



FEATURES:

- Wide 4:1 Input Voltage Range
- High efficiency up to 91%
- 1500 VDC Isolation
- Over Current Protection
- Remote On/Off control
- Operating Temperature -40°C to +105°C
- Output Over Voltage protection
- Continuous Short Circuit Protection
- Input Under Voltage Protection
- Bare Part Meet CISPR32/EN55032 Class A



Models
Single output

| Model | Input Voltage (VDC) | Output Voltage (VDC) | Input Current max Full/No Load (mA) | Output Current max (mA) | Isolation (VDC) | Max Capacitive Load (uF) | Efficiency Typ. (%) |
|-----------------|---------------------|----------------------|-------------------------------------|-------------------------|-----------------|--------------------------|---------------------|
| AM15CW-2403S-NZ | 9-36 | 3.3 | 640/50 | 4000 | 1500 | 4700 | 88 |
| AM15CW-2405S-NZ | 9-36 | 5 | 710/50 | 3000 | 1500 | 4700 | 90 |
| AM15CW-2412S-NZ | 9-36 | 12 | 710/15 | 1250 | 1500 | 1000 | 90 |
| AM15CW-2415S-NZ | 9-36 | 15 | 703/15 | 1000 | 1500 | 820 | 91 |
| AM15CW-2424S-NZ | 9-36 | 24 | 703/20 | 625 | 1500 | 270 | 91 |
| AM15CW-4803S-NZ | 18-75 | 3.3 | 320/30 | 4000 | 1500 | 4700 | 88 |
| AM15CW-4805S-NZ | 18-75 | 5 | 356/30 | 3000 | 1500 | 4700 | 90 |
| AM15CW-4812S-NZ | 18-75 | 12 | 352/11 | 1250 | 1500 | 1000 | 91 |
| AM15CW-4815S-NZ | 18-75 | 15 | 352/11 | 1000 | 1500 | 820 | 91 |
| AM15CW-4824S-NZ | 18-75 | 24 | 352/11 | 625 | 1500 | 270 | 91 |

*Add suffix “-ST” for optional screw terminal bottom plate or “-STD” for optional DIN Rail screw terminal bottom plate.

**Add suffix “-K” for optional heatsink, “-K-ST” for optional heatsink and screw terminal bottom plate or “-K-STD” for optional heatsink and DIN Rail screw terminal bottom plate.

Models
Dual output

| Model | Input Voltage (VDC) | Output Voltage (VDC) | Input Current max Full/No Load (mA) | Output Current max (mA) | Isolation (VDC) | Max Capacitive Load (uF) | Efficiency Typ. (%) |
|------------------|---------------------|----------------------|-------------------------------------|-------------------------|-----------------|--------------------------|---------------------|
| AM15CW-2405D-NZ✘ | 9-36 | ± 5 | 710/50 | ± 1500 | 1500 | ± 1500 | 87 |
| AM15CW-2412D-NZ✘ | 9-36 | ± 12 | 710/15 | ± 625 | 1500 | ± 470 | 90 |
| AM15CW-2415D-NZ✘ | 9-36 | ± 15 | 703/15 | ± 500 | 1500 | ± 330 | 90 |
| AM15CW-2424D-NZ✘ | 9-36 | ± 24 | 703/20 | ± 312 | 1500 | ± 200 | 89 |
| AM15CW-4805D-NZ✘ | 18-75 | ± 5 | 356/30 | ± 1500 | 1500 | ± 1500 | 86 |
| AM15CW-4812D-NZ✘ | 18-75 | ± 12 | 352/11 | ± 625 | 1500 | ± 470 | 90 |
| AM15CW-4815D-NZ✘ | 18-75 | ± 15 | 352/11 | ± 500 | 1500 | ± 330 | 90 |
| AM15CW-4824D-NZ✘ | 18-75 | ± 24 | 352/11 | ± 312 | 1500 | ± 200 | 90 |

*Add suffix “-ST” for optional screw terminal bottom plate or “-STD” for optional DIN Rail screw terminal bottom plate.

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.

