



AMEM5-277HAVZ



Encapsulated

The AMEM5-277HAVZ series is an efficient 5W 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.

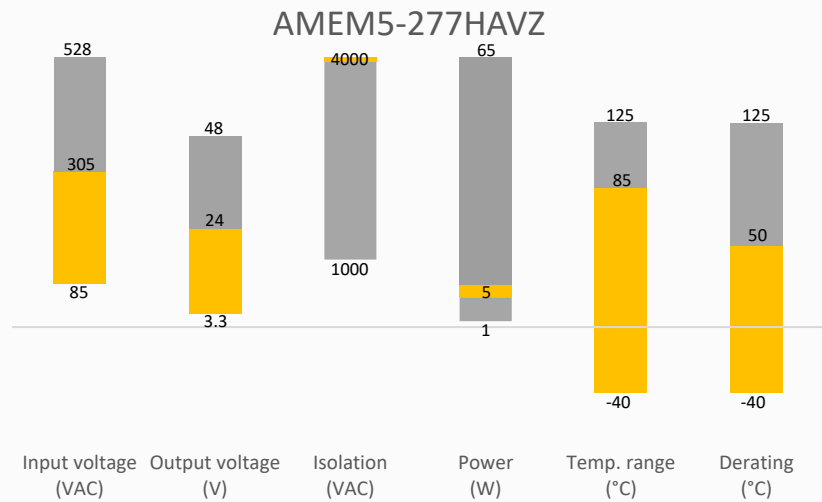
This new series offers great operating temperatures, from -40°C to 85°C with full power up to 50°C and features an isolation of 4000VAC for improved reliability and system safety. Furthermore, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection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

The AMEM5-277HAVZ 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%
- Agency approvals: IEC/EN62368, EN60335, EN61558
- Designed to meet: UL62368-1

Summary



Training



Product Training Video  
(click to open)



Press Release

Coming Soon!

Application Notes

Applications



Telecom



Power Grid



Industrial



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 ( $\mu$ F)	Efficiency @ 230VAC Typ. (%)
AMEM5-3S277HAVZ	85-305/47-63	100-430	5	3.3	1.5	4000	72
AMEM5-5S277HAVZ	85-305/47-63	100-430	5	5	1	3000	78
AMEM5-9S277HAVZ	85-305/47-63	100-430	5	9	0.555	1200	81
AMEM5-12S277HAVZ	85-305/47-63	100-430	5	12	0.416	1200	81
AMEM5-15S277HAVZ	85-305/47-63	100-430	5	15	0.333	680	82
AMEM5-24S277HAVZ	85-305/47-63	100-430	5	24	0.208	220	82

### Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC		120	mA
	230VAC		70	mA
Inrush current	115VAC	15		A
	230VAC	25		A
Leakage	277VAC, 50Hz		0.25	mA RMS
Fuse	1A, 300V, 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
Hold up time	115VAC	5		ms
	230VAC	50		ms

\* Ripple and Noise are measured at 20MHz bandwidth with a 10 $\mu$ F electrolytic capacitor and a 1 $\mu$ 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 $\leq 5$ mA	4000		VAC
Resistance I/O	500VDC, 25°C, 70%RH	100		M $\Omega$

### General Specifications

Parameters	Conditions	Typical	Maximum	Units
Protection class	Class II			
Over current protection	Auto recovery	$\geq 130$		% of Iout
Over voltage protection	3.3Vout, 5Vout, 9Vout, 12Vout, voltage clamp, hiccup		16	VDC
	15Vout, voltage clamp, hiccup		20	VDC
	24Vout, voltage clamp, hiccup		30	VDC

