



#### FEATURES:

- Wide 2:1 input range
- Over Voltage Protection
- High efficiency up to 88%
- Low Ripple and Noise
- Operating temperature -40°C to + 85°C
- Input / Output isolation 1500 and 3000VDC
- No load power consumption <0.09W
- Continuous short circuit protection



#### Models Single output

| Model            | Input Voltage (V) | Output Voltage (V) | Output Current max(mA) | Isolation (VDC) | Efficiency (%) |
|------------------|-------------------|--------------------|------------------------|-----------------|----------------|
| 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             |
| AM6T-0505SH30-NZ | 4.5-9             | 5                  | 1200                   | 3000            | 76             |

#### Models Dual output

| Model         | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Efficiency (%) |
|---------------|-------------------|--------------------|-------------------------|-----------------|----------------|
| 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.) | 12 Vin<br>24 Vin<br>48 Vin |                        | 25<br>50<br>100 | VDC    |
| Voltage range                            | 12<br>24<br>48             | 9-18<br>18-36<br>36-75 |                 | VDC    |
| Filter                                   | π (Pi) Network             |                        |                 |        |
| Reflected ripple current                 |                            | □ □                    |                 | mA p-p |

## Isolation Specifications

| Parameters         | Conditions    | Typical     | Maximum | Units |
|--------------------|---------------|-------------|---------|-------|
| Tested I/O voltage | 60 sec        | 1500 , 3000 |         | VDC   |
| Resistance         | 500 Vdc       | > 1000      |         | MOhm  |
| Capacitance        | 100kHz / 0.1V | 1000        |         | pF    |

## Output Specifications

| Parameters                                               | Conditions                              | Typical | Maximum    | Units |
|----------------------------------------------------------|-----------------------------------------|---------|------------|-------|
| Voltage accuracy                                         | 5% to 100% Load                         | ±1      | ±3         | %     |
| Short Circuit protection                                 | Continuous                              |         |            |       |
| Short circuit restart                                    | Auto-recovery                           |         |            |       |
| Line voltage regulation                                  | Full Load, low to high                  | ±0.5    | ±1         | %     |
| Load voltage regulation                                  | 5% to 100% Load                         | ±0.5    | ±1.5       | %     |
| Cross Regulation (dual)                                  | Main 50% load,<br>Second 10 – 100% load |         | ±5         | %     |
| Temperature coefficient                                  |                                         | ±0.03   |            | %/°C  |
| Transient Recovery Time                                  | 25% load step                           | 300     | 500        | µsec  |
| Transient Response Deviation                             | 25% load step                           | ±3      | ±8         | %     |
| Ripple & Noise                                           | 5% to 100% Load                         |         | 100        | mVp-p |
| Over Voltage Protection (1500 VDC Isolation models only) |                                         |         | 110 to 160 | %Vout |
| Over current protection                                  |                                         | 140     |            | %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         | 1500Vdc Isolation<br>3000Vdc Isolation                | Black Anodized Aluminum<br>Plastic (UL94-V0)           |                                                     |       |
| Weight                |                                                       | 14                                                     |                                                     | g     |
| Dimensions(L x W x H) | 1500Vdc Isolation<br>3000Vdc Isolation                | 1.26 x 0.79 x 0.42 inches<br>1.25 x 0.80 x 0.37 inches | 32.00 x 20.00 x 10.80 mm<br>31.80 x 20.30 x 9.50 mm |       |
| MTBF                  | >1 000000 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           | 10-55Hz, speed 0.05Hz/s                          |
|           | Acceleration        | 10g, 30min, every axis tested                    |
|           | Converter operation | Before and after test, body mounted (on chassis) |

