



AM10G-NZ



Aimtec adds the AM10G-NZ 10W series to its SIP8 DC/DC converters family. This new series now increases the power density of our SIP8 line from 9W to 10W.

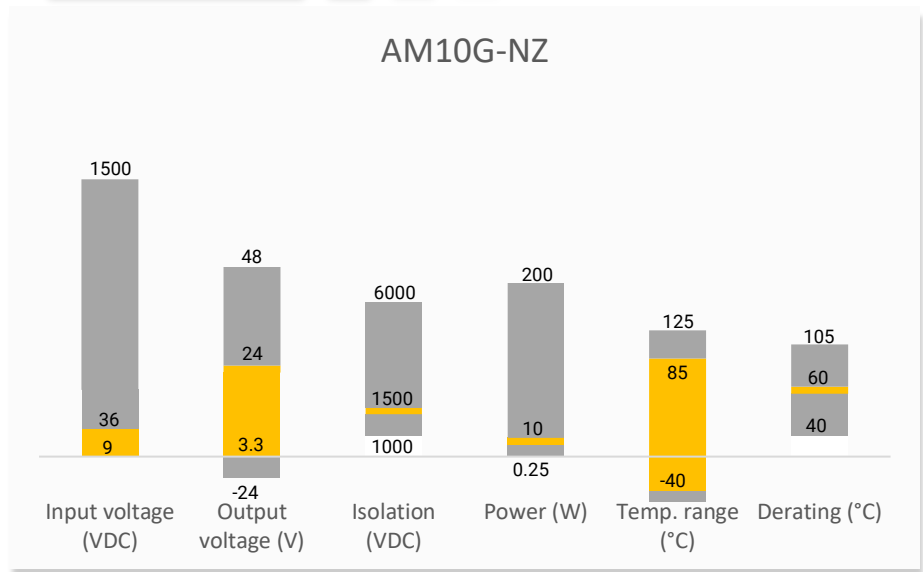
The AM10GH-NZ series provide a 2:1 ultrawide input voltage range and comes standard with single regulated output voltages of 3.3, 5, 9, 12, 15 and 24VDC with I/O isolation of 1500VDC. Thanks to its wide -40°C to +85°C operating temperature range, the AM10G-NZ is suitable for applications that include industrial control, grid power, instrumentation and telecommunication. In addition to meeting EN62368 certification, protections for input under-voltage, output short circuit, over-current are also included, increasing the overall safety of your new system design.

Features



- Ultrawide input voltage range: 9-18V & 18-36V
- Operating temperature range: -40°C to +85°C
- Efficiency high up to 86%
- Input under-voltage protection, output short circuit, over-current protection
- High power density, SIP8 package
- International standard pin-out

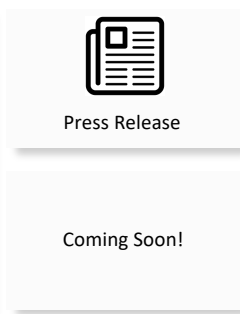
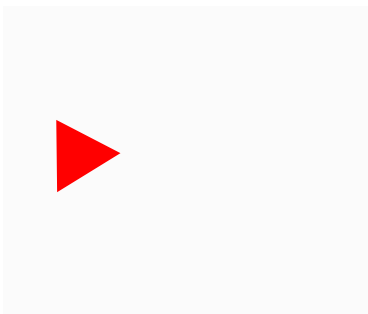
Summary



Training



Applications



Power Grid



Industrial



Telecom



Instrumentation

Product Training Video
(click to open)

