AA04S/D Series

4W Single and Dual Output, AC/DC Power Module

FEATURES

- Ultra-compact AC-DC power supply for PCB Mounting
- Over Load and Over Voltage Protection
- EMI meets EN55022, Class B and EMS compliance to EN61000-4
- Universal Input voltage range 85-264 VAC, 47-440 Hz
- High efficiency
- UL/IEC/EN 60950-1 Certified , CE Marked
- 3kVAC Isolatoin , Protection Class II level
- Lead free, RoHs Compliant
- 3 Years Product Warranty

The AA04S/D series , isolated fully encapsulated 4W AC/DC power module with 3,000VAC isolation. With Universal input voltage 85-264VAC and International safety approvals, these power modules are ideal for applications in commercial and industrial electronic equipment. These isolated AC/DC converters are the latest offering from a world leader in power systems technology and manufacturing — Delta Electronics, Inc. With creative design technology and optimization of component placement, these converters possess outstanding electrical and thermal performance, as well as extremely high reliability under highly stressful operating conditions.

Model List

Model Number	Output Voltage	Output Current	Input Current	Max. capacitive Load	Efficiency (typ.)
		Max.	@Max. Load		@Max. Load
	VDC	mA	mA(typ.)	μF	%
AA04S0300A	3.3	1200	82	1200	70
AA04S0500A	5	800	82	800	72
AA04S0900A	9	444	77	440	75
AA04S1200A	12	333	76	330	76
AA04S1500A	15	267	76	260	76
AA04S2400A	24	167	76	160	77
AA04D0305A	+5	600	72	5600	72
	+3.3	150		4700	
AA04D0512A	+12	250	72	330	75
	+5	120		4700	
AA04D1212A	±12	±166	76	* 330	77
AA04D1515A	±15	±133	76	* 260	77

* For each output

Input Characteristics

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℃)	115VAC	---	---	15	A
	230VAC	---	---	25	A

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Output Characteristics

Parameter	Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Single and Dual Output Models		---	±1.0	±2.0	%
	ABF-04D53 & ABF-04D125		---	±2.0	±5.0	%
Line Regulation	Single and Dual Output Models		---	±0.5	±1.0	%
	ABF-04D53 & ABF-04D125	Vo1	---	±0.5	±1.0	%
		Vo2	---	±1.0	±3.0	%
Load Regulation	3.3VDC Output Model		---	±1.0	±1.5	%
	5~24VDC and Dual Output Models		---	±0.5	±1.0	%
	ABF-04D53 & ABF-04D125	Vo1	---	±0.5	±1.0	%
		Vo2	---	±2.5	±5.0	%
Ripple & Noise (20MHz)	3.3V & 5VDC Output Models		---	100	150	mV_{P-P}
	Other Output Models		---	0.8	1.0	$\%V_{PP}$ of Vo
Minimum Load	Single Output and Dual +/- Output Models		No min. Load required	---	---	%Inom.
	Dual +/+ Output Models		---	25	---	%Inom.
Over Voltage Protection	Zener diode clamp		---	120	---	% of Vo
Temperature Coefficient			---	±0.01	±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 Characteristics

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		---	130	---	KHz
Hold-up Time		---	20	---	ms
MTBF (calculated)	MIL-HDBK-217F@25℃, Ground Benign	330,000	---	---	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)			B
		80% AM, 1KHz modulation			
	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			

