aimtec
Your Power Partner

Series AM1M-NZ
1 Watt | DC-DC Converter

FEATURES:

- Low Profile DIP14 case
- 1.5 and 3K VDC I/O Isolation
- Continuous Short circuit protection
- Operating Temperature: -40°C to +105°C
- High Power Density
- Low Isolation Capacitance

Models
Single output

Model	Input Voltage (V)	Max Input Current Full/No Load (mA)	Output Voltage (V)	Full load Output Max Current (mA)	Isolation (VDC)	Maximum Capacitive Load (µF)	Efficiency (%)
AM1M-0505S-NZ	4.5-5.5	250/25	5	200	1500	220	74
AM1M-1205S-NZ	10.8-13.2	115/15	5	200	1500	220	73
AM1M-0303SH30-NZ ※	2.97-3.63	420/30	3.3	303	3000	220	72
AM1M-0503SH30-NZ	4.5-5.5	256/20	3.3	303	3000	220	75
AM1M-0505SH30-NZ	4.5-5.5	256/20	5	200	3000	220	80
AM1M-0512SH30-NZ	4.5-5.5	256/20	12	83	3000	220	80
AM1M-0515SH30-NZ	4.5-5.5	256/20	15	67	3000	220	81
AM1M-1205SH30-NZ	10.8-13.2	106/15	5	200	3000	220	80
AM1M-1212SH30-NZ	10.8-13.2	106/15	12	83	3000	220	80
AM1M-1215SH30-NZ	10.8-13.2	106/15	15	67	3000	220	81
AM1M-1515SH30-NZ	13.5-16.5	84/10	15	67	3000	220	80
AM1M-2405SH30-NZ	21.6-26.4	54/7	5	200	3000	220	79

Models
Dual output

Model	Input Voltage (V)	Max Input Current Full/No Load (mA)	Output Voltage (V)	Full load Output Max Current (mA)	Isolation (VDC)	Maximum Capacitive Load (µF)	Efficiency (%)
AM1M-0524D-NZ ※	4.5-5.5	256/25	±24	±21	1500	100	80
AM1M-1205D-NZ	10.8-13.2	106/15	±5	±100	1500	100	80
AM1M-1212D-NZ	10.8-13.2	106/15	±12	±42	1500	100	80
AM1M-1224D-NZ	10.8-13.2	106/15	±24	±21	1500	100	81
AM1M-1524D-NZ	13.5-16.5	82/12	±24	±21	1500	100	81
AM1M-2409D-NZ	21.6-26.4	54/7	±9	±56	1500	100	80
AM1M-2412D-NZ	21.6-26.4	54/7	±12	±42	1500	100	80
AM1M-2415D-NZ	21.6-26.4	54/7	±15	±34	1500	100	80
AM1M-0505DH30-NZ	4.5-5.5	256/20	±5	±100	3000	100	79
AM1M-0512DH30-NZ	4.5-5.5	256/20	±12	±42	3000	100	80
AM1M-0515DH30-NZ	4.5-5.5	256/20	±15	±34	3000	100	81
AM1M-1205DH30-NZ	10.8-13.2	106/15	±5	±100	3000	100	80
AM1M-2412DH30-NZ	21.6-26.4	54/7	±12	±42	3000	100	81
AM1M-2415DH30-NZ	21.6-26.4	54/7	±15	±34	3000	100	80

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.

NOTE2: The models marked with ※ will be discontinued (EOL) by December 30, 2020.

