

## Series AM5TW-Z

### 5 Watt | DC-DC Converter



#### FEATURES:

- RoHS compliant
- 24 Pin DIP Package
- High efficiency up to 84%
- Wide 4:1 input range
- Operating temperature -40°C to + 85°C
- Input / Output isolation 1500 or 3500VDC
- Pin compatible with multiple manufacturers
- Continuous short circuit protection

#### Models Single output



Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Max Capacitive Load (uF)	Efficiency (%)
AM5TW-2403SZ	9-36	3.3	1300	1500	1000	75
AM5TW-2405SZ	9-36	5	1000	1500	1000	80
AM5TW-2407SZ	9-36	7.2	690	1500	470	78
AM5TW-2409SZ	9-36	9	550	1500	470	80
AM5TW-2412SZ	9-36	12	410	1500	220	81
AM5TW-2415SZ	9-36	15	330	1500	68	84
AM5TW-2418SZ	9-36	18	270	1500	68	82
AM5TW-2424SZ	9-36	24	200	1500	68	82
AM5TW-4803SZ	18-72	3.3	1300	1500	1000	75
AM5TW-4805SZ	18-72	5	1000	1500	1000	81
AM5TW-4807SZ	18-72	7.2	690	1500	470	80
AM5TW-4809SZ	18-72	9	550	1500	470	82
AM5TW-4812SZ	18-72	12	410	1500	220	83
AM5TW-4815SZ	18-72	15	330	1500	68	84
AM5TW-4818SZ	18-72	18	270	1500	68	83
AM5TW-4824SZ	18-72	24	200	1500	68	83
AM5TW-2403SH35Z	9-36	3.3	1300	3500	1000	75
AM5TW-2405SH35Z	9-36	5	1000	3500	1000	80
AM5TW-2407SH35Z	9-36	7.2	690	3500	470	78
AM5TW-2409SH35Z	9-36	9	550	3500	470	80
AM5TW-2412SH35Z	9-36	12	410	3500	220	81
AM5TW-2415SH35Z	9-36	15	330	3500	68	84
AM5TW-2418SH35Z	9-36	18	270	3500	68	82
AM5TW-2424SH35Z	9-36	24	200	3500	68	82
AM5TW-4803SH35Z	18-72	3.3	1300	3500	1000	75
AM5TW-4805SH35Z	18-72	5	1000	3500	1000	81
AM5TW-4807SH35Z	18-72	7.2	690	3500	470	80
AM5TW-4809SH35Z	18-72	9	550	3500	470	82
AM5TW-4812SH35Z	18-72	12	410	3500	220	83
AM5TW-4815SH35Z	18-72	15	330	3500	68	84
AM5TW-4818SH35Z	18-72	18	270	3500	68	83
AM5TW-4824SH35Z	18-72	24	200	3500	68	83

#### Models Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Max Capacitive Load (uF)	Efficiency (%)
AM5TW-2403DZ	9-36	±3.3	±600	1500	±100	79
AM5TW-2405DZ	9-36	±5	±500	1500	±100	81
AM5TW-2407DZ	9-36	±7.2	±347	1500	±100	80
AM5TW-2409DZ	9-36	±9	±278	1500	±100	82
AM5TW-2412DZ	9-36	±12	±209	1500	±68	83
AM5TW-2415DZ	9-36	±15	±167	1500	±22	83
AM5TW-2418DZ	9-36	±18	±139	1500	±22	83
AM5TW-2424DZ	9-36	±24	±104	1500	±22	83

## Models

### Dual output (continued)

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Max Capacitive Load (uF)	Efficiency (%)
AM5TW-4803DZ	18-72	±3.3	±600	1500	±100	80
AM5TW-4805DZ	18-72	±5	±500	1500	±100	81
AM5TW-4807DZ	18-72	±7.2	±347	1500	±100	80
AM5TW-4809DZ	18-72	±9	±278	1500	±100	82
AM5TW-4812DZ	18-72	±12	±209	1500	±68	82
AM5TW-4815DZ	18-72	±15	±167	1500	±22	83
AM5TW-4818DZ	18-72	±18	±139	1500	±22	82
AM5TW-4824DZ	18-72	±24	±104	1500	±22	82
AM5TW-2403DH35Z	9-36	±3.3	±600	3500	±100	79
AM5TW-2405DH35Z	9-36	±5	±500	3500	±100	81
AM5TW-2407DH35Z	9-36	±7.2	±347	3500	±100	80
AM5TW-2409DH35Z	9-36	±9	±278	3500	±100	82
AM5TW-2412DH35Z	9-36	±12	±209	3500	±68	83
AM5TW-2415DH35Z	9-36	±15	±167	3500	±22	83
AM5TW-2418DH35Z	9-36	±18	±139	3500	±22	83
AM5TW-2424DH35Z	9-36	±24	±104	3500	±22	83
AM5TW-4803DH35Z	18-72	±3.3	±600	3500	±100	80
AM5TW-4805DH35Z	18-72	±5	±500	3500	±100	81
AM5TW-4807DH35Z	18-72	±7.2	±347	3500	±100	80
AM5TW-4809DH35Z	18-72	±9	±278	3500	±100	82
AM5TW-4812DH35Z	18-72	±12	±209	3500	±68	82
AM5TW-4815DH35Z	18-72	±15	±167	3500	±22	83
AM5TW-4818DH35Z	18-72	±18	±139	3500	±22	82
AM5TW-4824DH35Z	18-72	±24	±104	3500	±22	82

## Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	24 48	9-36 18-72		VDC
Filter	π (Pi) Network			
Turn on Transient process time			350	ms
Start up time		500		ms
Absolute Maximum Rating	24 Vin 48 Vin	-0.7-40 -0.7-80		VDC
Peak Input Voltage time			100	ms

## Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	3 sec		1500 or 3500	VDC
Resistance		> 1000		MOhm
Capacitance		470		pF

## Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±1		%
Voltage balance	Dual Output	±1		%
Short Circuit protection	Continuous			
Short circuit restart	Auto recovery			
Over current protection		120% Iout		
Line voltage regulation (Single)		±0.5		%
Line voltage regulation (Dual)		±0.5		%
Load voltage regulation (Single)	0 – 100% load	±0.5		%
Load voltage regulation (Single) 3.3V output model	0 – 100% load	±1.5		%

### Output Specifications (continued)

Parameters	Conditions	Typical	Maximum	Units
Load voltage regulation (Dual)	0 – 100% load	±0.5		%
Load voltage regulation (Dual) ±3.3V output model		±1.5		%
Temperature coefficient		±0.02		%/°C
Ripple & Noise	At 20MHz Bandwidth	60		mV p-p
Rising time		10		ms
Minimum Load Current		0		% of Max

### General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	260		KHz
Operating temperature	Full Load without Derating		-40 to +85	°C
Storage temperature			-40 to +125	°C
Max Case temperature			100	°C
Derating		Non-Required		
Cooling		Free air convection		
Humidity			90	%
Case material		Nickel coated copper		
Weight		26		g
Dimensions(L x W x H)	Tolerance ±0.5 mm or ±0.02 inches	1.28 x 0.84 x 0.41 inches	32.25 x 21.35 x 10.50 mm	
MTBF		>960 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)		

NOTE: All specifications noted 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.

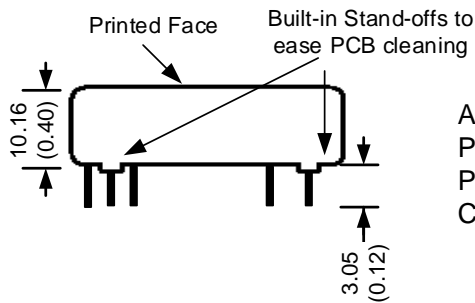
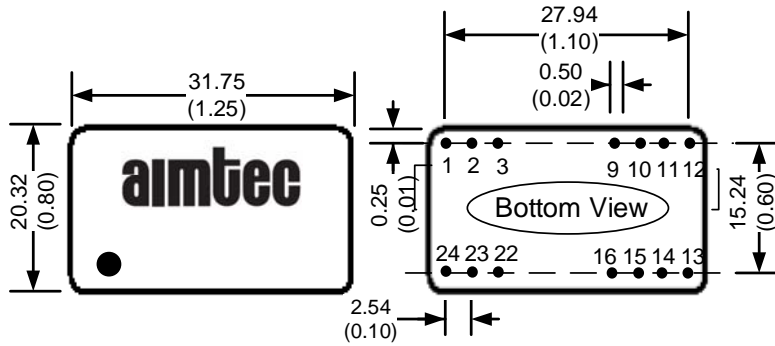
### Safety Specifications

Parameters	
Agency Approval	CE
Standards	EN55022 Class A, EN55024
	IEC61000-4-2, Perf. Criteria B
	IEC61000-4-3, Perf. Criteria A
	IEC61000-4-4, Perf. Criteria B (external 220uF/100V cap required)
	IEC61000-4-5, Perf. Criteria B (external 220uF/100V cap required)
	IEC61000-4-6, Perf. Criteria A
	IEC61000-4-8, Perf. Criteria A
	NOTE: Also designed to meet IEC60950-1:2001

