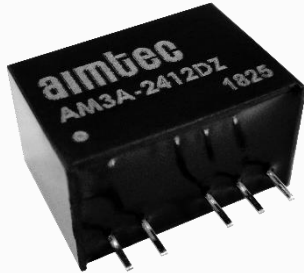


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AM3A-Z



SIP6 Package

Aimtec is pleased to introduce its first ever 3-Watt single and dual output DC/DC converter in a compact SIP6 package. With a 4:1 ultra-wide input range, from 4.5-75VDC, the AM3A-Z comes with 1600VDC isolation and a regulated output. This is the smallest regulated and isolated 3-Watt converter ever designed by Aimtec!

This compact design comes with a high efficiency up to 84%, no minimum load requirement and continuous short circuit protection. Furthermore, the ambient operating temperature is from -40°C to +76°C with full power up to 71°C.

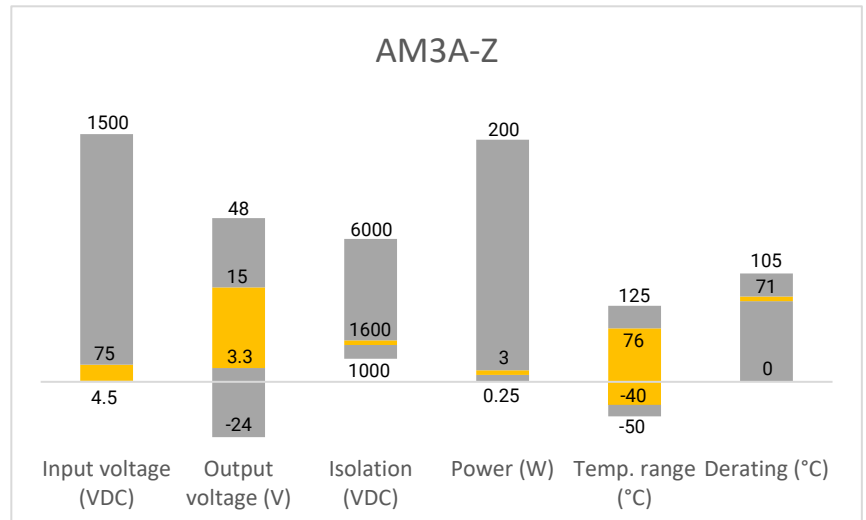
This truly innovative series can be used for applications that have limited board space such as mobile phone chargers, portable electronics, IoT and wireless applications.

Features

- I/O Isolation 1600VDC
- Continuous Short circuit protection
- Operating Temp: -40 °C to +76 °C
- Compact Footprint and high-power Density
- 4:1 Input Voltage Range
- Compact SIP6
- ON/OFF Control
- Efficiency up to 84%



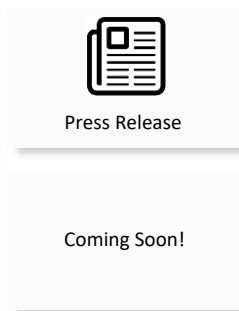
Summary



Training



Product Training Video
(click to open)



Application Notes

Applications



IoT



Industrial



Telecom



Portable Equipment

Models & Specifications



Single Output

| Model | Input Voltage (VDC) | Output Voltage (VDC) | Input Current max (mA) | Output Current max (mA) | Isolation (VDC) | Maximum capacitive Load (μ F) | Efficiency (%) |
|-------------|---------------------|----------------------|------------------------|-------------------------|-----------------|------------------------------------|----------------|
| AM3A-1203SZ | 12 (4.5 - 18) | 3.3 | 257 | 700 | 1600 | 3300 | 75 |
| AM3A-1205SZ | 12 (4.5 - 18) | 5 | 309 | 600 | 1600 | 1680 | 81 |
| AM3A-1212SZ | 12 (4.5 - 18) | 12 | 301 | 250 | 1600 | 820 | 83 |
| AM3A-1215SZ | 12 (4.5 - 18) | 15 | 301 | 200 | 1600 | 680 | 83 |
| AM3A-2403SZ | 24 (9 - 36) | 3.3 | 127 | 700 | 1600 | 3300 | 76 |
| AM3A-2405SZ | 24 (9 - 36) | 5 | 152 | 600 | 1600 | 1680 | 82 |
| AM3A-2412SZ | 24 (9 - 36) | 12 | 149 | 250 | 1600 | 820 | 84 |
| AM3A-2415SZ | 24 (9 - 36) | 15 | 149 | 200 | 1600 | 680 | 84 |
| AM3A-4803SZ | 48 (18 - 75) | 3.3 | 65 | 700 | 1600 | 3300 | 74 |
| AM3A-4805SZ | 48 (18 - 75) | 5 | 77 | 600 | 1600 | 1680 | 81 |
| AM3A-4812SZ | 48 (18 - 75) | 12 | 77 | 250 | 1600 | 820 | 81 |
| AM3A-4815SZ | 48 (18 - 75) | 15 | 76 | 200 | 1600 | 680 | 82 |

