

## Series AM1G-Z

### 1 Watt | DC-DC Converter



#### FEATURES:

- RoHS compliant
- High efficiency up to 77%
- Remote On/Off Control
- 8 pin SIP package
- Operating temperature -40°C to + 85°C
- Continuous Short Circuit Protection
- Wide 2:1 input range
- Input / Output Isolation 1000 & 3000VDC

#### Models

#### Single output



| Model          | Input Voltage (V) | Output Voltage (V) | Output Current Max (mA) | Isolation (VDC) | Capacitor Load (μF) | Input Current Full Load   No Load (mA) |    | Efficiency (%) |
|----------------|-------------------|--------------------|-------------------------|-----------------|---------------------|----------------------------------------|----|----------------|
| AM1G-0503SZ    | 4.5-9             | 3.3                | 303                     | 1000            | 3300                | 298                                    | 15 | 67             |
| AM1G-0505SZ    | 4.5-9             | 5                  | 200                     | 1000            | 3300                | 298                                    | 15 | 67             |
| AM1G-0507SZ    | 4.5-9             | 7.2                | 139                     | 1000            | 470                 | 295                                    | 43 | 68             |
| AM1G-0509SZ    | 4.5-9             | 9                  | 111                     | 1000            | 470                 | 285                                    | 40 | 70             |
| AM1G-0512SZ    | 4.5-9             | 12                 | 83                      | 1000            | 470                 | 285                                    | 55 | 70             |
| AM1G-0515SZ    | 4.5-9             | 15                 | 67                      | 1000            | 470                 | 285                                    | 55 | 70             |
| AM1G-0518SZ    | 4.5-9             | 18                 | 56                      | 1000            | 220                 | 285                                    | 55 | 67             |
| AM1G-0524SZ    | 4.5-9             | 24                 | 42                      | 1000            | 220                 | 294                                    | 70 | 68             |
| AM1G-1203SZ    | 9-18              | 3.3                | 303                     | 1000            | 3300                | 119                                    | 15 | 70             |
| AM1G-1205SZ    | 9-18              | 5                  | 200                     | 1000            | 3300                | 115                                    | 15 | 72             |
| AM1G-1207SZ    | 9-18              | 7.2                | 139                     | 1000            | 470                 | 110                                    | 15 | 73             |
| AM1G-1209SZ    | 9-18              | 9                  | 111                     | 1000            | 470                 | 108                                    | 15 | 77             |
| AM1G-1212SZ    | 9-18              | 12                 | 83                      | 1000            | 470                 | 108                                    | 15 | 77             |
| AM1G-1215SZ    | 9-18              | 15                 | 67                      | 1000            | 470                 | 108                                    | 15 | 77             |
| AM1G-1218SZ    | 9-18              | 18                 | 56                      | 1000            | 220                 | 109                                    | 15 | 71             |
| AM1G-1224SZ    | 9-18              | 24                 | 42                      | 1000            | 220                 | 114                                    | 15 | 73             |
| AM1G-2403SZ    | 18-36             | 3.3                | 303                     | 1000            | 3300                | 59                                     | 8  | 70             |
| AM1G-2405SZ    | 18-36             | 5                  | 200                     | 1000            | 3300                | 57                                     | 8  | 72             |
| AM1G-2407SZ    | 18-36             | 7.2                | 139                     | 1000            | 470                 | 56                                     | 8  | 72             |
| AM1G-2409SZ    | 18-36             | 9                  | 111                     | 1000            | 470                 | 55                                     | 8  | 75             |