Input Specifications

| Parameters | Nominal | Typical | Maximum | Units |
|--------------------------------|-------------------------------|---|------------|-------|
| Voltage range | 24 Vin | 9-36 | | VDC |
| | 48 Vin | 18-75 | | |
| Filter | | Pi | | |
| Absolute Maximum Rating (1s) | 24 Vin | | -0.7 – 50 | VDC |
| | 48 Vin | | -0.7 – 100 | |
| Input reflected ripple current | Nominal input, | 30 | | mA |
| Input Under voltage protection | 24 Vin | 6.5 | | VDC |
| | 48 Vin | 15.5 | | |
| Startup time | Nominal input, resistive load | 10 | | ms |
| Remote On/Off Control | On Off | 3.5-12VDC or leave open 0-1.2VDC or connect to GND, idle current 2-7mA | | |

Isolation Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|--------------------|------------------|---------|---------|-------|
| Tested I/O voltage | 60 sec, <1mA | 1500 | | VDC |
| Resistance | 500VDC | >1000 | | MOhm |
| Capacitance | I/O, 100KHz/0.1V | 2000 | | pF |

Output Specifications

| Parameters | Conditions | Typical | Maximum | Units | |
|------------------------------|--|---------------|---------|-----------|--------|
| Voltage accuracy | 0% to 100% load | ±1 | ±3 | % | |
| Over voltage protection | | 110-160 | | % of Vout | |
| Over current protection | Single output | 110-190 | | % of Iout | |
| | Dual output | 110-270 | | | |
| Short Circuit protection | Continuous | | | | |
| Short circuit restart | Auto-Recovery | | | | |
| Line voltage regulation | Full load, LL to HL , Positive output | ±0.2 | ±0.5 | % of Vin | |
| | Full load, LL to HL , Negative output | ±0.4 | ±1 | | |
| Load voltage regulation | 5% to 100% load | ±0.5 | ±1 | % | |
| Cross Regulation | Dual output , main circuit with 50% load, auxiliary circuit with 10%-100% load | | ±5 | % | |
| Temperature coefficient | 100% load | | ±0.03 | %/°C | |
| Ripple & Noise | 20MHz Bandwidth, 5-100% load | Single output | 50 | 100 | mV p-p |
| | | Dual output | 100 | 200 | |
| Transient recovery time | 25% load step change | 0.3 | 0.5 | ms | |
| Transient recovery deviation | 25% load step change | 3.3/5V output | ±3 | ±8 | % |
| | | Others | ±3 | ±5 | |

General Specifications

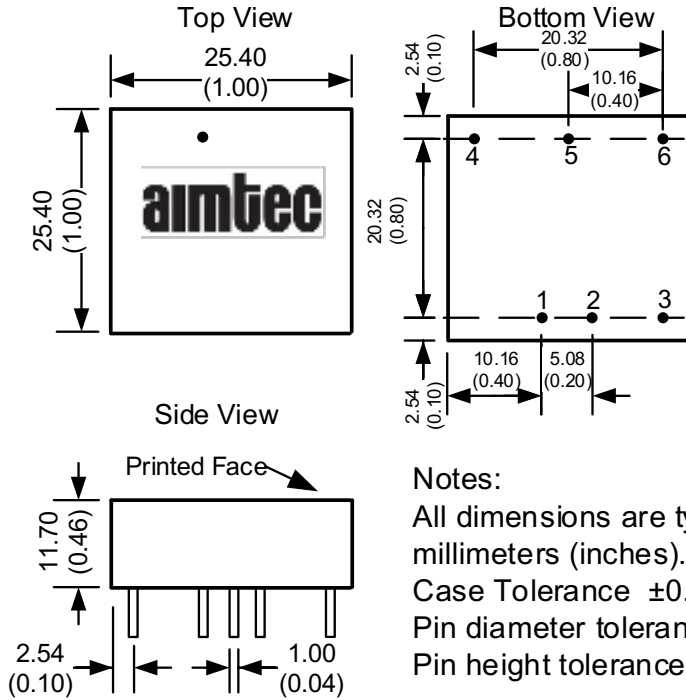
| Parameters | Conditions | Typical | Maximum | Units |
|-------------------------------|---|---------------------------|--------------------------|-------|
| Switching frequency | 100% load | Single 3.3/5V output | 300 | KHz |
| | | Others | 270 | |
| Operating temperature | See derating curve | Single 3.3/5V output | -40 to +95 | |
| | | Others | -40 to +105 | |
| Storage temperature | | -55 to +125 | | °C |
| Cooling | Free air convection | | | |
| Humidity | | | 95 | % RH |
| Case material | Aluminum Alloy | | | |
| Weight | Pin mountable | 15 | | g |
| | With optional -ST mounting plate: | 38 | | |
| | With optional -STD mounting plate: | 58 | | |
| | With optional -K Pin mountable | 20 | | |
| | With optional -ST-K mounting plate: | 42 | | |
| | With optional -STD-K mounting plate: | 62 | | |
| Dimensions (L x W x H) | Pin mountable | 1 x 1 x 0.46 inches | 25.40 x 25.40 x 11.70 mm | |
| | With optional -ST mounting plate: | 2.99 x 1.24 x 0.84 inches | 76.00 x 31.50 x 21.20 mm | |
| | With optional -STD mounting plate: | 2.99 x 1.24 x 1.02 inches | 76.00 x 31.50 x 25.80 mm | |
| | With optional -K Pin mountable | 1 x 1 x 0.64 inches | 25.40 x 25.40 x 16.20 mm | |
| | With optional -ST-K mounting plate: | 2.99 x 1.24 x 0.99 inches | 76.00 x 31.50 x 25.20 mm | |
| | With optional -STD-K mounting plate: | 2.99 x 1.24 x 1.17 inches | 76.00 x 31.50 x 29.80 mm | |
| MTBF | >1,000,000 hours (MIL-HDBK -217F, Ground Benign, t=+25°C) | | | |
| Maximum soldering temperature | 1.5mm from case for 10 sec | | 300 | °C |

