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AMEL60-JZ



Encapsulated

The new AMEL60-JZ is a AC/DC converter that offers much greater cost effectiveness due to material normalization and production automation also leading to improved reliability and performance. Offering a commercial input voltage range of 85-264VAC and an output voltage range from 5-48V, this series will offer many benefits to your new system design.

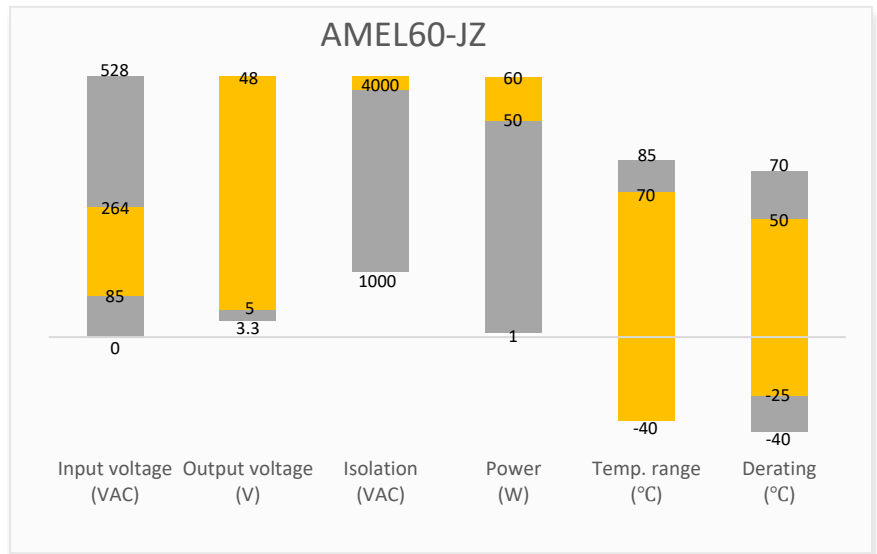
This new series offers great operating temperatures, from -40°C to 70°C, also features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a higher MTBF of 300,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AMEL60-JZ is perfect for grid power, LED, instrumentation, industrial controls, communication and civil applications.

Features

- Universal Input: 85 - 264VAC/100 - 370VDC
- Operating Temp: -40 °C to +70 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 120mV(p-p), Max.
- Output short circuit, over-current, over-voltage protection
- Regulated Output

Summary



Training



Product Training Video
(click to open)



Press Release

Coming Soon!

Application Notes

Applications



Power Grid



Industrial



Telecom



Instrumentation

Models & Specifications

| Single Output | | | | | | | |
|---------------|------------------------|---------------------|------------------------|--------------------|------------------------|------------------------------------|-------------------------|
| Model | Input Voltage (VAC/Hz) | Input Voltage (VDC) | Max Output wattage (W) | Output Voltage (V) | Output Current max (A) | Maximum capacitive load (μ F) | Efficiency @ 230VAC (%) |
| AMEL60-5SJZ | 85-264/47-63 | 100-370 | 50 | 5 | 10 | 20000 | 84 |
| AMEL60-12SJZ | 85-264/47-63 | 100-370 | 60 | 12 | 5 | 4000 | 87 |
| AMEL60-15SJZ | 85-264/47-63 | 100-370 | 60 | 15 | 4 | 3000 | 88 |
| AMEL60-24SJZ | 85-264/47-63 | 100-370 | 60 | 24 | 2.5 | 1800 | 89 |
| AMEL60-48SJZ | 85-264/47-63 | 100-370 | 60 | 48 | 1.25 | 470 | 90 |

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-Rail mounting (ex. AMEL60-5SJZ-ST is chassis mounting and AMEL60-5SJZ-STD is DIN-Rail mounting version).

