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AM15EW-LPZ



2 x 1

The AM15EW-LPZ is a 15W DC/DC converter that offers a regulated output which contributes to a more stable and reliable output performance. It features a wide 4:1 input voltage range of 9-75VDC, which will benefit your new system design.

This series offers great operating temperatures, from -40°C to 85°C. Furthermore, an isolation of 1500VDC, 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 AM15EW-LPZ is suitable for grid power, instrumentation, industrial controls, communication, and civil applications.

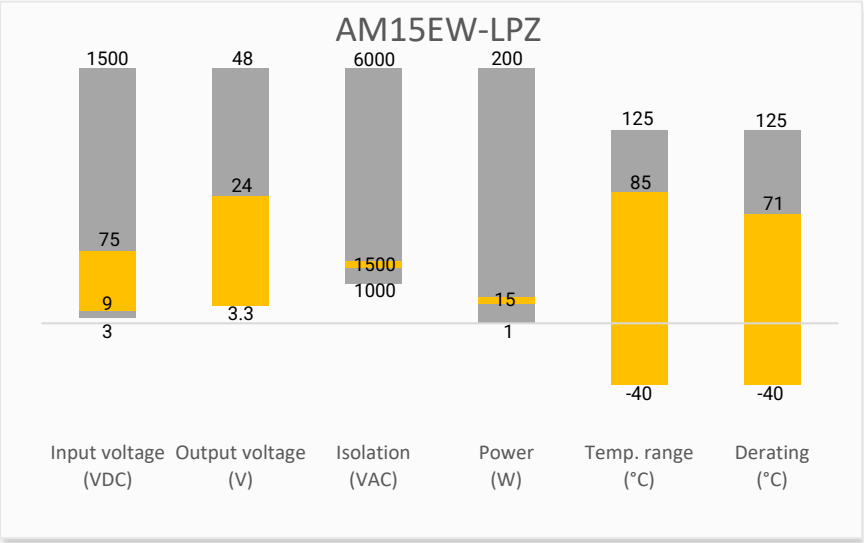
Features

- Operating Temp: -40 °C to +85 °C
- Isolation voltage: 1500VDC
- High efficiency: Up to 91% typ.
- Regulated single output
- Output short circuit, over-current, over-voltage
- Standard 2 x1 package

RoHS

3yr Warranty

Summary



Training

Product Training Video (click to open)

Press Release

Application Notes

Coming Soon!

Applications

Power Grid

Industrial

Telecom

Instrumentation

Models & Specifications

Single Output							
Model	Input Voltage (VDC)	Output Voltage (VDC)	Nominal Vin Input Current Max (mA)		Output Current Max (mA)	Maximum capacitive load (µF)	Efficiency Full Load Typ (%)
			No Load	Full Load			
AM15EW-2403SLPZ	24 (9-36)	3.3	30	625	4000	4700	88
AM15EW-2405SLPZ	24 (9-36)	5	30	694	3000	4700	90
AM15EW-2412SLPZ	24 (9-36)	12	30	687	1250	1000	90
AM15EW-2415SLPZ	24 (9-36)	15	30	687	1000	820	91
AM15EW-2424SLPZ	24 (9-36)	24	30	687	625	270	91
AM15EW-4803SLPZ	48 (18-75)	3.3	15	313	4000	4700	88
AM15EW-4805SLPZ	48 (18-75)	5	15	348	3000	4700	90
AM15EW-4812SLPZ	48 (18-75)	12	15	344	1250	1000	91
AM15EW-4815SLPZ	48 (18-75)	15	15	344	1000	820	91
AM15EW-4824SLPZ	48 (18-75)	24	15	344	625	270	91

Input Specification				
Parameters	Conditions	Typical	Maximum	Units
Voltage types			4:1	
Absolute maximum rating	24Vin, 1sec. max.		-0.7~50	VDC
	48Vin, 1sec. max.		-0.7~100	VDC
Input reflected ripple current	Nominal Vin and full load	30		mA
Start-up time	Nominal Vin and constant resistive load, Power up	10		mS
Start-up voltage	24V input		9	VDC
	48V input		18	VDC
Input under voltage lockout	24V input	5.5-6.5		VDC
	48V input	12-15.5		VDC
Filter	π(Pi) Network			
On/Off control	ON – open or 3.5-12VDC; OFF – short to –Vin or 0-1.2VDC, Idle current: 2 - 7mA			

