



FEATURES:

- Ultra-wide Input range up to 160VDC
- Efficiency up to 93%
- Input under voltage lockout
- Continued short circuit protection
- Input / Output Isolation up to 3000VDC
- Operating Temperature: -40°C to +100°C
- OVP, OCP, OTP
- On-Off, Trim and Output Sense controls

Models
Single output



| Model | Input Voltage (V) | Max Input Current FL NL (mA) | Output Voltage (V) | Output Current max (A) | Isolation (VDC) | Max Capacitive Load (uF) | Efficiency (%) |
|--------------------|-------------------|--------------------------------|--------------------|------------------------|-----------------|--------------------------|----------------|
| AM75QB-4805SH22-NZ | 18-75 | 1756 80 | 5 | 15 | 2250 | 6000 | 91 |
| AM75QB-4812SH22-NZ | 18-75 | 1756 80 | 12 | 6.25 | 2250 | 2000 | 92 |
| AM75QB-4815SH22-NZ | 18-75 | 1756 80 | 15 | 5 | 2250 | 2000 | 93 |
| AM75QB-4824SH22-NZ | 18-75 | 1756 80 | 24 | 3.13 | 2250 | 1000 | 92 |
| AM75QB-4848SH22-NZ | 18-75 | 1756 80 | 48 | 1.56 | 2250 | 470 | 92 |
| AM75QB-11005S-NZ* | 66-160 | 793 15 | 5 | 15 | 3000 | 7500 | 87 |
| AM75QB-11012S-NZ* | 66-160 | 783 15 | 12 | 6.25 | 3000 | 6000 | 88 |
| AM75QB-11024S-NZ* | 66-160 | 766 15 | 24 | 3.125 | 3000 | 3000 | 90 |

Add suffix “-K” for optional heat sink

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.

* All the models with nominal input 110VDC are discontinued and are not recommended for new designs; For new design, please refer to AM75QB-JZ series.

Input Specifications

| Parameters | Nominal | Typical | Maximum | Units |
|-------------------------|--|---------|------------|-------|
| Voltage range | 48V Vin | 18-75 | | VDC |
| | 110V Vin | 66-160 | | |
| Filter | π(Pi) Network | | | |
| Startup time | | 25 | | ms |
| Absolute Maximum Rating | 48V Vin | | -0.7 - 90 | VDC |
| | 110V Vin | | -0.7 - 180 | |
| Peak Input Voltage time | | | 1 | s |
| On/Off control | ON – open or 3.5-12VDC; OFF – short to -Vin or 0-1.2VDC, Idle current 2-10mA | | | |
| Under voltage lockout | 48V Vin | 16.6 | | VDC |
| | 110V Vin | 58 | | |
| Input reflected current | 48V Vin | 30 | | mA |
| | 110V Vin | 50 | | |

Isolation Specifications

| Parameters | Conditions | Rated | Maximum | Units |
|------------------------------|--------------------------|-------|---------|-------|
| Tested I/O voltage | 48V models, 60 sec, 5mA | 2250 | | VDC |
| | 110V models, 60 sec, 1mA | 3000 | | |
| Tested Input / Case voltage | 48V models, 60 sec, 5mA | 1500 | | VDC |
| | 110V models, 60 sec, 1mA | 1500 | | |
| Tested Output / Case voltage | 48V models, 60 sec, 5mA | 1500 | | VDC |
| | 10V models, 60 sec, 1mA | 500 | | |
| Resistance | At I/O Isolation 500VDC | >100 | | MOhm |
| | | >1000 | | |
| Capacitance | I/O 100KHz/0.1V | 2200 | | pF |

Output Specifications

| Parameters | Conditions | | Typical | Maximum | Units | |
|------------------------------------|------------------------|--------------------|--------------|-----------|-----------|--------|
| Voltage accuracy | 48V models | | ±1 | ±3 | % | |
| | 110V models | | ±2 | ±3 | | |
| Line voltage regulation | Vin LL to HL | 48V models | | ±0.5 | % of Vin | |
| | | 110V models | | ±0.3 | | |
| Load voltage regulation | 10 – 100% load | 48V models | | ±0.75 | % | |
| | | 110V models | | ±0.5 | | |
| Temperature coefficient | | | | ±0.03 | %/°C | |
| Ripple & Noise | 20MHz Bandwidth | 48V Model | 12V/15V Vout | 100 | 200 | mV p-p |
| | | | Others | 150 | 250 | |
| | | 110V models | 100 | 300 | | |
| Voltage adjustment range | | | | -5 to 10 | % | |
| Output voltage Sense compensation* | | | | 5 | % | |
| Over voltage protection | 48V models | | | 110 - 160 | % of Vout | |
| | 110V models | | | 110 - 140 | | |
| Over current protection | 48V models | | 110 | 190 | % of Iout | |
| | 110V models | | 130 | 180 | | |
| Short Circuit protection | Continuous | | | | | |
| Short circuit restart | Auto-recovery | | | | | |
| Thermal shutdown | Base plate temperature | 48V models | | 105 | °C | |
| | | 110V models | | 115 | | |
| Transient recovery time | 25% load step change | 48V models | 200 | 500 | µs | |
| | | 110V models | 300 | 500 | | |
| Transient recovery deviation | 25% load step change | 48V Vin, 5VDC Vout | ±3 | ±7.5 | % | |
| | | Others | ±3 | ±5 | | |

*NOTE: If Output Sense is not used, short +Vout with +Sense and -Vout with -Sense.

