

# AZF-60 Series

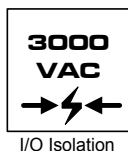
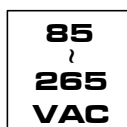
## 60 Watts Universal Input Range AC/DC Power Modules

### Single Output



### Key Features

- High Efficiency up to 84%
- 85~265VAC Universal Input Range
- Single Output Modules
- PCB and Chassis Mounting Packages
- I/O Isolation 3000VAC
- EMI Complies With EN55022 Class B and FCC part 15, level B
- EMC Complies With EN61000
- MTBF > 125,000 Hours
- Meets IEC / EN / UL 60950-1 / UL 508 (optional) Safety Standards
- Meets IEC61140 Safety Class II
- Operating Temperature 71°C (Reference to Derating Curve)



AZF-60 is a 60 Watts series of AC-DC power modules. These modules have wide input range of 85~265VAC and are available in single output voltages of 5.1V, 12V, 15V, 24V, 36V and 48V with efficiency as high as 84% .







Other features include continuous short circuit protection, overvoltage protection, output current limitation, EMS meets EN61000-4(-2,-3,-4,-5,-6,-8,-11) EMI meets EN55022 level B conducted noise compliance minimize design-in time, cost and eliminate the need for external components.

The AZF-60 meets IEC / EN / UL 60950-1 safety approval qualifies this product for worldwide markets. The series is a wide variety of applications in commercial and industrial electronic equipment, and MTBF is up to 125,000 hours.

### Environmental Specifications

Parameter	Conditions	Min.	Max.	Unit
Operating Temperature	Ambient	-10	+71	°C
Storage Temperature		-40	+85	°C
Humidity		---	95	%
Cooling	Free-Air Convection			
Conducted EMI	EN55022 Class B			
Conducted EMS	Standard	specification requirement		Performance Criteria
Conducted EMS	EN61000-4-2	Air ±8KV Cont. ±4KV		B
	EN61000-4-3	80~1000MHz 10V/m 80% AM1KHz 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, 30A/ m 60HZ, 30A/ m		A
	EN61000-4-11	30% 10ms 60% 100ms 95% 5000ms		B C C

## Model Selection Guide

Model Number		Output Voltage	Output Current		Capacitive Load	Input Current		Efficiency	
			Max.	Min.		Max.	115VAC, 60Hz		
							@Max. Load		@No Load
VDC		mA	mA	uF	mA (Typ.)	mA (Typ.)	% (Typ.)		
AZF-60S051		5.1	10000	1000	8000	936	50	79	
AZF-60S12		12	5000	500	3900	1060	50	82	
AZF-60S15		15	4000	400	3300	1047	50	83	
AZF-60S24		24	2500	250	1500	1035	50	84	
AZF-60S36		36	1666	166	1000	1035	50	84	
AZF-60S48		48	1250	125	680	1035	50	84	

## Input Fuse

All Models	
Built-in Fuse	6A / 250VAC
External Fuse (Recommended)	3A Slow - Blow Type

## Input Specifications

Parameter	Model	Min.	Typ.	Max.	Unit
Input Voltage Range	All Models	85	---	265	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	All Models	---	±1.0	±2.0	%
Line Regulation	Vin=Min. to Max.	---	±0.2	±1.0	%
Load Regulation	Iout=Min. to Max. All Models	---	±0.5	±1.0	%
Ripple & Noise (20MHz)	5.1VDC Output Models	---	2.0	3.0	%V <sub>pp</sub> of Vo
	Other Output Models	---	1.0	1.3	%V <sub>pp</sub> of Vo
Over Voltage Protection	Zener diode clamp	---	120	---	% of Vo
Transient Recovery Time	50% Load Step Change	---	400	1000	uS
Transient Response Deviation	(Iout=100% to Iout=50%)	---	±3	±6	%
Temperature Coefficient		---	±0.02	---	%/°C
Overshoot		---	---	5	%
Current Limitation	automatic recovery (Note 8)	105	---	---	%
Short Circuit Protection	Hiccup mode, indefinite (automatic recovery)				

