aimtec
Your Power Partner

# 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-4807SZ | 36-72 | 7.2 | 139 | 1000 | 470 | 30 | 6 | 69 |
| 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-4818SZ | 36-72 | 18 | 56 | 1000 | 220 | 29 | 6 | 69 |
| 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-4807SH30Z | 36-72 | 7.2 | 139 | 3000 | 470 | 30 | 6 | 69 |
| 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-4818SH30Z | 36-72 | 18 | 56 | 3000 | 220 | 29 | 6 | 69 |
| 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-4807DZ | 36-72 | ±7.2 | ±69 | 1000 | ±220 | 29 | 6 | 69 |
| 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-4818DZ | 36-72 | ±18 | ±28 | 1000 | ±100 | 29 | 6 | 69 |
| 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-4807DH30Z | 36-72 | ±7.2 | ±69 | 3000 | ±220 | 29 | 6 | 69 |
| 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-4818DH30Z | 36-72 | ±18 | ±28 | 3000 | ±100 | 29 | 6 | 69 |
| 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 | 4.5-9 | | VDC |
| | 12 | 9-18 | | |
| | 24 | 18-36 | | |
| | 48 | 36-72 | | |
| Filter | Capacitor | | | |
| Absolute Maximum Rating | 5 Vin | -0.7-12 | | VDC |
| | 12 Vin | -0.7-24 | | |
| | 24 Vin | -0.7-40 | | |
| | 48 Vin | -0.7-80 | | |

| | | | | |
|---|---|---|---|---|
| Peak Input Voltage time | | 100 | | ms |
| On/Off Control | ON – low or open (0Vdc to 0.8Vdc) | | | |
| | OFF – high (4.5Vdc to 15Vdc, OFF idle current:3.5mA to 15mA Max.) | | | |
| Input reflected ripple current | | 35 | | 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 | | | ±2 | % |
| Cross Regulation (Dual Output Models) | 25% load on one output - 100% load on second load | ±5 | | % |
| Short Circuit protection | Continuous | | | |
| Short Circuit restart | Auto recovery | | | |
| Line voltage regulation | LL ~ HL | | ±0.5 | % |
| Load voltage regulation | load 25~100% | | ±0.5 | % |
| Load voltage regulation 3.3V output | load 25~100% | | ±1 | % |
| Temperature coefficient | | ±0.02 | | %/ºC |
| Ripple & Noise | At 20MHz Bandwidth | | 80 | mV p-p |

## General Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Switching frequency | 100% load | >100 | 650 | KHz |
| Operating temperature | Full Load without Derating | -40 to +85 | | ºC |
| Storage temperature | | -40 to +125 | | ºC |
| Maximum Case temperature | | | +100 | ºC |
| 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=+25ºC) | | | |