Keep the connection track between +Vout with +Sense and -Vout with -Sense as short as possible for stable performance.

General Specifications

| Parameters | Conditions | | Minimum | Maximum | Units |
|-------------------------------|---|------------------|---|-----------------------|-------|
| Switching frequency | 100% load | 48V models | 250 | | KHz |
| | | 110V models | 220 | | |
| Base plate temperature | See derating curves | 48V models | -40 to +85 | | °C |
| | | 110V models | -40 to +100 | | |
| Storage temperature | -55 to +125 | | | | °C |
| Maximum case temperature | | | | 105 | °C |
| Thermal resistance | Without heatsink – Natural convection | | 10.7 | | °C/W |
| | Without heatsink – 200LFM convection | | 6 | | |
| | Without heatsink – 400LFM convection | | 5 | | |
| | Without heatsink – 1000LFM convection | | 4 | | |
| | With heatsink – Natural convection | | 5.1 | | |
| | With heatsink – 200LFM convection | | 2.8 | | |
| | With heatsink – 400LFM convection | | 2.2 | | |
| | With heatsink – 1000LFM convection | | 1.8 | | |
| Cooling | Natural convection or forced air | | | | |
| Humidity | Non-condensing | | 5 | 95 | % RH |
| Case material | 48V models | | Aluminum alloy case (UL94-V0) | | |
| | 110V models | | Black heat resistant plastic case (UL94-V0) | | |
| Weight | 48V models | Without heatsink | 83 | | g |
| | | With heatsink | 114 | | |
| | 110V models | Without heatsink | 46 | | |
| | | With heatsink | 76 | | |
| Dimensions (L x W x H) | 48V models | Without heatsink | 2.43 x 1.65 x 0.50 inches | 61.8 x 40.2 x 12.7 mm | |
| | | With heatsink | 2.43 x 1.65 x 1.09 inches | 61.8 x 40.2 x 27.7 mm | |
| | 110V models | Without heatsink | 2.39 x 1.54 x 0.50 inches | 60.8 x 39.2 x 12.7 mm | |
| | | With heatsink | 2.44 x 1.54 x 1.21 inches | 62.0 x 39.2 x 30.8 mm | |
| MTBF | >500,000 hours (MIL-HDBK -217F, Ground Benign, t=+25°C) | | | | |
| Maximum soldering temperature | 1.5mm from case for 10 sec | | | 300 | °C |

Environment Approval

| Parameters | Conditions |
|----------------------|---|
| Cooling | EN60068-2-1, 110V models only |
| Dry heat | EN60068-2-2, 110V models only |
| Damp heat | EN60068-2-30, 110V models only |
| Shock and Vibrations | IEC/EN61373 on both 48V and 110V models |

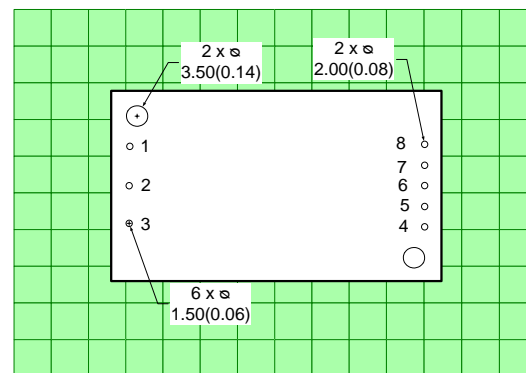
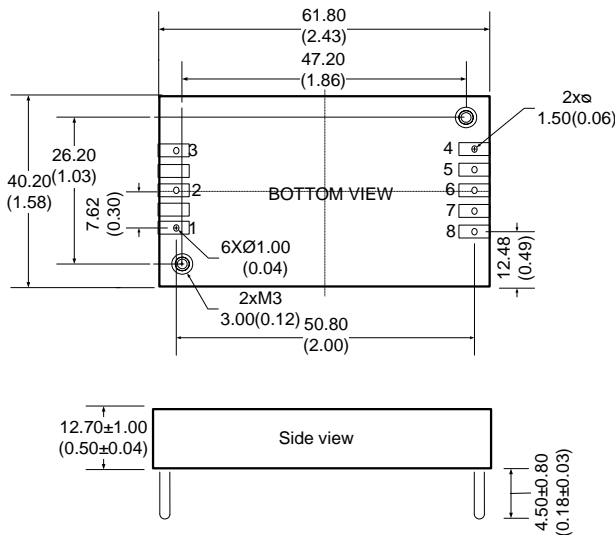
Safety Specifications

