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AM50W-LPZ

Encapsulated

The AM50W-LPZ series is a 50W DC/DC converter that offers a regulated output which contributes to a more stable and reliable output performance. It features a wide input voltage range of 200-1200VDC, which will benefit your new system design.

This series offers operating temperatures, from -40°C to 70°C. Furthermore, an isolation of 4000VAC, a MTBF of over 300,000h, continuous output short circuit protection (OSCP), over-current protection (OCP), over-voltage protection (OVP), and under voltage lock-out (UVLO) come standard with the series.

The AM50W-LPZ series is suitable for photovoltaic and green energy systems, power grid, industrial controls, instrument, communications applications.

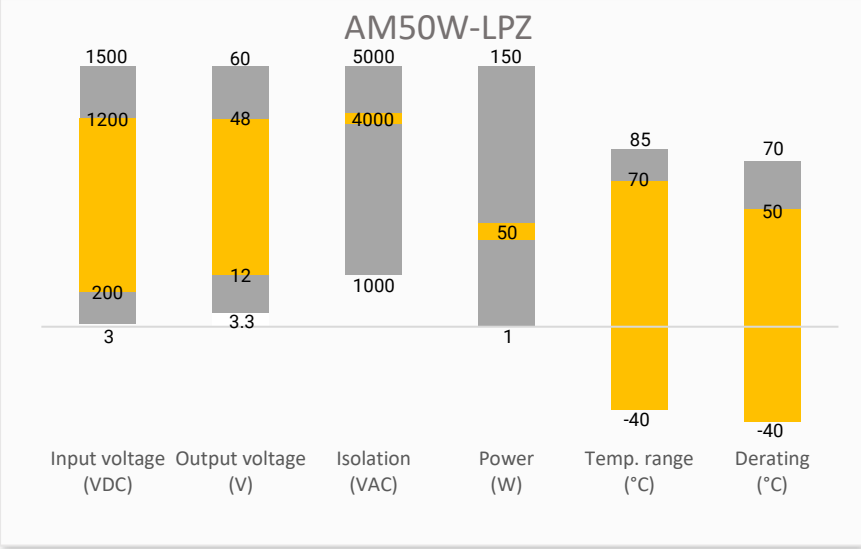
Features

- Operating Temp: -40 °C to +70 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 100mV (p-p), typ.
- Regulated Output
- Output short circuit, over-current, over-voltage, input under voltage protection

RoHS

3 yr Warranty

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

Green Energy

Power Grid

Industrial

Telecom

Models & Specifications

Single Output						
Model	Input Voltage (VDC)	Max Output Wattage (W)	Output Voltage (VDC)	Output Current Max (A)	Maximum Capacitive Load (µF)	Efficiency @600VDC TYP.(%)
AM50W-60012SA40LPZ	600 (200 ~ 1200)	50	12	4.17	1500	83
AM50W-60015SA40LPZ	600 (200 ~ 1200)	50	15	3.33	1500	83
AM50W-60024SA40LPZ	600 (200 ~ 1200)	50	24	2.08	560	85
AM50W-60036SA40LPZ	600 (200 ~ 1200)	50	36	1.39	470	85
AM50W-60048SA40LPZ	600 (200 ~ 1200)	50	48	1.04	220	86

Input Specification				
Parameters	Conditions	Typical	Maximum	Units
Input current	200 VDC	--	320	mA
	600 VDC	--	100	mA
Inrush current	600 VDC	60	--	A
	1200 VDC	100	--	A
Input under-voltage protection	Under-voltage protection begins	> 100	190	VDC
	Under-voltage protection release	> 150	200	VDC
Input reverse polarity protection	Built-in protection function			
External input fuse	4A/1200 VDC, Required			

Output Specification				
Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	--	± 1	± 3	%
Line regulation	Full load	± 1	± 3	%
Load regulation	0 ~ 100% load	± 0.5	± 1.5	%
Ripple & Noise*	20MHz bandwidth	100	200	mV
Hold-up time	Full load, 600 VDC input	5	--	ms
	Full load, 1200 VDC input	8	--	ms
Start-up time	--	2	--	S

