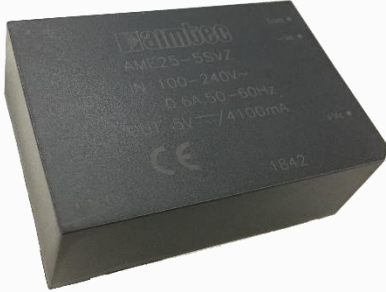


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AME25-VZ



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.

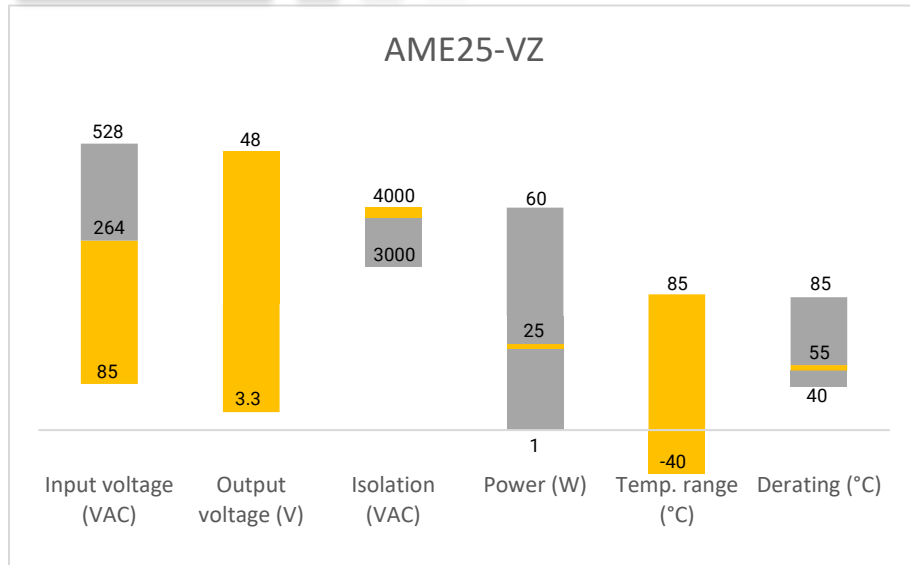
The AME25-VZ is perfect for street lighting controls, grid power, LED, instrumentation, industrial controls, communication and civil applications.

Features

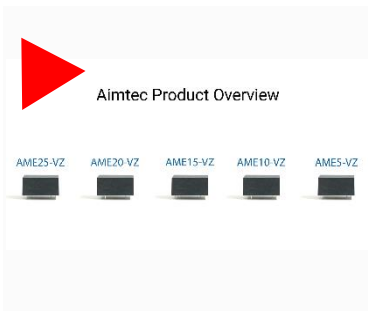
- Universal Input: 85 - 264VAC/120 - 370VDC
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 50mV(p-p), typ.
- Output short circuit, over-current, over-voltage protection
- EMI performance meets CISPR32/EN55032 CLASS B Meets IEC62368, UL62368, EN62368 standards (pending)



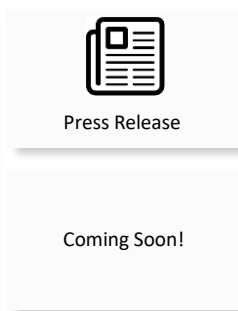
Summary



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 (μF) | Efficiency (%) 230 VAC |
| AME25-3.3SVZ | 85-264/47-63 | 120-370 | 3.3 | 4.1 | 48000 | 74 |
| AME25-5SVZ | 85-264/47-63 | 120-370 | 5 | 4.1 | 12000 | 79 |
| AME25-9SVZ | 85-264/47-63 | 120-370 | 9 | 2.5 | 5600 | 81 |
| AME25-12SVZ | 85-264/47-63 | 120-370 | 12 | 2.1 | 5400 | 83 |
| AME25-15SVZ | 85-264/47-63 | 120-370 | 15 | 1.6 | 2400 | 84 |
| AME25-24SVZ | 85-264/47-63 | 120-370 | 24 | 1.1 | 1400 | 85 |
| AME25-48SVZ | 85-264/47-63 | 120-370 | 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.