Dual Output

| Model | Input Voltage (VDC) | Output Voltage (VDC) | Input Current max (mA) | Output Current max (mA) | Isolation (VAC) | Maximum capacitive Load (μ F) | Efficiency (%) |
|-------------|---------------------|----------------------|------------------------|-------------------------|-----------------|------------------------------------|----------------|
| AM3A-1205DZ | 12 (4.5 - 18) | \pm 5 | 313 | \pm 300 | 1600 | \pm 1000 | 80 |
| AM3A-1212DZ | 12 (4.5 - 18) | \pm 12 | 305 | \pm 125 | 1600 | \pm 470 | 82 |
| AM3A-1215DZ | 12 (4.5 - 18) | \pm 15 | 301 | \pm 100 | 1600 | \pm 330 | 83 |
| AM3A-2405DZ | 24 (9 - 36) | \pm 5 | 154 | \pm 300 | 1600 | \pm 1000 | 81 |
| AM3A-2412DZ | 24 (9 - 36) | \pm 12 | 151 | \pm 125 | 1600 | \pm 470 | 83 |
| AM3A-2415DZ | 24 (9 - 36) | \pm 15 | 149 | \pm 100 | 1600 | \pm 330 | 84 |
| AM3A-4805DZ | 48 (18 - 75) | \pm 5 | 79 | \pm 300 | 1600 | \pm 1000 | 79 |
| AM3A-4812DZ | 48 (18 - 75) | \pm 12 | 78 | \pm 125 | 1600 | \pm 470 | 80 |
| AM3A-4815DZ | 48 (18 - 75) | \pm 15 | 78 | \pm 100 | 1600 | \pm 330 | 80 |

Input Specification

| Parameters | Conditions | Typical | Maximum | Units |
|---------------|-------------------|-------------------------------|---------|-------|
| Voltage range | 12V 24V 48V | 4.5 - 18 9 - 36 18 - 75 | | VDC |
| Filter | | Capacitor | | |

| | | | | |
|--------------------------------|---|------|-----|----------|
| Startup time | Nominal input and resistive load | 0.03 | | S |
| Absolute maximum rating | 12V models | | 25 | VDC |
| | 24V models | | 50 | |
| | 48V models | | 100 | |
| Input reflected ripple current | | | 20 | mA pk-pk |
| On/Off Control | ON – high impedance or open; OFF – 2-4mA input current through 1K Ω (standby 2.5mA max) | | | |

| Isolation Specification | | | | |
|-------------------------------|------------|---------|---------|-------|
| Parameters | Conditions | Typical | Maximum | Units |
| Tested I/O voltage Resistance | 60 sec | 1600 | | VDC |
| Capacitance | | >1000 | | MOhm |
| | | | 40 | pF |

| Output Specification | | | | |
|------------------------------|--|--------------------|-----------|----------|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage accuracy | | ± 1 | | % |
| Cross regulation (Dual) | 25% load on one output, 100% load on second output | ± 5 | | % |
| Line regulation | Full load, main input range | | ± 0.2 | % |
| Load regulation | 0-100% load | | ± 1 | % |
| Short circuit protection | Continuous, Auto recovery | | | |
| Temperature coefficient | | ± 0.02 | | %/°C |
| Ripple & Noise* | Single Output | | 150 | mV pk-pk |
| | Dual Output | | 100 | |
| Transient recovery time | 100%-25% load, 25% load step change | 500 | | μ S |
| Transient response deviation | 100%-25% load, 25% load step change | Single 3.3V,5V out | ± 5 | % |
| | | Others | ± 3 | |

