



FEATURES:

- RoHS compliant
- 24 Pin DIP Package
- Low profile metal package
- High efficiency up to 85%
- 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)	Capacitive load, max fl : Ł	Efficiency (%)
AM4T-0503SZ	4.5-9	3.3	1200	3300	73
AM4T-0505SZ	4.5-9	5	800	1000	77
AM4T-0512SZ	4.5-9	12	330	220	81
AM4T-0515SZ	4.5-9	15	260	100	82
AM4T-1203SZ	9-18	3.3	1200	3300	72
AM4T-1205SZ	9-18	5	800	1000	78
AM4T-1207SZ	9-18	7.2	555	470	78
AM4T-1209SZ	9-18	9	444	470	78
AM4T-1212SZ	9-18	12	333	220	80
AM4T-1215SZ	9-18	15	266	100	80
AM4T-1218SZ	9-18	18	222	47	80
AM4T-1224SZ	9-18	24	166	47	80
AM4T-2403SZ	18-36	3.3	1200	3300	75
AM4T-2405SZ	18-36	5	800	1000	80
AM4T-2407SZ	18-36	7.2	555	470	80
AM4T-2409SZ	18-36	9	444	470	80
AM4T-2412SZ	18-36	12	333	220	83
AM4T-2415SZ	18-36	15	266	100	80
AM4T-2418SZ	18-36	18	222	47	85
AM4T-2424SZ	18-36	24	166	47	85
AM4T-4803SZ	36-72	3.3	1200	3300	75
AM4T-4805SZ	36-72	5	800	1000	80
AM4T-4807SZ	36-72	7.2	555	470	82
AM4T-4809SZ	36-72	9	444	470	82
AM4T-4812SZ	36-72	12	333	220	80
AM4T-4815SZ	36-72	15	266	100	81
AM4T-4818SZ	36-72	18	222	47	82
AM4T-4824SZ	36-72	24	166	47	82
AM4T-0503SH35Z	4.5-9	3.3	1200	3300	72
AM4T-0505SH35Z	4.5-9	5	800	1000	78
AM4T-0512SH35Z	4.5-9	12	330	220	78
AM4T-0515SH35Z	4.5-9	15	260	100	78
AM4T-1203SH35Z	9-18	3.3	1200	3300	72
AM4T-1205SH35Z	9-18	5	800	1000	78
AM4T-1207SH35Z	9-18	7.2	555	470	78
AM4T-1209SH35Z	9-18	9	444	470	78
AM4T-1212SH35Z	9-18	12	333	220	80
AM4T-1215SH35Z	9-18	15	266	100	80
AM4T-1218SH35Z	9-18	18	222	47	80
AM4T-1224SH35Z	9-18	24	166	47	80
AM4T-2403SH35Z	18-36	3.3	1200	3300	75
AM4T-2405SH35Z	18-36	5	800	1000	80
AM4T-2407SH35Z	18-36	7.2	555	470	80
AM4T-2409SH35Z	18-36	9	444	470	80
AM4T-2412SH35Z	18-36	12	333	220	83
AM4T-2415SH35Z	18-36	15	266	100	80
AM4T-2418SH35Z	18-36	18	222	47	85

Models

Single output (continued)

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Capacitive load, a U 'fl : Ł	Efficiency (%)
AM4T-2424SH35Z	18-36	24	166	47	85
AM4T-4803SH35Z	36-72	3.3	1200	3300	75
AM4T-4805SH35Z	36-72	5	800	1000	80
AM4T-4807SH35Z	36-72	7.2	555	470	82
AM4T-4809SH35Z	36-72	9	444	470	82
AM4T-4812SH35Z	36-72	12	333	220	80
AM4T-4815SH35Z	36-72	15	266	100	81
AM4T-4818SH35Z	36-72	18	222	47	82
AM4T-4824SH35Z	36-72	24	166	47	82

