

## Series AM3D-Z

### 3 Watt | DC-DC Converter



#### FEATURES:

- 7 Pin SIP Package
- High Efficiency up to 90%
- Low Profile Plastic Package
- RoHS Compliant
- Operating Temperature -40°C to +85°C
- Short Circuit Protection
- Input / Output Isolation 1000, 3000 VDC
- Pin Compatible With Multiple Manufacturers

#### Models

##### Single output



| Model          | Input Voltage (V) | Output Voltage (V) | Output Current Max (mA) | Isolation (VDC) | Input Current Full   No Load (mA) |    | Efficiency (%) |
|----------------|-------------------|--------------------|-------------------------|-----------------|-----------------------------------|----|----------------|
| AM3D-0505SZ    | 4.5-5.5           | 5                  | 600                     | 1000            | 769                               | 80 | 80             |
| AM3D-0509SZ    | 4.5-5.5           | 9                  | 333                     | 1000            | 714                               | 70 | 81             |
| AM3D-0512SZ    | 4.5-5.5           | 12                 | 250                     | 1000            | 714                               | 80 | 82             |
| AM3D-0515SZ    | 4.5-5.5           | 15                 | 200                     | 1000            | 714                               | 80 | 84             |
| AM3D-1205SZ    | 10.8-13.2         | 5                  | 600                     | 1000            | 298                               | 25 | 84             |
| AM3D-1209SZ    | 10.8-13.2         | 9                  | 333                     | 1000            | 287                               | 25 | 86             |
| AM3D-1212SZ    | 10.8-13.2         | 12                 | 250                     | 1000            | 284                               | 25 | 89             |
| AM3D-1215SZ    | 10.8-13.2         | 15                 | 200                     | 1000            | 278                               | 20 | 90             |
| AM3D-0505SH30Z | 4.5-5.5           | 5                  | 600                     | 3000            | 769                               | 80 | 80             |
| AM3D-0509SH30Z | 4.5-5.5           | 9                  | 333                     | 3000            | 714                               | 70 | 81             |
| AM3D-0512SH30Z | 4.5-5.5           | 12                 | 250                     | 3000            | 714                               | 80 | 82             |
| AM3D-0515SH30Z | 4.5-5.5           | 15                 | 200                     | 3000            | 714                               | 80 | 84             |
| AM3D-1205SH30Z | 10.8-13.2         | 5                  | 600                     | 3000            | 298                               | 25 | 84             |
| AM3D-1209SH30Z | 10.8-13.2         | 9                  | 333                     | 3000            | 287                               | 25 | 86             |
| AM3D-1212SH30Z | 10.8-13.2         | 12                 | 250                     | 3000            | 284                               | 25 | 89             |
| AM3D-1215SH30Z | 10.8-13.2         | 15                 | 200                     | 3000            | 278                               | 20 | 90             |

#### Models

##### Dual output

| Model          | Input Voltage (V) | Output Voltage (V) | Output Current Max (mA) | Isolation (VDC) | Input Current Full   No Load (mA) |    | Efficiency (%) |
|----------------|-------------------|--------------------|-------------------------|-----------------|-----------------------------------|----|----------------|
| AM3D-0505DZ    | 4.5-5.5           | ±5                 | ±300                    | 1000            | 741                               | 80 | 82             |
| AM3D-0509DZ    | 4.5-5.5           | ±9                 | ±167                    | 1000            | 706                               | 70 | 83             |
| AM3D-0512DZ    | 4.5-5.5           | ±12                | ±125                    | 1000            | 706                               | 70 | 84             |
| AM3D-0515DZ    | 4.5-5.5           | ±15                | ±100                    | 1000            | 714                               | 80 | 86             |
| AM3D-1205DZ    | 10.8-13.2         | ±5                 | ±300                    | 1000            | 294                               | 25 | 85             |
| AM3D-1209DZ    | 10.8-13.2         | ±9                 | ±167                    | 1000            | 284                               | 25 | 86             |
| AM3D-1212DZ    | 10.8-13.2         | ±12                | ±125                    | 1000            | 281                               | 25 | 89             |
| AM3D-1215DZ    | 10.8-13.2         | ±15                | ±100                    | 1000            | 278                               | 20 | 90             |
| AM3D-0505DH30Z | 4.5-5.5           | ±5                 | ±300                    | 3000            | 741                               | 80 | 82             |
| AM3D-0509DH30Z | 4.5-5.5           | ±9                 | ±167                    | 3000            | 706                               | 70 | 83             |
| AM3D-0512DH30Z | 4.5-5.5           | ±12                | ±125                    | 3000            | 706                               | 70 | 84             |
| AM3D-0515DH30Z | 4.5-5.5           | ±15                | ±100                    | 3000            | 714                               | 80 | 86             |
| AM3D-1205DH30Z | 10.8-13.2         | ±5                 | ±300                    | 3000            | 294                               | 25 | 85             |
| AM3D-1209DH30Z | 10.8-13.2         | ±9                 | ±167                    | 3000            | 284                               | 25 | 86             |
| AM3D-1212DH30Z | 10.8-13.2         | ±12                | ±125                    | 3000            | 281                               | 25 | 89             |
| AM3D-1215DH30Z | 10.8-13.2         | ±15                | ±100                    | 3000            | 278                               | 20 | 90             |