Safety Specifications

| Parameters | |
|--|--|
| Agency approvals | CE EN62368-1; cULus UL62368-1(✘ with exception of dual output models) |
| | CISPR32 / EN 55032, Class A / Class B with the recommended EMC circuit |
| Information technology Equipment | Designed to meet IEC62368-1 |
| Electrostatic Discharge Immunity | IEC 61000-4-2, Contact ±6KV, Air ±8KV, Criteria B |
| RF, Electromagnetic Field Immunity | IEC 61000-4-3, 10V/m, Criteria A |
| Electrical Fast Transient / Burst Immunity | IEC 61000-4-4, ±2KV with the recommended EMC circuit, Criteria A |

| | |
|------------------------------------|--|
| Surge Immunity | IEC 61000-4-5, L-L ± 2 KV with the recommended EMC circuit, Criteria B |
| RF, Conducted Disturbance Immunity | IEC 61000-4-6, 3 Vrms, Criteria A |

Dimensions



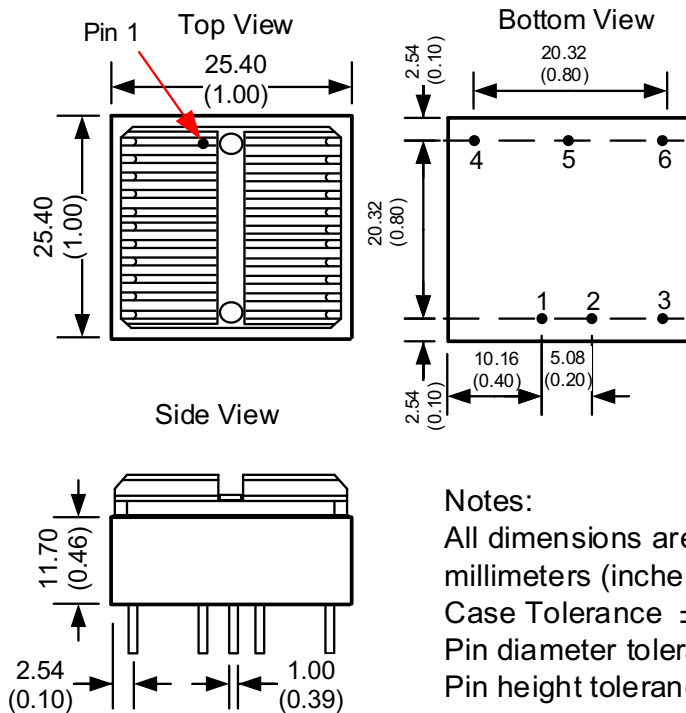
Notes:

All dimensions are typical in millimeters (inches).
Case Tolerance ± 0.25 (± 0.01)
Pin diameter tolerance ± 0.1 (± 0.004)
Pin height tolerance ± 0.5 (± 0.02)