| AM1G-2412SZ    | 18-36             | 12                 | 83                      | 1000            | 470                 | 55                                     | 8  | 75             |
| AM1G-2415SZ    | 18-36             | 15                 | 67                      | 1000            | 470                 | 55                                     | 8  | 75             |
| AM1G-2418SZ    | 18-36             | 18                 | 56                      | 1000            | 220                 | 55                                     | 8  | 73             |
| AM1G-2424SZ    | 18-36             | 24                 | 42                      | 1000            | 220                 | 55                                     | 8  | 75             |
| AM1G-4803SZ    | 36-72             | 3.3                | 303                     | 1000            | 3300                | 31                                     | 6  | 66             |
| AM1G-4805SZ    | 36-72             | 5                  | 200                     | 1000            | 3300                | 30                                     | 6  | 68             |
| AM1G-4809SZ    | 36-72             | 9                  | 111                     | 1000            | 470                 | 29                                     | 6  | 70             |
| AM1G-4812SZ    | 36-72             | 12                 | 83                      | 1000            | 470                 | 29                                     | 6  | 70             |
| AM1G-4815SZ    | 36-72             | 15                 | 67                      | 1000            | 470                 | 29                                     | 6  | 70             |
| AM1G-4824SZ    | 36-72             | 24                 | 42                      | 1000            | 220                 | 30                                     | 6  | 68             |
| AM1G-0503SH30Z | 4.5-9             | 3.3                | 303                     | 3000            | 3300                | 298                                    | 15 | 67             |
| AM1G-0505SH30Z | 4.5-9             | 5                  | 200                     | 3000            | 3300                | 298                                    | 15 | 67             |
| AM1G-0507SH30Z | 4.5-9             | 7.2                | 139                     | 3000            | 470                 | 295                                    | 43 | 68             |
| AM1G-0509SH30Z | 4.5-9             | 9                  | 111                     | 3000            | 470                 | 285                                    | 40 | 70             |
| AM1G-0512SH30Z | 4.5-9             | 12                 | 83                      | 3000            | 470                 | 285                                    | 55 | 70             |
| AM1G-0515SH30Z | 4.5-9             | 15                 | 67                      | 3000            | 470                 | 285                                    | 55 | 70             |
| AM1G-0518SH30Z | 4.5-9             | 18                 | 56                      | 3000            | 220                 | 285                                    | 55 | 67             |
| AM1G-0524SH30Z | 4.5-9             | 24                 | 42                      | 3000            | 220                 | 294                                    | 70 | 68             |
| AM1G-1203SH30Z | 9-18              | 3.3                | 303                     | 3000            | 3300                | 119                                    | 15 | 70             |
| AM1G-1205SH30Z | 9-18              | 5                  | 200                     | 3000            | 3300                | 115                                    | 15 | 72             |
| AM1G-1207SH30Z | 9-18              | 7.2                | 139                     | 3000            | 470                 | 110                                    | 15 | 73             |
| AM1G-1209SH30Z | 9-18              | 9                  | 111                     | 3000            | 470                 | 108                                    | 15 | 77             |
| AM1G-1212SH30Z | 9-18              | 12                 | 83                      | 3000            | 470                 | 108                                    | 15 | 77             |

