# AME30-480JZ

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Encapsulated

The AME30-480JZ is a new ultra-wide input AC-DC converter series featuring a cost effective, energy efficient solution. The products offer a high level of stability and immunity to noise, designed to meet IEC/EN/UL62368-1 and IEC/EN61558-1 standards. These ultra-wide input AC-DC converters also have an extremely compact design for space saving and are ideal for applications such as industrial control equipment machinery and numerous applications for harsh environments.

This new series offers great operating temperatures, from -40°C to 85°C and an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 950,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

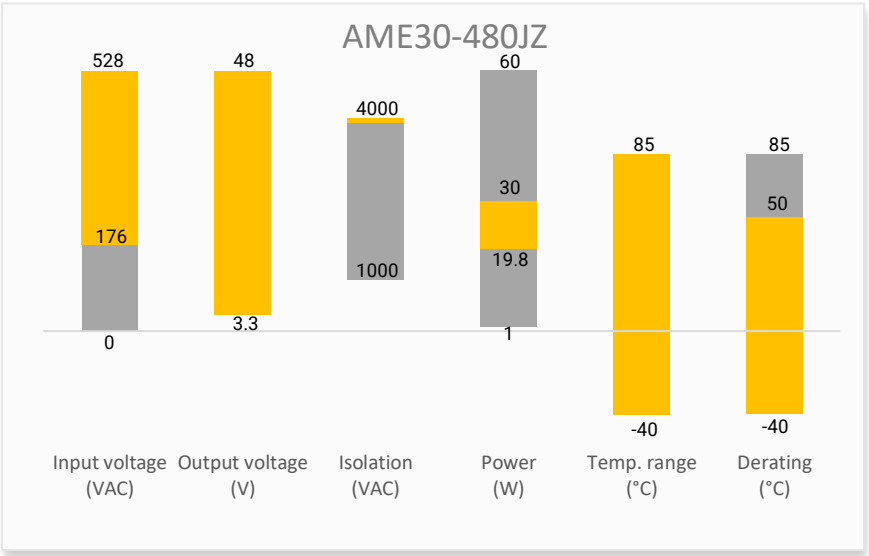
## Features

- Wide Input: 176 - 528VAC/248 - 746VDC
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 150mV(p-p), max.
- Output short circuit, over-current, over-voltage protection
- Overvoltage category III (OVC III)

RoHS

3yr Warranty

## 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 (µF) | Efficiency @ 230VAC Typ. (%) |
| AME30-3S480JZ | 176 - 528/47 - 63 | 248 - 746 | 19.8 | 3.3 | 6 | 15000 | 82 |
| AME30-5S480JZ | 176 - 528/47 - 63 | 248 - 746 | 30 | 5 | 6 | 15000 | 84 |
| AME30-9S480JZ | 176 - 528/47 - 63 | 248 - 746 | 30.06 | 9 | 3.34 | 8200 | 85 |
| AME30-12S480JZ | 176 - 528/47 - 63 | 248 - 746 | 30 | 12 | 2.5 | 4700 | 85 |
| AME30-15S480JZ | 176 - 528/47 - 63 | 248 - 746 | 30 | 15 | 2 | 3300 | 85 |
| AME30-24S480JZ | 176 - 528/47 - 63 | 248 - 746 | 30 | 24 | 1.25 | 1500 | 86 |
| AME30-48S480JZ | 176 - 528/47 - 63 | 248 - 746 | 30 | 48 | 0.625 | 820 | 88 |

| Input Specifications | | | | |
|---|---|---|---|---|
| Parameters | Conditions | Typical | Maximum | Units |
| Input Current | 230VAC | | 500 | mA |
| | 380VAC | | 350 | mA |
| Inrush Current | 230VAC | 35 | | A |
| | 380VAC | 60 | | A |
| Leakage Current | 480VAC/50Hz | | 0.5 | mA RMS |
| Fuse | Required external fuse | 3.15A/500V, slow-blow | | |

| Output Specifications | | | | |
|---|---|---|---|---|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage accuracy | 3.3Vout models | ± 3 | | % |
| | Other models | ± 2 | | % |
| Line regulation | 100% load, 3.3Vout models | ± 1 | | % |
| | 100% load, other models | ± 0.5 | | % |
| Load regulation | 0-100% load, 3.3Vout models | ± 2 | | % |
| | 0-100% load, other models | ± 1 | | % |
| Ripple & Noise | 20MHz bandwidth | 80 | 150 | mV p-p |
| Hold up time | 230VAC | 45 | | ms |
| | 380VAC | 120 | | ms |

