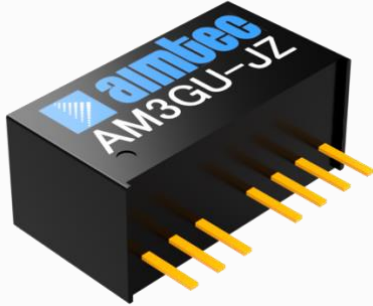


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AM3GU-JZ



SIP 8

Aimtec introduces the AM3GU-JZ series of DC/DC converters, which are Aimtec's first 8:1 ultra-wide input voltage range products. The impressive 4.5-36VDC input voltage can help power applications with widely varying inputs. These converters can also help reduce the total BOM by replacing multiple DC/DC converters with different narrower input voltage ranges with one cost-effective isolated DC-DC solution.

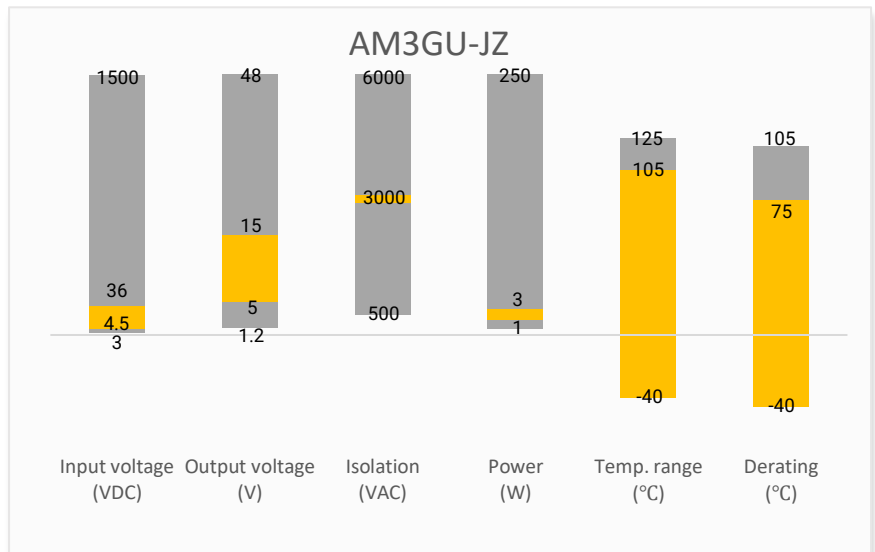
With 5, 12, 15, ± 5 , ± 12 , ± 15 VDC output voltage options, the AM3GU are well suited for industrial and commercial applications. These products have an impressive operating temperature range of -40°C to 105°C with full power up to 75°C . They also feature isolation of 3000VDC and a high MTBF of 1,000,000h for improved reliability and system safety. Features such as output short circuit protection (OSCP), output over-current protection (OCP), and input under-voltage protection (UVLO) come standard with this family of products.

The AM3GU-JZ series are ideal for battery operated circuits, IoT, analog circuits, grid power, LED, instrumentation, industrial controls, communication, and civil applications.

Features

- Ultra-wide 8:1 Input Range: 4.5VDC – 36VDC
- Operating Temp: -40°C to $+105^{\circ}\text{C}$
- Low ripple & noise, up to 100mV(p-p) max
- Efficiency up to 79%
- Output short circuit, over current protection, Input under-voltage protection
- Regulated Output
- No load power consumption low to 0.12W

Summary



Training



Product Training Video
(click to open)



Press Release

Coming Soon!

Application Notes

Applications



Power Grid



Industrial



Telecom



Instrumentation

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 |
|------------------|---------------------|----------------------|------------------------|-----------|-------------------------|------------------------------|--------------------------|
| | | | No Load | Full Load | | | |
| AM3GU-1205SH30JZ | 12 (4.5 ~ 36) | 5 | 16 | 334 | 600 | 1000 | 77 |
| AM3GU-1212SH30JZ | 12 (4.5 ~ 36) | 12 | 16 | 325 | 250 | 330 | 79 |
| AM3GU-1215SH30JZ | 12 (4.5 ~ 36) | 15 | 16 | 325 | 200 | 220 | 79 |

Dual Output

| Model | Input Voltage (VDC) | Output Voltage (VDC) | Input Current Max (mA) | | Output Current Max (mA) | Maximum Capacitive Load (μF) | Efficiency (%) Full Load |
|------------------|---------------------|----------------------|------------------------|-----------|-------------------------|------------------------------|--------------------------|
| | | | No Load | Full Load | | | |
| AM3GU-1205DH30JZ | 12 (4.5 ~ 36) | ± 5 | 16 | 334 | ± 300 | ± 470 | 77 |
| AM3GU-1212DH30JZ | 12 (4.5 ~ 36) | ± 12 | 16 | 325 | ± 125 | ± 220 | 79 |
| AM3GU-1215DH30JZ | 12 (4.5 ~ 36) | ± 15 | 16 | 325 | ± 100 | ± 100 | 79 |