Pin Out Specifications

| Pin | Single | Dual |
|-----|----------------|----------------|
| 1 | +V Input | +V Input |
| 2 | -V Input | -V Input |
| 3 | On/Off Control | On/Off Control |
| 4 | +V Output | +V Output |
| 5 | Trim | Common |
| 6 | -V Output | -V Output |

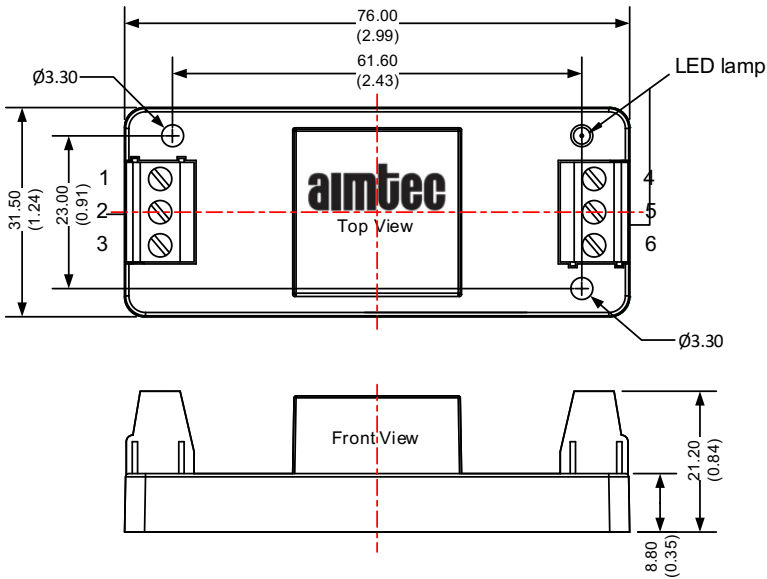
Heatsink Option: AM15CW-NZ-K



Notes:

All dimensions are typical in millimeters (inches).
Case Tolerance ± 0.25 (± 0.01)
Pin diameter tolerance ± 0.1 (± 0.004)
Pin height tolerance ± 0.5 (± 0.02)

Screw Terminal Option: AM15CW-NZ-ST

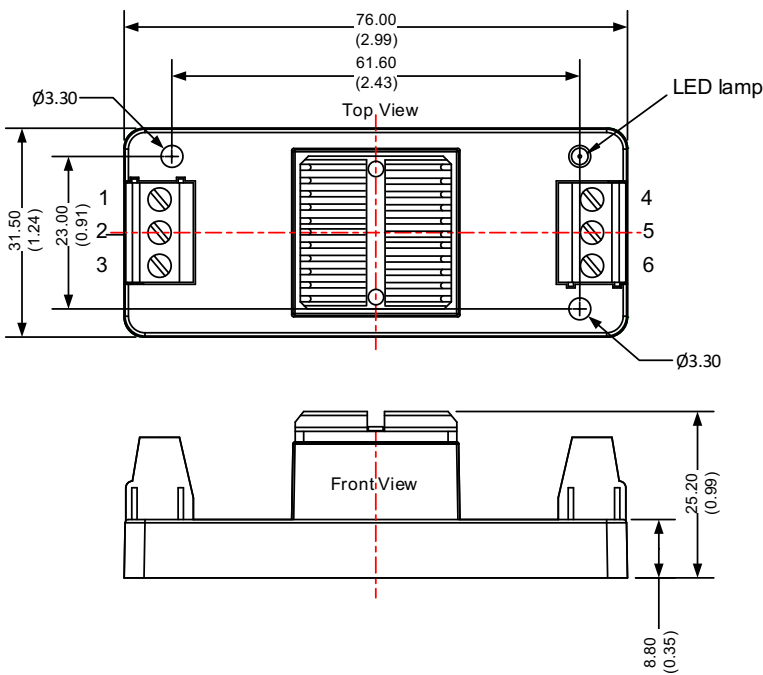


Pin Out Specifications

| Pin | Single | Dual |
|-----|-------------|-------------|
| 1 | On/off Ctrl | On/off Ctrl |
| 2 | -V Input | -V Input |
| 3 | +V Input | +V Input |
| 4 | -V Output | -V Output |
| 5 | Trim | Common |
| 6 | +V Output | +V Output |

