

## Series AM2GW-Z

### 2 Watt | DC-DC Converter



#### FEATURES:

- SIP9 Package
- Low Ripple and Noise
- Continuous Short Circuit Protection
- -40°C to +85°C Operating Temperature Range
- Ultra-Wide Input Range 4:1
- 1500VDC I/O Isolation
- Efficiency up to 85%
- Remote ON / OFF Control



#### Models Single output

| Model        | Input Voltage (V) | Output Voltage (V) | Output Current Max (mA) | Maximum Capacitive Load (μF) | Input Current Full Load   No Load (mA) |    | Efficiency (%) |
|--------------|-------------------|--------------------|-------------------------|------------------------------|----------------------------------------|----|----------------|
| AM2GW-2403SZ | 9-36              | 3.3                | 500                     | 2200                         | 92                                     | 10 | 75             |
| AM2GW-2405SZ | 9-36              | 5                  | 400                     | 1000                         | 103                                    | 10 | 81             |
| AM2GW-2412SZ | 9-36              | 12                 | 165                     | 165                          | 100                                    | 10 | 84             |
| AM2GW-2415SZ | 9-36              | 15                 | 135                     | 100                          | 98                                     | 10 | 85             |
| AM2GW-4803SZ | 18-75             | 3.3                | 500                     | 2200                         | 46                                     | 5  | 75             |
| AM2GW-4805SZ | 18-75             | 5                  | 400                     | 1000                         | 53                                     | 5  | 80             |
| AM2GW-4812SZ | 18-75             | 12                 | 165                     | 165                          | 50                                     | 5  | 84             |
| AM2GW-4815SZ | 18-75             | 15                 | 135                     | 100                          | 50                                     | 5  | 84             |

#### Models Dual output

| Model        | Input Voltage (V) | Output Voltage (V) | Output Current Max (mA) | Maximum Capacitive Load (μF) | Input Current Full Load   No Load (mA) |    | Efficiency (%) |
|--------------|-------------------|--------------------|-------------------------|------------------------------|----------------------------------------|----|----------------|
| AM2GW-2405DZ | 9-36              | ±5                 | ±200                    | ±470                         | 103                                    | 10 | 81             |
| AM2GW-2412DZ | 9-36              | ±12                | ±85                     | ±100                         | 101                                    | 10 | 83             |
| AM2GW-2415DZ | 9-36              | ±15                | ±65                     | ±47                          | 102                                    | 15 | 82             |
| AM2GW-4805DZ | 18-75             | ±5                 | ±200                    | ±470                         | 53                                     | 5  | 80             |
| AM2GW-4812DZ | 18-75             | ±12                | ±85                     | ±100                         | 52                                     | 5  | 81             |
| AM2GW-4815DZ | 18-75             | ±15                | ±65                     | ±47                          | 50                                     | 5  | 84             |

#### Input Specifications

| Parameters                     | Nominal                                                                      | Typical       | Maximum   | Units  |
|--------------------------------|------------------------------------------------------------------------------|---------------|-----------|--------|
| Voltage range                  | 24<br>48                                                                     | 9-36<br>18-75 |           | VDC    |
| Filter                         |                                                                              | Capacitor     |           |        |
| Start up time                  |                                                                              | 10            |           | ms     |
| Absolute Maximum Rating        | 24Vin<br>48Vin                                                               |               | 50<br>100 | VDC    |
| Peak Input Voltage time        |                                                                              |               | 100       | ms     |
| On/Off Control                 | ON: 0 to 0.6VDC (or open) ; OFF: 2.7 to 15.0VDC ,OFF: idle current: 5mA, max |               |           |        |
| Input reflected ripple current |                                                                              | 20            |           | mA p-p |

#### Isolation Specifications

| Parameters         | Conditions | Typical | Rated | Units |
|--------------------|------------|---------|-------|-------|
| Tested I/O voltage | 60 sec     |         | 1500  | VDC   |
| Resistance         |            | >1000   |       | MOhm  |
| Capacitance        |            | 500     |       | pF    |

### Output Specifications

| Parameters                            | Conditions                                            | Typical | Maximum    | Units  |
|---------------------------------------|-------------------------------------------------------|---------|------------|--------|
| Voltage accuracy                      |                                                       | ±1      |            | %      |
| Cross Regulation (Dual Output Models) | 25% load on output - 100% load 2 <sup>nd</sup> output | ±5      |            | %      |
| Short Circuit protection              | Hiccup                                                |         | Continuous |        |
| Short circuit restart                 | Auto-Recovery                                         |         |            |        |
| Transient Response Deviation          |                                                       | ±3      |            | %      |
| Transient Recovery Time               |                                                       | 300     |            | µs     |
| Line voltage regulation               | LL~HL                                                 | ±0.5    |            | %      |
| Load voltage regulation               | From 10% to 100% load                                 | ±0.5    |            | %      |
|                                       | From 0% to 100% load 12Vout and 15Vout                | ±0.5    |            |        |
|                                       | From 0% to 100% load 3.3Vout and 5Vout                | ±1      |            |        |
| Ripple & Noise                        | 20MHz Bandwidth                                       | 50      |            | mV p-p |

