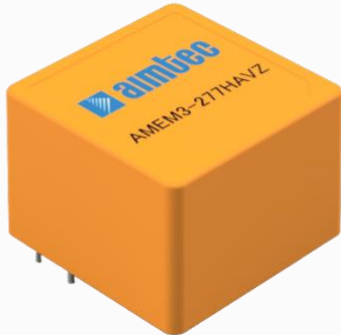


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AMEM3-277HAVZ



Encapsulated

The AMEM3-277HAVZ series is an efficient 3W AC-DC power supply module. Offering a commercial input voltage range of 85-305VAC, output voltage ranges from 3.3-24V, low power consumption, high efficiency, high reliability, and safer isolation.

This new series offers great operating temperatures, from -40°C to 85°C with full power up to 70°C and features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 2799,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AMEM3-277HAVZ is suitable for grid power, LED, instrumentation, industrial controls, communication, and civil applications.

Features

- Universal Input: 85 - 305VAC/100 - 430VDC
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 100mV(p-p), max.
- Output short circuit, over-current, over-voltage protection
- Low no-load power consumption of 0.1W
- Efficiency up to 79%
- Certified: UL62368-1
- Designed to meet: IEC/EN62368-1, EN60335-1, EN61558-2-16:2009+A1:2013, EN61558-1:2005+A1:2009



Training



Product Training Video
(click to open)

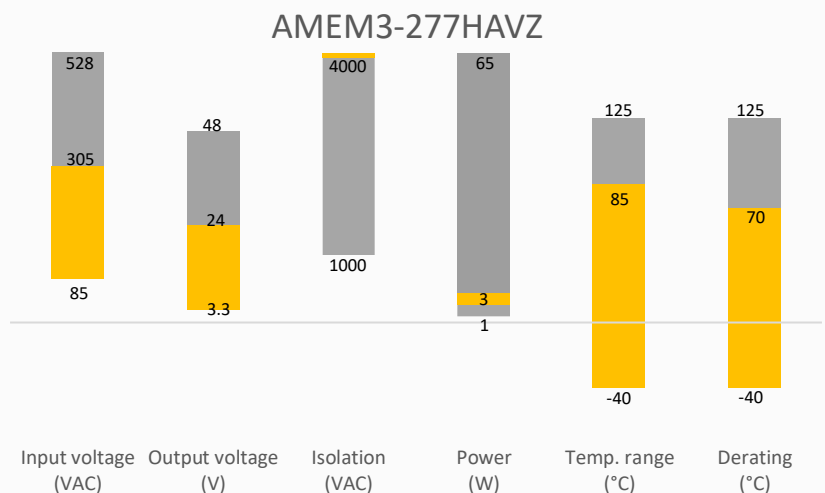


Press Release

Coming Soon!

Application Notes

Summary



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 Typ. (%) |
| AMEM3-3S277HAVZ | 85-305/47-63 | 100-430 | 3 | 3.3 | 0.9 | 4000 | 72 |
| AMEM3-5S277HAVZ | 85-305/47-63 | 100-430 | 3 | 5 | 0.6 | 3000 | 76 |
| AMEM3-9S277HAVZ | 85-305/47-63 | 100-430 | 3 | 9 | 0.333 | 1200 | 78 |
| AMEM3-12S277HAVZ | 85-305/47-63 | 100-430 | 3 | 12 | 0.25 | 1200 | 78 |
| AMEM3-15S277HAVZ | 85-305/47-63 | 100-430 | 3 | 15 | 0.2 | 680 | 79 |
| AMEM3-24S277HAVZ | 85-305/47-63 | 100-430 | 3 | 24 | 0.125 | 220 | 79 |

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-Rail mounting (ex. AMEM3-3S277HAVZ-ST is chassis mounting and AMEM3-3S277HAVZ-STD is DIN-Rail mounting version).

| Input Specifications | | | | |
|----------------------|---------------|---------|---------|--------|
| Parameters | Conditions | Typical | Maximum | Units |
| Input current | 115VAC | | 80 | mA |
| | 230VAC | | 60 | mA |
| Inrush current | 115VAC | 15 | | A |
| | 230VAC | 25 | | A |
| Leakage | 277VAC, 50Hz | | 0.25 | mA RMS |
| Fuse | 1A, Slow blow | | | |

| Output Specifications | | | | |
|-----------------------|-----------------|-----------|---------|--------|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage accuracy | 3.3Vout | \pm 3 | | % |
| | Others | \pm 2 | | % |
| Line regulation | Full load | \pm 0.5 | | % |
| Load regulation | 0-100% load | \pm 1 | | % |
| Ripple & Noise* | 20MHz bandwidth | 50 | 100 | mV p-p |
| Start-up time | Standard models | 1 | | S |
| Hold up time | 115VAC | 5 | | ms |
| | 230VAC | 50 | | ms |

* Ripple and Noise are measured at 20MHz bandwidth with a 10 μ F electrolytic capacitor and a 1 μ F ceramic capacitor. Please refer to the application note for specific details.