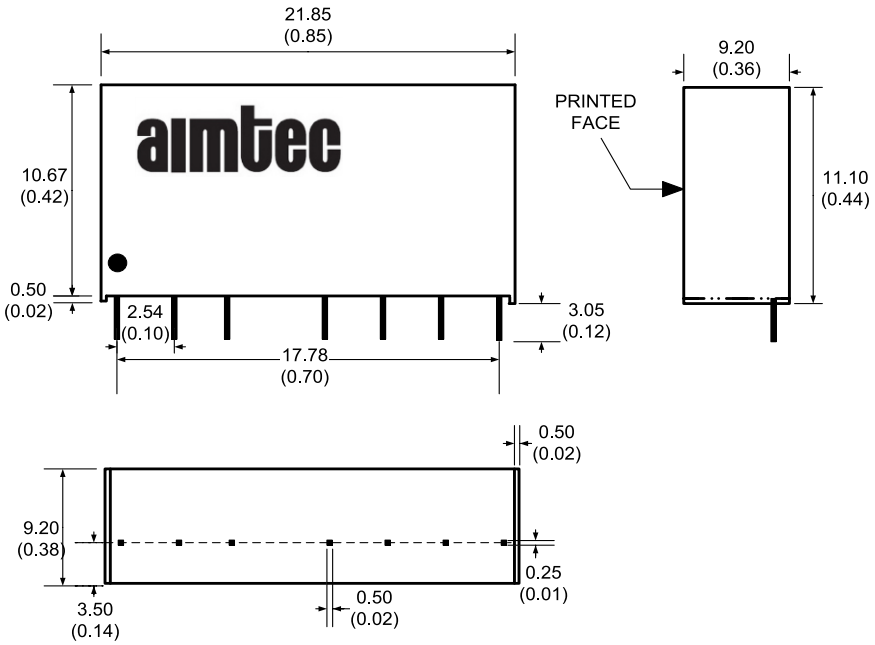
## Safety Specifications

| Parameters | |
|---|---|
| Agency Approval | CE, UL |
| Standards | EN55032 Class A, 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 |

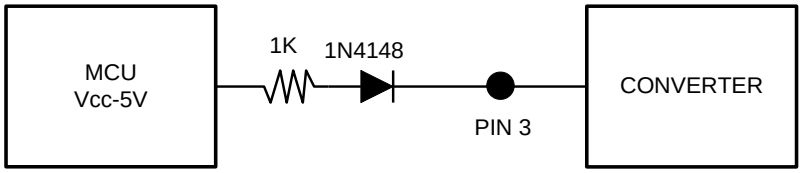
## Pin Out Specifications

| 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

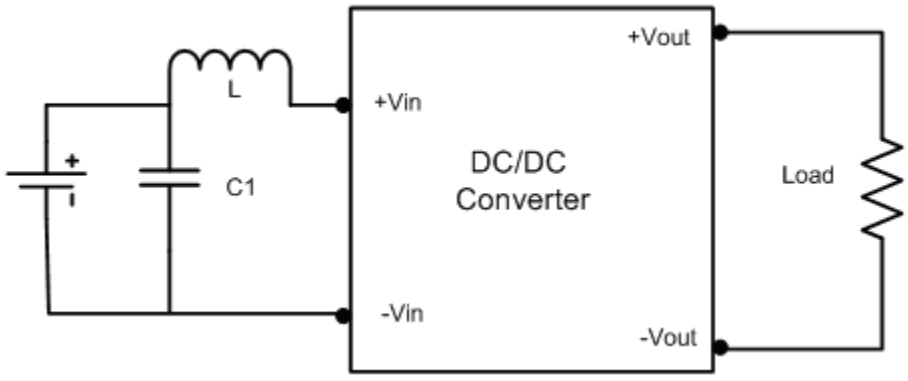



## Control ON/OFF pin connection example:



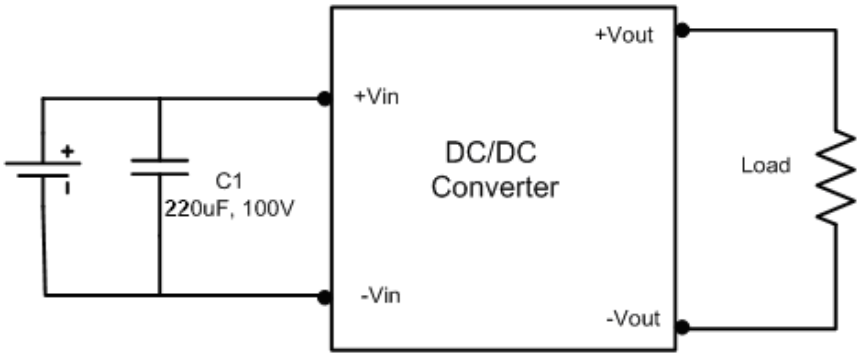

The voltage could be applied trough a limiting resistor and a switching diode. The converter is in a low power mode during high level phase.

## Conducted Emissions:




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

## Surge:

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