



FEATURES:

- Wide 2:1 input range
- Over Voltage Protection
- High efficiency up to 87%
- Low Ripple and Noise
- Operating temperature -40°C to + 85°C
- Input / Output isolation 1500 VDC
- Continuous short circuit protection



Models
Single output

| Model | Input Voltage (V) | Output Voltage (V) | Output Current max(mA) | Isolation (VDC) | Efficiency (%) |
|---------------|-------------------|--------------------|------------------------|-----------------|----------------|
| AM6T-0505S-NZ | 4.5-9 | 5 | 1200 | 1500 | 78 |
| AM6T-0512S-NZ | 4.5-9 | 12 | 500 | 1500 | 84 |
| AM6T-0515S-NZ | 4.5-9 | 15 | 400 | 1500 | 84 |
| AM6T-0524S-NZ | 4.5-9 | 24 | 250 | 1500 | 84 |
| AM6T-1203S-NZ | 9-18 | 3.3 | 1500 | 1500 | 75 |
| AM6T-1205S-NZ | 9-18 | 5 | 1200 | 1500 | 80 |
| AM6T-1212S-NZ | 9-18 | 12 | 500 | 1500 | 84 |
| AM6T-1215S-NZ | 9-18 | 15 | 400 | 1500 | 85 |
| AM6T-1224S-NZ | 9-18 | 24 | 250 | 1500 | 85 |
| AM6T-2403S-NZ | 18-36 | 3.3 | 1500 | 1500 | 78 |
| AM6T-2405S-NZ | 18-36 | 5 | 1200 | 1500 | 82 |
| AM6T-2412S-NZ | 18-36 | 12 | 500 | 1500 | 85 |
| AM6T-2415S-NZ | 18-36 | 15 | 400 | 1500 | 86 |
| AM6T-2424S-NZ | 18-36 | 24 | 250 | 1500 | 86 |
| AM6T-4803S-NZ | 36-75 | 3.3 | 1500 | 1500 | 79 |
| AM6T-4805S-NZ | 36-75 | 5 | 1200 | 1500 | 83 |
| AM6T-4812S-NZ | 36-75 | 12 | 500 | 1500 | 87 |
| AM6T-4815S-NZ | 36-75 | 15 | 400 | 1500 | 88 |
| AM6T-4824S-NZ | 36-75 | 24 | 250 | 1500 | 87 |

Models
Dual output

| Model | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Efficiency (%) |
|---------------|-------------------|--------------------|-------------------------|-----------------|----------------|
| AM6T-0505D-NZ | 4.5-9 | ±5 | ±600 | 1500 | 78 |
| AM6T-0512D-NZ | 4.5-9 | ±12 | ±250 | 1500 | 84 |
| AM6T-0515D-NZ | 4.5-9 | ±15 | ±200 | 1500 | 84 |
| AM6T-0524D-NZ | 4.5-9 | ±24 | ±125 | 1500 | 84 |
| AM6T-1205D-NZ | 9-18 | ±5 | ±600 | 1500 | 80 |
| AM6T-1212D-NZ | 9-18 | ±12 | ±250 | 1500 | 84 |
| AM6T-1215D-NZ | 9-18 | ±15 | ±200 | 1500 | 85 |
| AM6T-1224D-NZ | 9-18 | ±24 | ±125 | 1500 | 84 |
| AM6T-2405D-NZ | 18-36 | ±5 | ±600 | 1500 | 83 |
| AM6T-2412D-NZ | 18-36 | ±12 | ±250 | 1500 | 86 |
| AM6T-2415D-NZ | 18-36 | ±15 | ±200 | 1500 | 87 |
| AM6T-2424D-NZ | 18-36 | ±24 | ±125 | 1500 | 85 |
| AM6T-4805D-NZ | 36-75 | ±5 | ±600 | 1500 | 83 |
| AM6T-4812D-NZ | 36-75 | ±12 | ±250 | 1500 | 87 |
| AM6T-4815D-NZ | 36-75 | ±15 | ±200 | 1500 | 85 |
| AM6T-4824D-NZ | 36-75 | ±24 | ±125 | 1500 | 85 |

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 |
|---|-------------------------------------|---------------------------------|-----------------------|-------|
| Absolute Max Input Voltage (1 Sec. Max.) | 5 Vin 12 Vin 24 Vin 48 Vin | | 16 25 50 100 | VDC |
| Voltage range | 5 12 24 48 | 4.5-9 9-18 18-36 36-75 | | VDC |
| Filter | π (Pi) Network | | | |
| Reflected ripple current | 5 Vin Others | 50 20 | | mA |

