output Specifications**

| Parameter | Conditions | Min | Typ | Max | Unit |
|----------------------------|--------------------------------------|------------------------------------------|-----------------------------------|------|------|
| Output Voltage Accuracy | | | ±2 | | |
| Line Regulation | Full load | | ±0.5 | | % |
| Load Regulation | 0%-100% load | | ±1 | | |
| Ripple & Noise* | 20MHz bandwidth (peak-to-peak value) | | 70 | 120 | mV |
| Stand-by Power Consumption | 230VAC | 3.3/5/9/12/15V | | 0.10 | W |
| | | 24V | | 0.12 | |
| Temperature Coefficient | | | ±0.02 | | %/°C |
| Short Circuit Protection | | | Hiccup, continuous, self-recovery | | |
| Over-current Protection | | | ≥110%Io, self-recovery | | |
| Over-voltage Protection | 3.3/5V | ≤7.5VDC (Output voltage clamp or hiccup) | | | |
| | 9 V | ≤15VDC (Output voltage clamp or hiccup) | | | |
| | 12/15V | ≤20VDC (Output voltage clamp or hiccup) | | | |
| | 24V | ≤30VDC (Output voltage clamp or hiccup) | | | |
| Minimum Load | | 0 | -- | -- | % |
| Hold-up Time | 115VAC | -- | 10 | -- | ms |
| | 230VAC | -- | 55 | -- | |

Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 4μF electrolytic capacitor and 0.1μF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information.

General Specifications

| Parameter | Conditions | Min | Typ | Max | Unit |
|-----------------------|---------------------------------------------------------------------|-------------------------------------|-------------|-----|---------|
| Isolation | Input-output Electric Strength Test for 1min., leakage current <5mA | 4000 | | | VAC |
| Insulation | Input - output At 500VDC | 100 | | | MΩ |
| Operating Temperature | | -40 | | +85 | °C |
| Storage Temperature | | -40 | | +85 | |
| 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 | +50°C to +70°C | 3.3/5V | 3.00 | | % / °C |
| | +55°C to +70°C | 9/12/15/24V | 2.67 | | |
| | +70°C to +85°C | | 0.66 | | |
| | 85VAC - 100VAC | | 1.33 | | % / VAC |
| | 277VAC - 305VAC | | 0.71 | | |
| | 2000 - 5000m | | 6.7 | | |
| Safety Class | | IEC/UL62368-1, EN61558-1, EN60335-1 | | | |
| MTBF | | CLASS II | | | |
| MTBF | | MIL-HDBK-217F@25°C > 3,200,000 h | | | |
| Designed Life | 230VAC | Ta : 25°C 100% load | > 130x103 h | | |
| | | Ta : 55°C 100% load | > 27x103 h | | |

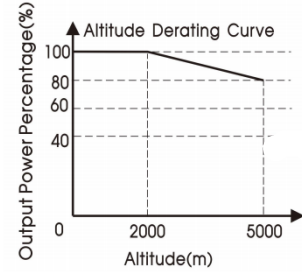
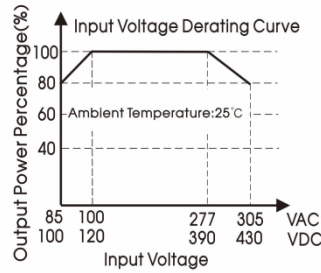
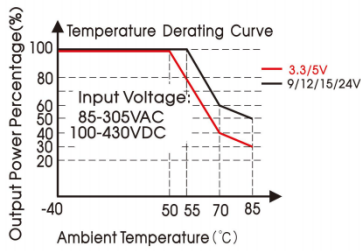
**Mechanical Specifications**

| | |
|----------------|-------------------------------------------------------------|
| Case material | Black plastic, flame-retardant and heat-resistant (UL94V-0) |
| Dimensions | 76.00 x 31.50 x 32.30 mm |
| Weight | 68g (Typ.) |
| Cooling method | Free air convection |

