



AM10TWM-YZ

Aimtec launched the AM10TWM-YZ, a 10W medical grade DC/DC converter in a DIP24 case to satisfy the rigorous power demands of medical equipment. This series meets EN60601-1-2:2015 medical safety standard and has a high I/O Isolation of 5000VAC with reinforced insulation rated for a 250VAC working voltage.

This 10W converter has 4:1 input (9-36V & 18-75V), single & dual outputs (3.3...15V, +/-5...+/-15V). In terms of safety, this series has output short circuit, overvoltage & overcurrent protections.

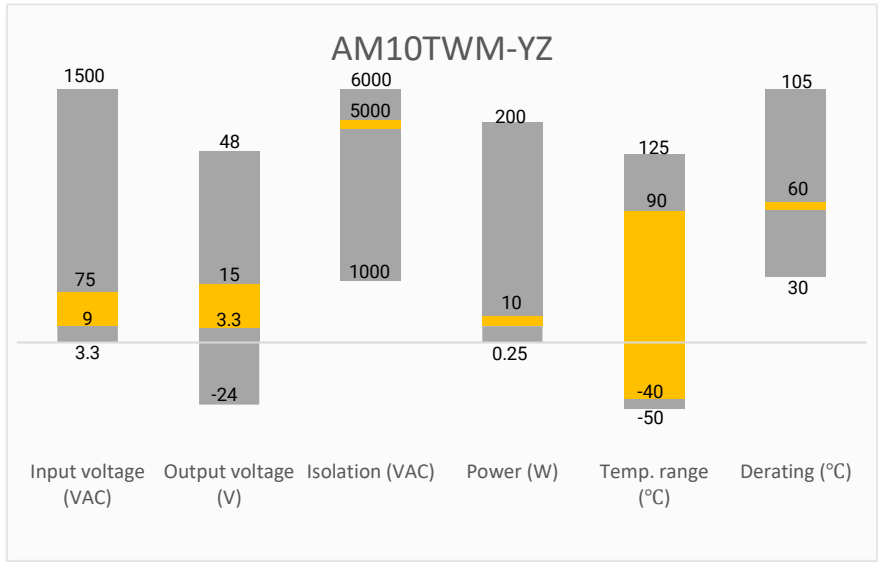
Our medical can be used in applications such as medical assisting devices, computed tomography, ultrasound machinery and other medical ancillary equipment.

Encapsulated

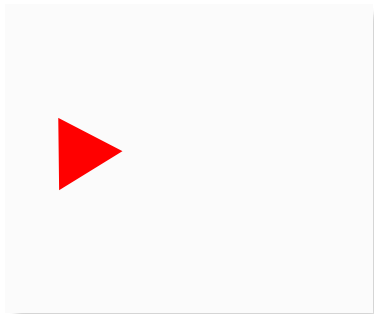
Features

- 4:1 Wide input voltage
- High efficiency to 85%
- Operating temperature: -40°C to +90°C
- Meet medical EMC standard of EMI EN 55011, Class A
- Meet medical EMC standard of EMS EN 60601-1-2:2015
- I/O Isolation of 5000VAC with reinforced insulation rated for 250VAC

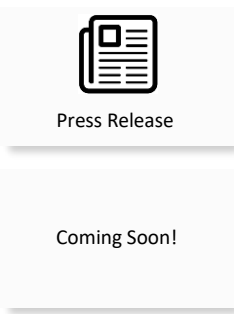
Summary



Training



Product Training Video
(click to open)



Application Notes

Applications



Medical



Industrial

Models & Specifications

| Single Output | | | | | | | |
|--------------------|---------------------|----------------------|------------------------|------------------------|-----------------|------------------------------------|----------------|
| Model | Input Voltage (VDC) | Output Voltage (VDC) | Input Current max (mA) | Output Current max (A) | Isolation (VAC) | Maximum capacitive Load (μ F) | Efficiency (%) |
| AM10TWM-2403SH50YZ | 24 (9 - 36) | 3.3 | 414 | 2.5 | 5000 | 4700 | 83 |
| AM10TWM-2405SH50YZ | 24 (9 - 36) | 5 | 496 | 2 | 5000 | 2500 | 84 |
| AM10TWM-2412SH50YZ | 24 (9 - 36) | 12 | 496 | 0.833 | 5000 | 430 | 84 |
| AM10TWM-2415SH50YZ | 24 (9 - 36) | 15 | 499 | 0.67 | 5000 | 270 | 84 |
| AM10TWM-4803SH50YZ | 48 (18 - 75) | 3.3 | 207 | 2.5 | 5000 | 4700 | 83 |
| AM10TWM-4805SH50YZ | 48 (18 - 75) | 5 | 248 | 2 | 5000 | 2500 | 84 |
| AM10TWM-4812SH50YZ | 48 (18 - 75) | 12 | 248 | 0.833 | 5000 | 430 | 84 |
| AM10TWM-4815SH50YZ | 48 (18 - 75) | 15 | 249 | 0.67 | 5000 | 270 | 84 |

