AM1LS-UZ

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SMD Package

The AM1LS-UZ is a 1W SMD DC/DC converter that offers great cost savings thanks to an improved manufacturing process. It also features excellent reliability and performance while offering a standard input voltage range of 4.5-5.5VDC as well as an output voltage of 5V. This compact SMD design will surely benefit your new system design.

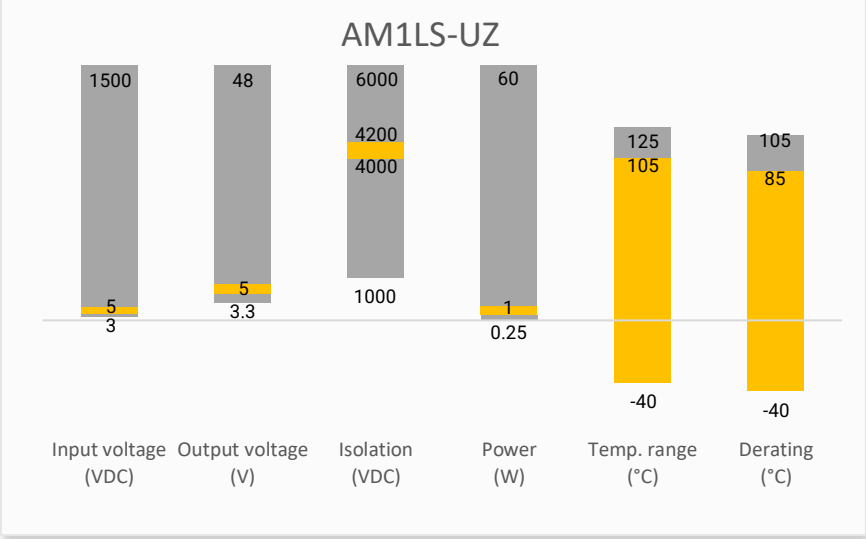
This new series offers great operating temperatures, from -40 to 105°C with full power up to 85°C. Also, outstanding isolation of 4000VDC & 4200VDC for improving reliability and system safety as well as a great 3,500,000h MTBF come standard.

The AM1LS-UZ is suitable for instrumentation, industrial controls, industrial applications, communication and IoT applications.

Features

- High I/O Isolation 4000VDC & 4200VDC
- Continuous Short circuit protection
- Operating Temp: -40 °C to +105 °C
- Low profile case height: 7.25mm
- Compact footprint and high-power Density
- Efficiency up to 82%
- Unregulated output

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

IoT

Industrial

Telecom

Portable Equipment

Models & Specifications

Single Output

Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current Full | No load max (mA)	Output Current max | min (mA)	Isolation (VDC)	Maximum capacitive Load (µF)	Efficiency Typ. (%)
AM1LS-0505SH40UZ	5 (4.5-5.5)	5	257 / 10	200 / 20	4000	2200	82
AM1LS-0505SH42UZ	5 (4.5-5.5)	5	257 / 10	200 / 20	4200	2200	82

Note: Use suffix "TR" for tape & reel packing (ex. AM1LS-0505SH40UZTR).

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Filter	Capacitor			
Absolute maximum rating	Maximum duration 1sec	> -0.7	9	VDC
Input reflected ripple current		15		mA

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, leakage ≤ 1mA for H40 model	>4000		VDC
	60 sec, leakage ≤ 1mA for H42 model	>4200		VDC
	60 sec, leakage ≤ 5mA	>3000		VAC
Resistance	500VDC	>1000		MΩ
Capacitance	100kHz/0.1V	20		pF

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	See output voltage tolerance	10		%
Line regulation	Per 1% Vin change		±1.2	%
Load regulation	10-100% load	10	15	%
Temperature coefficient	Full load	±0.02		%/°C
Ripple & Noise*	20MHz bandwidth	60	100	mV pk-pk
Minimum load		10		%

* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the application note for specific details.

