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AM50W-NZ



Enclosed

Aimtec's AM50W-NZ series is a 50W energy industry friendly DC-DC converter. It provides an ultra-wide input voltage range of 80-750VDC (24V output model), high efficiency up to 85% for energy sensitive applications.

This series has input under-voltage protection, output short circuit, over-current and over-voltage protection to maintain the system's stability and avoid frequent restarts. These protections greatly reduce the probability of power supply failure while enhancing the safety performance of the modular power supply and the load under abnormal working conditions.

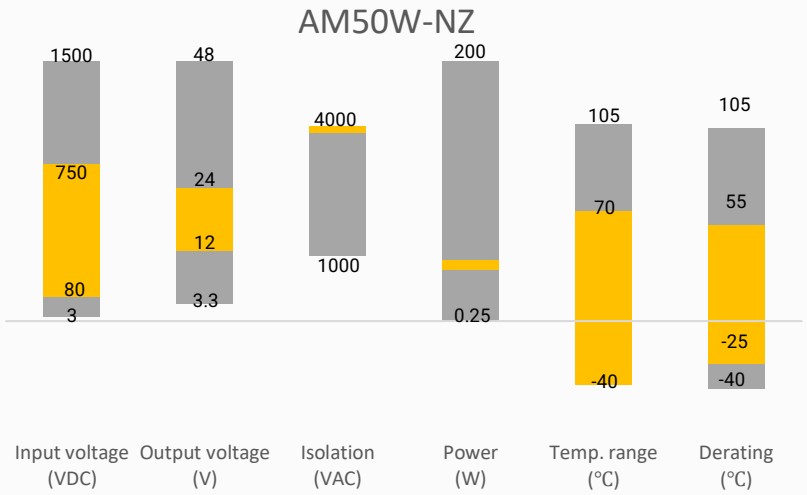
Offering an MTBF over 300,000h and an isolation voltage up to 4000VAC, these models can be widely used in photovoltaic power generation, energy storage BMS, high voltage inverters and other related applications.

Features

- Ultra-wide 80~750VDC input voltage range.
- Operating Temp : -40 °C to +70 °C
- High I/O isolation voltage : 4000VAC
- Low ripple & noise : 200mV(p-p), max.
- High reliability, Long lifespan : ≧ 300 000 hrs
- Under voltage protection, output short circuit, overcurrent and overvoltage protection
- Meets 5000m altitude requirements

RoHS 3yr Warranty CE

Summary



Training

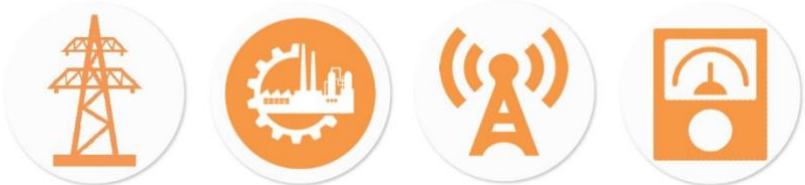
Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications



Power Grid | Industrial | Telecom | Instrumentation

Models & Specifications

Single Output					
Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current Max (A)	Maximum Capacitive Load (µF)	Efficiency (%) 850VDC / Full Load
AM50W-45012SNZ	450 (80 ~ 750)	12	4.17	820	83
AM50W-45024SNZ	450 (80 ~ 750)	24	2.08	820	85

Input Specification					
Parameters	Conditions		Typical	Maximum	Units
Voltage range	Maximum rating		> 80	750	VDC
	Full load		> 150	650	
Input current	150 VDC			900	mA
	750 VDC			300	
Inrush current	750 VDC	AM50W-45012SNZ	60		A
		AM50W-45024SNZ	80		
Input under-voltage protection	Under-voltage protection activation		60	70	VDC
	Under-voltage protection deviation		70	80	
External input fuse	3.15A/1000 VDC, Required				