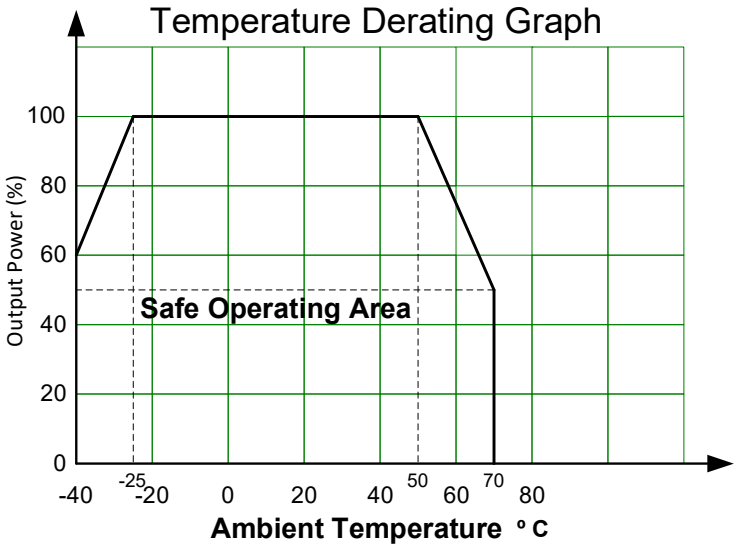
* Ripple and Noise are measured at 20MHz bandwidth with a 47µF electrolytic capacitor and a 0.1µF ceramic capacitor. Please refer to the application note for specific details.

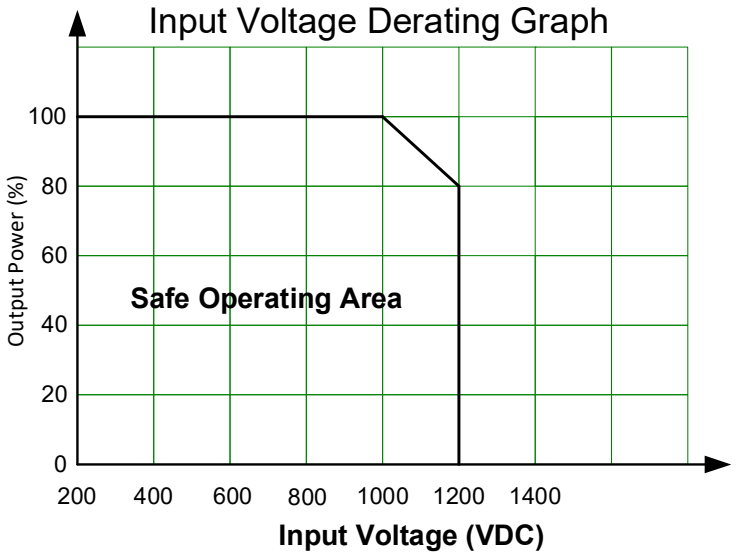
Isolation Specification				
Parameters	Conditions	Typical	Maximum	Units
Tested isolation voltage (I/O)	60 sec, leakage current < 5mA	> 4000	--	VAC
Resistance (I/O)	500VDC, 25 °C, 70%RH	> 100	--	MΩ

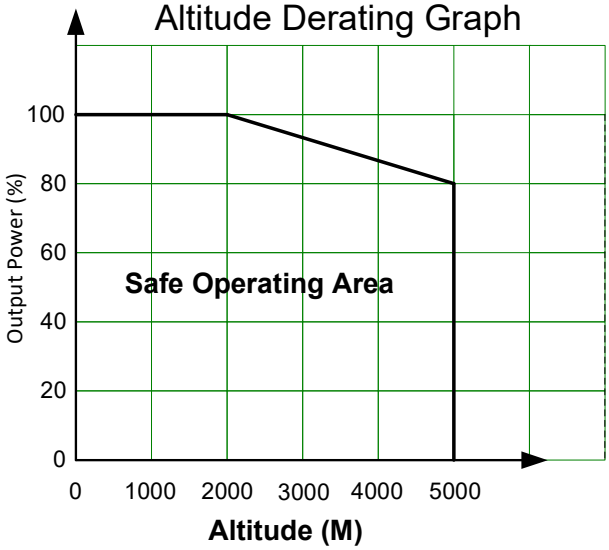
General Specifications				
Parameters	**Conditions**	**Typical**	**Maximum**	**Units**
Switching frequency	--	65	--	KHz
Short circuit protection	Hiccup, self-recovery			
Over current protection	self-recovery	> 110	--	% of Iout
Over voltage protection	12Vout, voltage loop clamping	--	16	VDC
	15Vout, voltage loop clamping	--	20	VDC
	24Vout, voltage loop clamping	--	30	VDC
	36Vout, voltage loop clamping	--	45	VDC
	48Vout, voltage loop clamping	--	60	VDC
Operating temperature	See power derating	-40 to +70	--	°C
Storage temperature	--	-40 to +85	--	°C
No-load power consumption		0.5	--	W
Storage humidity	--	> 10	95	% RH
Case temperature	--	--	95	°C
Power derating	-40 to -25°C	2.67	--	% / °C
	+50 to +70°C	2.5	--	% / °C
	1000 ~ 1200 VDC	0.1	--	% / VDC
	2000m – 5000m	6.67	--	%/Km
Temperature coefficient	--	± 0.02	--	%/ °C
Altitude application	See power derating	--	5000	m
Soldering temperature	duration ≤ 5sec	260	--	°C
Cooling	Free air convection			
Casing material	Black plastic (flammability to UL 94V-0)			
Weight	--	180	--	g
Dimensions (L x W x H)	3.50 x 2.50 x 0.98 inches (89.0 x 63.5 x 25.0mm)			
MTBF	>300 000 hrs (MIL-HDBK -217F, t=+25°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		
Standards	Designed to meet IEC/EN 62109-1, CSA-C22.2 No.107.1-16	
	EMI - Conducted and radiated emission	CISPR32/EN55032, Class A with recommended EMC circuit
	Electrostatic Discharge Immunity	IEC/EN 61000-4-2, Contact ± 6KV / Air ± 8KV, Criteria A
	RF, Electromagnetic Field Immunity	IEC/EN 61000-4-3, 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC/EN 61000-4-4, ± 2KV, Criteria B IEC/EN 61000-4-4, ± 4KV, Criteria B with recommended EMC circuit
	Surge Immunity	IEC/EN 61000-4-5, L- L ± 1KV, Criteria B IEC/EN 61000-4-5, L- G ± 2KV, Criteria B with recommended EMC circuit
	CS, Conducted Disturbance Immunity	IEC/EN 61000-4-6, 10Vrms, Criteria A

