aimtec
Your Power Partner

Series AM1LO
1 Watt | DC-DC Converter



FEATURES:

- I/O Isolation 4200VDC
- Operating temperature -40ºC to + 105ºC
- Rated working voltage 250Vrms/400VDC
- SMD open frame package
- Efficiency up to 78%
- High MTBF of over 7Mh

Models
Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current Max | Min (mA)		Input Current Full | No Load (mA)		Isolation (VDC)	Max Capacitive Load (uF)	Efficiency (%)
AM1LO-0303SH421	2.97-3.63	3.3	303	30	416	50	4200	220	73
AM1LO-0305SH421	2.97-3.63	5	200	20	404	50	4200	220	75
AM1LO-0503SH421	4.5-5.5	3.3	303	30	274	40	4200	220	73
AM1LO-0505SH421	4.5-5.5	5	200	20	264	40	4200	220	76

Models
Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current Max | Min (mA)		Input Current Full | No Load (mA)		Isolation (VDC)	Max Capacitive Load (uF)	Efficiency (%)
AM1LO-0303DH421	2.97-3.63	±3.3	±151	±15	404	50	4200	±100	75
AM1LO-0305DH421	2.97-3.63	±5	±100	±10	389	50	4200	±100	78
AM1LO-0503DH421	4.5-5.5	±3.3	±151	±15	267	40	4200	±100	75
AM1LO-0505DH421	4.5-5.5	±5	±100	±10	257	40	4200	±100	78

NOTE: 1. Add suffix “TR” to a part number when ordering in tape and reel package.
NOTE: 2. 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
Voltage range	3.3 5	2.97-3.63 4.5-5.5		VDC
Filter	Capacitor			
Absolute Maximum Rating	3.3 Vin 5 Vin	-0.7-5 -0.7-9		VDC
Peak Input Voltage time		1		s
Input Reflected Ripple Current	3.3 & 5V Input	20		mA p-p
External fuse	Recommended slow blow type	1A for 3.3V and 500mA for 5V input models		
Startup time	Nominal Vin	20		ms

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		4200	VDC
Resistance		>1000		MOhm
Capacitance		25		pF

Output Specifications

Parameters	Conditions		Typical	Maximum	Units
Voltage accuracy	See tolerance chart				
Short Circuit protection	Momentary, 0.5s				
Line voltage regulation	For ±1% of Vin			±1.2	% of Vin
Load voltage regulation	10% - 100% load	3.3V output		±15	%
		5V output		±12	
Temperature coefficient	100% load		±0.03		%/ºC

Ripple & Noise*	20MHz Bandwidth	Single output		±150	mV p-p
		Dual output		±120	

*Ripple and Noise measured with a 10uF EC and 0.1uF CC.

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency		50-80		KHz
Operating temperature	With derating above +100	-40 to +105		ºC
Storage temperature		-55 to +125		ºC
Cooling		Free air convection (30-65LFM)		
Humidity	Non-Condensing		95	% RH
Base material		Non-conductive black plastic (UL94-V0)		
Weight	Single output models		1.52	g
	Dual output models		1.80	
Dimensions (L x W x H)	Single output models		0.50 x 0.44 x 0.27 inches x 6.85 mm	12.70 x 11.20
	Dual output models		0.60 x 0.44 x 0.27 inches x 6.85 mm	15.24 x 11.20
MTBF		>7Mhrs (MIL-HDBK -217F, Ground Benign, t=+25ºC)		
Reflow temperature	10 sec max		245	ºC

