

Series AM4T-VZ

4 Watt | DC-DC Converter



FEATURES:

- Wide 2:1 input range
- 24 Pin DIP Package
- Metal package
- High efficiency up to 80%
- Operating temperature -40°C to + 85°C
- Input / Output isolation 1500 / 3500 VDC
- Pin compatible with multiple manufacturers
- Continuous short circuit protection



Models

Single output

| Model | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Capacitive load, max (µF) | Efficiency (%) |
|------------------|-------------------|--------------------|-------------------------|---------------------------|----------------|
| AM4T-1205S-VZ | 9-18 | 5 | 800 | 2200 | 72 |
| AM4T-1209S-VZ | 9-18 | 9 | 444 | 470 | 78 |
| AM4T-1212S-VZ | 9-18 | 12 | 333 | 470 | 78 |
| AM4T-1215S-VZ | 9-18 | 15 | 267 | 470 | 77 |
| AM4T-1224S-VZ | 9-18 | 24 | 167 | 220 | 76 |
| AM4T-2405S-VZ | 18-36 | 5 | 800 | 2200 | 77 |
| AM4T-2409S-VZ | 18-36 | 9 | 444 | 470 | 78 |
| AM4T-2412S-VZ | 18-36 | 12 | 333 | 470 | 79 |
| AM4T-2415S-VZ | 18-36 | 15 | 267 | 470 | 80 |
| AM4T-2424S-VZ | 18-36 | 24 | 167 | 220 | 77 |
| AM4T-4805S-VZ | 36-72 | 5 | 800 | 2200 | 77 |
| AM4T-4809S-VZ | 36-72 | 9 | 444 | 470 | 77 |
| AM4T-4812S-VZ | 36-72 | 12 | 333 | 470 | 78 |
| AM4T-4815S-VZ | 36-72 | 15 | 267 | 470 | 77 |
| AM4T-4824S-VZ | 36-72 | 24 | 167 | 220 | 75 |
| AM4T-1205SH35-VZ | 9-18 | 5 | 800 | 2200 | 72 |
| AM4T-1209SH35-VZ | 9-18 | 9 | 444 | 470 | 78 |
| AM4T-1212SH35-VZ | 9-18 | 12 | 333 | 470 | 78 |
| AM4T-1215SH35-VZ | 9-18 | 15 | 267 | 470 | 77 |
| AM4T-1224SH35-VZ | 9-18 | 24 | 167 | 220 | 76 |
| AM4T-2405SH35-VZ | 18-36 | 5 | 800 | 2200 | 77 |
| AM4T-2409SH35-VZ | 18-36 | 9 | 444 | 470 | 78 |
| AM4T-2412SH35-VZ | 18-36 | 12 | 333 | 470 | 79 |
| AM4T-2415SH35-VZ | 18-36 | 15 | 267 | 470 | 80 |
| AM4T-2424SH35-VZ | 18-36 | 24 | 167 | 220 | 77 |
| AM4T-4805SH35-VZ | 36-72 | 5 | 800 | 2200 | 77 |
| AM4T-4809SH35-VZ | 36-72 | 9 | 444 | 470 | 77 |
| AM4T-4812SH35-VZ | 36-72 | 12 | 333 | 470 | 78 |
| AM4T-4815SH35-VZ | 36-72 | 15 | 267 | 470 | 77 |
| AM4T-4824SH35-VZ | 36-72 | 24 | 167 | 220 | 75 |

Models

Dual output

| Model | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Capacitive load, max (µF) | Efficiency (%) |
|---------------|-------------------|--------------------|-------------------------|---------------------------|----------------|
| AM4T-1205D-VZ | 9-18 | ±5 | ±400 | ±1000 | 77 |
| AM4T-1209D-VZ | 9-18 | ±9 | ±222 | ±220 | 77 |
| AM4T-1212D-VZ | 9-18 | ±12 | ±167 | ±220 | 78 |
| AM4T-1215D-VZ | 9-18 | ±15 | ±133 | ±220 | 78 |
| AM4T-1224D-VZ | 9-18 | ±24 | ±83 | ±100 | 77 |
| AM4T-2405D-VZ | 18-36 | ±5 | ±400 | ±1000 | 77 |
| AM4T-2409D-VZ | 18-36 | ±9 | ±222 | ±220 | 77 |
| AM4T-2412D-VZ | 18-36 | ±12 | ±167 | ±220 | 78 |
| AM4T-2415D-VZ | 18-36 | ±15 | ±133 | ±220 | 79 |
| AM4T-2424D-VZ | 18-36 | ±24 | ±83 | ±100 | 76 |
| AM4T-4805D-VZ | 36-72 | ±5 | 167 | 220 | 75 |

