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AM6G-LPZ



Aimtec adds the AM6G-LPZ 6W series to its SIP8 DC/DC converters family. With the new 6W single/dual output series, Aimtec provides better coverage of the SIP8 package product up to 10W.

The AM6G-LPZ series provide a 2:1 input voltage range and comes standard with single/dual regulated output voltages of 3.3, 5, 9, 12, 15 and 24VDC with I/O isolation of 1500VDC.

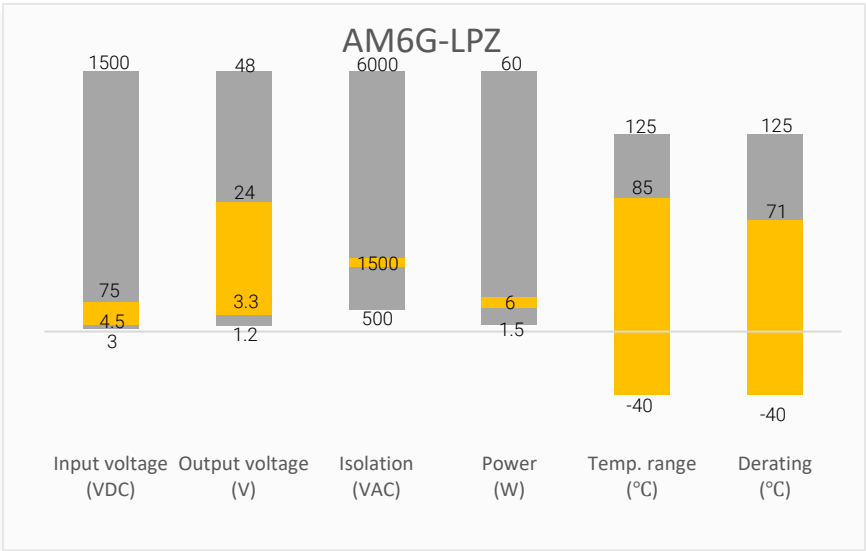
Thanks to its wide -40°C to +85°C operating temperature range, the AM6G-LPZ is suitable for applications such as industrial control, grid power, instrumentation and telecommunication. In addition to meeting EN62368-1 certification, protections for input under-voltage, output short circuit, over-current are also included, increasing the overall safety of your new system design.

Features

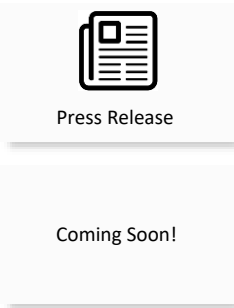
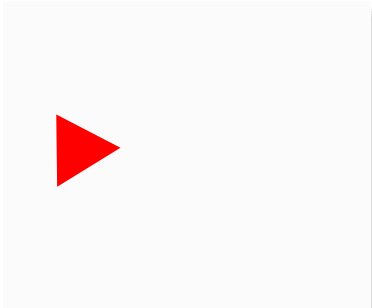


- Wide 2:1 Input Range: 4.5-5.5VDC, 9-18VDC, 18-36VDC, 36-75VDC
- Operating Temp: -40 °C to +85 °C
- Low ripple & noise, up to 50mV(p-p) typ.
- Efficiency up to 87%
- Output short circuit, over current protection, Input under-voltage protection
- Regulated Output