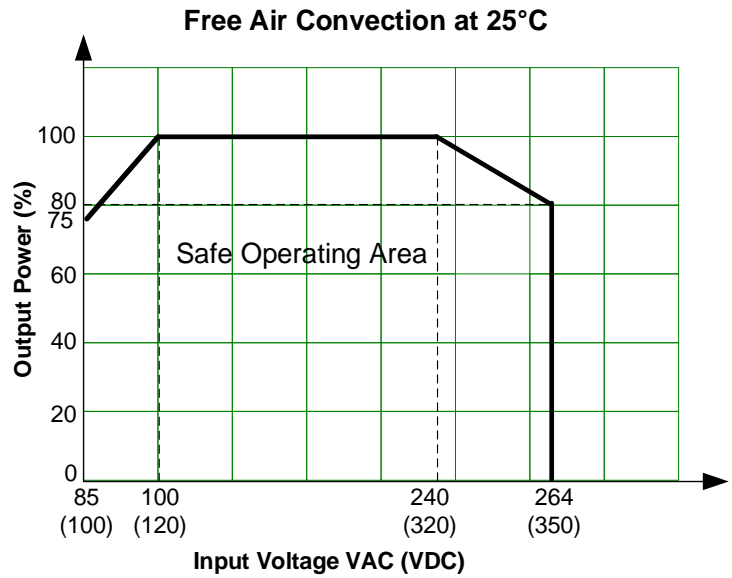
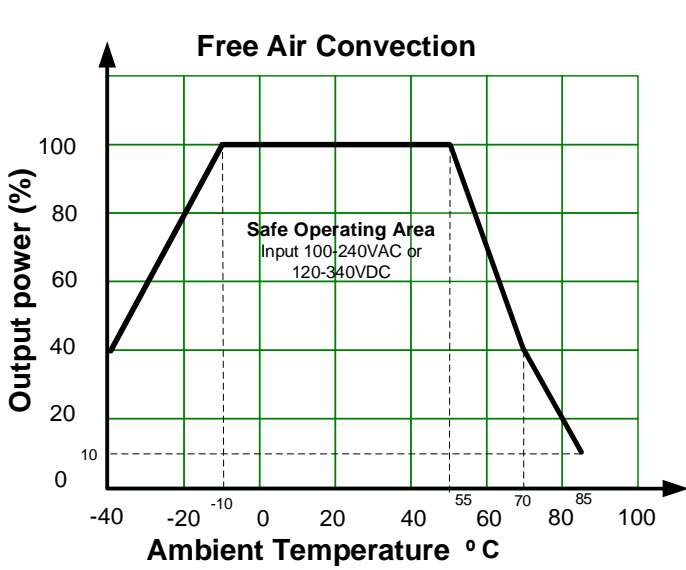
| Isolation Specifications | | | | |
|--------------------------|------------|---------|-------|-------|
| Parameters | Conditions | Typical | Rated | Units |
| Tested I/O voltage | 60 sec | | 4000 | VAC |

| 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 | | | |

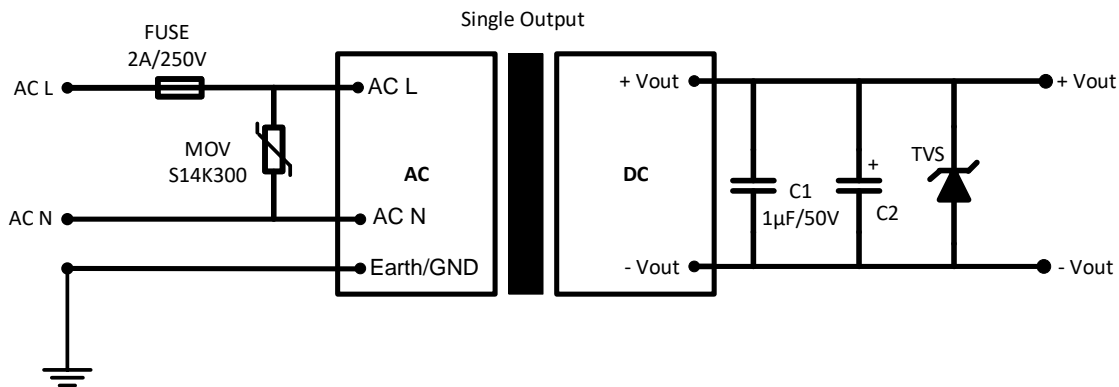
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

| Safety Specifications | | |
|--|--|---|
| Parameters | | |
| Standards | Information technology Equipment | IEC/EN/UL 62368 |
| | 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

