



AMEL10S-277HAGY



Encapsulated

The AMEL10S-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 -40°C to 85°C with full power from -25°C to 50°C and features an isolation of 4000VAC 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.

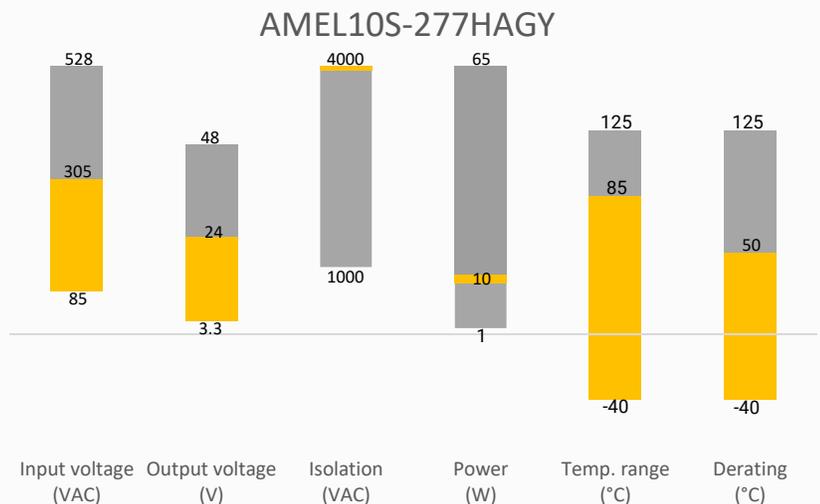
The AMEL10S-277HAGY is suitable for grid power, instrumentation, industrial controls, communication, and civil applications.

Features

- Universal Input: 85 - 305VAC/100 - 430VDC
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 100mV(p-p), typ.
- Output short circuit, over-current, over-voltage protection
- Regulated Output
- Efficiency up to 84%
- Designed to meet: EN 62368-1, EN60335-1, EN61558-1
- Agency approvals : UL62368-1



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 (μ F)	Efficiency @ 230VAC Typ. (%)
AMEL10S-3S277HAGY	85-305/47-63	100-430	8.58	3.3	2.6	6600	74
AMEL10S-5S277HAGY	85-305/47-63	100-430	10	5	2	5000	79
AMEL10S-9S277HAGY	85-305/47-63	100-430	9.9	9	1.1	3600	81
AMEL10S-12S277HAGY	85-305/47-63	100-430	9.96	12	0.83	2000	83
AMEL10S-15S277HAGY	85-305/47-63	100-430	9.9	15	0.66	820	83
AMEL10S-24S277HAGY	85-305/47-63	100-430	9.84	24	0.41	470	84

Note: Use suffix "ST" for chassis mounting (ex. AMEL10S-3S277HAGY-ST is chassis mounting version).

Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC	230		mA
	230VAC	150		mA
Inrush current	115VAC	25		A
	230VAC	80		A
Leakage	277VAC, 50Hz		0.1	mA RMS
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	100		mV p-p
Hold up time	115VAC	8		ms
	230VAC	40		ms

* Ripple and Noise are measured at 20MHz bandwidth with a 47 μ F electrolytic capacitor and a 0.1 μ 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	4000		VAC
Resistance	500VDC	>100		M Ω

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Protection class	Class II			
Overvoltage category	OVC II			
Over current protection	Auto recovery	≥ 110		% of Iout