| Input Specifications | | | | |
|----------------------|---------------------|---------|---------|----------|
| Parameters | Conditions | Typical | Maximum | Units |
| Current | 115VAC | | 1.8 | A |
| | 230VAC | | 1 | A |
| Inrush current | 115VAC | 45 | | A |
| | 230VAC | 90 | | A |
| Leakage current | 240VAC/50Hz | | 0.25 | mA (RMS) |
| External fuse | slow blow type,250V | 3.15 | | A |

| Output Specifications | | | | |
|-----------------------|-----------------|-----------|---------|--------|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage accuracy | Full load | ± 2 | | % |
| Line regulation | Full load | ± 0.5 | | % |
| Load regulation | 0-100% load | ± 1 | | % |
| Ripple & Noise* | 20MHz bandwidth | | 120 | mV p-p |
| Hold up time | 115VAC | 8 | | ms |
| | 230VAC | 65 | | ms |

* Ripple and Noise are measured at 20MHz bandwidth by using the referenced Application circuit.

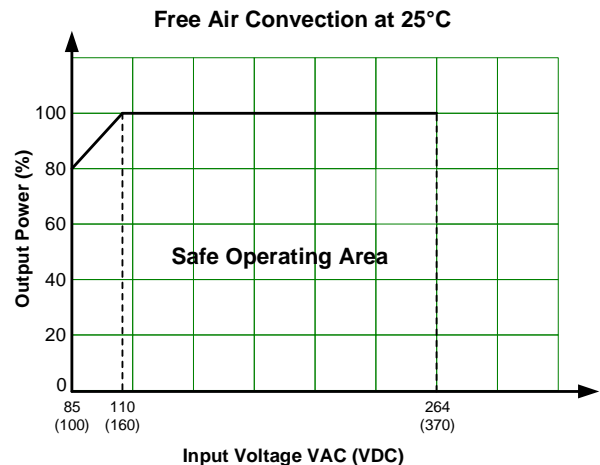
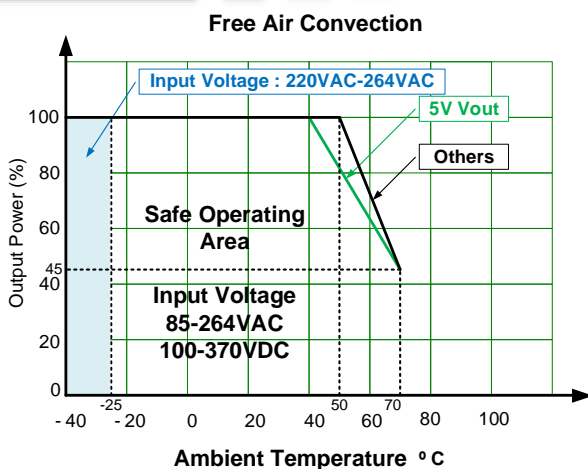
| Isolation Specifications | | | | |
|--------------------------|-------------------------------|---------|-------|-------|
| Parameters | Conditions | Typical | Rated | Units |
| Tested I/O voltage | 60 sec, leakage current < 5mA | | 4000 | VAC |

| General Specifications | | | | |
|-------------------------|-----------------------------------|------------|---------|-----------|
| Parameters | Conditions | Typical | Maximum | Units |
| Safety class | Class II | | | |
| Over current protection | Auto recovery | ≥ 110 | | % of Iout |
| Over voltage protection | 5V Vout, Voltage clamp or hiccup | | 9 | VDC |
| | 12V Vout, Voltage clamp or hiccup | | 16 | VDC |
| | 15V Vout, Voltage clamp or hiccup | | 25 | VDC |

