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AMEL15-277HAVZ



Encapsulated

The AMEL15-277HAVZ series is an efficient 15W AC-DC power supply module that offers 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 series has great operating temperatures, from -40°C to 85°C with full power up to 50°C and features an isolation of 4000VAC with OVC III 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.

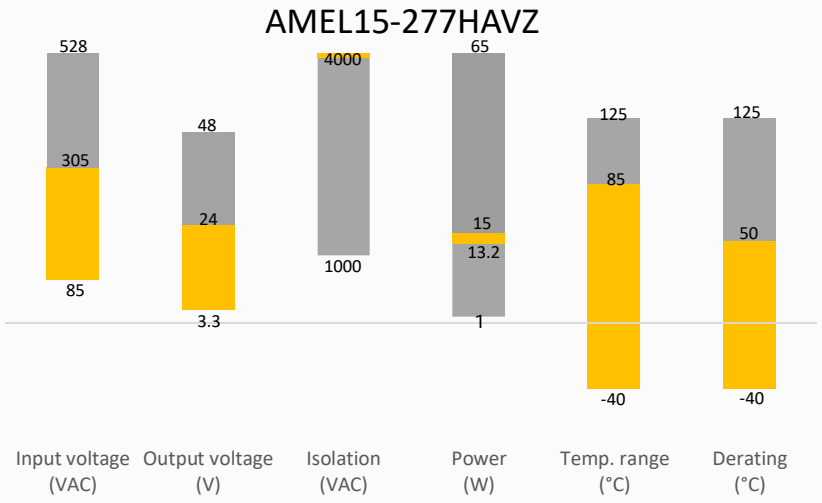
The AMEL15-277HAVZ is suitable for grid power, instrumentation, industrial controls, communication, civil, and medical applications.

Features

- Universal Input: 85 - 305VAC/100 - 430VDC
- 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
- Low no-load power consumption of 0.1W
- Designed to meet: UL62368-1 IEC/EN62368, EN60335, EN61558

RoHS · 3yr Warranty · CE · UKCA

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. (%)
AMEL15-3S277HAVZ	85-305/47-63	100-430	13.2	3.3	4	6600	79
AMEL15-5S277HAVZ	85-305/47-63	100-430	15	5	3	5000	80
AMEL15-9S277HAVZ	85-305/47-63	100-430	15	9	1.67	3000	83
AMEL15-12S277HAVZ	85-305/47-63	100-430	15	12	1.25	2000	84
AMEL15-15S277HAVZ	85-305/47-63	100-430	15	15	1	1000	85
AMEL15-18S277HAVZ	85-305/47-63	100-430	15	18	0.834	1000	85
AMEL15-24S277HAVZ	85-305/47-63	100-430	15	24	0.625	680	86

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-rail mounting (ex. AMEL15-3S277HAVZ-ST is chassis mounting version and AMEL15-3S277HAVZ-STD is DIN-rail mounting version). Models with chassis mounting or DIN-rail mounting have their efficiency reduced by 2%.

Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC		450	mA
	230VAC		300	mA
Inrush current	115VAC	30		A
	230VAC	60		A
Leakage	277VAC, 50Hz		0.1	mA RMS
Recommended External Fuse	2A/300V, Slow blow, *required*			

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±2		%
Line regulation	Full load	±0.5		%
Load regulation	0-100% load	±1		%
Ripple & Noise*	20MHz bandwidth	80	150	mV p-p
Start-up time		1		S
Hold up time	115VAC	10		ms
	230VAC	55		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