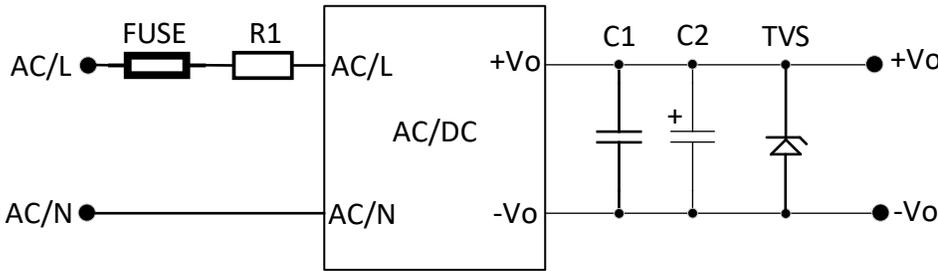
Over voltage protection	3.3, 5Vout, voltage clamp, hiccup		9	VDC
	9Vout, voltage clamp, hiccup		16	VDC
	12Vout, voltage clamp, hiccup		15	VDC
	15Vout, voltage clamp, hiccup		24	VDC
	24Vout, voltage clamp, hiccup		34	VDC
Short circuit protection	Hiccup, Continuous, Auto recovery			
Operating altitude	See derating graph		5000	m
Operating temperature	See derating graph	-40 to +85		°C
Storage temperature		-40 to +85		°C
Wave soldering temperature	Duration 10s max.	260		°C
Manual soldering temperature	Duration 5s max.	370		°C
No-load power consumption	230VAC		0.12	W
Power Derating	-40 °C to -25 °C, 115VAC	2.2		%/°C
	3.3, 5Vout +50°C to +70°C	2.5		%/°C
	9, 12, 15, 24Vout +55°C to +70°C	3.33		%/°C
	3.3, 5, 9, 12, 15, 24Vout +70°C to +85°C	0.67		%/°C
	85VAC to 100VAC	1.67		%/VAC
	100VDC to 120VDC	1.25		%/VDC
	2000 - 5000m	6.67		%/km
Temperature coefficient		±0.02		%/°C
Cooling	Free air convection			
Humidity	Non-condensing, Operating	>20	95	% RH
	Non-condensing, Storage	>10	95	% RH
Vibration	PCB mountable models	10Hz ~ 500Hz, 2G, 10 min./1cycle, 60min. along X, Y and Z axis		
	With optional -ST mounting plate	10Hz ~ 500Hz, 5G, 10 min./1cycle, 60min. along X, Y and Z axis		
Case material	Plastic (flammability to UL 94V-0)			
Weight	PCB mountable models	34		g
	With optional -ST mounting plate	54		g
Dimensions (L x W x H)	PCB mountable models	1.57 x 1.00 x 0.83 inches (40.00 x 25.40 x 21.00 mm)		
	With optional -ST mounting plate	2.98 x 1.23 x 1.17 inches (75.80 x 31.30 x 29.70 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

Agency Approvals	UL62368-1	
Standards	Information technology Equipment	Designed to meet EN 62368-1, EN60335-1, EN61558-1
	EMC - Conducted and radiated emission	EN55014-1, class B
	Harmonic current	EN61000-3-2
	Voltage flicker	EN61000-3-3
	Electrostatic Discharge Immunity	EN61000-4-2 Contact ±4KV, Air ±8KV, Criteria B
	RF, Electromagnetic Field Immunity	EN61000-4-3 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	EN61000-4-4 ±2KV, Criteria B
	Surge Immunity	EN61000-4-5 L-L ±1KV, Criteria B
	RF, Conducted Disturbance Immunity	EN61000-4-6 10Vr.m.s, Criteria A
	Voltage dips, Short Interruptions Immunity	EN61000-4-11 >95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods

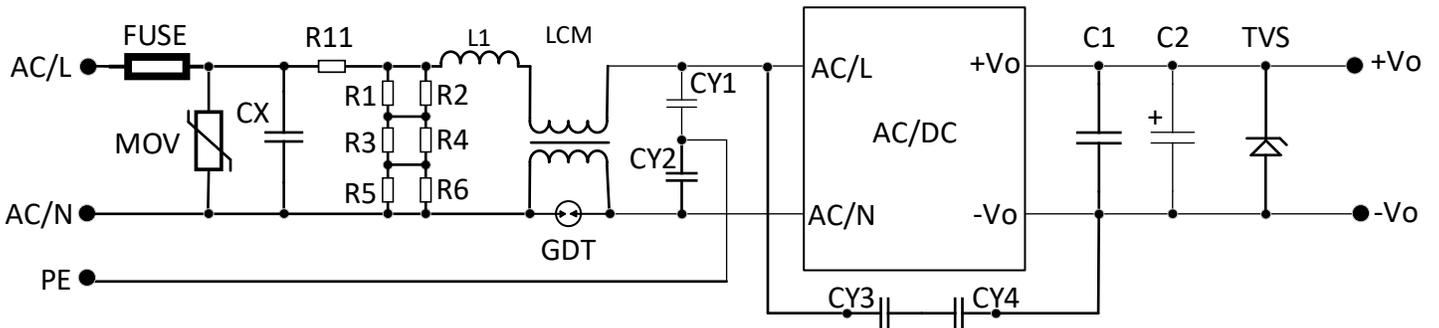
Typical Application Circuit



Model	FUSE	R1	C1	C2	TVS
3.3, 5Vout	2A, 300V	6.8 Ohm, 3W	1 μ F, 50V	220 μ F, 16V	SMBJ7.0A
9Vout	2A, 300V	6.8 Ohm, 3W	1 μ F, 50V	100 μ F, 25V	SMBJ12A
12, 15Vout	2A, 300V	6.8 Ohm, 3W	1 μ F, 50V	100 μ F, 25V	SMBJ20A
24Vout	2A, 300V	6.8 Ohm, 3W	1 μ F, 50V	100 μ F, 35V	SMBJ30A

Table 1

Recommended EMC Circuit

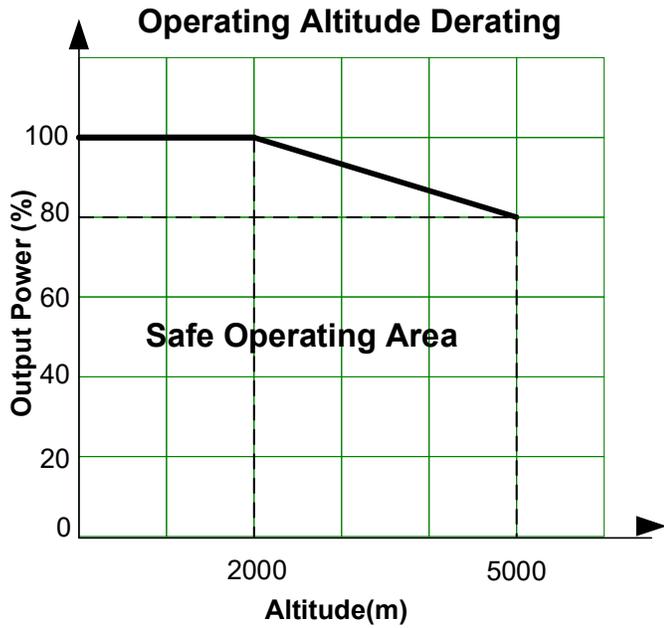
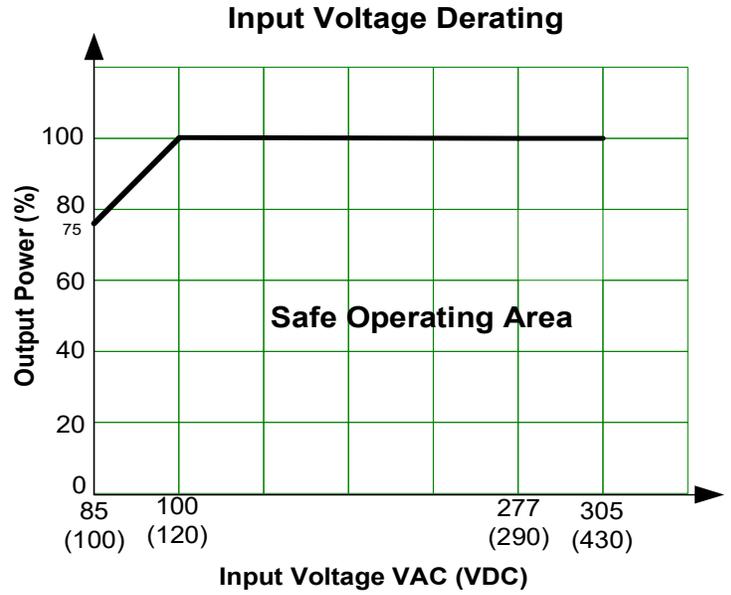
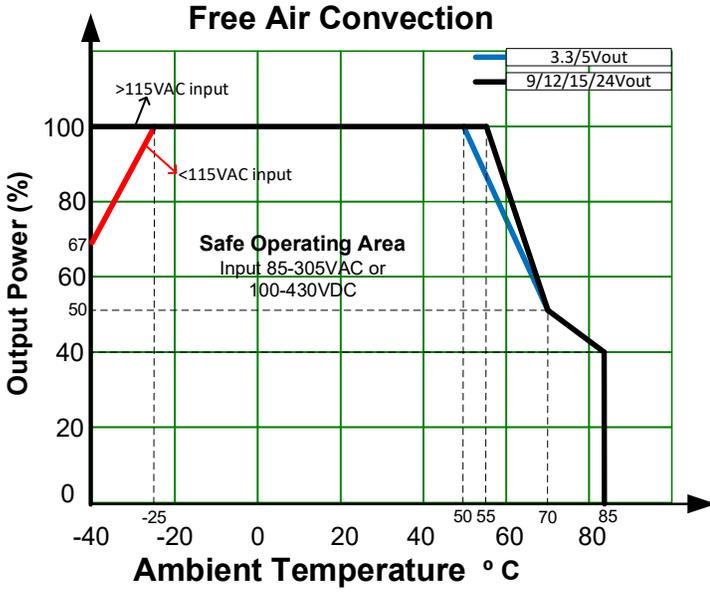