Electromagnetic Compatibility (EMC)

| | | | |
|-------------------------------------------------------|-------|-----------------------------------------------------------------------------|------------------|
| Emissions | CE | CISPR32/EN55032 CLASS B | |
| | | CISPR32/EN55032 CLASS B (See Fig.3 for recommended circuit) | |
| | | CISPR11/EN55011 CLASS B | |
| | | EN55014-1 | |
| Emissions | RE | CISPR32/EN55032 CLASS B | |
| | | CISPR32/EN55032 CLASS B (See Fig.3 for recommended circuit) | |
| | | CISPR11/EN55011 CLASS B | |
| | | EN55014-1 | |
| Immunity | ESD | IEC/EN 61000-4-2 Contact ± 8 KV | Perf. Criteria B |
| | | IEC/EN55014-2 | Perf. Criteria B |
| | RS | IEC/EN61000-4-3 10V/m | perf. Criteria A |
| | | IEC/EN55014-2 | perf. Criteria A |
| | EFT | IEC/EN61000-4-4 ± 2 KV | perf. Criteria B |
| | | IEC/EN61000-4-4 ± 4 KV (See Fig.2 for recommended circuit) | perf. Criteria B |
| | | IEC/EN61000-4-4 ± 4 KV (See Fig.3 for recommended circuit) | perf. Criteria A |
| | | IEC/EN55014-2 | perf. Criteria B |
| | Surge | IEC/EN61000-4-5 line to line ± 1 KV | perf. Criteria B |
| | | IEC/EN61000-4-5 line to line ± 2 KV (See Fig.2 for recommended circuit) | perf. Criteria B |
| | | IEC/EN61000-4-5 line to line ± 2 KV/line to ground ± 4 KV | perf. Criteria A |
| | CS | IEC/EN55014-2 | perf. Criteria B |
| | | IEC/EN61000-4-6 10Vr.m.s | perf. Criteria A |
| | | IEC/EN55014-2 | perf. Criteria A |
| Voltage dip, short interruption and voltage variation | | IEC/EN61000-4-11 0%, 70% | perf. Criteria B |
| | | IEC/EN55014-2 | perf. Criteria B |

Note: When the output terminal of the product needs to be connected to PE through a Y capacitor, or close to the metal frame, please refer to the Fig.3 for recommended circuit.

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; for applications in closed environment please consult factory or one of our FAE.

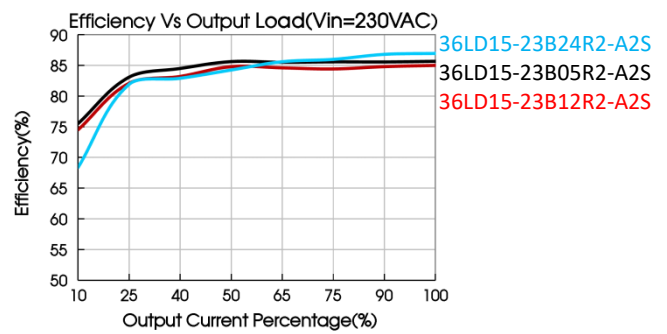
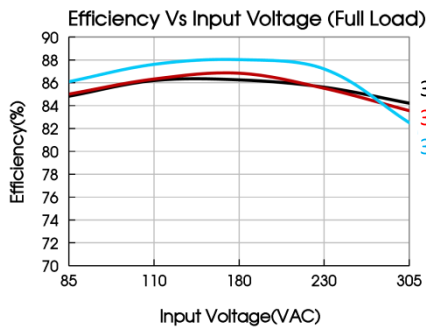
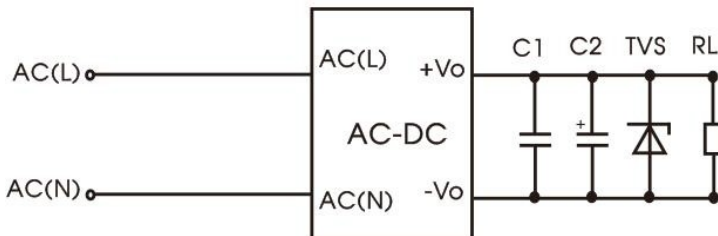

Dimensions Reference
1. Typical application


Fig. 1: Typical circuit diagram

| Part No. | C1 | C2 | TVS |
|--------------------|---------|-----------|----------|
| 36LD15-23B03R2-A2S | 1uF/50V | 220uF/16V | SMBJ7.0A |
| 36LD15-23B05R2-A2S | | 220uF/16V | SMBJ7.0A |
| 36LD15-23B09R2-A2S | | 100uF/25V | SMBJ12A |
| 36LD15-23B12R2-A2S | | 100uF/25V | SMBJ20A |
| 36LD15-23B15R2-A2S | | 100uF/25V | SMBJ20A |
| 36LD15-23B24R2-A2S | | 100uF/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.