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	3.3 5 12 15 24	2.97-3.63 4.5-5.5 10.8-13.2 13.5-16.5 21.6-26.4		VDC
Absolute Max Input Voltage (100ms)	3.3V 5V 12V 15V 24V		-0.7 - 5 -0.7 - 9 -0.7 - 18 -0.7 - 21 -0.7 - 30	VDC
Filter	Capacitor			
Input reflected ripple current		15		mA p-p

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 Sec, <1mA		1500, 3000	VDC
Isolation Resistance	500Vdc	>1000		MOhm
Isolation Capacitance	100KHz/0.1V	20		pF
	AM1M-1205S-NZ only	25		

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	See tolerance envelope graph			
Short Circuit protection	3.3Vin, 24Vin & 24Vout models	1s		
	Others	Continuous, Auto recovery		
Line voltage regulation	For Vin change of 1%		±1.2	% of Vin
	3.3Vout models, For Vin change of 1%		±1.5	
Load voltage regulation	10% to 100% load	±15		%
Temperature coefficient	Nominal input,100% full load		±0.03	%/ºC
Ripple & Noise	20MHz Bandwidth	60	150	mVp-p

NOTE: It is not recommended to have the outputs connected in parallel

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	100		KHz
	AM1M-0505S-NZ	100	300	
Operating temperature	Without derating up to 85ºC	-40 to +105		ºC
Storage temperature	-55 to +125			ºC
Maximum case temperature			100	ºC
Cooling	Free Air Convection			
Humidity			95	% RH
Case material	Black flame-retardant heat-proof plastic (UL94-V0)			
Weight	1.4*(Single output models) 2.4*(Dual output & 3000VDC isolation models)			g
Dimensions (L x W x H)	0.77 x 0.28 x 0.18 inches, 19.50 x 6.60 x 4.50 mm (Single output models) 0.79 x 0.39 x 0.28 inches, 20.00 x 10.00 x 7.00 mm (Dual output & 3000VDC isolation models)			
MTBF	>3,500,000 hours (MIL-HDBK -217F, Ground Benign, t=+25ºC)			
Maximum Soldering Temperature	1.5mm from case for 10 seconds		300	ºC

Safety Specifications

Parameters		
Agency approvals	cULus	
Standards	Information technology Equipment	UL 60950-1 (AM1M-1515SH30-NZ only)
	EMI - Conducted and radiated emission	EN55022 Class B (see recommended circuit),
	Electrostatic Discharge Immunity	IEC61000-4-2, Perf. Criteria B (ESD Contact +/- 6KV)

