



# Series AM15E-NZ

## 15 Watt | DC-DC Converter



### FEATURES:

- Wide 2:1 input range
- High efficiency up to 90%
- Input Under Voltage lockout
- Over current, over voltage protection
- Remote On/Off Control
- Operating temperature -40°C to + 85°C
- Input / Output Isolation 1500VDC
- Continuous short circuit protection
- No load power consumption ≤0.12W
- Output voltage adjustment

### Models Single output



Model	Input Voltage (V)	Max Input current FL/LL (mA)	Output Voltage (V)	Output Current max (A)	Capacitive load, max (µF)	Efficiency (%)
AM15E-2405S-NZ	18-36	718/75	5	3	4700	89
AM15E-2412S-NZ	18-36	718/10	12	1.25	1000	89
AM15E-2415S-NZ	18-36	718/10	15	1	820	89
AM15E-2424S-NZ	18-36	718/10	24	0.62	270	90
AM15E-4805S-NZ	36-75	363/30	5	3	3300	88
AM15E-4812S-NZ	36-75	363/10	12	1.25	1000	88
AM15E-4815S-NZ	36-75	363/10	15	1	680	89
AM15E-4824S-NZ	36-75	363/10	24	0.62	470	89

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.

### Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage Range	24	18-36		VDC
	48	36-75		
Filter	π (Pi) Network			
Startup time		10		ms
Absolute Maximum Rating	24 Vin	-0.7 - 50		VDC
	48 Vin	-0.7 - 100		
Peak Input Voltage time		1		s
Input Reflected ripple current		30		mA
Input Under Voltage lockout	24 Vin	14 - 15.5		VDC
	48 Vin	26 - 30		
Remote On/Off Control	On	3.5-12VDC or leave open		
	Off	0-1.2VDC or connect to GND, idle current 4-7mA		

### Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	1 min, <1mA		1500	VDC
Resistance		> 1000		MOhm
Capacitance	24 Vout, I/O, 100KHz/0.1V	2050		pF
	Others, I/O, 100KHz/0.1V	1050		

## Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	0-100% load	±1	±3	%
Short Circuit protection		Continuous, hiccup		
Short circuit restart		Auto Recovery		
Over Current protection		110 - 190		% of Iout
Over Voltage protection		110 - 160		% of Vout
Line voltage regulation	HL-LL	±0.2	±0.5	%
Load voltage regulation	0-100% load	±0.5	±1	%
Temperature coefficient			±0.03	%/°C
Ripple & Noise	At 20MHz Bandwidth, 5-100% load	50	100	mV p-p
Trim		10		% of Vout
Transient Recovery Time	25% Load Step Change	300	500	µs
Transient Deviation Response		±3	±5	%

## General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	270		KHz
Operating temperature	Derating above 75°C		-40 to +85	°C
Storage temperature			-55 to +125	°C
Maximum case temperature			100	°C
Cooling		Free air convection		
Humidity			95	%
Case material		Aluminum Alloy		
Potting material		UL94V-0 rated		
Weight	Pin mountable		26	g
Dimensions (L x W x H)	Pin mountable	2.00 x 1.00 x 0.46 inches	50.80 x 25.40 x 11.80 mm	
MTBF		> 1,000,000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)		
Solder Temp Leads	1.5 mm from case 10 sec.		300	°C

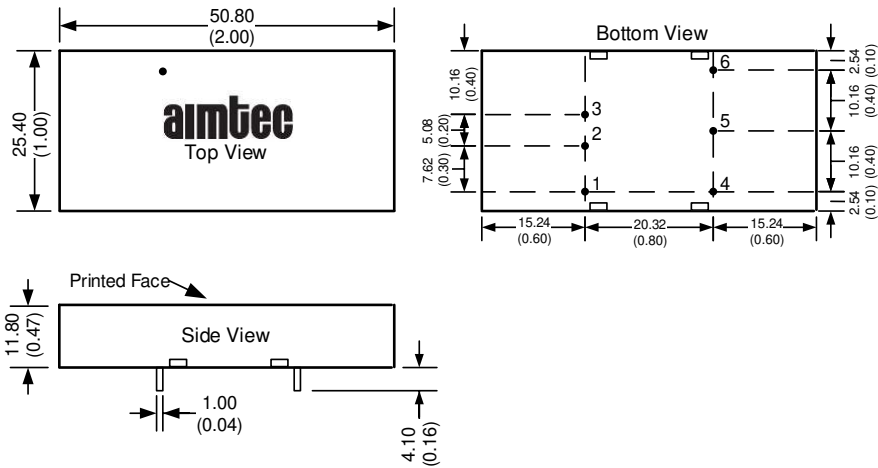
## Environmental Specifications

Parameters		
Vibration	Test mode	10-55Hz
	Acceleration	10G, 30min one cycle, every axis tested