Models

Dual output (continued)

| Model | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Capacitive load, max (μF) | Efficiency (%) |
|------------------|-------------------|--------------------|-------------------------|---------------------------|----------------|
| AM4T-4809D-VZ | 36-72 | ±9 | ±222 | ±220 | 77 |
| AM4T-4812D-VZ | 36-72 | ±12 | ±167 | ±220 | 77 |
| AM4T-4815D-VZ | 36-72 | ±15 | ±133 | ±220 | 78 |
| AM4T-4824D-VZ | 36-72 | ±24 | ±83 | ±100 | 76 |
| AM4T-1205DH35-VZ | 9-18 | ±5 | ±400 | ±1000 | 77 |
| AM4T-1209DH35-VZ | 9-18 | ±9 | ±222 | ±220 | 77 |
| AM4T-1212DH35-VZ | 9-18 | ±12 | ±167 | ±220 | 78 |
| AM4T-1215DH35-VZ | 9-18 | ±15 | ±133 | ±220 | 78 |
| AM4T-1224DH35-VZ | 9-18 | ±24 | ±83 | ±100 | 77 |
| AM4T-2405DH35-VZ | 18-36 | ±5 | ±400 | ±1000 | 77 |
| AM4T-2409DH35-VZ | 18-36 | ±9 | ±222 | ±220 | 77 |
| AM4T-2412DH35-VZ | 18-36 | ±12 | ±167 | ±220 | 78 |
| AM4T-2415DH35-VZ | 18-36 | ±15 | ±133 | ±220 | 79 |
| AM4T-2424DH35-VZ | 18-36 | ±24 | ±83 | ±100 | 76 |
| AM4T-4805DH35-VZ | 36-72 | ±5 | ±400 | ±1000 | 73 |
| AM4T-4809DH35-VZ | 36-72 | ±9 | ±222 | ±220 | 77 |
| AM4T-4812DH35-VZ | 36-72 | ±12 | ±167 | ±220 | 77 |
| AM4T-4815DH35-VZ | 36-72 | ±15 | ±133 | ±220 | 78 |
| AM4T-4824DH35-VZ | 36-72 | ±24 | ±83 | ±100 | 76 |

Input Specifications

| Parameters | Nominal | Typical | Maximum | Units |
|-------------------------|----------------|---------|---------|-------|
| Voltage range | 12 | 9-18 | | VDC |
| | 24 | 18-36 | | |
| | 48 | 36-72 | | |
| Filter | π (Pi) Network | | | |
| Start up time | | 20 | | ms |
| Absolute Maximum Rating | 12 Vin | -0.7-24 | | VDC |
| | 24 Vin | -0.7-40 | | |
| | 48 Vin | -0.7-80 | | |
| Peak Input Voltage time | | 15 | | ms |

Isolation Specifications

| Parameters | Conditions | Typical | Rated | Units |
|--------------------|------------|---------|-----------------------|-------|
| Tested I/O voltage | 3 sec | | 1500 (3500 H35 model) | VDC |
| Resistance | | > 1000 | | MOhm |
| Capacitance | | 60 | | pF |

Output Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|--------------------------|--------------------|---------|---------|--------|
| Voltage accuracy | | ±1 | | % |
| Voltage balance | Balanced Load | ±1 | | % |
| Short circuit protection | Continuous | | | |
| Short circuit restart | Auto Recovery | | | |
| Line voltage regulation | HL-LL | ±0.5 | | % |
| Load voltage regulation | 25-100% Load | ±0.5 | | % |
| Temperature coefficient | | ±0.02 | | %/°C |
| Ripple & Noise * | At 20MHz Bandwidth | 60 | | mV p-p |

* In order to achieve ripple and noise specification, a 100μF capacitor is required to be connected to the output of the converter

General Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|-----------------------|--|-------------------------|--------------------------|-------|
| Switching frequency | | 100-400 | | KHz |
| Operating temperature | Full Load (see derating chart) | -40 to +85 | | °C |
| Storage temperature | | -40 to +125 | | °C |
| Max Case temperature | | | 100 | °C |
| Cooling | Free air convection | | | |
| Humidity | | | 95 | % |
| Case material | Nickel coated copper | | | |
| Weight | | 12.16 | | g |
| Dimensions(L x W x H) | Tolerance ± 0.5 mm or ± 0.02 inches | 1.25 x 0.8 x 0.4 inches | 31.75 x 20.32 x 10.16 mm | |
| MTBF | >2,200,000 hrs (MIL-HDBK -217F, Ground Benign, $t=+25^{\circ}\text{C}$) | | | |