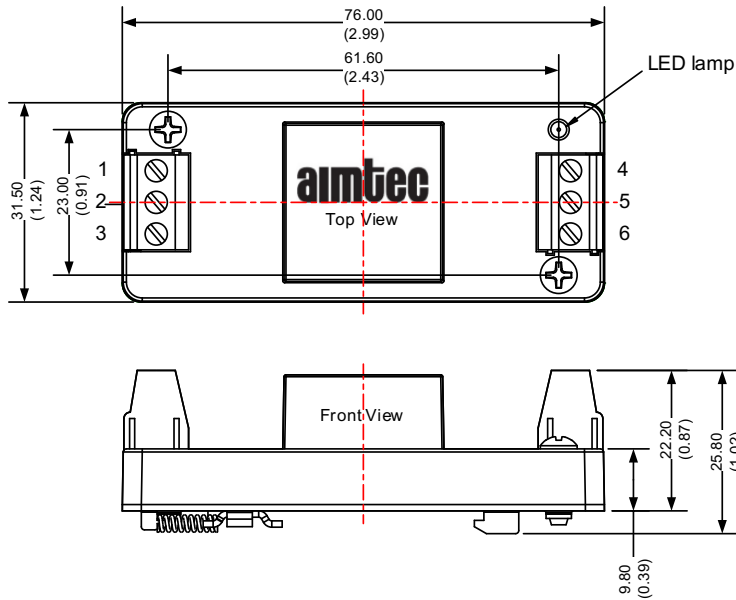
Note:
Unit: mm (inch)
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N*m
General tolerances: ±0.50 (±0.02)

Screw Terminal with heatsink Option: AM15CW-NZ-K-ST



Note:
Unit: mm (inch)
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N*m
General tolerances: ±0.50 (±0.02)

DIN-RAIL Option: AM15CW-NZ-STD

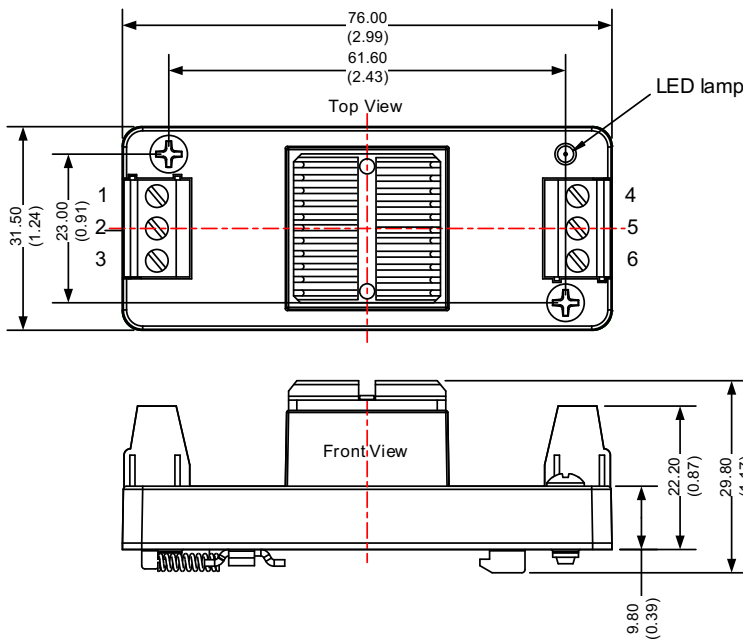


Pin Out Specifications

| Pin | Single | Dual |
|-----|-------------|-------------|
| 1 | On/off Ctrl | On/off Ctrl |
| 2 | -V Input | -V Input |
| 3 | +V Input | +V Input |
| 4 | -V Output | -V Output |
| 5 | Trim | Common |
| 6 | +V Output | +V Output |

Note:
Unit: mm (inch)
Mounting rail: TS35
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N*m
General tolerances: ± 0.50 (± 0.02)

