# AM3S-Z

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SIP4

Aimtec is pleased to introduce its latest 3W single output high isolation DC/DC converter in a compact SIP4 package. With various input voltage options like 5V, 12V and 24VDC, 3000VDC isolation and an unregulated output, the AM3S-Z will offer benefits to your new system design. This is the smallest high isolation 3W DC/DC converter in the Aimtec's SIP4 package family!

This compact design comes with a high efficiency up to 91%, no minimum load requirement and continuous short circuit protection. Furthermore, the ambient operating temperature is from -40°C to +100°C with full power up to 90°C.

This innovative series can be used for applications that have limited board space such as mobile device chargers, portable electronics, IoT and wireless applications.

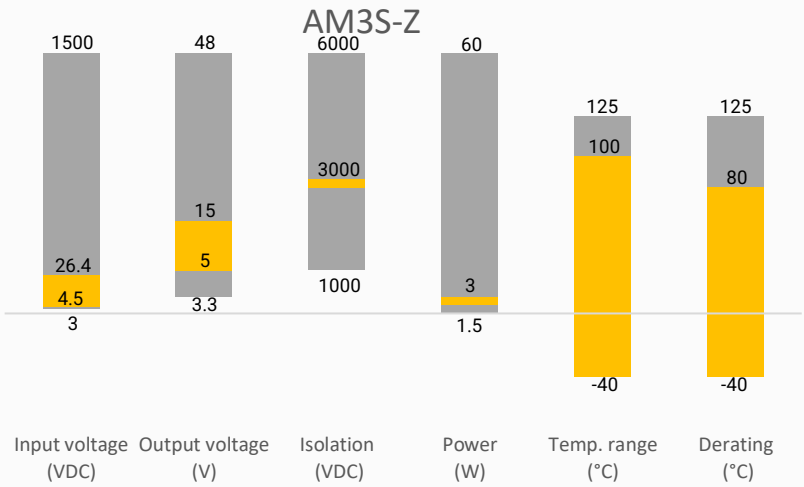
## Features

- Operating Temp: -40 °C to +100 °C
- High isolation voltage: 3000VDC
- Low ripple & noise, 100mV(p-p), max.
- Unregulated Output
- Efficiency up to 91%
- SIP4 type package

RoHS

3yr Warranty

## Summary




## Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

## Applications

Power Grid

Industrial

Telecom

Instrumentation

# Models & Specifications

## Single Output

| Model | Input Voltage (VDC) | Output Voltage (VDC) | Input Current Max (mA) | | Output Current Max (mA) | Maximum Capacitive Load (µF) | Efficiency (%) Full Load |
|---|---|---|---|---|---|---|---|
| | | | No Load | Full Load | | | |
| AM3S-0505SH30Z | 5 (4.5-5.5) | 5 | 50 | 723 | 600 | 3300 | 83 |
| AM3S-0509SH30Z | 5 (4.5-5.5) | 9 | 60 | 690 | 333 | 1200 | 87 |
| AM3S-0512SH30Z | 5 (4.5-5.5) | 12 | 55 | 682 | 250 | 1000 | 88 |
| AM3S-0515SH30Z | 5 (4.5-5.5) | 15 | 60 | 682 | 200 | 820 | 88 |
| AM3S-1205SH30Z | 12 (10.8-13.2) | 5 | 25 | 294 | 600 | 3300 | 85 |
| AM3S-1209SH30Z | 12 (10.8-13.2) | 9 | 30 | 281 | 333 | 1200 | 89 |
| AM3S-1212SH30Z | 12 (10.8-13.2) | 12 | 30 | 278 | 250 | 1000 | 90 |
| AM3S-1215SH30Z | 12 (10.8-13.2) | 15 | 30 | 275 | 200 | 820 | 91 |
| AM3S-2405SH30Z | 24 (21.6-26.4) | 5 | 15 | 147 | 600 | 3300 | 85 |
| AM3S-2409SH30Z | 24 (21.6-26.4) | 9 | 15 | 141 | 333 | 1200 | 89 |
| AM3S-2412SH30Z | 24 (21.6-26.4) | 12 | 15 | 139 | 250 | 1000 | 90 |
| AM3S-2415SH30Z | 24 (21.6-26.4) | 15 | 15 | 138 | 200 | 820 | 91 |

## Input Specification

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Filter | Capacitors | | | |
| Start-up time | Nominal input, Constant resistive load | 20 | | ms |
| Input reflected ripple current* | | 20 | | mA pk-pk |
| Absolute maximum rating (100ms) | 5Vin model | | 7 | VDC |
| | 12Vin model | | 15 | VDC |
| | 24Vin model | | 28 | VDC |

* Measured with a simulated source inductance of 12µH and a source capacitor 10µF with ESR<1Ω at 100KHz.

