

Series AM5T-Z

5 Watt | DC-DC Converter



FEATURES:

- RoHS compliant
- 24 Pin DIP Package
- High efficiency up to 83%
- Wide 2:1 input range
- Operating temperature -40°C to + 85°C
- Input / Output isolation 1500 and 3500VDC
- Pin compatible with multiple manufacturers
- Continuous short circuit protection

Models Single Output



Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Capacitive load, max (µF)	Efficiency (%)	Isolation (VDC)
AM5T-0503SZ	4.5-9	3.3	1300	3300	73	1500
AM5T-0505SZ	4.5-9	5	1000	1000	76	1500
AM5T-0512SZ	4.5-9	12	410	220	82	1500
AM5T-0515SZ	4.5-9	15	330	100	82	1500
AM5T-1203SZ	9-18	3.3	1300	1000	73	1500
AM5T-1205SZ	9-18	5	1000	1000	77	1500
AM5T-1207SZ	9-18	7.2	694	680	78	1500
AM5T-1209SZ	9-18	9	555	680	78	1500
AM5T-1212SZ	9-18	12	417	330	81	1500
AM5T-1215SZ	9-18	15	333	220	80	1500
AM5T-1218SZ	9-18	18	277	68	80	1500
AM5T-1224SZ	9-18	24	208	68	80	1500
AM5T-2403SZ	18-36	3.3	1300	3300	75	1500
AM5T-2405SZ	18-36	5	1000	1000	80	1500
AM5T-2407SZ	18-36	7.2	694	680	82	1500
AM5T-2409SZ	18-36	9	555	680	82	1500
AM5T-2412SZ	18-36	12	417	330	80	1500
AM5T-2415SZ	18-36	15	333	220	82	1500
AM5T-2418SZ	18-36	18	277	100	82	1500
AM5T-2424SZ	18-36	24	208	100	82	1500
AM5T-4803SZ	36-72	3.3	1300	1000	75	1500
AM5T-4805SZ	36-72	5	1000	1000	80	1500
AM5T-4807SZ	36-72	7.2	694	470	82	1500
AM5T-4809SZ	36-72	9	555	470	82	1500
AM5T-4812SZ	36-72	12	417	330	80	1500
AM5T-4815SZ	36-72	15	333	220	83	1500
AM5T-4818SZ	36-72	18	277	100	83	1500
AM5T-4824SZ	36-72	18	208	100	83	1500
AM5T-0503SH35Z	4.5-9	3.3	1300	3300	73	3500
AM5T-0505SH35Z	4.5-9	5	1000	1000	76	3500
AM5T-0512SH35Z	4.5-9	12	410	220	82	3500
AM5T-0515SH35Z	4.5-9	15	330	100	82	3500
AM5T-1203SH35Z	9-18	3.3	1300	1000	73	3500
AM5T-1205SH35Z	9-18	5	1000	1000	77	3500
AM5T-1207SH35Z	9-18	7.2	694	680	78	3500
AM5T-1209SH35Z	9-18	9	555	680	78	3500
AM5T-1212SH35Z	9-18	12	417	330	81	3500
AM5T-1215SH35Z	9-18	15	333	220	80	3500
AM5T-1218SH35Z	9-18	18	277	68	80	3500
AM5T-1224SH35Z	9-18	24	208	68	80	3500
AM5T-2403SH35Z	18-36	3.3	1300	3300	75	3500
AM5T-2405SH35Z	18-36	5	1000	1000	80	3500
AM5T-2407SH35Z	18-36	7.2	694	680	82	3500
AM5T-2409SH35Z	18-36	9	555	680	82	3500
AM5T-2412SH35Z	18-36	12	417	330	80	3500
AM5T-2415SH35Z	18-36	15	333	220	82	3500
AM5T-2418SH35Z	18-36	18	277	100	82	3500
AM5T-2424SH35Z	18-36	24	208	100	82	3500

Models

Single Output (continued)

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Capacitive load, max (μF)	Efficiency (%)	Isolation (VDC)
AM5T-4803SH35Z	36-72	3.3	1300	1000	75	3500
AM5T-4805SH35Z	36-72	5	1000	1000	80	3500
AM5T-4807SH35Z	36-72	7.2	694	470	82	3500
AM5T-4809SH35Z	36-72	9	555	470	82	3500
AM5T-4815SH35Z	36-72	15	417	220	80	3500
AM5T-4818SH35Z	36-72	18	333	100	83	3500
AM5T-4824SH35Z	36-72	24	277	100	83	3500
AM5T-4812SH35Z	36-72	12	208	330	83	3500

