



### FEATURES

- Encapsulated compact AC-DC power supply
- Single-, Dual, and Triple Output Models
- Over Load and Over Voltage Protection
- 3 Mounting Package Versoin:
  - Solder pins for direct PCB mount
  - Screw terminal block for chassis mount
  - DIN-Rail Mounting
- Universal Input voltage range 85-264 VAC, 47-440 Hz
- 3kVAC Isolatoin, Protection Class II level
- UL/UL/IEC/EN 60950-1 Certified , CE Marked
- UL508 Approval (Selective)
- Lead free, RoHs Compliant
- 3 Year Product Warranty

The AA30S/D/T series , isolated fully encapsulated 30W 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. industrial electronic equipment

### Model List

Model Number	Output Voltage	Output Current		Input Current		Max. capacitive Load	Efficiency (typ.)	UL60950-1 Approval	UL508 Approval
		Max.	Peak	115VAC, 60Hz					
				mA	mA		@Max. Load		
AA30S0500A	5	6000	---	557	60	8000	78	○	○
AA30S1200A	12	2500	---	543	60	3900	80	○	○
AA30S1500A	15	2000	---	543	60	3900	80	○	○
AA30S2400A	24	1250	---	543	60	1500	80	○	○
AA30S4800A	48	625	---	543	60	1000	80	○	○
AA30D1212A	±12	±1300	---	565	60	*1500	80	○	○
AA30D1515A	±15	±1000	---	543	60	*1500	80		
AA30D0512A	*5	3000	4500	572	60	3900	76	○	
	*12	1250	1800			1500			
	*5	3000	4500			2200			
AA30T051212A	12	600	900	572	60	1500	76	○	
	-12	-600	900			1500			
	*5	3000	4500			2200			
AA30T121205A	12	1000	1500	572	60	1500	76	○	
	-12	-250	500			1500			
	*5	3000	4500			2200			
AA30T051515A	15	500	750	572	60	1500	76	○	
	-15	-500	750			1500			
	*5	4500	6000			2200			
AA30T050312A	+3.3	1000	1500	588	60	2200	71	○	
	+12	250	500			1500			
	*3.3	4000	5300			2200			
AA30T030512A	+5	1500	2000	483	60	2200	71	○	
	+12	250	500			1500			
	*3.3	4000	5300			2200			

\* Output floating (note 6)

\* 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
Inrush Current (Cold Start at 25°C)	115VAC	---	---	20	A
	230VAC	---	---	40	A

## Output Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit			
Output Voltage Accuracy	Single / Dual Output	---	±1.0	±2.0	%			
	Dual Positive / Triple Output	Vo1	---	±1.0	±2.0	%		
		Vo2&Vo3	---	±3.0	---	%		
Line Regulation	Vin=Min. to Max.	---	±0.2	±1.0	%			
Load Regulation	Iout=Min. to Max.	Single Output Models	---	±0.5	±1.0	%		
		Dual Output Models	---	±2.5	±5.0	%		
		Triple Output Models	Vo1	---	±2.5	±5.0	%	
			Vo2&Vo3	---	±4.0	---	%	
Cross Regulation- Dual / Triple Output Models	Vo1	Measured output Io = 20% to 100% of rated load			---	±2.0	---	%
	Vo2	Other output(s) set at 50% of rated load			---	±5.0	---	%
	Vo3				---	±5.0	---	%
Ripple & Noise (20MHz)	3.3V & 5VDC Output Models	---	1.5	1.8	%V <sub>PP</sub> of Vo			
	Other Output Models	---	1.0	1.3	%V <sub>PP</sub> of Vo			
Minimum Load	Single-,Dual-Output Models and Main Output Triple Output Models	---	10	---	%Inom.			
	Auxiliary Outputs of Triple Output Models	---	20	---	%Inom.			
Over Voltage Protection	Zener diode clamp	---	120	---	% of Vo			
Temperature Coefficient		---	±0.02	---	%/°C			
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	---	---	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	200,000	---	---	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)			B
		80% AM, 1KHz modulation			
	EN61000-4-8	50Hz/60Hz, 30A/m			A
EN61000-4-11	30%, 10ms			B	
Protection Class II	According IEC/EN 60536				
Safety Approvals	cUL/UL 60950-1, IEC/EN 60950-1				
	UL508 for selective models				