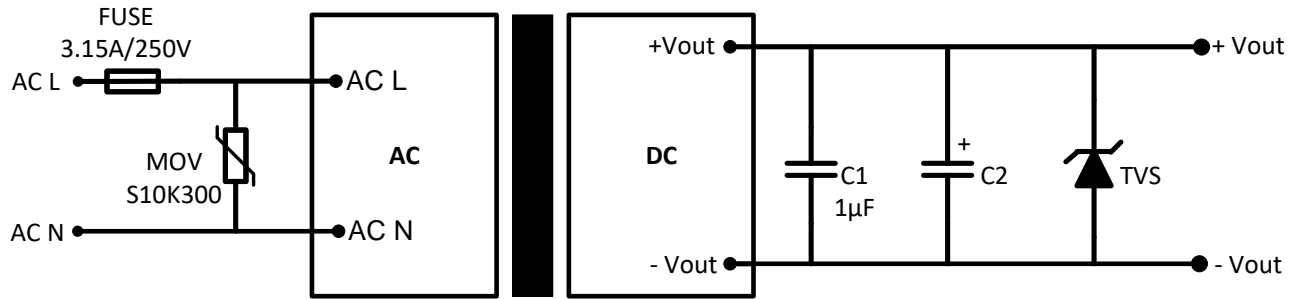
| | | | | |
|---|---|--|-----|---------|
| | 24V Vout, Voltage clamp or hiccup | | 35 | VDC |
| | 48V Vout, Voltage clamp or hiccup | | 60 | VDC |
| Short circuit protection | Hiccup, Continuous, Auto recovery | | | |
| Operating temperature | See derating graph | -40 to +70 | | °C |
| Storage temperature | | -40 to +85 | | °C |
| Lead temperature | Wave soldering | 260 ± 5 °C; Maximum duration 5 - 10s | | |
| | Hand soldering | 360 ± 10 °C; Maximum duration 3 - 5s | | |
| No-load power consumption | | | 0.5 | W |
| Power derating | 40 °C ~ 70 °C, 5V Vout | 1.83 | | % / °C |
| | 50 °C ~ 70 °C, Others | 2.75 | | % / °C |
| | 85VAC ~ 110VAC | 0.8 | | % / VAC |
| Temperature coefficient | | ±0.02 | | % / °C |
| Cooling | Free air convection | | | |
| Humidity | Non-condensing | | 95 | % RH |
| Case material | Heat resistant black Plastic (flammability to UL 94V-0) | | | |
| Weight | PCB mountable models | | 210 | g |
| Dimensions (L x W x H) | PCB mountable models | 3.42 x 2.05 x 1.16 inches (87.0 x 52.0 x 29.5mm) | | |
| MTBF | > 300 000 hrs (MIL-HDBK -217F, t=+25°C)/Full Load | | | |
| NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. | | | | |

| Safety Specifications | | |
|-----------------------|--|---|
| Parameters | | |
| Agency approval | UL 62368-1 | |
| Standards | Design to meet IEC/EN 62368-1 | |
| | EMC - Conducted and radiated emission | CISPR32 / EN55032, class B |
| | Electrostatic Discharge Immunity | IEC 61000-4-2 Contact ±6KV / Air ±8KV, Criteria B |
| | RF, Electromagnetic Field Immunity | IEC 61000-4-3 10V/m, Criteria A |
| | Electrical Fast Transient/Burst Immunity | IEC 61000-4-4 ±4KV, Criteria B |
| | Surge Immunity | IEC 61000-4-5 L-L ±1KV, Criteria B IEC 61000-4-5 L-L ±2KV/L-G ±4KV, with EMC recommended circuit, Criteria B |
| | RF, Conducted Disturbance Immunity | IEC 61000-4-6 10Vr.m.s, Criteria A |
| | Voltage dips, Short Interruptions Immunity | IEC 61000-4-11 0%, 70%, Criteria B |

