

### FEATURES

- ◆ Encapsulated compact AC-DC power supply
- ◆ Single-, Dual- and Triple Output Models
- ◆ Over Load and Over Voltage Protection
- ◆ 3 Mounting Package Versions:
  - 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 Isolation, 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 AA15S/D/T series , isolated fully encapsulated 15W 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 Max. mA	Input Current 115VAC, 60Hz		Max. capacitive Load μF	Efficiency (typ.) @Max. Load %	UL60950-1 Approval	UL508 Approval
			@Max. Load mA(typ.)	@No Load mA(typ.)				
	VDC							
AA15S0500A	5	3000	290	30	3900	75	○	○
AA15S1200A	12	1250	275	30	2200	79	○	○
AA15S1500A	15	1000	275	30	2200	79	○	○
AA15S2400A	24	625	275	30	1000	79	○	○
AA15S4800A	48	310	273	30	680	79	○	○
AA15D1212A	±12	±650	275	30	*1500	79	○	○
AA15D1515A	±15	±500	275	30	*1500	79	○	○
AA15D0512A	5	1500	302	30	2000	72	○	
	*12	625			1500			
AA15T051212A	5	2000	290	30	2200	74	○	
	*12	200			1500			
	*-12	-200			1500			
	*5	2000			2200			
AA15T051515A	*15	150	284	30	2200	74	○	
	*15	150			1500			
	*-15	-150			1500			

\* Output voltage accuracy 4% max.

\* 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	---	---	15	A
	230VAC	---	---	30	A

## Output Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit	
Output Voltage Accuracy		---	±1.0	±2.0	%	
Line Regulation	Vin=Min. to Max.	---	±0.5	±1.0	%	
Load Regulation	Iout=Min. to Max.	Single Output Models	---	±0.5	±1.0	%
		Dual/ Triple Output Models	---	±2.5	±5.0	%
Cross Regulation- Dual Positives / Triple Output	Vo1	Measured output Io = 20% to 100% of rated load Other output(s) set at 50% of rated load	---	±1.0	---	%
	Vo2		---	±2.5	---	%
	Vo3		---	±2.5	---	%
Ripple & Noise (20MHz)	5VDC Output Models	---	1.5	1.8	%V <sub>PP</sub> of Vo	
	Other Output Models	---	0.8	1.0	%V <sub>PP</sub> 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	
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	280,000	---	---	Hours
Protection Class II	According IEC/EN 60536				
Safety Approvals	cUL/UL 60950-1, IEC/EN 60950-1				
	UL508 for selective models				
EMC Emission	Conducted and radiated	EN 55011 class B, EN 55032 class B, FCC part 15 class B			
EMC Immunity according EN61000-6-1	Standard		Specification Requirement		Performance Criteria
	ESD	EN61000-4-2	Air ±8KV Cont. ±4KV		B
	Radiated immunity	EN61000-4-3	10V/m		A
	Fast transient	EN61000-4-4	±2KV,		B
	Surge	EN61000-4-5	±1KV		B
	Conducted immunity	EN61000-4-6	10Vrms		B
	PFMF	EN61000-4-8	30A/m		A
	Dips	EN61000-4-11	30%, 10ms >95%, 5000ms		B C



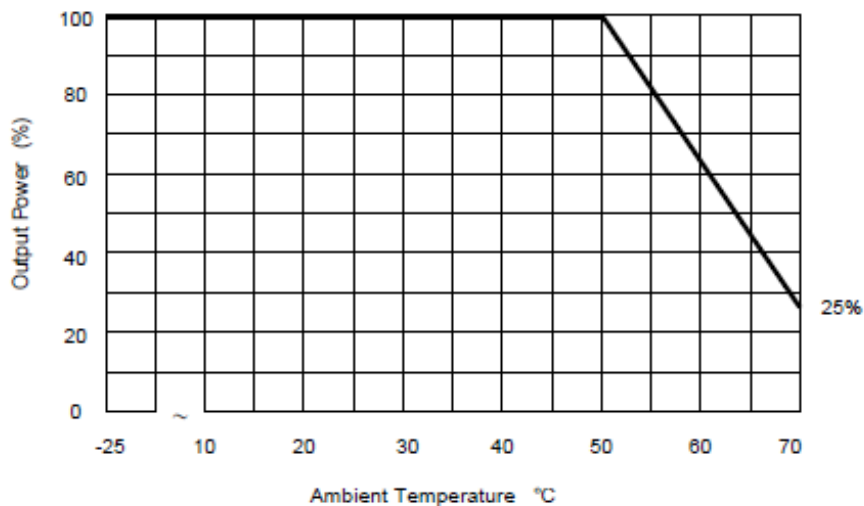
## Input Fuse

All Models	
Built-in Fuse	2A / 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	Internal IC junction temperature	140°C shutdown, 65°C automatic recovery	
Cooling	Free-Air convection		
Humidity (non condensing)		---	95 % rel. H