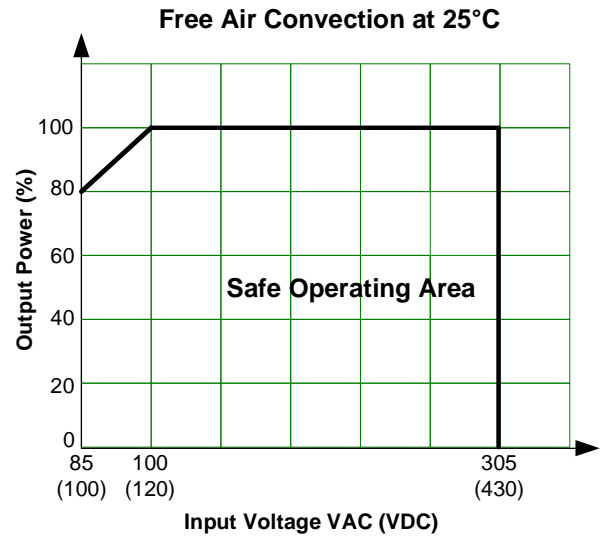
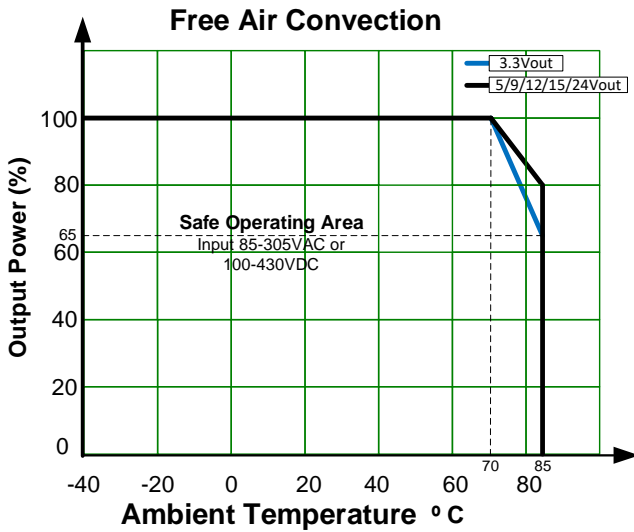
| Isolation Specification | | | | |
|-------------------------|----------------------------|---------|---------|-------|
| Parameters | Conditions | Typical | Maximum | Units |
| Tested I/O voltage | 60 sec, leakage \leq 5mA | 4000 | | VAC |