Application Notes

Models & Specifications

Single Output

| Model | Input Voltage (VDC) | Output Voltage (VDC) | Input Current max (mA) | Output Current max (A) | Isolation (VDC) | Maximum capacitive Load (μ F) | Efficiency Full Load (Min.) (%) |
|--------------|---------------------|----------------------|------------------------|------------------------|-----------------|------------------------------------|---------------------------------|
| AM10G-1203NZ | 12 (9 - 18) | 3.3 | 815 | 2.40 | 1500 | 2200 | 80 |
| AM10G-1205NZ | 12 (9 - 18) | 5 | 992 | 2.00 | 1500 | 2200 | 83 |
| AM10G-1209NZ | 12 (9 - 18) | 9 | 992 | 1.11 | 1500 | 680 | 84 |
| AM10G-1212NZ | 12 (9 - 18) | 12 | 992 | 0.83 | 1500 | 470 | 84 |
| AM10G-1215NZ | 12 (9 - 18) | 15 | 992 | 0.67 | 1500 | 330 | 84 |
| AM10G-1224NZ | 12 (9 - 18) | 24 | 992 | 0.42 | 1500 | 220 | 84 |
| AM10G-2403NZ | 24 (18 - 36) | 3.3 | 398 | 2.40 | 1500 | 2200 | 82 |
| AM10G-2405NZ | 24 (18 - 36) | 5 | 485 | 2.00 | 1500 | 2200 | 85 |
| AM10G-2409NZ | 24 (18 - 36) | 9 | 485 | 1.11 | 1500 | 680 | 86 |
| AM10G-2412NZ | 24 (18 - 36) | 12 | 485 | 0.83 | 1500 | 470 | 86 |
| AM10G-2415NZ | 24 (18 - 36) | 15 | 485 | 0.67 | 1500 | 330 | 86 |
| AM10G-2424NZ | 24 (18 - 36) | 24 | 485 | 0.42 | 1500 | 220 | 85 |

Input Specification

| Parameters | Conditions | Typical | Maximum | Units |
|--------------------------------|---|----------------------------|----------|----------|
| Voltage range | Nominal 12V Nominal 24V | 9 – 18 18 – 36 | 20 40 | VDC |
| Filter | Capacitance Filter | | | |
| Input under-voltage lockout | 12V models 24V models | 6.5 15.5 | | VDC |
| Absolute maximum rating | 12V models, 1 Sec. 24V models, 1 Sec. | ≥ -0.7 ≥ -0.7 | 25 50 | VDC |
| Input reflected ripple current | | 50 | | mA pk-pk |
| On/Off Control | ON – 3.5 to 12Vdc or open OFF – 0 to 1.2Vdc or connected to “-V Input”, idle current 10mA max. | | | |

Note: The voltage of Ctrl pin is relative to “-V Input” pin .

Isolation Specification

| Parameters | Conditions | Typical | Maximum | Units |
|--------------------|-------------------------------|---------|---------|-------|
| Tested I/O voltage | 60 sec, <1mA | 1500 | | VDC |
| Resistance | 500Vdc | >1000 | | MOhm |
| Capacitance | Input to output , 100KHz/0.1V | 1000 | | pF |

Output Specification

| Parameters | Conditions | Typical | Maximum | Units |
|------------------|-------------|-----------|-----------|-------|
| Voltage accuracy | 5-100% load | ± 1.5 | ± 2.0 | % |

| | | | | |
|------------------------------|--------------------------------------|-------|-------|-----------|
| Line regulation | Full load, main input range | ±0.25 | ±0.5 | % |
| Load regulation | 5-100% load | ±0.5 | ±1.0 | % |
| Short circuit protection | Continuous, Auto recovery | | | |
| Over current protection | | 160 | 230 | % of Iout |
| Temperature coefficient | Full load | | ±0.03 | %/°C |
| Ripple & Noise* | 20MHz bandwidth, 5-100% load | 75 | 150 | mV pk-pk |
| Transient recovery time | 25% load step change | 300 | 500 | µS |
| Transient response deviation | 25% load step change, 3.3V,5V Output | ±5 | ±8 | % |
| | 25% load step change, Others | ±3 | ±5 | % |

* Ripple & noise under 0-5% load is 300mV max. Please refer to the ripple & noise reduction circuit for testing method.