* 20MHz bandwidth with a 0.1 μ F CC and a 10 μ F EC

| General Specifications | | | | |
|--------------------------|--|--------------------------|---------|-------|
| Parameters | Conditions | Typical | Maximum | Units |
| Switching frequency | Full load | 100 | | KHz |
| Operating temperature | With derating at 71 | -40 to +76 | | °C |
| Storage temperature | | -55 to +125 | | °C |
| Maximum Case temperature | | | 100 | °C |
| Cooling | Free air convection | | | |
| Humidity | Non-condensing | | 95 | % RH |
| Case material | Black plastic (flammability to UL 94V-0) | | | |
| Weight | | 3.85 | | g |
| Dimensions (L x W x H) | 0.69 x 0.40 x 0.48 inches | 17.52 x 10.02 x 12.20 mm | | |
| MTBF | >956,000 hrs (MIL-HDBK -217F, t _v =+25°C) / Full Load | | | |

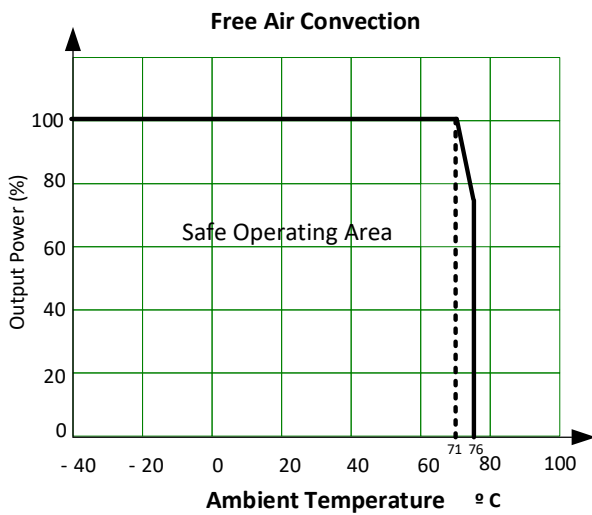
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

Safety Specifications

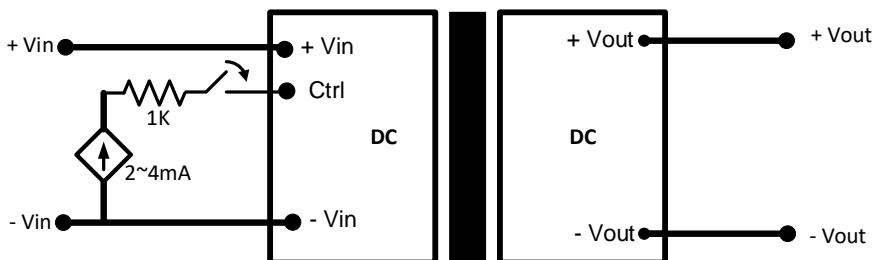
Parameters

| | | |
|-----------------|---|--|
| Agency approval | cULus | UL62368-1 |
| Standards | Information technology Equipment | Design to meet EN62368 |
| | EMI - Conducted and radiated emission | EN55032, class B with the EMC recommended circuit part A |
| | Electrostatic Discharge Immunity | IEC 61000-4-2, Contact $\pm 6\text{KV}$, Criteria A |
| | RF, Electromagnetic Field Immunity | IEC 61000-4-3, 10V/m, Criteria A |
| | Electrical Fast Transient/Burst Immunity | IEC 61000-4-4, $\pm 2\text{KV}$, Criteria B with the EMC recommended circuit part A |
| | Surge Immunity | IEC 61000-4-5, L-L $\pm 2\text{KV}$, Criteria B with the EMC recommended circuit part A |
| | RF, Conducted Disturbance Immunity | IEC 61000-4-6, 10Vr.m.s, Criteria A |
| | PFMF, Power Frequency Magnetic Field Immunity | IEC 61000-4-8 100A/m, Criteria A |