| Parameters | | | |
|------------|---|--|--|
| Standards | CISPR32/EN 55032, Class B, with external filter | | |
| | IEC 61000-4-2 | 48V | Meet EN50121-3-2, Contact ± 6 KV, Air ± 8 KV, Criteria B |
| | | 110V | Contact ± 6 KV, Air ± 8 KV, Criteria B |
| | IEC 61000-4-3 | 48V | Meet EN50121-3-2, 10V/m, Criteria A |
| | | 110V | 10V/m, Criteria A |
| | IEC 61000-4-4 | 48V | Meet EN50121-3-2, ± 2 KV with external filter, Criteria B |
| | | 110V | For 110V models, ± 2 KV with external filter, Criteria B |
| | EN50121-3-2 | 48V | differential mode ± 1 KV, 1.2/50us, source impedance 42Ω with external filter, Criteria B |
| | IEC 61000-4-5 | 110V | Meet EN50155, L-L ± 2 KV, L-G ± 4 KV with external filter, Criteria B |
| | IEC 61000-4-6 | 48V | Meet EN50121-3-2, 10Vrms, Criteria A |
| 110V | | 10Vrms, Criteria A | |
| EN50155 | 110V | 100%0%, 10ms, with external filter, Criteria B | |

Pin Out Specifications

| Pin | Single |
|-----|----------------|
| 1 | +Vin |
| 2 | On/Off Control |
| 3 | -Vin |
| 4 | -Vout |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +Vout |

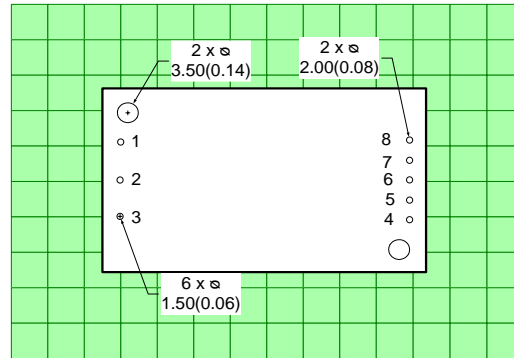
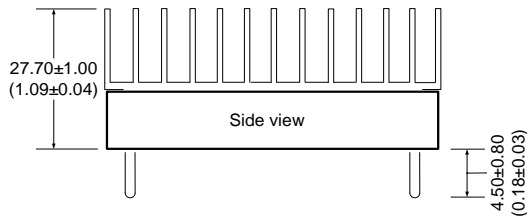
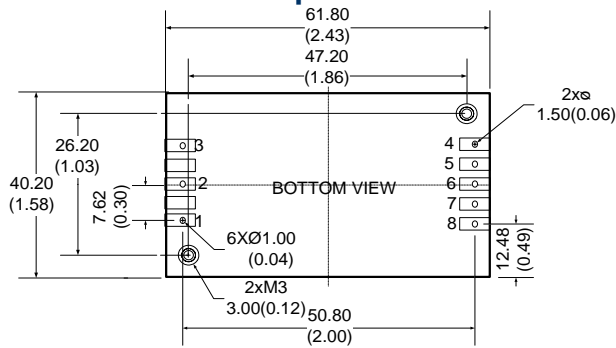
48V Model Dimensions



DIV: 2.54 x 2.54

Dimensions: mm (inch)
 Case Tolerance: ± 0.50 (0.02)
 Pin Tolerance: ± 1.50 (0.06)
 Pin diameter Tolerance: ± 0.10 (0.004)
 Pin 1, 2, 3, 5, 6 & 7 diameter: 1.00 (0.04)
 Pin 4 & 8 diameter: 1.50 (0.06)
 Mounting hole screw torque: max 0.4 N m

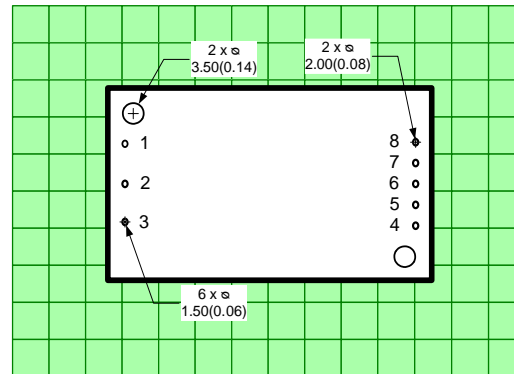
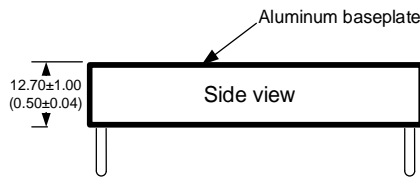
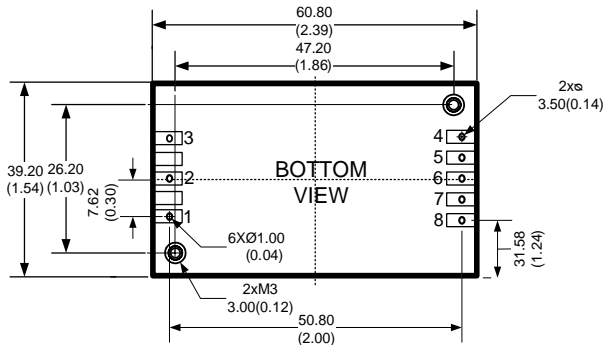
48V Models With Optional Heatsink