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.

### Input Specifications

| Parameters                     | Nominal   | Typical   | Maximum | Units  |
|--------------------------------|-----------|-----------|---------|--------|
| Voltage Range                  | 5         | 4.5-5.5   |         | VDC    |
|                                | 12        | 10.8-13.2 |         |        |
| Filter                         | Capacitor |           |         |        |
| Start Up Time                  |           |           |         | ms     |
| Absolute Maximum Rating        | 5         | 9         |         | VDC    |
|                                | 12        | 15        |         |        |
| Peak Input Voltage Time        |           |           | 100     | ms     |
| Input Reflected Ripple Current |           | 25        |         | mA p-p |

### Isolation Specifications

| Parameters         | Conditions | Typical    | Rated | Units |
|--------------------|------------|------------|-------|-------|
| Tested I/O Voltage | 60 sec     | 1000, 3000 |       | VDC   |
| Resistance         |            | >1000      |       | MOhm  |
| Capacitance        |            | 60         |       | pF    |

### Output Specifications

| Parameters               | Conditions      | Typical          | Maximum | Units    |
|--------------------------|-----------------|------------------|---------|----------|
| Voltage Accuracy         |                 | ±3               |         | %        |
| Line Voltage Regulation  | For 1.0% of Vin | ±1.2             |         | % of Vin |
| Load Voltage Regulation  | load 10~100%    | ±8               |         | %        |
| Temperature Coefficient  |                 | ±0.02            |         | %/°C     |
| Short Circuit Protection |                 | Momentary (1sec) |         |          |
| Ripple & Noise           | 20MHz Bandwidth | 50               |         | mV p-p   |
| Minimum Load Current     |                 | 10               |         | % of Max |

### General Specifications

| Parameters                    | Conditions                                              | Typical     | Maximum | Units |
|-------------------------------|---------------------------------------------------------|-------------|---------|-------|
| Switching Frequency           | 100% load                                               | 70          |         | KHz   |
| Operating Temperature         | With Derating Above 71 °C (5V input models only)        | -40 to +85  |         | °C    |
| Storage Temperature           |                                                         | -40 to +125 |         | °C    |
| Maximum Case Temperature      |                                                         |             | 100     | °C    |
| Derating                      |                                                         |             |         | %/°C  |
| Cooling                       | Free Air Convection                                     |             |         |       |
| Humidity                      |                                                         |             | 95      | % RH  |
| Case Material                 | Non-conductive black plastic UL 94 V-0                  |             |         |       |
| Weight                        |                                                         | 2.8         |         | g     |
| Dimensions (L x W x H)        | 0.76 x 0.28 x 0.37 inches 19.50 x 7.20 x 9.50 mm        |             |         |       |
| MTBF                          | >1 800 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C) |             |         |       |
| Maximum Soldering Temperature | 1.5mm from case for 10 sec                              |             | 260     | °C    |