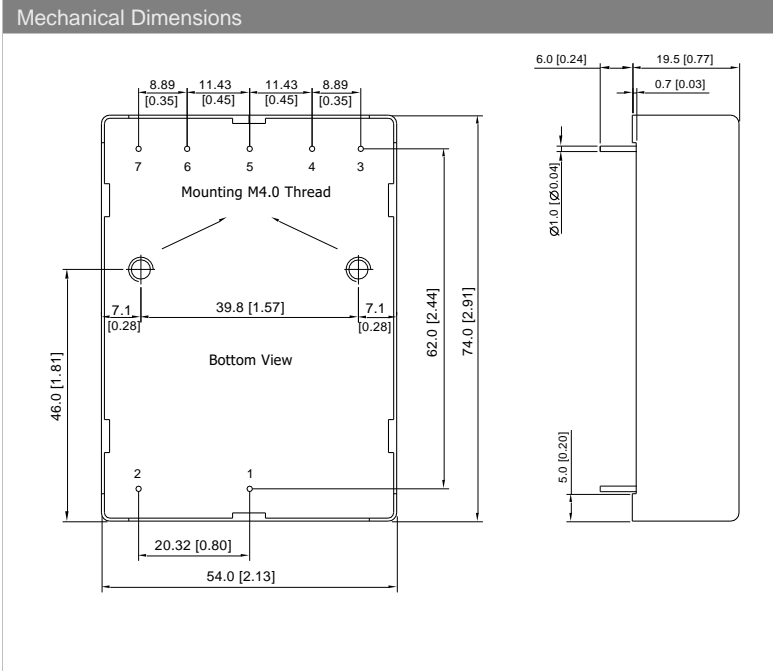
## Power Derating Curve



## 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 Specifications are subject to change anytime without notice

## Mechanical Drawing PCB Mount



**Pin Connections**

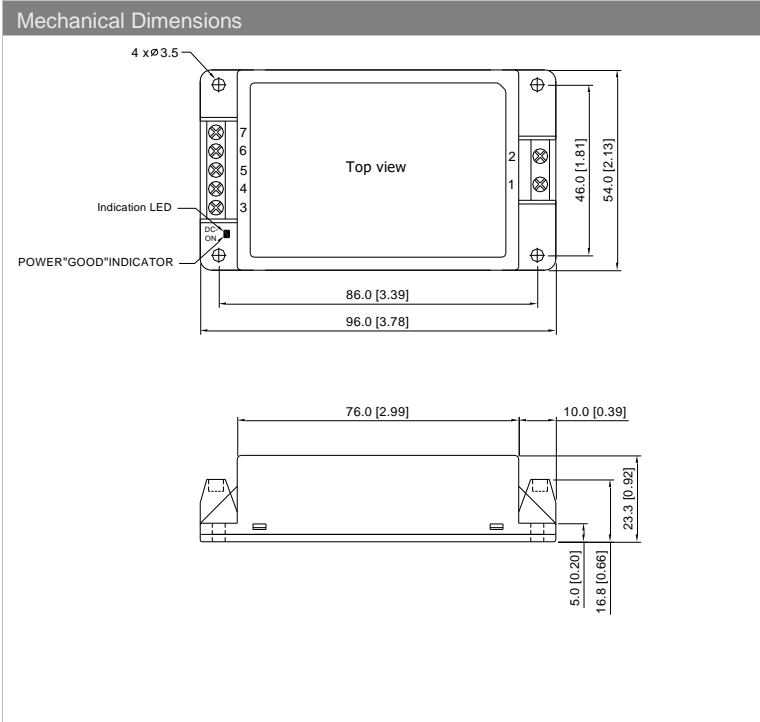
Pin	Single	Dual ( $\pm 12, \pm 15$ )	Dual (0512)	Triple
1	AC(N) – AC Neutral			
2	AC(L) – AC Line			
3	No Pin			-Vout3
4	-Vout	-Vout	-Vout2	Common
5	No Pin	Common	+Vout2	+Vout2
6	+Vout	+Vout	-Vout1	-Vout1
7	No Pin		+Vout1	+Vout1