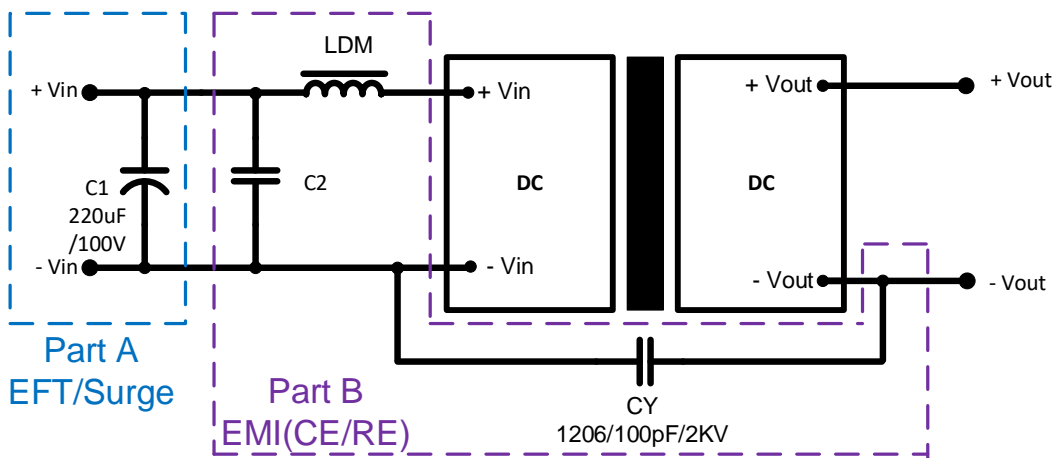
Derating



On/Off Control Circuit



EMC Recommended Circuit

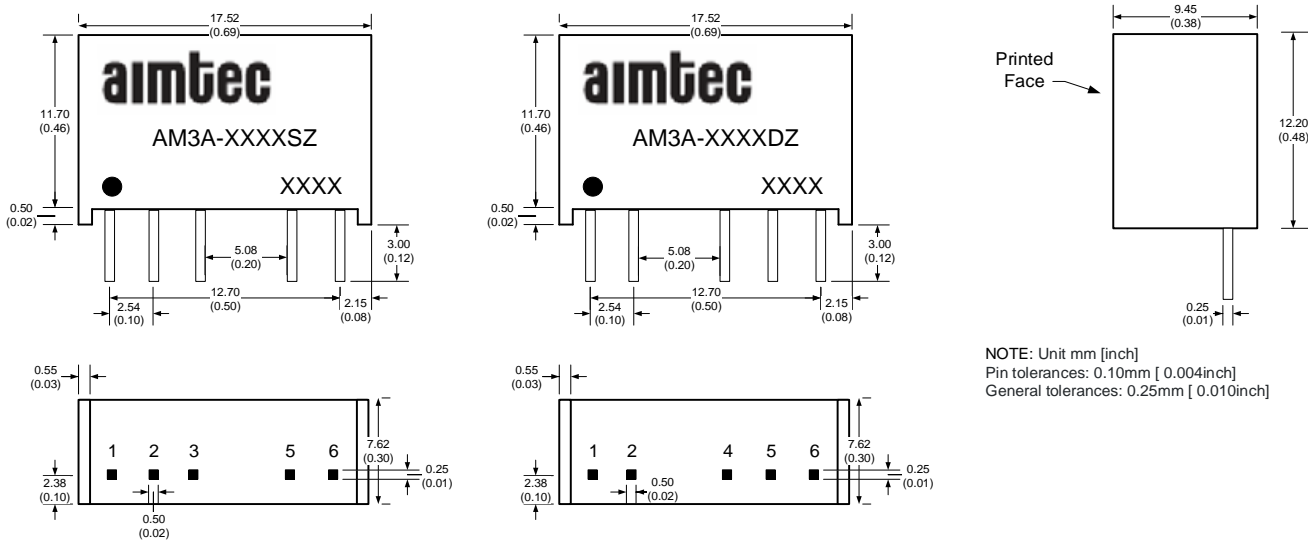


| Vin | C2 | LDM |
|-----|------------------------|-------------|
| 12V | 1210, 10 μ F/35V | 2.2 μ H |
| 24V | 1210, 2.2 μ F/100V | 10 μ H |
| 48V | 1210, 4.7 μ F/100V | 18 μ H |

Pin Out Specifications

| Pin | Single | Dual |
|-----|-------------|-----------|
| 1 | -Input | -Input |
| 2 | +Input | +Input |
| 3 | ON/OFF ctrl | No pin |
| 4 | No pin | +V Output |
| 5 | +V Output | Common |
| 6 | -V Output | -V Output |

Dimensions



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