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

## General Specifications

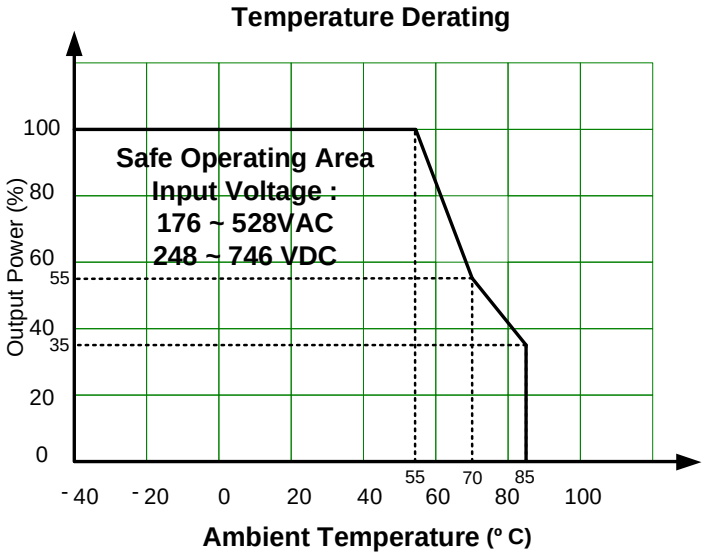
| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Overvoltage category | OVC III | | | |
| Over Current protection | Auto- recovery | ≥ 110 | | % of Iout |
| Over voltage protection | Voltage clamp or hiccup, 3.3/5 VDC Output | ≤ 7.5 | | VDC |
| | Voltage clamp or hiccup, 9/12 VDC Output | ≤ 16 | | VDC |
| | Voltage clamp or hiccup, 15 VDC Output | ≤ 25 | | VDC |
| | Voltage clamp or hiccup, 24 VDC Output | ≤ 35 | | VDC |
| | Voltage clamp or hiccup, 48 VDC Output | ≤ 60 | | VDC |
| Short circuit protection | Hiccup, Continuous, Auto-recovery | | | |
| No load power consumption | 230VAC | | 0.3 | W |
| | 380VAC | | 0.5 | W |
| Switching Frequency | | 65 | | KHz |
| Operating temperature | | -40 to +85 | | ℃ |
| Storage temperature | | -40 to +85 | | ℃ |
| Wave soldering temperature | Duration 5 - 10s | 260 | | ℃ |
| Manual soldering temperature | Duration 3 - 5s | 360 | | ℃ |
| Power derating | 55℃ to 70℃ | 3.0 | | % / ℃ |
| | 70℃ to 85℃ | 1.33 | | % / ℃ |
| Protection Class | Class II | | | |
| Cooling | Free air convection | | | |
| Storage Humidity | | | 95 | % RH |
| Case material | Heat resistant black Plastic (flammability to UL 94V-0) | | | |
| Weight | | 152 | | g |
| Dimensions (L x W x H) | 2.76 x 1.89 x 1.18 inches (70.00 x 48.00 x 30.00 mm) | | | |
| MTBF | > 950 000 hrs (MIL-HDBK -217F, t=+25°C) | | | |