Safety Specifications

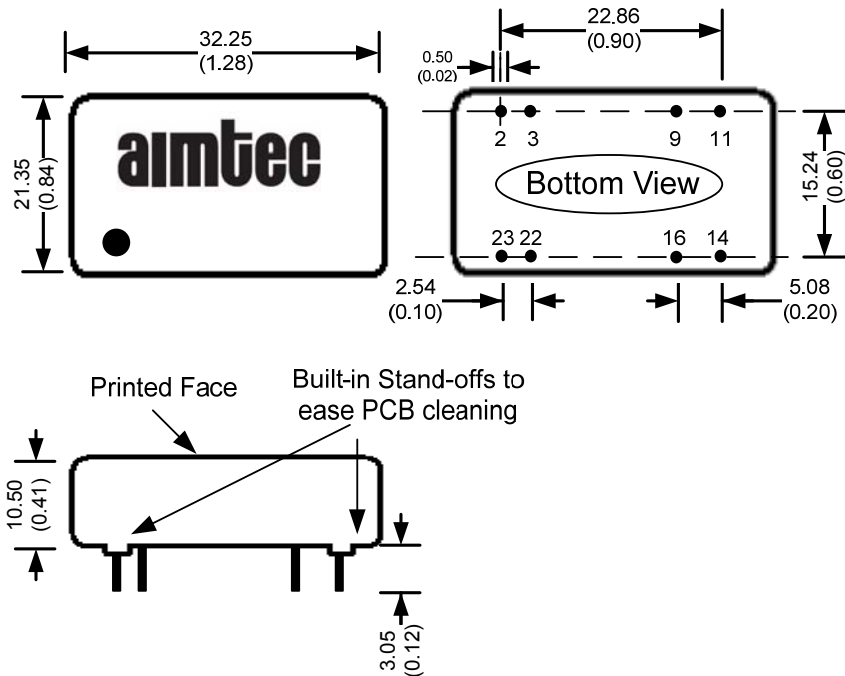
| Parameters | |
|------------------|------------------------------|
| Agency approvals | CE |
| Standards | Designed to meet IEC 60950-1 |

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

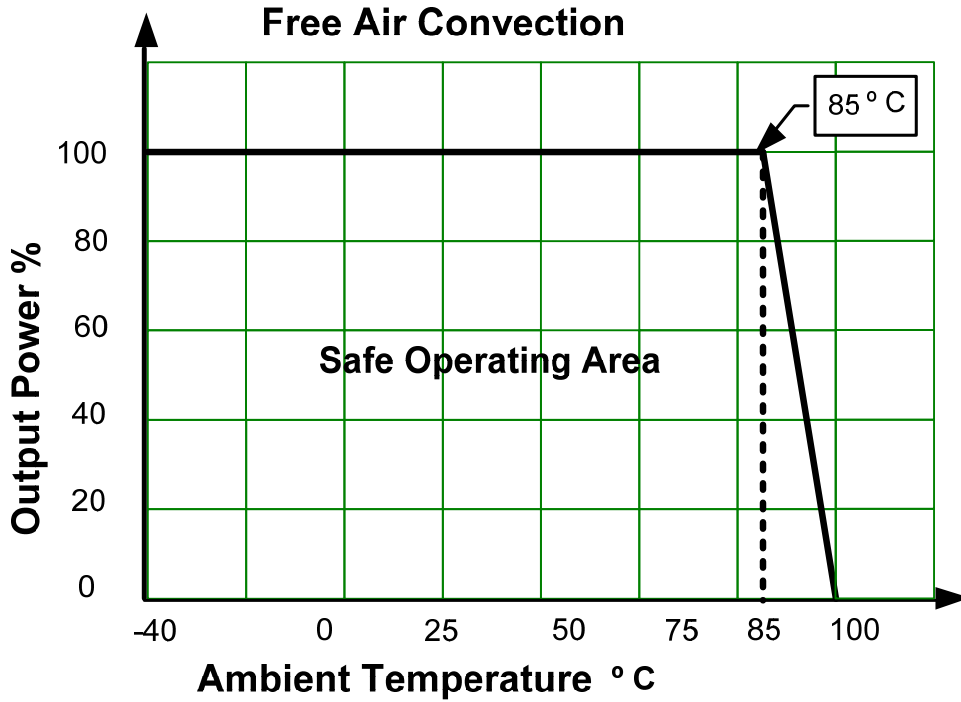
Pin Out Specifications

| Pin | 1500 and 3500VDC | |
|-----|------------------|-----------|
| | Single | Dual |
| 2 | -V Input | -V Input |
| 3 | -V Input | -V Input |
| 9 | No pin | Common |
| 11 | N.C. | -V Output |
| 14 | +V Output | +V Output |
| 16 | -V Output | Common |
| 22 | +V Input | +V Input |
| 23 | +V Input | +V Input |

Dimensions



Derating



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