Derating



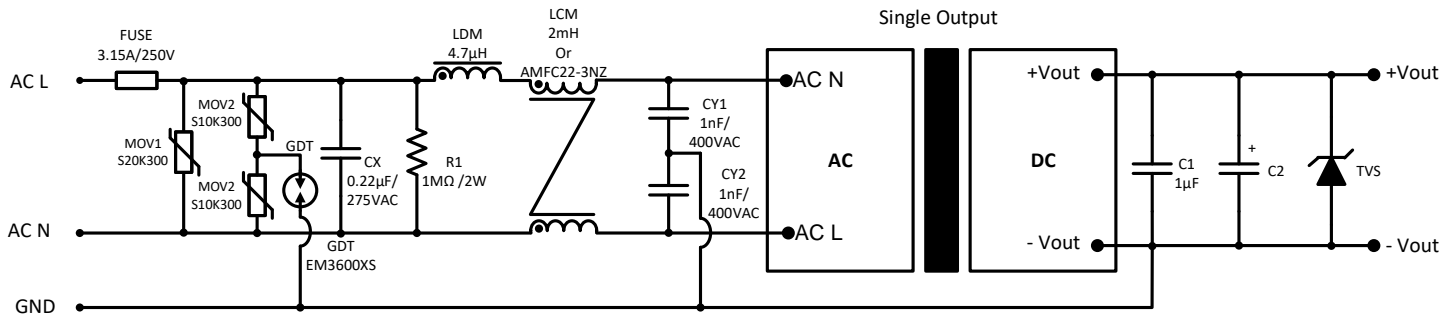
Typical Application Circuit



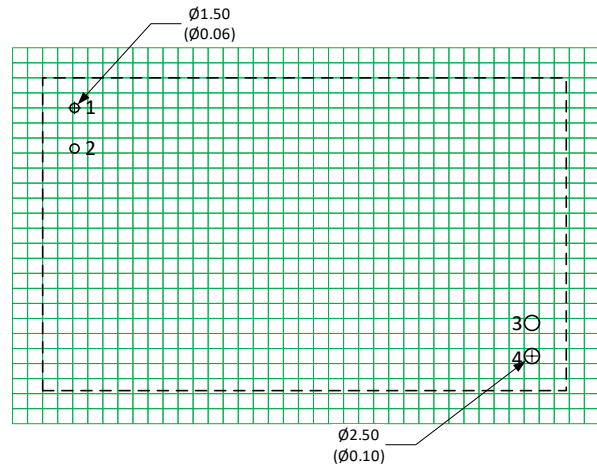
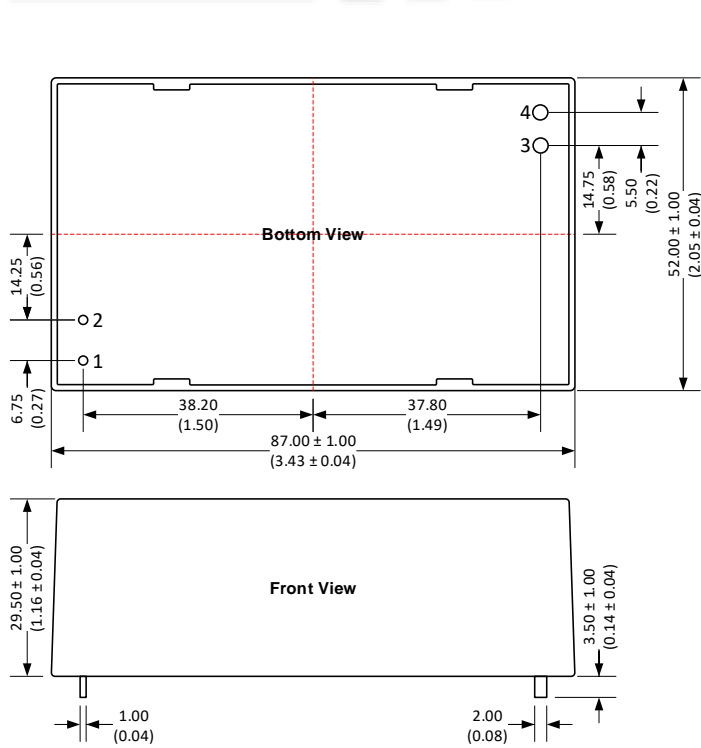
| Model | C2 | TVS |
|--------------|-------------|----------|
| 5 Vout | 680 μ F | SMBJ7.0A |
| 12 / 15 Vout | 330 μ F | SMBJ20A |
| 24 Vout | 200 μ F | SMBJ30A |
| 48 Vout | 100 μ F | SMBJ64A |

Note: Choose capacitors with at least 20% voltage margin.