Environmental Specifications

Parameters		
Vibration	Test mode	Per MIL-STD-810F

Safety Specifications

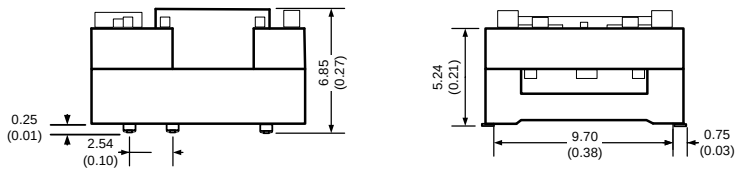
Parameters		
Approval	CE, UL, IEC/EN/UL60950-1 & IEC/EN/UL62368-1	
Standards	EMI - Conducted and radiated emission	EN55032, class B (with the recommended EMI circuit)
	Electrostatic Discharge Immunity	IEC 61000-4-2: Criteria A
	RF, Electromagnetic Field Immunity	IEC 61000-4-3: Criteria A
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4: Criteria A (with the recommended EMC circuit)
	Surge Immunity	IEC 61000-4-5: Criteria A (with the recommended EMC circuit)
	RF, Conducted Disturbance Immunity	IEC 61000-4-6: Criteria A
	Power frequency Magnetic Field Immunity	IEC 61000-4-8: Criteria A

Pin Out Specifications

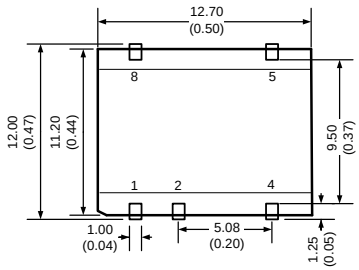
Pin	Single
1	- V Input
2	+ V Input
4	-V Output
5	+V Output
8	N.C.

Dimensions
Single output models

Side View



Top View



All dimensions are in mm (inch)
Pin Tolerance: ±0.25mm (0.01inch)
Case Tolerance: ±0.50mm (0.02inch)

imensions

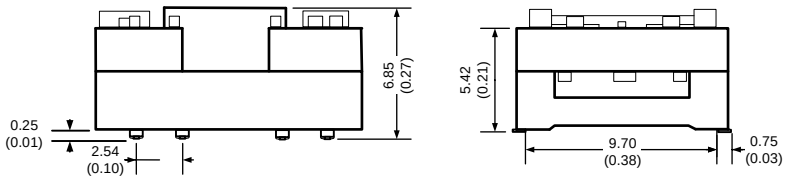
Pin Out Specifications

Pin	Dual
1	- V Input
2	+ V Input
4	Common
5	-V Output
7	+V Output
10	N.C.

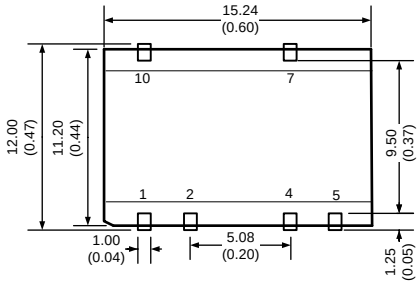
Dimensions

Dual output models

Side View



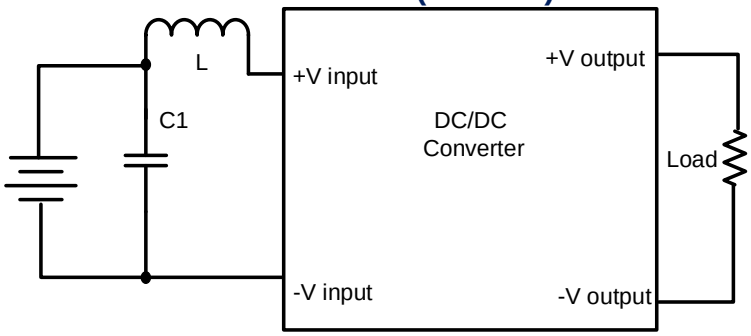
Top View



Solder pad dimensions

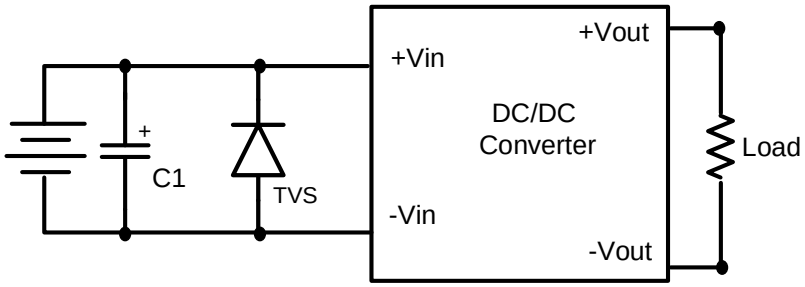
All dimensions are in mm (inch)
Pin Tolerance: ±0.25mm (0.01inch)
Case Tolerance: ±0.50mm (0.02inch)