DIV: 2.54 x 2.54

Dimensions: mm (inch)
Case Tolerance: ± 0.50 (0.02)
Pin Tolerance: ± 1.50 (0.06)
Pin diameter Tolerance: ± 0.10 (0.004)
Pin 1, 2, 3, 5, 6 & 7 diameter: 1.00 (0.04)
Pin 4 & 8 diameter: 1.50 (0.06)
Mounting hole screw torque: max 0.4 N m

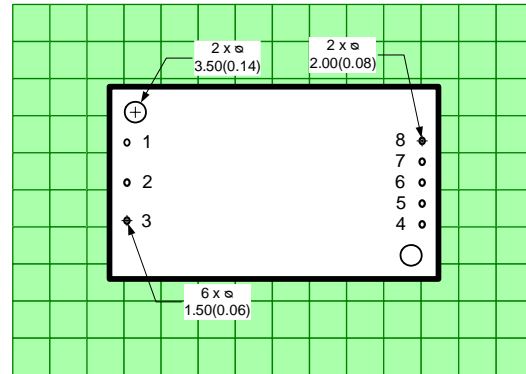
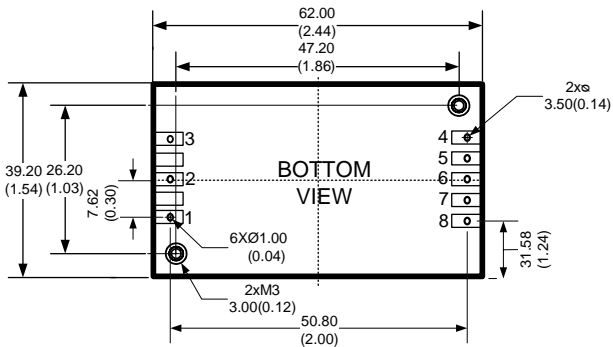
110V Model Dimensions



DIV: 2.54 x 2.54

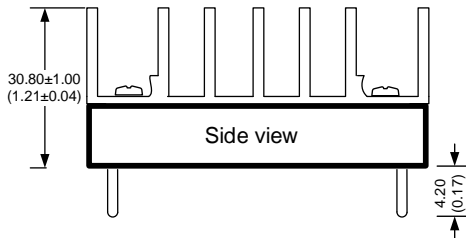
Dimensions: mm (inch)
Case Tolerance: ± 0.50 (0.02)
Pin Tolerance: ± 1.50 (0.06)
Pin diameter Tolerance: ± 0.10 (0.004)
Pin 1, 2, 3, 5, 6 & 7 diameter: 1.00 (0.04)
Pin 4 & 8 diameter: 1.50 (0.06)
Mounting hole screw torque: max 0.4 N m

110V Models With optional heatsink



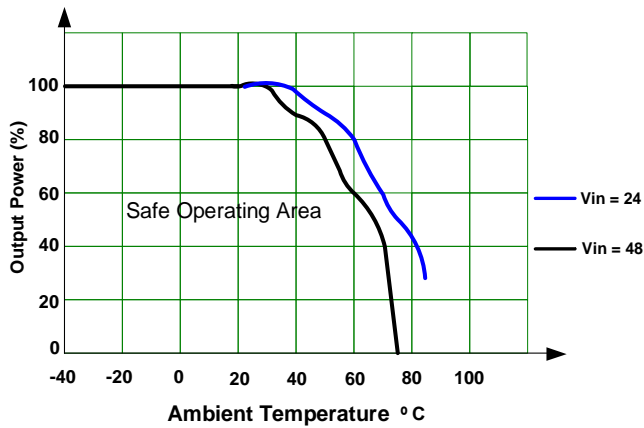
DIV: 2.54 x 2.54

Dimensions: mm (inch)
Case Tolerance: ± 0.50 (0.02)
Pin Tolerance: ± 1.50 (0.06)
Pin diameter Tolerance: ± 0.10 (0.004)
Pin 1, 2, 3, 5, 6 & 7 diameter: 1.00 (0.04)
Pin 4 & 8 diameter: 1.50 (0.06)
Mounting hole screw torque: max 0.4 N m