| General Specifications | | | | |
|---|---|--|---------|-----------|
| Parameters | Conditions | Typical | Maximum | Units |
| Protection class | Class II | | | |
| Over current protection | Auto recovery | ≥ 200 | | % of Iout |
| Over voltage protection | 3.3, 5Vout, voltage clamp, hiccup | | 7.5 | VDC |
| | 9Vout, voltage clamp, hiccup | | 15 | VDC |
| | 12Vout, voltage clamp, hiccup | | 16 | VDC |
| | 15Vout, voltage clamp, hiccup | | 20 | VDC |
| | 24Vout, voltage clamp, hiccup | | 30 | VDC |
| Short circuit protection | Hiccup, Continuous, Auto recovery | | | |
| Switching Frequency | | 65 | | KHz |
| Operating altitude | | | 5000 | m |
| Operating temperature | See derating graph | -40 to +85 | | °C |
| Storage temperature | | -40 to +105 | | °C |
| Reflow soldering temperature | Duration 5 - 10s | 260 | | °C |
| Manual soldering temperature | Duration 3 - 5s | 360 | | °C |
| No-load power consumption | 230VAC | 0.1 | | W |
| Power Derating | +70 °C to +85 °C, 3.3Vout | 2.33 | | %/°C |
| | +70 °C to +85 °C, others | 1.33 | | %/°C |
| | 85VAC to 100VAC | 1.33 | | %/VAC |
| Temperature coefficient | | ±0.02 | | %/°C |
| Cooling | Free air convection | | | |
| Humidity | Non-condensing | | 95 | % RH |
| Case material | Plastic (flammability to UL 94V-0) | | | |
| Weight | PCB mountable models, 15, 24Vout | 18.5 | | g |
| | PCB mountable models, others | 18 | | g |
| | With optional -ST mounting plate | 38 | | g |
| | With optional -STD mounting plate | 58 | | g |
| Dimensions (L x W x H) | PCB mountable models | 1.00 x 1.00 x 0.69 inches (25.40 x 25.40 x 17.60 mm) | | |
| | With optional -ST mounting plate | 2.99 x 1.24 x 1.04 inches (76.00 x 31.50 x 26.40 mm) | | |
| | With optional -STD mounting plate | 2.99 x 1.24 x 1.22 inches (76.00 x 31.50 x 31.00 mm) | | |
| MTBF | > 2 799 000 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 | | |
| Agency Approval | CE EN62368-1; cULus UL62368-1 | |
| Standards | Design to meet IEC/EN62368-1, EN60335-1, EN61558-2-16:2009+A1:2013, EN61558-1:2005 / A1:2009 | |
| | EMC - Conducted and radiated emission | CISPR32 / EN55032, class B (without PE) CISPR32 / EN55032, class B with the recommended EMC circuit 2 (with PE) EN55014-1 |
| | Electrostatic Discharge Immunity | IEC 61000-4-2 Contact ±6KV, Air ±8KV, Criteria B EN55014-2, Criteria B |
| | RF, Electromagnetic Field Immunity | IEC 61000-4-3 10V/m, Criteria A EN55014-2, Criteria A |
| | Electrical Fast Transient/Burst Immunity | IEC 61000-4-4 ±2KV, Criteria B with the typical application circuit IEC 61000-4-4 ±4KV, Criteria B with the recommended EMC circuit 1 IEC 61000-4-4 ±4KV, Criteria A with the recommended EMC circuit 2 EN55014-2, Criteria B |
| | Surge Immunity | IEC 61000-4-5 L-L ±1KV, Criteria B with the typical application circuit IEC 61000-4-5 L-L ±2KV, Criteria B with the recommended EMC circuit 1 IEC 61000-4-5 L-L ±2KV, L-G ±4KV, Criteria A with the recommended EMC circuit 2 |

| | |
|--|---|
| | EN55014-2, Criteria B |
| RF, Conducted Disturbance Immunity | IEC 61000-4-6 10Vr.m.s, Criteria A EN55014-2, Criteria A |
| Voltage dips, Short Interruptions Immunity | IEC 61000-4-11 0%, 70%, Criteria B EN55014-2, Criteria B |

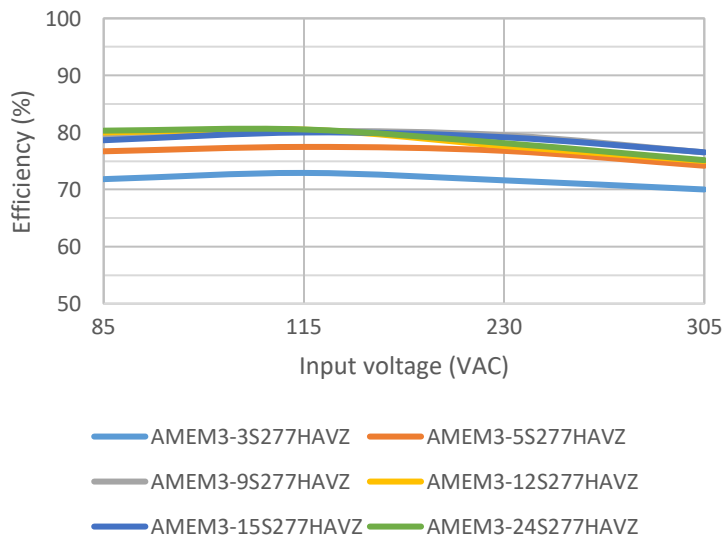
Derating



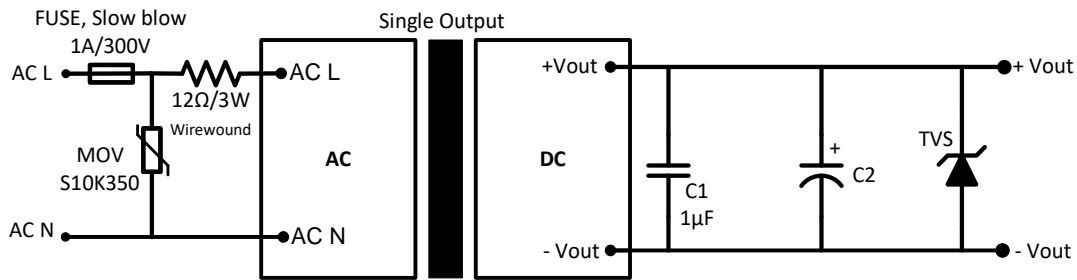
Efficiency vs input voltage



Efficiency vs input voltage (Full load)



