



AMEL15-277UNZ

Picture coming soon

Encapsulated

The AMEL15-277UNZ series is an AC-DC power supply module that can operate with either a commercial input voltage range of 85-305VAC or an AC voltage of 24V which is a standard in HVAC systems. With an output voltage of 12V, low power consumption, high efficiency, high reliability, and safer isolation the AMEL15-277UNZ can be a great addition to a variety of industrial and commercial applications.

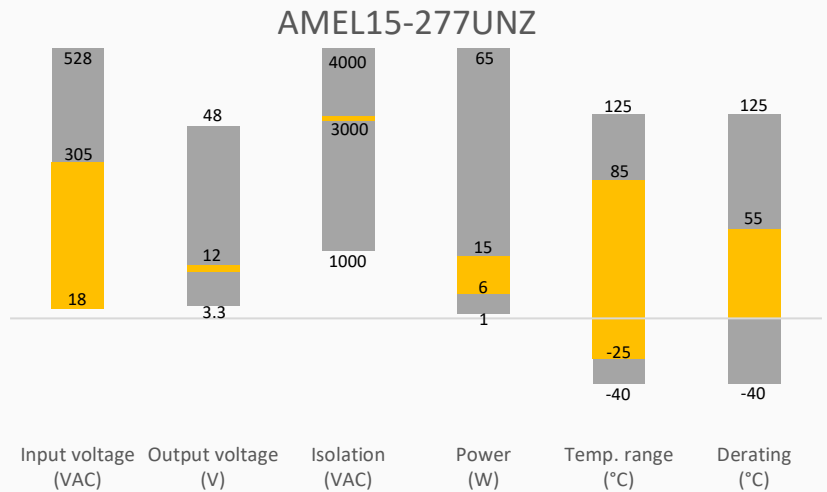
This series offers great operating temperatures, from -40°C to 85°C with full power up to 55°C and features an isolation of 3000VAC for improved reliability and system safety. Furthermore, a high MTBF of 300,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AMEL15-277UNZ is suitable for grid power, LED, instrumentation, industrial controls, HVAC, communication, and civil applications.

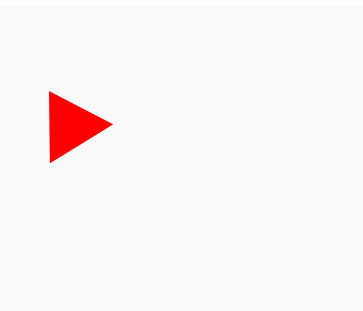
Features

- Universal Input: 85 - 305VAC/100 - 430VDC
- Low voltage input: 18 - 30VAC/18 - 42VDC
- Operating Temp: -25 °C to +85 °C
- High isolation voltage: 3000VAC
- Low ripple & noise, 220mV(p-p), max.
- Output short circuit, over-current, over-voltage protection
- Low no-load power consumption of 0.1W
- Efficiency up to 80%
- Design to meet IEC/EN/UL62368

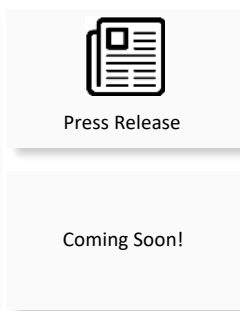
Summary



Training



Product Training Video
(click to open)



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 Typ. (%)
AMEL15-12S277UNZ	18-30/47-63	18-42	6	12	0.5	220	-
	85-305/47-63	100-430	15	12	1.25	2200	80

Note: The AMEL15-12S277UNZ is designed to provide an output of 30W for 30s in every 10min cycle when the ambient temperature is within -25°C to 55°C and the input is within 165VAC to 305VAC.