Pin Out Specifications

1500VDC Isolation	
Pin	Single
1	+Vin
2	-Vin
5	-Vout
6	+Vout
7	NC
8	NC
14	NC

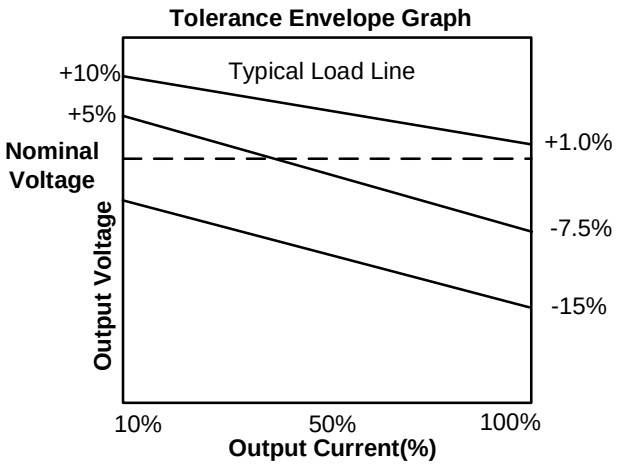
NC: not connected

1500VDC Isolation	
Pin	Dual
1	-Vin
7	NC
8	Common
9	+Vout
11	-Vout
14	+Vin

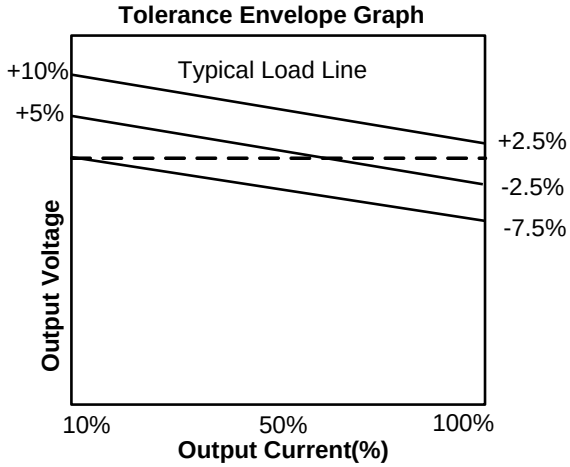
	3000VDC Isolation	
Pin	Single	Dual
1	-Vin	-Vin
7	NC	NC
8	+Vout	+Vout
9	No Pin	Common
10	-Vout	-Vout
14	+Vin	+Vin

