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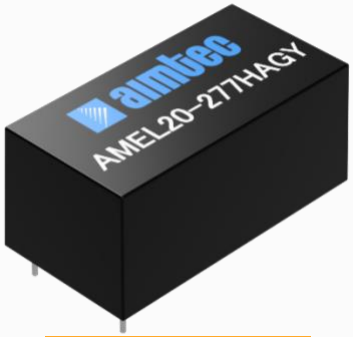
AMEL20-277HAGY



Encapsulated

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.

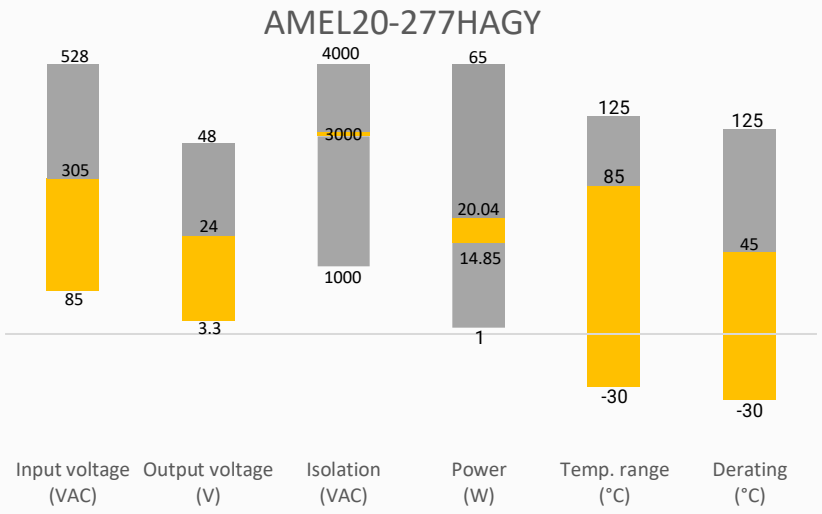
This new series offers great operating temperatures, from -30°C to 85°C with full power up to 45°C and features an isolation of 3000VAC for improved reliability and system safety. Furthermore, a high MTBF of 1,589,700h, output short circuit protection (OSCP), output over-current protection (OCP) and 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)

Press Release

Coming Soon!

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 (µF)	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 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	3000		VAC
Resistance	500VDC, 25°C, 70% RH	100		MΩ

General Specifications

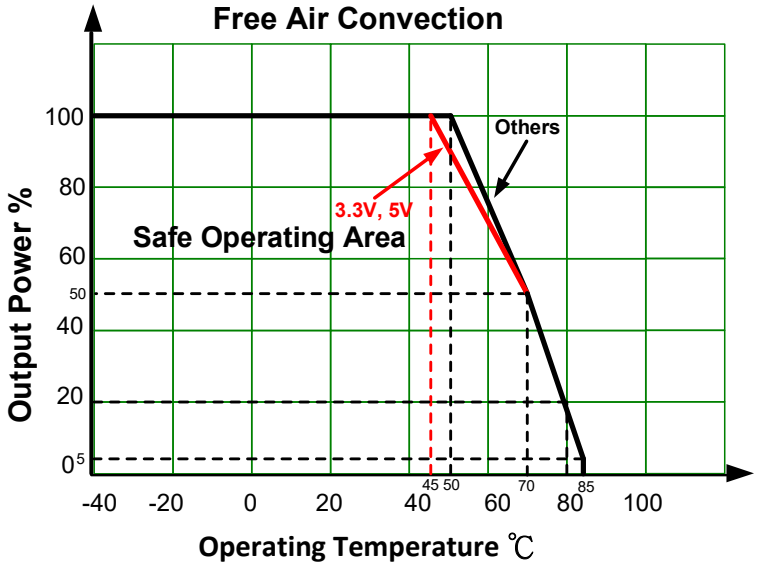
Parameters	Conditions	Minimum	Typical	Maximum	Units
Protection class	Class II				
Overvoltage category	OVC III, according to EN61558-1				
Over current protection	Hiccup, Auto recovery	110		260	% of Iout
Over voltage protection	3.3Vout, shut off o/p voltage, clamping by Zener diode	3.8		9	VDC
	5Vout, 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=+25°C)				