Typical Application Circuit

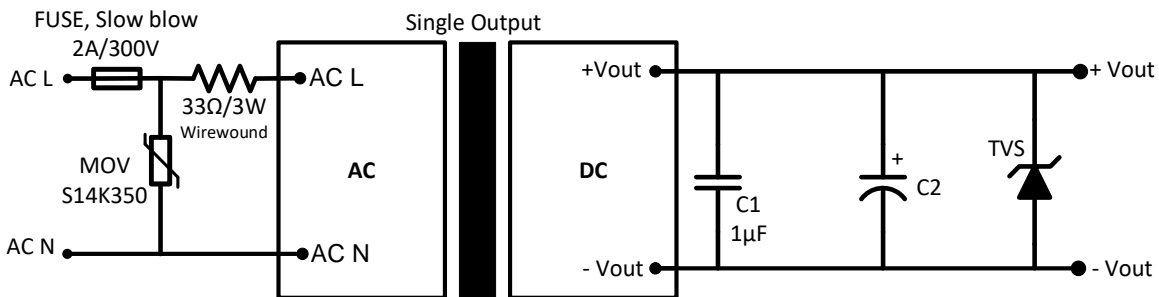


| Model | C2 | TVS |
|------------|-------|-----|
| 3.3, 5Vout | 150μF | 7V |
| 9Vout | 120μF | 12V |
| 12, 15Vout | 120μF | 20V |
| 24Vout | 68μF | 30V |

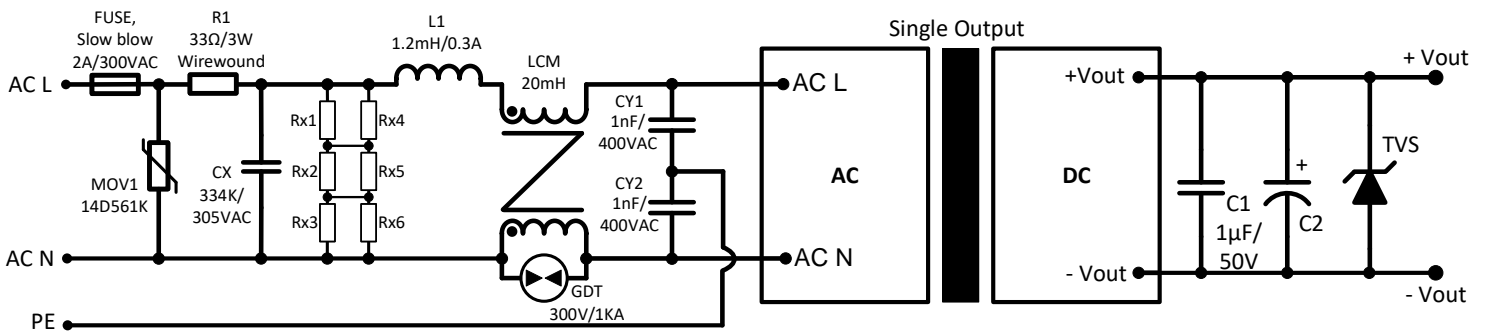
For filtering components:

The input fuse is recommended to use slow blow type. 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

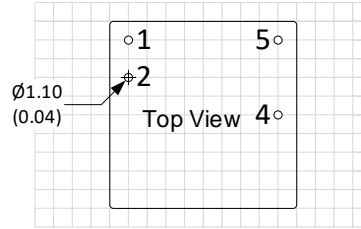
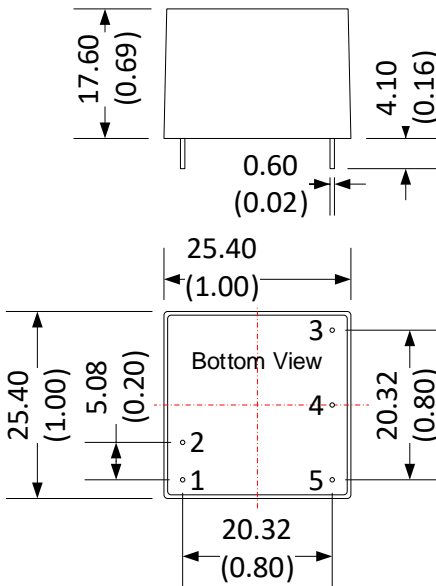