Preliminary

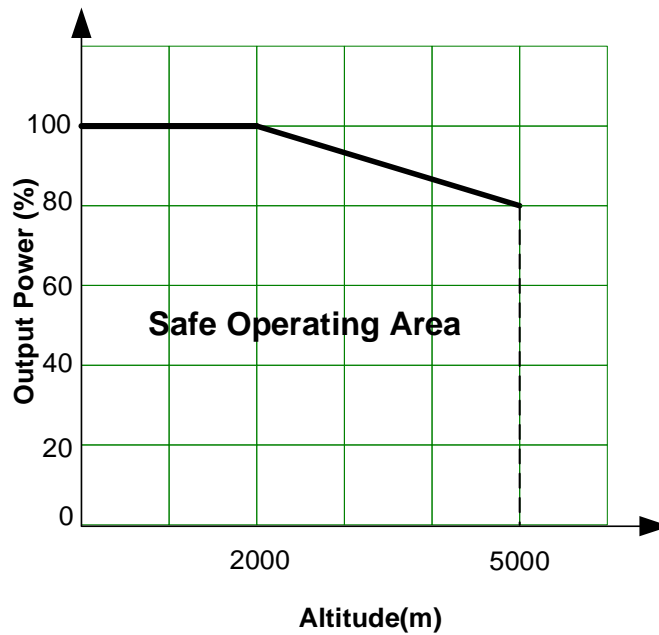
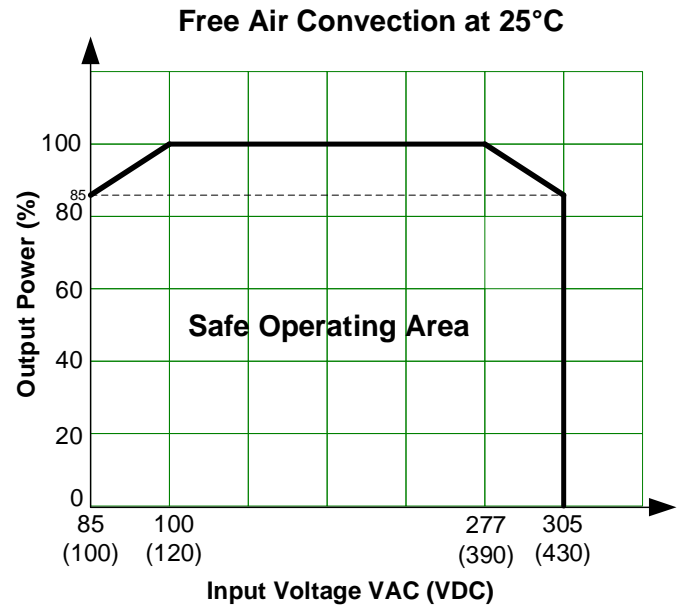
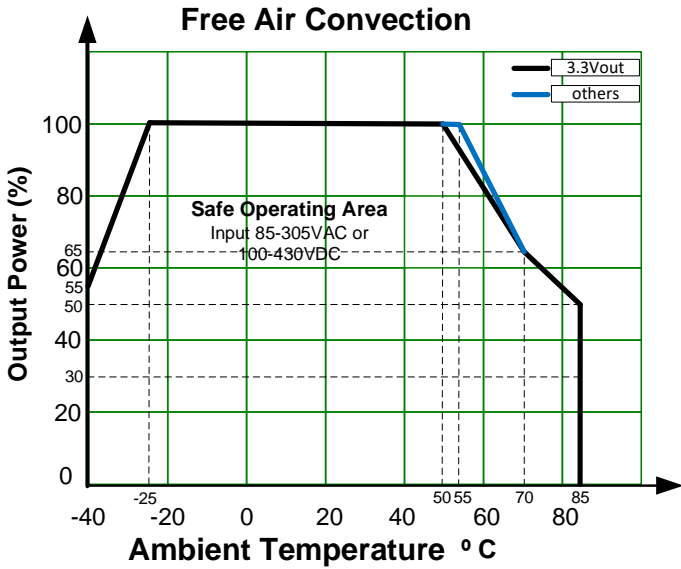
Short circuit protection	Hiccup, Continuous, Auto recovery			
Switching Frequency		65		KHz
Operating altitude			5000	m
Operating temperature	See derating graph	-40 to +85		°C
Storage temperature		-40 to +105		°C
Reflow soldering temperature	Duration 5 - 10s	260		°C
Manual soldering temperature	Duration 3 - 5s	360		°C
No-load power consumption	230VAC	0.1		W
Power Derating	-40 °C to -25 °C	3		%/°C
	+50 °C to +70 °C, 3.3Vout	1.75		%/°C
	+50 °C to +70 °C, others	2.33		%/°C
	+70 °C to +85 °C, others	1		%/°C
	85VAC to 100VAC	1.0		%/VAC
	277VAC to 305VAC	0.54		%/VAC
Temperature coefficient	2000m - 5000m	±0.02		%/°C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	Plastic (flammability to UL 94V-0)			
Weight		16		g
Dimensions (L x W x H)	1.00 x 1.00 x 0.59 inches (25.40 x 25.40 x 15 mm)			
MTBF	> 2 620 000 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**