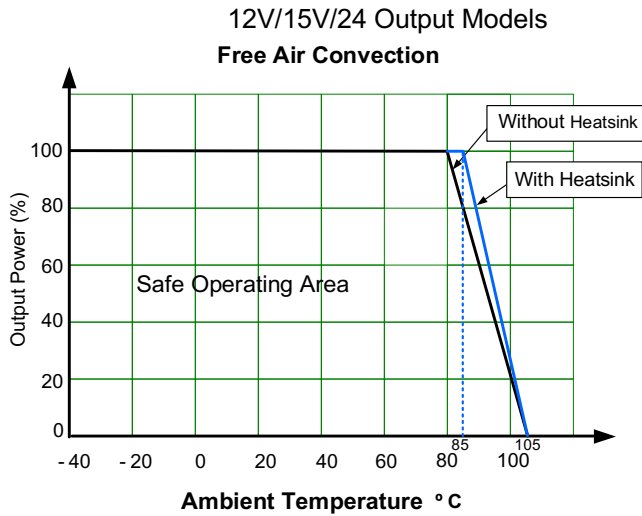
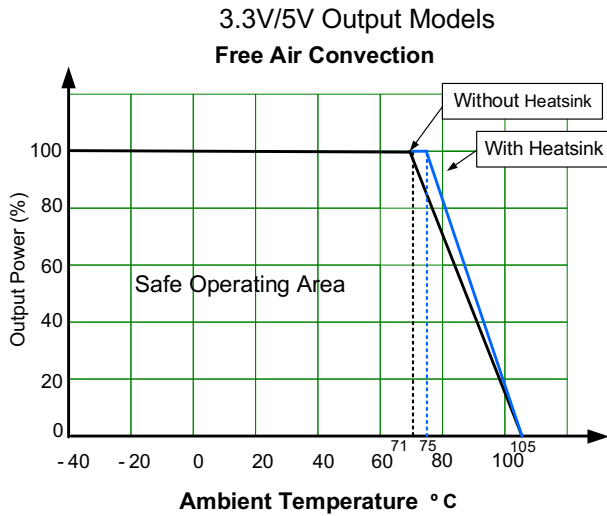
DIN-RAIL with heatsink Option: AM15CW-NZ-K-STD



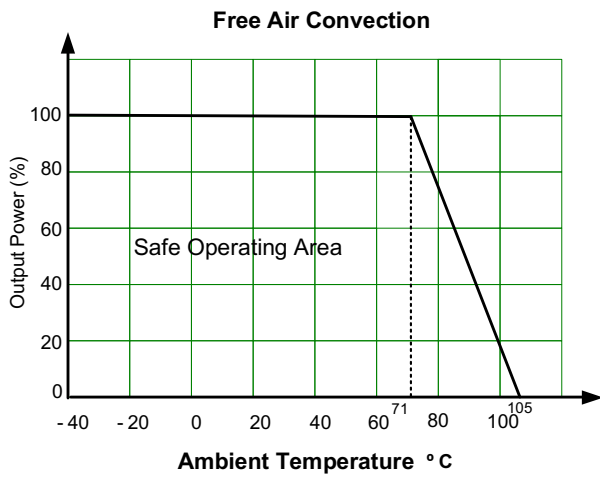
Note:
Unit: mm (inch)
Mounting rail: TS35
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N*m
General tolerances: ± 0.50 (± 0.02)

