



**FEATURES:**

- Single & Dual Models
- SMD Package
- Low Ripple & Noise
- High Efficiency up to 83%
- Operating Temperature -40 °C to +85 °C
- Input/Output Isolation of 1000 & 3000VDC
- Pin Compatible with multiple manufacturers
- RoHS Compliant



**Models**  
**Single output**

| Model            | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Efficiency (%) |
|------------------|-------------------|--------------------|-------------------------|-----------------|----------------|
| AM1L-0303S-FZ    | 2.97-3.63         | 3.3                | 200                     | 1000            | 73             |
| AM1L-0305S-FZ    | 2.97-3.63         | 5                  | 200                     | 1000            | 72             |
| AM1L-0309S-FZ    | 2.97-3.63         | 9                  | 111                     | 1000            | 75             |
| AM1L-0312S-FZ    | 2.97-3.63         | 12                 | 84                      | 1000            | 75             |
| AM1L-0315S-FZ    | 2.97-3.63         | 15                 | 67                      | 1000            | 76             |
| AM1L-0503S-FZ    | 4.5-5.5           | 3.3                | 200                     | 1000            | 77             |
| AM1L-0505S-FZ    | 4.5-5.5           | 5                  | 200                     | 1000            | 81             |
| AM1L-0509S-FZ    | 4.5-5.5           | 9                  | 110                     | 1000            | 78             |
| AM1L-0512S-FZ    | 4.5-5.5           | 12                 | 84                      | 1000            | 80             |
| AM1L-0515S-FZ    | 4.5-5.5           | 15                 | 67                      | 1000            | 81             |
| AM1L-1203S-FZ    | 10.8-13.2         | 3.3                | 200                     | 1000            | 75             |
| AM1L-1205S-FZ    | 10.8-13.2         | 5                  | 200                     | 1000            | 81             |
| AM1L-1209S-FZ    | 10.8-13.2         | 9                  | 110                     | 1000            | 78             |
| AM1L-1212S-FZ    | 10.8-13.2         | 12                 | 84                      | 1000            | 81             |
| AM1L-1215S-FZ    | 10.8-13.2         | 15                 | 67                      | 1000            | 83             |
| AM1L-2403S-FZ    | 21.6-26.4         | 3.3                | 200                     | 1000            | 67             |
| AM1L-2405S-FZ    | 21.6-26.4         | 5                  | 200                     | 1000            | 71             |
| AM1L-2409S-FZ    | 21.6-26.4         | 9                  | 110                     | 1000            | 73             |
| AM1L-2412S-FZ    | 21.6-26.4         | 12                 | 84                      | 1000            | 76             |
| AM1L-2415S-FZ    | 21.6-26.4         | 15                 | 67                      | 1000            | 77             |
| AM1L-0303SH30-FZ | 2.97-3.63         | 3.3                | 200                     | 3000            | 77             |
| AM1L-0305SH30-FZ | 2.97-3.63         | 5                  | 200                     | 3000            | 81             |
| AM1L-0309SH30-FZ | 2.97-3.63         | 9                  | 110                     | 3000            | 78             |
| AM1L-0312SH30-FZ | 2.97-3.63         | 12                 | 84                      | 3000            | 80             |
| AM1L-0315SH30-FZ | 2.97-3.63         | 15                 | 67                      | 3000            | 81             |
| AM1L-0503SH30-FZ | 4.5-5.5           | 3.3                | 200                     | 3000            | 77             |
| AM1L-0505SH30-FZ | 4.5-5.5           | 5                  | 200                     | 3000            | 81             |
| AM1L-0509SH30-FZ | 4.5-5.5           | 9                  | 110                     | 3000            | 78             |
| AM1L-0512SH30-FZ | 4.5-5.5           | 12                 | 84                      | 3000            | 80             |
| AM1L-0515SH30-FZ | 4.5-5.5           | 15                 | 67                      | 3000            | 81             |
| AM1L-1203SH30-FZ | 10.8-13.2         | 3.3                | 200                     | 3000            | 75             |
| AM1L-1205SH30-FZ | 10.8-13.2         | 5                  | 200                     | 3000            | 81             |
| AM1L-1209SH30-FZ | 10.8-13.2         | 9                  | 110                     | 3000            | 78             |
| AM1L-1212SH30-FZ | 10.8-13.2         | 12                 | 84                      | 3000            | 81             |
| AM1L-1215SH30-FZ | 10.8-13.2         | 15                 | 67                      | 3000            | 83             |
| AM1L-2403SH30-FZ | 21.6-26.4         | 3.3                | 200                     | 3000            | 67             |
| AM1L-2405SH30-FZ | 21.6-26.4         | 5                  | 200                     | 3000            | 71             |
| AM1L-2409SH30-FZ | 21.6-26.4         | 9                  | 110                     | 3000            | 73             |
| AM1L-2412SH30-FZ | 21.6-26.4         | 12                 | 84                      | 3000            | 76             |
| AM1L-2415SH30-FZ | 21.6-26.4         | 15                 | 67                      | 3000            | 77             |