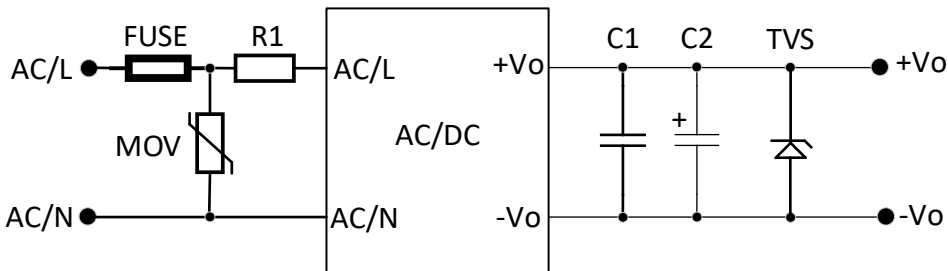
**Parameters**

Agency Approvals	IEC/EN62368, EN60335, EN61558		
Standards	Designed to meet UL62368		
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B with no external component	
	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 EN55014-2, Criteria B	
	Surge Immunity	IEC 61000-4-5 line- line ±1KV, Criteria B with the typical application circuit IEC 61000-4-5 line- line ±2KV, Criteria B with the recommended EMC circuit EN55014-2, Criteria B	
	RF, Conducted Disturbance Immunity	IEC 61000-4-6 10Vr.m.s, Criteria A EN55014-2, Criteria A	
	Voltage dips, Shorts Interruptions Immunity	IEC 61000-4-11 Criteria B 0% UT for 0.5per 40% U T*for 10/12 per 70% UT for 25/30 per EN55014-2, Criteria B	

Derating



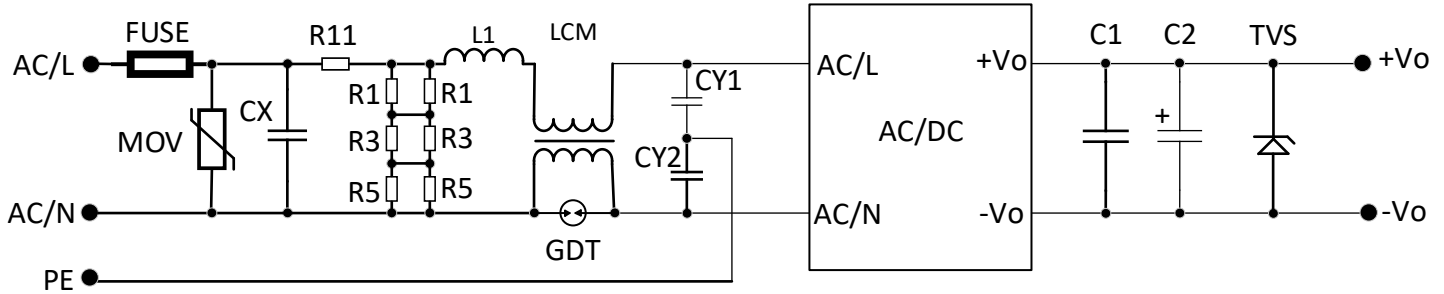
Typical Application Circuit



Model	FUSE	MOV	R1	C1	C2	TVS
3.3, 5Vout	1A, 300V	10D681K	12 Ohm, 3W	1μF, 50V	150μF, 16V	SMBJ7.0A
9Vout	1A, 300V	10D681K	12 Ohm, 3W	1μF, 50V	120μF, 35V	SMBJ12A
12, 15Vout	1A, 300V	10D681K	12 Ohm, 3W	1μF, 50V	120μF, 35V	SMBJ20A
24Vout	1A, 300V	10D681K	12 Ohm, 3W	1μF, 50V	68μF, 35V	SMBJ30A

Table 1

## Recommended Application Circuit

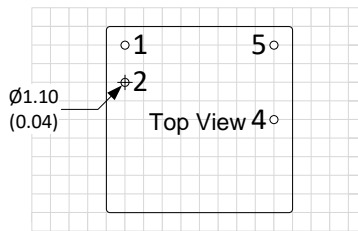
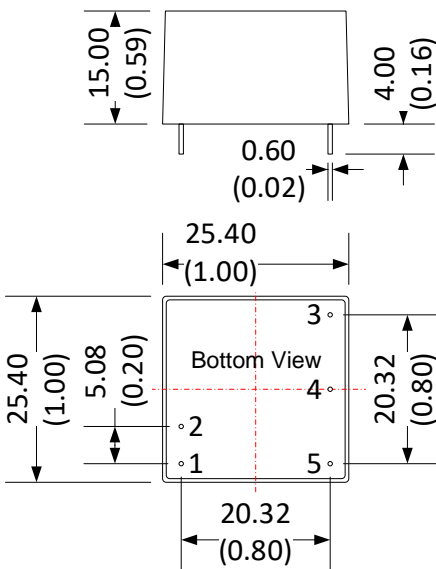


MOV	CX	R11	L1	LCM	GDT	CY1, CY2
14D681K	334K, 305VAC	33 Ohm, 3W	1.2mH, 0.3A	20mH	300V, 1KA	1nF, 400VAC

\*FUSE to be 2A, 300V, slow blow. \*R1 ... R6 is the bleeder resistance of CX – 1.5Mohm, 150VDC

\*Other components see the same in Table 1

## Dimensions



Grid size: 2.54\*2.54mm

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

Note:

Unit: mm(inch)

General tolerance:  $\pm 0.5$  ( $\pm 0.02$ )

Pin diameter tolerance:  $\pm 0.1$  ( $\pm 0.004$ )

**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 than 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).