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 (mA) | Maximum Capacitive Load (μF) | Efficiency (%) Full Load (Typ.) |
| | | | No Load | Full Load | | | |
| AM6G-0505SLPZ | 5 (4.5~9) | 5 | 28 | 1538 | 1200 | 1000 | 80 |
| AM6G-0512SLPZ | 5 (4.5~9) | 12 | 28 | 1538 | 500 | 470 | 84 |
| AM6G-0515SLPZ | 5 (4.5~9) | 15 | 28 | 1538 | 400 | 220 | 84 |
| AM6G-0524SLPZ | 5 (4.5~9) | 24 | 28 | 1538 | 250 | 100 | 84 |
| AM6G-1203SLPZ | 12 (9~18) | 3.3 | 12 | 489 | 1350 | 1800 | 76 |
| AM6G-1205SLPZ | 12 (9~18) | 5 | 12 | 625 | 1200 | 1000 | 80 |
| AM6G-1209SLPZ | 12 (9~18) | 9 | 12 | 625 | 667 | 470 | 82 |
| AM6G-1212SLPZ | 12 (9~18) | 12 | 12 | 625 | 500 | 470 | 84 |
| AM6G-1215SLPZ | 12 (9~18) | 15 | 12 | 625 | 400 | 220 | 84 |
| AM6G-1224SLPZ | 12 (9~18) | 24 | 12 | 625 | 250 | 100 | 84 |
| AM6G-2403SLPZ | 24 (18~36) | 3.3 | 5 | 238 | 1350 | 1800 | 78 |
| AM6G-2405SLPZ | 24 (18~36) | 5 | 5 | 305 | 1200 | 1000 | 82 |
| AM6G-2409SLPZ | 24 (18~36) | 9 | 5 | 305 | 667 | 470 | 84 |
| AM6G-2412SLPZ | 24 (18~36) | 12 | 5 | 305 | 500 | 470 | 86 |
| AM6G-2415SLPZ | 24 (18~36) | 15 | 5 | 305 | 400 | 220 | 87 |
| AM6G-2424SLPZ | 24 (18~36) | 24 | 5 | 305 | 250 | 100 | 85 |
| AM6G-4803SLPZ | 48 (36~75) | 3.3 | 5 | 156 | 1350 | 1800 | 76 |
| AM6G-4805SLPZ | 48 (36~75) | 5 | 5 | 146 | 1200 | 1000 | 81 |
| AM6G-4809SLPZ | 48 (36~75) | 9 | 5 | 146 | 667 | 470 | 83 |
| AM6G-4812SLPZ | 48 (36~75) | 12 | 5 | 146 | 500 | 470 | 85 |
| AM6G-4815SLPZ | 48 (36~75) | 15 | 5 | 146 | 400 | 220 | 86 |
| AM6G-4824SLPZ | 48 (36~75) | 24 | 5 | 146 | 250 | 100 | 84 |

| Dual Output | | | | | | | |
|---------------|---------------------|----------------------|------------------------|-----------|-------------------------|------------------------------|---------------------------------|
| Model | Input Voltage (VDC) | Output Voltage (VDC) | Input Current Max (mA) | | Output Current Max (mA) | Maximum Capacitive Load (μF) | Efficiency (%) Full Load (Typ.) |
| | | | No Load | Full Load | | | |
| AM6G-0505DLPZ | 5 (4.5~9) | ±5 | 28 | 1538 | ±500 | 500 | 80 |
| AM6G-0512DLPZ | 5 (4.5~9) | ±12 | 28 | 1538 | ±208 | 220 | 84 |
| AM6G-0515DLPZ | 5 (4.5~9) | ±15 | 28 | 1538 | ±167 | 100 | 84 |
| AM6G-0524DLPZ | 5 (4.5~9) | ±24 | 28 | 1538 | ±104 | 50 | 84 |

| Input Specification | | | | |
|--------------------------|--------------------------------|-----------|---------|----------|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage range | See models table | | | VDC |
| Filter | | PI filter | | |
| Absolute maximum rating | 1 sec. max, 5VDC input models | | 12 | VDC |
| | 1 sec. max, 12VDC input models | | 25 | VDC |
| | 1 sec. max, 24VDC input models | | 50 | VDC |
| | 1 sec. max, 48VDC input models | | 100 | VDC |
| Reflected ripple current | | 50 | | mA pk-pk |

| | | | | |
|--|--|------|-----|-----|
| Start-up voltage | Nominal 5V input models | | 4.5 | VDC |
| | Nominal 12V input models | | 9 | VDC |
| | Nominal 24V input models | | 18 | VDC |
| | Nominal 48V input models | | 36 | VDC |
| Under voltage protection | Nominal 5V input models | | 4.5 | VDC |
| | Nominal 12V input models | 6.5 | | VDC |
| | Nominal 24V input models | 15.5 | | VDC |
| | Nominal 48V input models | 30 | | VDC |
| On/Off ctrl * | ON – Ctrl pin open or pulled high (3.5~12VDC) OFF – Ctrl pin pulled low to GND (0~0.7VDC), idle current 10mA max. | | | |
| * The Ctrl pin voltage is referenced to input GND. | | | | |

| Isolation Specification | | | | |
|-------------------------------|--------------------------------|---------|---------|-------|
| Parameters | Conditions | Typical | Maximum | Units |
| Tested I/O voltage Resistance | 60 sec, 1mA max | 1500 | | VDC |
| | 500VDC | ≥1000 | | MΩ |
| Capacitance | I/O capacitance at 100KHz/0.1V | 1000 | | pF |

| Output Specification | | | | |
|--|-------------------------------|---------|-------------------|----------|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage accuracy | 5~100% load, 3.3/5Vout models | ± 2 | ± 5 | % |
| | 5~100% load, Others | ± 1 | ± 3 | % |
| Line regulation | Full load | ± 0.5 | ± 1 | % |
| Load regulation | 5~100% load | ± 0.5 | ± 1.5 | % |
| Over current protection | | | 110~230, typ. 160 | % Iout |
| Short circuit protection | Continuous, Auto recovery | | | |
| Temperature coefficient | Full load | ± 0.02 | ± 0.03 | %/°C |
| Ripple & Noise* | 20MHz bandwidth, 5~100% load | 50 | 150 | mV pk-pk |
| Transient recovery time | 25% load step change | 300 | 500 | μS |
| Transient response deviation | 25% load step change | ±3 | ±8 | % |
| * Ripple and Noise are measured at 20MHz bandwidth by using a 1μF (M/C) and 22μF (E/C) parallel capacitor and typical input with full load | | | | |