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Dimensions Reference (Continued)

1. EMC Compliance recommended circuit.

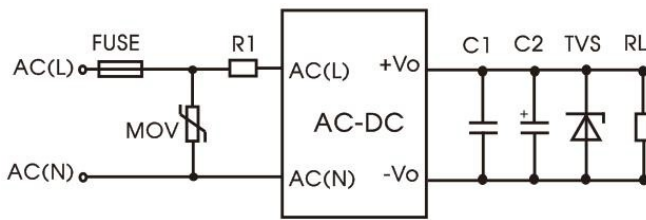


Fig 2: EMC application circuit with higher requirements

| Component | Recommended value |
|------------------------------------|---------------------------------|
| FUSE | 3.15A/300V, slow blow, required |
| MOV | S14K350 |
| R1 (wire-wound resistor, required) | 6.8Ω/3W |

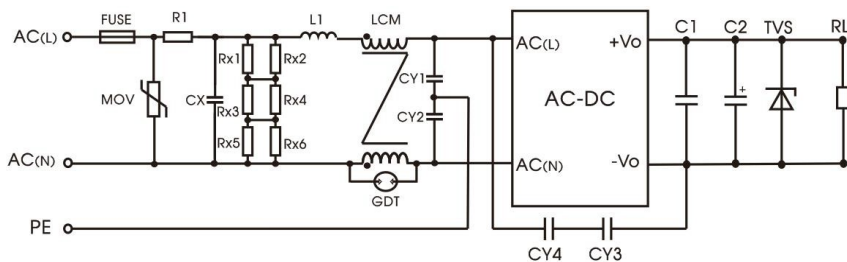


Fig 3: Recommended circuit for class I equipment

| Component | Recommended value |
|-----------|--------------------------------------------------|
| FUSE | 3.15A/300V, slow blow, required |
| MOV | S14K350 |
| CX | 334K/305VAC |
| R1 | 12Ω/5W (wire-wound resistor) |
| L1 | 1.2mH/0.5A |
| CY1/CY2 | 2.2nF/400VAC |
| CY3/CY4 | 1nF/400VAC |
| GDT | 300V/1KA |
| LCM | 20 mH, we recommended using part no. FL2D-10-203 |

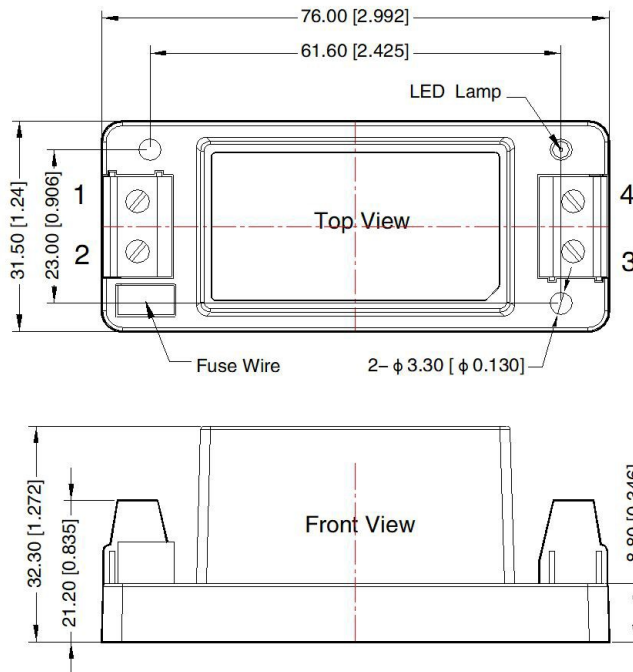
Note: Rx1/Rx2/Rx3/Rx4/Rx5/Rx6 is the bleeder resistance of CX, and the recommended resistance value is 1.5MΩ/150VDC.

AC – DC



Dimensions and Recommended Layout

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: ± 1.00 [± 0.039]

Notes:

1. For additional information on Product Packaging please refer to www.idealpower.com.
2. 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.
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% with nominal input voltage and rated output load.
4. All index testing methods in this datasheet are based on our company corporate standards.
5. We can provide product customization service, please contact our technicians directly for specific information.
6. Products are related to laws and regulations: see "Features" and "EMC".
7. Our products shall be classified according to ISO14001 and related environmental laws and regulations and shall be handled by qualified units.

AC - DC