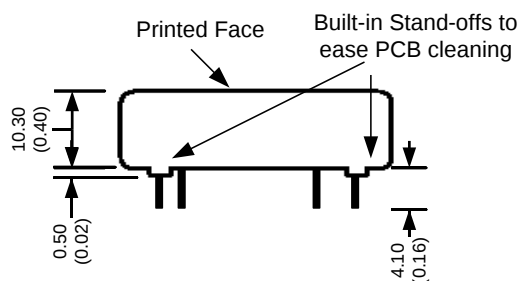
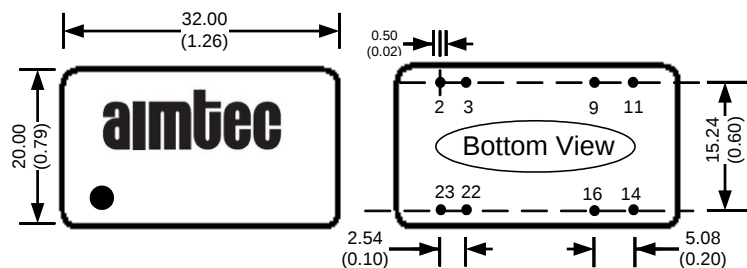
## Safety Specifications

| Parameters |                                                                          |  |
|------------|--------------------------------------------------------------------------|--|
| Standards  | IEC/UL 60950-1                                                           |  |
|            | EN55022, class A, (see the recommended EMC circuits)                     |  |
|            | IEC61000-4-2 (ESD, contact ±4KV) Criteria B                              |  |
|            | IEC61000-4-3 (Radiated immunity, 10V/m) Criteria A                       |  |
|            | IEC61000-4-4 (EFT, ±2KV) Criteria B, (see the recommended EMC circuits)  |  |
|            | IEC61000-4-5(Surge, ±2KV) Criteria B, (see the recommended EMC circuits) |  |
|            | IEC61000-4-6(CS, 3Vrms) Criteria A                                       |  |
|            | IEC61000-4-29(IVDDSI, 0-70%) Criteria B                                  |  |

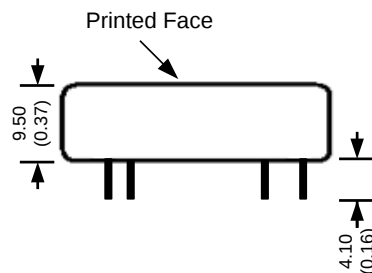
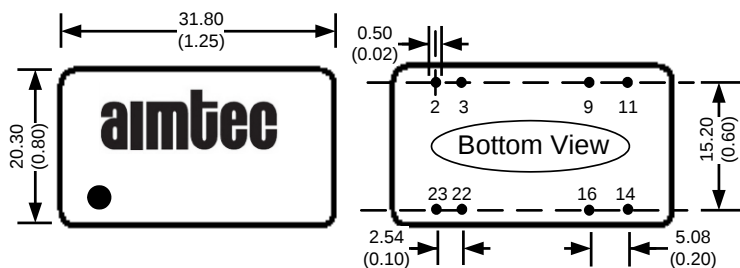
## Pin Out Specifications