Models

Dual Output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Capacitive load, max (μF)	Efficiency (%)	Isolation (VDC)
AM5T-0503DZ	4.5-9	±3.3	±650	±3300	76	1500
AM5T-0505DZ	4.5-9	±5	±500	±1000	79	1500
AM5T-0512DZ	4.5-9	±12	±208	±220	82	1500
AM5T-0515DZ	4.5-9	±15	±160	±100	82	1500
AM5T-1203DZ	9-18	±3.3	±750	±680	73	1500
AM5T-1205DZ	9-18	±5	±500	±330	77	1500
AM5T-1207DZ	9-18	±7.2	±347	±220	80	1500
AM5T-1209DZ	9-18	±9	±278	±220	80	1500
AM5T-1212DZ	9-18	±12	±208	±100	80	1500
AM5T-1215DZ	9-18	±15	±167	±47	79	1500
AM5T-1218DZ	9-18	±18	±138	±33	80	1500
AM5T-1224DZ	9-18	±24	±104	±33	80	1500
AM5T-2403DZ	18-36	±3.3	±750	±1000	75	1500
AM5T-2405DZ	18-36	±5	±500	±330	78	1500
AM5T-2407DZ	18-36	±7.2	±347	±330	83	1500
AM5T-2409DZ	18-36	±9	±278	±330	83	1500
AM5T-2412DZ	18-36	±12	±208	±100	80	1500
AM5T-2415DZ	18-36	±15	±167	±47	80	1500
AM5T-2418DZ	18-36	±18	±138	±33	80	1500
AM5T-2424DZ	18-36	±24	±104	±33	80	1500
AM5T-4803DZ	36-72	±3.3	±750	±1000	73	1500
AM5T-4805DZ	36-72	±5	±500	±330	79	1500
AM5T-4807DZ	36-72	±7.2	±347	±330	79	1500
AM5T-4809DZ	36-72	±9	±278	±330	79	1500
AM5T-4812DZ	36-72	±12	±208	±100	80	1500
AM5T-4815DZ	36-72	±15	±167	±47	80	1500
AM5T-4818DZ	36-72	±18	±138	±33	80	1500
AM5T-4824DZ	36-72	±24	±104	±33	80	1500
AM5T-0503DH35Z	4.5-9	±3.3	±650	±3300	76	3500
AM5T-0505DH35Z	4.5-9	±5	±500	±1000	79	3500
AM5T-0512DH35Z	4.5-9	±12	±208	±220	82	3500
AM5T-0515DH35Z	4.5-9	±15	±160	±100	82	3500
AM5T-1203DH35Z	9-18	±3.3	±750	±680	73	3500
AM5T-1205DH35Z	9-18	±5	±500	±330	77	3500
AM5T-1207DH35Z	9-18	±7.2	±347	±220	80	3500
AM5T-1209DH35Z	9-18	±9	±278	±220	80	3500
AM5T-1212DH35Z	9-18	±12	±208	±100	80	3500
AM5T-1215DH35Z	9-18	±15	±167	±47	79	3500
AM5T-1218DH35Z	9-18	±18	±138	±33	80	3500
AM5T-1224DH35Z	9-18	±24	±104	±33	80	3500
AM5T-2403DH35Z	18-36	±3.3	±750	±1000	75	3500
AM5T-2405DH35Z	18-36	±5	±500	±330	78	3500
AM5T-2407DH35Z	18-36	±7.2	±347	±330	83	3500

Models

Dual Output (continued)

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Capacitive load, max (μF)	Efficiency (%)	Isolation (VDC)
AM5T-2409DH35Z	18-36	±9	±278	±330	83	3500
AM5T-2412DH35Z	18-36	±12	±208	±100	80	3500
AM5T-2415DH35Z	18-36	±15	±167	±47	80	3500
AM5T-2418DH35Z	18-36	±18	±138	±33	80	3500
AM5T-2424DH35Z	18-36	±24	±104	±33	80	3500
AM5T-4803DH35Z	36-72	±3.3	±750	±1000	73	3500
AM5T-4805DH35Z	36-72	±5	±500	±330	79	3500
AM5T-4807DH35Z	36-72	±7.2	±347	±330	79	3500
AM5T-4809DH35Z	36-72	±9	±278	±330	79	3500
AM5T-4812DH35Z	36-72	±12	±208	±100	80	3500
AM5T-4815DH35Z	36-72	±15	±167	±47	80	3500
AM5T-4818DH35Z	36-72	±18	±138	±33	80	3500
AM5T-4824DH35Z	36-72	±24	±104	±33	80	3500

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	5	4.5-9		VDC
	12	9-18		
	24	18-36		
	48	36-72		
Filter	π (Pi) Network			
Absolute Maximum Rating	5 Vin	-0.7-15		VDC
	12 Vin	-0.7-24		
	24 Vin	-0.7-40		
	48 Vin	-0.7-80		
Peak Input Voltage time		100		ms
Input Reflected ripple current *		35		mA p-p

* The input reflected ripple current should be measured with connected 12μH inductor.