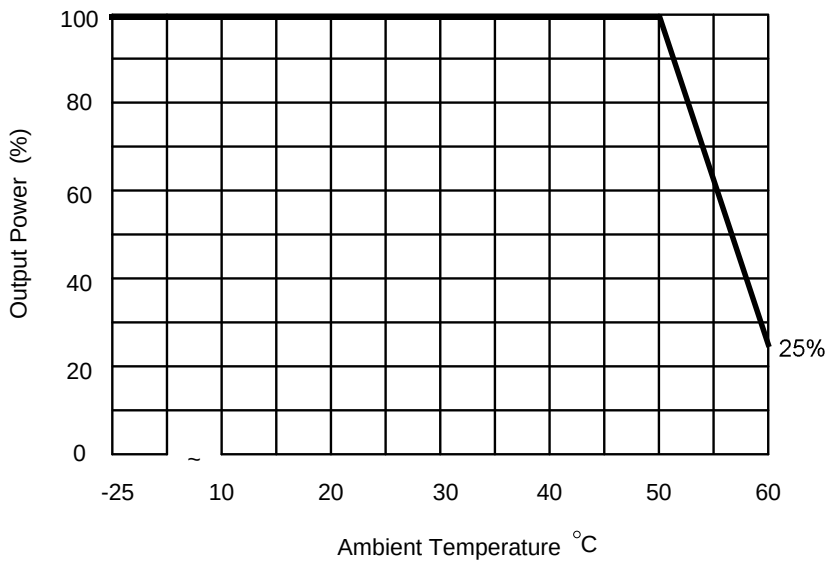
Recommended Input Fuse

	All Models
External Fuse (Recommended)	1A Slow – Blow Type

Environmental Specifications

Parameter	Conditions		
Temperature Range (operational)	Ambient	-25℃	+60℃
Storage Temperature Range		-40℃	+85℃
Over Temperature Protection	at 90℃ (automatic recovery at 67℃)		
Cooling	Free-Air convection		
Humidity (non condensing)		---	95 % rel. H

Power Derating Curve

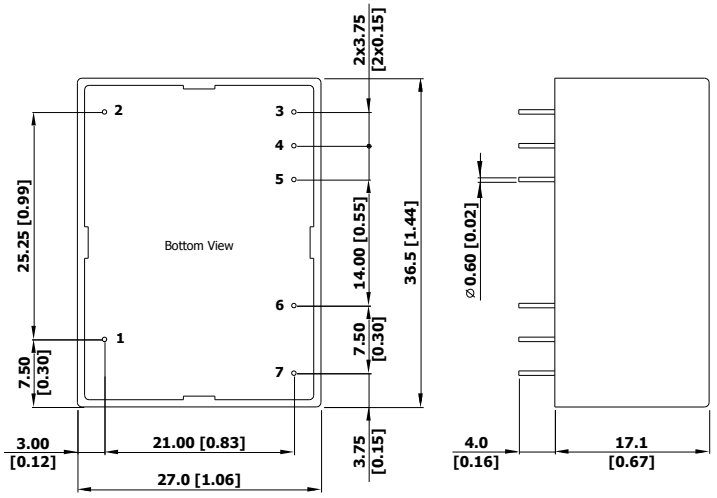


Notes

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. All AC/DC modules should be externally fused at the front end for protection.
5. Other input and output voltage may be available, please contact us for custom solution .
6. Specifications are subject to change without notice

Mechancial Drawing

Mechanical Dimensions



Pin Connections

Pin	Single Output	D12/D15	D53/D125
1	NC		
2	NC		
3	+Vout	+Vout	+Vout1
4	-Vout	Common	Common
5	NP	-Vout	+Vout2
6	AC(N)		
7	AC(L)		

- ▶All dimensions in mm (inches)
- ▶Tolerance: ±0.5 (±0.01)
- ▶Pin diameter ⇔ 0.6 ±0.1 (0.02±0.004)

Physical Outline

Case Size	:	36.5x27.0x17.1mm (1.44x1.06x0.67 inches)
Case Material	:	Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Pin Material	:	Copper Alloy with Gold Plate Over Nickel Subplate
Weight	:	26g

Part Numbering System

A	A	04	D	12	12	A
Form factor	**Family series**	**Watt**	**Number of Outputs**	**0nput Voltage I**	**Output Voltage II**	**Option Code**
AC/DC Power Module	A~Z	04 - 4W	S - Single	03 : 3.3V	03 : 3.3V	A - Std PCB Mounting
			D - Dual	05 : 5V	05 : 5V	
				09 : 9V	09 : 9V	
				12 : 12V	12 : +-12V	
				15 : 15V	15 : -15V	
				24 : 24V		

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WARRANTY

Delta offers a three(3) years limited warranty. Complete warranty information is listed on our web site or is available upon request from Delta.

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- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.

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