Input Specifications				
Parameters	Conditions	Typical	Maximum	Units
Input current	230VAC		300	mA
Inrush current	230VAC	50		A
Leakage	277VAC, 50Hz		0.5	mA RMS
Fuse	2A/300V, Slow blow			

Output Specifications				
Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		± 1		%
Line regulation	Full load	± 1		%
Load regulation	0-100% load	± 1		%
Ripple & Noise*	18VAC to 30VAC input		220	mV p-p
	18VDC to 42VDC, 85VAC to 305VAC input		120	mV p-p
Hold uptime	230VAC	30		ms
Start-up delay		300		ms

* Ripple and Noise are measured at 20MHz bandwidth. 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	3000		VAC
Resistance	500VDC	>50		M Ω

General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Protection class	Class II			
Over current protection	Auto recovery	≥ 105		% of Iout
Over voltage protection			16	VDC
Short circuit protection	Hiccup, Continuous, Auto recovery			
Operating temperature	See derating graph	-25 to +85		°C

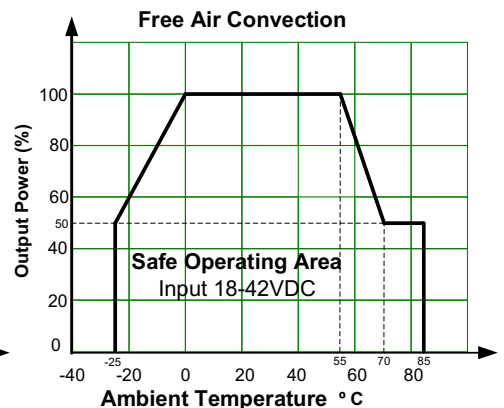
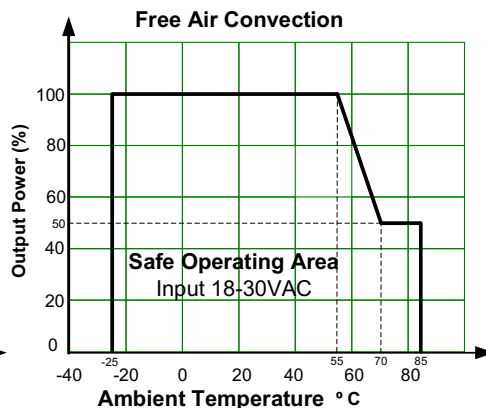
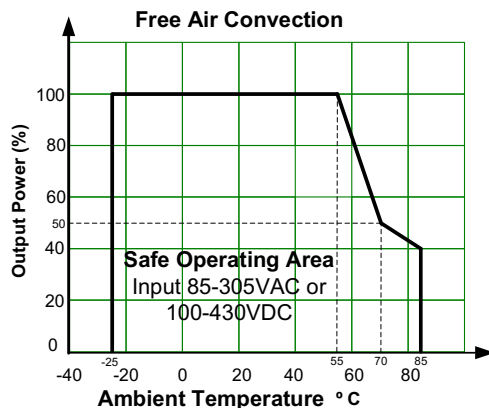
Storage temperature		-40 to +105		°C
Reflow soldering temperature	Duration 5 - 10s	260		°C
Manual soldering temperature	Duration 3 - 5s	360		°C
No-load power consumption	230VAC	0.1		W
Power Derating	-25 °C to 0 °C, 18VDC to 42VDC	3.33		%/°C
	+55 °C to +70 °C, 85VAC to 305VAC	0.67		%/°C
	+55 °C to +70 °C, 18VDC to 42VDC	2		%/°C
	+55 °C to +70 °C, 18VAC to 30VAC	3.33		%/°C
	+70 °C to +85 °C, 85VAC to 305VAC	3.33		%/°C
		18VAC to 30VAC	3.33	
	18VDC to 27VDC	6.67		%/VDC
Temperature coefficient		±0.02		%/°C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	Plastic (flammability to UL 94V-0)			
Weight		55		g
Dimensions (L x W x H)	2.06 x 1.07 x 0.94 inches (52.40 x 27.20 x 24.00 mm)			
MTBF	> 300 000 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