## Safety Specifications

Parameters		
Approval	CE, UL	
Standards	IEC/EN/UL 60950-1	
	EN 55032, class A (without external components), class B (with the recommended EMC circuit)	
	Electrostatic Discharge Immunity	IEC 61000-4-2, Contact ±4KV, 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 (with the recommended EMC circuit)
	Surge Immunity	IEC 61000-4-5, ±2KV, Criteria B (with the recommended EMC circuit)
	RF, Conducted Disturbance Immunity	IEC 61000-4-6, 3 Vrms, Criteria A
Voltage dips, Short Interruptions & Voltage variations Immunity	IEC 61000-4-29: 0-70%, Criteria B	

### Dimensions:



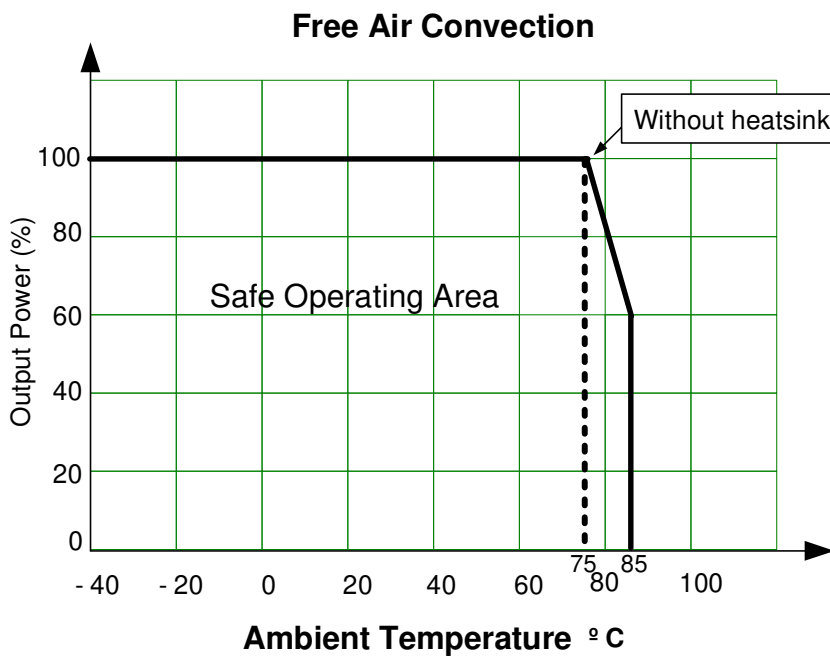
Pin	Single
1	On/Off Control
2	-Vin
3	+Vin
4	- Vout
5	Trim
6	+ Vout

Note:

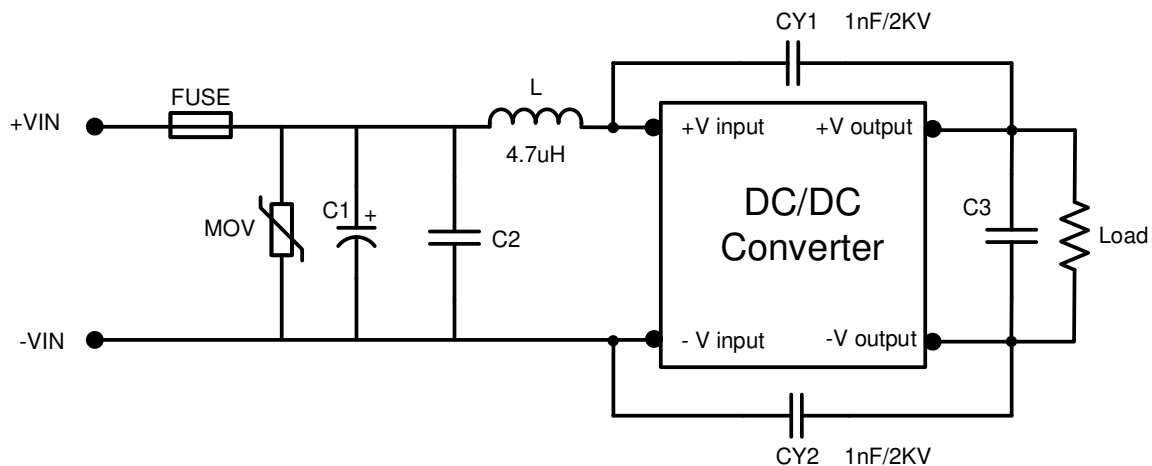
Unit: mm (inch)