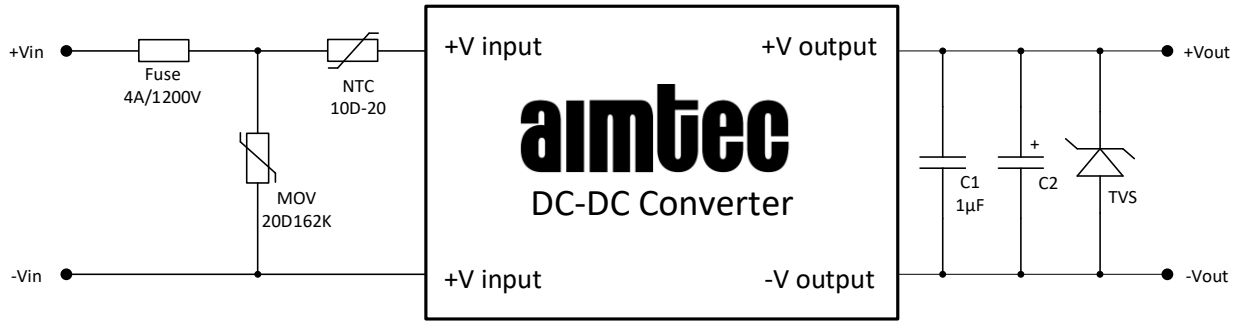
Derating


Temperature Derating Graph
Output Power (%)
100
80
60
40
20
0
Safe Operating Area
-40
-25
-20
0
20
40
50
60
70
80
Ambient Temperature °C


Input Voltage Derating Graph
Output Power (%)
100
80
60
40
20
0
Safe Operating Area
200
400
600
800
1000
1200
1400
Input Voltage (VDC)


Altitude Derating Graph
Output Power (%)
100
80
60
40
20
0
Safe Operating Area
0
1000
2000
3000
4000
5000
Altitude (M)

