

## AMEL10-277HAGY

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Encapsulated

AMEL10-277HAGY 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.

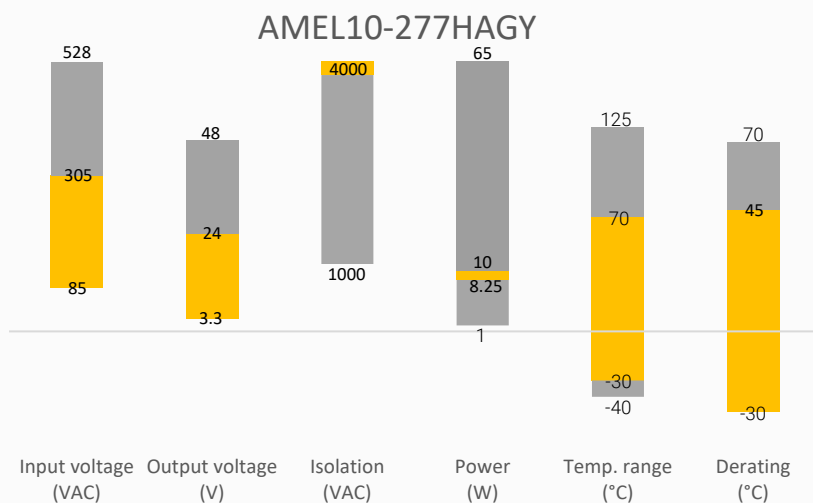
This new series offers great operating temperatures, from -30°C to 70°C with full power up to 45°C and features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 1800,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AMEL10-277HAGY is suitable for grid power, instrumentation, industrial controls, communication, and civil applications.

## Features

- Universal Input: 85 - 305VAC
- Operating Temp: -30 °C to +70 °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 82%
- Designed to meet: IEC/EN/TUV BS EN/UL 62368-1, IEC/EN 60335-1

## Summary



## Training



Product Training Video  
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Press Release

Coming Soon!

Application Notes

## Applications



Power Grid



Industrial



Telecom



Instrumentation

## Models & Specifications

| Single Output     |                        |                        |                    |                        |                              |                        |
|-------------------|------------------------|------------------------|--------------------|------------------------|------------------------------|------------------------|
| Model             | Input Voltage (VAC/Hz) | Max Output wattage (W) | Output Voltage (V) | Output Current max (A) | Maximum capacitive load (μF) | Efficiency Average (%) |
| AMEL10-3S277HAGY  | 85-305/50-60           | 8.25                   | 3.3                | 2.5                    | 6600                         | 74                     |
| AMEL10-5S277HAGY  | 85-305/50-60           | 10                     | 5                  | 2                      | 5000                         | 77                     |
| AMEL10-12S277HAGY | 85-305/50-60           | 10                     | 12                 | 0.84                   | 2000                         | 82                     |
| AMEL10-15S277HAGY | 85-305/50-60           | 10                     | 15                 | 0.67                   | 820                          | 82                     |
| AMEL10-24S277HAGY | 85-305/50-60           | 10                     | 24                 | 0.42                   | 470                          | 82                     |

| Input Specifications |                    |         |         |       |
|----------------------|--------------------|---------|---------|-------|
| Parameters           | Conditions         | Typical | Maximum | Units |
| Input current        | 115VAC             | 250     |         | mA    |
|                      | 230VAC             | 150     |         | mA    |
|                      | 277VAC             | 125     |         | mA    |
| Inrush current       | 115VAC, cold start | 20      |         | A     |
|                      | 230VAC, cold start | 40      |         | A     |
| Leakage current      | 277VAC             |         | 0.25    | mA    |

| Output Specifications |                          |         |         |        |
|-----------------------|--------------------------|---------|---------|--------|
| Parameters            | Conditions               | Typical | Maximum | Units  |
| Voltage accuracy      |                          | ±2      |         | %      |
| Line regulation       | Full load                | ±0.5    |         | %      |
| Load regulation       | 10-100% load             | ±0.5    |         | %      |
| Ripple & Noise*       | 20MHz bandwidth          | 200     |         | mV p-p |
| Start-up time         | 115VAC/230VAC, full load | 1       |         | S      |
| Hold up time          | 115VAC, full load        | 8       |         | ms     |
|                       | 230VAC, full load        | 40      |         | 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     | 4000    | --      | VAC   |
| Resistance              | 500VDC     | >100    | --      | MΩ    |