Isolation Specification					
Parameters	Conditions		Typical	Maximum	Units
Isolation voltage	Input / Output	Leakage current ≦ 10mA,1min	4000		VAC
Isolation resistance	Input / Output	500VDC	50		MΩ

Output Specification					
Parameters	Conditions		Typical	Maximum	Units
Voltage accuracy	0 ~ 100% load			± 2	%
Line regulation	Full load			± 1	%
Load regulation	0 ~ 100% load			± 2	%
Short circuit protection	Hiccup, continuous, auto-recovery				
Over current protection	hiccup, auto-recovery		> 110		% of Iout
Over voltage protection	AM50W-45012SNZ		≦ 16VDC zener clamp		
	AM50W-45024SNZ		≦ 30VDC zener clamp		
Hold-up time	Full load, 25 °C	750 VDC input	10		ms
Start delay time*	300 ~ 1500 VDC		3		s
Temperature coefficient			± 0.02		%/ °C
Ripple & Noise	20MHz bandwidth			200	mV pk-pk

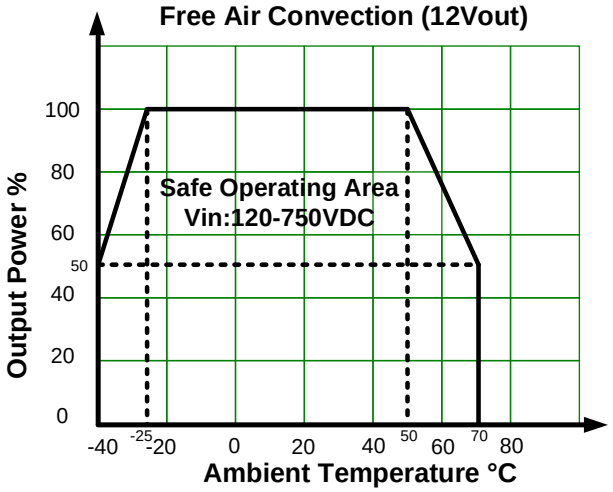
General Specifications

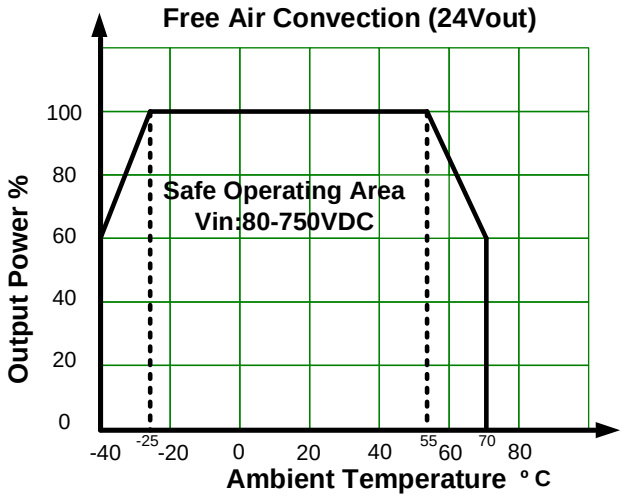
Parameters	Conditions		Typical	Maximum	Units
Switching frequency	Full load		65		KHz
Operating temperature			-40 to +70		°C
Storage temperature			-40 to +85		°C
Power derating	-40 ~ -25 °C	AM50W-45012SNZ	3.33		% / °C
		AM50W-45024SNZ	2.66		% / °C
	+50 ~ +70 °C	AM50W-45012SNZ	2.5		% / °C
	+55 ~ +70 °C	AM50W-45024SNZ	2.66		% / °C
	120VDC - 150VDC	AM50W-45012SNZ	0.667		% / VDC
	80VDC - 150VDC	AM50W-45024SNZ	0.714		% / VDC
	1400 ~ 1500 VDC		0.20		% / VDC
	2000 ~ 5000m	AM50W-45012SNZ	10		% / Km
Cooling	Free air convection				
Humidity				95	% RH
Casing material	Plastic (flammability to UL 94V-0)				
Operating altitude			5000		m
Weight			260		g
Dimensions (L x W x H)	4.29 x 2.30 x 1.18 inches, 109.00 x 58.50 x 30.00mm				
MTBF	≧ 300 000 hrs (MIL-HDBK -217F, t=+25°C)				