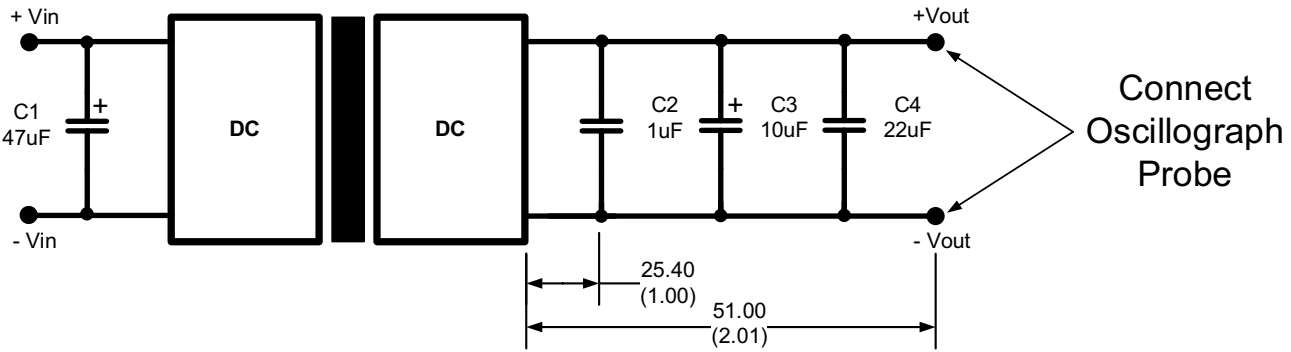
| General Specifications | | | | |
|--------------------------|---|-------------|---------|-------|
| Parameters | Conditions | Typical | Maximum | Units |
| Switching frequency* | 100% load | 500 | | KHz |
| Operating temperature | See derating graph | -40 to +85 | | °C |
| Storage temperature | | -55 to +125 | | °C |
| Maximum case temperature | | | 95 | °C |
| Lead temperature | 1.5mm from case 10 sec. | | 300 | °C |
| Cooling | Free air convection | | | |
| Humidity | Non-condensing | | 95 | % RH |
| Case material | Heat resistant black Plastic (flammability to UL 94V-0) | | | |
| Weight | | 5.5 | | g |
| Dimensions (L x W x H) | 0.87 x 0.37 x 0.47 inches, 22.00 x 9.50 x 12.00mm | | | |
| MTBF | > 1 000 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load | | | |

*Switching frequency reduces when load under 50%.
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.

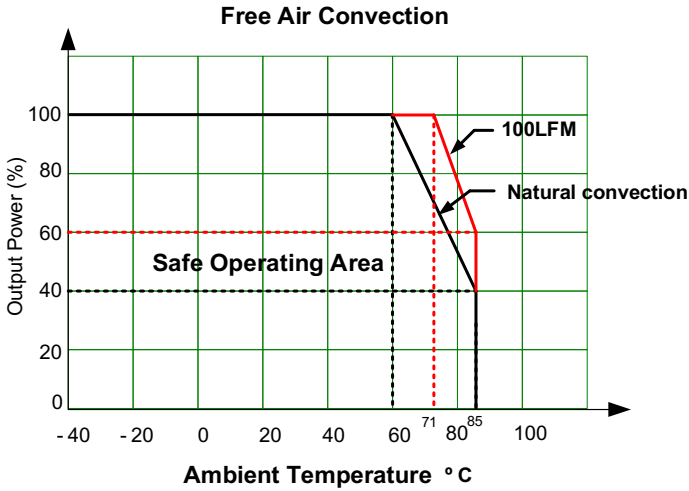
| Environmental Specifications | |
|------------------------------|---|
| Parameters | |
| Vibration | 10-150Hz, 5G, 0.75mm, 90minutes, along X, Y and Z |

| Safety Specifications | | |
|-----------------------|--|--|
| Parameters | | |
| Standards | Information technology Equipment | Design to meet IEC/UL/EN 62368 |
| | EMC - Conducted and radiated emission | CISPR32/EN55032 , CLASS B with EMC circuit part A |
| | Electrostatic Discharge Immunity | IEC 61000-4-2 Contact ±6KV , Criteria B |
| | RF, Electromagnetic Field Immunity | IEC 61000-4-3 10V/m, Criteria A |
| | Electrical Fast Transient/Burst Immunity | IEC 61000-4-4 ±2KV, Criteria B with EMC circuit part B |
| | Surge Immunity | IEC 61000-4-5 L-L ±2KV, Criteria B with EMC circuit part B |
| | RF, Conducted Disturbance Immunity | IEC 61000-4-6 3Vr.m.s, Criteria A |