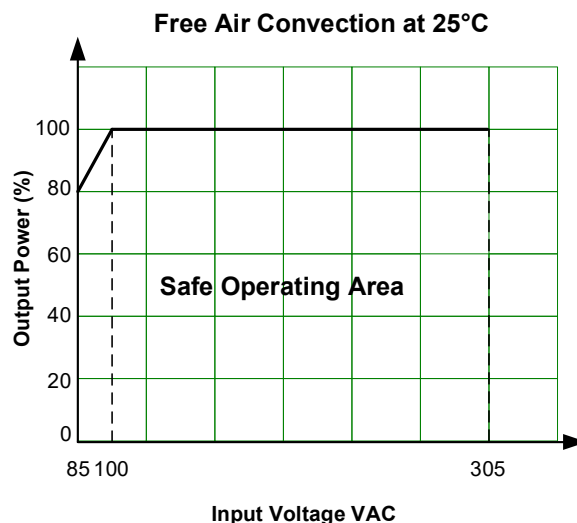
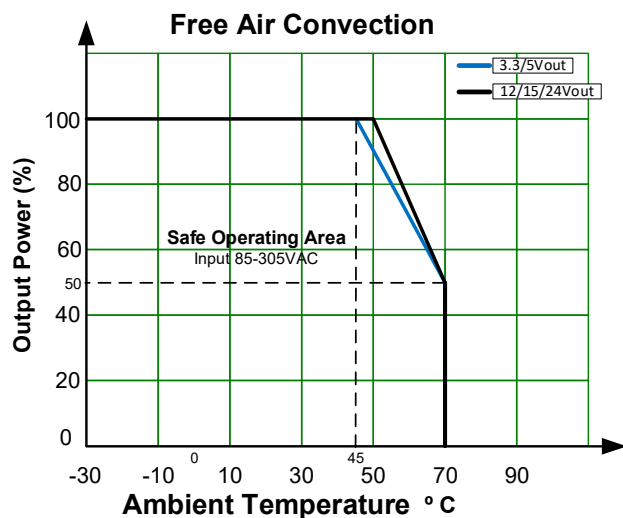
## General Specifications

| Parameters                                                                                                                                                                          | Conditions                                                               | Typical                                              | Maximum | Units     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------|---------|-----------|
| Protection class                                                                                                                                                                    | Class II                                                                 |                                                      |         |           |
| Overvoltage category                                                                                                                                                                | OVC III                                                                  |                                                      |         |           |
| Over current protection                                                                                                                                                             | Hiccup, Auto recovery                                                    | ≥ 115                                                | 190     | % of Iout |
| Over voltage protection                                                                                                                                                             | 3.3Vout, voltage clamp                                                   | 3.8                                                  | 4.95    | VDC       |
|                                                                                                                                                                                     | 5Vout, voltage clamp                                                     | 5.75                                                 | 6.75    | VDC       |
|                                                                                                                                                                                     | 12Vout, voltage clamp                                                    | 13.8                                                 | 16.2    | VDC       |
|                                                                                                                                                                                     | 15Vout, voltage clamp                                                    | 17.25                                                | 20.25   | VDC       |
|                                                                                                                                                                                     | 24Vout, voltage clamp                                                    | 27.6                                                 | 32.4    | VDC       |
| Short circuit protection                                                                                                                                                            | Hiccup, Continuous, Auto recovery                                        |                                                      |         |           |
| Operating temperature                                                                                                                                                               | See derating graph                                                       | -30 to +70                                           |         | °C        |
| Storage temperature                                                                                                                                                                 |                                                                          | -40 to +85                                           |         | °C        |
| No-load power consumption                                                                                                                                                           | 230VAC                                                                   | 0.1                                                  |         | W         |
| Power Derating                                                                                                                                                                      | 85VAC to 100VAC                                                          | 1.33                                                 |         | %/°C      |
|                                                                                                                                                                                     | +45 °C to +70 °C, 3.3/5Vout                                              | 2                                                    |         | %/°C      |
|                                                                                                                                                                                     | +50 °C to +70 °C, 12/15/24Vout                                           | 2.5                                                  |         | %/°C      |
| Temperature coefficient                                                                                                                                                             | 0 °C to 50 °C                                                            | ±0.03                                                |         | %/°C      |
| Vibration                                                                                                                                                                           | 10 ~ 500Hz, 5G 10min. /1cycle, period for 60min. each along X, Y, Z axes |                                                      |         |           |
| Cooling                                                                                                                                                                             | Free air convection                                                      |                                                      |         |           |
| Humidity                                                                                                                                                                            | Non-condensing                                                           | 20                                                   | 90      | % RH      |
| Case material                                                                                                                                                                       | Plastic (flammability to UL 94V-0)                                       |                                                      |         |           |
| Weight                                                                                                                                                                              |                                                                          | 65                                                   |         | g         |
| Dimensions (L x W x H)                                                                                                                                                              |                                                                          | 2.07 x 1.08 x 0.91 inches (52.50 x 27.40 x 23.00 mm) |         |           |
| MTBF                                                                                                                                                                                | > 1 800 000 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. |                                                                          |                                                      |         |           |