EMC Recommended Circuit



Dimensions

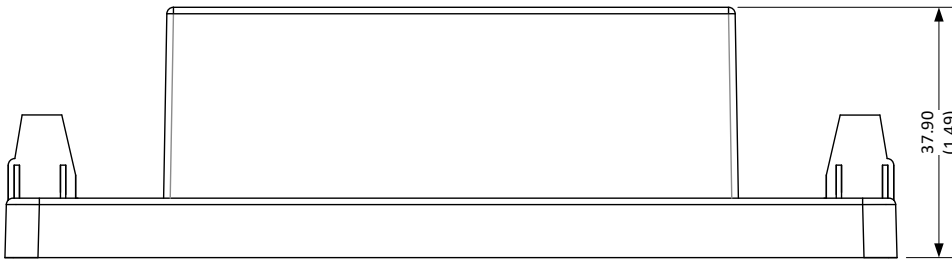
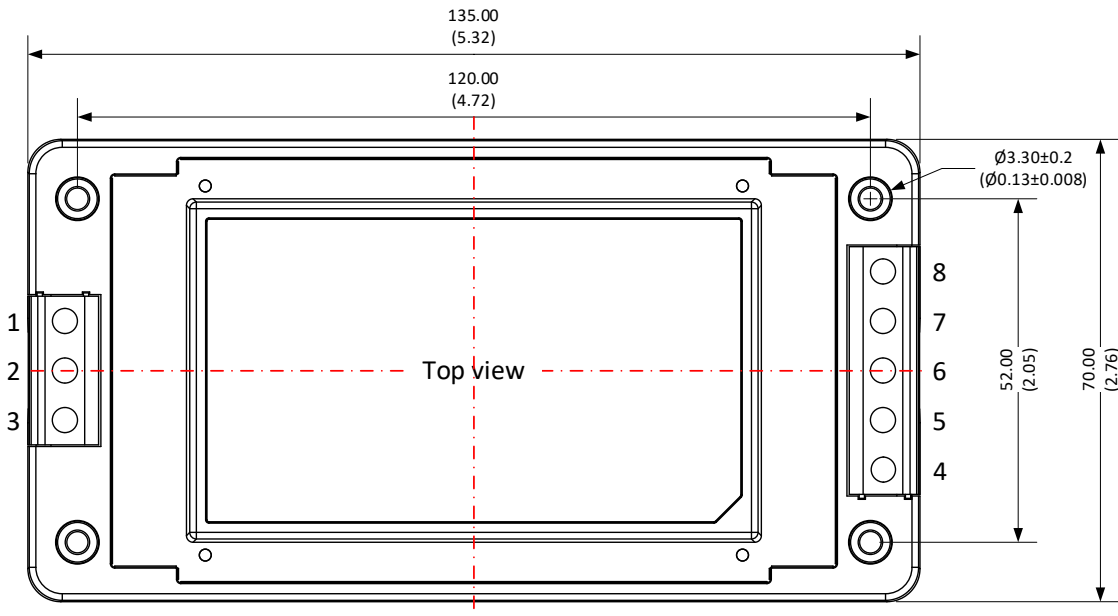


Notes:
All dimensions are typical in millimeters (inches).
Pin diameter tolerances : ± 0.10 (± 0.004)
General tolerance : ± 0.50 (± 0.02)

Pin Output Specifications

| Pin | Single |
|-----|--------------|
| 1 | AC Input (L) |
| 2 | AC Input (N) |
| 3 | -V Output |
| 4 | +V Output |