MOV	CX	R11	L1	LCM	GDT	CY1, CY2	CY3, CY4
S14K350	334K, 305VAC	12 Ohm, 5W	1.2mH, 0.3A	20mH	300V, 1KA	2.2nF, 400VAC	1nF, 400VAC

*R11 is wire-wound resistor, FUSE is required, *R1 ... R6 is the bleeder resistance of CX – 1.5Mohm/150VDC

*Other components see the same in Table 1

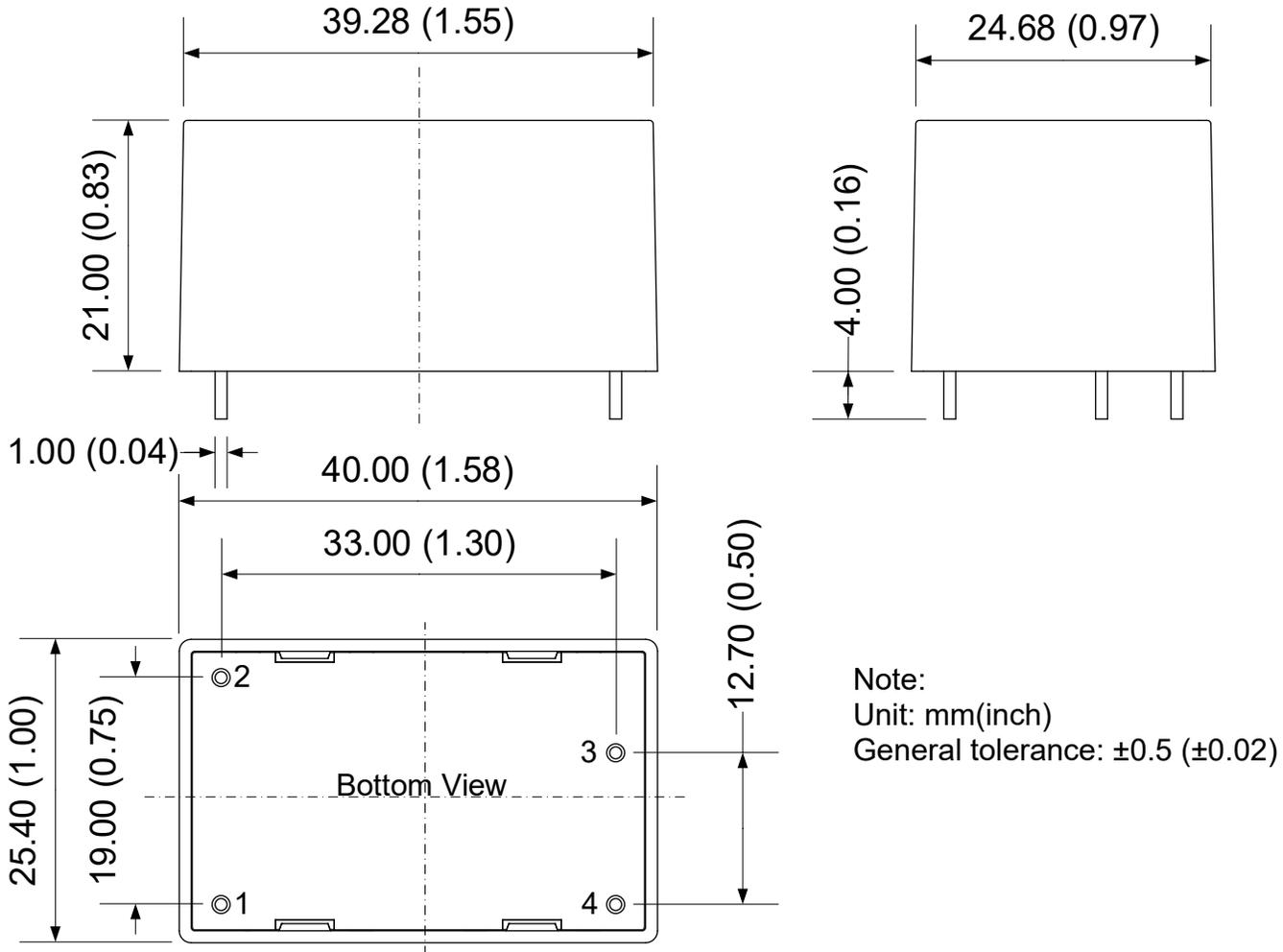
Derating



Dimensions

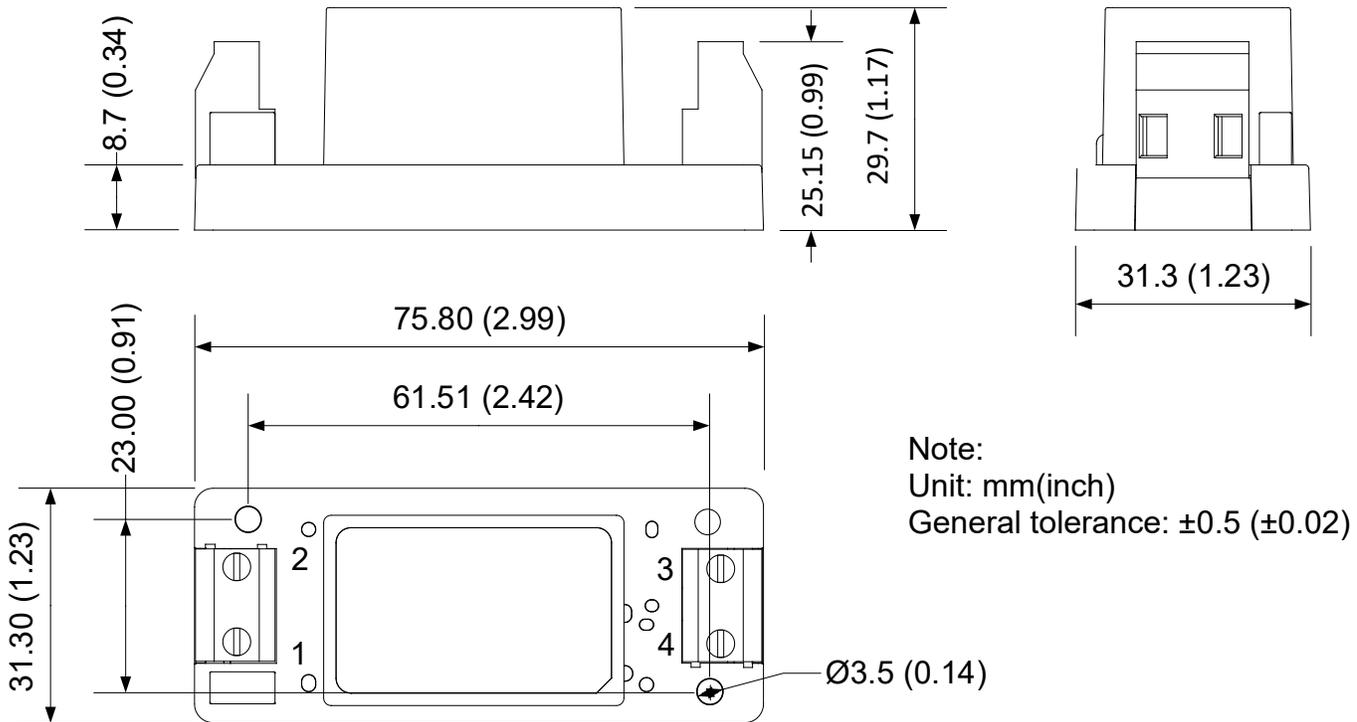


AMEL10S-277HAGY



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

AMEL10S-277HAGY-ST



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

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