Derating

Single output

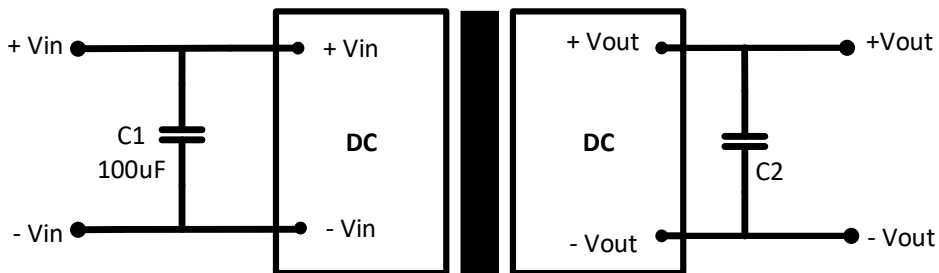


Dual output



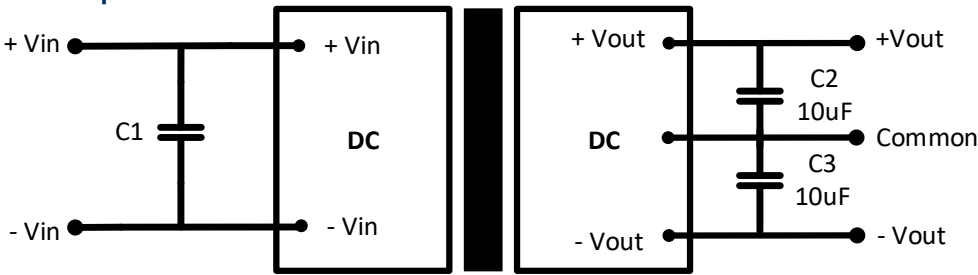
Typical Application Circuits

Single output



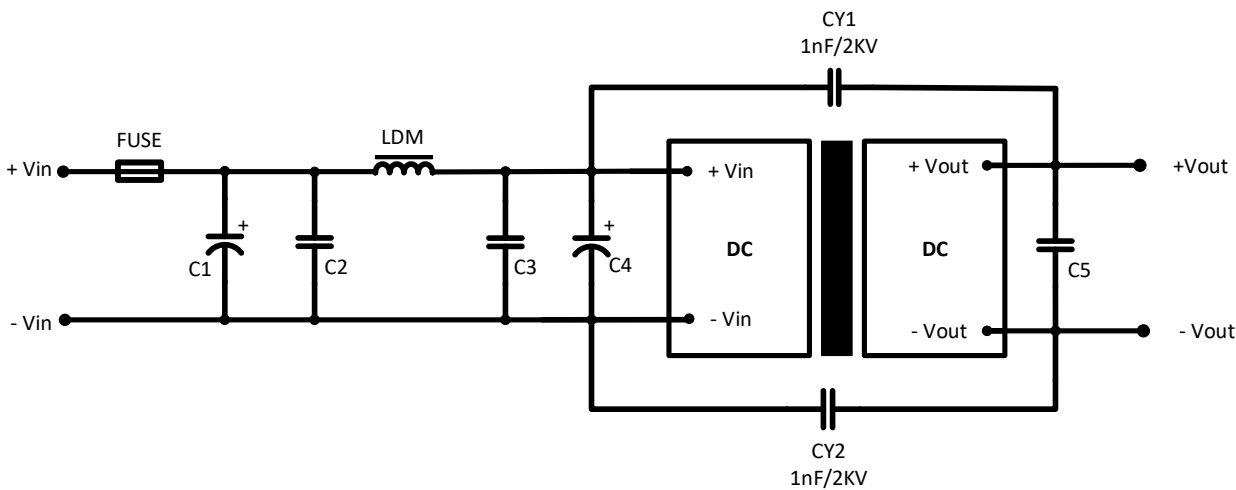
| Model | 3.3V/5V/12V/15V Vout | 24V Vout |
|-------|----------------------|----------|
| C2 | 100µF | 47µF |

Dual output



| Model | 12V/24V Vin | 48V Vin |
|-------|-------------|-------------------------|
| C1 | 100 μ F | 10 μ F - 47 μ F |

Recommended EMC Circuits



Single output

| Model | 12V/24V Vin | 48V Vin |
|--------|--|------------------|
| FUSE | Choose based on actual input current | |
| C1, C4 | 330 μ F/50V | 330 μ F/100V |
| C2, C3 | 4.7 μ F/50V | 4.7 μ F/100V |
| LDM | 2.2 μ H/4A | 2.2 μ H/2A |
| C5 | Refer to the C2 in typical application circuit | |

Dual output

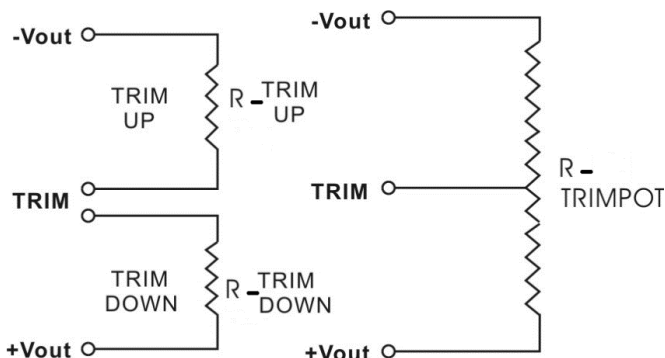
| Model | 12V/24V Vin | 48V Vin |
|--------|---|------------------|
| FUSE | Choose based on actual input current | |
| C1, C4 | 330 μ F/50V | 330 μ F/100V |
| C2, C3 | 4.7 μ F/50V | 4.7 μ F/100V |
| LDM | 4.7 μ H | |
| C5 | Refer to the C2/C3 in typical application circuit | |

Trimming (Single output)

Output voltage can be externally trimmed by utilizing the methods as shown below

Fixed Resistor

Variable Potentiometer



Leave open if not used.

