FEATURES

- Fully encapsulated Plastic Case
- 3 Mounting Versions:
  - PCB Mounting with Solder Pins
  - Chassis Mounting with Screw Terminals
  - DIN-Rail Mounting
- Universal Input 85-264 VAC, 47- 440 Hz
- Protection Class II
- Safety Approval to cUL/UL/IEC/EN 60950-1
- UL508 Approval (Option)
- Over Load and Over Voltage Protection
- 3 Year Product Warranty

PRODUCT OVERVIEW

The MINMAX AZF-60 series is a new 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. For industrial applications, the models for chassis mounting can also be supplied as option with UL508 approval.The AZF-60 series provide a cost effective solution for many space critical applications in commercial and industrial electronic equipment.

Model Selection Guide

Model Number PCB Mounting (For model with Chassis Mounting, add suffix C)		Output Voltage	Output Current	Input Current 115VAC, 60Hz		Max. capacitive Load	Efficiency (typ.)
			Max.	@Max. Load	@No Load		@Max. Load
		VDC	mA	mA(typ.)	mA(typ.)	µF	%
AZF-60S051	UL508	**5.1**	**10,000**	936	50	8000	79
AZF-60S12	UL508	**12**	**5000**	1060	50	3900	82
AZF-60S15	UL508	**15**	**4000**	1047	50	3300	83
AZF-60S24	UL508	**24**	**2500**	1035	50	1500	84
AZF-60S36	UL508	**36**	**1666**	1035	50	1000	84
AZF-60S48	UL508	**48**	**1250**	1035	50	680	84

Input Specifications

Parameter	Model	Min.	Typ.	Max.	Unit
Input Voltage Range	All Models	85	---	264	VAC
Input Frequency Range		47	---	63	Hz
Input Voltage Range		120	---	370	VDC
Inrush Current (Cold Start at 25°C)	115VAC	---	---	30	A
	230VAC	---	---	50	A

Output Specifications

Parameter	Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			---	±1.0	±2.0	%
Line Regulation	Vin=Min. to Max.		---	±0.2	±1.0	%
Load Regulation	Iout=Min. to Max.		---	±0.5	±1.0	%
Ripple & Noise	0-20 MHz Bandwidth	5.1VDC Output Models	---	2.0	3.0	%V_{PP} of Vo
		Other Output Models	---	1.0	1.3	%V_{PP} of Vo
Minimum Load			---	10	---	%Inom.
Over Voltage Protection	Zener diode clamp		---	120	---	% of Vo
Transient Response Deviation	(Iout=100% to Iout=50%)			±3	±6	%
Temperature Coefficient			---	±0.02	---	%/℃
Overshoot			---	---	5	% Vout
Current Limitation	Foldback, auto-recovery (long term overload condition may cause damage)		105	---	---	%Inom.
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°C, Ground Benign	125,000			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	1.2/50μS(8/20μS) 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	
		(UL508 for models with order code suffix ICE only)	

Environmental Specifications

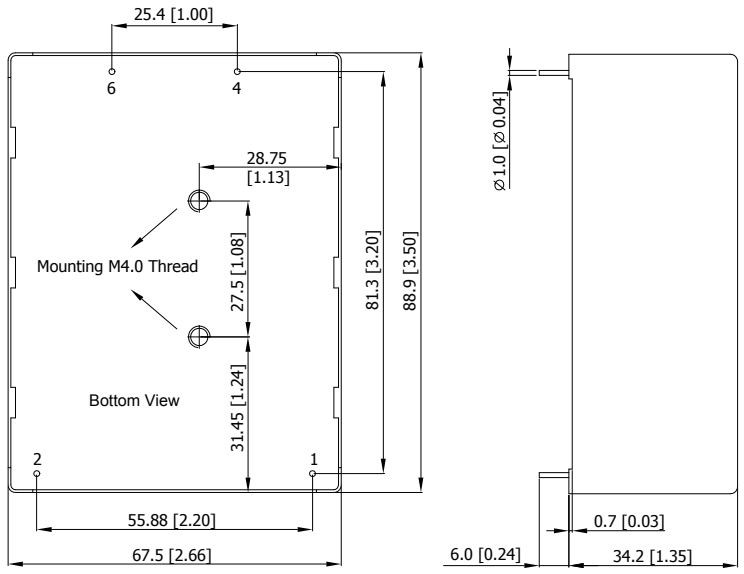
Parameter	Conditions		
Temperature Range (operational)	Ambient	-10°C	+70°C
Power Derating	+50°C to +70°C		2.25W / °C
Power Derating (5.1Vout)	+40°C to +70°C		2.25W / °C
Storage Temperature Range		-40°C	+85°C
Over Temperature Protection	at 90°C (automatic recovery at 67°C)		
Cooling	Free-Air convection		
Humidity (non condensing)		---	95 % rel. H