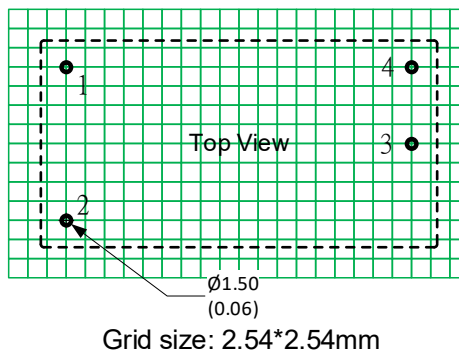
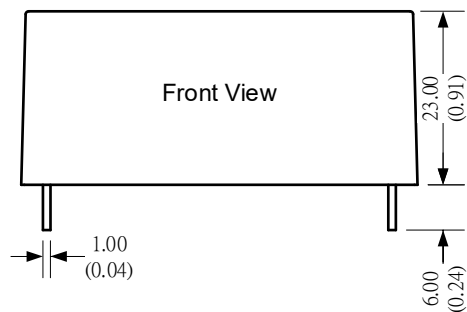
## Safety Specifications

| Parameters |                                                          |                                                                                         |
|------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Standards  | Design to meet IEC/EN/TUV BS EN/UL62368-1, IEC/EN60335-1 |                                                                                         |
|            | EMC - Conducted and radiated emission                    | CISPR32 / EN55032, class B<br>CNS 13438, class B<br>EN61000-3-2, class A<br>EN61000-3-3 |
|            | Electrostatic Discharge Immunity                         | IEC/EN/BS EN 61000-4-2 Level 3, Criteria A                                              |
|            | RF, Electromagnetic Field Immunity                       | IEC/EN/BS EN 61000-4-3 Level 3, Criteria A                                              |
|            | Electrical Fast Transient/Burst Immunity                 | IEC/EN/BS EN 61000-4-4 Level 3, Criteria A                                              |
|            | Surge Immunity                                           | IEC/EN/BS EN 61000-4-5 Level 3, Criteria A                                              |
|            | RF, Conducted Disturbance Immunity                       | IEC/EN/BS EN 61000-4-6 Level 3, Criteria A                                              |
|            | PFM, power-frequency magnetic field immunity             | IEC/EN/BS EN 61000-4-8 Level 4, Criteria A                                              |
|            | Voltage dips, Short Interruptions Immunity               | IEC/EN/BS EN 61000-4-11                                                                 |

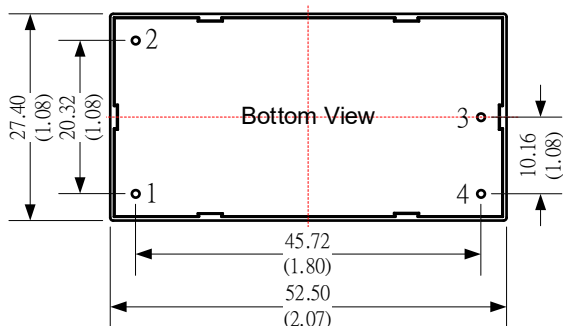
## Derating



## Dimensions



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



Note:  
Unit: mm(inch)  
Pin diameter tolerance:  $\pm 0.25$  ( $\pm 0.001$ )  
Pin distance tolerance:  $\pm 0.25$  ( $\pm 0.001$ )  
General tolerance:  $\pm 0.5$  ( $\pm 0.02$ )

**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](http://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](http://www.aimtec.com).