chanhvinh.com



Click to ORDER samples

# AMEL10-277HALPZ




Encapsulated

AMEL10-277HALPZ series is an efficient 10W 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 and high reliability.

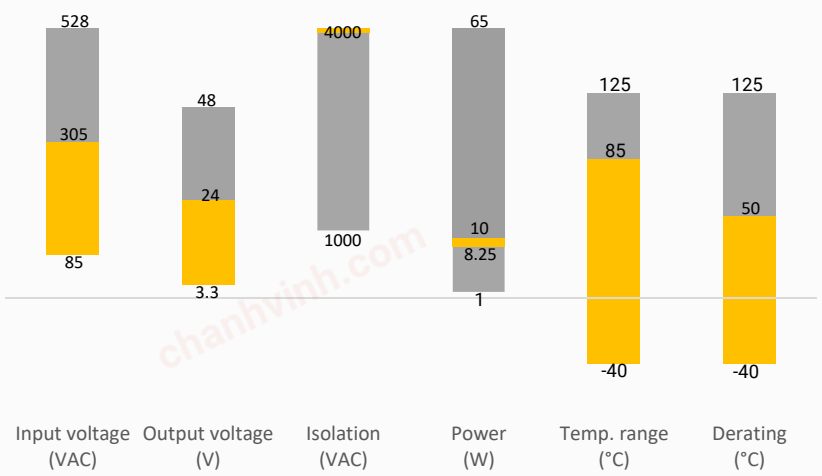
This new series offers great operating temperatures, from -40°C to 85°C with full power from -20°C to 50°C and features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 1,500,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AMEL10-277HALPZ is suitable for grid power, 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, 200mV(p-p), max.
- Output short circuit, over-current, over-voltage protection
- Regulated Output
- Efficiency up to 85%
- Agency approvals: EN/UL62368-1, EN60335-1, EN61558-1
- Designed to meet IEC62368-1

## Summary




## Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

## Applications

Power Grid | Industrial | Telecom | Instrumentation

chanhvinh.com



# 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. (%) |
| AMEL10-3S277HALPZ | 85-305/47-63 | 100-430 | 8.25 | 3.3 | 2.5 | 6600 | 78 |
| AMEL10-5S277HALPZ | 85-305/47-63 | 100-430 | 10 | 5 | 2 | 5000 | 82 |
| AMEL10-9S277HALPZ | 85-305/47-63 | 100-430 | 10 | 9 | 1.1 | 3000 | 84 |
| AMEL10-12S277HALPZ | 85-305/47-63 | 100-430 | 10 | 12 | 0.83 | 2000 | 85 |
| AMEL10-15S277HALPZ | 85-305/47-63 | 100-430 | 10 | 15 | 0.66 | 1500 | 85 |
| AMEL10-24S277HALPZ | 85-305/47-63 | 100-430 | 10 | 24 | 0.41 | 680 | 85 |

| Input Specifications | | | | |
|---|---|---|---|---|
| Parameters | Conditions | Typical | Maximum | Units |
| Input current | 115VAC | | 180 | mA |
| | 230VAC | | 120 | mA |
| Inrush current | 115VAC | 35 | | A |
| | 230VAC | 70 | | A |
| Leakage | 277VAC, 50Hz | | 0.6 | mA RMS |
| Fuse | 2A/300V, Slow blow, built-in | | | |
| Input filter | Built-in EMC filter | | | |

| Output Specifications | | | | |
|---|---|---|---|---|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage accuracy | | ±3 | | % |
| Line regulation | Full load | ±0.5 | | % |
| Load regulation | 0-100% load | ±1 | | % |
| Ripple & Noise* | 20MHz bandwidth | 150 | 200 | mV p-p |
| Hold up time | 115VAC | 10 | | ms |
| | 230VAC | 50 | | ms |
| * Ripple and Noise are measured at 20MHz bandwidth with a 47µF electrolytic capacitor and a 0.1µF 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 ≤ 5mA | 4000 | | VAC |
| Resistance | 500VDC | >100 | | MΩ |