## Models

### Single output (continued)

| Model          | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Capacitor Load (μF) | Input Current Full Load   No Load (mA) |    | Efficiency (%) |
|----------------|-------------------|--------------------|-------------------------|-----------------|---------------------|----------------------------------------|----|----------------|
| AM1G-1215SH30Z | 9-18              | 15                 | 67                      | 3000            | 470                 | 108                                    | 15 | 77             |
| AM1G-1218SH30Z | 9-18              | 18                 | 56                      | 3000            | 220                 | 109                                    | 15 | 71             |
| AM1G-1224SH30Z | 9-18              | 24                 | 42                      | 3000            | 220                 | 114                                    | 15 | 73             |
| AM1G-2403SH30Z | 18-36             | 3.3                | 303                     | 3000            | 3300                | 59                                     | 8  | 70             |
| AM1G-2405SH30Z | 18-36             | 5                  | 200                     | 3000            | 3300                | 57                                     | 8  | 72             |
| AM1G-2407SH30Z | 18-36             | 7.2                | 139                     | 3000            | 470                 | 56                                     | 8  | 72             |
| AM1G-2409SH30Z | 18-36             | 9                  | 111                     | 3000            | 470                 | 55                                     | 8  | 75             |
| AM1G-2412SH30Z | 18-36             | 12                 | 83                      | 3000            | 470                 | 55                                     | 8  | 75             |
| AM1G-2415SH30Z | 18-36             | 15                 | 67                      | 3000            | 470                 | 55                                     | 8  | 75             |
| AM1G-2418SH30Z | 18-36             | 18                 | 56                      | 3000            | 220                 | 55                                     | 8  | 73             |
| AM1G-2424SH30Z | 18-36             | 24                 | 42                      | 3000            | 220                 | 55                                     | 8  | 75             |
| AM1G-4803SH30Z | 36-72             | 3.3                | 303                     | 3000            | 3300                | 31                                     | 6  | 66             |
| AM1G-4805SH30Z | 36-72             | 5                  | 200                     | 3000            | 3300                | 30                                     | 6  | 68             |
| AM1G-4809SH30Z | 36-72             | 9                  | 111                     | 3000            | 470                 | 29                                     | 6  | 70             |
| AM1G-4812SH30Z | 36-72             | 12                 | 83                      | 3000            | 470                 | 29                                     | 6  | 70             |
| AM1G-4815SH30Z | 36-72             | 15                 | 67                      | 3000            | 470                 | 29                                     | 6  | 70             |
| AM1G-4824SH30Z | 36-72             | 24                 | 42                      | 3000            | 220                 | 30                                     | 6  | 68             |

## Models

### Dual output

| Model       | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Capacitor Load (μF) | Input Current Full Load   No Load (mA) |    | Efficiency (%) |
|-------------|-------------------|--------------------|-------------------------|-----------------|---------------------|----------------------------------------|----|----------------|
| AM1G-0503DZ | 4.5-9             | ±3.3               | ±152                    | 1000            | ±1000               | 285                                    | 15 | 70             |
| AM1G-0505DZ | 4.5-9             | ±5                 | ±100                    | 1000            | ±1000               | 270                                    | 15 | 74             |