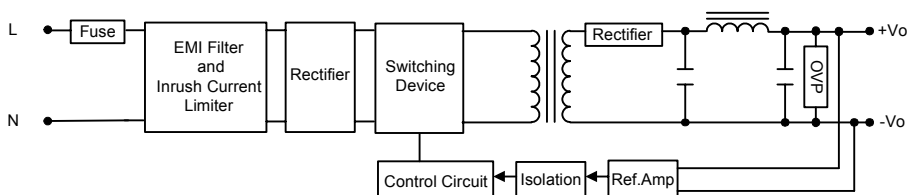
## General Specifications

Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input to Output, 60 Seconds	3000	---	---	VAC
Isolation Test Voltage	Input to Output, Flash Tested for 1 Second	4700	---	---	VDC
Isolation Resistance	500VDC	100	---	---	MΩ
Switching Frequency		---	100	---	KHz
Hold-up Time	115VAC, 60Hz	---	20	---	ms
MTBF	MIL-HDBK-217F @ 25°C, Ground Benign	125	---	---	K Hours

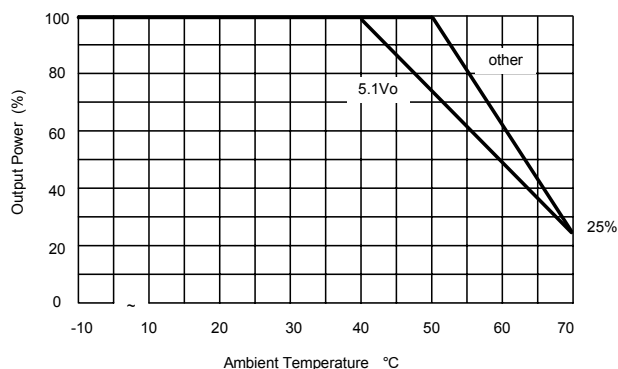
### Note:

1. Specifications typical at Ta=+25°C, resistive load, 115VAC, 60Hz input voltage, 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.
4. Operation under no-load conditions will not damage these devices; however they may not meet all listed specifications.
5. Other input and output voltage may be available, please contact factory.
6. Specifications subject to change without notice.
7. Long term short circuit operation may cause damage to the unit.

## Block Diagram

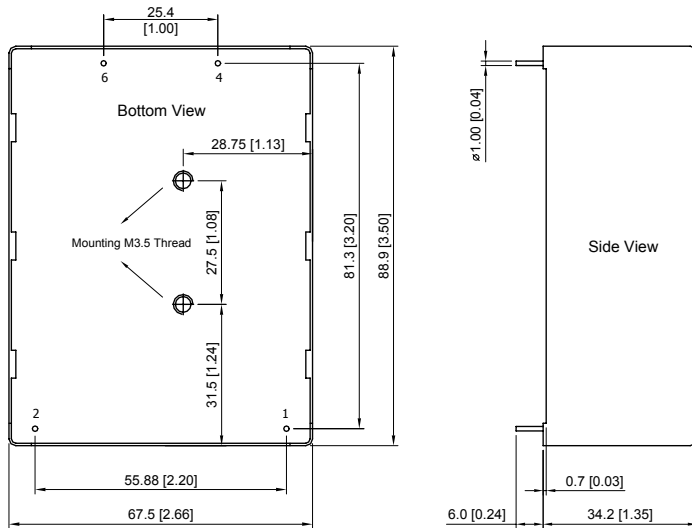


## Derating Curve



## Mechanical Dimensions

### PCB mounting



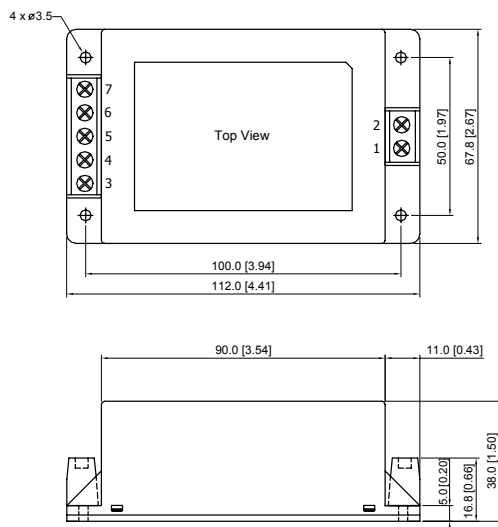
### Pin Connections

Pin	Function
1	AC(N) - AC Neutral
2	AC(L) - AC Line
3	No Pin
4	+Vout
6	-Vout
7	No Pin