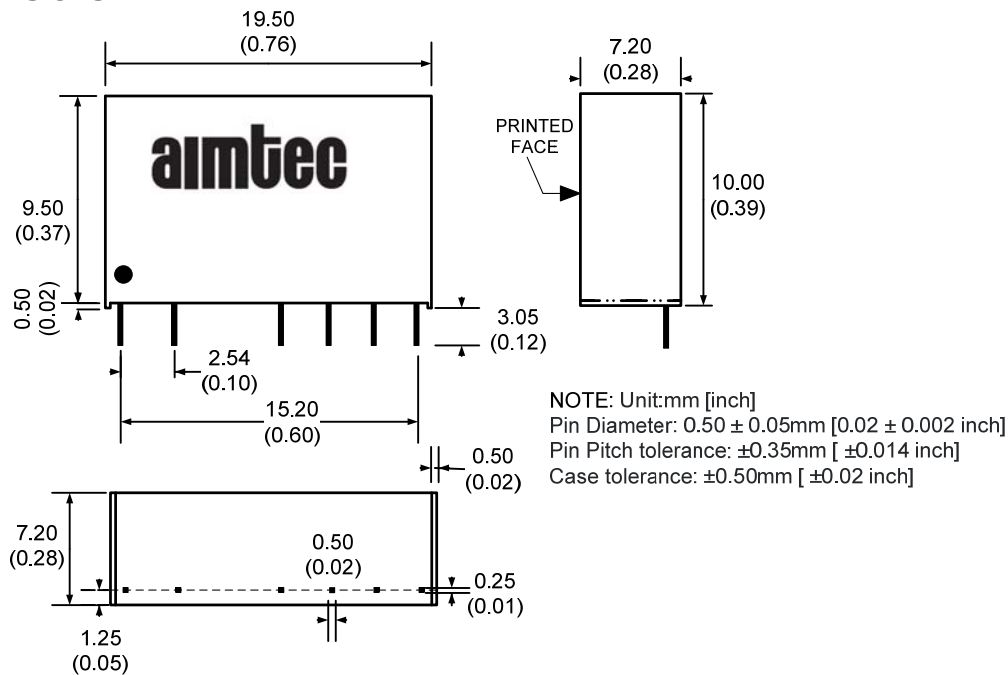
### Safety Specifications

| Parameters      |                                    |
|-----------------|------------------------------------|
| Agency Approval | CE                                 |
| Standards       | EN55022: 2006 + A1: 2007, Class B  |
|                 | EN55024: 1998 + A1: 2001 + A2:2003 |
|                 | IEC61000-4-2:2008                  |
|                 | IEC61000-4-3: 2006 + A1: 2007      |
|                 | IEC61000-4-4, 2004                 |
|                 | IEC61000-4-6: 2008                 |
|                 | IEC61000-4-8: 1993 + A1:2000       |

## Pin Out Specifications

| Pin | 1000Vdc    |            | 3000Vdc    |            |
|-----|------------|------------|------------|------------|
|     | Single     | Dual       | Single     | Dual       |
| 1   | + V Input  | + V Input  | + V Input  | + V Input  |
| 2   | - V Input  | - V Input  | - V Input  | - V Input  |
| 4   | - V Output | - V Output | No pin     | No pin     |
| 5   | No pin     | Common     | - V Output | - V Output |
| 6   | + V Output | + V Output | No pin     | Common     |
| 7   | No pin     | No pin     | + V Output | + V Output |