| AM1G-0507DZ | 4.5-9             | ±7.2               | ±69                     | 1000            | ±220                | 270                                    | 16 | 69             |
| AM1G-0509DZ | 4.5-9             | ±9                 | ±56                     | 1000            | ±220                | 270                                    | 20 | 74             |
| AM1G-0512DZ | 4.5-9             | ±12                | ±42                     | 1000            | ±220                | 266                                    | 20 | 75             |
| AM1G-0515DZ | 4.5-9             | ±15                | ±33                     | 1000            | ±220                | 285                                    | 40 | 70             |
| AM1G-0518DZ | 4.5-9             | ±18                | ±28                     | 1000            | ±100                | 294                                    | 50 | 67             |
| AM1G-0524DZ | 4.5-9             | ±24                | ±21                     | 1000            | ±100                | 298                                    | 70 | 67             |
| AM1G-1203DZ | 9-18              | ±3.3               | ±152                    | 1000            | ±1000               | 119                                    | 15 | 70             |
| AM1G-1205DZ | 9-18              | ±5                 | ±100                    | 1000            | ±1000               | 115                                    | 15 | 72             |
| AM1G-1207DZ | 9-18              | ±7.2               | ±69                     | 1000            | ±220                | 111                                    | 15 | 70             |
| AM1G-1209DZ | 9-18              | ±9                 | ±56                     | 1000            | ±220                | 109                                    | 15 | 76             |
| AM1G-1212DZ | 9-18              | ±12                | ±42                     | 1000            | ±220                | 109                                    | 15 | 76             |
| AM1G-1215DZ | 9-18              | ±15                | ±33                     | 1000            | ±220                | 112                                    | 15 | 74             |
| AM1G-1218DZ | 9-18              | ±18                | ±28                     | 1000            | ±100                | 120                                    | 20 | 68             |
| AM1G-1224DZ | 9-18              | ±24                | ±21                     | 1000            | ±100                | 124                                    | 40 | 67             |
| AM1G-2403DZ | 18-36             | ±3.3               | ±152                    | 1000            | ±1000               | 59                                     | 8  | 70             |
| AM1G-2405DZ | 18-36             | ±5                 | ±100                    | 1000            | ±1000               | 59                                     | 8  | 70             |
| AM1G-2407DZ | 18-36             | ±7.2               | ±69                     | 1000            | ±220                | 57                                     | 8  | 69             |
| AM1G-2409DZ | 18-36             | ±9                 | ±56                     | 1000            | ±220                | 54                                     | 8  | 76             |
| AM1G-2412DZ | 18-36             | ±12                | ±42                     | 1000            | ±220                | 54                                     | 8  | 77             |
| AM1G-2415DZ | 18-36             | ±15                | ±33                     | 1000            | ±220                | 55                                     | 8  | 75             |
| AM1G-2418DZ | 18-36             | ±18                | ±28                     | 1000            | ±100                | 57                                     | 10 | 69             |
| AM1G-2424DZ | 18-36             | ±24                | ±21                     | 1000            | ±100                | 59                                     | 20 | 70             |
| AM1G-4803DZ | 36-72             | ±3.3               | ±152                    | 1000            | ±1000               | 30                                     | 6  | 70             |
| AM1G-4805DZ | 36-72             | ±5                 | ±100                    | 1000            | ±1000               | 30                                     | 6  | 70             |