Models

Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Capacitive load, a U 'fl : Ł	Efficiency (%)
AM4T-0503DZ	4.5-9	±3.3	±600	±680	76
AM4T-0505DZ	4.5-9	±5	±400	±470	79
AM4T-0512DZ	4.5-9	±12	±160	±100	81
AM4T-0515DZ	4.5-9	±15	±130	±47	81
AM4T-1203DZ	9-18	±3.3	±600	±680	73
AM4T-1205DZ	9-18	±5	±400	±470	78
AM4T-1207DZ	9-18	±7.2	±277	±220	80
AM4T-1209DZ	9-18	±9	±220	±220	80
AM4T-1212DZ	9-18	±12	±166	±100	80
AM4T-1215DZ	9-18	±15	±133	±47	80
AM4T-1218DZ	9-18	±18	±111	±22	79
AM4T-1224DZ	9-18	±24	±83	±22	79
AM4T-2403DZ	18-36	±3.3	±600	±680	73
AM4T-2405DZ	18-36	±5	±400	±470	79
AM4T-2407DZ	18-36	±7.2	±277	±220	80
AM4T-2409DZ	18-36	±9	±220	±220	80
AM4T-2412DZ	18-36	±12	±166	±100	82
AM4T-2415DZ	18-36	±15	±133	±47	80
AM4T-2418DZ	18-36	±18	±111	±22	78
AM4T-2424DZ	18-36	±24	±83	±22	78
AM4T-4803DZ	36-72	±3.3	±600	±680	72
AM4T-4805DZ	36-72	±5	±400	±470	78
AM4T-4807DZ	36-72	±7.2	±277	±220	78
AM4T-4809DZ	36-72	±9	±220	±220	78
AM4T-4812DZ	36-72	±12	±166	±100	80
AM4T-4815DZ	36-72	±15	±133	±47	80
AM4T-4818DZ	36-72	±18	±111	±22	80
AM4T-4824DZ	36-72	±24	±83	±22	80
AM4T-0503DH35Z	4.5-9	±3.3	±600	±680	76
AM4T-0505DH35Z	4.5-9	±5	±400	±470	79
AM4T-0512DH35Z	4.5-9	±12	±160	±100	81
AM4T-0515DH35Z	4.5-9	±15	±130	±47	81
AM4T-1203DH35Z	9-18	±3.3	±600	±680	73
AM4T-1205DH35Z	9-18	±5	±400	±470	78
AM4T-1207DH35Z	9-18	±7.2	±277	±220	80
AM4T-1209DH35Z	9-18	±9	±220	±220	80
AM4T-1212DH35Z	9-18	±12	±166	±100	80
AM4T-1215DH35Z	9-18	±15	±133	±47	80
AM4T-1218DH35Z	9-18	±18	±111	±22	79
AM4T-1224DH35Z	9-18	±24	±83	±22	79
AM4T-2403DH35Z	18-36	±3.3	±600	±680	73
AM4T-2405DH35Z	18-36	±5	±400	±470	79

Models

Dual output (continued)

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Capacitive load, μF	Efficiency (%)
AM4T-2407DH35Z	18-36	± 7.2	± 277	± 220	80
AM4T-2409DH35Z	18-36	± 9	± 220	± 220	80
AM4T-2412DH35Z	18-36	± 12	± 166	± 100	82
AM4T-2415DH35Z	18-36	± 15	± 133	± 47	80
AM4T-2418DH35Z	18-36	± 18	± 111	± 22	78
AM4T-2424DH35Z	36-72	± 24	± 83	± 22	78
AM4T-4803DH35Z	36-72	± 3.3	± 600	± 680	72
AM4T-4805DH35Z	36-72	± 5	± 400	± 470	78
AM4T-4807DH35Z	36-72	± 7.2	± 277	± 220	78
AM4T-4809DH35Z	36-72	± 9	± 220	± 220	78
AM4T-4812DH35Z	36-72	± 12	± 166	± 100	80
AM4T-4815DH35Z	36-72	± 15	± 133	± 47	80
AM4T-4818DH35Z	36-72	± 18	± 111	± 22	80
AM4T-4824DH35Z	36-72	± 24	± 83	± 22	80

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 12 μ H inductor.

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		1500 or 3500	VDC
Metal case/Input & Output Resistance	60 sec		1000	VDC
Capacitance		> 1000		MOhm
		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/ ± 3.3 V Models	± 1.5		%
	0 – 100% load, others	± 0.5		%
Temperature coefficient		± 0.02		%/ $^{\circ}$ C
Ripple & Noise *	At 20MHz Bandwidth	60		mV p-p

* Measured with 1 μ F 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	$^{\circ}$ C
Storage temperature			-40 to +125	$^{\circ}$ C
Max Case temperature			100	$^{\circ}$ 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

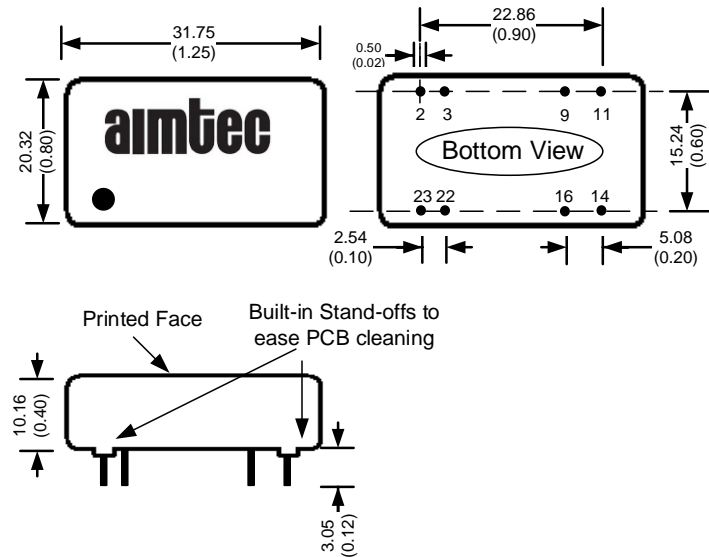
Parameters

Agency Approval	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

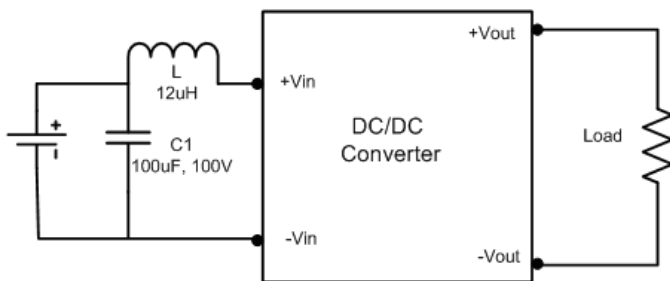
Pin	1500 and 3500VDC	
	Single	Dual
2	-V Input	-V Input
3	-V Input	-V Input
9	No pin	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