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		1500 or 3500	VDC
Metal case/Input & Output	60 sec		1000	VDC
Resistance		> 1000		MOhm
Capacitance		500		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±1		%
Short Circuit protection	Continuous, auto recovery			
Line voltage regulation		±0.5		%
Load voltage regulation	0 – 100% load, 3.3V/±3.3V Models	±1.5		%
	0 – 100% load, others	±0.5		%
Temperature coefficient		±0.02		%/°C
Ripple & Noise*	At 20MHz Bandwidth	60		mV p-p

* Measured with 1μF CC.

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	266		KHz
Operating temperature	Full Load without Derating (except 5V input models see chart)	-40 to +85		°C
Storage temperature		-40 to +125		°C
Max Case temperature			+100	°C
Cooling	Free air convection			
Humidity			95	%

Case material	Nickel coated copper		
Weight		17	g
Dimensions (L x W x H)	Tolerance ± 0.5 mm or ± 0.02 inches	1.25 x 0.80 x 0.40 inches	31.75 x 20.32 x 10.16 mm
MTBF	>1 121 000 hrs (MIL-HDBK -217F, Ground Benign, $t=+25^{\circ}\text{C}$)		

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

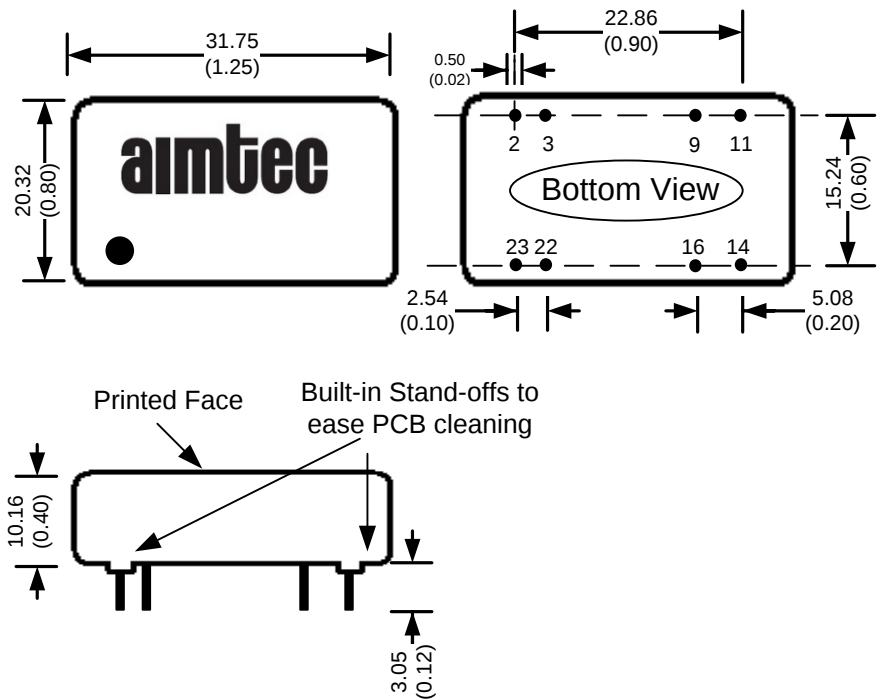
Parameters

Agency Approvals	UL (pending), except 5Vin models, CE
Standards	EN55032 Class A, with recommended circuit
	IEC61000-4-2, Perf. Criteria A
	IEC61000-4-3, Perf. Criteria A
	IEC61000-4-4, Perf. Criteria A (external 220uF/100V cap required)
	IEC61000-4-5, Perf. Criteria A (external 220uF/100V cap required)
	IEC61000-4-6, Perf. Criteria A
	IEC61000-4-8, Perf. Criteria A
NOTE: also designed to meet IEC 60950-1:2001 & IEC 62368-1	

Pin Out Specifications

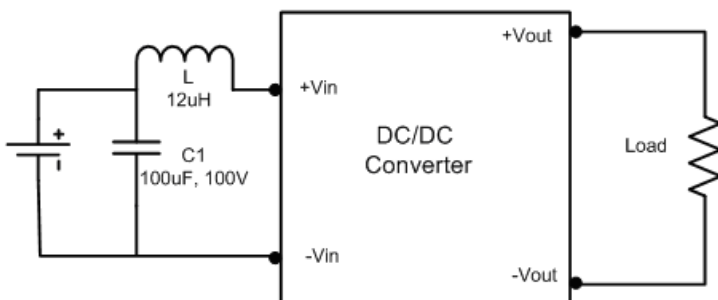
Pin	1500 and 3500VDC	
	Single	Dual
2	-V Input	-V Input
3	-V Input	-V Input
9	NO PIN.	Common
11	N. C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

