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AMEL20-277HAGY



The AMEL20-277HAGY series is an efficient 20W 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 -30°C to 85°C with full power up to 45°C and features an isolation of 3000VAC for improved reliability and system safety. Furthermore, a high MTBF of 1,589,700h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

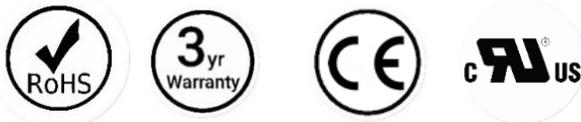
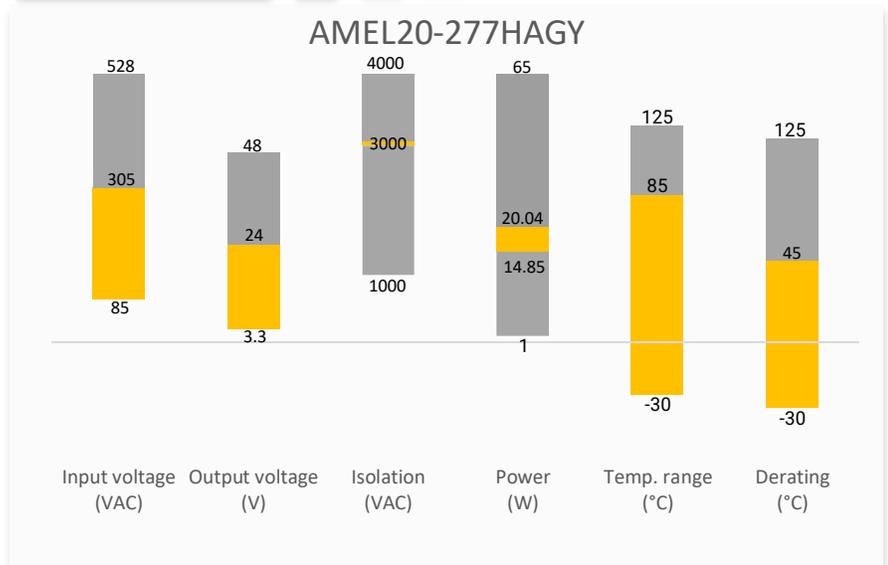
The AMEL20-277HAGY is suitable for grid power, industrial instrumentation and controls, communication, and civil applications.

Features



- Universal Input: 85 - 305VAC/120 - 430VDC
- Operating Temp: -30 °C to +85 °C
- High isolation voltage: 3000VAC
- Output short circuit, over-current, over-voltage protection
- Low no-load power consumption of less than 0.1W
- Agency approval: UL62368-1, IEC62368-1, EN60335-1, EN61558-2-16

Summary



Training



Product Training Video
(click to open)



Application Notes

Applications



Power Grid



Industrial



Telecom

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)	AVG. Efficiency (%)
AMEL20-3S277HAGY	85-305/50-60	120-430	14.85	3.3	4.5	8000	83
AMEL20-5S277HAGY	85-305/50-60	120-430	20	5	4	8000	85
AMEL20-9S277HAGY	85-305/50-60	120-430	19.8	9	2.2	5400	85
AMEL20-12S277HAGY	85-305/50-60	120-430	20.04	12	1.67	4000	86
AMEL20-15S277HAGY	85-305/50-60	120-430	19.95	15	1.33	3000	87
AMEL20-24S277HAGY	85-305/50-60	120-430	19.92	24	0.83	1000	87

Input Specifications				
Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC	500		mA
	230VAC	350		mA
	277VAC	200		mA
Inrush current	115VAC, cold start	20		A
	230VAC, cold start	45		A
Leakage	277VAC		0.10	mA

Output Specifications				
Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		± 2.5		%
Line regulation	Full load	± 0.5		%
Load regulation		± 2.0		%
Ripple & Noise*	20MHz bandwidth		150	mV p-p
Hold up time	115VAC	8		ms
	230VAC	50		ms

