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AME25-VZ



Encapsulated

The new AME25-VZ is a brand-new AC/DC converter that offers much greater cost effectiveness due to material normalization and production automation also leading to improved reliability and performance. Offering a commercial input voltage range of 85-264VAC and an output voltage range from 3.3-24V, this series will offer many benefits to your new system design.

This new series offers great operating temperatures, from -40°C to 85°C with full power up to 55°C. It also features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a higher MTBF of 300,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

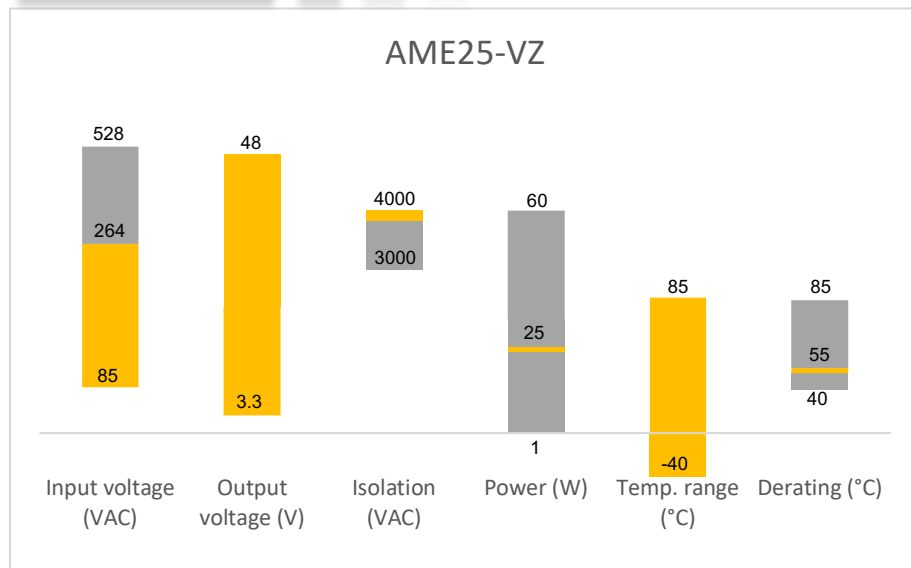
The AME25-VZ is perfect for street lighting controls, grid power, LED, instrumentation, industrial controls, communication and civil applications.

Features

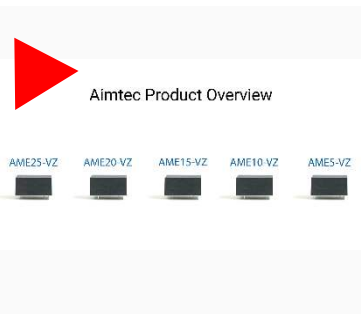
- Universal Input: 85 - 264VAC/100 - 370VDC
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 50mV(p-p), typ.
- Output short circuit, over-current, over-voltage protection
- EMI performance meets CISPR32/EN55032 CLASS B
- Meets IEC62368, UL62368, EN62368 standards



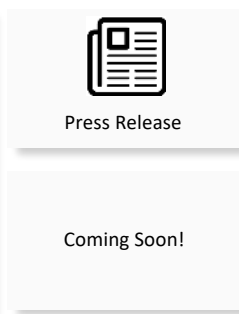
Summary



Training



Product Training Video
(click to open)



Application Notes

Applications



Power Grid



Industrial



Telecom



Instrumentation

Models & Specifications

| Single Output | | | | | | |
|---------------|------------------------|---------------------|--------------------|------------------------|------------------------------------|------------------------|
| Model | Input Voltage (VAC/Hz) | Input Voltage (VDC) | Output Voltage (V) | Output Current max (A) | Maximum capacitive Load (μ F) | Efficiency (%) 230 VAC |
| AME25-3.3SVZ | 85-264/47-63 | 100-370 | 3.3 | 4.1 | 48000 | 74 |
| AME25-5SVZ | 85-264/47-63 | 100-370 | 5 | 4.1 | 12000 | 79 |
| AME25-9SVZ | 85-264/47-63 | 100-370 | 9 | 2.5 | 5600 | 81 |
| AME25-12SVZ | 85-264/47-63 | 100-370 | 12 | 2.1 | 5400 | 83 |
| AME25-15SVZ | 85-264/47-63 | 100-370 | 15 | 1.6 | 2400 | 84 |
| AME25-24SVZ | 85-264/47-63 | 100-370 | 24 | 1.1 | 1400 | 85 |
| AME25-48SVZ | 85-264/47-63 | 100-370 | 48 | 0.5 | 600 | 87 |