| Dual Output | | | | | | | |
|--------------------|---------------------|----------------------|------------------------|------------------------|-----------------|------------------------------------|----------------|
| Model | Input Voltage (VDC) | Output Voltage (VDC) | Input Current max (mA) | Output Current max (A) | Isolation (VAC) | Maximum capacitive Load (μ F) | Efficiency (%) |
| AM10TWM-2405DH50YZ | 24 (9 - 36) | \pm 5 | 496 | \pm 1.0 | 5000 | \pm 1250 | 84 |
| AM10TWM-2412DH50YZ | 24 (9 - 36) | \pm 12 | 494 | \pm 0.42 | 5000 | \pm 220 | 85 |
| AM10TWM-2415DH50YZ | 24 (9 - 36) | \pm 15 | 500 | \pm 0.34 | 5000 | \pm 135 | 85 |
| AM10TWM-4805DH50YZ | 48 (18 - 75) | \pm 5 | 248 | \pm 1.0 | 5000 | \pm 1250 | 84 |
| AM10TWM-4812DH50YZ | 48 (18 - 75) | \pm 12 | 247 | \pm 0.42 | 5000 | \pm 220 | 85 |
| AM10TWM-4815DH50YZ | 48 (18 - 75) | \pm 15 | 250 | \pm 0.34 | 5000 | \pm 135 | 85 |

| Input Specification | | | | |
|--------------------------------|--|-------------------|-----------|----------|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage range | Nominal 24V Nominal 48V | 9 - 36 18 - 75 | | VDC |
| Filter | Pi network | | | |
| Startup time | Nominal input and resistive load | 0.015 | | S |
| Absolute maximum rating | 24V models, 100mS 48V models, 100mS | | 50 100 | VDC |
| Input reflected ripple current | 5 to 20MHz, 12 μ H source impedance | | 35 | mA pk-pk |
| On/Off Control | ON - 0 to 1.2Vdc or open; OFF - 2.2 to 12Vdc, idle current 4mA typ. | | | |

| Isolation Specification | | | | |
|-------------------------|------------|---------|---------|-------|
| Parameters | Conditions | Typical | Maximum | Units |
| Tested I/O voltage | 1 sec | 5000 | | VAC |
| Resistance | 500Vdc | >1000 | | MOhm |
| Capacitance | | 20 | | pF |

| Output Specification | | | | |
|------------------------------|--|---------|---------|-----------|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage accuracy | | | ±2 | % |
| Cross regulation (Dual) | 25% to 100% load on one output, 100% load on second output | | ±5 | % |
| Line regulation | Full load, main input range | | ±0.5 | % |
| Load regulation | 0-100% load | | ±0.5 | % |
| Voltage adjustment | | | ±10 | %Vout |
| Short circuit protection | Continuous, Auto recovery | | | |
| Over current protection | | 150 | | % of Iout |
| Over voltage protection | Zener clamped | | | % of Vout |
| Temperature coefficient | | ±0.02 | | %/°C |
| Ripple & Noise* | 20MHz bandwidth | | 100 | mV pk-pk |
| Transient recovery time | 25% load step change | | 350 | µS |
| Transient response deviation | 25% load step change | ±3 | ±5 | % |