General Specifications

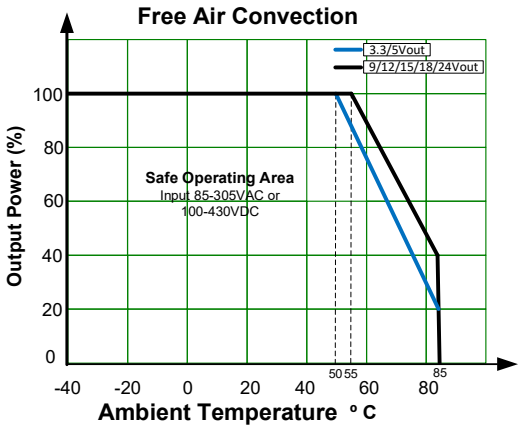
Parameters	Conditions	Typical	Maximum	Units
Protection class	Class II			
Overvoltage category	OVC III			
Over current protection	Auto recovery	≥ 110		% of Iout
Over voltage protection	3.3, 5Vout, voltage clamp, hiccup		7.5	VDC
	9Vout, voltage clamp, hiccup		15	VDC
	12, 15Vout, voltage clamp, hiccup		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
Soldering temperature	5 seconds	260		°C
No-load power consumption			0.1	W
Power Derating	+50 °C to +85 °C, 3.3/5Vout	2.29		%/°C
	+55 °C to +85 °C, 9/12/15/24Vout	2		%/°C
	85VAC to 100VAC	1.33		%/VAC
	277VAC to 305VAC	0.71		%/VAC
	2000 - 5000m	6.7		%/km
Temperature coefficient		±0.02		%/°C
Cooling	Free air convection			
Humidity	Non-condensing	≥10	95	% RH
Vibration	10Hz to 55Hz, 5G, 30 minutes along X, Y and Z axis			
Case material	Plastic (flammability to UL 94V-0)			
Weight	PCB mountable models	40		g
	With optional -ST mounting plate	60		g
	With optional -STD mounting plate	80		g
Dimensions (L x W x H)	PCB mountable models	1.80 x 1.00 x 0.85 inches (45.70 x 25.40 x 21.50 mm)		
	With optional -ST mounting plate	2.99 x 1.24 x 1.19 inches (76.00 x 31.50 x 30.30 mm)		
	With optional -STD mounting plate	2.99 x 1.24 x 1.37 inches (76.00 x 31.50 x 34.90 mm)		
MTBF	> 1 500 000 hrs (MIL-HDBK -217F, t=+25°C)			

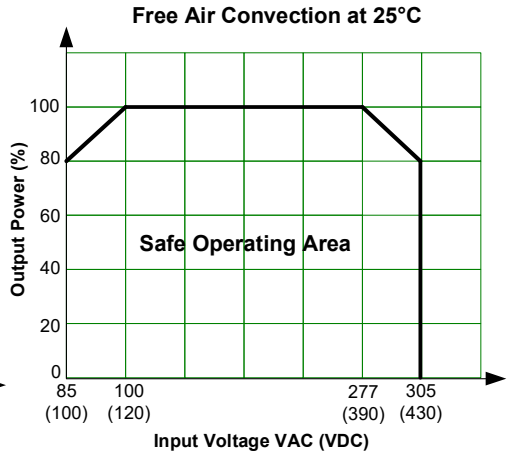
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

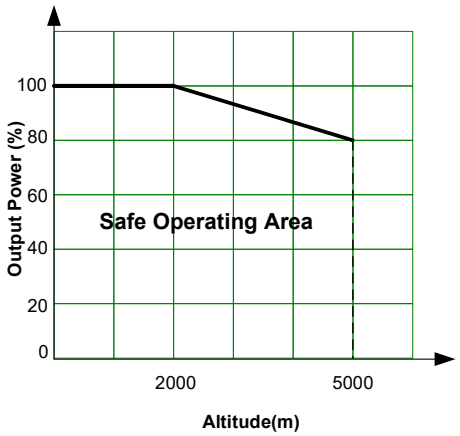
Safety Specifications

Parameters		
Agency Approvals	EN 62368-1, UKCA, EN 60335-1, EN 61558-1	
Standards	Designed to meet IEC/UL 62368-1	
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B
	Electrostatic Discharge Immunity	IEC/EN61000-4-2 Contact ±8KV, Air ±15KV, 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 ±4KV, Criteria B (with the recommended EMC circuit)
	Surge Immunity	IEC/EN61000-4-5 L-L ±1KV, Criteria B 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