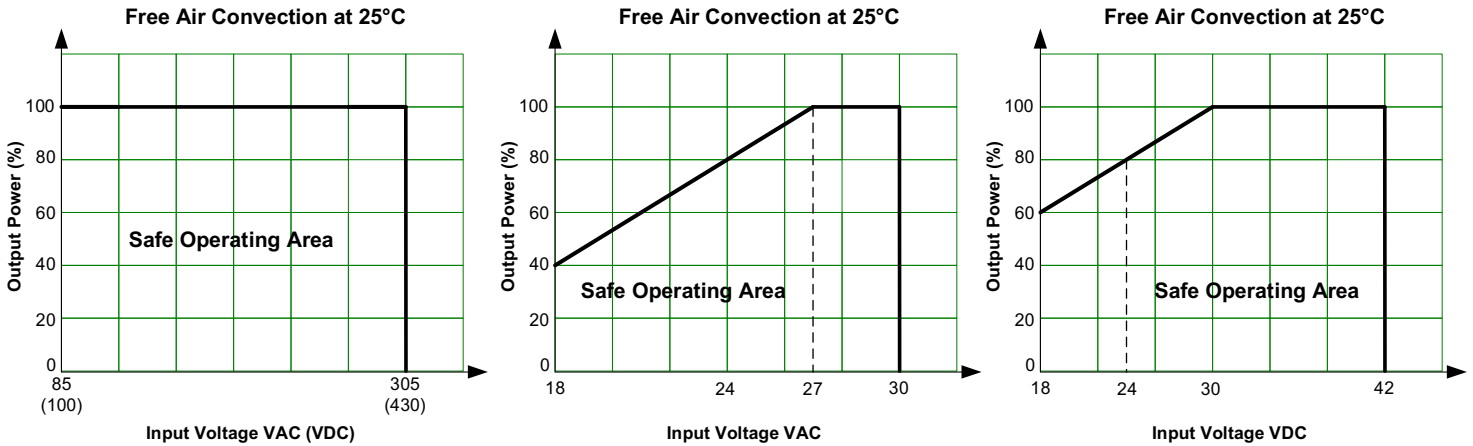
Parameters

Standards	Design to meet IEC/EN/UL62368	
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B with the recommended EMC circuit 1/2
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±6KV, Air ±8KV, Criteria B with the recommended EMC circuit 1/2
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 10V/m, Criteria A with the recommended EMC circuit 1/2
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 ±2KV, Criteria B with the recommended EMC circuit 1 IEC 61000-4-4 ±4KV, Criteria B with the recommended EMC circuit 2
	Surge Immunity	IEC 61000-4-5 L-L ±1KV, Criteria B with the recommended EMC circuit 1 IEC 61000-4-5 L-L ±2KV, Criteria B with the recommended EMC circuit 2
	RF, Conducted Disturbance Immunity	IEC 61000-4-6 10Vr.m.s, Criteria A with the recommended EMC circuit 1/2
	Voltage dips, Short Interruptions Immunity	IEC 61000-4-11 0%, 70%, Criteria B with the recommended EMC circuit 1/2