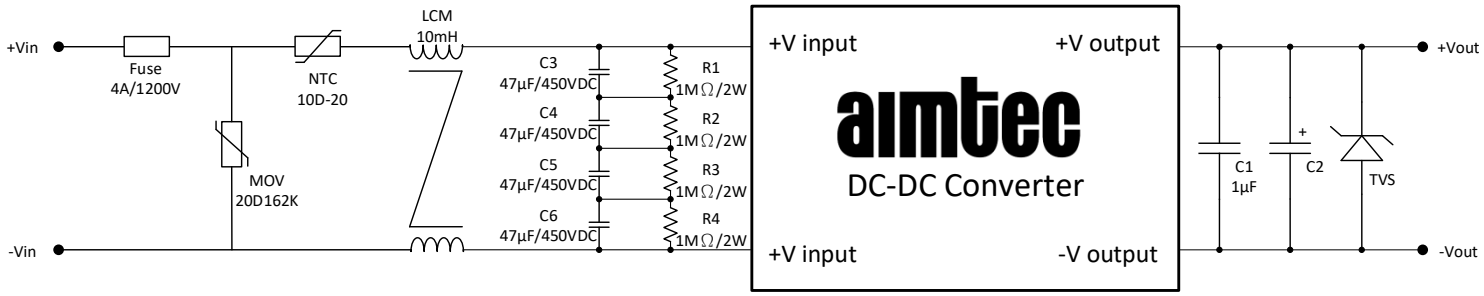
Typical Application Circuit



Vout	C2	TVS
12V	220µF	SMBJ20A
15V	220µF	SMBJ20A
24V	120µF	SMBJ30A
36V	120µF	SMBJ40A
48V	68µF	SMBJ60A

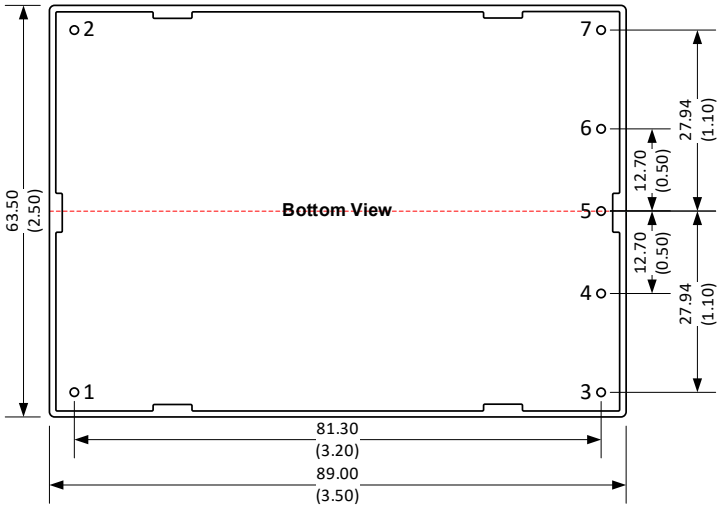
Fuse is required for the application.
C1: 1µF ceramic capacitor.
C2: low ESR, high frequency electrolytic capacitor with a voltage rating at least 20% higher than the maximum operating voltage.

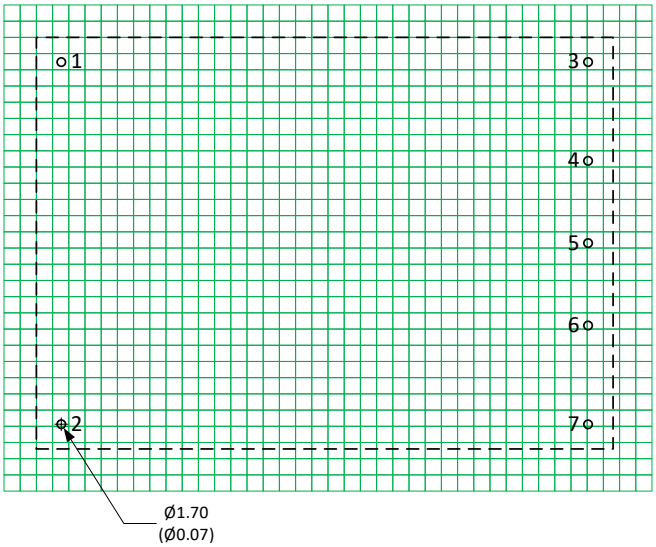
Recommended EMC Circuit

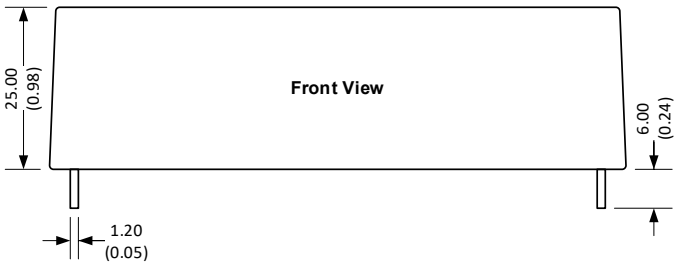


This external circuit is not required for general-purpose operation, but is recommended for EMC enhancement when higher EFT and surge immunity levels are required.

Dimensions







Note : Grid 2.54*2.54 mm

Notes:
All dimensions are typical in millimeters (inches).
Pin diameter tolerances : ±0.15 (±0.006)
Pin distance tolerances : ±0.50 (±0.02)
General tolerance : ±1.00 (±0.04)

Pin Output Specifications			
Pin	Single	Pin	Single
1	-V Input	5	-V Output
2	+V Input	6	No pin
3	+V Output	7	No pin
4	No pin		--