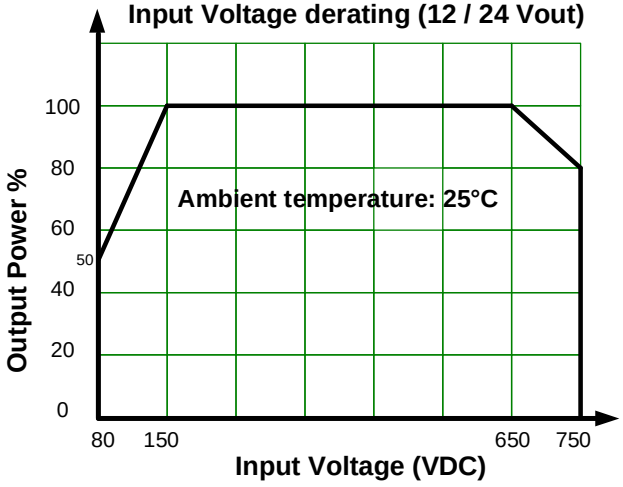
Safety Specifications

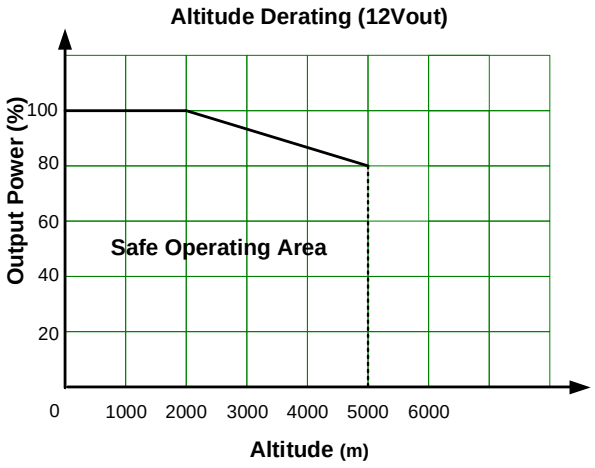
Parameters		
Agency approval	CE EN62109-1	
Standards	Design to meet UL1741	
	EMI - Conducted and radiated emission	CISPR32/EN55032, Class A
	Electrostatic Discharge Immunity	IEC 61000-4-2 , Contact ± 6KV / Air ± 8KV , Criteria B
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 , 10V/m , Criteria A
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 , ± 2KV , Criteria B
	Surge Immunity	IEC 61000-4-5 , L- L ± 1KV, Criteria B L- L ± 2KV with recommended circuit, Criteria B
	CS, Conducted Disturbance Immunity	IEC 61000-4-6 , 10Vr.m.s , Criteria A