Notes

1. All specifications typical at Ta=+25°C, resistive load, 115VAC, 60Hz input voltage and after warm-up time rated output current unless otherwise noted.
2. 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.
3. Other input and output voltage may be available, please contact factory.
4. Long term short circuit operation may cause damage to the unit.
5. To order the module with chassis mount package, please add a **suffix C** (e.g. AZF-60S12C).
6. To order the module with UL508 safety, please add a **suffix ICE** (e.g. AZF-60S12ICE).
7. Part number for DIN-Rail mounting bracket: **AC-DIN-02**
8. That "natural convection" is about 20LFM but is not equal to still air (0 LFM).
9. Specifications are subject to change without notice

Package Specifications PCB Mounting

Mechanical Dimensions



Pin Connections	
Pin	Function
1	AC(N) – AC Neutral
2	AC(L) – AC Line
4	+Vout
6	-Vout

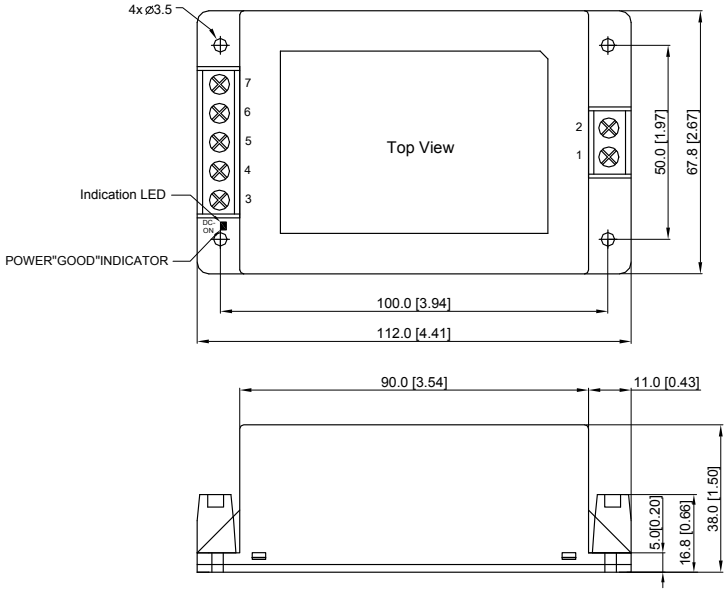
- All dimensions in mm (inches)
- Tolerance: ±1.0 (±0.04)
- Pin diameter ∅ 1.0 ±0.1 (0.04±0.004)

Physical Characteristics

Case Size	:	88.9x67.5x34.2mm (3.50x2.66x1.35 inches)
Case Material	:	Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Pin Material	:	Copper Alloy with Gold Plate Over Nickel Subplate
Weight	:	345g

Package Specifications Chassis Mounting (order code suffix C)

Mechanical Dimensions



Connections	
Terminal	Function
1	AC(N) – AC Neutral
2	AC(L) – AC Line
3	NC
4	+Vout
5	NC
6	-Vout
7	NC

NC: No Connection

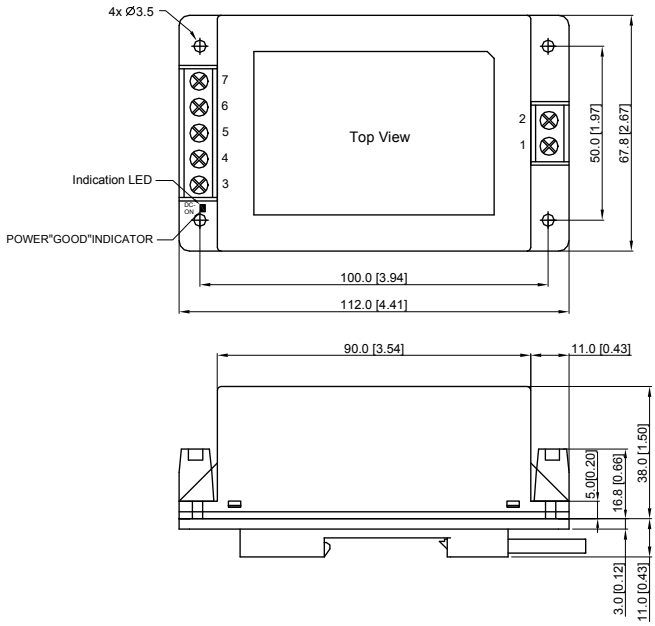
- All dimensions in mm (inches)
- Tolerance: ±1.0 (±0.04)

Physical Characteristics

Case Size	:	112.0x67.8x38.0mm (4.41x2.67x1.50 inches)
Case Material	:	Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Weight	:	357g

Package Specifications with DIN Rail Mounting Bracket

Mechanical Dimensions



Physical Characteristics

Case Size	:	112.0x67.8x38.0mm (4.41x2.67x1.50 inches)
Case Material	:	Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Weight	:	410g

DIN-Rail Mounting Bracket (Order Code for Kit : AC-DIN-02)