chanhvinh.com



## General Specifications

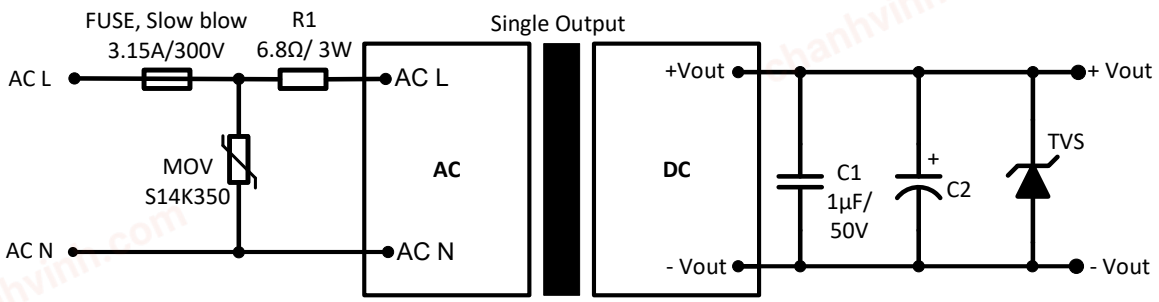
| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Protection class | Class II | | | |
| Overvoltage category | OVC II | | | |
| Over current protection | Auto recovery | ≥ 110 | | % of Iout |
| Over voltage protection | 3.3, 5Vout, voltage clamp, hiccup | | 8.5 | VDC |
| | 9, 12Vout, voltage clamp, hiccup | | 20 | VDC |
| | 15Vout, voltage clamp, hiccup | | 24 | VDC |
| | 24Vout, voltage clamp, hiccup | | 34 | 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 |
| Maximum case temperature | | | 95 | °C |
| No-load power consumption | 230VAC | 0.1 | | W |
| Power Derating | -40 °C to -20 °C | 1.5 | | %/°C |
| | +50 °C to +85 °C | 1.43 | | %/°C |
| | 85VAC to 100VAC | 2 | | %/VAC |
| | 277VAC to 385VAC | 0.71 | | %/VAC |
| | 2000 - 5000m | 6.7 | | %/km |
| Temperature coefficient | | ±0.02 | | %/°C |
| Cooling | Free air convection | | | |
| Humidity | Non-condensing | | 95 | % RH |
| Vibration | 10Hz to 55Hz, 5G, 30 minutes along X, Y and Z axis | | | |
| Case material | Plastic (flammability to UL 94V-0) | | | |
| Weight | | 33 | | g |
| Dimensions (L x W x H) | | 1.80 x 1.00 x 0.85 inches (45.70 x 25.40 x 21.50 mm) | | |
| MTBF | > 1 500 000 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 Approvals | EN/UL62368-1, UKCA, EN60335-1, EN61558-1 | |
| Standards | Designed to meet IEC62368-1 | |
| | EMC - Conducted and radiated emission | CISPR32 / EN55032, class B |
| | Electrostatic Discharge Immunity | IEC/EN61000-4-2 Contact ±6KV, Air ±8KV, Criteria B |
| | RF, Electromagnetic Field Immunity | IEC/EN61000-4-3 10V/m, Criteria A |
| | Electrical Fast Transient/Burst Immunity | IEC/EN61000-4-4 ±2KV, Criteria B<br>±4KV, Criteria B (with the recommended EMC circuit) |
| | Surge Immunity | IEC/EN61000-4-5 L-L ±1KV, Criteria B<br>L-L ±2KV, Criteria B (with the recommended EMC circuit) |
| | RF, Conducted Disturbance Immunity | IEC/EN61000-4-6 10Vr.m.s, Criteria A |
| | Voltage dips, Short Interruptions Immunity | IEC/EN61000-4-11 0%, 70%, Criteria B |