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

## Physical Outline

Case Size	: 74.0x54.0x19.5mm (2.91x2.13x0.77 inches)
Case Material	: Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Pin Material	: Copper Alloy with Gold Plate Over Nickel Subplate
Weight	: 140g

## Mechanical Drawings Chassis Mount (Option code, suffix C)



**Connections**

Terminal	Single	Dual ( $\pm 12, \pm 15$ )	Dual (0512)	Triple
1	AC(N) – AC Neutral			
2	AC(L) – AC Line			
3	NC			-Vout3
4	-Vout	-Vout	-Vout2	Common
5	NC	Common	+Vout2	+Vout2
6	+Vout	+Vout	-Vout1	-Vout1
7	NC		+Vout1	+Vout1

NC: No Connection

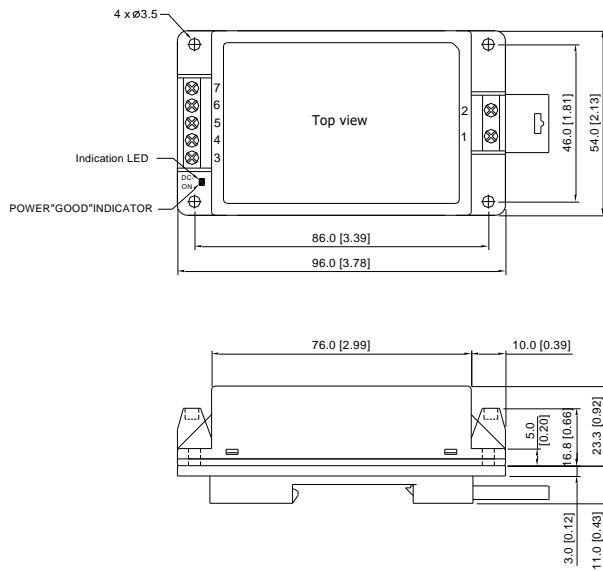
- ▶ All dimensions in mm (inches)
- ▶ Tolerance:  $X.X \pm 0.5$  ( $X.XX \pm 0.02$ )  
 $X.XX \pm 0.25$  ( $X.XXX \pm 0.01$ )
- ▶ Pin pitch tolerance:  $\pm 0.25$  (0.01)

## Physical Outline

Case Size	: 96.0x54.0x23.3mm (3.78x2.13x0.92 inches)
Case Material	: Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Weight	: 130g

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

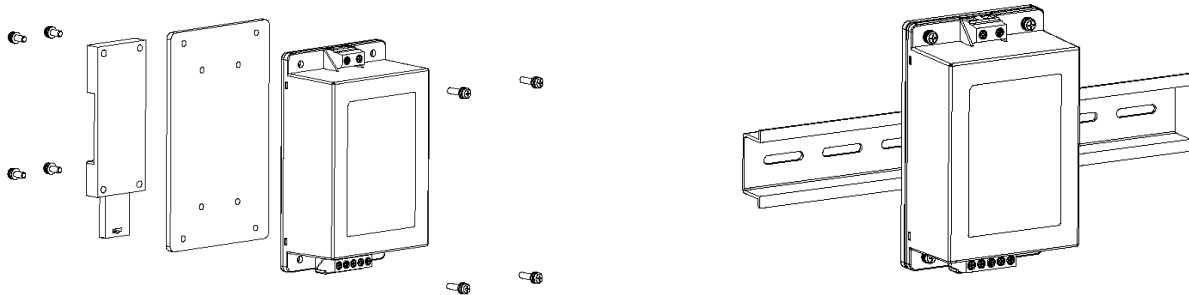
### Mechanical Dimensions



## Physical Outline

Case Size	: 96.0x54.0x23.3mm (3.78x2.13x0.92 inches)
Case Material	: Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Weight	: 190g

## DIN-Rail Mounting Kit





## Part Numbering System

A	A	15	T	05	12	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	15 -15W	S - Single	05 - 5V	00 - not applicable	12 - 12V	A - PCB Mount
			D - Dual	12 - 12V	12 - 12V	15 - 15V	C - Chassis Mount
			T - Triple	15 - 15V	15 - 15V		D -C code module + Din-rail kit
				24 - 24V			
				48 - 48V			

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