

# AM4TW Series



## 4 watt dc-dc converters

- 24-PIN DIP PACKAGE
- LOW PROFILE METAL PACKAGE
- HIGH EFFICIENCY UP TO 80%
- WIDE 4:1 INPUT RANGE
- INPUT/OUTPUT ISOLATION: 1500 & 3500VDC
- OPERATING TEMPERATURE: -40°C ... +85°C
- PIN-COMPATIBLE WITH MULTIPLE MANUFACTURERS
- CONTINUOUS SHORT CIRCUIT PROTECTION

## GENERAL DESCRIPTION

Our AM4TW series is a family of cost effective 4W single and dual output DC-DC converters. These converters combine a nickel-coated copper package in a 24-pin DIP compatible case with high performance features such as 1500 & 3500VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation. Wide range devices operate over 4:1 input voltage range providing stable output voltage. Devices are encapsulated using flame retardant resin. Input

voltages of 24 & 48VDC with output voltages of 3.3, 5, 7.2, 9, 12, 15, 18, 24,  $\pm 3.3$ ,  $\pm 5$ ,  $\pm 7.2$ ,  $\pm 9$ ,  $\pm 12$ ,  $\pm 15$ ,  $\pm 18$  &  $\pm 24$ VDC. High performance features include high efficiency operation up to 80% and output voltage accuracy of  $\pm 1\%$  maximum. All models are packaged in a low profile 31.75x20.32x10.16mm 24 pin DIP nickel-coated copper case. Operation is specified over the full operating temperature range of -40°C to +85°C with no derating required. Cooling is by free-air convection.

## ELECTRICAL SPECIFICATIONS

Specifications typical at +25°C, nominal input voltage, rated output current unless otherwise specified

### Input Specifications:

|               |                                       |
|---------------|---------------------------------------|
| Voltage range | 24 VDC, 9~36 VDC<br>48 VDC, 18~72 VDC |
| Filter        | p (Pi) Network                        |

### Isolation Specifications:

|               |                 |
|---------------|-----------------|
| Rated voltage | 1500 & 3500 VDC |
| Resistance    | > 1000 MOhm     |
| Capacitance   | 80pF, typ.      |

### General Specifications:

|                     |                         |
|---------------------|-------------------------|
| Efficiency          | 75% to 80%              |
| Switching Frequency | 250 KHz, typ. 100% load |

### Physical Specifications:

|               |   |
|---------------|---|
| Dimensions    | 31.75x20.32x10.16 mm<br>1.25x0.8x0.4 inches |
| Weight        | 26 g  |
| Case material | Nickel-Coated Copper                        |

### Output Specifications:

|                               |                                      |
|-------------------------------|--------------------------------------|
| Voltage accuracy              | $\pm 1\%$ , max.                     |
| Voltage balance (Dual Output) | $\pm 1\%$                            |
| Ripple & noise (at 20MHz BW)  | 60mVp-p, max.                        |
| Short circuit protection      | Continuous                           |
| Short circuit restart         | Automatic                            |
| Line voltage regulation       | $\pm 0.5\%$ , max.                   |
| Load voltage regulation       | $\pm 0.5\%$ , max.                   |
| Temperature Coefficient       | $\pm 0.02\%/^{\circ}\text{C}$ , typ. |

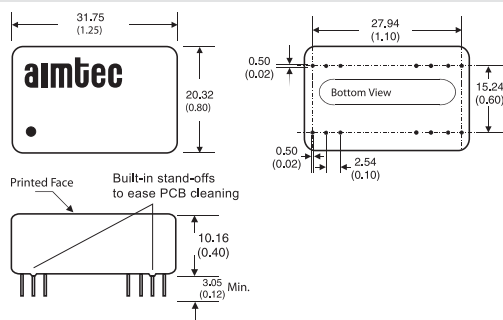
### Environmental Specifications:

|                                 |                     |
|---------------------------------|---------------------|
| Operating temperature (ambient) | -40°C to +85°C      |
| Storage temperature             | -55°C to +125°C     |
| Case temperature                | +100°C, max.        |
| Derating                        | None required       |
| Humidity (non-condensing)       | Up to 90%           |
| Cooling                         | Free-air Convection |

MTBF: >1,211,000 hrs (MIL-HDBK-217F, Ground Benign,  $t=+25^{\circ}\text{C}$ )