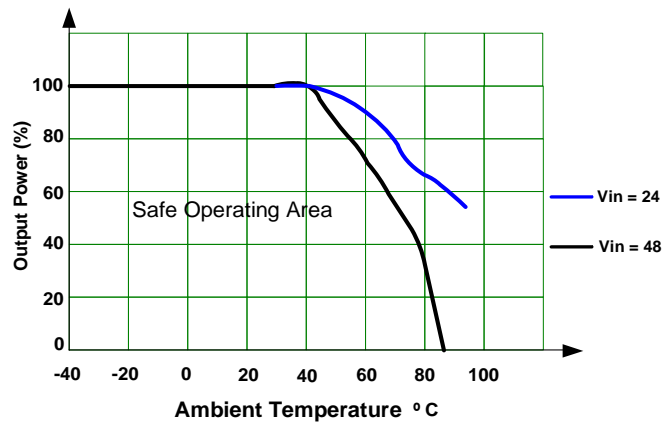


Derating

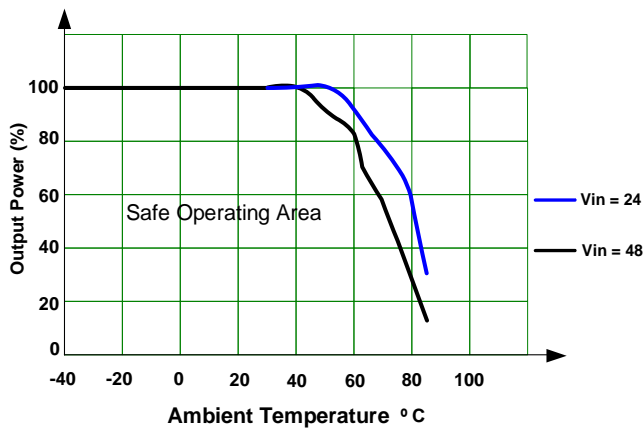
AM75QB-4805S-NZ Without heatsink



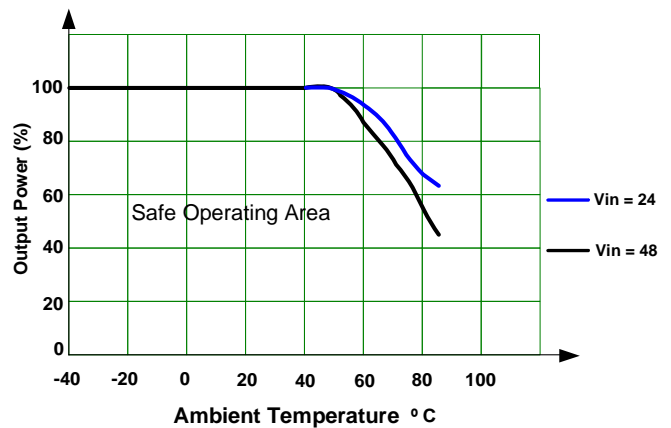
AM75QB-4805S-NZ With heatsink



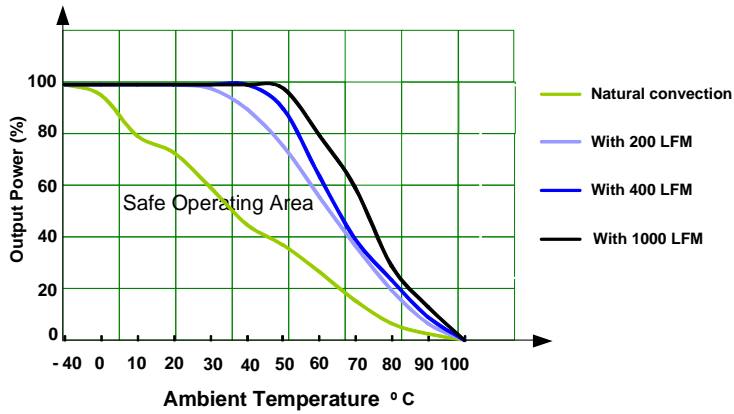
AM75QB-4812/15/24/48S-NZ Without heatsink