| 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  |

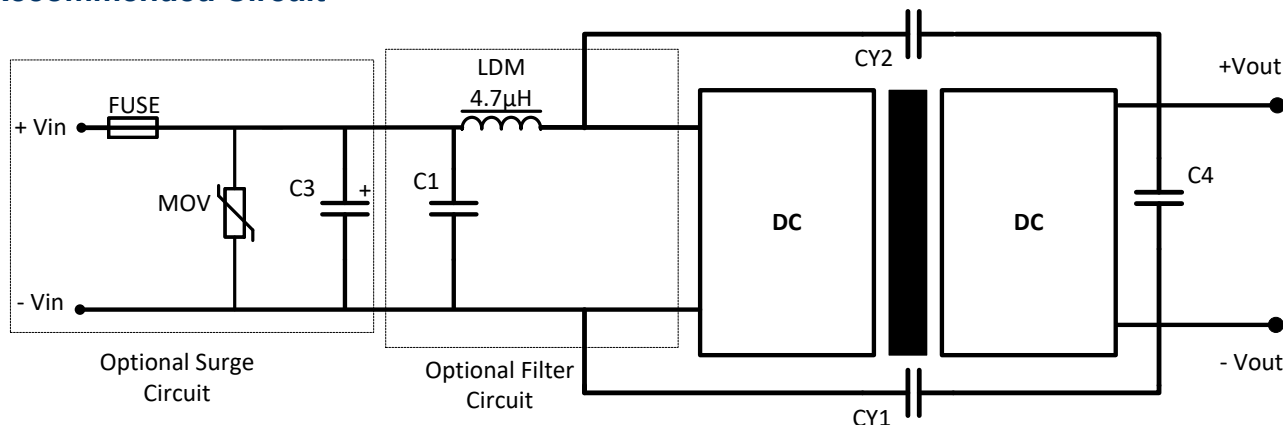
## Dimensions 1500VDC



## Dimensions 3000VDC



## Recommended Circuit

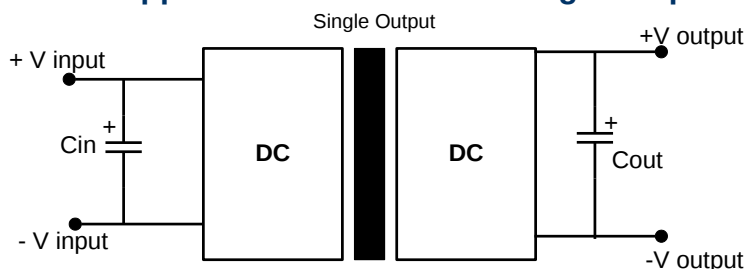


| Model  | MOV    | C1         | C3            | CY1/CY2 |
|--------|--------|------------|---------------|---------|
| 12 Vin | S14K20 | 1μF / 50V  | 1000μF / 35V  | 1nF/2KV |
| 24 Vin | S20K30 | 1μF / 50V  | 1000μF / 50V  |         |
| 48 Vin | S14K60 | 1μF / 100V | 680 μF / 100V |         |

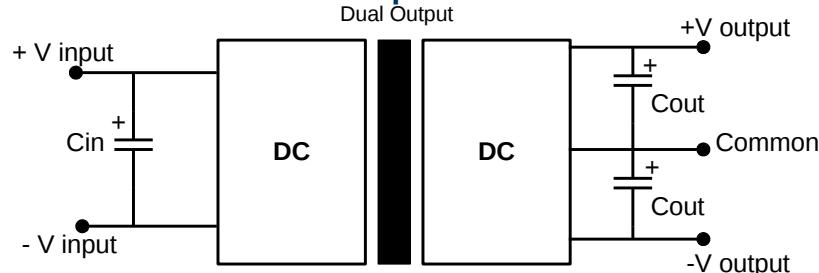
Note: Fuse is user selectable

## Recommended Circuit

### For Ripple & Noise reduction- Single Output



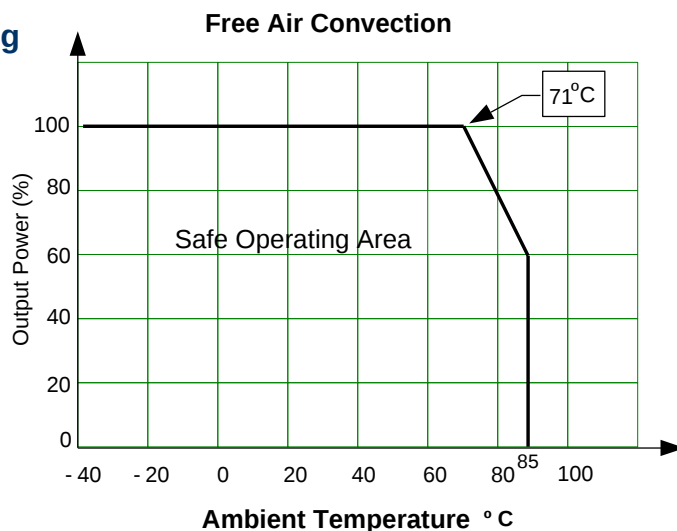
### Dual Output



## External Capacitor Tables

| Vin (VDC) | Cin (uF) | Cout (uF) |
|-----------|----------|-----------|
| 12        | 100      | 10        |
| 24 & 48   | 10 ~ 47  | 10        |

## Derating



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