## Models

### Dual output

| Model            | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Efficiency (%) |
|------------------|-------------------|--------------------|-------------------------|-----------------|----------------|
| AM1L-0505D-FZ    | 4.5-5.5           | ±5                 | ±100                    | 1000            | 71             |
| AM1L-0509D-FZ    | 4.5-5.5           | ±9                 | ±56                     | 1000            | 78             |
| AM1L-0512D-FZ    | 4.5-5.5           | ±12                | ±42                     | 1000            | 78             |
| AM1L-0515D-FZ    | 4.5-5.5           | ±15                | ±34                     | 1000            | 81             |
| AM1L-1205D-FZ    | 10.8-13.2         | ±5                 | ±100                    | 1000            | 73             |
| AM1L-1209D-FZ    | 10.8-13.2         | ±9                 | ±56                     | 1000            | 79             |
| AM1L-1212D-FZ    | 10.8-13.2         | ±12                | ±42                     | 1000            | 81             |
| AM1L-1215D-FZ    | 10.8-13.2         | ±15                | ±34                     | 1000            | 83             |
| AM1L-2403D-FZ    | 21.6-26.4         | ±3.3               | ±100                    | 1000            | 66             |
| AM1L-2405D-FZ    | 21.6-26.4         | ±5                 | ±100                    | 1000            | 76             |
| AM1L-2409D-FZ    | 21.6-26.4         | ±9                 | ±56                     | 1000            | 78             |
| AM1L-2412D-FZ    | 21.6-26.4         | ±12                | ±42                     | 1000            | 80             |
| AM1L-2415D-FZ    | 21.6-26.4         | ±15                | ±34                     | 1000            | 75             |
| AM1L-0505DH30-FZ | 4.5-5.5           | ±5                 | ±100                    | 3000            | 71             |
| AM1L-0509DH30-FZ | 4.5-5.5           | ±9                 | ±56                     | 3000            | 78             |
| AM1L-0512DH30-FZ | 4.5-5.5           | ±12                | ±42                     | 3000            | 78             |
| AM1L-0515DH30-FZ | 4.5-5.5           | ±15                | ±34                     | 3000            | 81             |
| AM1L-1205DH30-FZ | 10.8-13.2         | ±5                 | ±100                    | 3000            | 73             |
| AM1L-1209DH30-FZ | 10.8-13.2         | ±9                 | ±56                     | 3000            | 79             |
| AM1L-1212DH30-FZ | 10.8-13.2         | ±12                | ±42                     | 3000            | 81             |
| AM1L-1215DH30-FZ | 10.8-13.2         | ±15                | ±34                     | 3000            | 83             |
| AM1L-2403DH30-FZ | 21.6-26.4         | ±3.3               | ±100                    | 3000            | 66             |
| AM1L-2405DH30-FZ | 21.6-26.4         | ±5                 | ±100                    | 3000            | 76             |
| AM1L-2409DH30-FZ | 21.6-26.4         | ±9                 | ±56                     | 3000            | 78             |
| AM1L-2412DH30-FZ | 21.6-26.4         | ±12                | ±42                     | 3000            | 80             |
| AM1L-2415DH30-FZ | 21.6-26.4         | ±15                | ±34                     | 3000            | 75             |

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           | 3.3               | 3.0-3.6   |             | VDC   |
|                         | 5                 | 4.5-5.5   |             |       |
|                         | 12                | 10.8-13.2 |             |       |
|                         | 24                | 22.4-26.4 |             |       |
| Filter                  | Capacitor         |           |             |       |
| Start up time           |                   |           |             | ms    |
| Absolute Maximum Rating | 3.3V input models |           | -0.7 to 5   | VDC   |
|                         | 5V input models   |           | -0.7 to 7.5 |       |
|                         | 12V input models  |           | -0.7 to 15  |       |
|                         | 24V input models  |           | -0.7 to 30  |       |
| No Load Input Current   |                   | 15        | 28          | mA    |