Dimensions

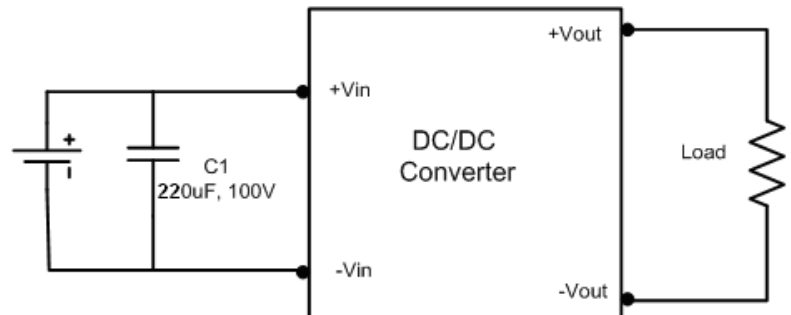


Test Circuits

Conducted Emissions:

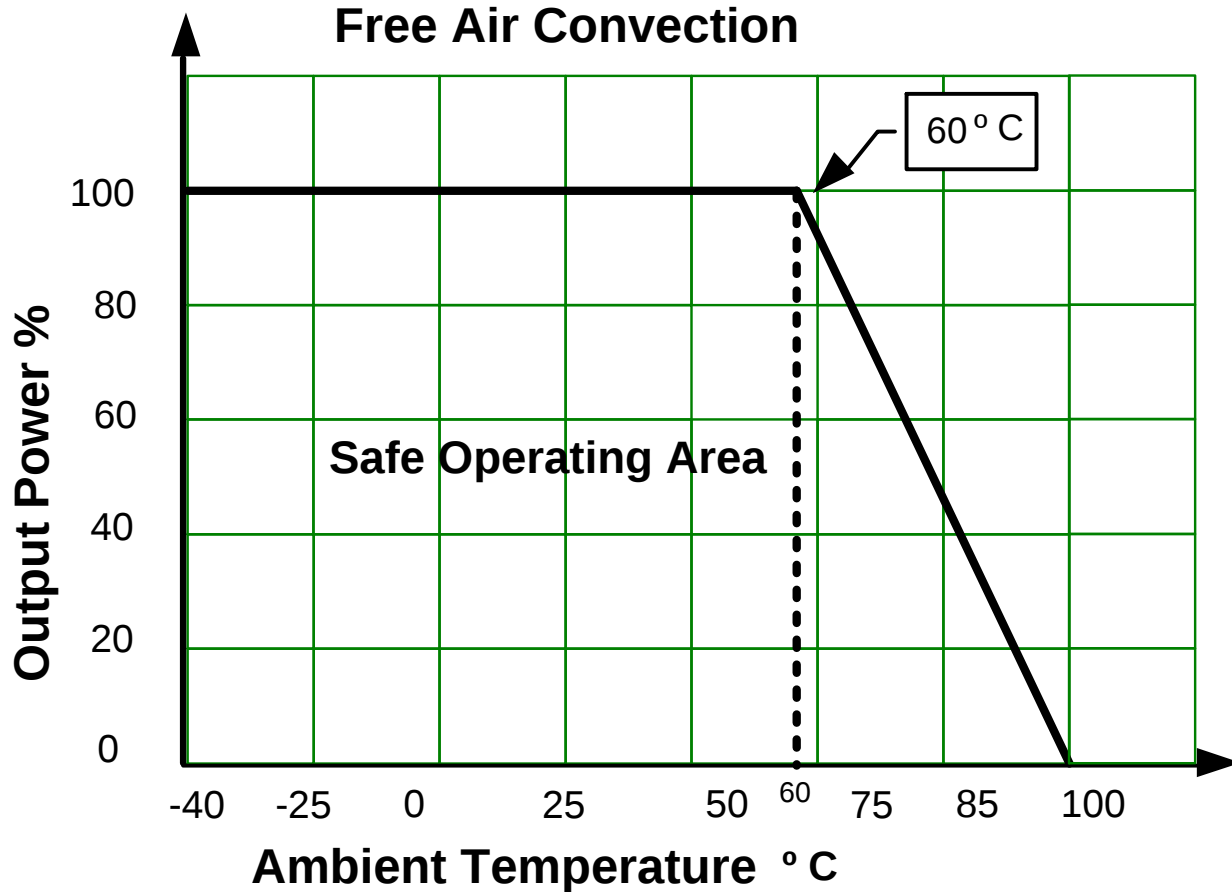


Surge:



Derating

(AM5T-05xxxx Devices only)



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.