Isolation Specifications

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

Output Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|------------------------------|--|-------------------------------|--|-----------|
| Voltage accuracy | 5 Vin Vo1, 5% to 100% Load 5 Vin Vo2, 5% to 100% Load Other models, 5% to 100% Load | ± 1 ± 1 ± 1 | ± 2 ± 3 ± 3 | % |
| Short Circuit protection | Continuous | | | |
| Short circuit restart | Auto-recovery | | | |
| Line voltage regulation | Vo1, Full Load, LL-HL Vo2, Full Load, LL-HL | ± 0.2 ± 0.5 | ± 0.5 ± 1 | % |
| Load voltage regulation | 5 Vin Vo1, 5% to 100% Load 5 Vin Vo2, 5% to 100% Load Other models Vo1, 5% to 100% Load Other models Vo1, 5% to 100% Load | ± 0.5 ± 0.5 | ± 1 ± 1.5 ± 1 ± 1.5 | % |
| Cross Regulation (dual) | Vo1 50% load, Vo2 10-100% load | | ± 5 | % |
| Temperature coefficient | | ± 0.03 | | %/°C |
| Transient Recovery Time | 25% load step | 300 | 500 | μ sec |
| Transient Response Deviation | 3.3V, 5V, $\pm 5V_{out}$, 25% load step Others, 25% load step | ± 5 ± 3 | ± 8 ± 5 | % |
| Ripple & Noise | 5% to 100% Load | | 100 | mVp-p |
| Over Voltage Protection | | | 110 to 160 | %Vout |
| Over current protection | | 140 | 190 | %Iout |

General Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|------------------------|--|---|---------|-------|
| Switching frequency* | 100% load | 300 | | KHz |
| Operating temperature | Derating above +71 | -40 to +85 | | °C |
| Storage temperature | | -55 to +125 | | °C |
| Max Case temperature | | | 100 | °C |
| Cooling | Free air convection | | | |
| Humidity | | | 95 | % |
| Case material | Black Anodized Aluminum | | | |
| Weight | | 12 | | g |
| Dimensions (L x W x H) | | 1.26 x 0.79 x 0.42 inches (32.00 x 20.00 x 10.80mm) | | |
| MTBF | > 1 000 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C) | | | |

*Below 50% load the switching frequency decreases with the decrease of the load.

Environment Specifications

| Test | Parameters | Conditions |
|-----------|--------------|------------------------------|
| Vibration | Test mode | 10-150Hz |
| | Acceleration | 5g, 30min, every axis tested |

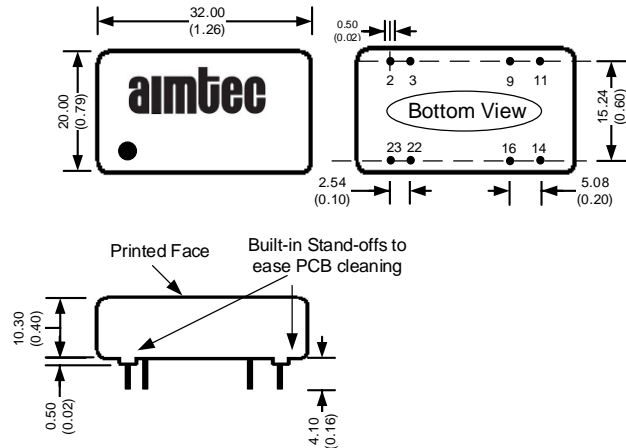
Safety Specifications

| Parameters | | |
|------------|--|---|
| | Designed to meet IEC/UL 60950-1 | |
| Standards | EMC - Radiated & Conducted emission | CISPR32 / EN55032, Class A (without external components)(Except 5Vin model), Class B (with recommended EMC circuit part B)(5Vin model with recommended circuit) |
| | Electrostatic Discharge Immunity | IEC61000-4-2, Contact $\pm 4\text{KV}$, Criteria B |
| | RF, Electromagnetic Field Immunity | IEC61000-4-3, 10V/m, Criteria A |
| | Electrical Fast Transient/Burst Immunity | IEC61000-4-4, $\pm 2\text{KV}$, Criteria B, (with recommended EMC circuit part A) |
| | Surge Immunity | IEC61000-4-5, L-L $\pm 2\text{KV}$, Criteria B, (with recommended EMC circuit part A) |
| | RF, Conducted Disturbance Immunity | IEC61000-4-6, 3Vrms, Criteria A |