## Models

### Dual output (continued)

| Model          | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Capacitor Load (μF) | Input Current Full Load   No Load (mA) |    | Efficiency (%) |
|----------------|-------------------|--------------------|-------------------------|-----------------|---------------------|----------------------------------------|----|----------------|
| AM1G-4809DZ    | 36-72             | ±9                 | ±56                     | 1000            | ±220                | 28                                     | 6  | 74             |
| AM1G-4812DZ    | 36-72             | ±12                | ±42                     | 1000            | ±220                | 27                                     | 6  | 76             |
| AM1G-4815DZ    | 36-72             | ±15                | ±33                     | 1000            | ±220                | 29                                     | 6  | 72             |
| AM1G-4824DZ    | 36-72             | ±24                | ±21                     | 1000            | ±100                | 30                                     | 12 | 70             |
| AM1G-0503DH30Z | 4.5-9             | ±3.3               | ±152                    | 3000            | ±1000               | 285                                    | 15 | 70             |
| AM1G-0505DH30Z | 4.5-9             | ±5                 | ±100                    | 3000            | ±1000               | 270                                    | 15 | 74             |
| AM1G-0507DH30Z | 4.5-9             | ±7.2               | ±69                     | 3000            | ±220                | 270                                    | 16 | 69             |
| AM1G-0509DH30Z | 4.5-9             | ±9                 | ±56                     | 3000            | ±220                | 270                                    | 20 | 74             |
| AM1G-0512DH30Z | 4.5-9             | ±12                | ±42                     | 3000            | ±220                | 266                                    | 20 | 75             |
| AM1G-0515DH30Z | 4.5-9             | ±15                | ±33                     | 3000            | ±220                | 285                                    | 40 | 70             |
| AM1G-0518DH30Z | 4.5-9             | ±18                | ±28                     | 3000            | ±100                | 294                                    | 50 | 67             |
| AM1G-0524DH30Z | 4.5-9             | ±24                | ±21                     | 3000            | ±100                | 298                                    | 70 | 67             |
| AM1G-1203DH30Z | 9-18              | ±3.3               | ±152                    | 3000            | ±1000               | 119                                    | 15 | 70             |
| AM1G-1205DH30Z | 9-18              | ±5                 | ±100                    | 3000            | ±1000               | 115                                    | 15 | 72             |
| AM1G-1207DH30Z | 9-18              | ±7.2               | ±69                     | 3000            | ±220                | 111                                    | 15 | 70             |
| AM1G-1209DH30Z | 9-18              | ±9                 | ±56                     | 3000            | ±220                | 109                                    | 15 | 76             |
| AM1G-1212DH30Z | 9-18              | ±12                | ±42                     | 3000            | ±220                | 109                                    | 15 | 76             |
| AM1G-1215DH30Z | 9-18              | ±15                | ±33                     | 3000            | ±220                | 112                                    | 15 | 74             |
| AM1G-1218DH30Z | 9-18              | ±18                | ±28                     | 3000            | ±100                | 120                                    | 20 | 68             |
| AM1G-1224DH30Z | 9-18              | ±24                | ±21                     | 3000            | ±100                | 124                                    | 40 | 67             |
| AM1G-2403DH30Z | 18-36             | ±3.3               | ±152                    | 3000            | ±1000               | 59                                     | 8  | 70             |
| AM1G-2405DH30Z | 18-36             | ±5                 | ±100                    | 3000            | ±1000               | 59                                     | 8  | 70             |
| AM1G-2407DH30Z | 18-36             | ±7.2               | ±69                     | 3000            | ±220                | 57                                     | 8  | 69             |
| AM1G-2409DH30Z | 18-36             | ±9                 | ±56                     | 3000            | ±220                | 54                                     | 8  | 76             |
| AM1G-2412DH30Z | 18-36             | ±12                | ±42                     | 3000            | ±220                | 54                                     | 8  | 77             |
| AM1G-2415DH30Z | 18-36             | ±15                | ±33                     | 3000            | ±220                | 55                                     | 8  | 75             |
| AM1G-2418DH30Z | 18-36             | ±18                | ±28                     | 3000            | ±100                | 57                                     | 10 | 69             |
| AM1G-2424DH30Z | 18-36             | ±24                | ±21                     | 3000            | ±100                | 59                                     | 20 | 70             |
| AM1G-4803DH30Z | 36-72             | ±3.3               | ±152                    | 3000            | ±1000               | 30                                     | 6  | 70             |
| AM1G-4805DH30Z | 36-72             | ±5                 | ±100                    | 3000            | ±1000               | 30                                     | 6  | 70             |
| AM1G-4809DH30Z | 36-72             | ±9                 | ±56                     | 3000            | ±220                | 28                                     | 6  | 74             |
| AM1G-4812DH30Z | 36-72             | ±12                | ±42                     | 3000            | ±220                | 27                                     | 6  | 76             |
| AM1G-4815DH30Z | 36-72             | ±15                | ±33                     | 3000            | ±220                | 29                                     | 6  | 72             |
| AM1G-4824DH30Z | 36-72             | ±24                | ±21                     | 3000            | ±100                | 30                                     | 12 | 70             |

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<br>12<br>24<br>48                                                                          | 4.5-9<br>9-18<br>18-36<br>36-72          |         | VDC    |
| Filter                          | Capacitor                                                                                    |                                          |         |        |
| Absolute Maximum Rating         | 5 Vin<br>12 Vin<br>24 Vin<br>48 Vin                                                          | -0.7-12<br>-0.7-24<br>-0.7-40<br>-0.7-80 |         | VDC    |
| Peak Input Voltage time         |                                                                                              |                                          | 100     | ms     |
| On/Off Control                  | ON – low or open (0Vdc to 0.8Vdc)<br>OFF – high (4.5Vdc to 15Vdc) OFF idle current: 5mA typ. |                                          |         |        |
| Input reflected ripple current* |                                                                                              | 35                                       |         | mA p-p |

\*Measured with 12μH source inductance.