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

| Input Specifications | | | | | |
|----------------------------------|----------------------------|---------|---------|---------|-------|
| Parameters | Conditions | Minimum | Typical | Maximum | Units |
| Current (full load) | 115 VAC | | | 600 | mA |
| | 230 VAC | | | 340 | mA |
| Inrush current <2ms (cold start) | 115 VAC | | 20 | | A |
| | 230 VAC | | 40 | | A |
| External fuse | Recommended slow blow type | | 3.15 | | A |

| Output Specifications | | | | |
|---------------------------------|-------------------------|-----------|---------|--------|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage accuracy | 3.3VDC output | ± 3 | | % |
| | Other output | ± 2 | | |
| Line regulation | Full load, main output | ± 0.5 | | % |
| Load regulation (single output) | 0-100% load | ± 1 | | % |
| Minimum load | | 0 | | % |
| Ripple & Noise * | | 50 | 100 | mV p-p |
| Hold-up time | 115VAC, 20MHz bandwidth | 10 | | ms |
| | 230VAC, 20MHz bandwidth | 60 | | ms |

*Ripple and Noise are measured at 20MHz bandwidth & 230VAC with the recommended Application Circuit.

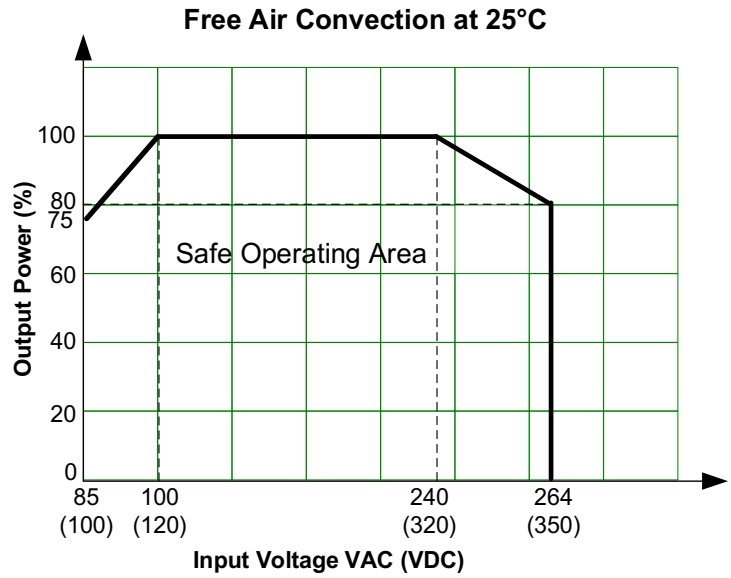
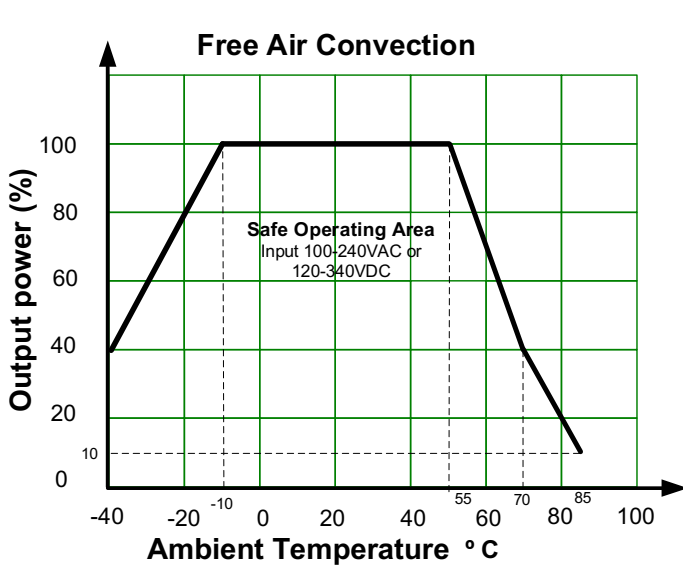
| Isolation Specifications | | | | |
|--------------------------|------------|---------|-------|-------|
| Parameters | Conditions | Typical | Rated | Units |
| Tested I/O voltage | 60 sec | | 4000 | VAC |