Dimensions

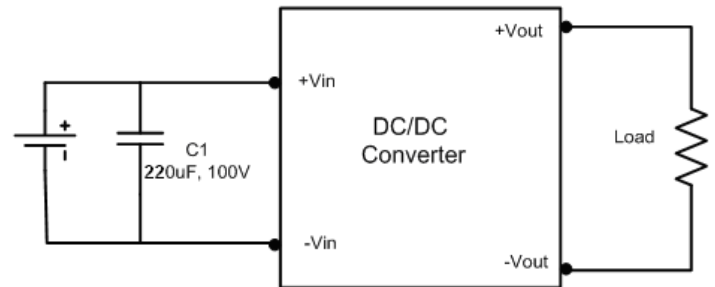


Test Circuits

Conducted Emissions:

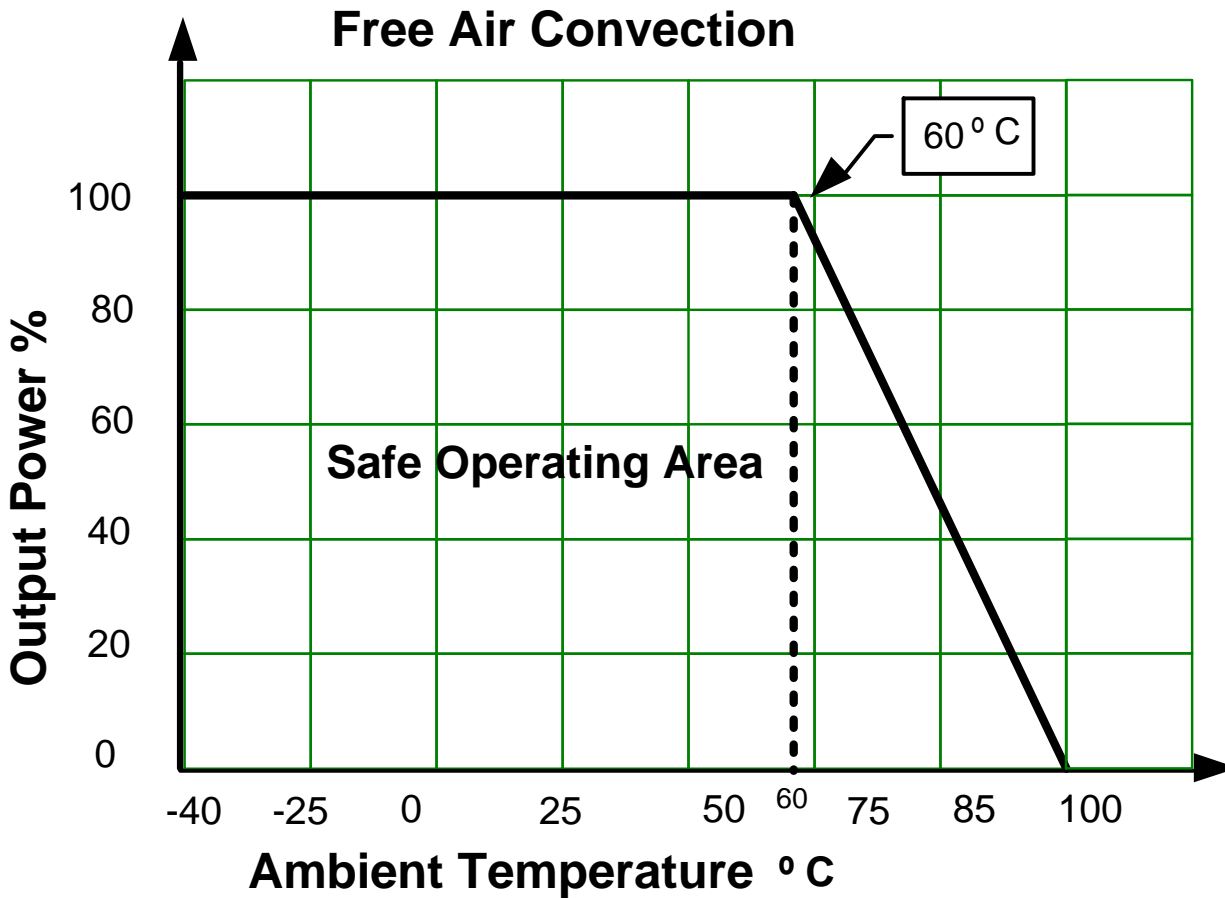


Surge:



Derating

(AM4T-05xxxx Devices only)



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