EMI Recommended Circuit (Class B)



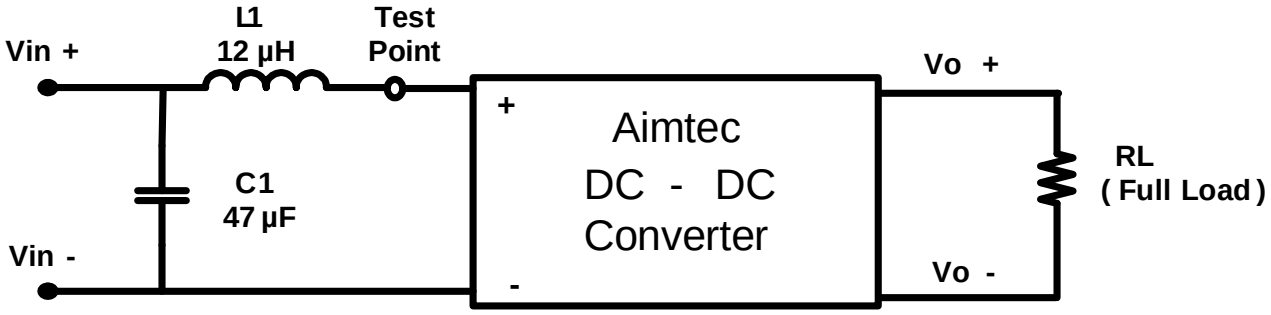
C1	L
22 µF / 10V	6.8 µH

EMC Recommended Circuit



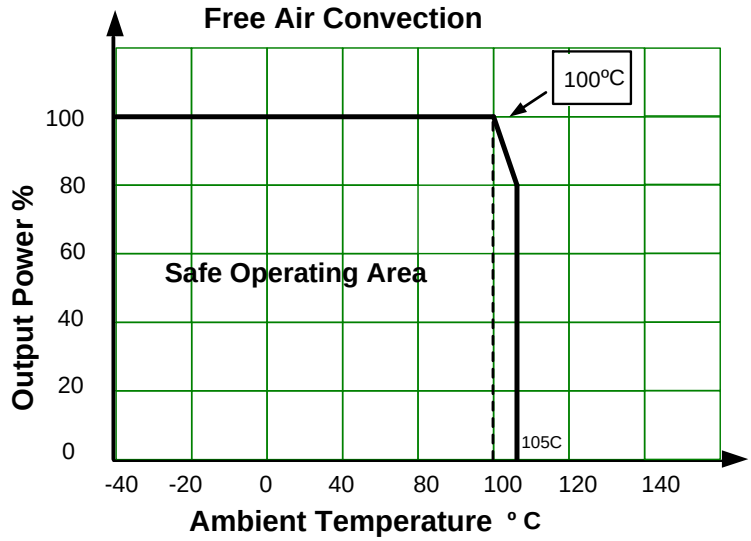
C1	TVS
330 µF / 50V	9V

Input Reflected Ripple Current Test Circuit



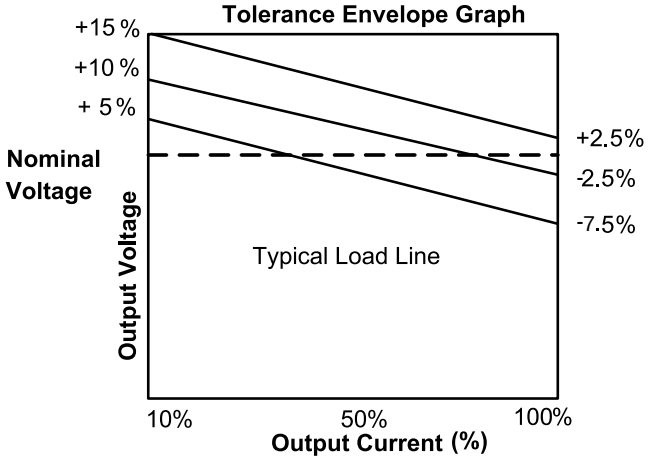
* Tested at full load and nominal input
C1 – ESR<1Ω at 100KHz