| General Specifications | | | | |
|--------------------------|---|---|---------|-----------|
| Parameters | Conditions | Typical | Maximum | Units |
| Protection class | Class I | | | |
| Over current protection | | ≥140 | | % of Iout |
| Over voltage protection | Zener diode clamp | | | |
| Short circuit protection | Continuous, Auto recovery | | | |
| Operating temperature | See derating curve | -40 to +85 | °C | |
| Switching Frequency | | 65 | | kHz |
| Maximum Case temperature | | | 100 | °C |
| Temperature coefficient | | ±0.02 | | % / °C |
| Cooling | Free air convection | | | |
| Humidity | Non condensing | | 95 | % RH |
| Case material | Plastic (flammability to UL 94V-0) | | | |
| Weight | PCB mountable model: | | 120 | |
| | With optional -ST mounting plate: | | 170 | |
| | With optional -STD mounting plate: | | 210 | |
| Dimensions (L x W x H) | PCB mountable model: | 2.44 x 1.77 x 0.93 inches (70 x 48 x 23.5mm) | | |
| | With optional -ST mounting plate: | 3.78 x 2.13 x 1.26 inches (96.1 x 54 x 32 mm) | | |
| | With optional -STD mounting plate: | 3.78 x 2.12 x 1.44 inches (96.1 x 54 x 36.6 mm) | | |
| MTBF | > 300,000 hrs (MIL-HDBK -217F, t=+25°C)/Full Load | | | |

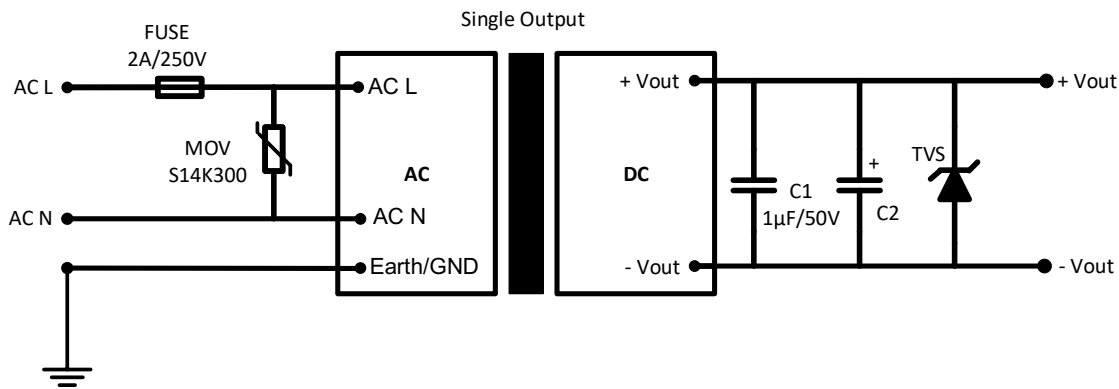
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

| Safety Specifications | | |
|-----------------------|--|---|
| Parameters | | |
| Agency approvals | UL 62368-1 | |
| Standards | Information technology Equipment | IEC/EN 62368-1 |
| | EMI - Conducted and radiated emission | CISPR32/EN55032, class B |
| | 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, ±4kV with external circuit, Criteria B |
| | Surge Immunity | IEC 61000-4-5 L to L ±1kV/ L to G ±2kV, L to L ±2kV/L to G ±4kV with external circuit, Criteria B |
| | RF, Conducted Disturbance Immunity | IEC 61000-4-6 10Vr.m.s, Criteria A |
| | Voltage dips, Short Interruptions Immunity | IEC 61000-4-11 0%, 70%, Criteria B |