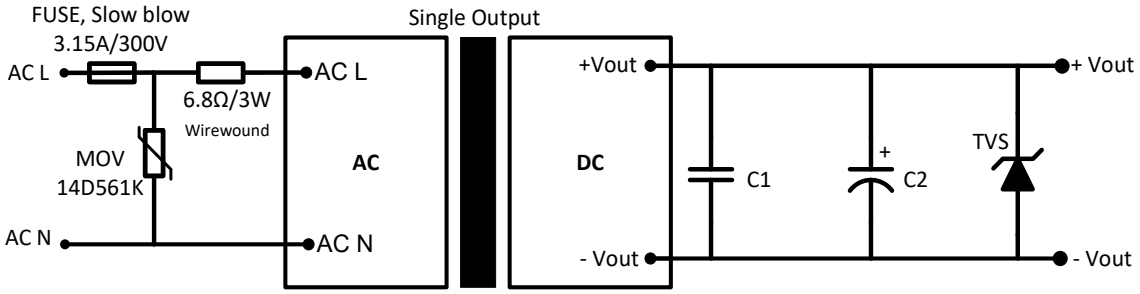
Derating







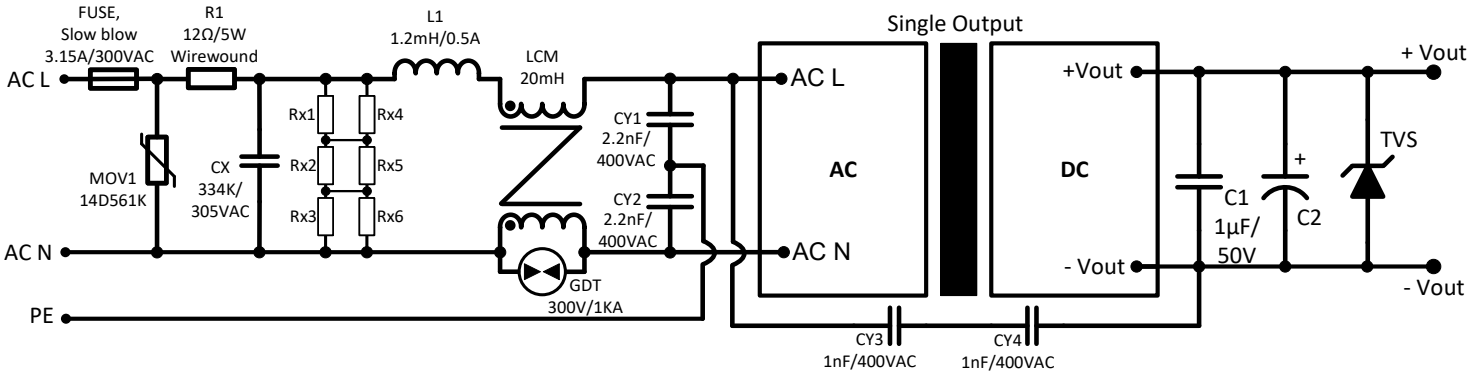
Typical Application Circuit



Model	C1	C2	TVS
3.3, 5Vout	1μF/16V	220μF/16V	SMBJ7.0A
9, 12, 15Vout	1μF/25V	100μF/25V	SMBJ12A
18, 24Vout	1μF/35V	100μF/35V	SMBJ20A

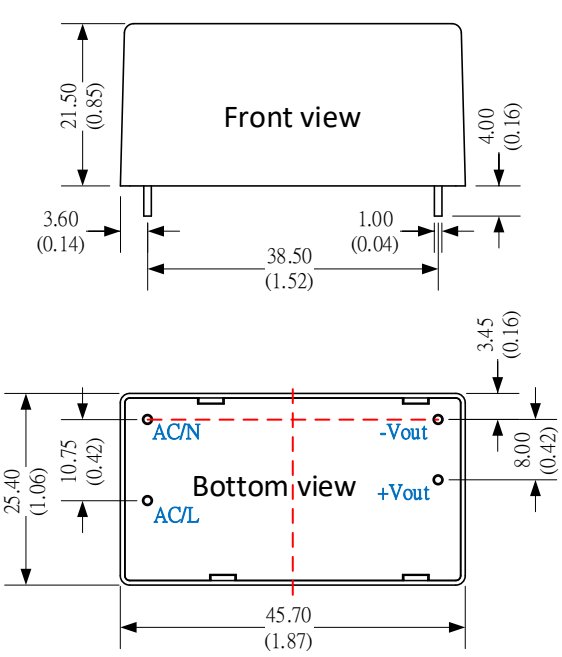
For filtering components:
Choose capacitors with at least 20% voltage margin.
The C2 capacitor is recommended to use electrolytic type with high frequency and low ESR rating.
The C1 capacitor is recommended to use ceramic type for filtering high-frequency noise.