* 20MHz bandwidth

| General Specifications | | | | |
|--------------------------|---|-------------|---------|-------|
| Parameters | Conditions | Typical | Maximum | Units |
| Switching frequency | 100% load | 300 | | KHz |
| Operating temperature | See derating graph | -40 to +90 | | °C |
| Storage temperature | | -55 to +125 | | °C |
| Maximum case temperature | | | 95 | °C |
| Lead temperature | 1.5mm from case 10 sec. | | 260 | °C |
| Cooling | Free air convection | | | |
| Humidity | Non-condensing | 95 | | % RH |
| Case material | Heat resistant black Plastic (flammability to UL 94V-0) | | | |
| Weight | | 15.5 | | g |
| Dimensions (L x W x H) | 1.24 x 0.79 x 0.39 inches, 31.60 x 20.10 x 10.00mm | | | |
| MTBF | > 900 000 hrs (MIL-HDBK -217F, t=+25°C)/Full Load | | | |

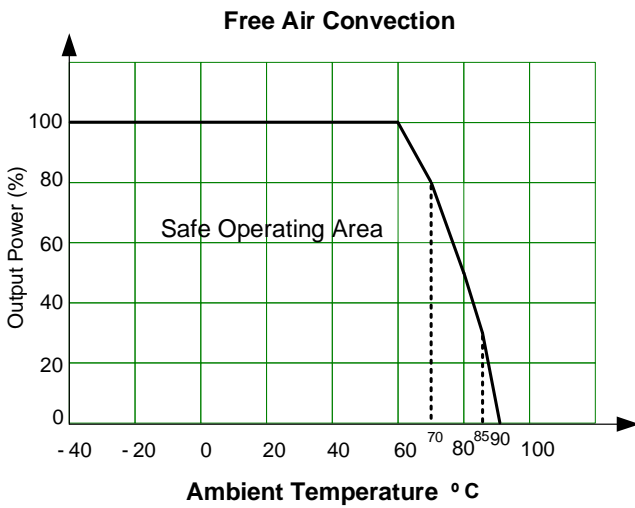
All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

| Safety Specifications | | |
|-----------------------|---------------------------------------|--|
| Parameters | | |
| Standards | EMC - Conducted and radiated emission | Design to meet EN55011, class A Design to meet EN60601-1-2:2015 |

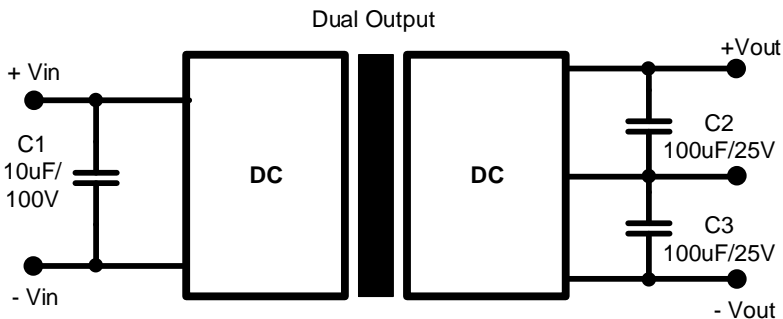
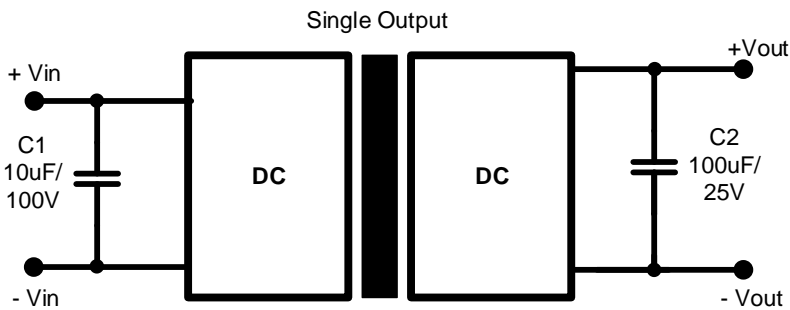
| | |
|---|---|
| Electrostatic Discharge Immunity* | IEC 61000-4-2 Contact $\pm 8\text{KV}$ / Air $\pm 15\text{KV}$, Criteria A |
| RF, Electromagnetic Field Immunity* | IEC 61000-4-3 10V/m, Criteria A |
| Electrical Fast Transient/Burst Immunity* | IEC 61000-4-4 $\pm 2\text{KV}$, Criteria A |
| Surge Immunity* | IEC 61000-4-5 L-L $\pm 2\text{KV}$, Criteria A |
| RF, Conducted Disturbance Immunity* | IEC 61000-4-6 10Vr.m.s, Criteria A |
| Voltage dips, Short Interruptions Immunity* | IEC 61000-4-8 30A/m, Criteria A |