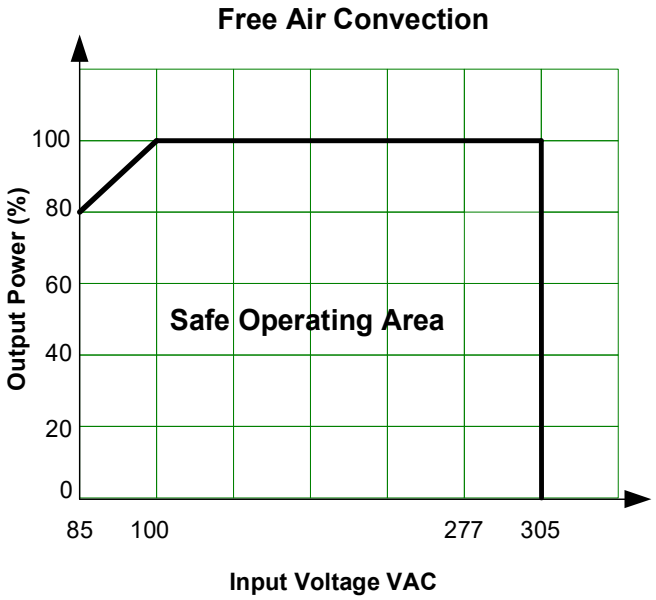
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

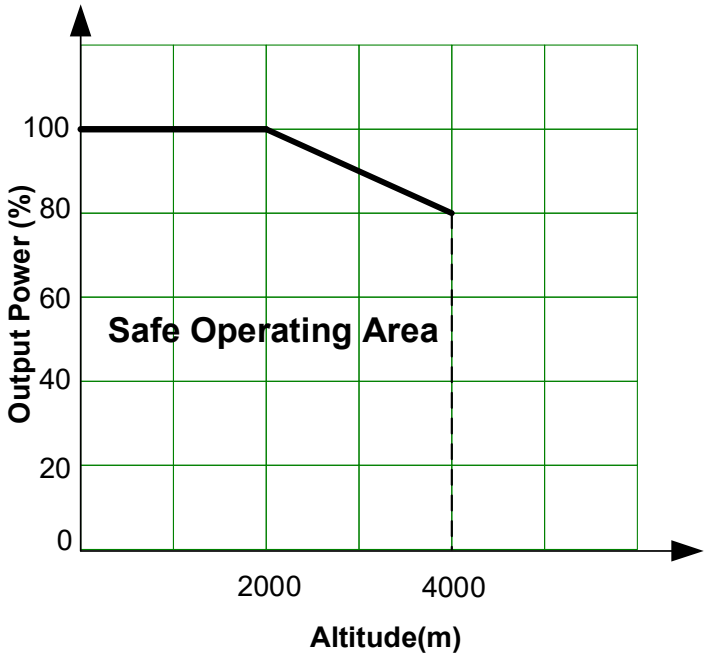
Safety Specifications

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

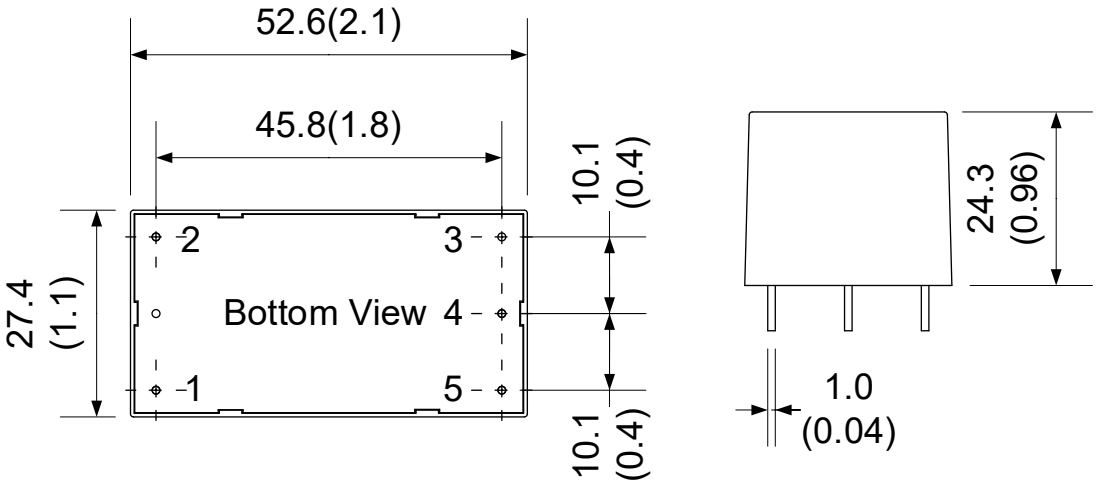
Derating


Free Air Convection
Output Power %
100
80
60
50
40
20
0
5
Others
3.3V, 5V
Safe Operating Area
-40
-20
0
20
40
45
50
60
70
80
85
100
Operating Temperature ℃


Free Air Convection
Output Power (%)
100
80
60
40
20
0
Safe Operating Area
85
100
277
305
Input Voltage VAC


Output Power (%)
100
80
60
40
20
0
Safe Operating Area
2000
4000
Altitude(m)

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