FEATURES

- Fully encapsulated Plastic Case
- PCB Mounting with Solder Pins
- Universal Input 85-264 VAC, 47-440 Hz
- Single- and Dual Output Models
- Eco Design, compliant to Energy Star specification and ErP Directive 2009/125/EC
- Protection Class II
- Safety Approval to cUL/UL/IEC/EN 60950-1
- Over Load and Over Voltage Protection
- 3 Years Product Warranty



UL 60950-1 CB Scheme RoHS Compliant

PRODUCT OVERVIEW

The MINMAX AHF-10 series is a range of fully encapsulated AC/DC power supply modules. The product features EMI-filter to EN55022, class B and EMS compliance to EN 61000-4 standard. Universal input voltage 85-264VAC and International safety approvals qualifies these power modules for applications in products with worldwide markets.The AHF-10 series provide a cost effective solution for many space critical applications in commercial and industrial electronic equipment.

Model Selection Guide

Model Number	Output Voltage	Output Current	Input Current	Max. capacitive Load	Efficiency (typ.)
			115VAC, 60Hz		
		Max.	@Max. Load		@Max. Load
	VDC	mA	mA(typ.)	uF	%
AHF-10S03	**3.3**	**2000**	137	3900	70
AHF-10S05	**5**	**2000**	199	3300	73
AHF-10S12	**12**	**833**	191	2200	76
AHF-10S15	**15**	**666**	191	2200	76
AHF-10S24	**24**	**416**	190	1000	76
AHF-10D12	**±12**	**±380**	172	#1000	77
AHF-10D15	**±15**	**±300**	169	#1000	77

For each output

Input Specifications

Parameter	Model	Min.	Typ.	Max.	Unit
Input Voltage Range	All Models	85	---	264	VAC
Input Frequency Range		47	---	440	Hz
Input Voltage Range		120	---	370	VDC
No-Load Power Consumption		---	---	0.3	W
Inrush Current (Cold Start at 25°C)	115VAC	---	---	10	A
	230VAC	---	---	20	A

Output Specifications

Parameter	Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			---	±1.0	±2.0	%
Line Regulation	Vin=Min. to Max.		---	±0.5	±1.0	%
Load Regulation	Iout=Min. to Max.	Single Output Models	---	±0.5	±1.0	%
		Dual Output Models	---	±2.5	±5.0	%
Ripple & Noise (20MHz)	3.3 & 5.0VDC Output Models		---	1.5	1.8	%V_{PP} of Vo
	Other Output Models		---	0.8	1.0	%V_{PP} of Vo
Minimum Load			---	10	---	%Inom.
Over Voltage Protection	Zener diode clamp		---	120	---	% of Vo
Temperature Coefficient			---	±0.01	±0.02	%/°C
Overshoot			---	---	5	% Vout
Current Limitation	Foldback, auto-recovery		105	---	---	%Inom.
	(long term overload condition may cause damage)					
Short Circuit Protection	Hiccup mode, indefinite (automatic recovery)					

General Specifications

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage	Input to Output, 60 Seconds	3000	---	---	VACrms
I/O Isolation Resistance	500 VDC	100	---	---	MΩ
Switching Frequency		---	100	---	KHz
Hold-up Time		---	20	---	ms
MTBF (calculated)	MIL-HDBK-217F@25℃, Ground Benign	300,000	----	----	Hours
EMC Emission	Conducted and radiated	EN 55011, class B, EN 55022, class B, FCC part 15, class B			
EMC Immunity according EN61000-6-1	Standard	Specification Requirement			Performance Criteria
	EN61000-4-2	Air ±8KV Cont. ±4KV			B
	EN61000-4-3	80~1000MHz, 10V/m 80% AM, 1KHz modulation			A
	EN61000-4-4	AC port ±2KV DC, SL, TL ±2KV not less than 1 min.			B
	EN61000-4-5	1.2/50uS(8/20uS) AC dif. ±1KV DC ±0.5KV			B
	EN61000-4-6	0.15~80MHz, 10Vrms (functional earth ports included) 80% AM, 1KHz modulation			B
	EN61000-4-8	50Hz/60Hz, 30A/m			A
	EN61000-4-11	30%, 10ms			B
		60%, 100ms, 95%, 5000ms			C
Protection Class II		According IEC/EN 60536			
Safety Approvals		cUL/UL 60950-1,IEC/EN 60950-1			

Input Fuse

All Models	
Built-in Fuse	2A / 250VAC
External Fuse (Recommended)	1.5A Slow – Blow Type

Environmental Specifications

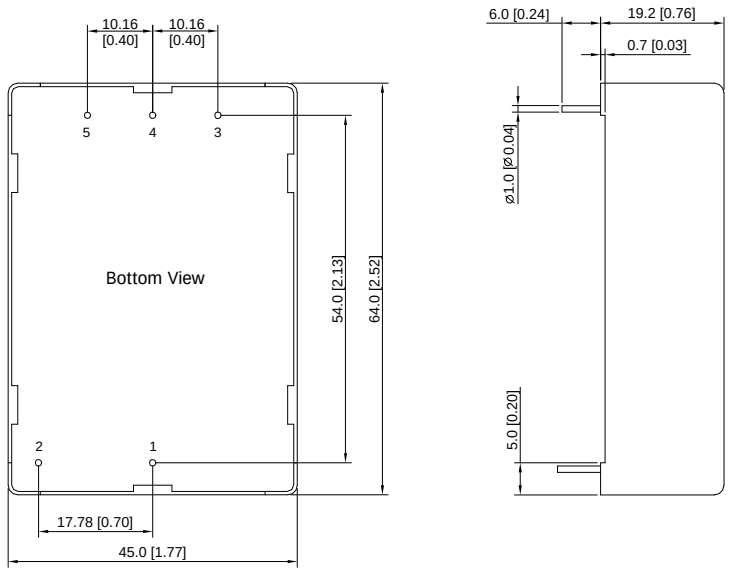
Parameter	Conditions		
Temperature Range (operational)	Ambient	-25℃	+70℃
Power Derating	+50℃ to +70℃		0.375W / ℃
Storage Temperature Range		-40℃	+85℃
Over Temperature Protection	at 90℃ (automatic recovery at 67℃)		
Cooling	Free-Air convection		
Humidity (non condensing)		---	95 % rel. H

Notes

1. All specifications typical at Ta=+25℃, resistive load, 115VAC, 60Hz input voltage and after warm-up time rated output current unless otherwise noted.
2. Ripple & Noise measurement bandwidth is 0~20 MHz
3. These power modules require a minimum output loading to maintain specified regulation, operation under no-load conditions will not damage the power supplies however they may not meet all listed specifications.
4. Other input and output voltage may be available, please contact factory.
5. Specifications subject to change without notice

Package Specifications

Mechanical Dimensions



Pin Connections

Pin	Single Output	Dual Output
1	AC(N) – AC Neutral	
2	AC(L) – AC Line	
3	-Vout	
4	NC	Common
5	+Vout	

NC: No Connection

- All dimensions in mm (inches)
- Tolerance: ±0.5 (±0.02)
- Pin diameter ∅ 1.0 ±0.1 (0.04±0.004)

Physical Characteristics

Case Size	:	64.0x45.0x19.2mm (2.52x1.77x0.76 Inches)
Case Material	:	Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Weight	:	92g