Recommended EMC Circuit 2



Rx1, Rx2, Rx3, Rx4, Rx5, Rx6
1.5MΩ/150VDC

Dimensions

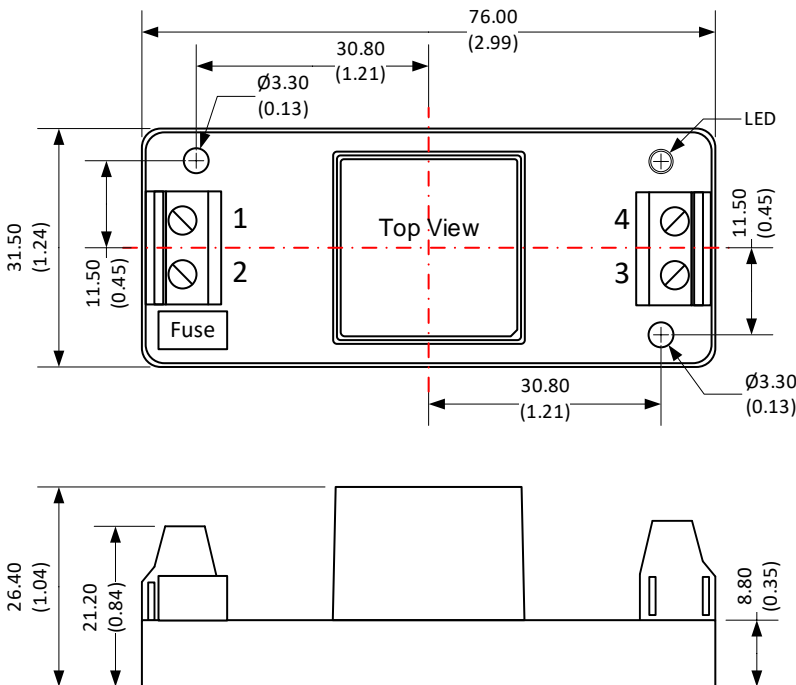


Grid size: 2.54*2.54mm

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

| Pin Output Specifications | |
|---------------------------|--------------|
| Pin | Function |
| 1 | AC Input (N) |
| 2 | AC Input (L) |
| 3 | No Pin |
| 4 | -V Output |
| 5 | +V Output |

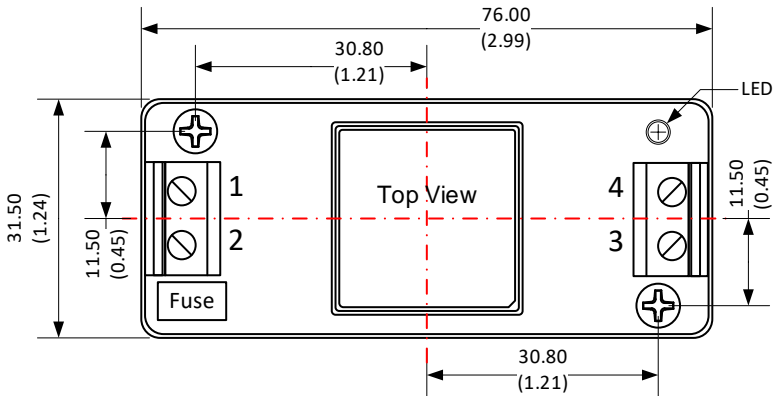
Dimensions with ST Optional



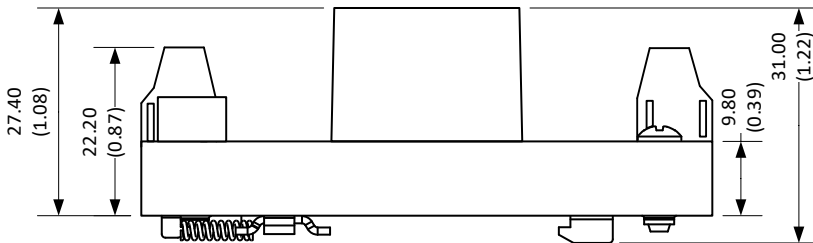
Note:
 Unit: mm(inch)
 Wire range : 24-12 AWG
 Tightening torque : Max 0.4 N.m
 General tolerance ± 1.00 : (± 0.04)

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

Dimensions with STD Optional



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



Note:

Unit: mm(inch)

Wire range : 24-12 AWG

Mounting rail: TS35

Tightening torque : Max 0.4 N.m

General tolerance ± 1.00 : (± 0.04)

Mounting rail must be grounded.

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