

### FEATURES

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



The AA60S series , isolated fully encapsulated 60W 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.)
			115VAC, 60Hz			
	VDC	Max. mA	@Max. Load mA(typ.)	@No Load mA(typ.)	μF	@Max. Load %
AA60S0500A	5.1	10,000	936	50	8000	79
AA60S1200A	12	5000	1060	50	3900	82
AA60S1500A	15	4000	1047	50	3300	83
AA60S2400A	24	2500	1035	50	1500	84
AA60S3600A	36	1666	1035	50	1000	84
AA60S4800A	48	1250	1035	50	680	84

### Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Voltage Range	All Models	85	---	264	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 Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		---	±1.0	±2.0	%
Line Regulation	Vin=Min. to Max.	---	±0.2	±1.0	%
Load Regulation	Iout=Min. to Max.	---	±0.5	±1.0	%
Ripple & Noise (20MHz)	5.1VDC Output Models	---	2.0	3.0	%V <sub>PP</sub> of
	Other Output Models	---	1.0	1.3	%V <sub>PP</sub> of
Minimum Load		---	10	---	%Inom.
Over Voltage Protection	Zener diode clamp	---	120	---	% of Vo
Transient Response Deviation	(Iout=100% to Iout=50%)		±3	±6	%
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	125,000	---	---	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
	EN61000-4-8	80% AM, 1KHz modulation 50Hz/60Hz, 30A/m			A
	EN61000-4-11	30%, 10ms 60%, 100ms, 95%, 5000ms			B C
Protection Class II		According IEC/EN 60536			
Safety Approvals		cUL/UL 60950-1, IEC/EN 60950-1 UL508 approval			

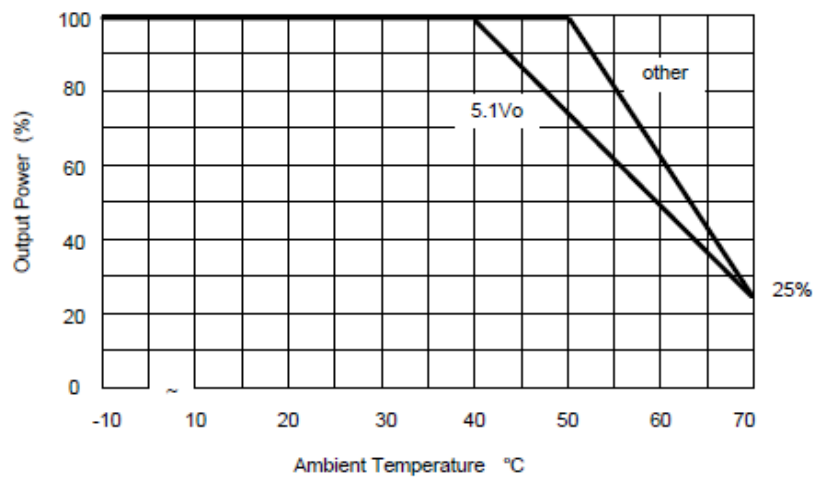
## Input Fuse

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

## Environmental Specifications

Parameter	Conditions		
Temperature Range (operational)	Ambient	-10°C	+70°C
Power Derating (5.1Vout)	+40°C to +70°C		2.25W / °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