Derating

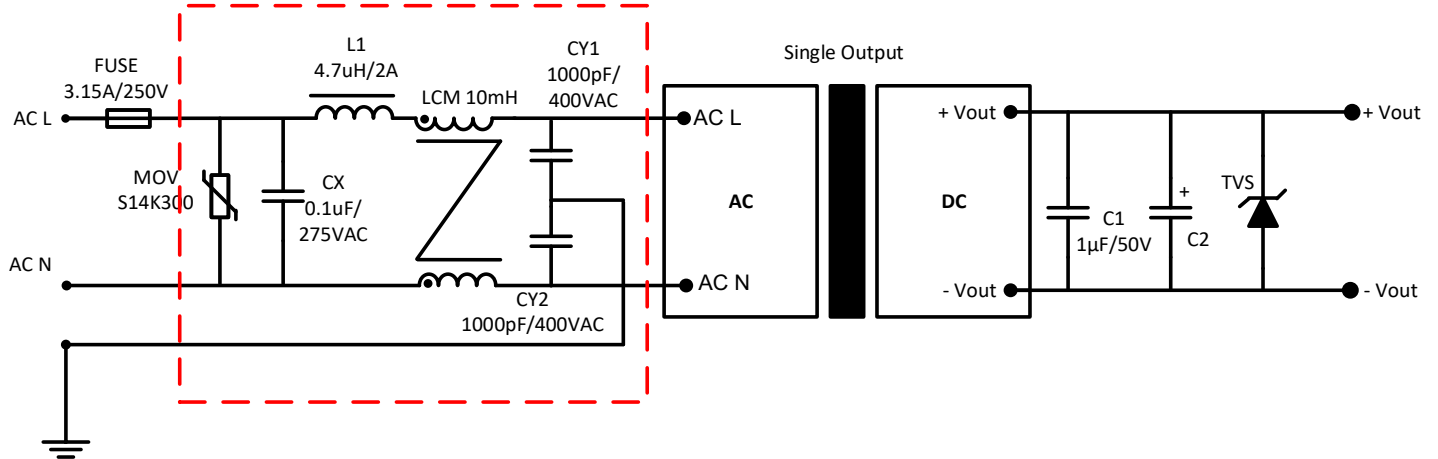


Typical Application Circuit



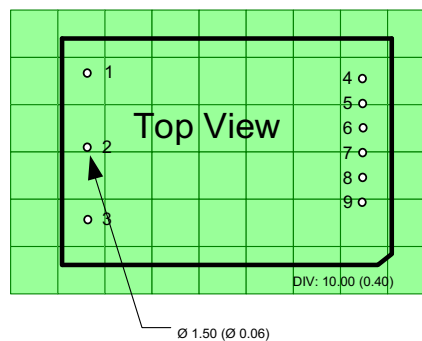
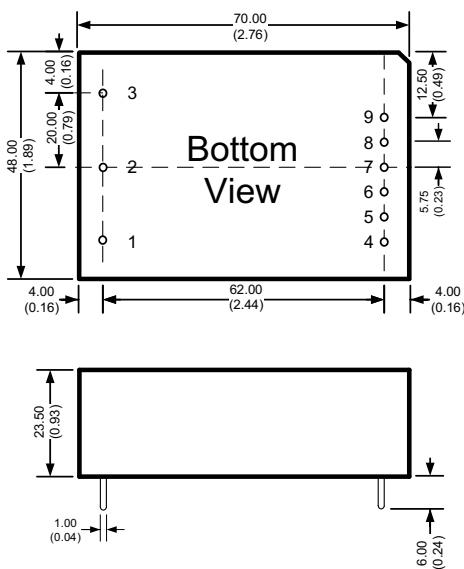
EMC Recommended Circuit

Recommended use AMFE305150-LN22 EMC filter



| Model | C2 | TVS |
|----------|-------------|-----|
| 3.3 Vout | 330 μ F | 7V |
| 5 Vout | 330 μ F | 7V |
| 9 Vout | 330 μ F | 12V |
| 12 Vout | 330 μ F | 20V |
| 15 Vout | 330 μ F | 20V |
| 24 Vout | 120 μ F | 30V |
| 48 Vout | 68 μ F | 64V |