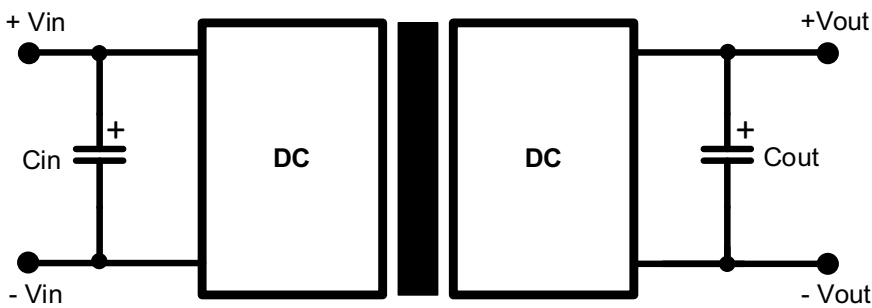
Ripple & Noise Reduction Circuit



Derating



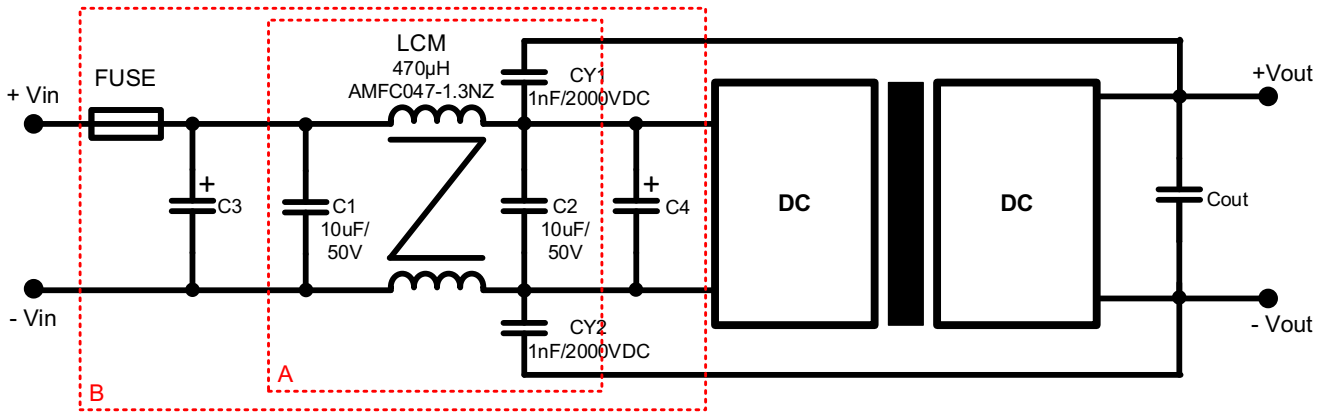
Typical Application Circuit



| Vin(VDC) | Cin |
|----------|-----------|
| 12 | 47μF/50V |
| 24 | 47μF/100V |

| Vout(VDC) | Cout |
|-----------|----------|
| 3.3, 5, 9 | 22μF/16V |
| 12, 15 | 22μF/25V |
| 24 | 22μF/50V |

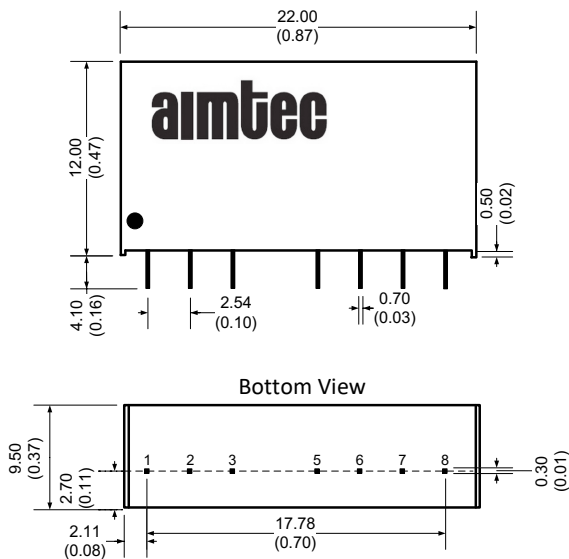
Recommended EMC Circuit



| Vin(VDC) | C3/C4 |
|----------|-----------|
| 12 | 330µF/35V |
| 24 | 330µF/50V |

Notes: Part A for EMI filtering and Part B is used for EMS test.

Dimensions



Dimensions mm (inch)
 Case Tolerance ± 0.50 (± 0.02)
 Pin Diameter ± 0.10 (± 0.004)

| Pin | Single |
|-----|-----------|
| 1 | -V Input |
| 2 | +V Input |
| 3 | Ctrl |
| 5 | NC |
| 6 | +V Output |
| 7 | -V Output |
| 8 | NC |

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 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 than the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.