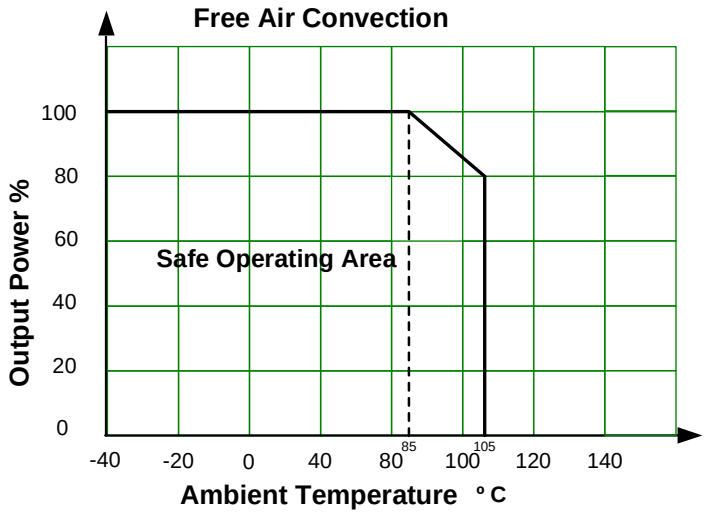
General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	Full load, nominal input	270		KHz
Short circuit protection	Continuous, Auto recovery			
Operating temperature	With derating at 85°C	-40 to +105		°C
Storage temperature		-55 to +125		°C
Case temperature rise	Ambient temperature at 25°C	15		°C
Reflow soldering temperature	Maximum duration 60sec when over 217°C		245	°C
Soldering method	IPC/JEDEC J-STD-020D.1			

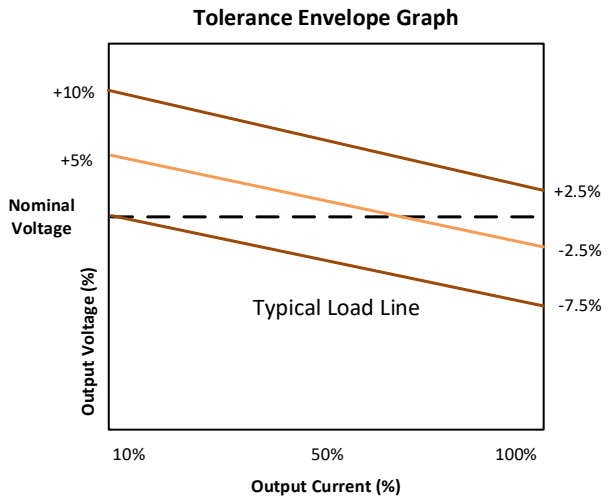
Cooling	Free air convection			
Humidity	Non-condensing	>5	95	% RH
Moisture sensitivity level	Level 1			
Vibration	10-1KHz, 10G, 1mm. along X, Y and Z(4 cycles)			
Case material	Black plastic (flammability to UL 94V-0)			
Weight		1.3		g
Dimensions (L x W x H)	0.60 x 0.45 x 0.28 inches (15.24 x 11.40 x 7.25 mm)			
MTBF	3 500 000 hrs (MIL-HDBK -217F, t=+25ºC) / Full Load			
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	CE/UKCA EN/BS62368-1	
Standards	Information technology Equipment	Design to meet IEC/UL 62368-1
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B with the recommended EMI circuit (for H40 model) CISPR25 / EN55025, class 3 with the recommended EMI circuit (for H42 model)
	Electrostatic Discharge Immunity	IEC 61000-4-2 Air ±8KV, Contact ±4KV, Criteria B (for H40 model) ISO10605 Air ±8KV, Contact ±4KV, Criteria B (for H42 model)
	CS	ISO 11452-2 100V/m, Criteria A (for H42 model)
	RS	ISO 11452-4 200mA, Criteria A (for H42 model)