Input Specification

| Parameters | Conditions | Typical | Maximum | Units |
|--------------------------|--------------------|---------|---------|----------|
| Voltage range | See models table | | | VDC |
| Filter | Capacitance filter | | | |
| Absolute maximum rating | 1 sec. max | | 50 | VDC |
| Reflected ripple current | | 50 | | mA pk-pk |
| Start-up voltage | | | 4.5 | VDC |
| Under voltage protection | | 3.5 | | VDC |

Isolation Specification

| Parameters | Conditions | Typical | Maximum | Units |
|--------------------|--------------------------------|---------|---------|-------|
| Tested I/O voltage | 60 sec, 1mA max | > 3000 | | VDC |
| Resistance | I/O resistance at 500VDC | > 1000 | | MΩ |
| Capacitance | I/O capacitance at 100KHz/0.1V | 40 | | pF |

Output Specification

| Parameters | Conditions | Typical | Maximum | Units |
|--------------------------|---|---------|---------|-----------|
| Voltage accuracy | | ± 1 | ± 3 | % |
| Line regulation | Full load (Vin min to Vin max) | + Vout | ± 0.5 | % |
| | | - Vout | ± 1 | |
| Load regulation | 5 ~ 100% load | + Vout | ± 1 | % |
| | | - Vout | ± 1.5 | |
| Cross regulation | Dual outputs, Vo1 50% load, Vo2 25%~100% load | | ± 5 | % |
| Over current protection | | > 110 | 300 | % of Iout |
| Short circuit protection | Continuous, Auto recovery | | | |

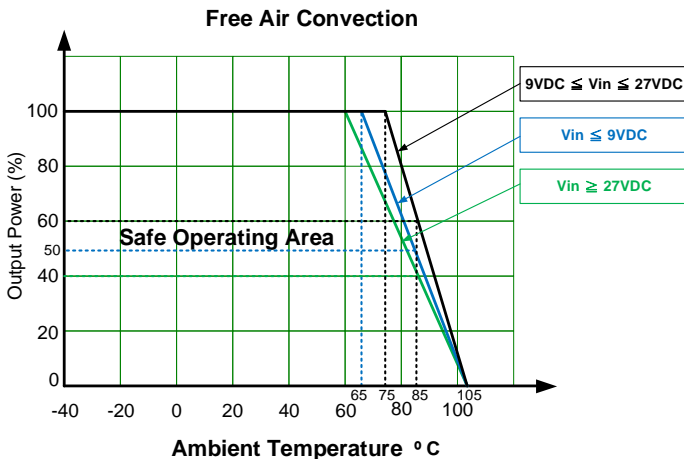
| | | | | |
|------------------------------|--------------------------------|------------------|--------|------|
| Temperature coefficient | Full load | | ± 0.03 | %/°C |
| Ripple & Noise* | 20MHz bandwidth, 5 ~ 100% load | | 60 | 100 |
| Transient recovery time | 25% load step change | | 300 | 500 |
| Transient response deviation | 25% load step change | Output 5V / ± 5V | ±5 | ±8 |
| | | Others | ±3 | ±5 |

* 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 | 300 | | KHz |
| Operating temperature | See derating graph | -40 to +105 | | °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 | PCB mountable model | 4.5 | | g |
| Dimensions (L x W x H) | PCB mountable model | 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 _a +25°C) / Full Load | | | |

| Safety Specifications | |
|-----------------------|---|
| Parameters | |
| Agency approvals | EN/BS EN 62368-1; UL 62368-1(Only for single output models) |
| Standards | EMC - Conducted and radiated emission |
| | Electrostatic Discharge Immunity |
| | RF, Electromagnetic Field Immunity |
| | Electrical Fast Transient/Burst Immunity |
| | Surge Immunity |
| | RF, Conducted Disturbance Immunity |