### General Specifications

| Parameters                | Conditions                                              | Typical | Maximum | Units |
|---------------------------|---------------------------------------------------------|---------|---------|-------|
| Switching frequency       | 100% load                                               | 250     |         | KHz   |
| Operating temperature     | -40 to +85                                              |         |         | °C    |
| Storage temperature       | -40 to +125                                             |         |         | °C    |
| Temperature coefficient   |                                                         | ±0.02   |         | %/°C  |
| Maximum case temperature  |                                                         |         | 100     | °C    |
| Derating                  | Above 75°C                                              | 3.5     |         | %/°C  |
| Cooling                   | Free Air Convection                                     |         |         |       |
| Humidity                  |                                                         |         | 95      | % RH  |
| Case material             | Non conductive black plastic                            |         |         |       |
| Potting Material          | Epoxy (UL94V-0 rated)                                   |         |         |       |
| Weight                    | 6.5                                                     |         |         | g     |
| Dimensions (L x W x H)    | 1.02 x 0.36 x 0.49 inches 26.00 x 9.30 x 12.50 mm       |         |         |       |
| MTBF                      | >1,212,000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C) |         |         |       |
| Max Soldering Temperature | 1.5mm from case 10 second                               |         | 260     | °C    |

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.

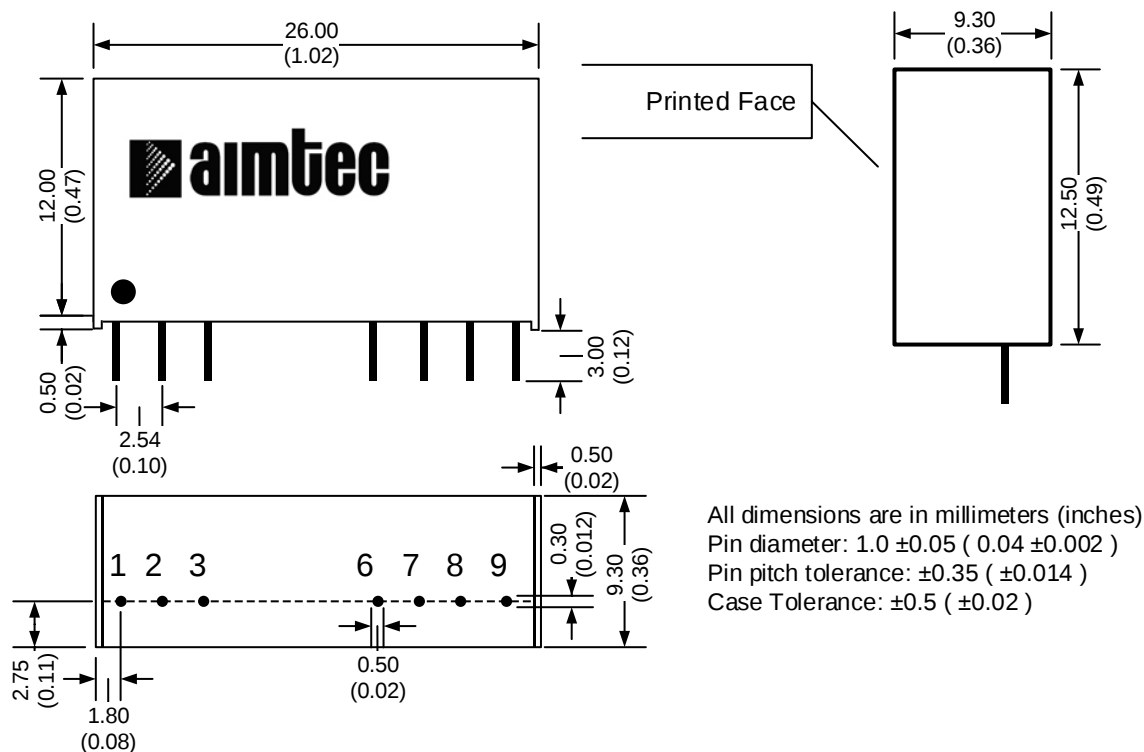
### Safety Specifications

| Parameters      |                                                                   |
|-----------------|-------------------------------------------------------------------|
| Agency Approval | CE, UL                                                            |
| Standards       | UL60950-1:2001; UL62368-1                                         |
|                 | EN55032 Class A,                                                  |
|                 | IEC61000-4-2, Perf. Criteria B                                    |
|                 | IEC61000-4-3, Perf. Criteria A                                    |
|                 | IEC61000-4-4, Perf. Criteria B (external 220uF/100V cap required) |
|                 | IEC61000-4-5, Perf. Criteria B (external 220uF/100V cap required) |
|                 | IEC61000-4-6, Perf. Criteria A                                    |
|                 | IEC61000-4-8, Perf. Criteria A                                    |