Isolation Specification				
Parameters	Conditions	Typical	Maximum	Units
Tested isolation voltage	Input / output, 60 sec, 1 mA	≥1500		VDC
Resistance	Input / output, 500VDC	≥1000		MΩ
Capacitance	Input / output, 100KHz/0.1V	2000		pF

Output Specification				
Parameters	Conditions	Typical	Maximum	Units
Voltage Tolerance	100% load @ Vin (nom.)	±1	±3	%
Line Regulation	LL to HL at Full Load	±0.2	±0.5	%
Load Regulation	5% to 100% load	±0.5	±1	%
Transient Recovery Time	25% load step change	300	500	µs
Transient recovery deviation	25% load step change, 3.3/5Vout models	±3	±7	%
	25% load step change, others	±3	±5	%

External Trim Adj. Range			±10	%
Ripple & Noise	20MHz Bandwidth, 100% load, single output	50	100	mV pk-pk

General Specifications

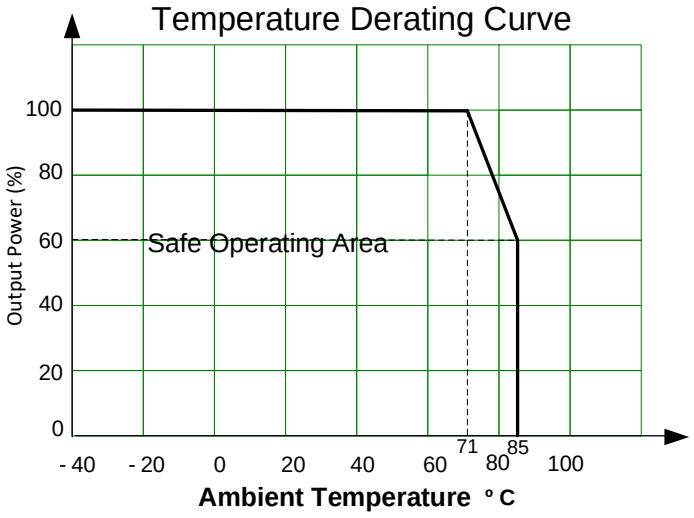
Parameters	Conditions	Minimum	Typical	Maximum	Units
Switching frequency	100% load		300		KHz
Short circuit protection	Continuous, Auto recovery				
Over current protection	Nominal input	110		190	% of Io
Over voltage protection		110		160	%
Operating temperature	See derating curve	-40		85	°C
Maximum soldering temperature	1.5mm from case for 10 sec			300	°C
Storage temperature		-55		125	°C
Temperature coefficient	100% Load			± 0.03	%/ °C
Cooling	Free air convection				
Humidity			≥5	95	% RH
Weight			28		g
Dimensions (L x W x H)		2.00x 1.00 x 0.47 inches (50.8 x 25.4 x 12.0 mm)			
Case material	Aluminum alloy				
MTBF	≥ 1 000 000 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

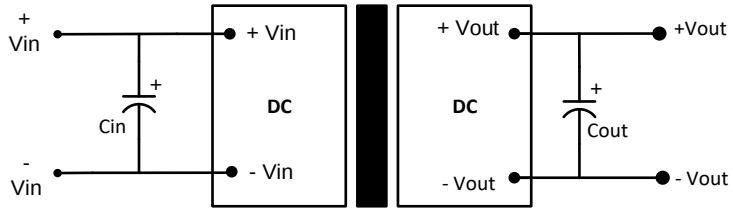
Parameters		
Standards	Designed to meet	UL/EN/IEC 62368-1
	EMI - Conducted and radiated emission	CISPR32/EN 55032, Class B, with EMC recommended circuit
	Electrostatic Discharge Immunity	EN61000-4-2
	RF, Electromagnetic Field Immunity	EN61000-4-3
	Electrical Fast Transient/Burst Immunity	EN61000-4-4
	Surge Immunity	EN61000-4-5
	RF, Electromagnetic Field Immunity	EN61000-4-6
	Vibration	IEC/EN61373, category 1/grade B