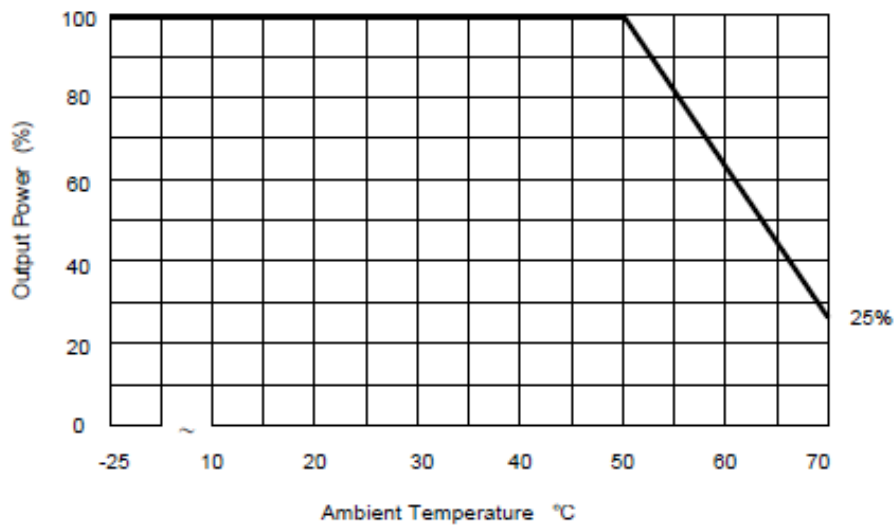
## Recommended Input Fuse

All Models	
Built-in Fuse	3.5A / 250VAC
External Fuse (Recommended)	1.5A Slow – Blow Type

## Environmental Specifications

Parameter	Conditions		
Temperature Range (operational)	Ambient	-25°C	+70°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

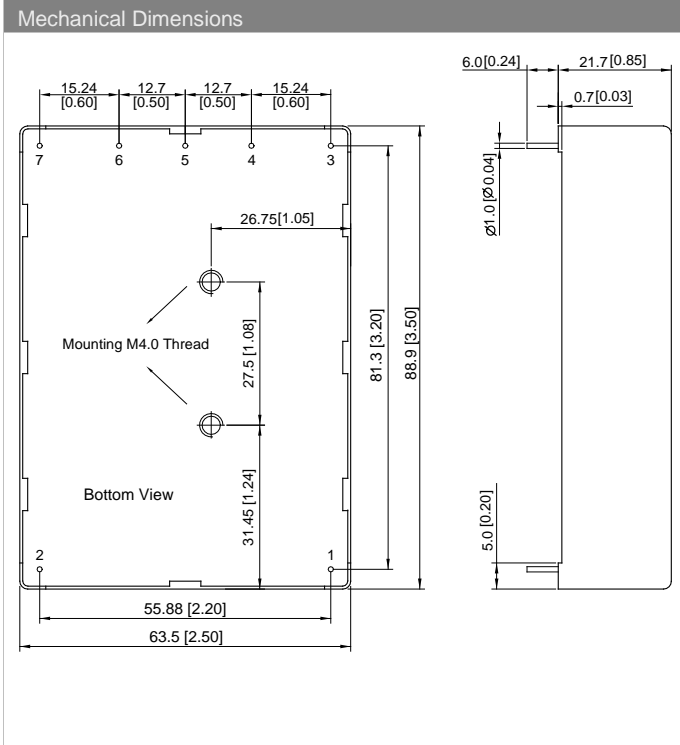
## Power Derating Curve



## Notes

- 1 All specifications typical at  $T_a=+25^{\circ}\text{C}$ , 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 us for custom solution
- 5 Peak current can't be drawn from all output at the same time.
- 6 Floating (or isolated) output of a power supply that is not connected to any other output.
- 7 Specifications are subject to change anytime without notice

## Mechanical Drawing PCB Mounting



**Pin Connections**

Pin	Single	Dual (±12, ±15)	Dual (0512)	Triple	Triple (050312, 030512)
1	AC(N) – AC Neutral				
2	AC(L) – AC Line				
3	+V <sub>out</sub>	+V <sub>out</sub>	+V <sub>out2</sub>	+V <sub>out2</sub>	+V <sub>out2</sub>
4	No Pin		+V <sub>out1</sub>	+V <sub>out1</sub>	+V <sub>out1</sub>
5	-V <sub>out</sub>	Common	-V <sub>out2</sub>	Com. 2/3	Com. 2/3
6	No Pin		-V <sub>out1</sub>	-V <sub>out1</sub>	-V <sub>out1</sub>
7	NC	-V <sub>out</sub>	NC	-V <sub>out3</sub>	+V <sub>out3</sub>