### 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         |                                                                      |         | ±2      | %        |
| Cross Regulation         | 25% load on 1 <sup>st</sup> load - 100% load on 2 <sup>nd</sup> load | ±5      |         | %        |
| Short Circuit protection | Continuous                                                           |         |         |          |
| Short Circuit restart    | Auto recovery                                                        |         |         |          |
| Line voltage regulation  | LL ~ HL                                                              |         | ±0.5    | %        |
| Load voltage regulation  | load 25~100%                                                         |         | ±1      | %        |
| Temperature coefficient  |                                                                      | ±0.02   |         | %/°C     |
| Ripple & Noise           | At 20MHz Bandwidth                                                   |         | 80      | mV p-p   |
| Minimum Load Current *   |                                                                      | 25      |         | % of Max |

\* Operating the converter below the minimum load current will not damage the converter, but the specifications may not be meet.

### General Specifications

| Parameters               | Conditions                                              | Typical                 | Maximum | Units |
|--------------------------|---------------------------------------------------------|-------------------------|---------|-------|
| Switching frequency      | 100% load                                               | >100                    | 650     | KHz   |
| Operating temperature    | Full Load without Derating                              | -40 to +85              |         | °C    |
| Storage temperature      |                                                         | -40 to +125             |         | °C    |
| Maximum Case temperature |                                                         |                         | +100    | °C    |
| Cooling                  | Free air convection                                     |                         |         |       |
| Humidity                 |                                                         |                         | 95      | %     |
| Case material            | Non-conductive black plastic (UL94V-0 rated)            |                         |         |       |
| Weight                   |                                                         | 4.5                     |         | g     |
| Dimensions (L x W x H)   | 0.86 x 0.36 x 0.44 inch                                 | 21.85 x 9.20 x 11.10 mm |         |       |
| MTBF                     | >1 660 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C) |                         |         |       |