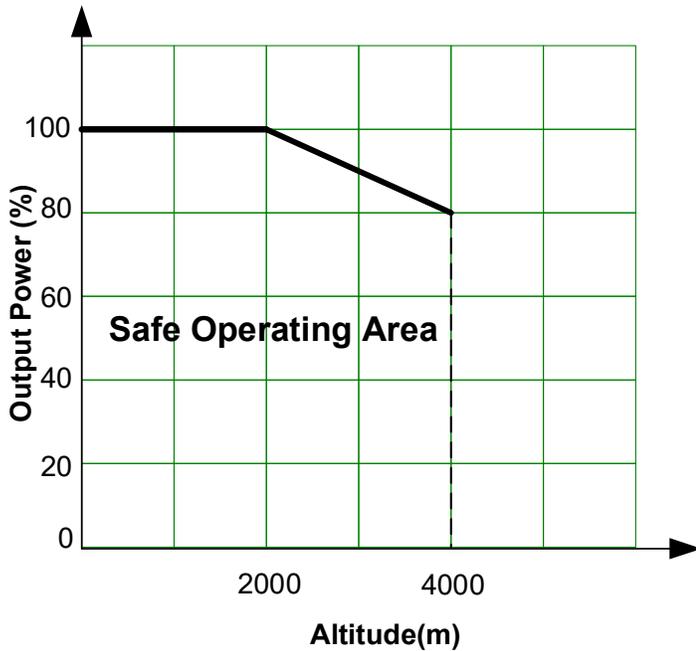
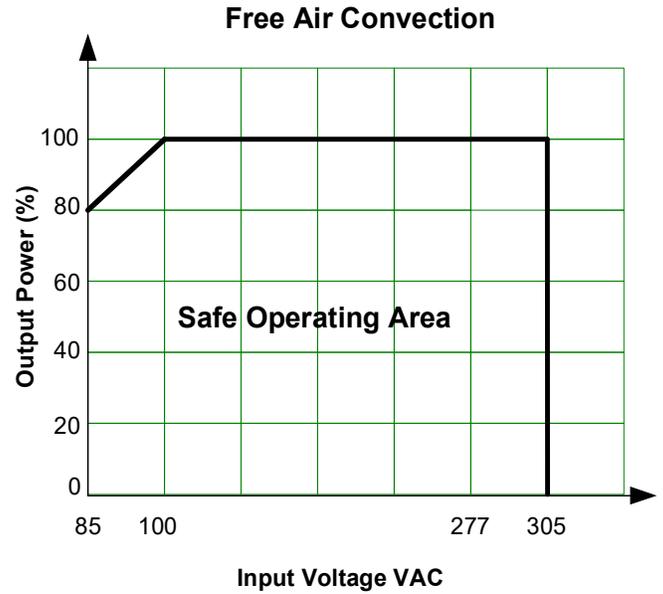
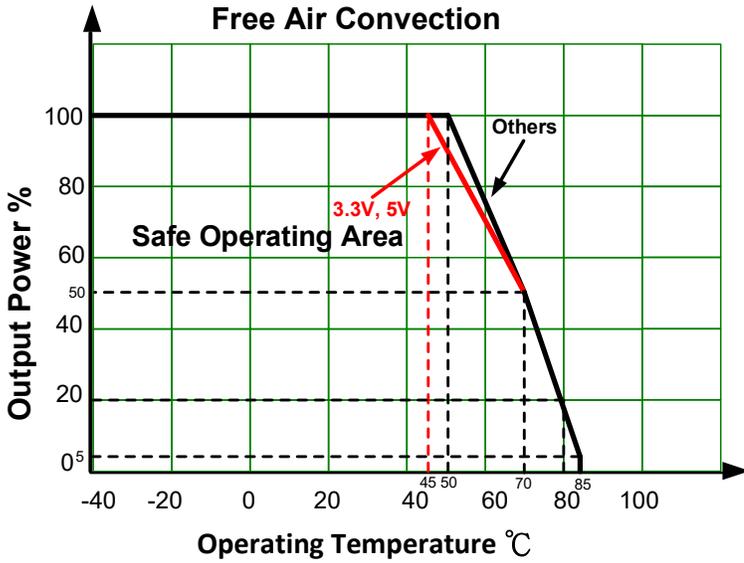
* Ripple and Noise are measured at 20MHz bandwidth with a 47 μ F electrolytic capacitor and a 0.1 μ F ceramic capacitor. Please refer to the application note for specific details.