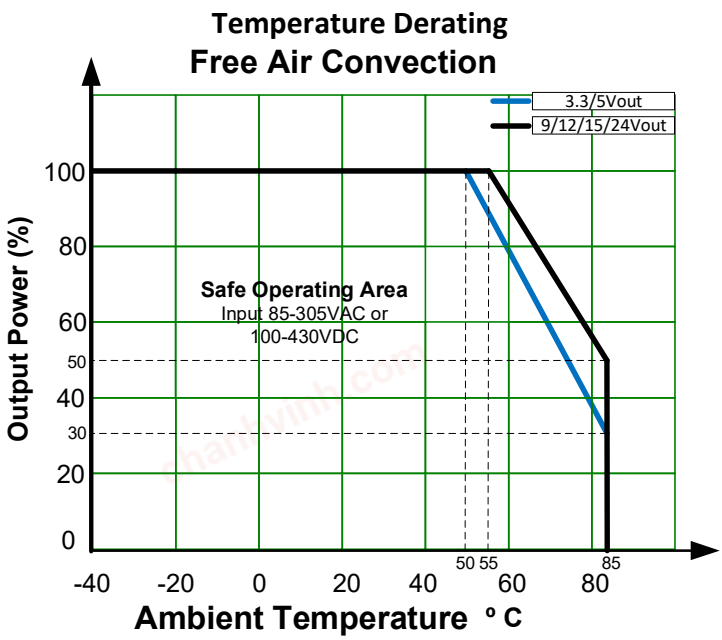
## Recommended EMC Circuit

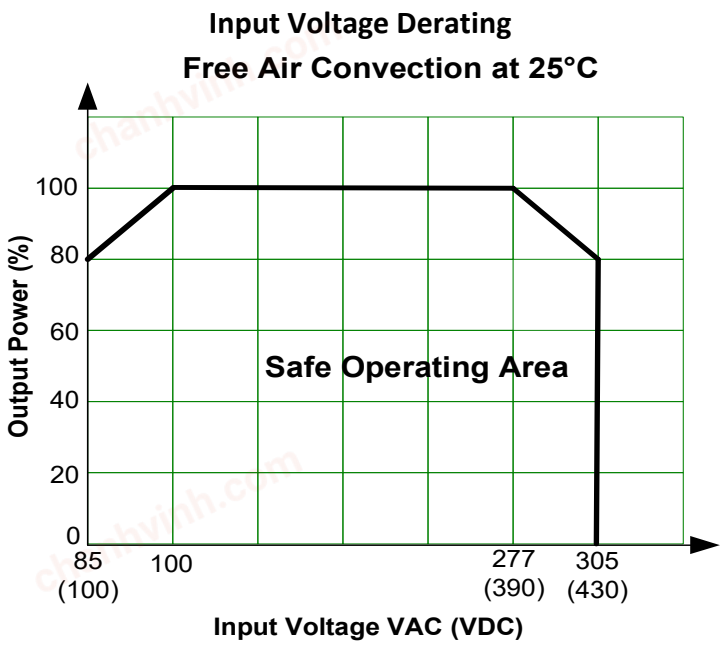



| Model | C2 | TVS |
|---|---|---|
| 3.3, 5Vout | 220μF/35V | 7V |
| 9Vout | 100μF/35V | 12V |
| 12, 15Vout | 100μF/35V | 20V |
| 24Vout | 100μF/35V | 30V |