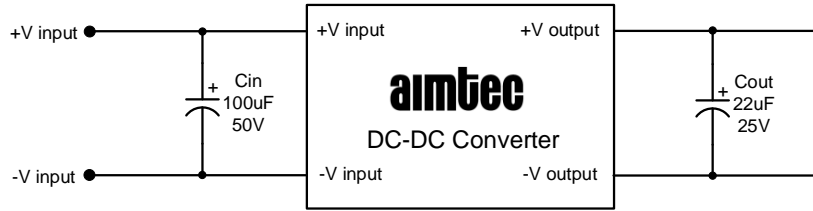
Derating



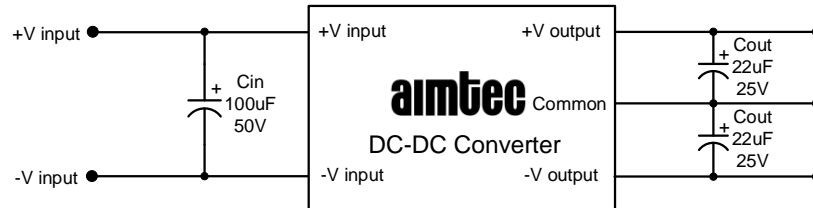
Typical Application Circuit



Single output



Dual output

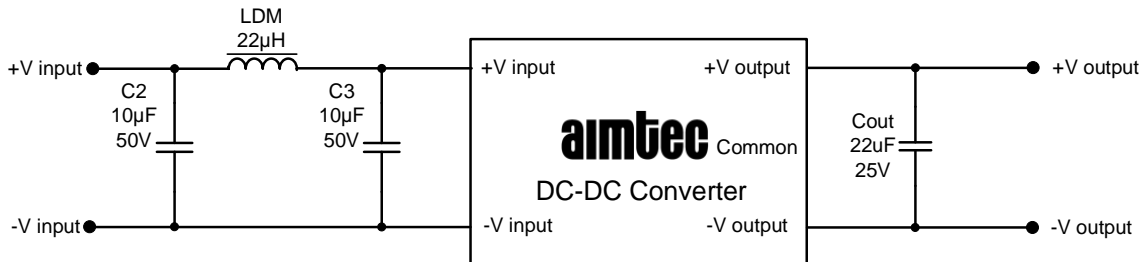


The products do not support parallel connection of their output.

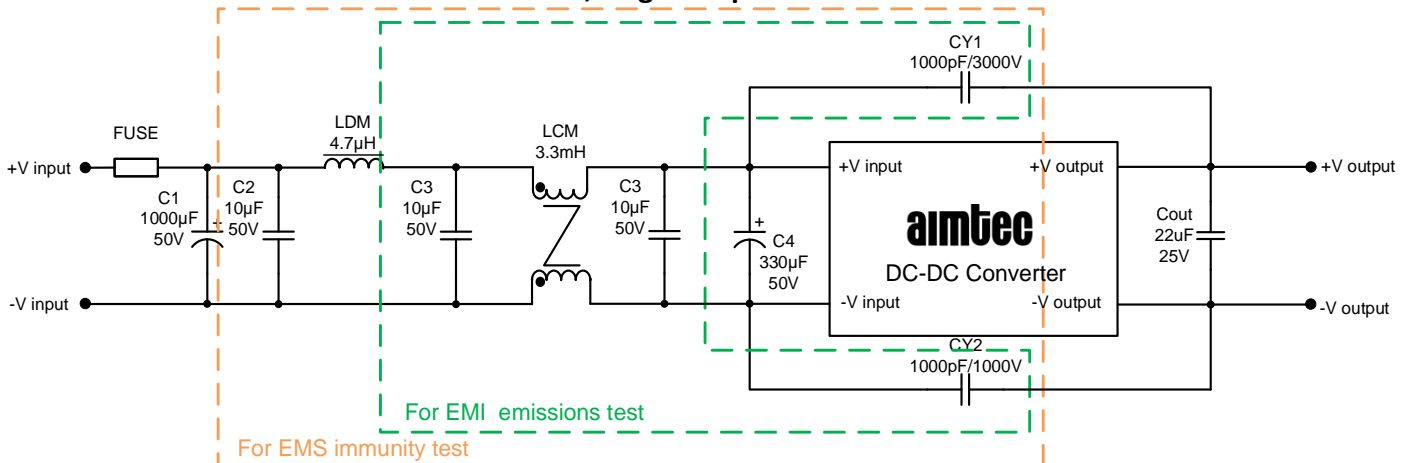
EMC Recommended Circuit



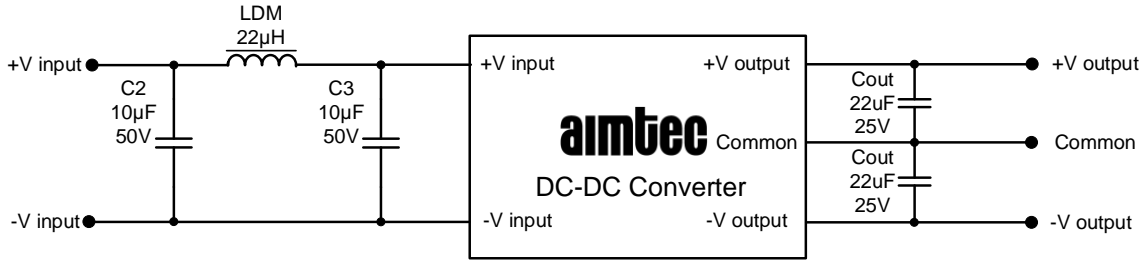
For EMI CLASS A recommended circuit, single output models