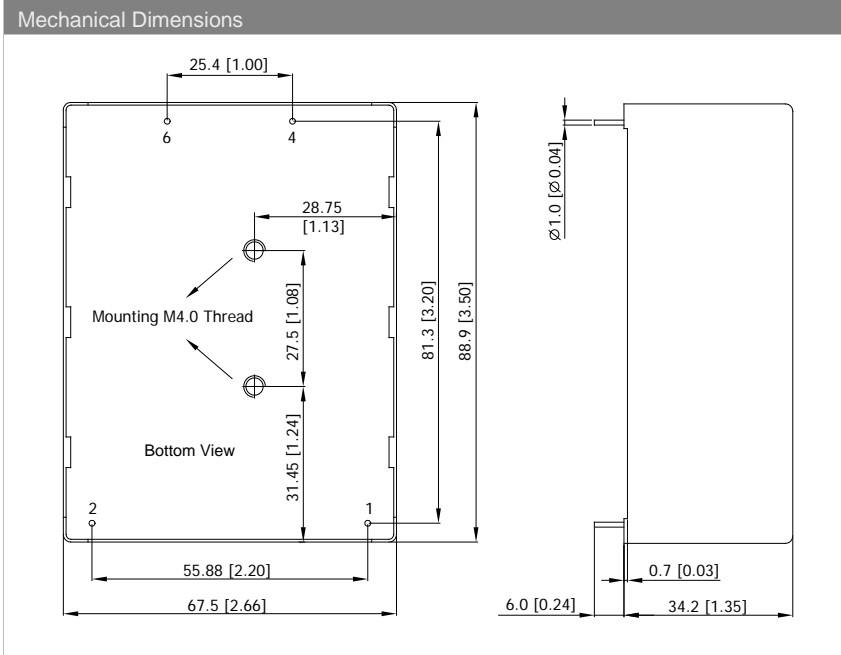
## Power Derating Curve



## 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 Long term short circuit operation may cause damage to the unit.
- 6 Specifications are subject to change without notice

## Mechanical Drawing PCB Mounting



**Pin Connections**

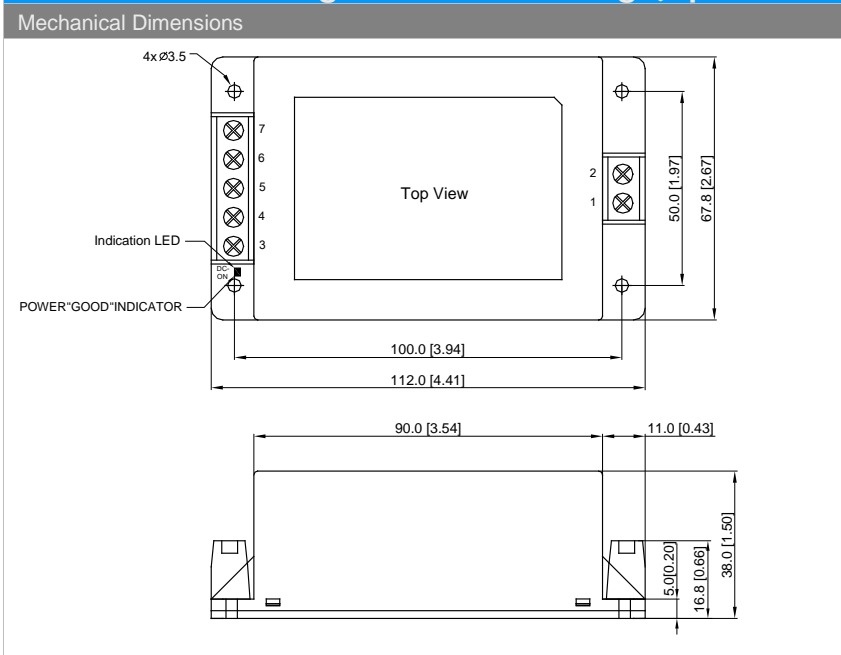
Pin	Function
1	AC(N) – AC Neutral
2	AC(L) – AC Line
4	+Vout
6	-Vout

- ▶ 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	: 88.9x67.5x34.2mm (3.50x2.66x1.35 inches)
Case Material	: Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Pin Material	: Copper Alloy with Gold Plate Over Nickel Subplate
Weight	: 345g