General tolerances:  $\pm 0.50$  ( $\pm 0.02$ )

### Derating



**EMC recommended filter**



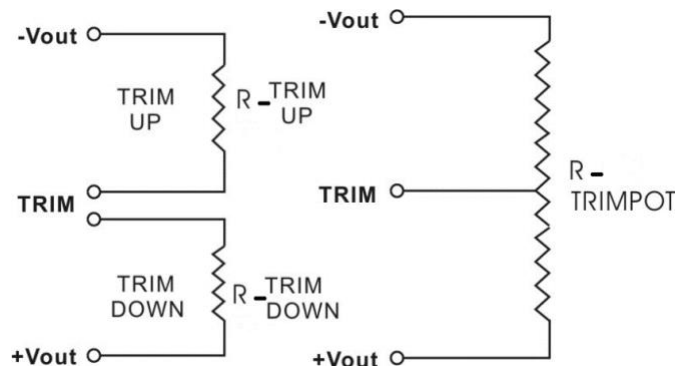
Model	MOV	C1	C2	C3
24 Vin	S20K30	330 $\mu$ F / 50V	1 $\mu$ F / 50V	470 $\mu$ F for 5V output 220 $\mu$ F for 12/15V output 100 $\mu$ F for 24V output
48 Vin	S14K60	330 $\mu$ F / 100V	1 $\mu$ F / 100V	

**Trimming**

Output voltage can be externally trimmed by utilizing the methods as shown below. Leave open if not used.

**Fixed Resistor**

**Variable Potentiometer**



AM15E-xx05S-NZ, xx=24 or 48

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	4.95	4.9	4.85	4.8	4.75	4.7	4.65	4.6	4.55	4.5
Rt down (K $\Omega$ )	105.181	52.154	31.997	21.378	14.823	10.373	7.155	4.719	2.811	1.277
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	5.05	5.1	5.15	5.2	5.25	5.3	5.35	5.4	5.45	5.5
Rt up (K $\Omega$ )	176.356	71.279	41.973	28.2	20.197	14.967	11.281	8.543	6.430	4.749

AM15E-xx12S-NZ, xx=24 or 48

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	11.88	11.76	11.64	11.52	11.4	11.28	11.16	11.04	10.92	10.8
Rt down (K $\Omega$ )	496.092	301.452	212.527	161.585	128.573	105.442	88.332	75.164	64.716	56.223
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	12.12	12.24	12.36	12.48	12.6	12.72	12.84	12.96	13.08	13.2
Rt up (K $\Omega$ )	706.435	158.92	83.879	54.075	38.077	28.095	21.274	16.317	12.552	9.595

AM15E-xx15S-NZ, xx=24 or 48

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	14.85	14.7	14.55	14.4	14.25	14.1	13.95	13.8	13.65	13.5
Rt down (K $\Omega$ )	634.883	400.637	288.514	222.759	179.537	148.96	126.187	108.569	94.532	83.087
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	15.15	15.3	15.45	15.6	15.75	15.9	16.05	16.2	16.35	16.5
Rt up (K $\Omega$ )	1460.099	192.574	96.642	61.354	43.016	31.781	24.191	18.721	14.59	11.361

AM15E-xx24S-NZ, xx=24 or 48

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	23.76	23.52	23.28	23.04	22.8	22.56	22.32	22.08	21.84	21.6
Rt down (K $\Omega$ )	1286.2	792.123	565.867	436.104	351.954	292.963	249.315	215.714	189.047	167.37
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	24.24	24.48	24.72	24.96	25.2	25.44	25.68	25.92	26.16	26.4
Rt up (K $\Omega$ )	816.889	179.914	94.338	60.464	42.307	30.988	23.257	17.64	13.376	10.027

**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](http://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](http://www.aimtec.com).