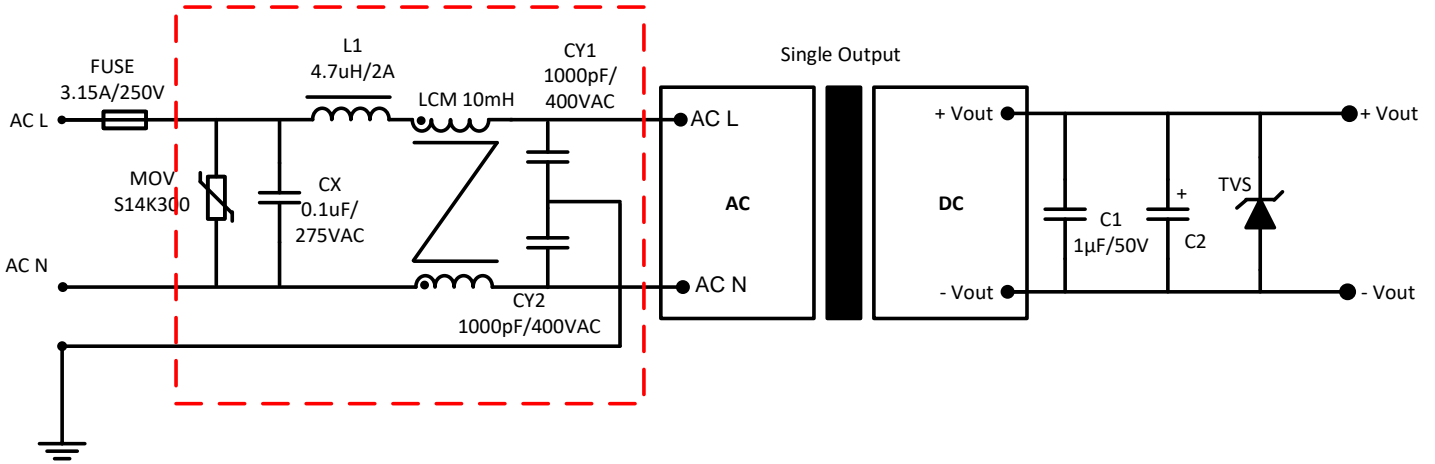


Typical Application Circuit



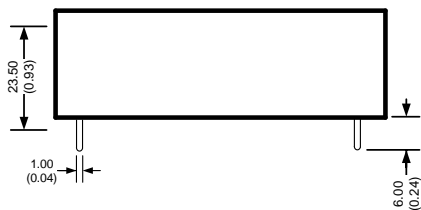
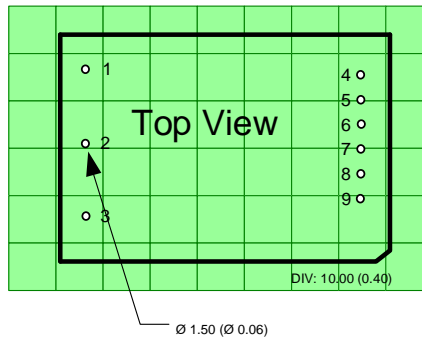
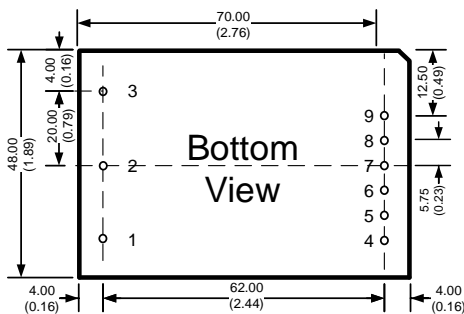
EMC Recommended Circuit