Typical Characteristics

3.3V output models

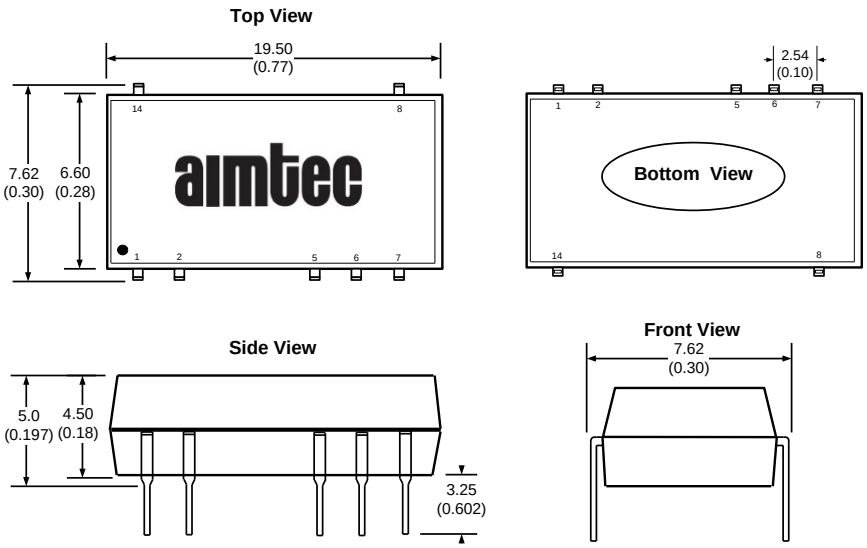


Others

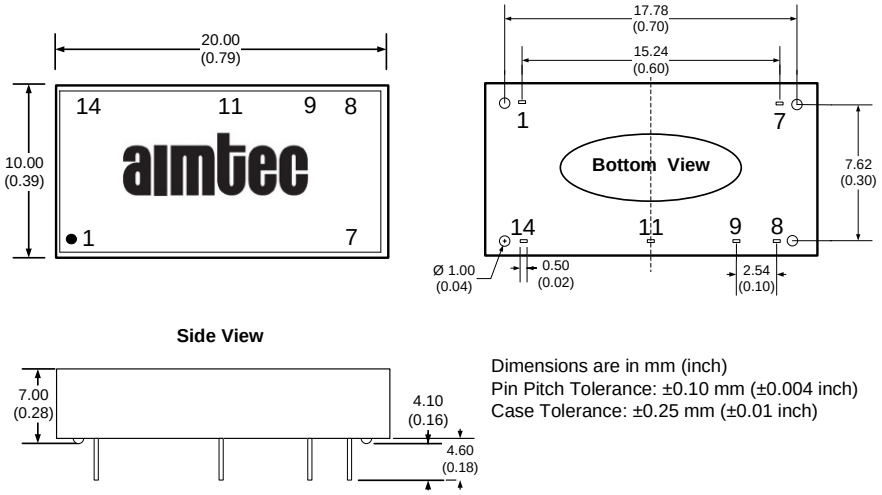


Dimensions

Single 1500VDC Isolated models

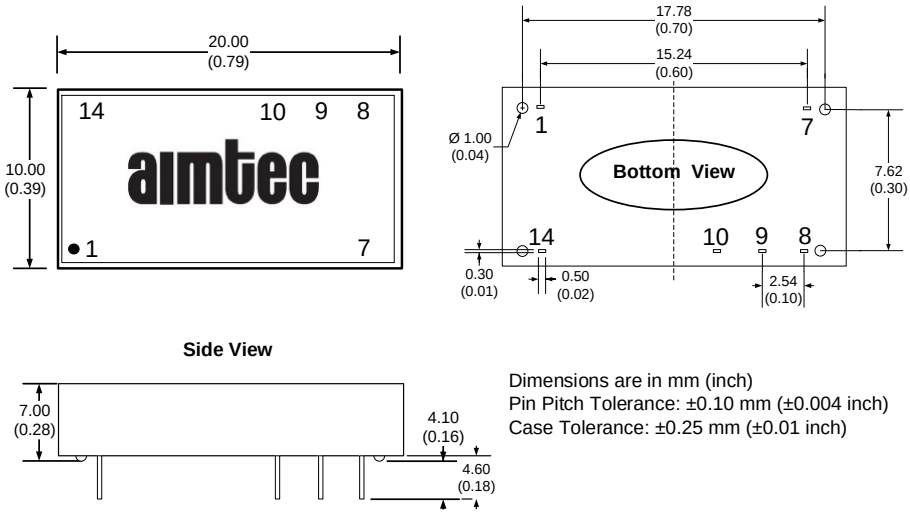


Dual 1500VDC Isolated models



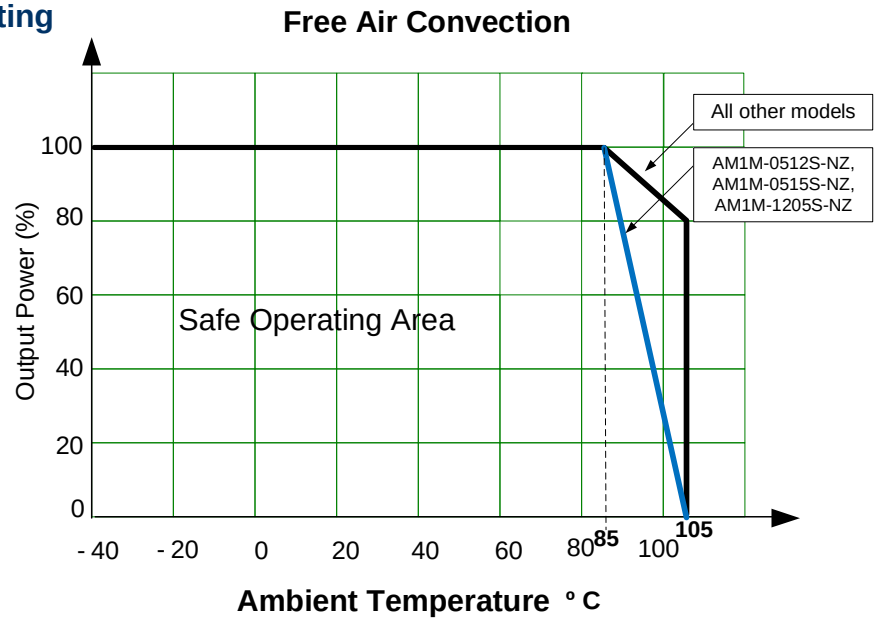
Dimensions are in mm (inch)
Pin Pitch Tolerance: ±0.10 mm (±0.004 inch)
Case Tolerance: ±0.25 mm (±0.01 inch)