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



**Connections**

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

NC: No Connection

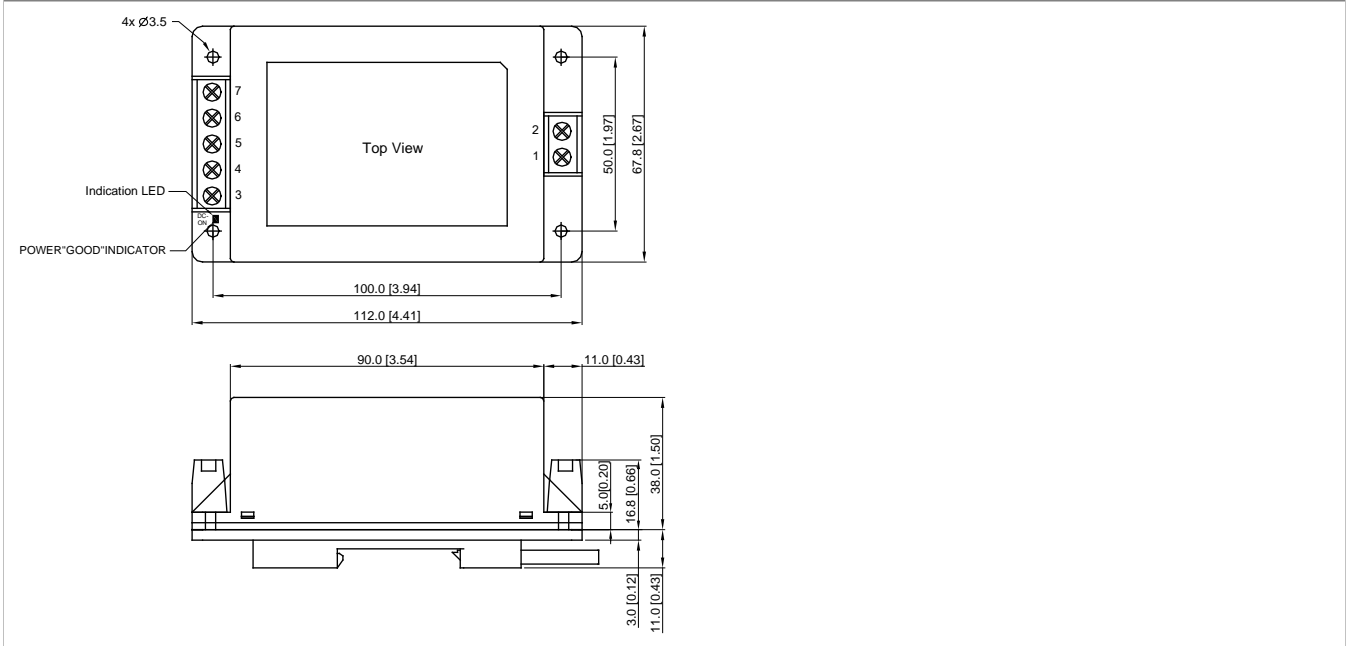
- ▶ All dimensions in mm (inches)
- ▶ Tolerance:  $\pm 0.5$  ( $\pm 0.02$ )

### Physical Outline

Case Size	: 112.0x67.8x38.0mm (4.41x2.67x1.50 inches)
Case Material	: Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Weight	: 357g