### Pin Out Specifications

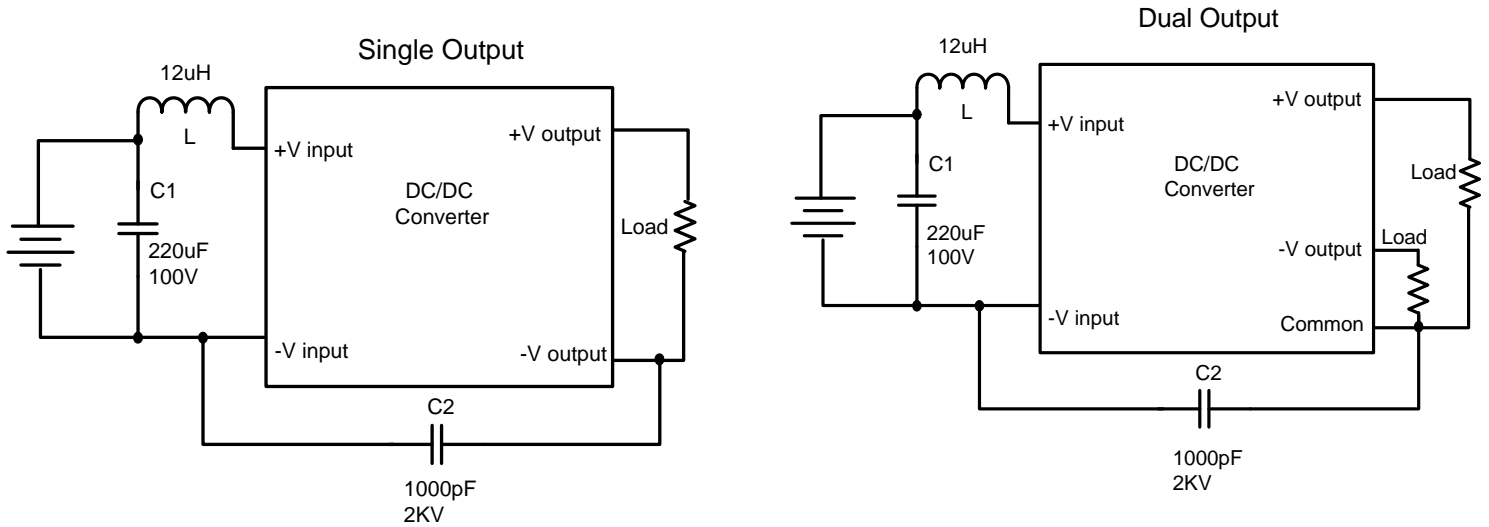
Pin	1500VDC		3500VDC	
	Single	Dual	Single	Dual
1	+V Input	+V Input	Omitted	Omitted
2	N. C.	-V Output	-V Input	-V Input
3	N. C.	Common	-V Input	-V Input
9	Omitted	Omitted	Omitted	Common
10	-V Output	Common	Omitted	Omitted
11	+V Output	+V Output	N.C.	-V Output
12/13	-V Input	-V Input	Omitted	Omitted
14	+V Output	+V Output	+V Output	+V Output
15	-V Output	Common	Omitted	Omitted
16	Omitted	Omitted	-V Output	Common
22	N. C.	Common	+V Input	+V Input
23	N. C.	-V Output	+V Input	+V Input
24	+V Input	+V Input	Omitted	Omitted

**Dimensions**



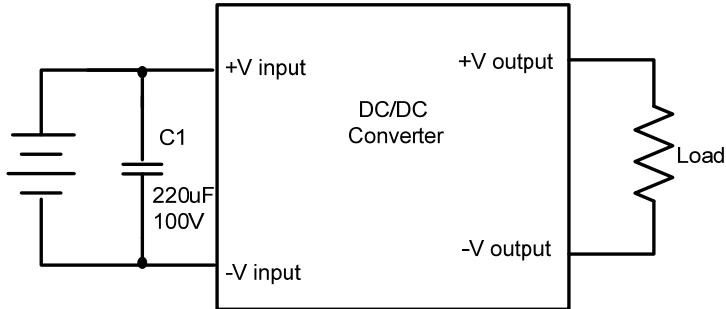
All dimensions are typical: millimeters (inches)  
 Pin Diameter:  $0.50 \pm 0.05$  ( $0.02 \pm 0.002$ )  
 Pin Pitch Tolerance:  $\pm 0.35$  ( $\pm 0.014$ )  
 Case Tolerance:  $\pm 0.5$  ( $\pm 0.02$ )

**Conducted Emissions:**

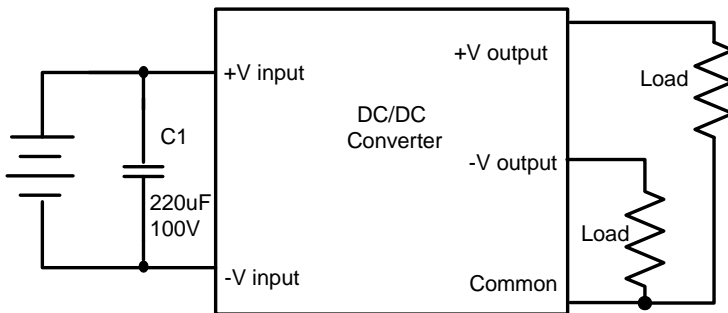


**Surge:**

Single Output



Dual Output



**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](http://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](http://www.aimtec.com).