Derating

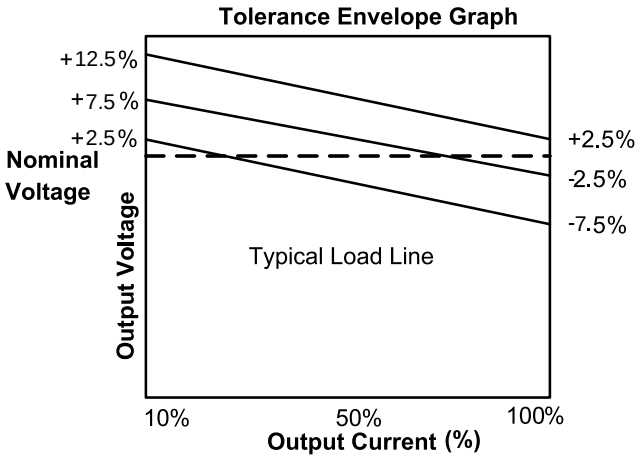


Load Accuracy Tolerance Graph

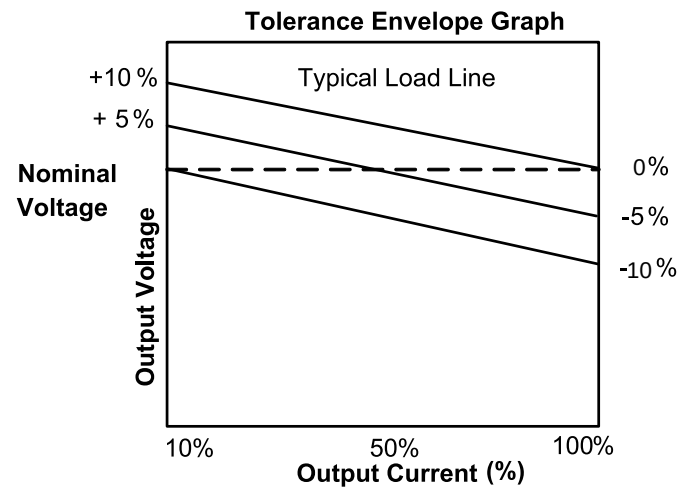
AM1LO-0503SH421



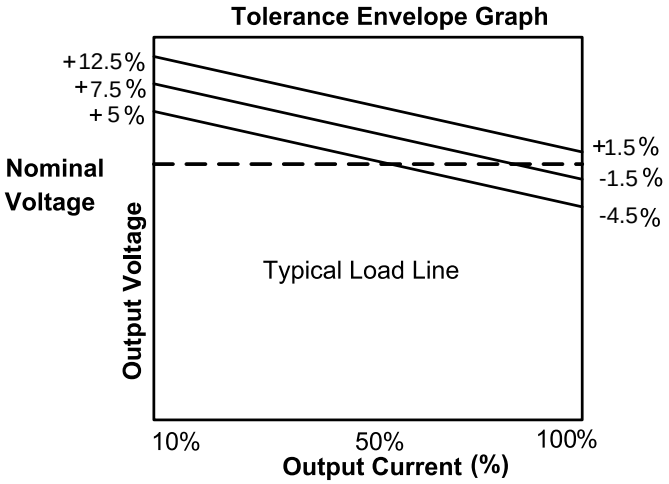
AM1LO-0303SH421 & AM1LO-0505SH421



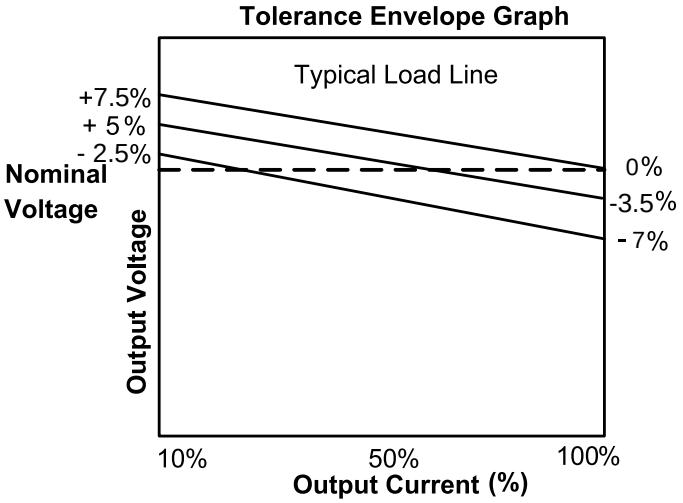