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

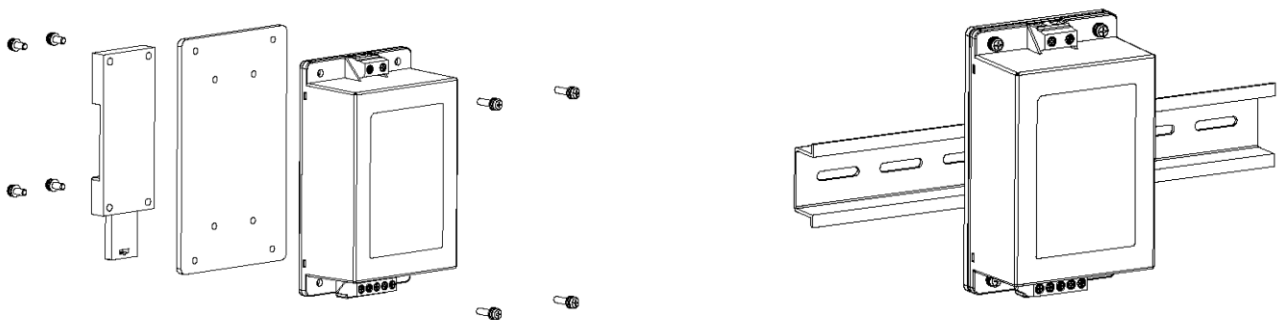
#### Mechanical Dimensions



### Physical Outline

Case Size	: 112.0x67.8x38.0mm (4.41x2.67x1.50 inches)
Case Material	: Plastic resin + Fiberglass (flammability to UL 94V-0 rated)
Weight	: 410g

### DIN-Rail Mounting Kit





Part Numbering System						
A	A	60	S	15	00	A
Product typ	Family series	Watt	Number of Outputs	Output Voltage I	Output Voltage II	Option Code
AC/DC Power Module	Industrial application	60 - 60W	S - Single	05 - 5.1V	00 - not applicable	A - PCB Mount
				12 - 12V		C - Chassis Mount
				15 - 15V		D - Din Rail Mount
				24 - 24V		
				36 - 36V		
				48 - 48V		

**CONTACT:** [www.deltaww.com/dcdc](http://www.deltaww.com/dcdc)

**USA:**

Telephone:  
 East Coast: 978-656-3993  
 West Coast: 510-668-5100  
 Fax: (978) 656 3964  
 Email: [DCDC@delta-corp.com](mailto:DCDC@delta-corp.com)

**Europe:**

Phone: +31-20-655-0967  
 Fax: +31-20-655-0999  
 Email: [DCDC@delta-es.com](mailto:DCDC@delta-es.com)

**Asia & the rest of world:**

Telephone: +886 3 4526107  
 ext 6220~6224  
 Fax: +886 3 4513485  
 Email: [DCDC@delta.com.tw](mailto:DCDC@delta.com.tw)

**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.

Information furnished by Delta is believed to be accurate and reliable. However, no responsibility is assumed by Delta for its use, nor for any infringements of patents or other rights of third parties, which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Delta. Delta reserves the right to revise these specifications at any time, without notice

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Switching Power Supplies](#) category:*

*Click to view products by [Delta](#) manufacturer:*

Other Similar products are found below :

[70841011](#) [73-551-0005](#) [73-551-0048](#) [PS3E-B12F](#) [PS3E-E12F](#) [AAD600S-4-OP](#) [R22095](#) [KD0204](#) [9021](#) [LDIN100150](#) [LPM000-BBAR-01](#)  
[LPX17S-C](#) [EVS57-10R6/R](#) [FP80](#) [FRV7000G](#) [22929](#) [PS3E-F12F](#) [CQM1IA121](#) [40370121900](#) [VI-PU22-EXX](#) [40370121910](#) [LDIN5075](#)  
[LPM615-CHAS](#) [LPX140-C](#) [09-160CFG](#) [70841025](#) [VPX3000-CBL-DC](#) [VI-LUL-IU](#) [LPM000-BBAR-05](#) [LPM000-BBAR-08](#) [LPM124-](#)  
[OUTA1-48](#) [LPM000-BBAR-07](#) [LPM109-OUTA1-10](#) [LPM616-CHAS](#) [08-30466-1055G](#) [08-30466-2175G](#) [08-30466-2125G](#) [DMB-EWG](#)  
[TVQF-1219-18S](#) [6504-226-2101](#) [CQM1IPS01](#) [SP-300-5](#) [CQM1-IPS02](#) [VI-MUL-ES](#) [22829](#) [08-30466-0065G](#) [VI-RU031-EWWX](#) [08-30466-](#)  
[0028G](#) [EP3000AC48INZ](#) [VP-C2104853](#)