3000VDC Isolated models

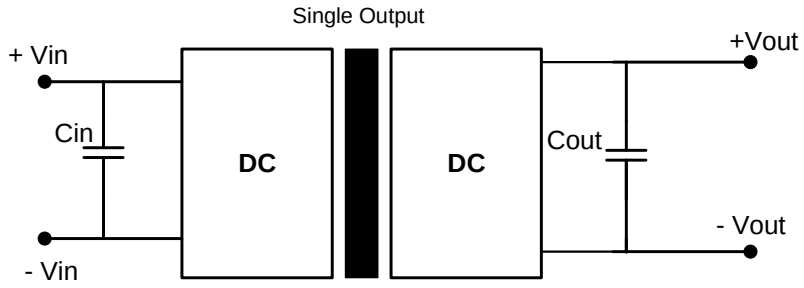


Dimensions are in mm (inch)
Pin Pitch Tolerance: ±0.10 mm (±0.004 inch)
Case Tolerance: ±0.25 mm (±0.01 inch)

Derating

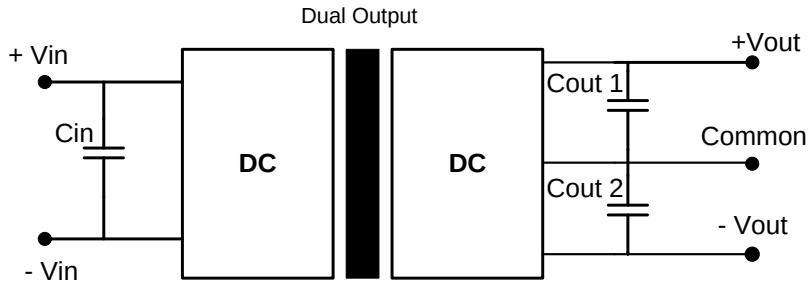


Typical application circuit



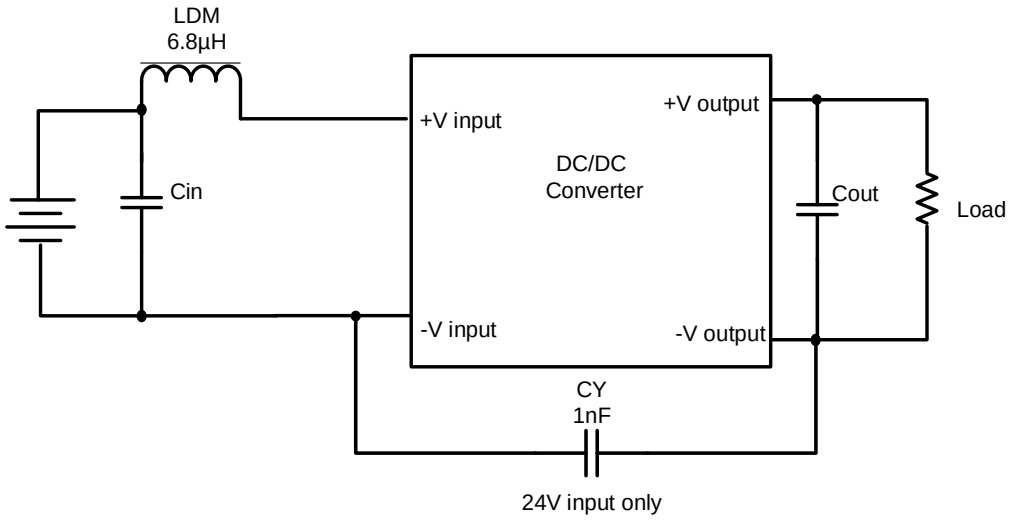
Vin (VDC)	Cin (uF)	Vout (VDC)	Cout (uF)
3.3/5	4.7	3.3/5	10
12/15	2.2	12	2.2
24	1	15	1

It is not recommended to connect any external capacitor in the application field when output loading is less than 0.5 watt.



Vin (VDC)	Cin (uF)	Vout (VDC)	Cout 1 & 2 (uF)
3.3/5	4.7	±5	4.7
12/15	2.2	±9/±12	1
24	1	±15/±24	0.47

EMI Recommended Circuit (Class B)



NOTE: Cin and Cout values are the same as referenced in the Application Circuit.

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