

FEATURES

- ▶ Fully Encapsulated Plastic Case for PCB Mounting
- ▶ Universal Input 85-264VAC, 47-440Hz
- ▶ I/O Isolation 3000VAC with Reinforced Insulation
- ▶ Operating Ambient Temp. Range -25°C to +70°C
- ▶ EMI Emission EN55032 Class B Approved
- ▶ EMC Immunity EN 61000-4-2,3,4,5,6,8,11 Approved
- ▶ Eco Design, Compliant to Energy Star Specification and ErP Directive 2009/125/EC
- ▶ UL/cUL/IEC/EN 62368-1(60950-1) Safety Approval & CE Marking


PRODUCT OVERVIEW

The MINMAX ADF-07 series is a range of fully encapsulated AC-DC power supply modules. They are designed for direct PCB mounting with solder pins. The product features EMI emission EN 55032 Class B approved and EMS compliance to the EN 61000-4 standard. This series comply with international standard pinout and input voltage range of 85-264VAC for worldwide markets. The ADF-07 series provide a better 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
			115VAC, 60Hz		(typ.)
	VDC	Max. mA	@Max. Load mA(typ.)	@Max. Load %	
ADF-07S03	3.3	1400	96	2200	70
ADF-07S05	5	1400	139	2200	73
ADF-07S12	12	583	130	1000	78
ADF-07S15	15	466	130	1000	78
ADF-07S24	24	291	130	680	78

Input Specifications

Parameter	Conditions / 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	115VAC	Cold Start at 25°C	---	---	10	A
	230VAC		---	---	20	A
External Fuse (Recommended)	All Models		1.5A Slow – Blow Type			

Output Specifications

Parameter	Conditions / Model		Min.	Typ.	Max.	Unit
Output Voltage Setting Accuracy			---	±1.0	±2.0	%Vnom.
Line Regulation	Vin=Min. to Max. @Full Load		---	±0.5	±1.0	%
Load Regulation	Io=Min. to Max.		---	±0.5	±1.0	%
Ripple & Noise	0-20 MHz Bandwidth	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
Over Load Protection	Hiccup mode, auto-recovery		105	---	---	%Inom.
	(long term overload condition may cause damage)					
Short Circuit Protection	Hiccup mode, Automatic Recovery					

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General Specifications

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage	Input to Output, 60 Seconds	3000	---	---	VAC
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	330,000			Hours
Safety Approvals	UL/cUL 60950-1 recognition(UL certificate) , IEC/EN 60950-1(CB-report)				
	UL/cUL 62368-1 recognition(UL certificate), IEC/EN 62368-1(CB-report)				

EMC Specifications

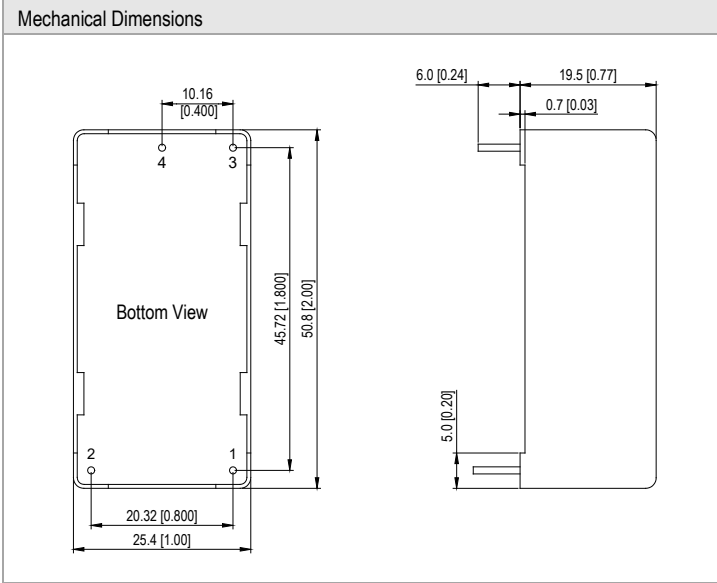
Parameter	Standards & Level		Performance
EMI	Conduction	EN 55032	Without external components
	Radiation		
EMS	EN 55035		
	ESD	EN 61000-4-2 Air ± 8kV, Contact ± 4kV	B
	Radiated immunity	EN 61000-4-3 10V/m	A
	Fast transient	EN 61000-4-4 ±2kV	B
	Surge	EN 61000-4-5 ±1kV	B
	Conducted immunity	EN 61000-4-6 10Vrms	B
	PFMF	EN 61000-4-8 30A/m	A
	Dips	EN 61000-4-11 30% 10ms	B
	Interruptions	EN 61000-4-11 >95% 5000ms	C

Environmental Specifications

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating Ambient Temperature Range		-25	---	+70	°C
Power Derating	+50°C to +70°C	0.263			W / °C
Storage Temperature Range		-40	---	+85	°C
Thermal Shutdown	Shutdown, Internal IC Junction Temperature	---	142	---	°C
	Automatic Recovery, Internal IC Junction Temperature	---	67	---	°C
Humidity (non condensing)		---	---	95	% rel. H
Lead Temperature (1.5mm from case for 10Sec.)		---	---	260	°C

Notes

- Specifications typical at Ta=+25°C, resistive load, 115VAC, 60Hz input voltage and after warm-up time rated output current unless otherwise noted.
- 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.
- We recommend to protect the converter by a slow blow fuse in the input supply line.
- Other input and output voltage may be available, please contact MINMAX.
- Specifications are subject to change without notice

Package Specifications


Pin Connections

Pin	Function	Diameter mm (inches)
1	AC(N) – AC Neutral	∅ 1.0 [0.04]
2	AC(L) – AC Line	∅ 1.0 [0.04]
3	+Vout	∅ 1.0 [0.04]
4	-Vout	∅ 1.0 [0.04]

- ▶ All dimensions in mm (inches)
- ▶ Tolerance: ±0.5 (±0.02)
- ▶ Pin pitch tolerance: ±0.25 (±0.01)
- ▶ Pin diameter tolerance: X.X±0.1 (X.XX±0.004)

Physical Characteristics

Case Size	: 50.8x25.4x19.5mm (2.00x1.00x0.77 Inches)
Case Material	: Plastic resin (flammability to UL 94V-0 rated)
Pin Material	: Copper Alloy
Weight	: 44g