**For filtering components:**
**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.**

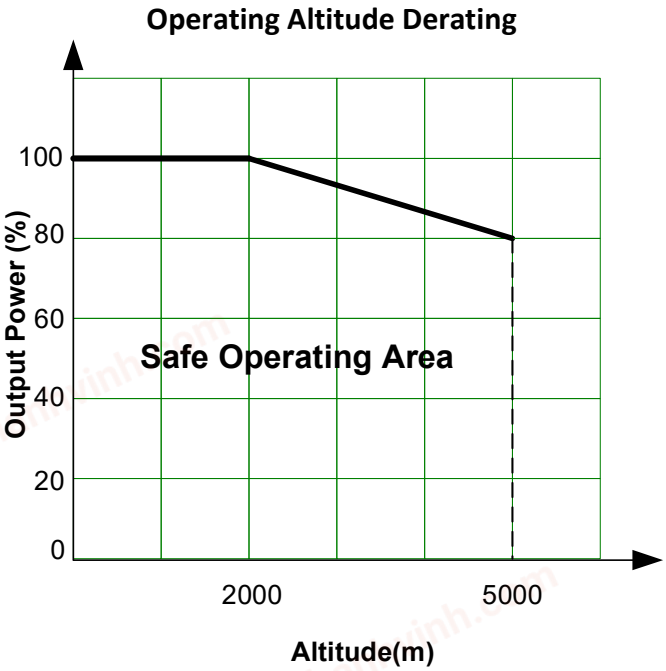
## Derating



chanhvinh.com

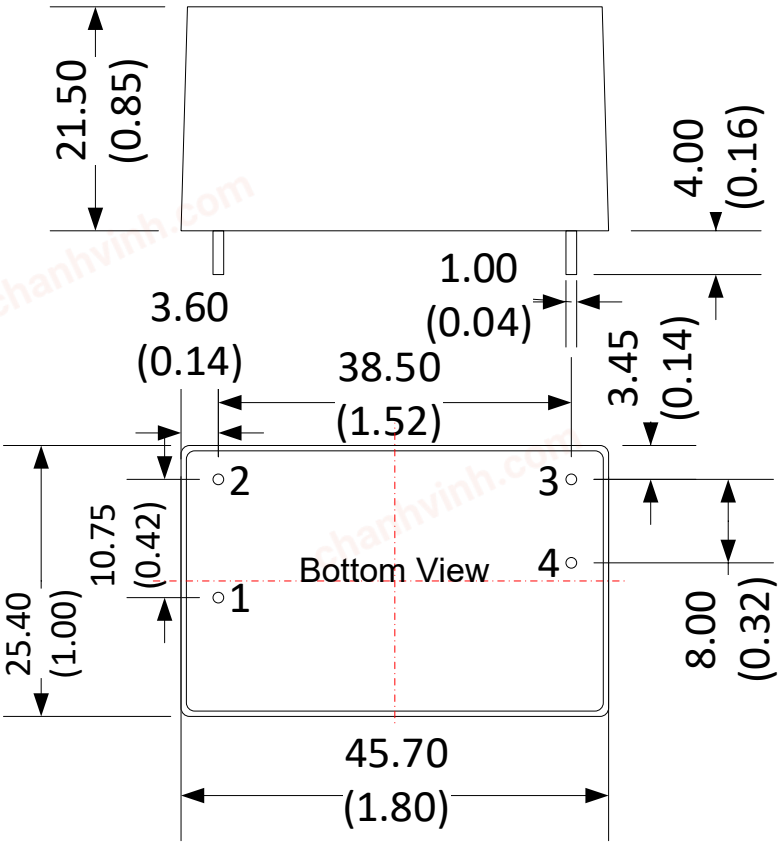


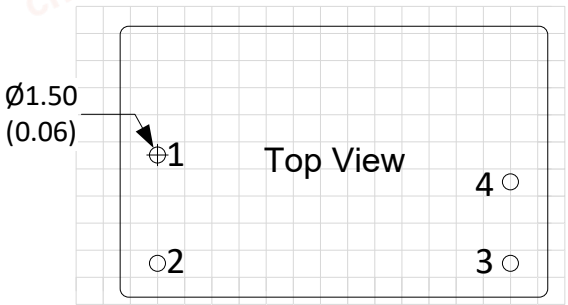


chanhvinh.com



## Dimensions




Grid size: 2.54*2.54mm

Note:
Unit: mm(inch)
General tolerance: ±1.0 (±0.04)
Pin diameter tolerance: ±0.15 (±0.006)

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

**NOTE: 1.** Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. **2.** Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. **3.** Mechanical drawings and specifications are for reference only. **4.** All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. **5.** Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. **6.** This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. **7.** Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.