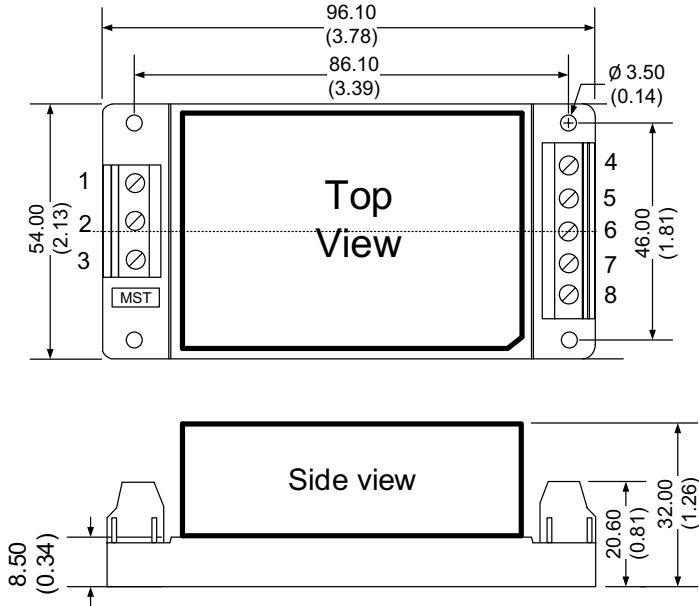
Dimensions



Dimensions mm (inch)
Case Tolerance ± 0.50 (± 0.02)
Pin Diameter 1.0 ± 0.10 (0.04 ± 0.004)

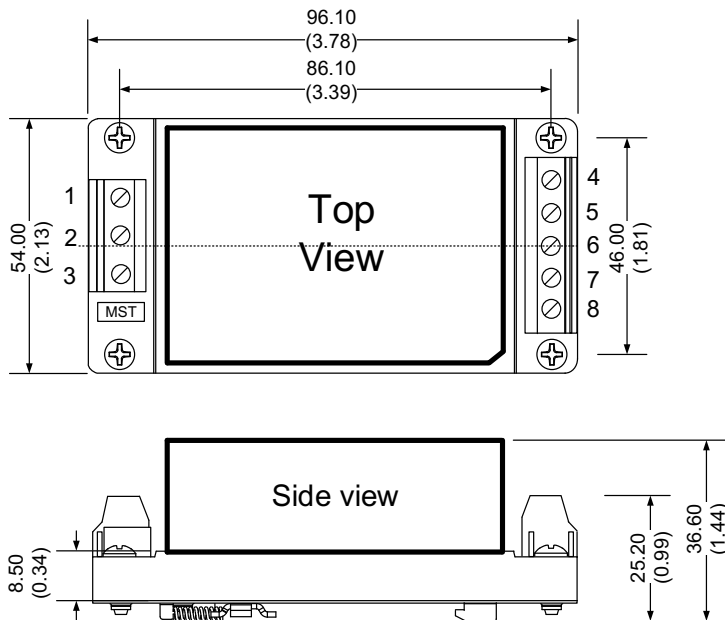
| Pin Out Specifications | |
|------------------------|--------------|
| Pin | Single |
| 1 | GND |
| 2 | AC Input (N) |
| 3 | AC Input (L) |
| 4 | Trim |
| 5 | -V Output |
| 6 | No pin |
| 7 | No pin |
| 8 | No pin |
| 9 | +V Output |

With optional -ST bottom plate



| Pin Out Specifications | |
|------------------------|---------------|
| Pin | Single |
| 1 | GND |
| 2 | AC Input (N) |
| 3 | AC Input (L) |
| 4 | -V Output |
| 5 | No connection |
| 6 | Trim |
| 7 | No connection |
| 8 | +V Output |