## Isolation Specification

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Tested I/O voltage | 60 sec | 3000 | | VDC |
| Resistance | | ≥1000 | | MΩ |
| Capacitance | | | 65 | pF |

## Output Specification

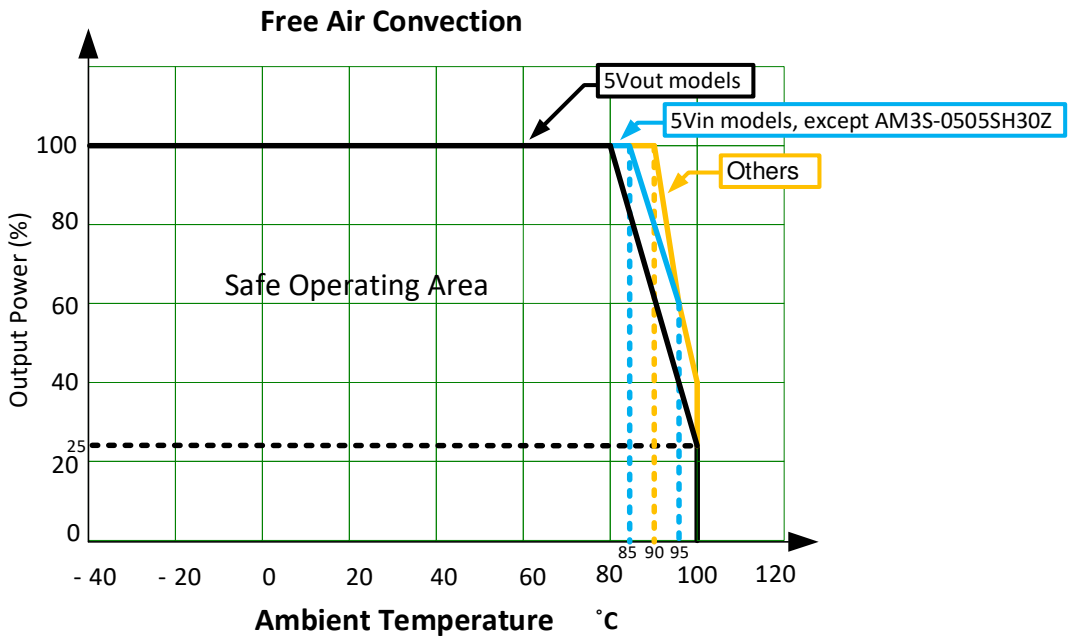
| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Voltage accuracy | | | ± 3 | % |
| Line regulation | | | ± 1.2 | %/1%Vin change |
| Load regulation | 10 ~ 100% load | | ± 10 | % |
| Ripple & Noise* | 20MHz bandwidth | | 100 | mV pk-pk |

* Ripple and Noise are measured at 20MHz bandwidth by using a 0.1µF (M/C) and 10µF (E/C) capacitor

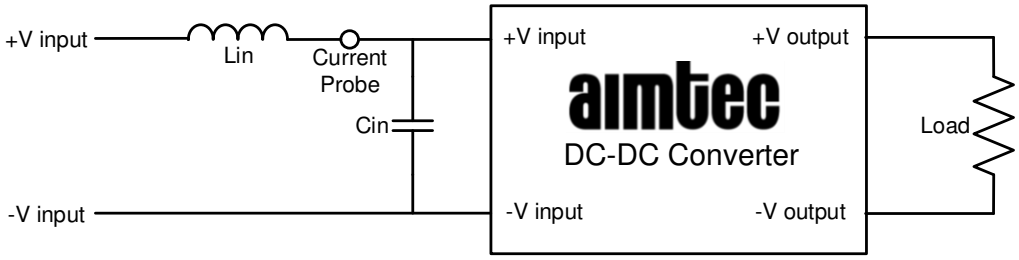
| General Specifications | | | | |
|---|---|---|---|---|
| **Parameters** | **Conditions** | **Typical** | **Maximum** | **Units** |
| Switching frequency | | 40 to 70 | | KHz |
| Operating temperature | With derating | -40 to +100 | | °C |
| Storage temperature | | -55 to +125 | | °C |
| Maximum case temperature | | | 115 | °C |
| Reflow temperature | | | 260 | °C |
| Temperature coefficient | | ± 0.02 | | %/ °C |
| Cooling | Nature Convection (30-65LFM) | | | |
| Humidity | Non-condensing | | 95 | % RH |
| Base material | Plastic (UL94V-0) | | | |
| Weight | | 2.2 | | g |
| Dimensions (L x W x H) | 0.46 x 0.29 x 0.40 inches (11.68 x 7.5 x 10.15mm) | | | |
| MTBF | > 6 700 000 hrs (MIL-HDBK -217F, t=+25°C) | | | |

| Safety Specifications | | |
|---|---|---|
| **Parameters** | | |
| Standards | Design to meet IEC/EN/UL 60950-1,62368-1 | |
| | EMI - Conducted and radiated emission | EN55032, CLASS B with recommended circuit |
| | Electrostatic Discharge Immunity | IEC 61000-4-2, Criteria A |
| | RF, Electromagnetic Field Immunity | IEC 61000-4-3, Criteria A |
| | Electrical Fast Transient/Burst Immunity | IEC 61000-4-4, Criteria A with recommended circuit |
| | Surge Immunity | IEC 61000-4-5, Criteria A with recommended circuit |
| | RF, Conducted Disturbance Immunity | IEC 61000-4-6, Criteria A |
| | Power Frequency Magnetic Field Immunity | IEC 61000-4-8, Criteria A |