## Isolation Specifications

| Parameters         | Conditions       | Typical          | Rated     | Units |
|--------------------|------------------|------------------|-----------|-------|
| Tested I/O voltage | 60sec            |                  | 1000,3000 | VDC   |
| Resistance         | 500VDC           | 1000             |           | MOhm  |
| Capacitance        | 3.3V input model | 16               |           | pF    |
|                    | 5V input model   | 14/15(minimum 8) |           |       |
|                    | 12V input model  | 18(minimum 6/7)  |           |       |
|                    | 24V input model  | 20(minimum 8)    |           |       |

### Output Specifications

| Parameters                            | Conditions                                        | Typical | Maximum | Units  |
|---------------------------------------|---------------------------------------------------|---------|---------|--------|
| Voltage accuracy                      | Nominal input                                     | 1       | 3       | %      |
| Voltage balance (Dual Output Models)  | Balanced Load                                     |         | ±1      | %      |
| Cross Regulation (Dual Output Models) | 25% load on one output - 100% load on second load |         | 5       | %      |
| Short Circuit protection              | Max 1 second                                      |         |         |        |
| Line voltage regulation               | Per 1% of Vin Change                              |         | 1.2     | %      |
| Load voltage regulation (Single)      | Output current change from 20% to 100% max load   | 8       | 12      | %      |
| Load voltage regulation (Dual)        | Output current change from 20% to 100% max load   | 9       | 12      | %      |
| Temperature coefficient               | Nominal Input                                     | ±0.01   | ±0.02   | %/°C   |
| Ripple & Noise                        | 20MHz Bandwidth                                   | 100     |         | mV p-p |

### General Specifications

| Parameters                    | Conditions                                                                                                                                                     | Typical        | Maximum | Units |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|-------|
| Switching frequency           | 100% load                                                                                                                                                      | 100(Min 70KHz) | 150     | KHz   |
| Operating temperature         |                                                                                                                                                                | -40 to +85     |         | °C    |
| Storage temperature           |                                                                                                                                                                | -55 to +125    |         | °C    |
| Maximum case temperature      |                                                                                                                                                                |                | 100     | °C    |
| Derating                      | No derating up to +85 °C                                                                                                                                       |                |         |       |
| Cooling                       | Free Air Convection                                                                                                                                            |                |         |       |
| Humidity                      |                                                                                                                                                                |                | 90      | % RH  |
| Case material                 | Plastic (UL94-V0)                                                                                                                                              |                |         |       |
| Weight                        |                                                                                                                                                                | 1.6/2.1        |         | g     |
| Dimensions (L x W x H)        | 1KVdc isolation single output models :0.50 x 0.44 x 0.29 inches 12.80 x 11.20 x 7.40 mm<br>All other models :0.60 x 0.44 x 0.29 inches 15.20 x 11.20 x 7.40 mm |                |         |       |
| MTBF                          |                                                                                                                                                                | 3000k hours    |         |       |
| Maximum soldering temperature | 300 (1.5mm from case for 10 seconds)                                                                                                                           |                |         | °C    |