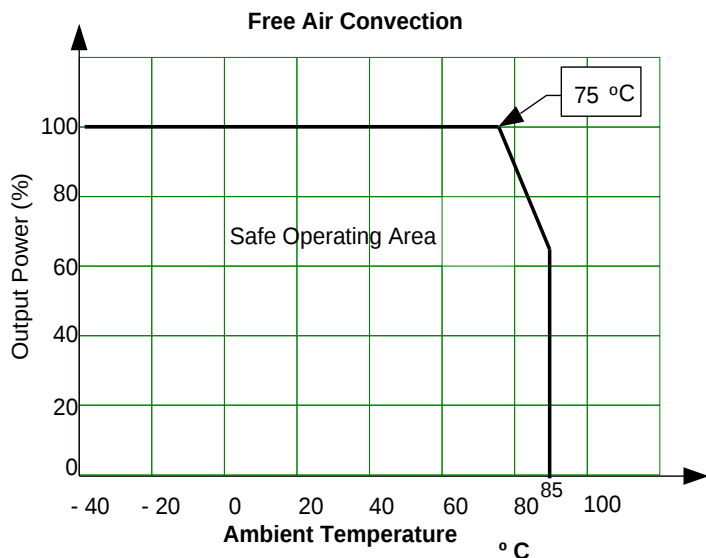
### Pin Out Specifications

| Pin | Single         | Dual           |
|-----|----------------|----------------|
| 1   | - V Input      | - V Input      |
| 2   | + V Input      | + V Input      |
| 3   | On/Off Control | On/Off Control |
| 6   | + V Output     | + V Output     |
| 7   | NC             | Common         |
| 8   | NC             | NC             |
| 9   | - V Output     | -V Output      |

## Dimensions

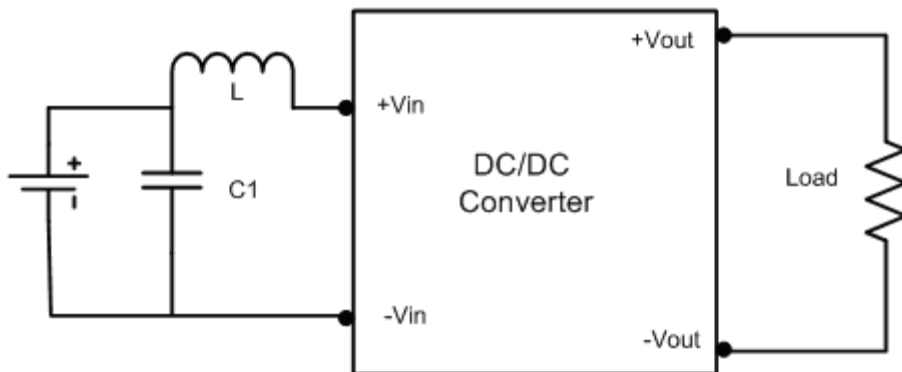


## Derating



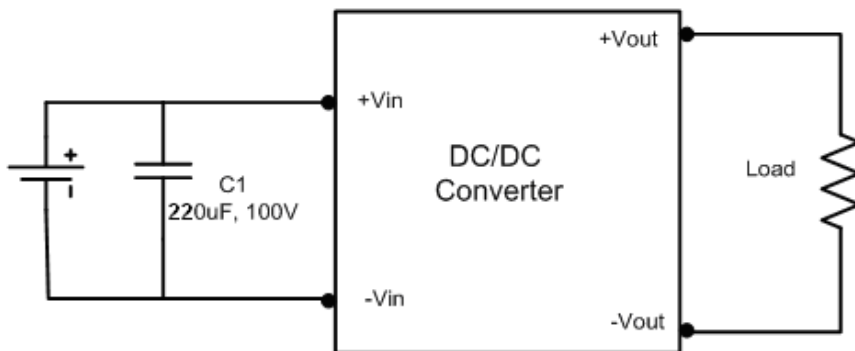
## Test Circuits

### Conducted Emissions:

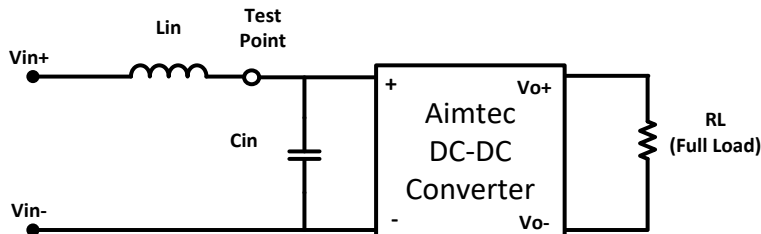


| Models       | C1                       | L1          |
|--------------|--------------------------|-------------|
| AM2GW-24XX-Z | 1210,225K/100V,X7R, 2pcs | 6.8 $\mu$ H |
| AM2GW-48XX-Z | 1210,105k/100V,X7R       | 56 $\mu$ H  |