AM1LO-0305SH421



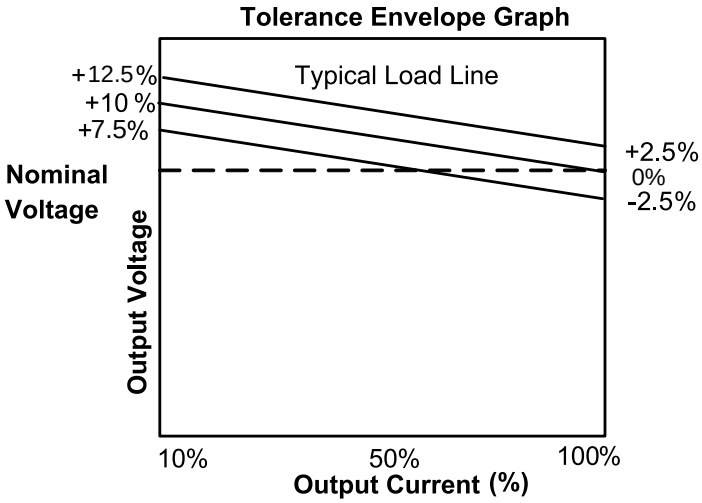
AM1LO-0303DH421



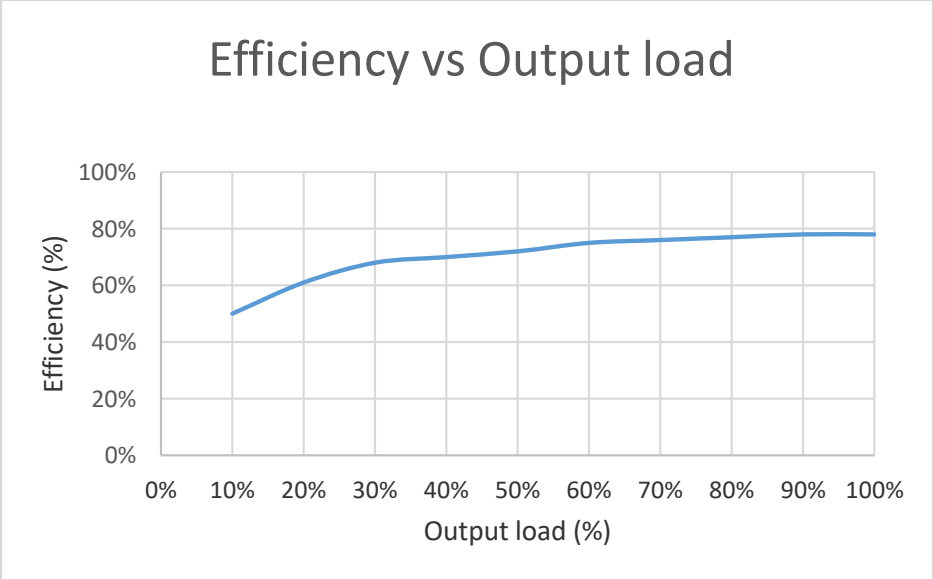
AM1LO-0305DH421 & AM1LO-0505DH421



AM1LO-0503DH421



Typical Efficiency vs. Loading



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