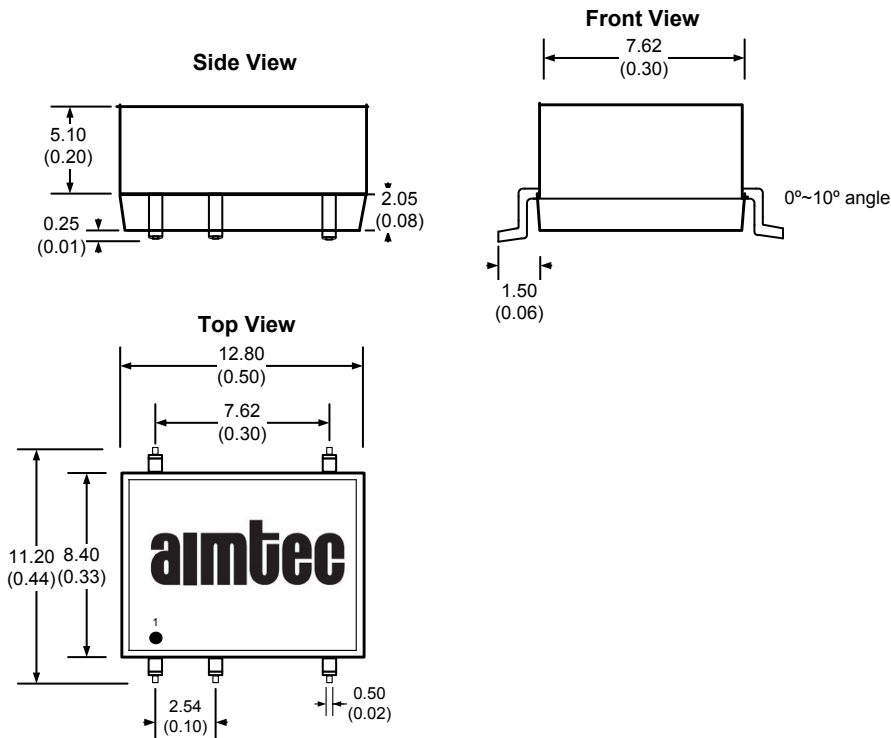
### Pin Out Specifications

| Pin | 1000VDC   |
|-----|-----------|
|     | Single    |
| 1   | -V Input  |
| 2   | +V Input  |
| 3   | No Pin    |
| 4   | -V Output |
| 5   | +V Output |
| 6   | No Pin    |
| 7   | No Pin    |
| 8   | N.C       |

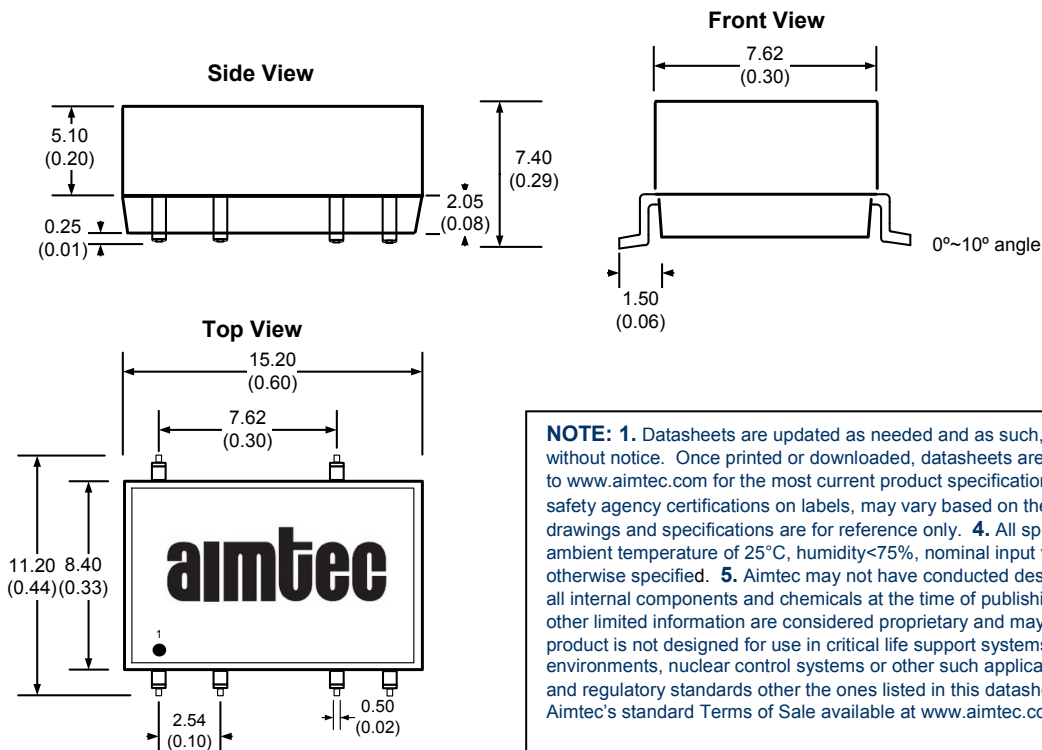
| Pin | 1000VDC   | 3000VDC   |           |
|-----|-----------|-----------|-----------|
|     | Dual      | Single    | Dual      |
| 1   | -V Input  | -V Input  | -V Input  |
| 2   | +V Input  | +V Input  | +V Input  |
| 3   | No Pin    | No Pin    | No Pin    |
| 4   | Common    | -V Output | Common    |
| 5   | -V Output | N.C.      | -V Output |
| 6   | No Pin    | No Pin    | No Pin    |
| 7   | +V Output | +V Output | +V Output |
| 8   | No Pin    | No Pin    | No Pin    |
| 9   | No Pin    | No Pin    | No Pin    |
| 10  | N.C.      | N.C.      | N.C.      |

### Block Diagrams

Single 1000Vdc Isolation



All other models



**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).