3.3V output models

| | | | | | | | | | | |
|--------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|-------|
| Trim down % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 3.267 | 3.234 | 3.201 | 3.168 | 3.135 | 3.102 | 3.069 | 3.036 | 3.003 | 2.97 |
| Rt down (KΩ) | 190.744 | 104.218 | 68.096 | 48.270 | 35.741 | 27.108 | 20.797 | 15.983 | 12.190 | 9.124 |
| Trim up % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 3.333 | 3.366 | 3.399 | 3.432 | 3.465 | 3.498 | 3.531 | 3.564 | 3.597 | 3.63 |
| Rt up (KΩ) | 303.349 | 100.149 | 55.286 | 35.580 | 24.504 | 17.407 | 12.472 | 8.842 | 6.058 | 3.857 |

5V output models

| | | | | | | | | | | |
|--------------|---------|--------|--------|--------|--------|--------|--------|-------|-------|-------|
| Trim down % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 4.95 | 4.9 | 4.85 | 4.8 | 4.75 | 4.7 | 4.65 | 4.6 | 4.55 | 4.5 |
| Rt down (KΩ) | 89.996 | 47.446 | 29.793 | 20.131 | 14.036 | 9.840 | 6.775 | 4.439 | 2.598 | 1.111 |
| Trim up % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 5.05 | 5.1 | 5.15 | 5.2 | 5.25 | 5.3 | 5.35 | 5.4 | 5.45 | 5.5 |
| Rt up (KΩ) | 238.676 | 81.473 | 46.044 | 30.398 | 21.581 | 15.923 | 11.985 | 9.085 | 6.861 | 5.101 |

12V output models

| | | | | | | | | | | |
|--------------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| Trim down % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 11.88 | 11.76 | 11.64 | 11.52 | 11.4 | 11.28 | 11.16 | 11.04 | 10.92 | 10.8 |
| Rt down (KΩ) | 493.692 | 299.052 | 210.127 | 159.185 | 126.173 | 103.042 | 85.932 | 72.764 | 62.316 | 53.823 |
| Trim up % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 12.12 | 12.24 | 12.36 | 12.48 | 12.6 | 12.72 | 12.84 | 12.96 | 13.08 | 13.2 |
| Rt up (KΩ) | 704.035 | 156.520 | 81.479 | 51.675 | 35.677 | 25.695 | 18.874 | 13.917 | 10.152 | 7.195 |

15V output models

| | | | | | | | | | | |
|--------------|----------|---------|---------|---------|---------|---------|---------|---------|--------|--------|
| Trim down % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 14.85 | 14.7 | 14.55 | 14.4 | 14.25 | 14.1 | 13.95 | 13.8 | 13.65 | 13.5 |
| Rt down (KΩ) | 632.483 | 398.237 | 286.114 | 220.359 | 177.137 | 146.560 | 123.787 | 106.169 | 92.132 | 80.687 |
| Trim up % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 15.15 | 15.3 | 15.45 | 15.6 | 15.75 | 15.9 | 16.05 | 16.2 | 16.35 | 16.5 |
| Rt up (KΩ) | 1457.699 | 190.174 | 94.242 | 58.954 | 40.616 | 29.381 | 21.791 | 16.321 | 12.190 | 8.961 |

24V output models

| | | | | | | | | | | |
|--------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Trim down % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 23.76 | 23.52 | 23.28 | 23.04 | 22.8 | 22.56 | 22.32 | 22.08 | 21.84 | 21.6 |
| Rt down (KΩ) | 1284.000 | 789.923 | 563.667 | 433.904 | 349.754 | 290.763 | 247.115 | 213.514 | 186.847 | 165.170 |
| Trim up % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 24.24 | 24.48 | 24.72 | 24.96 | 25.2 | 25.44 | 25.68 | 25.92 | 26.16 | 26.4 |
| Rt up (KΩ) | 814.689 | 177.714 | 92.138 | 58.264 | 40.107 | 28.788 | 21.057 | 15.440 | 11.176 | 7.827 |

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