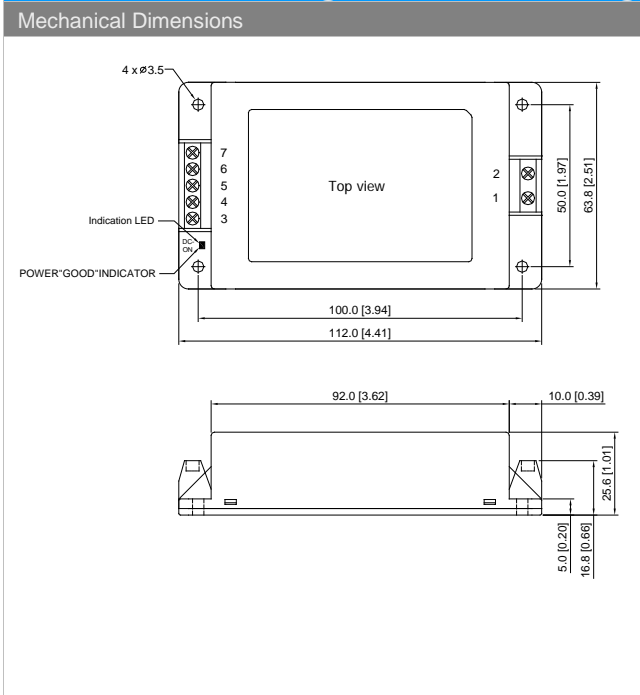
NC: No Connection

- ▶ All dimensions in mm (inches)
- ▶ Tolerance:  $\pm 0.5$  ( $\pm 0.02$ )
- ▶ Pin diameter  $\leftrightarrow 1.0 \pm 0.1$  ( $0.04 \pm 0.004$ )

## Physical Outline

Case Size	: 88.9x63.5x21.7mm (3.50x2.50x0.85 inches)
Case Material	: Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Pin Material	: Copper Alloy with Gold Plate Over Nickel Subplate
Weight	: 177g

## Mechanical Drawing Chassis Mounting (Option code, suffix C)



**Connections**

Terminal	Single	Dual (±12, ±15)	Dual (0512)	Triple	Triple (050312, 030512)
1	AC(N) – AC Neutral				
2	AC(L) – AC Line				
3	+V <sub>out</sub>	+V <sub>out</sub>	+V <sub>out2</sub>	+V <sub>out2</sub>	+V <sub>out2</sub>
4	NC		+V <sub>out1</sub>	+V <sub>out1</sub>	+V <sub>out1</sub>
5	-V <sub>out</sub>	Common	-V <sub>out2</sub>	Com. 2/3	Com. 2/3
6	NC		-V <sub>out1</sub>	-V <sub>out1</sub>	-V <sub>out1</sub>
7	NC	-V <sub>out</sub>	NC	-V <sub>out3</sub>	+V <sub>out3</sub>