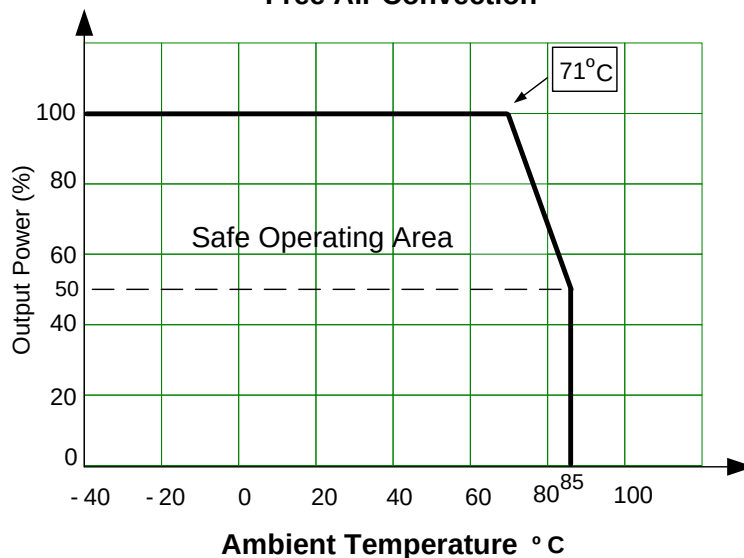
## Dimensions



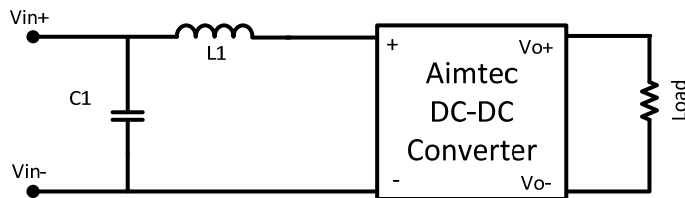
## Derating

5V input models only

### Free Air Convection

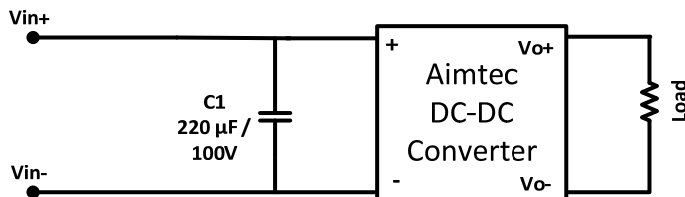


## Conducted Emissions

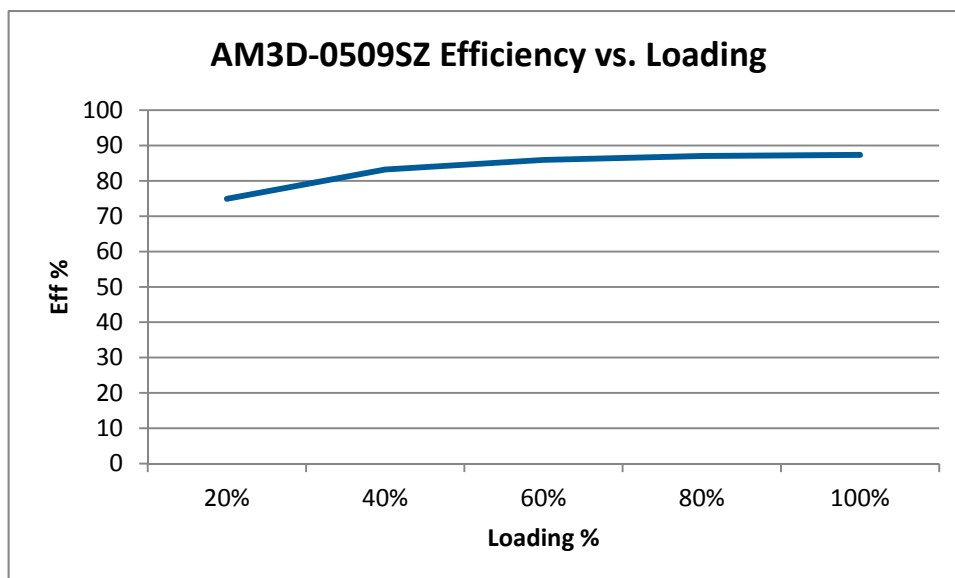


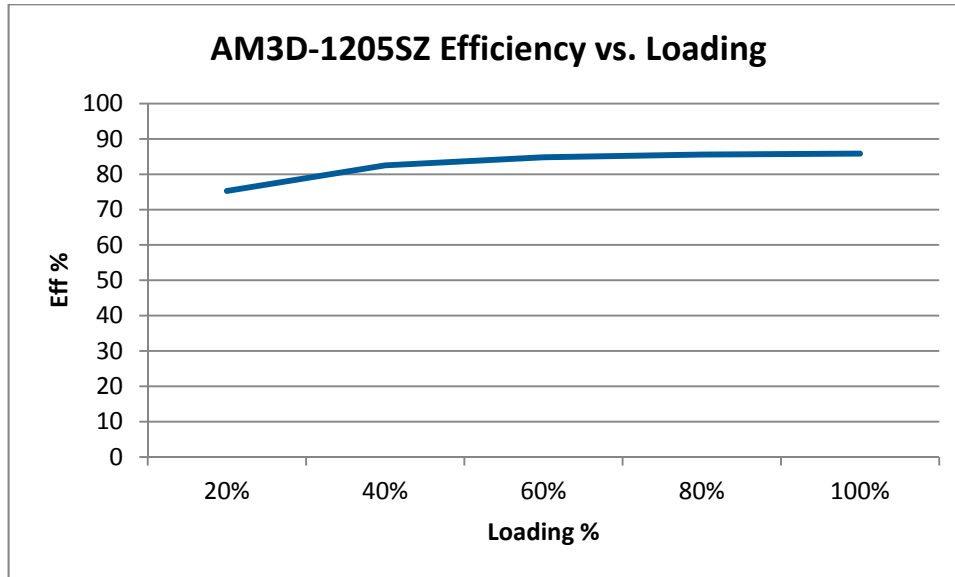
| Model  | C1                      | L1         |
|--------|-------------------------|------------|
| 5 Vin  | 1210 2.2 $\mu$ F / 100V | 18 $\mu$ H |
| 12 Vin | 1210 2.2 $\mu$ F / 100V | 18 $\mu$ H |

## EFT



## Typical Efficiency Example Charts





**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](http://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](http://www.aimtec.com).