Isolation Specification				
Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec	3000		VAC
Resistance	500VDC, 25°C, 70% RH	100		M Ω

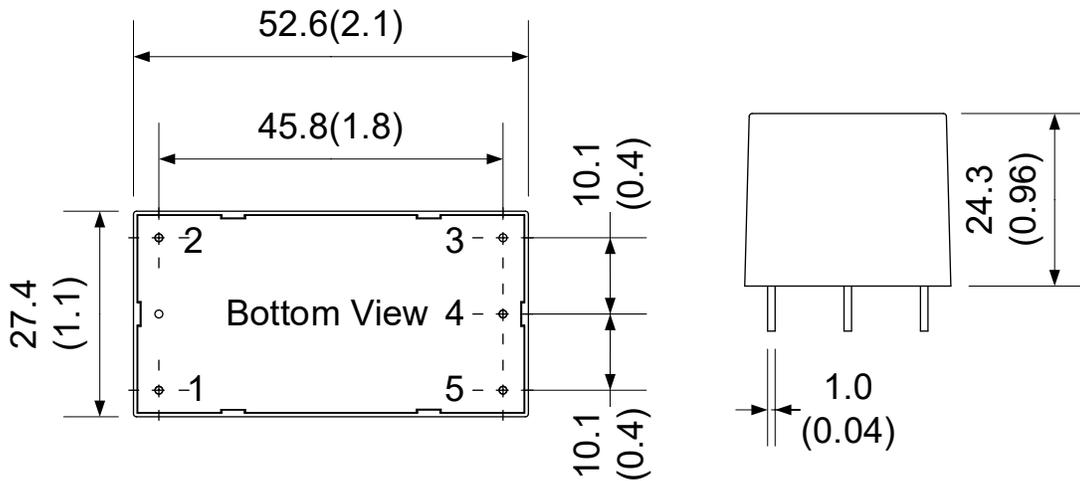
General Specifications					
Parameters	Conditions	Minimum	Typical	Maximum	Units
Protection class	Class II				
Oversoltage category	OVC III, according to EN61558-1				
Over current protection	Hiccup, Auto recovery	110		260	% of Iout
Over voltage protection	3.3Vout, shut off o/p voltage, clamping by Zener diode	3.8		9	VDC
	5Vout, shut off o/p voltage, clamping by Zener diode	5.5		9	VDC
	9Vout, shut off o/p voltage, clamping by Zener diode	10		16	VDC
	12Vout, shut off o/p voltage, clamping by Zener diode	13		16.5	VDC
	15Vout, shut off o/p voltage, clamping by Zener diode	17		24	VDC
	24Vout, shut off o/p voltage, clamping by Zener diode	26		34	VDC
Short circuit protection	Hiccup, Continuous, Auto recovery				
Operating temperature	See derating graph	-30		85	°C
Storage temperature		-40		85	°C
Wave soldering temperature	Duration 10s max.		265		°C
Manual soldering temperature	Duration 5s max.		390		°C
No-load power consumption			<0.1		W
Power Derating	+45 °C to +70 °C, 3.3/5Vout		2		%/°C
	+50 °C to +70 °C, 9/12/15/24Vout		2.5		%/°C
	+70 °C to +80 °C		3		%/°C
	+80 °C to +85 °C		3		%/°C
	85VAC to 100VAC		1.33		%/VAC
	2000m – 5000m		6.67		%/Km
Temperature coefficient	(0~40°C)		±0.03		%/°C
Cooling	Free air convection				
Humidity	Non-condensing	10		95	% RH
	Non-condensing, Operating	20		90	% RH
Vibration	10 ~ 500Hz, 5G 10min. /1cycle, period for 60min. each along X,Y,Z axes				
Case material	Plastic (flammability to UL 94V-0)				
Weight	55g				
Dimensions (L x W x H)	2.07 x 1.08 x 0.96 inches (52.60 x 27.40 x 24.30 mm)				
MTBF	1 589 700 hrs (MIL-HDBK -217F, t _a =+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 IEC62368-1, EN61558-2-16, EN60335-1
	EMC - Conducted and radiated emission	EN IEC55014-1 class B EN61000-3-2, class A EN61000-3-3
	Electrostatic Discharge Immunity	EN IEC55014-2, EN 61000-4-2, Level 2 contact ±4KV, Level 3 Air ±8KV, Criteria A
	RF, Electromagnetic Field Immunity	EN IEC55014-2, EN 61000-4-3, 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	EN IEC55014-2, EN 61000-4-4, ±2KV, Criteria A
	Surge Immunity	EN IEC55014-2, EN 61000-4-5, L-L 1KV, Criteria A
	RF, Conducted Disturbance Immunity	EN IEC55014-2, EN 61000-4-6, 10Vr.m.s, Criteria A
	Magnetic field immunity	EN IEC55014-2, EN 61000-4-8, 10A/m, Criteria A
	Voltage Dips and interruptions	EN IEC55014-2, EN 61000-4-11, >95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods

Derating



Dimensions



Note:
Unit: mm(inch)
General tolerance: ± 0.5 (± 0.02)

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

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 than the ones listed in this datasheet. **7.** Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.