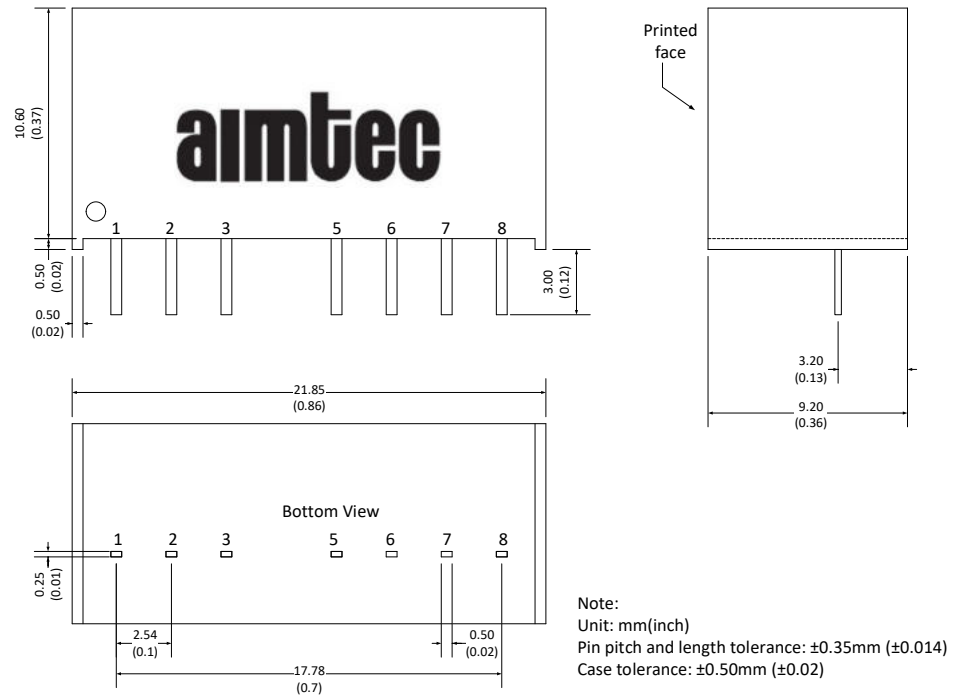
### Safety Specifications

| Parameters      |                                                                   |
|-----------------|-------------------------------------------------------------------|
| Agency Approval | CE, UL                                                            |
| Standards       | EN55032 Class A, with the recommended EMI circuit, EN55024        |
|                 | IEC61000-4-2, Perf. Criteria A                                    |
|                 | IEC61000-4-3, Perf. Criteria A                                    |
|                 | IEC61000-4-4, Perf. Criteria A (external 220uF/100V cap required) |
|                 | IEC61000-4-5, Perf. Criteria A (external 220uF/100V cap required) |
|                 | IEC61000-4-6, Perf. Criteria A                                    |
|                 | IEC61000-4-8, Perf. Criteria A                                    |
|                 | IEC/EN/UL 60950-1:2001 & IEC/EN/UL 62368-1                        |

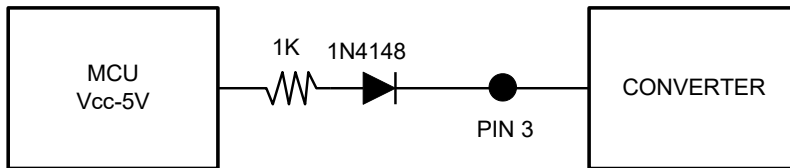
### Pin Out Specifications

| Pin | 1000 & 3000VDC |                |
|-----|----------------|----------------|
|     | Single         | Dual           |
| 1   | - V Input      | - V Input      |
| 2   | + V Input      | + V Input      |
| 3   | On/Off Control | On/Off Control |
| 5   | N.C.           | N.C.           |
| 6   | + V Output     | + V Output     |
| 7   | - V Output     | Common         |
| 8   | N.C.           | - V Output     |

### Dimensions

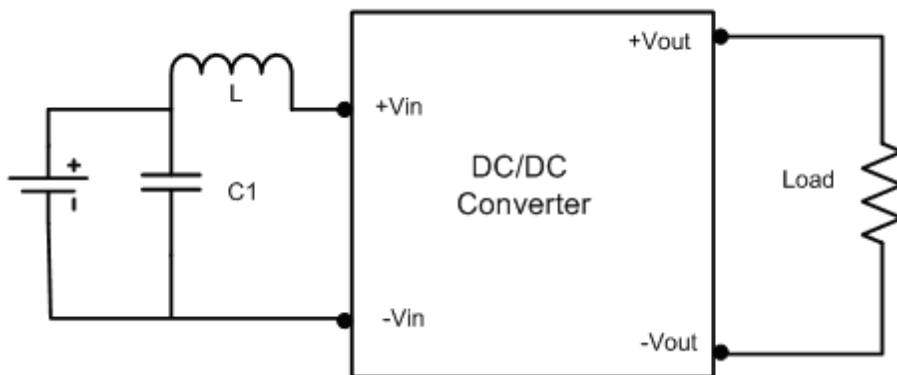


### Control ON/OFF pin connection example:



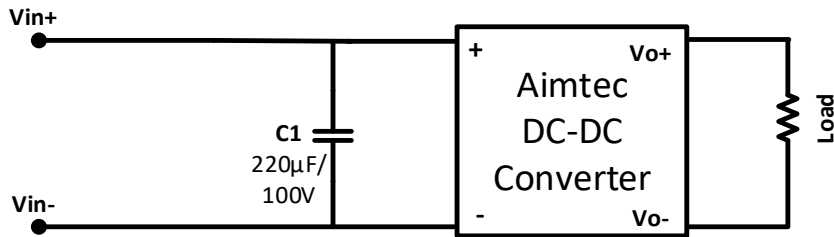
The voltage could be applied through a limiting resistor and a switching diode. The converter is in a low power mode during high level phase.

### Recommended EMI circuit Conducted Emissions:



| C1         | L1    |
|------------|-------|
| 100μF/100V | 12 μH |

## Surge/EFT:



**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).