## Derating

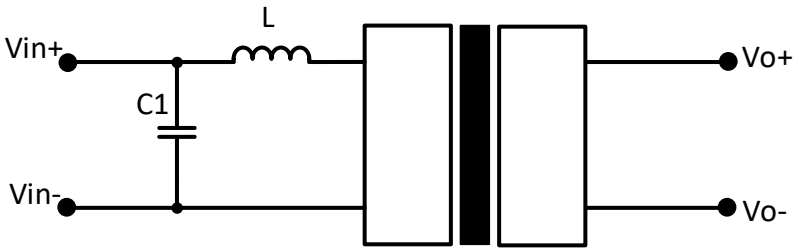


## Input Reflected Ripple Current



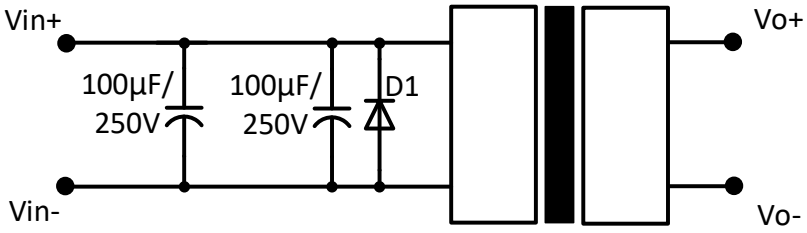

**Lin: 12µH / Cin: 10µF, ESR<1.0Ω at 100KHz**

## EMI Application Circuit (Conducted Emissions)



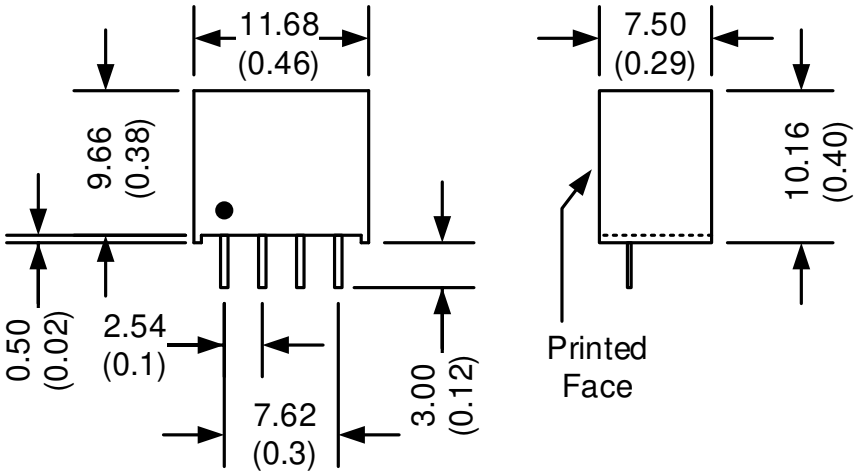

| Model | C1 | L |
|---|---|---|
| 5VDC input | 1206, 2.2µH, 50V | 2.2 µH |
| 12/24VDC input | 1206, 4.7µH, 50V | 4.7 µH |

## EFT & Surge Application Circuit

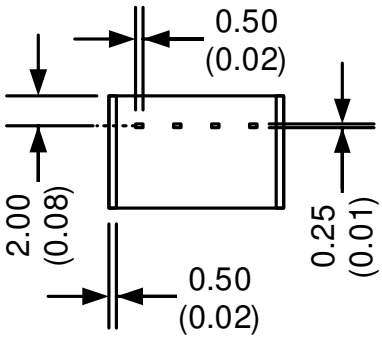



| Model | D1 |
|---|---|
| 5VDC input | SMDJ8.0A |
| 12VDC input | SMDJ16A |
| 24VDC input | SMDJ30A |

## Dimensions




| Pin Out Specifications | |
|---|---|
| Pin | Single |
| 1 | -V Input |
| 2 | +V Input |
| 3 | -V Output |
| 4 | +V Output |




Unit: mm(inch)
Case tolerance: ±0.5(0.02)
Pin tolerance: ±0.05(0.002)
Pin pitch and length tolerance: ±0.35(0.014)
Pin to case tolerance: ±0.5(0.02)

**NOTE: 1.** Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. **2.** Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. **3.** Mechanical drawings and specifications are for reference only. **4.** All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. **5.** Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. **6.** This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. **7.** Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.