Derating

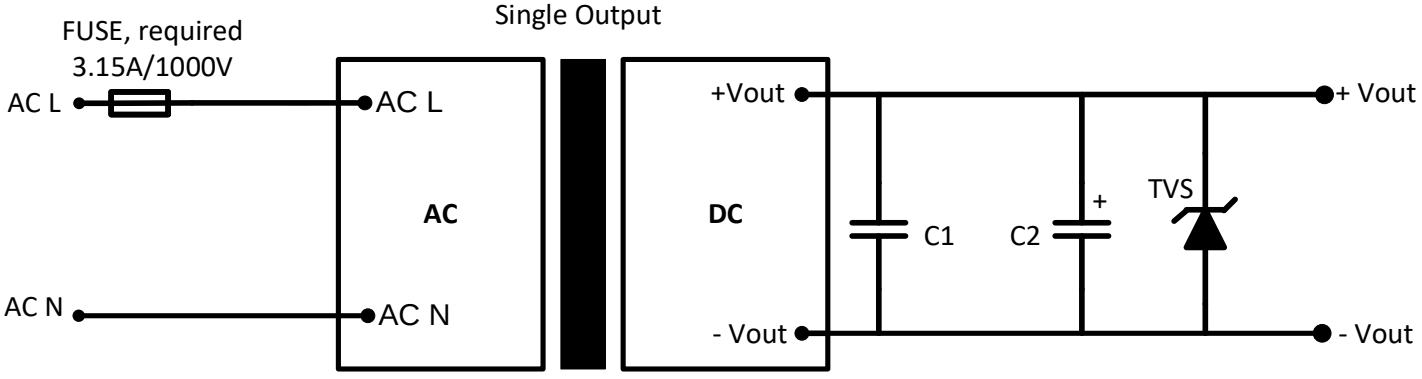




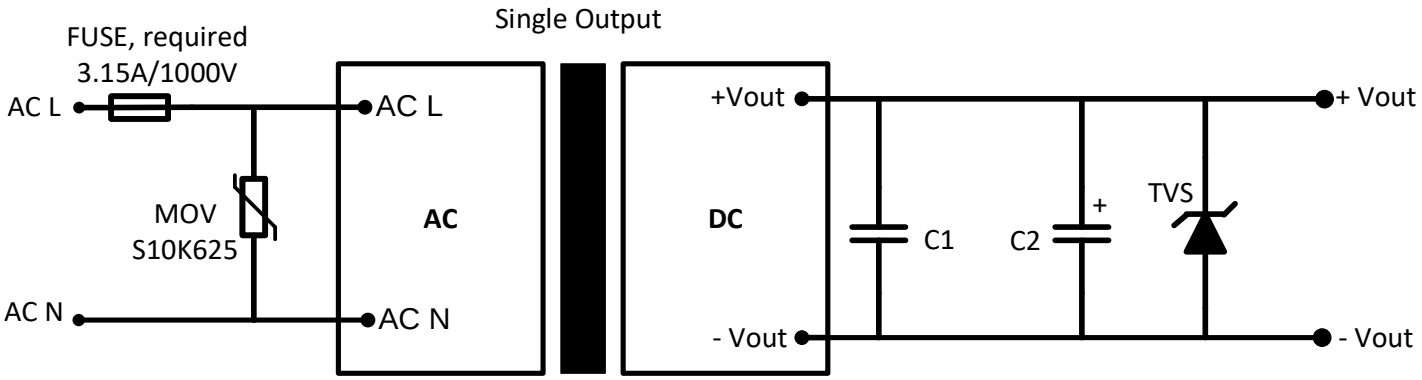




Typical Application Circuit

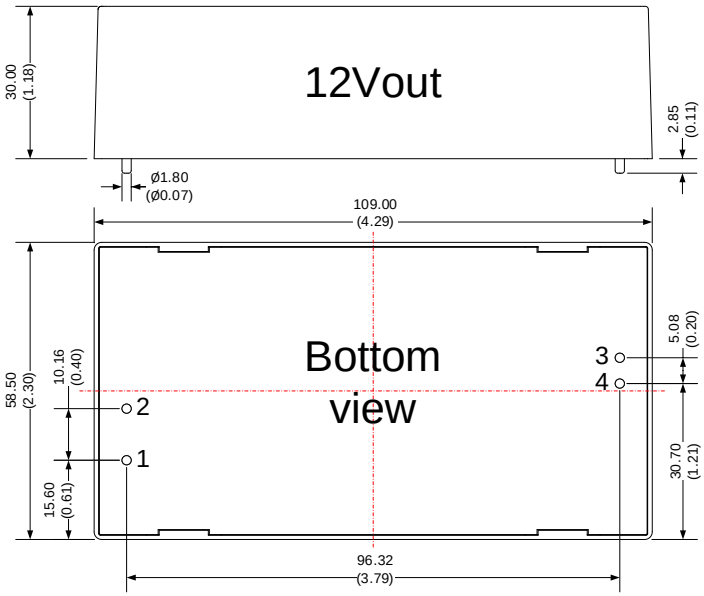


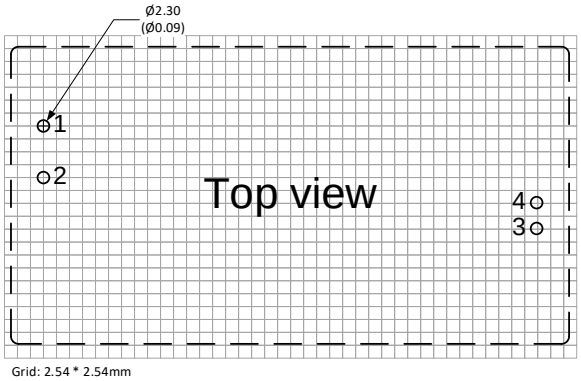
EMC Recommended Circuit



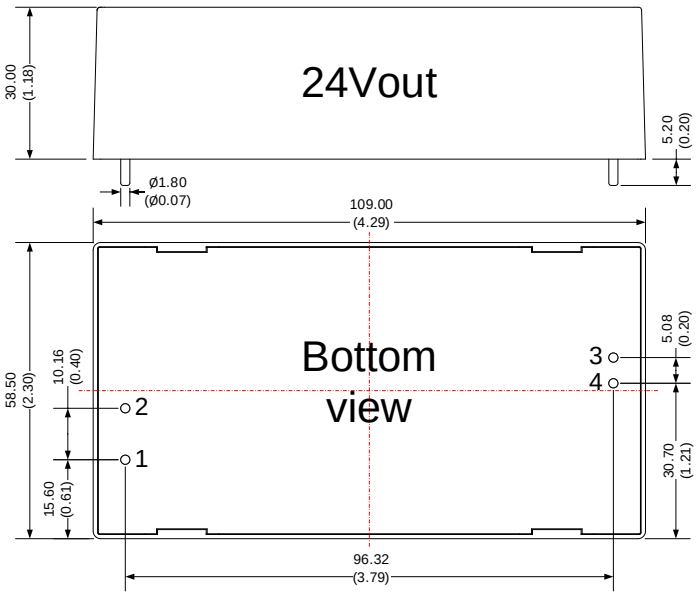
Model	C1	C2	TVS
AM50W-45012SNZ	1uF / 25Vdc	10uF / 25Vdc	20V
AM50W-45024SNZ	1uF / 50Vdc	10uF / 35Vdc	30V

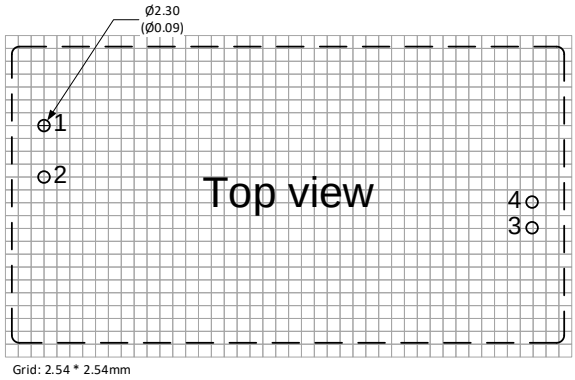
Dimensions





Unit: mm(inch)
General tolerance: ±0.5(0.02)
Pin diameter: 1.8±0.1(0.071±0.004)
Pin tolerance(H): ±0.25(±0.01)





Unit: mm(inch)
General tolerance: ±0.5(0.02)
Pin diameter: 1.8±0.1(0.071±0.004)
Pin tolerance(H): ±0.5(±0.02)

Pin Out Specifications	
Pin	Function
1	-V Input
2	+V Input
3	-V Output
4	+V Output

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.