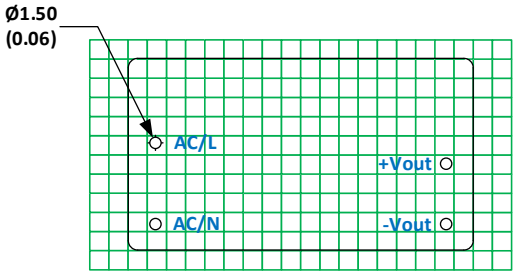
Recommended EMC Circuit



Rx1, Rx2, Rx3, Rx4, Rx5, Rx6
1.5MΩ/150VDC/1206

Dimensions

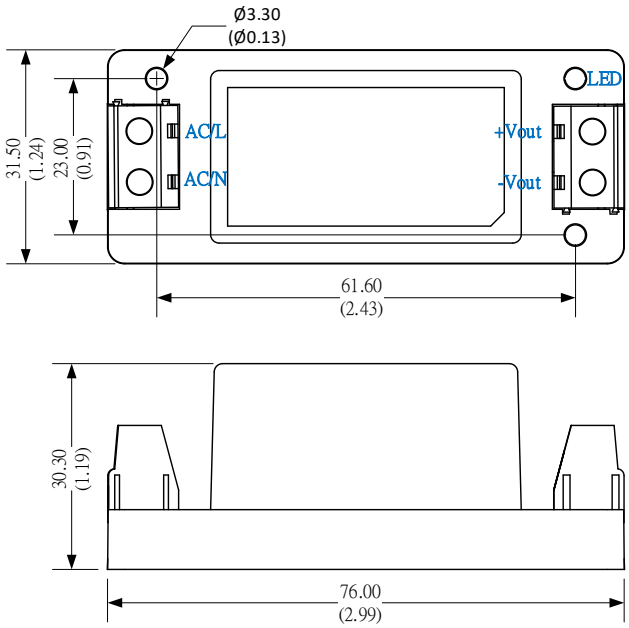




Footprint grid size: 2.54*2.54mm

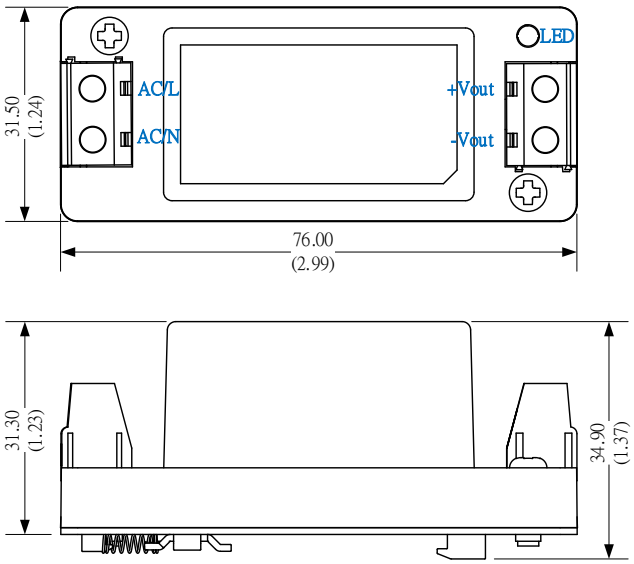
Note:
Unit: mm(inch)
General tolerance: ±1.00 (±0.04)
Pin diameter tolerance: ±0.15 (±0.006)
Pin distance tolerance: ±0.50 (±0.02)

Dimensions with ST Optional



Unit: mm(inch)
General tolerance: ±1.00(±0.04)
Tightening torque: 0.4 Nm Max.
Wire gauge : 12~24 AWG

Dimensions with STD Optional



Unit: mm(inch)
General tolerance: ±1.00(±0.04)
Tightening torque: 0.4 Nm Max.
Wire gauge : 12~24 AWG

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