With optional -STD bottom plate



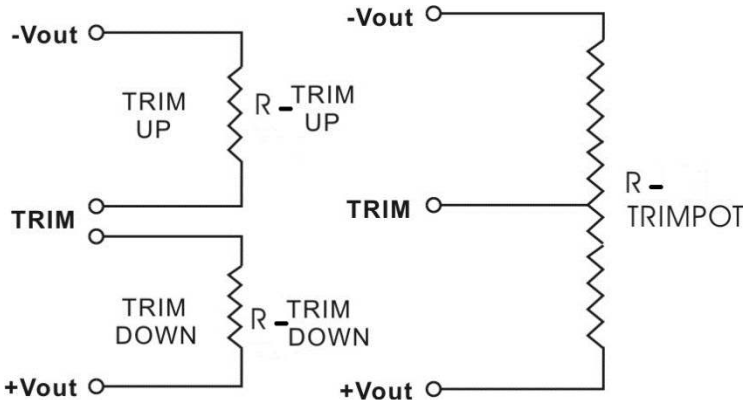
| Pin Out Specifications | |
|------------------------|---------------|
| Pin | Single |
| 1 | GND |
| 2 | AC Input (N) |
| 3 | AC Input (L) |
| 4 | -V Output |
| 5 | No connection |
| 6 | Trim |
| 7 | No connection |
| 8 | +V Output |

Trimming

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

Fixed Resistor

Variable Potentiometer



Leave open if not used.

AME25-3.3SVZ

| | | | | | | | | | | |
|--------------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 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) | 167.633 | 89.553 | 60.243 | 44.883 | 35.428 | 29.022 | 24.396 | 20.897 | 18.159 | 15.957 |
| 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) | 154.392 | 67.966 | 43.318 | 31.649 | 24.844 | 20.387 | 17.241 | 14.902 | 13.094 | 11.656 |

AME25-5SVZ

| | | | | | | | | | | |
|--------------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 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) | 160.700 | 78.200 | 50.700 | 36.950 | 28.700 | 23.200 | 19.271 | 16.325 | 14.033 | 12.200 |
| 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) | 164.000 | 81.500 | 54.000 | 40.250 | 32.000 | 26.500 | 22.571 | 19.625 | 17.333 | 15.500 |

AME25-9SVZ

| | | | | | | | | | | |
|--------------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|
| Trim down % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 8.91 | 8.82 | 8.73 | 8.64 | 8.55 | 8.46 | 8.37 | 8.28 | 8.19 | 8.1 |
| Rt down (KΩ) | 389.533 | 221.430 | 153.157 | 116.145 | 92.924 | 76.997 | 65.393 | 56.562 | 49.617 | 44.011 |
| Trim up % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Vout (VDC) | 9.09 | 9.18 | 9.27 | 9.36 | 9.45 | 9.54 | 9.63 | 9.72 | 9.81 | 9.9 |
| Rt up (KΩ) | 328.532 | 126.639 | 78.148 | 56.357 | 43.975 | 35.990 | 30.412 | 26.297 | 23.134 | 20.629 |

AME25-12SVZ

| 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) | 183.233 | 111.590 | 79.474 | 61.246 | 49.499 | 41.299 | 35.249 | 30.602 | 26.921 | 23.933 |
| 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) | 211.778 | 57.030 | 32.596 | 22.642 | 17.238 | 13.845 | 11.516 | 9.819 | 8.527 | 7.511 |

AME25-15SVZ

| 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) | 616.500 | 304.000 | 199.833 | 147.750 | 116.500 | 95.667 | 80.786 | 69.625 | 60.944 | 54.000 |
| 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) | 124.000 | 61.500 | 40.667 | 30.250 | 24.000 | 19.833 | 16.857 | 14.625 | 12.889 | 11.500 |

AME25-24SVZ

| 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) | 471.081 | 287.942 | 205.845 | 159.249 | 129.221 | 108.258 | 92.793 | 80.914 | 71.504 | 63.865 |
| 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) | 239.556 | 64.606 | 36.982 | 25.728 | 19.619 | 15.783 | 13.150 | 11.232 | 9.771 | 8.622 |

AME25-48SVZ

| Trim down % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------------|----------|----------|----------|----------|----------|---------|---------|---------|---------|---------|
| Vout (VDC) | 47.52 | 47.04 | 46.56 | 46.08 | 45.6 | 45.12 | 44.64 | 44.16 | 43.68 | 43.2 |
| Rt down (KΩ) | 5501.011 | 2921.325 | 1974.775 | 1483.386 | 1182.489 | 979.298 | 832.871 | 722.336 | 635.938 | 566.549 |
| 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 (KΩ) | 420.217 | 191.396 | 123.671 | 91.211 | 72.163 | 59.636 | 50.773 | 44.170 | 39.060 | 34.990 |

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.