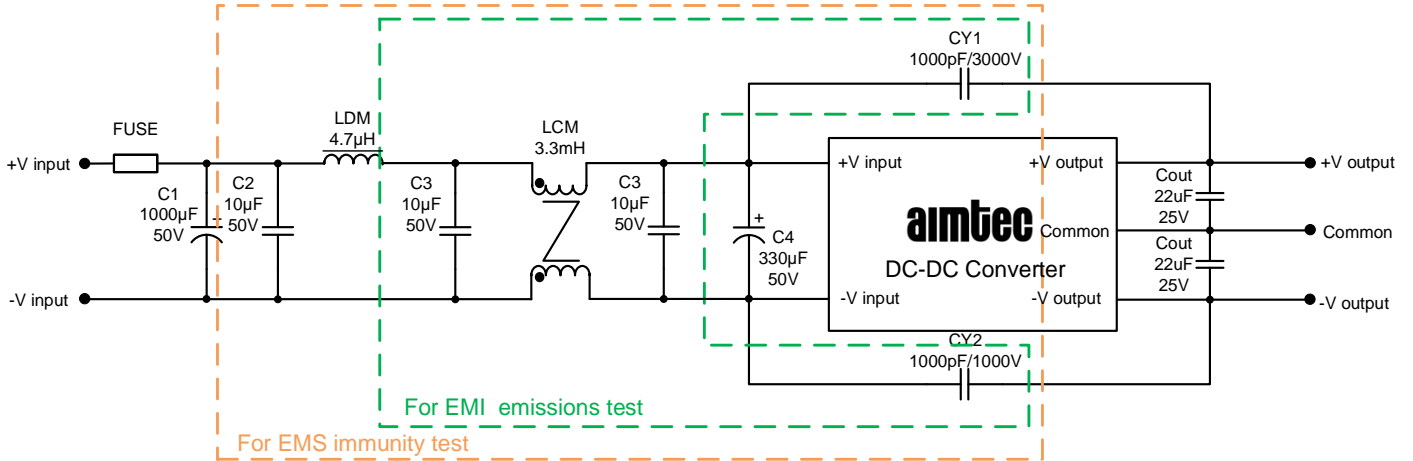
For EMI CLASS B and EMS recommended circuit, single output models



For EMI CLASS A recommended circuit, dual output models

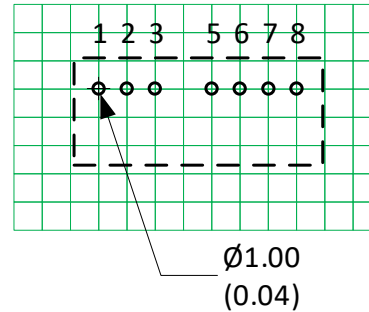
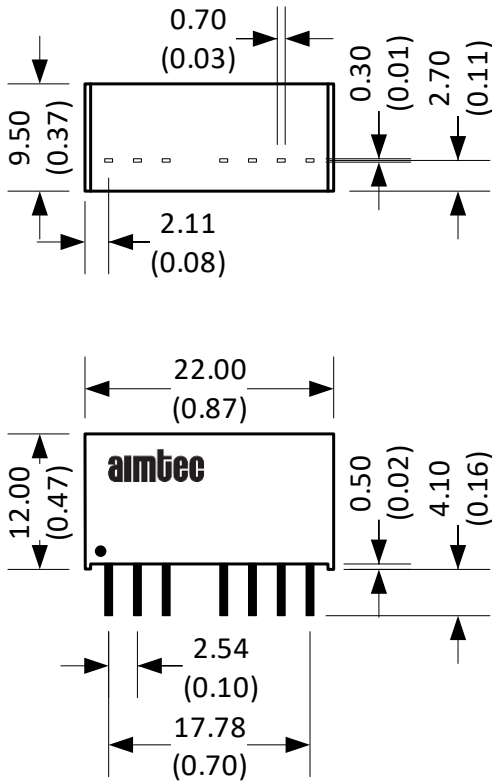


For EMI CLASS B and EMS recommended circuit, dual output models



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 : ± 0.50 (± 0.02)

Pin Out Specifications

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

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