Dimensions with ST Optional

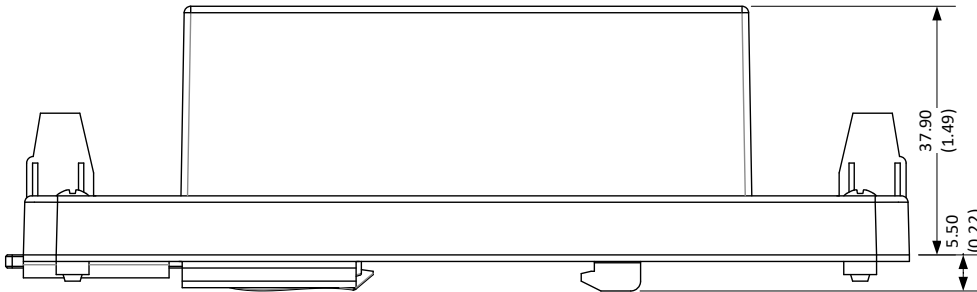
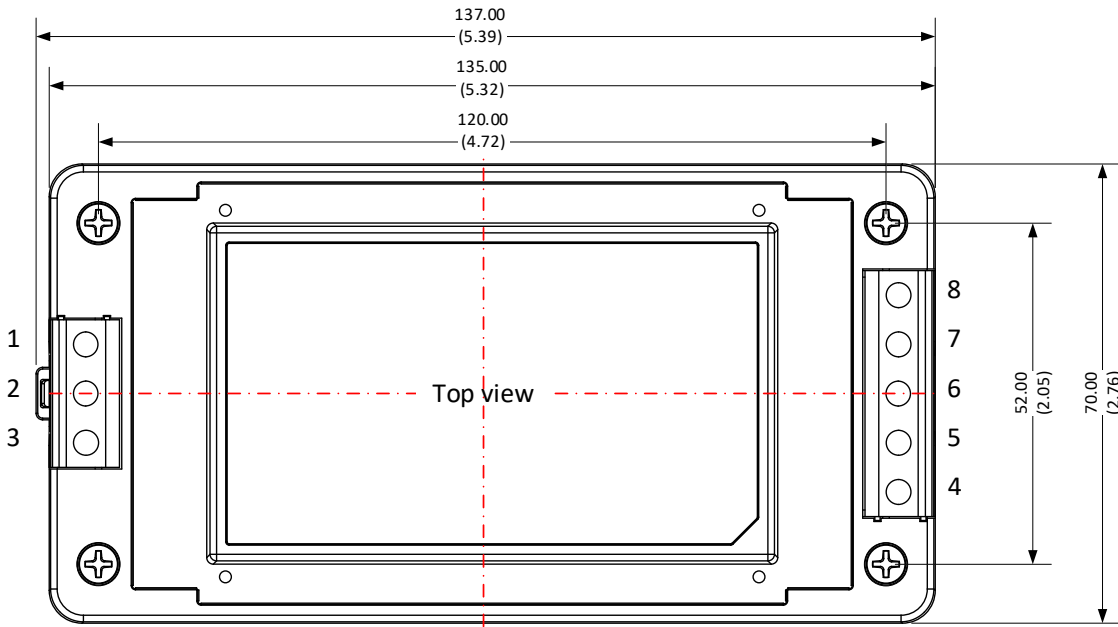


Notes:
All dimensions are typical in millimeters (inches).
Wire gauge : 24-12AWG
Tightening torque : 0.4Nm max.
General tolerance : ±1.00 (±0.04)

Pin Output Specifications

| Pin | Single |
|-----|--------------|
| 1 | AC Input (L) |
| 2 | NC |
| 3 | AC Input (N) |
| 4 | +V Output |
| 5 | -V Output |
| 6 | NC |
| 7 | NC |
| 8 | NC |

Dimensions with STD Optional



Notes:

All dimensions are typical in millimeters (inches).
Wire gauge : 24-12AWG
Tightening torque : 0.4Nm max.
General tolerance : ± 1.00 (± 0.04)
Din rail : TS35

Pin Output Specifications

| Pin | Single |
|-----|--------------|
| 1 | AC Input (L) |
| 2 | NC |
| 3 | AC Input (N) |
| 4 | +V Output |
| 5 | -V Output |
| 6 | NC |
| 7 | NC |
| 8 | NC |

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