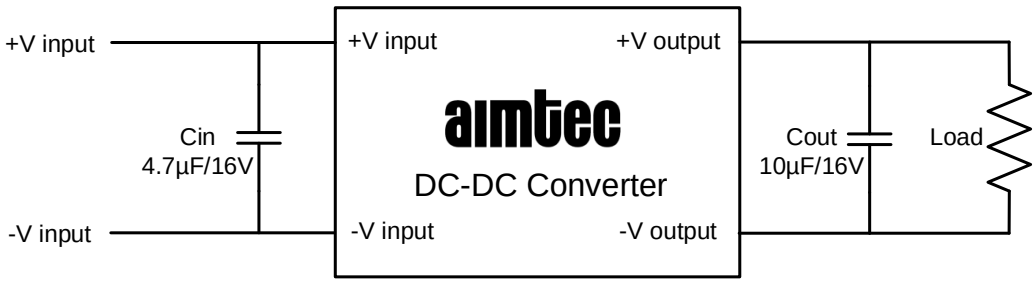
Derating



Output voltage tolerance

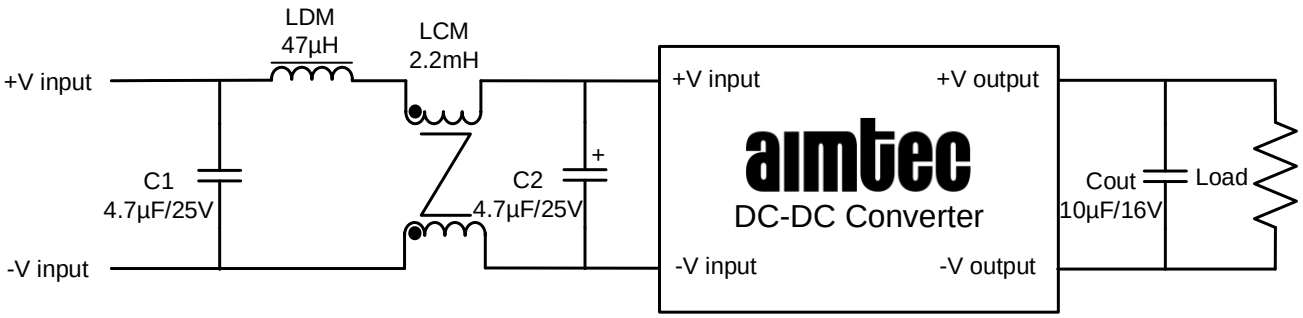


Typical application circuit

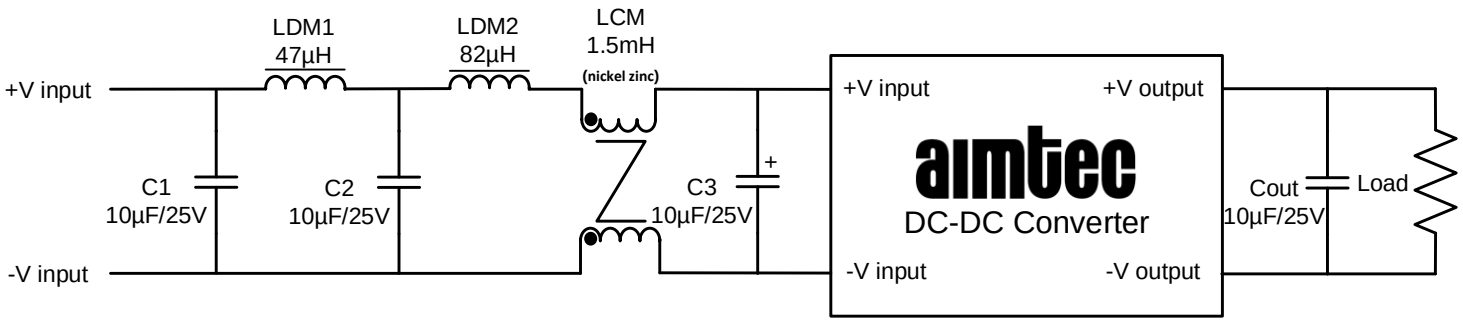


EMI Recommended circuit

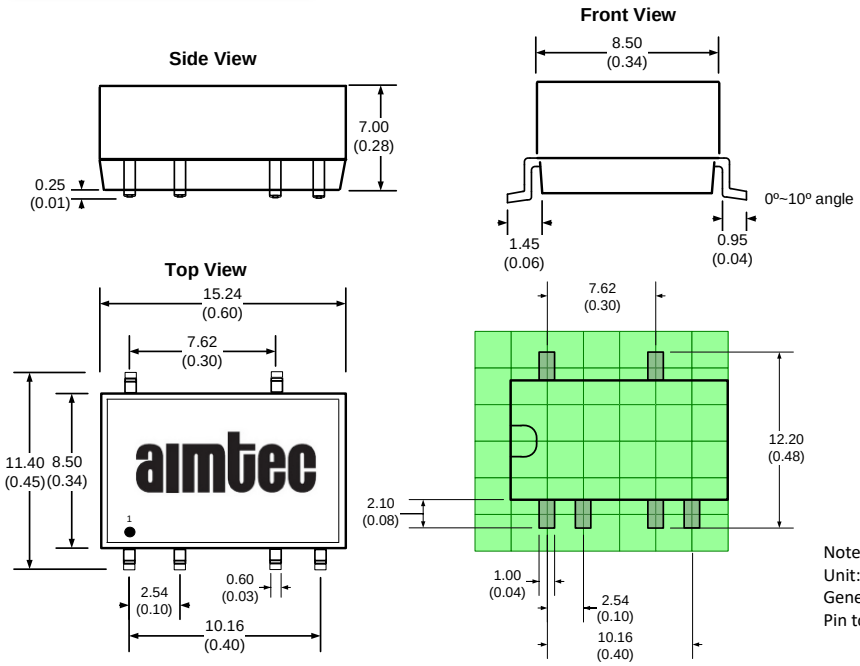
For AM1LS-0505SH40UZ model



For AM1LS-0505SH42UZ model



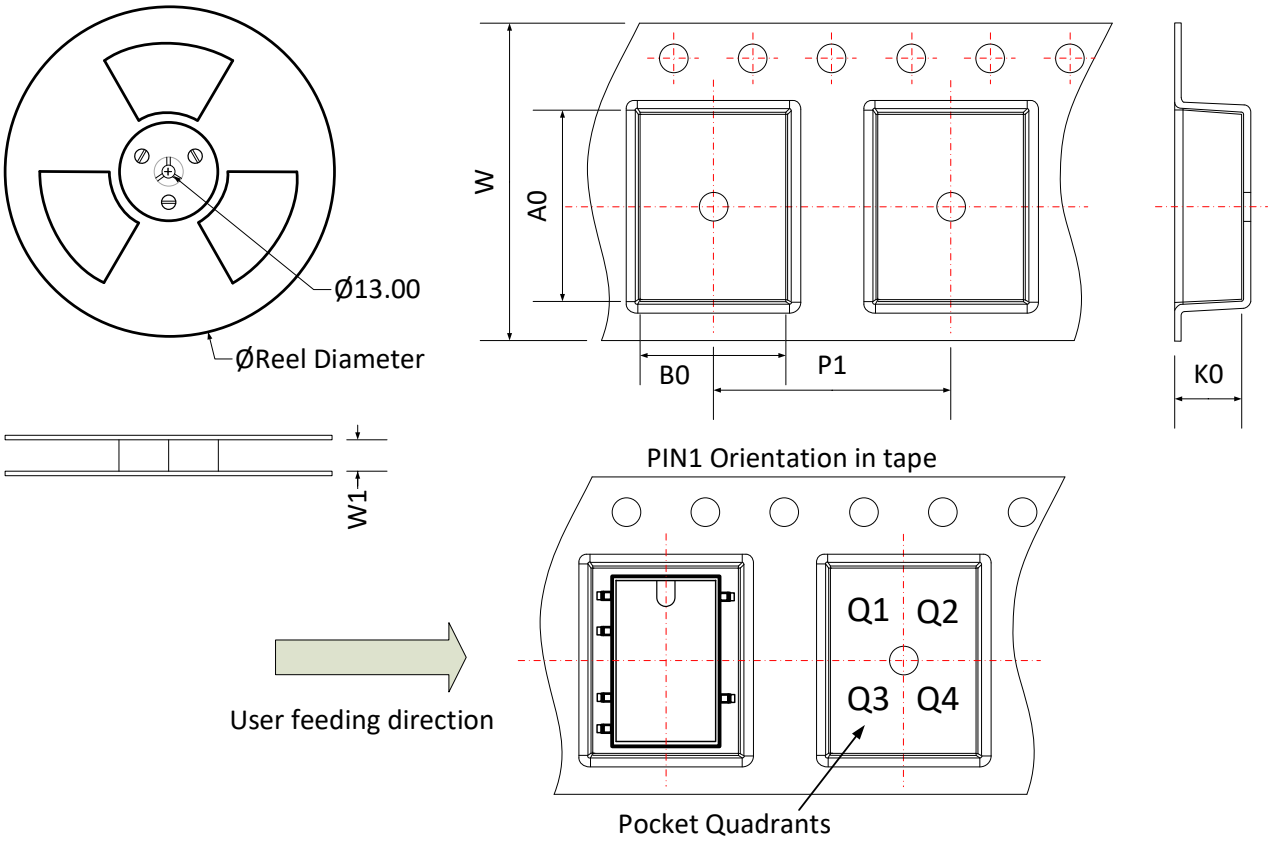
Dimensions



Note:
Unit: mm(inch)
General tolerance: ±0.25 (0.01)
Pin tolerance: ±0.1 (0.004)

Pin Out Specifications	
Pin	Single
1	-V Input
2	+V Input
3	-
4	-V Output
5	NC
6	-
7	+V Output
8	-
9	-
10	NC

Packing Information



Device	Package Type	Pin	MPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0	B0	K0	P1	W	P1 Quadrant
AM1LS-UZ Single output	SMD	6	500	330.0	24.5	15.64	12.4	7.45	16.0	24.0	Q1

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 the ones listed in this datasheet. **7.** Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.