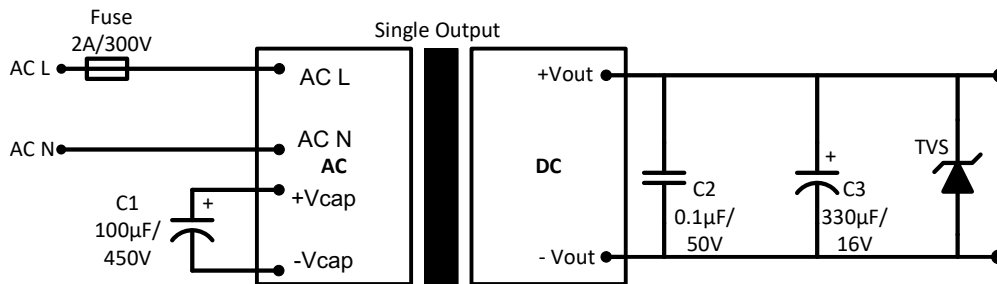
Derating



Preliminary



Recommended EMC Circuit 1

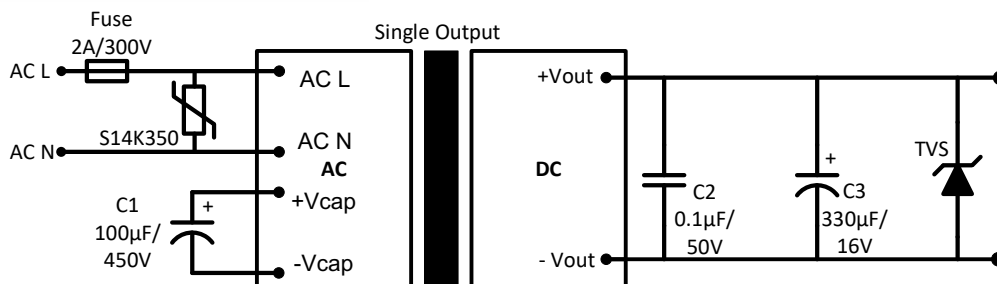


Recommended filtering components suggestions:

Choose capacitors with at least 20% voltage margin. The C3 capacitor is recommended as an electrolytic type with high frequency and low ESR rating. The C2 capacitor is recommended to be ceramic for filtering high-frequency noise.

It is required to connect a capacitor with at least 100µF capacitance at C1 location when the input is within 18VAC to 30VAC.

Recommended EMC Circuit 2

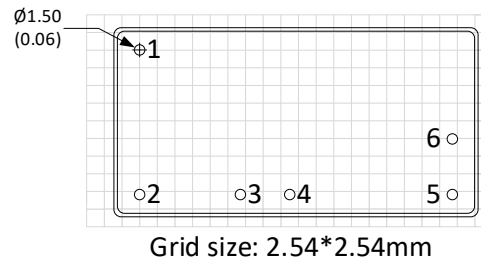
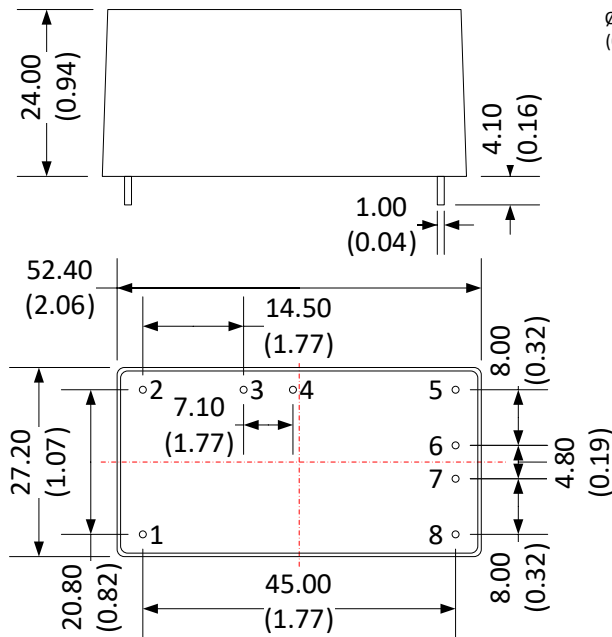


For filtering components:

Choose capacitors with at least 20% voltage margin. The C3 capacitor is recommended as an electrolytic type with high frequency and low ESR rating. The C2 capacitor is recommended to be ceramic for filtering high-frequency noise.

It is required to connect a capacitor with at least 100µF capacitance at C1 location when the input is within 18VAC to 30VAC.

Dimensions



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 (L)
2	AC Input (N)
3	+Vcap
4	-Vcap
5	-V Output
6	+V Output
7	No Pin
8	No Pin

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.