NC: No Connection

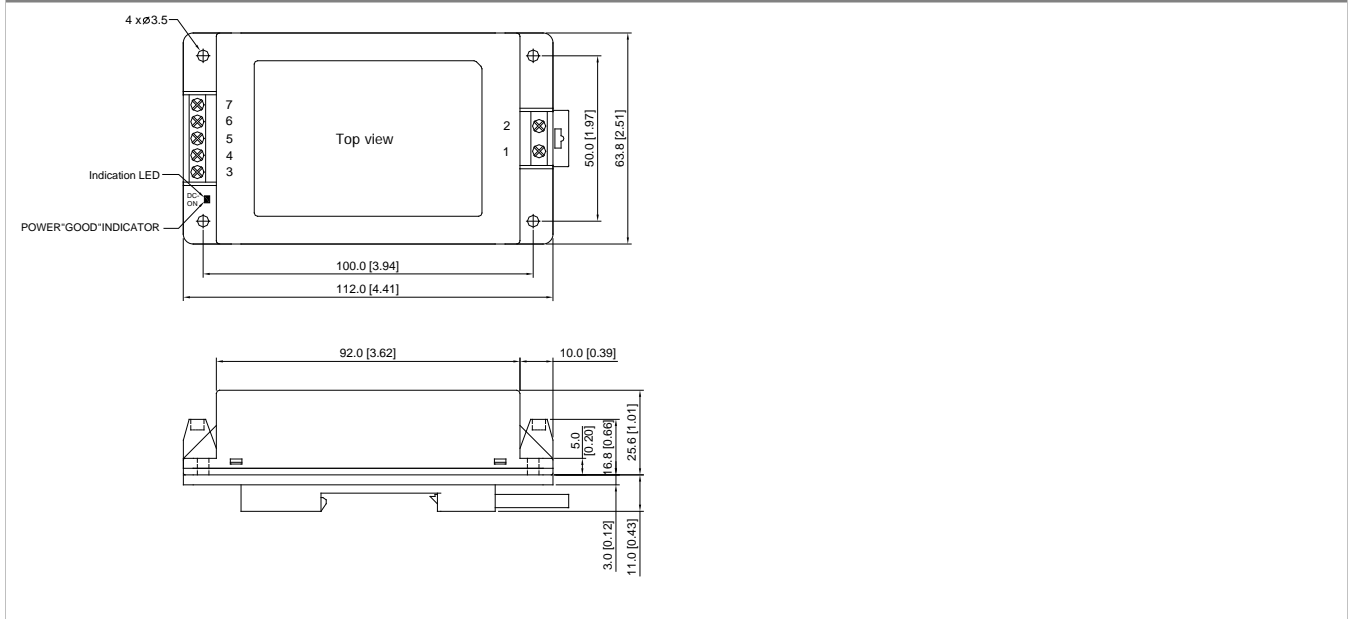
- ▶ All dimensions in mm (inches)
- ▶ Tolerance: X.X $\pm$ 0.5 (X.XX $\pm$ 0.02)  
X.XX $\pm$ 0.25 (X.XXX $\pm$ 0.01)
- ▶ Pin pitch tolerance:  $\pm 0.25$  (0.01)

## Physical Outline

Case Size	: 112.0x63.8x25.6mm (4.41x2.51x1.01 inches)
Case Material	: Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Weight	: 191g

## Mechanical Drawing Chassis Mounting with DIN Rail Kit (Option code, suffix D)

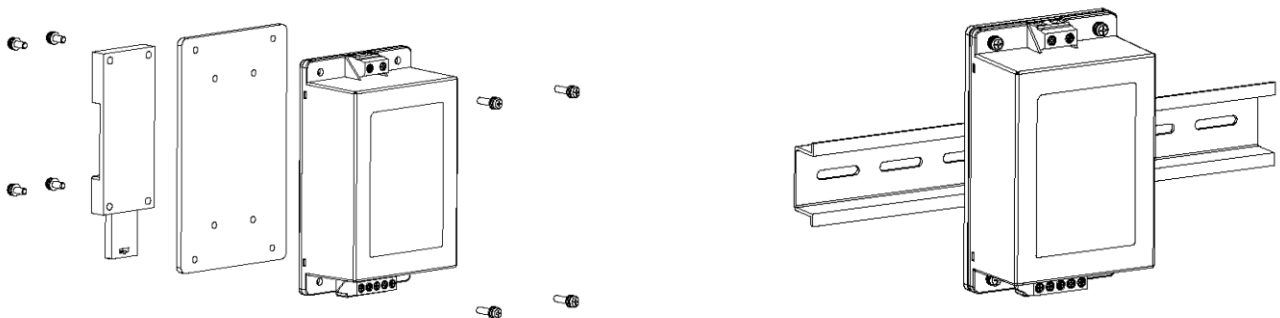
### Mechanical Dimensions



## Physical Outline

Case Size	: 112.0x63.8x25.6mm (4.41x2.51x1.01 inches)
Case Material	: Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Weight	: 245g

## DIN-Rail Mounting Kit





Part Numbering System							
A	A	30	T	05	03	12	A
Product typ	Family series	Watt	Number of Outputs	Output Voltage I	Output Voltage II	Output Voltage III	Option Code
AC/DC Power Module	Industrial application	30 - 30W	S - Single	05 - 5V	00 - not applicable	05 - 5V	A - PCB Mount
			D - Dual	12 - 12V	12 - 12V	12 - 12V	C - Chassis Mount
			T - Triple	15 - 15V	15 - 15V	15 - 15V	D - Din Rail Mount
				24 - 24V	03 - 3.3V		
				48 - 48V	05 - 5V		
				03 - 3.3V			

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