* With added EMC recommended circuit, which can meet EN60601 standard

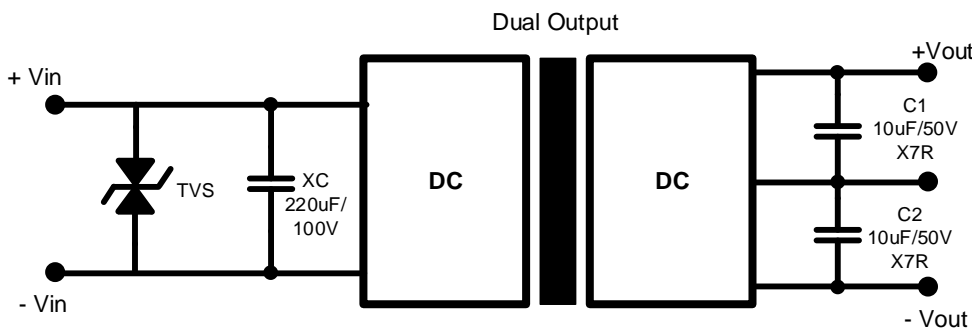
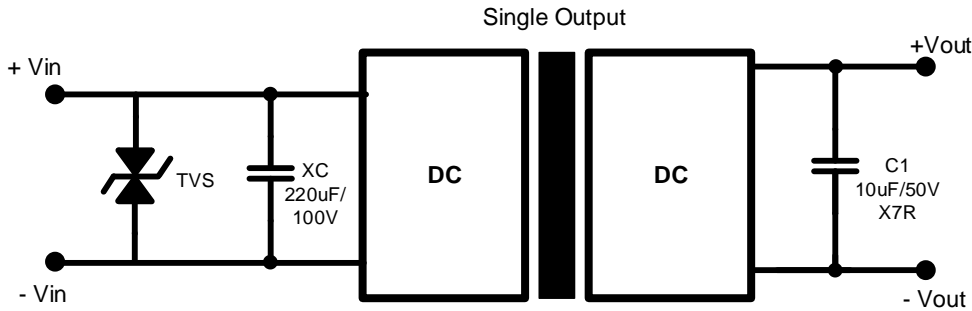
Derating



Typical Application Circuit

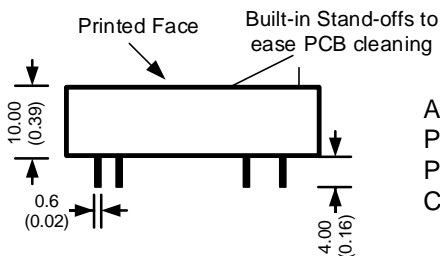
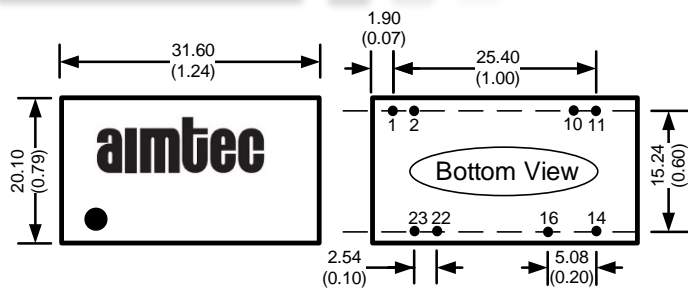


EMC Recommended Circuit



| Model | TVS |
|------------------|--------------|
| 24V Input models | 3.0SMCJ58AG |
| 48V Input models | 3.0SMCJ120AG |

Dimensions



All dimensions are typical: millimeters (inches)
 Pin Diameter: 0.50 ± 0.10 (0.02 ± 0.004)
 Pin Pitch Tolerance: ± 0.35 (± 0.014)
 Case Tolerance: ± 0.5 (± 0.02)

| Pin Output Specifications | | |
|---------------------------|-----------|-----------|
| Pin | Single | Dual |
| 1 | ON/OFF | ON/OFF |
| 2 | -V Input | -V Input |
| 10 | Trim | Trim |
| 11 | NC | -V Output |
| 14 | +V Output | +V Output |
| 16 | -V Output | Common |
| 22 | +V Input | +V Input |
| 23 | +V Input | +V Input |

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