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 |

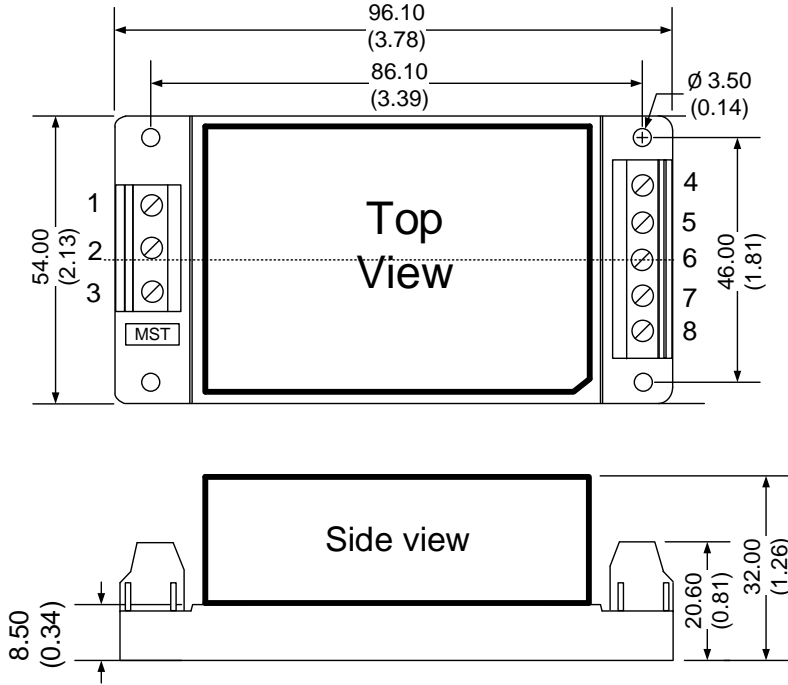
Dimensions



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

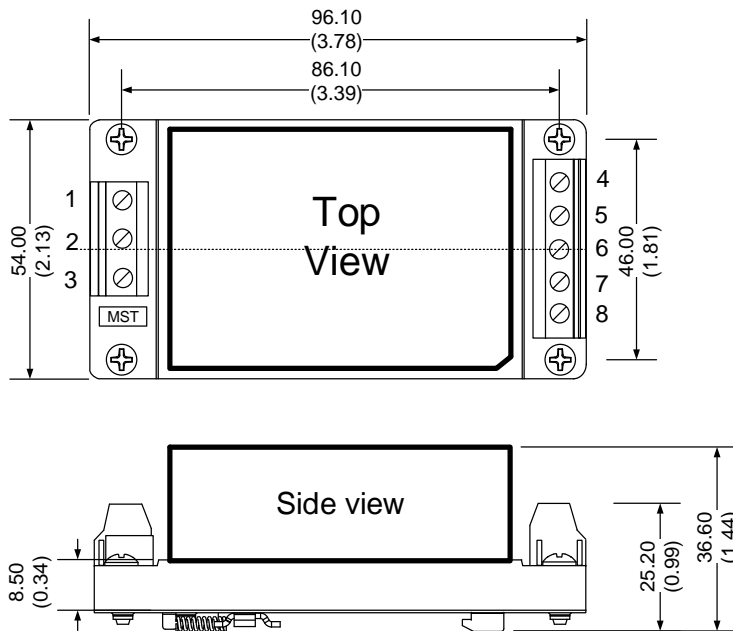
| Pin Out Specifications | |
|------------------------|--------------|
| Pin | Single |
| 1 | Gnd |
| 2 | AC Input (N) |
| 3 | AC Input (L) |
| 4 | Trim |
| 5 | -V Output |
| 6 | No pin |
| 7 | No pin |
| 8 | No pin |
| 9 | +V Output |

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



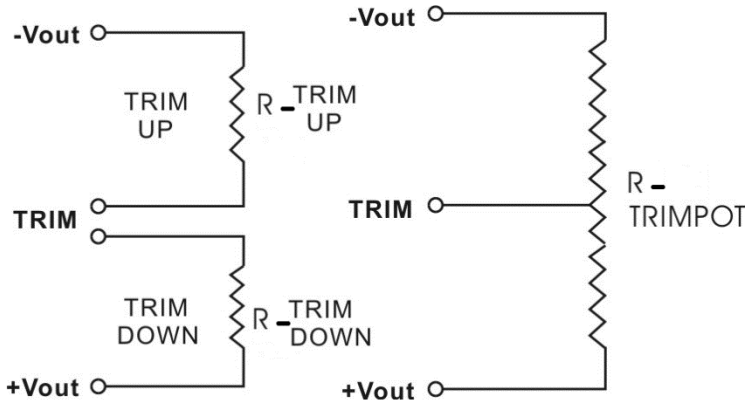
| Pin Out Specifications | |
|------------------------|---------------|
| Pin | Single |
| 1 | Gnd |
| 2 | AC Input (N) |
| 3 | AC Input (L) |
| 4 | -V Output |
| 5 | No connection |
| 6 | Trim |
| 7 | No connection |
| 8 | +V Output |

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 |

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