### Physical Characteristics

Case Size	: 88.9×67.5×34.2 mm
	: 3.50×2.66×1.35 inches
Case Material	: Plastic resin + Fiberglass
Weight	: 345g
Flammability	: UL94V-0

### Chassis mounting



### Pin Connections

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

NC: No Connection

### Physical Characteristics

Case Size	: 112.0×67.8×38.0 mm
	: 4.41×2.67×1.50 inches
Case Material	: Plastic resin + Fiberglass
Weight	: 357g
Flammability	: UL94V-0

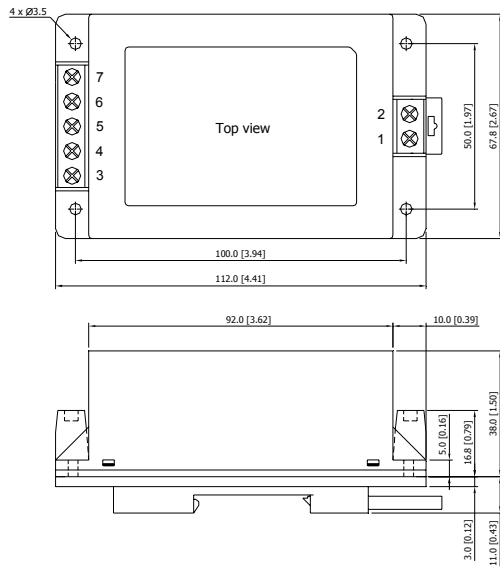
Tolerance	Millimeters	Inches
	X.X±0.5	X.XX±0.02
	X.XX±0.25	X.XXX±0.01
Pin	±0.1	±0.004

### How to Order

1. To order the module with chassis mount package, please add a suffix C (e.g. AZF-60S05C).
2. To order the module with UL508 safety, please add a suffix ICE (e.g. AZF-60S05ICE).

# AZF-60 Series

## DIN-Rail Package



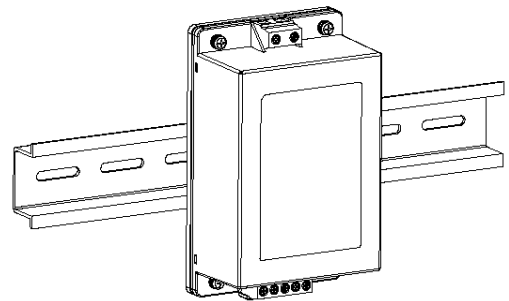
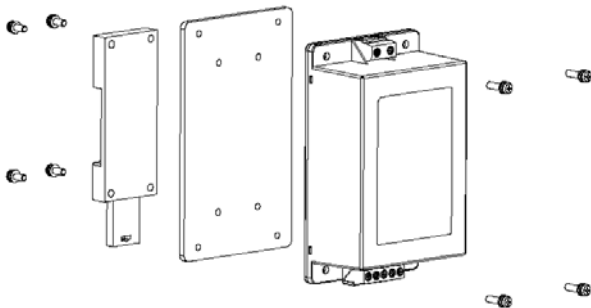
## Pin Connections

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

## Physical Characteristics

- Case Size : 112.0×67.8×49.0 mm  
4.41×2.67×1.93 inches
- Case Material : Plastic resin + Fiberglass
- Weight : 410g
- Flammability : UL94V-0

## DIN-Rail Mounting Kit



## How to Order

Part number for DIN-Rail bracket: AC-DIN-02