Derating



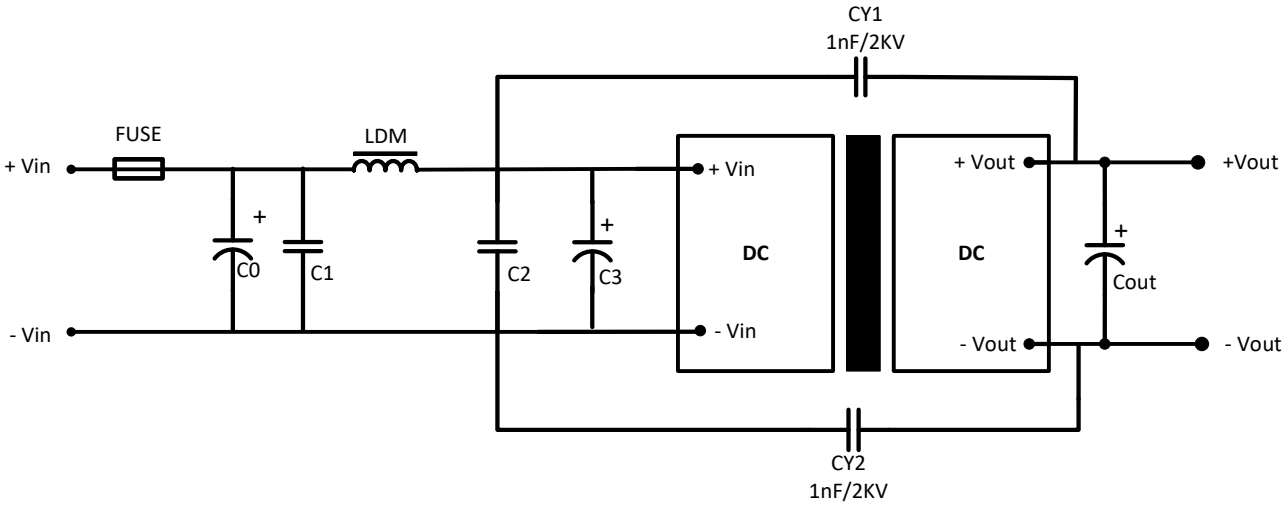
Typical Application Circuit

Single



Single outputs			
Vin	Cin	Vout	Cout
24/48VDC	100μF	3.3~24VDC	47~100μF

Recommended EMC Circuit

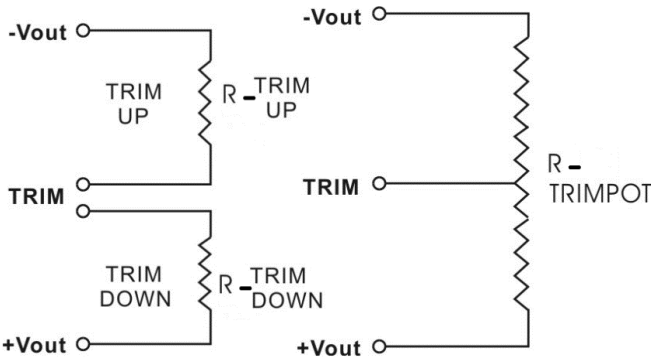


Component	24Vin	48Vin
C0, C3	330μF, 50V	330μF, 100V
C1, C2	4.7μF, 50V	4.7μF, 100V
Cout	Refer to Cout in Typical Application Circuit	
LDM	2.2μH, 4A	2.2μH, 2A

Trimming

Output voltage can be externally trimmed by utilizing the methods as shown below

Fixed Resistor **Variable Potentiometer**



Leave open if not used.

3.3V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	3.267	3.234	3.201	3.168	3.135	3.102	3.069	3.036	3.003	2.970
Rt down (KΩ)	192.598	104.838	68.397	48.444	35.853	27.185	20.853	16.025	12.222	9.149
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	3.333	3.366	3.399	3.432	3.465	3.498	3.531	3.564	3.597	3.630
Rt up (KΩ)	296.095	99.171	54.915	35.384	24.383	17.325	12.412	8.795	6.022	3.828