Specifications are subject to change without notification

## OUTLINE DIMENSIONS & PIN CONNECTIONS



| Pin   | 1500VDC   |           | 3500VDC   |           |
|-------|-----------|-----------|-----------|-----------|
|       | Single    | Dual      | Single    | Dual      |
| 1     | +V Input  | +V Input  | Omitted   | Omitted   |
| 2     | N.C.      | -V Output | -V Input  | -V Input  |
| 3     | N.C.      | Common    | -V Input  | -V Input  |
| 9     | Omitted   | Omitted   | N.C.      | Common    |
| 10    | -V Output | Common    | Omitted   | Omitted   |
| 11    | +V Output | +V Output | N.C.      | -V Output |
| 12/13 | -V Input  | -V Input  | Omitted   | Omitted   |
| 14    | +V Output | +V Output | +V Output | +V Output |
| 15    | -V Output | Common    | Omitted   | Omitted   |
| 16    | Omitted   | Omitted   | -V Output | Common    |
| 22    | N.C.      | Common    | +V Input  | +V Input  |
| 23    | N.C.      | -V Output | +V Input  | +V Input  |
| 24    | +V Input  | +V Input  | Omitted   | Omitted   |

# AM4TW Series

## MODELS Single output

| Models            |                   | Input Voltage | Ouput Voltage | Ouput Current max. |
|-------------------|-------------------|---------------|---------------|--------------------|
| Isolation 1500VDC | Isolation 3500VDC |               |               |                    |
| AM4TW-2403S       | AM4TW-2403SH35    | 9VDC - 36VDC  | 3.3VDC        | 1000mA             |
| AM4TW-2405S       | AM4TW-2405SH35    |               | 5VDC          | 800mA              |
| AM4TW-2407S       | AM4TW-2407SH35    |               | 7.2VDC        | 556mA              |
| AM4TW-2409S       | AM4TW-2409SH35    |               | 9VDC          | 444mA              |
| AM4TW-2412S       | AM4TW-2412SH35    |               | 12VDC         | 333mA              |
| AM4TW-2415S       | AM4TW-2415SH35    |               | 15VDC         | 267mA              |
| AM4TW-2418S       | AM4TW-2418SH35    |               | 18VDC         | 222mA              |
| AM4TW-2424S       | AM4TW-2424SH35    |               | 24VDC         | 167mA              |
| AM4TW-4803S       | AM4TW-4803SH35    | 18VDC - 72VDC | 3.3VDC        | 1000mA             |
| AM4TW-4805S       | AM4TW-4805SH35    |               | 5VDC          | 800mA              |
| AM4TW-4807S       | AM4TW-4807SH35    |               | 7.2VDC        | 556mA              |
| AM4TW-4809S       | AM4TW-4809SH35    |               | 9VDC          | 444mA              |
| AM4TW-4812S       | AM4TW-4812SH35    |               | 12VDC         | 333mA              |
| AM4TW-4815S       | AM4TW-4815SH35    |               | 15VDC         | 267mA              |
| AM4TW-4818S       | AM4TW-4818SH35    |               | 18VDC         | 222mA              |
| AM4TW-4824S       | AM4TW-4824SH35    |               | 24VDC         | 167mA              |

## Dual output

| Models            |                   | Input Voltage | Ouput Voltage | Ouput Current max. |
|-------------------|-------------------|---------------|---------------|--------------------|
| Isolation 1500VDC | Isolation 3500VDC |               |               |                    |
| AM4TW-2403D       | AM4TW-2403DH35    | 9VDC - 36VDC  | ±3.3VDC       | ±500mA             |
| AM4TW-2405D       | AM4TW-2405DH35    |               | ±5VDC         | ±400mA             |
| AM4TW-2407D       | AM4TW-2407DH35    |               | ±7.2VDC       | ±278mA             |
| AM4TW-2409D       | AM4TW-2409DH35    |               | ±9VDC         | ±222mA             |
| AM4TW-2412D       | AM4TW-2412DH35    |               | ±12VDC        | ±167mA             |
| AM4TW-2415D       | AM4TW-2415DH35    |               | ±15VDC        | ±125mA             |
| AM4TW-2418D       | AM4TW-2418DH35    |               | ±18VDC        | ±100mA             |
| AM4TW-2424D       | AM4TW-2424DH35    |               | ±24VDC        | ±84mA              |
| AM4TW-4803D       | AM4TW-4803DH35    | 18VDC - 72VDC | ±3.3VDC       | ±500mA             |
| AM4TW-4805D       | AM4TW-4805DH35    |               | ±5VDC         | ±400mA             |
| AM4TW-4807D       | AM4TW-4807DH35    |               | ±7.2VDC       | ±278mA             |
| AM4TW-4809D       | AM4TW-4809DH35    |               | ±9VDC         | ±222mA             |
| AM4TW-4812D       | AM4TW-4812DH35    |               | ±12VDC        | ±167mA             |
| AM4TW-4815D       | AM4TW-4815DH35    |               | ±15VDC        | ±125mA             |
| AM4TW-4818D       | AM4TW-4818DH35    |               | ±18VDC        | ±100mA             |
| AM4TW-4824D       | AM4TW-4824DH35    |               | ±24VDC        | ±84mA              |