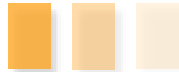
| General Specifications | | | | |
|------------------------|---|-------------|---------|-------|
| Parameters | Conditions | Typical | Maximum | Units |
| Switching frequency | 100% load. PWM mode | 500 | | KHz |
| Operating temperature | See derating graph | -40 to +85 | | °C |
| Storage temperature | | -55 to +125 | | °C |
| Soldering temperature | 1.5mm from case 10 sec max | | 300 | °C |
| Cooling | Free air convection | | | |
| Humidity | Non-condensing | | 95 | % RH |
| Case material | Heat resistant black Plastic (flammability to UL 94V-0) | | | |
| Vibration | 10-150Hz, 5G, 0.75mm along X, Y and Z | | | |
| Weight | 4 | | | 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 | | | |

Safety Specifications

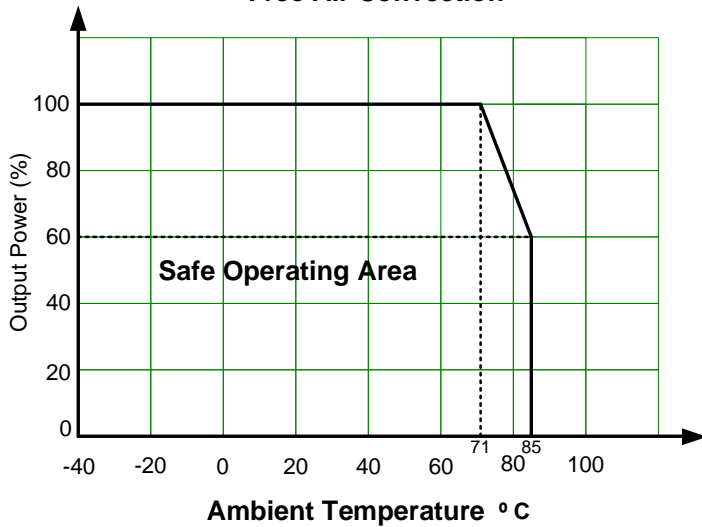
Parameters

| | | |
|-----------|---|--|
| Standards | Designed to meet IEC/EN/UL62368-1 | |
| | EMC - Conducted and radiated emission | CISPR32/EN55032, CLASS B with EMC recommended circuit |
| | Electrostatic Discharge Immunity | IEC 61000-4-2 Contact $\pm 4\text{KV}$, Criteria B |
| | 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 EMC recommended circuit |
| | Surge Immunity | IEC 61000-4-5 L-L $\pm 2\text{KV}$, Criteria B with EMC recommended circuit |
| | RF, Conducted Disturbance Immunity | IEC 61000-4-6 3Vr.m.s, Criteria A |
| | Voltage dips, Short Interruptions & Voltage variations Immunity | IEC61000-4-29 0-70%, Criteria B |