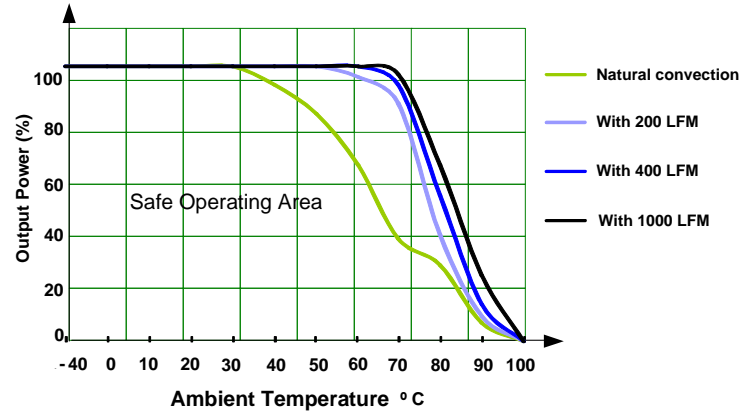
AM75QB-4812/15/24/48S-NZ With heatsink



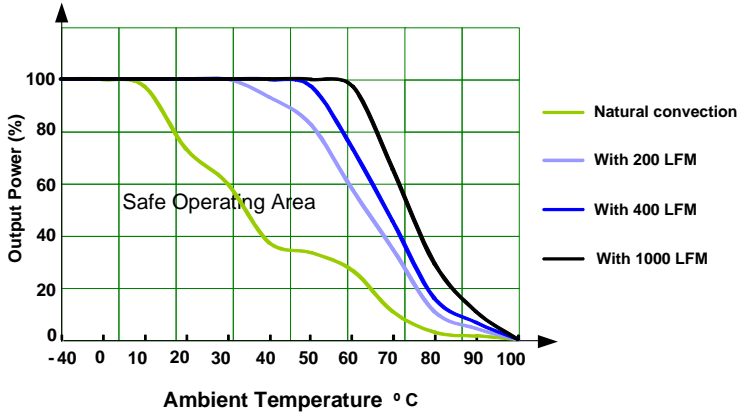
AM75QB-11005S-NZ Without heatsink



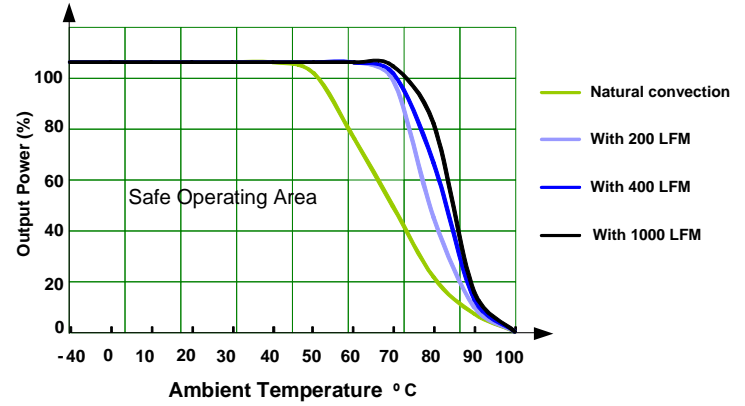
AM75QB-11005S-NZ With heatsink



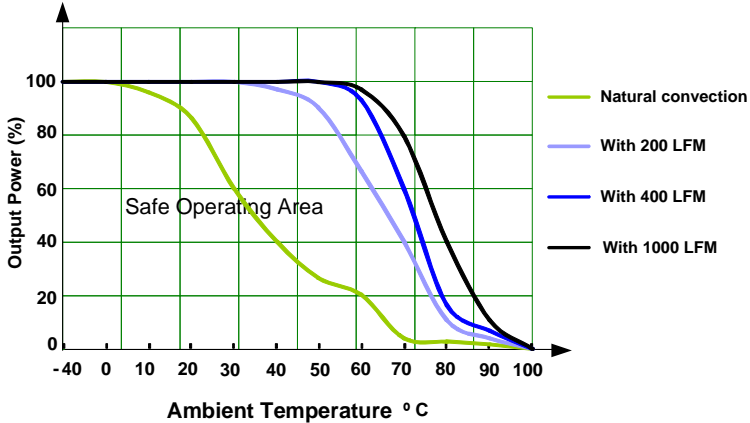
AM75QB-11012S-NZ Without heatsink



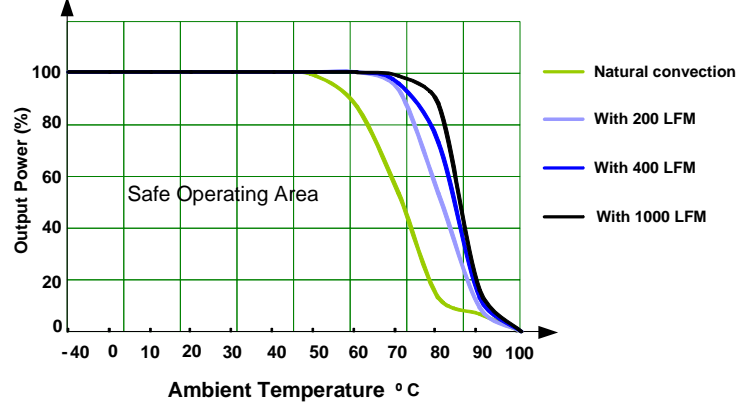
AM75QB-11012S-NZ With heatsink



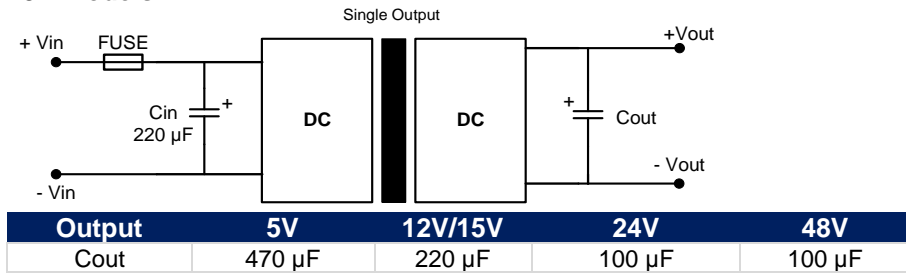
AM75QB-11024S-NZ Without heatsink



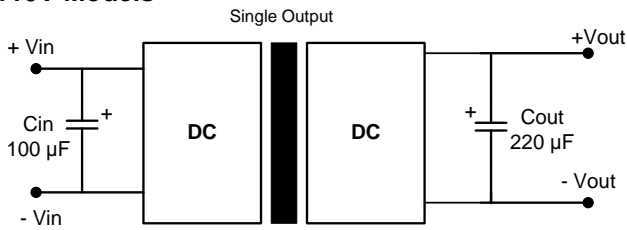
AM75QB-11024S-NZ With heatsink



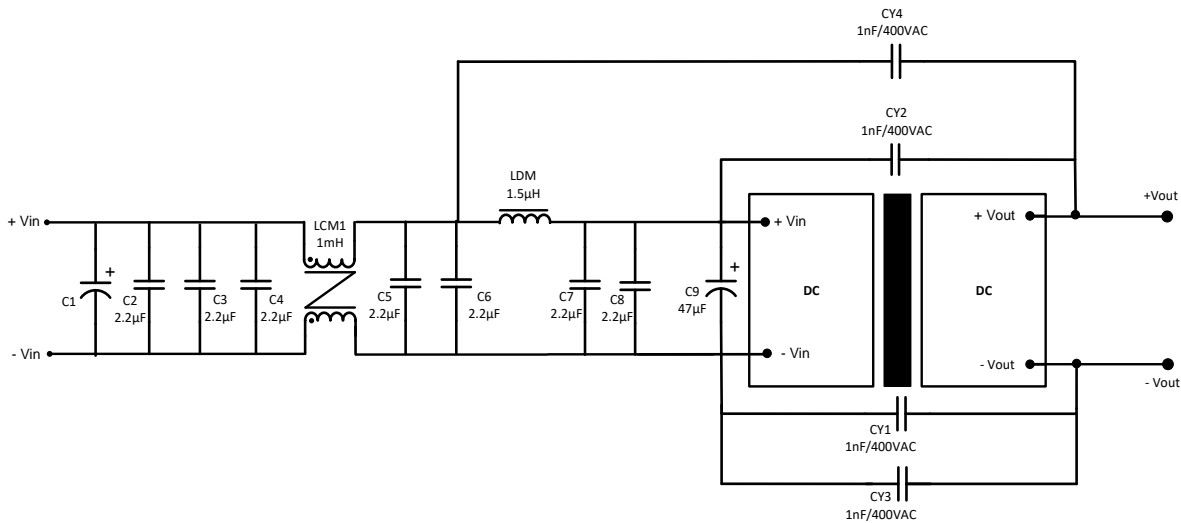
Typical application circuit
48V models



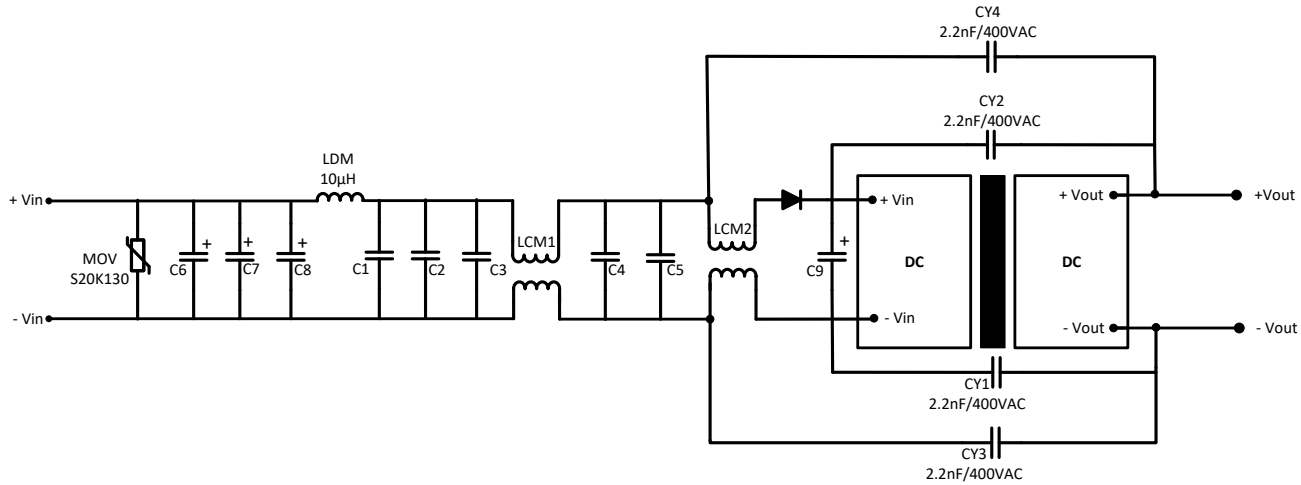
110V Models



Recommended External EMC filter
48V models



110V Models



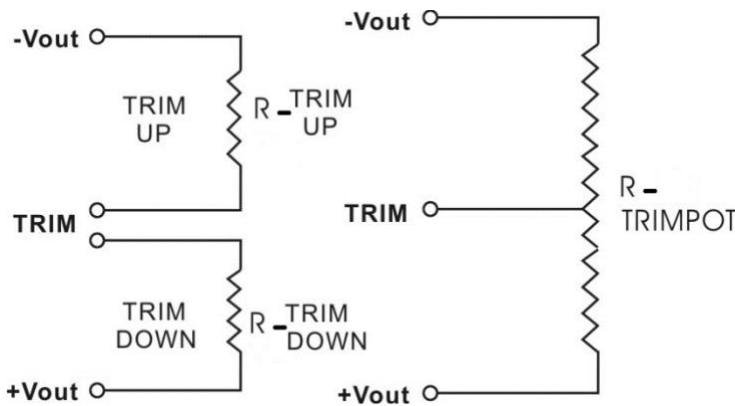
| C1, C2, C3, C4 & C5 | C6, C7, C8 & C9 (EC type) | LCM1 | LCM2 | D1 |
|---------------------|---------------------------|------------|------------|-------|
| 2.2 µF / 250V | 100 µF / 400V | 2200 µH *2 | 4700 µH *2 | SF306 |

Trimming

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

Fixed Resistor

Variable Potentiometer



Leave open if not used.

AM75QB-xxx05S-NZ
xxx can be 48 or 110

| | | | | | | | | | | |
|--------------|----------|---------|--------|--------|--------|-------|-------|-------|-------|-------|