**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.**

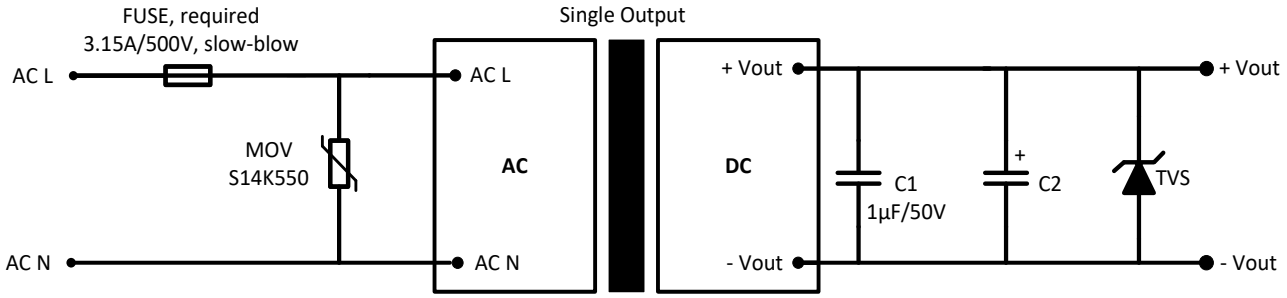
## Safety Specifications

| Parameters | | |
|---|---|---|
| Standards | Designed to meet IEC/EN/UL 62368-1, IEC/EN61558-1 | |
| | EMC - Conducted and radiated emission | CISPR32 / EN55032, Class B |
| | Electrostatic Discharge Immunity | IEC 61000-4-2 Air ±8KV, Contact ±6KV, Criteria A |
| | RF, Electromagnetic Field Immunity | IEC 61000-4-3 10V/m, Criteria A |
| | Electrical Fast Transient/Burst Immunity | IEC 61000-4-4 ±2KV, Criteria A<br>IEC 61000-4-4 ±4KV, Criteria A with the typical application circuit or EMC circuit |
| | Surge Immunity | IEC 61000-4-5 L-L ±2KV, Criteria A with the typical application circuit<br>IEC 61000-4-5 L-L ±4KV, Criteria A with the EMC circuit 1<br>IEC 61000-4-5 L-L ±2KV, L-G ±4KV, Criteria A with the EMC circuit 2 |
| | CS, Conducted Disturbance Immunity | IEC 61000-4-6 10V r.m.s, Criteria A |
| | Voltage dips, Short Interruptions Immunity | IEC 61000-4-11 0%, 70%, Criteria A |

## Derating




## Typical Application Circuit

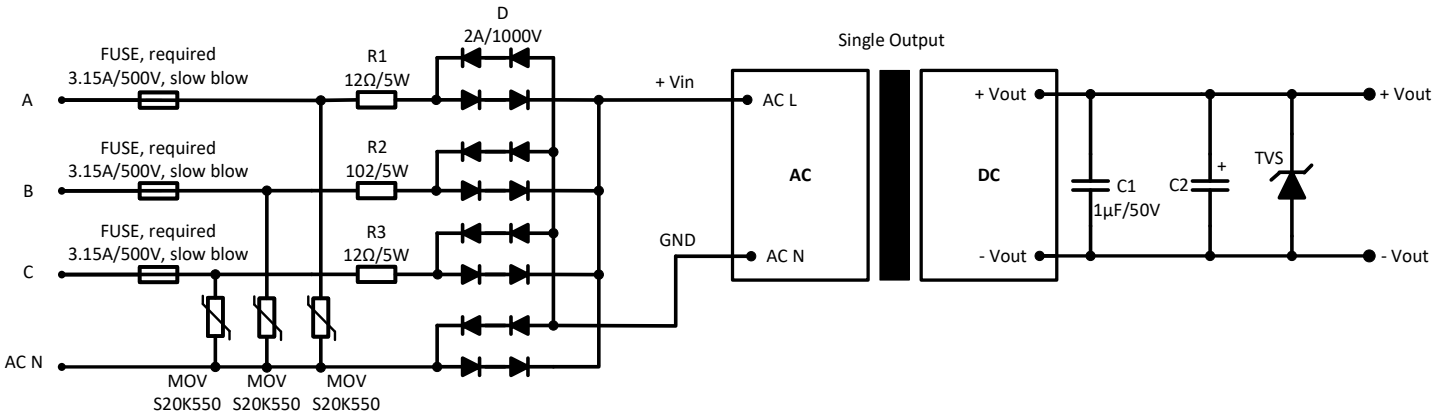



| Model | C2 | TVS |
|---|---|---|
| 3.3Vout | 330μF/25V | 7V |
| 5Vout | 330μF/25V | 7V |
| 9Vout | 220μF/25V | 12V |
| 12Vout | 220μF/25V | 20V |
| 15Vout | 220μF/35V | 30V |
| 24Vout | 220μF/35V | 30V |
| 48Vout | 10μF/63V | 64V |

**For filtering components:**
**Choose capacitors with at least 20% voltage margin. The C2 capacitor is recommended to use electrolytic type with high frequency and low ESR rating. The C1 capacitor is recommended to use ceramic type for filtering high-frequency noise.**

## Recommended EMC Circuit 1

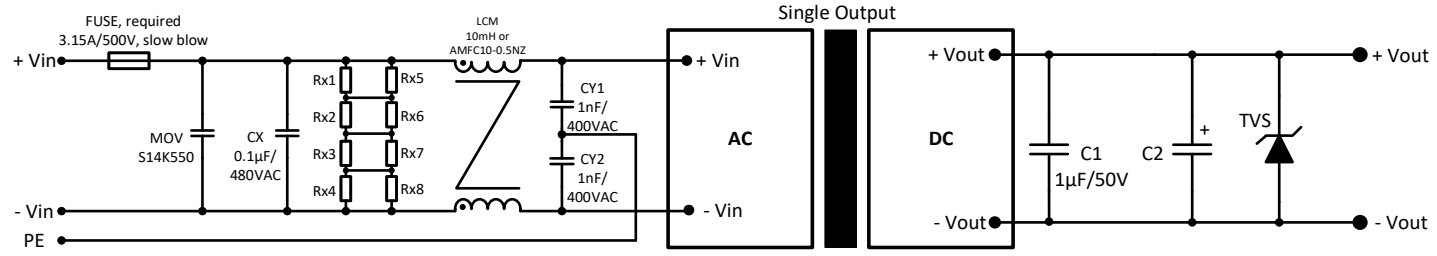
3 phase 4 wire full-wave rectification for 4KV differential mode inrush standard