Derating



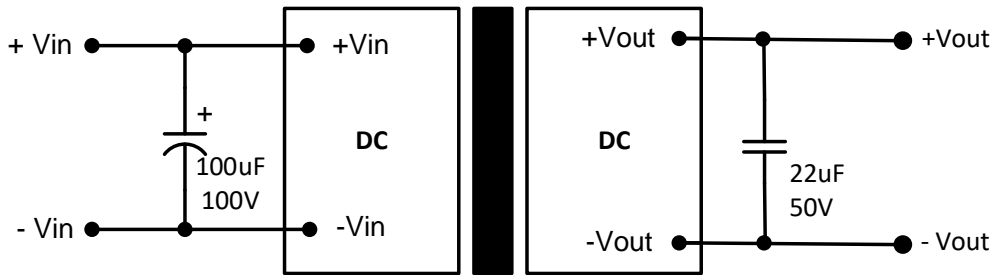
Free Air Convection



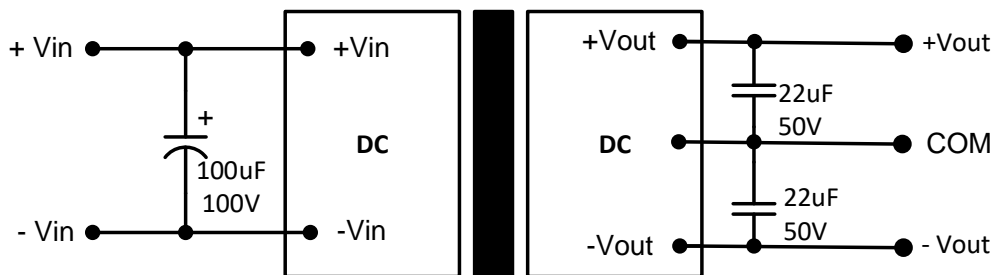
Typical Application Circuit



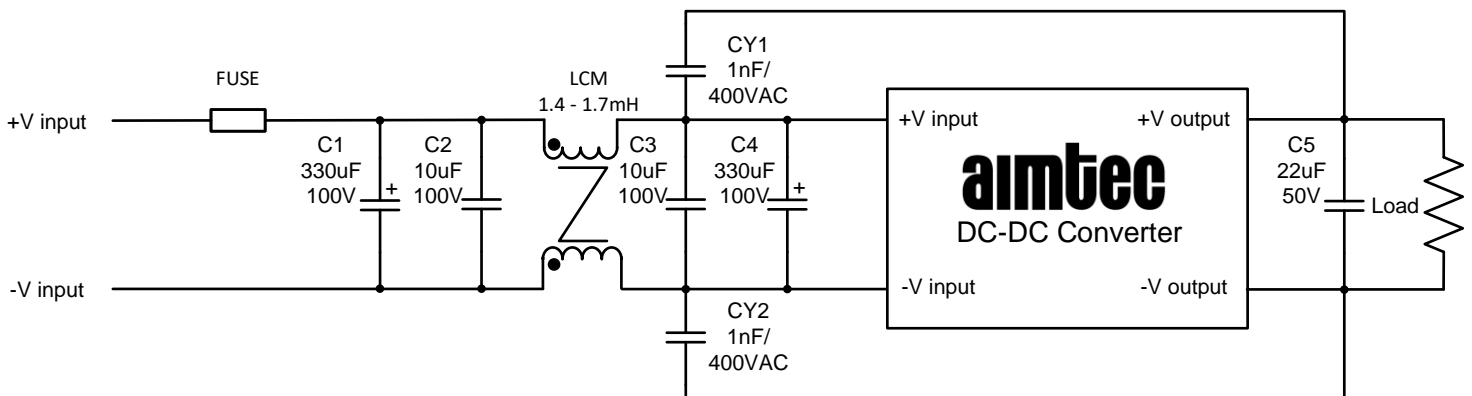
Single Output



Dual Output

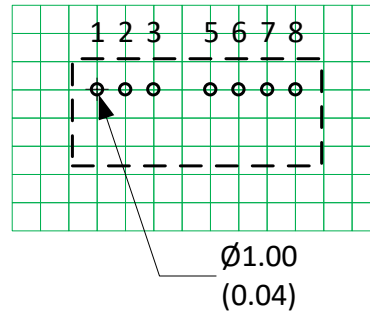
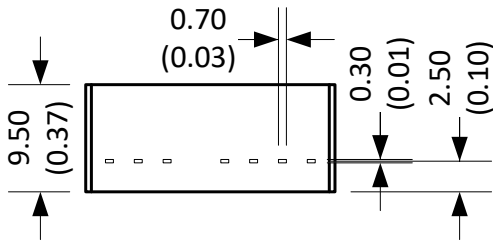


EMC Recommended Circuit

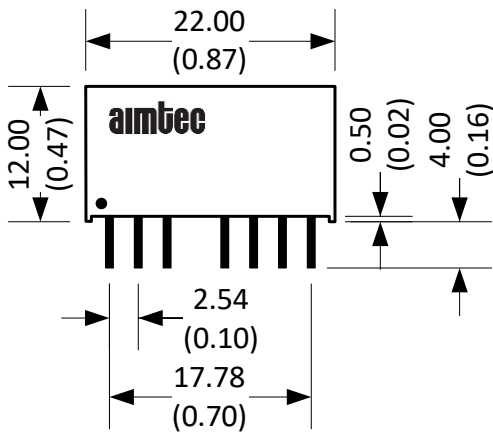


Fuse : Choose according to actual input current.

Dimensions



Note : Grid 2.54*2.54 mm



Notes:

All dimensions are typical in millimeters (inches).

Pin section tolerances : ± 0.10 (± 0.004)

General tolerance : ± 0.25 (± 0.01)

Pin Out Specifications

| Pin | Single | Dual |
|-----|-------------|-------------|
| 1 | -V Input | -V Input |
| 2 | +V Input | +V Input |
| 3 | Ctrl On/Off | Ctrl On/Off |
| 5 | NC | NC |
| 6 | +V Output | +V Output |
| 7 | -V Output | Common |
| 8 | NC | -V Output |

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