| Trim down % | 1 | 2 | 3 | 4 | 5 | | | | | |
| Vout (VDC) | 4.95 | 4.9 | 4.85 | 4.8 | 4.75 | | | | | |
| Rt down (KΩ) | 54.906 | 33.833 | 22.748 | 15.91 | 11.272 | | | | | |
| 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) | -679.667 | 178.344 | 72.562 | 42.868 | 28.884 | 20.75 | 15.43 | 11.68 | 8.893 | 6.742 |

AM75QB-xxx12S-NZ
xxx can be 48 or 110

| | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|--------|--------|--------|--------|-------|
| Trim down % | 1 | 2 | 3 | 4 | 5 | | | | | |
| Vout (VDC) | 11.88 | 11.76 | 11.64 | 11.52 | 11.4 | | | | | |
| Rt down (K Ω) | 496.092 | 301.452 | 212.527 | 161.585 | 128.573 | | | | | |
| 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 (K Ω) | 706.435 | 158.92 | 83.879 | 54.075 | 38.077 | 28.095 | 21.274 | 16.317 | 12.552 | 9.595 |

AM75QB-xxx15S-NZ
xxx can be 48

| | | | | | | | | | | |
|-----------------------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|
| Trim down % | 1 | 2 | 3 | 4 | 5 | | | | | |
| Vout (VDC) | 14.85 | 14.7 | 14.55 | 14.4 | 14.25 | | | | | |
| Rt down (K Ω) | 643.028 | 403.954 | 290.279 | 223.84 | 180.26 | | | | | |
| 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 (K Ω) | 1276.5 | 188.456 | 95.426 | 60.777 | 42.679 | 31.559 | 24.034 | 18.602 | 14.498 | 11.287 |