| R1, R2, R3 |
|---|
| 12Ω/5W (wire-wound resistor) |

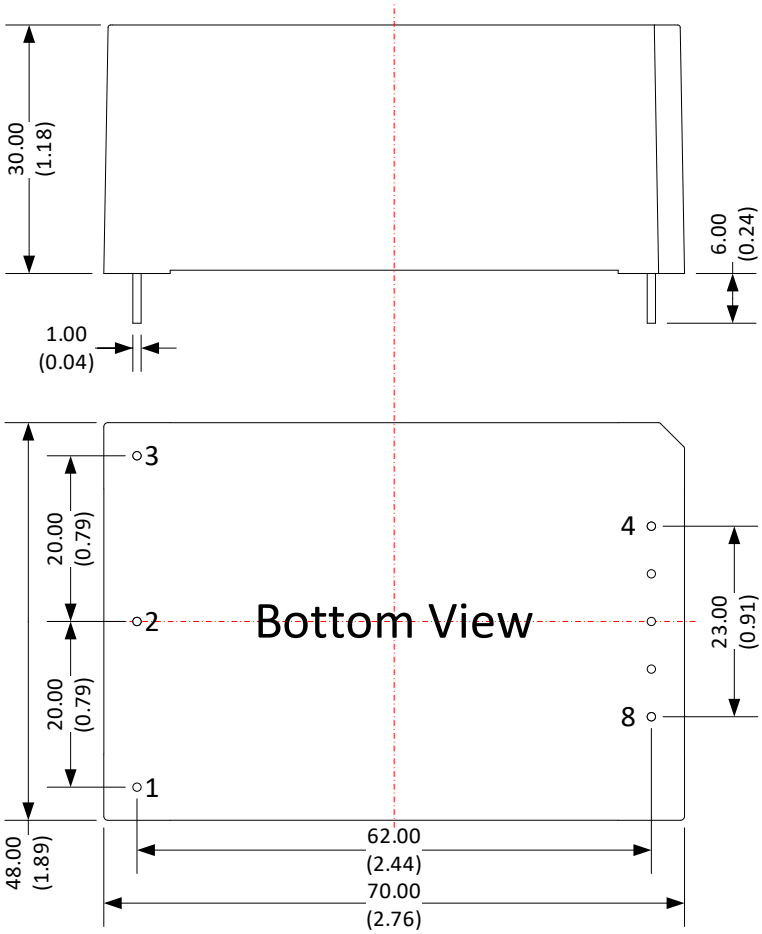
## Recommended EMC Circuit 2

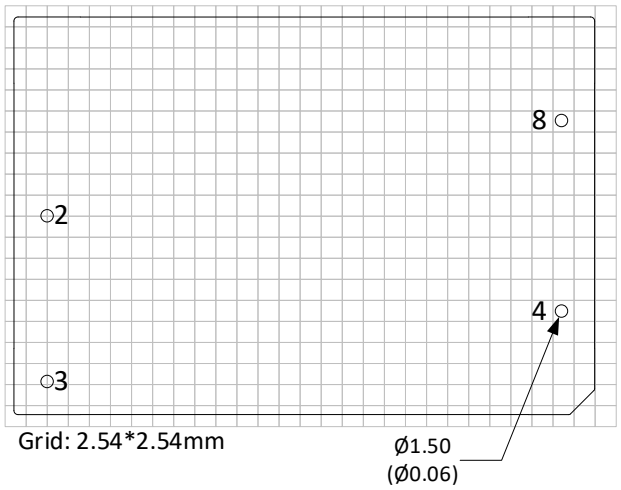
Class I equipment




| Rx1, Rx2, Rx3, Rx4, Rx5, Rx6 |
|---|
| Recommend < 2.5MΩ |

## Dimensions




Note:
Unit: mm (inch)
General tolerance: ±0.1 (0.004)
Pin tolerance: ±0.5 (0.02)

| Pin Output Specifications | |
|---|---|
| Pin | Function |
| 1 | No pin |
| 2 | Input (N) |
| 3 | Input (L) |
| 4 | +V Output |
| 8 | -V Output |

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