# AA15S/D/T Series

**15W Single, Dual, and Triple Output AC/DC Power Module**




## FEATURES

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

* Output voltage accuracy 4% max.

* For each output



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## 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℃) | 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<br>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 | $\%V_{PP}$ of |
| | | Other Output Models | | --- | 0.8 | 1.0 | $\%V_{PP}$ of |
| Minimum Load | | | | --- | 10 | --- | %Inom. |
| Over Voltage Protection | | Zener diode clamp | | --- | 120 | --- | % of Vo |
| Temperature Coefficient | | | | --- | ±0.01 | ±0.02 | %/℃ |
| Overshoot | | | | --- | --- | 5 | % Vout |
| Current Limitation | | Foldback, auto-recovery<br>(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℃, Ground Benign | 280,000 | --- | --- | 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(8/20μS) AC dif. ±1KV DC ±0.5KV | | | B |
| | EN61000-4-6 | 0.15~80MHz, 10Vrms (functional earth ports included)<br>80% AM, 1KHz modulation | | | B |
| | 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 | | | |
| | | UL508 for selective models | | | |

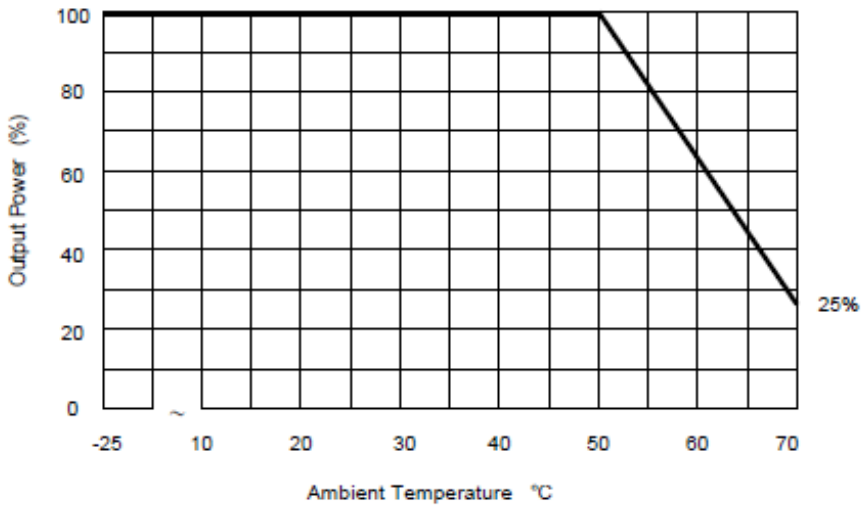
## Input Fuse

| All Models | |
|---|---|
| Built-in Fuse | 2A / 250VAC |
| External Fuse (Recommended) | 1.5A Slow – Blow Type |

## Environmental Specifications

| Parameter | Conditions | | |
|---|---|---|---|
| Temperature Range (operational) | Ambient | -25℃ | +70℃ |
| 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

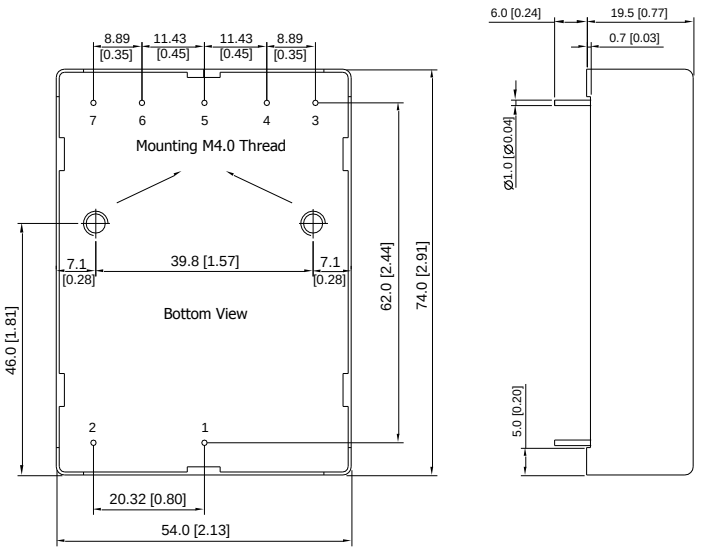



## Notes

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 Other input and output voltage may be available, please contact us for custom solution
5 Specifications are subject to change anytime without notice

## Mechancial Drawing PCB Mount

### Mechanical Dimensions




### Pin Connections

| Pin | Single | Dual (D12,D15) | Dual (D512) | 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 |