5V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	4.950	4.900	4.850	4.800	4.750	4.700	4.680	4.600	4.550	4.500
Rt down (KΩ)	110.182	53.582	32.644	21.738	15.047	10.524	9.100	4.798	2.871	1.323
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	5.060	5.100	5.150	5.200	5.250	5.300	5.350	5.400	5.450	5.500
Rt up (KΩ)	130.380	68.870	40.959	27.639	19.840	14.718	11.096	8.401	6.316	4.655

12V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	11.880	11.760	11.640	11.520	11.400	11.280	11.160	11.040	10.920	10.800
Rt down (KΩ)	493.692	299.052	210.127	159.185	126.173	103.042	85.932	72.764	62.316	53.823
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	12.120	12.240	12.360	12.480	12.600	12.720	12.840	12.960	13.080	13.200
Rt up (KΩ)	704.035	156.520	81.479	51.675	35.677	25.695	18.874	13.917	10.152	7.195

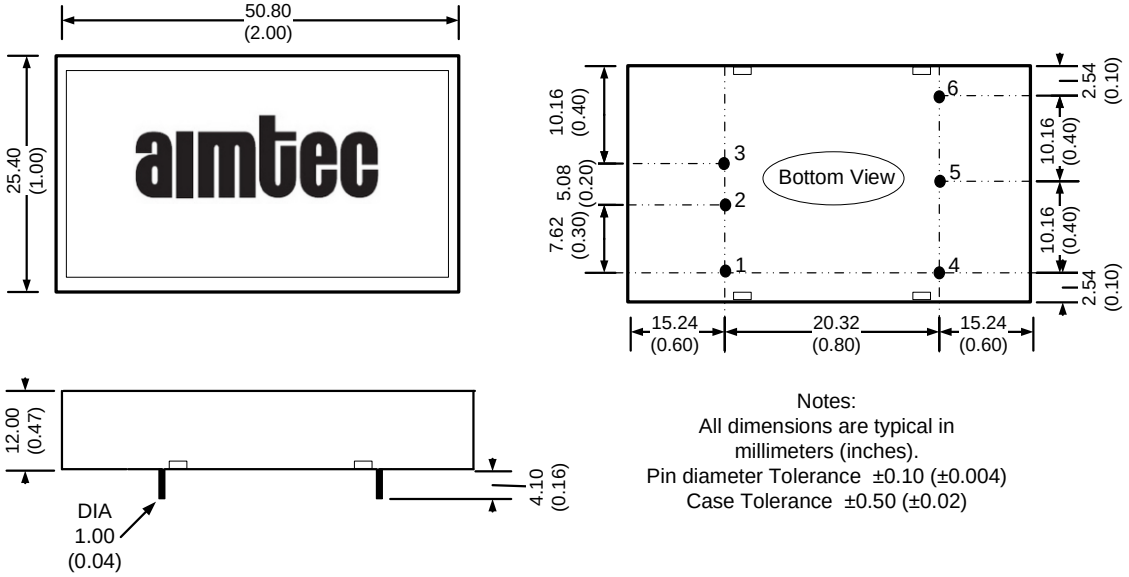
15V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	14.850	14.700	14.550	14.400	14.250	14.100	13.950	13.800	13.650	13.500
Rt down (KΩ)	257.086	204.311	167.813	141.069	120.629	104.499	91.447	80.667	71.614	63.904
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	15.150	15.300	15.450	15.600	15.750	15.900	16.050	16.200	16.350	16.500
Rt up (KΩ)	--	--	--	465.781	146.993	81.645	53.473	37.778	27.774	20.841

24V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	23.760	23.520	23.280	23.040	22.800	22.560	22.320	22.080	21.840	21.600
Rt down (KΩ)	1289.521	792.049	564.771	434.571	350.197	291.076	247.346	213.690	186.986	165.281
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	24.240	24.480	24.720	24.960	25.200	25.440	25.680	25.920	26.160	26.400
Rt up (KΩ)	795.550	176.609	91.778	58.086	40.001	28.717	21.006	15.402	11.146	7.803

Dimensions



Pin Out Specifications	
Pin	Single
1	On/off control
2	-Vin
3	+Vin
4	-Vout
5	Trim
6	+Vout

Notes:
All dimensions are typical in millimeters (inches).
Pin diameter Tolerance ±0.10 (±0.004)
Case Tolerance ±0.50 (±0.02)

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.