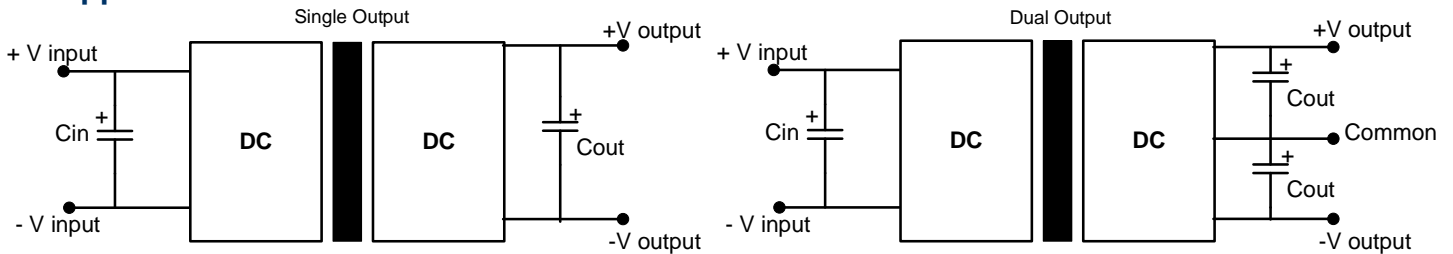
Pin Out Specifications

| Pin | 1500VDC | |
|-----|-----------|-----------|
| | Single | Dual |
| 2 | -V Input | -V Input |
| 3 | -V Input | -V Input |
| 9 | No pin | Common |
| 11 | N.C. | -V Output |
| 14 | +V Output | +V Output |
| 16 | -V Output | Common |
| 22 | +V Input | +V Input |
| 23 | +V Input | +V Input |

Dimensions



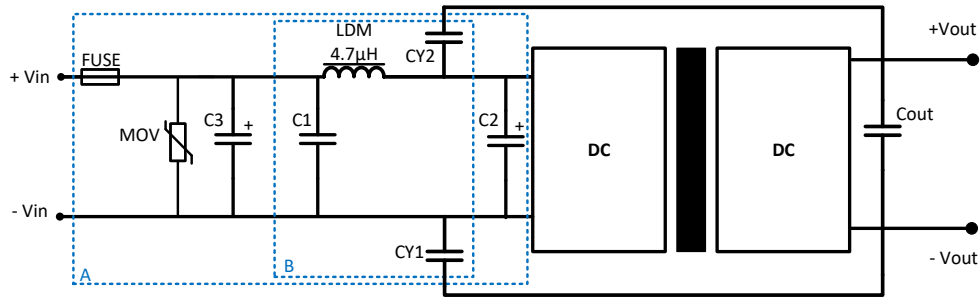
Recommended Circuit For Ripple & Noise reduction



External Capacitor Tables

| Vin (VDC) | Cin (μF) | Cout (μF) |
|-----------|-----------------------|------------------------|
| 5/12/24 | 100 | 10 |
| 48 | 10 ~ 47 | 10 |

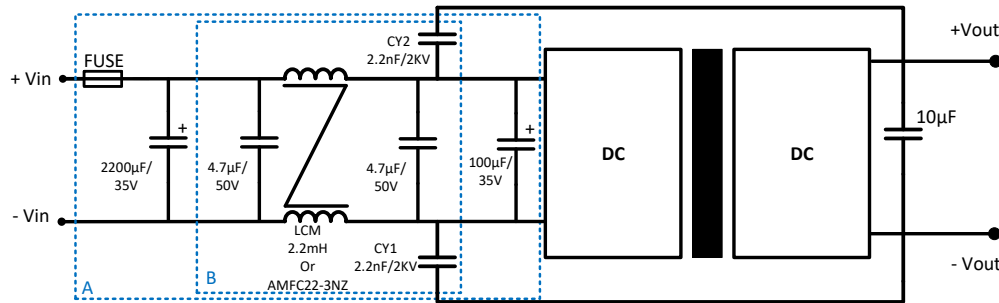
Recommended EMC Circuit



| Model | MOV | C1 | C2 | C3 | CY1/CY2 |
|--------|--------|------------|--------------|--------------|---------|
| 12 Vin | S14K20 | 1µF / 50V | 100µF / 35V | 1000µF / 35V | 1nF/2KV |
| 24 Vin | S20K30 | 1µF / 50V | 100µF / 50V | 1000µF / 50V | |
| 48 Vin | S14K60 | 1µF / 100V | 100µF / 100V | 680µF / 100V | |

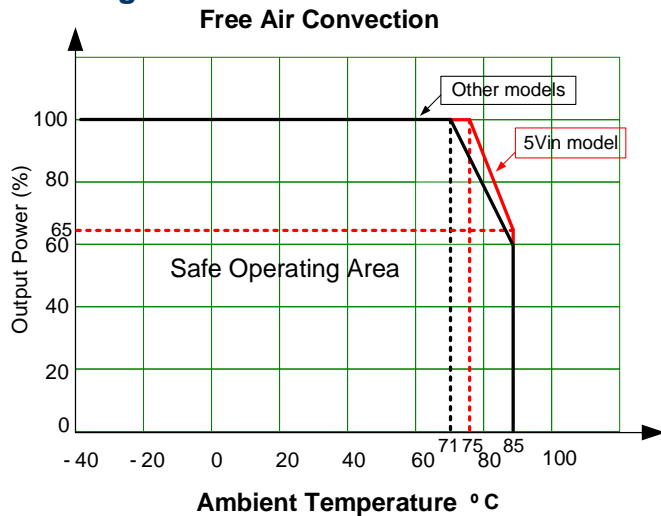
Note: Fuse is user selectable
Part A for EMS, part B for EMI.

Recommended EMC Circuit for 5V input model



Part A for EMS, part B for EMI.

Derating



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.