### Surge:



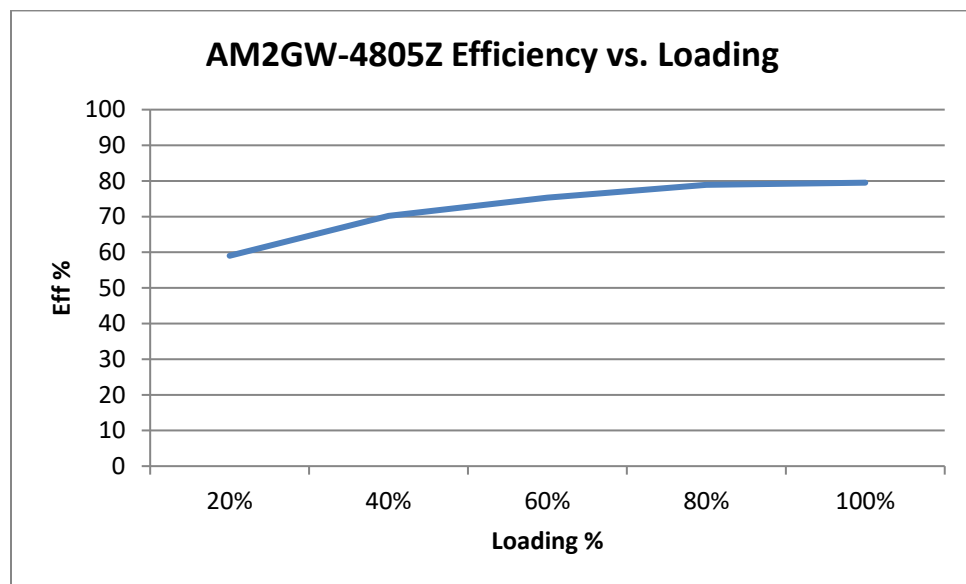
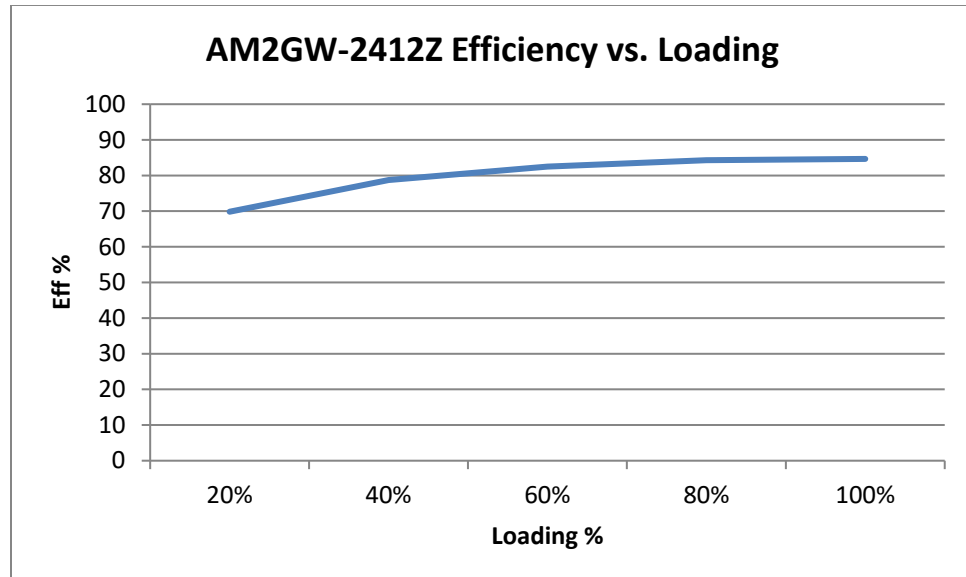
### Input Reflected Ripple current:



|     |                                      |
|-----|--------------------------------------|
| Lin | 12 $\mu$ H                           |
| Cin | 47 $\mu$ F, ESR<1 $\Omega$ at 100KHz |

Measurement taken at nominal input and full load.

## Typical Efficiency Example Charts



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