AM75QB-xxx24S-NZ
xxx can be 48 or 110

| | | | | | | | | | | |
|-----------------------|----------|---------|---------|---------|---------|--------|--------|--------|--------|-------|
| Trim down % | 1 | 2 | 3 | 4 | 5 | | | | | |
| Vout (VDC) | 23.76 | 23.52 | 23.28 | 23.04 | 22.8 | | | | | |
| Rt down (K Ω) | 1289.521 | 792.049 | 564.771 | 434.571 | 350.197 | | | | | |
| 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 (K Ω) | 795.55 | 176.609 | 91.778 | 58.086 | 40.001 | 28.717 | 21.006 | 15.402 | 11.146 | 7.803 |

AM75QB-4848S-NZ

| | | | | | | | | | | |
|-----------------------|----------|----------|----------|----------|---------|--------|--------|--------|--------|--------|
| Trim down % | 1 | 2 | 3 | 4 | 5 | | | | | |
| Vout (VDC) | 47.52 | 47.04 | 46.56 | 46.08 | 45.6 | | | | | |
| Rt down (K Ω) | 4953.999 | 2443.889 | 1606.786 | 1188.160 | 936.961 | | | | | |
| Trim up % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 48.48 | 48.96 | 49.44 | 49.92 | 50.4 | 50.88 | 51.36 | 51.84 | 52.32 | 52.8 |
| Rt up (K Ω) | 261.328 | 123.114 | 77.065 | 54.045 | 40.234 | 31.027 | 24.451 | 19.519 | 15.684 | 12.615 |

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