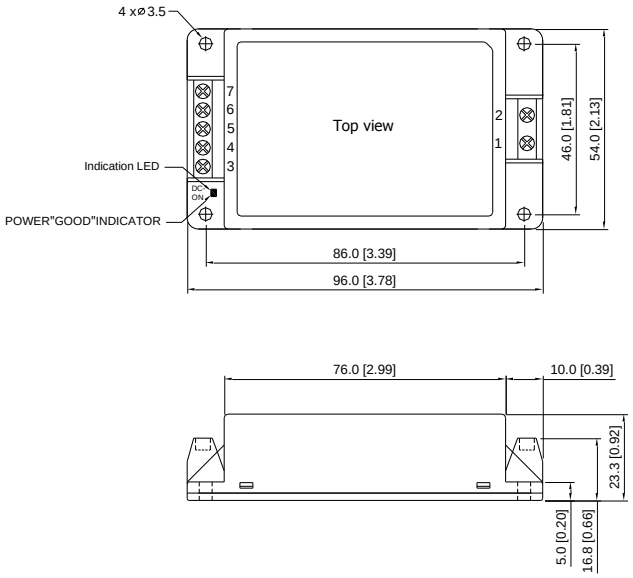
- ▸All dimensions in mm (inches)
- ▸Tolerance: ±0.5 (±0.02)
- ▸Pin diameter ⇔ 1.0 ±0.1 (0.04±0.004)

## 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 | : | 174g |

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

### Mechanical Dimensions




### Connections

| Terminal | Single | Dual (D12,D15) | Dual (D512) | 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

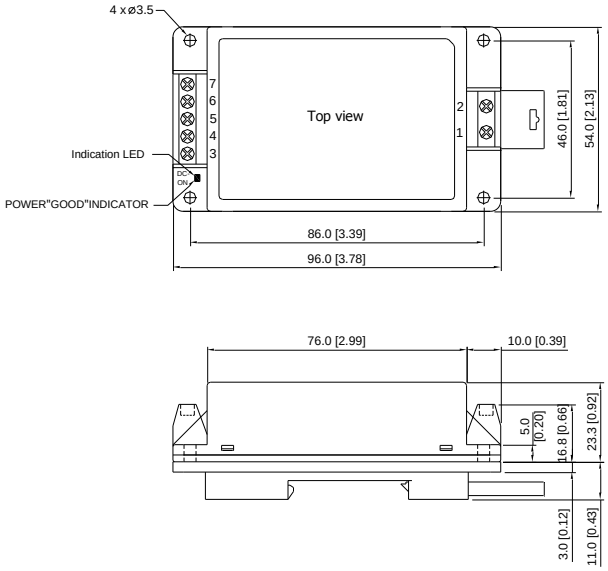
- ▸All dimensions in mm (inches)
- ▸Tolerance: X.X±0.5 (X.XX±0.02)
  X.XX±0.25 ( X.XXX±0.01)
- ▸Pin pitch tolerance: ±0.25 (0.01)

## 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 | : | 162g |

## Mechancial Dawings Chassis Mounting with DIN Rail Kit ( Option code, suffix D)

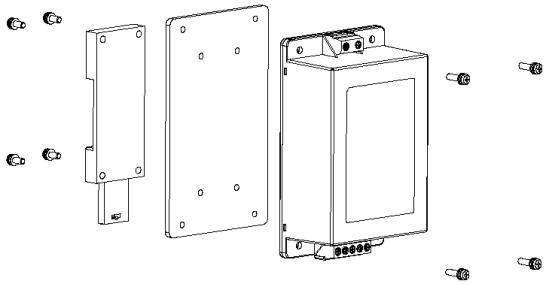
Mechanical Dimensions

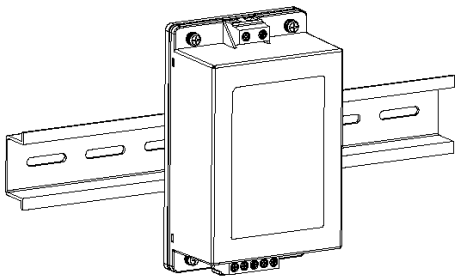



## Physical Outline

| | | |
|---|---|---|
| Case Size | : | 96.0x54.0x23.3mm (3.78x2.13x0.92 inches) |
| Case Material | : | Plastic resin + Fiberglass (flammability to UL 94V-0 rated) |
| Weight | : | 216g |

## DIN-Rail Mounting Kit





## Part Numbering System

| A | A | 15 | T | 05 | 12 | 12 | A |
|---|---|---|---|---|---|---|---|
| Form factor | Family series | Watt | Number of Outputs | 0nput Voltage I | Output Voltage II | Output Voltage III | Option Code |
| AC/DC Power Module | A~Z | 15:15W | S - Single | 05 : 5V | 05 : 5V | 05 : 5V | A - Std PCB Mounting |
| | | | D - Dual | 12 : 12V | 12 : 12 | 12 : -12V | C - Chasis Mounting |
| | | | T - Triple | 15 : 15V | 15 : 15 | 15 : -15V | D – Chassis Mounting with DIN-Rail kit |
| | | | | 24 : 24V | 24 : 24V | 24 : -24V | |
| | | | | 48 : 48V | | | |


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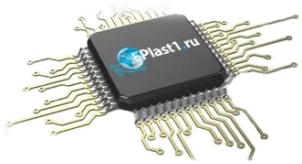
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