



### FEATURES:

- Ultra Wide Input 4:1 Range
- Full SMD Technology
- 1600 VDC Isolation
- Efficiency up to 92%
- Soft Start
- Adjustable Output Voltage
- Remote ON/OFF Function
- Over Current, Voltage, & Temperature Protection
- Operating temperature -40°C to + 85°C



### Models

#### Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (A)	Isolation (VDC)	Max Capacitive Load (uF)	Efficiency (%)
AM40UW-2403SZ	9-36	3.3	10	1600	25000	89
AM40UW-2405SZ	9-36	5	8	1600	13000	91
AM40UW-2412SZ	9-36	12	3.35	1600	2300	90
AM40UW-2415SZ	9-36	15	2.65	1600	1500	90
AM40UW-4803SZ	18-75	3.3	10	1600	25000	89
AM40UW-4805SZ	18-75	5	8	1600	13000	92
AM40UW-4812SZ	18-75	12	3.35	1600	2300	90
AM40UW-4815SZ	18-75	15	2.65	1600	1500	91

Add suffix "-K" for optional heatsink

### Models

#### Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (A)	Isolation (VDC)	Max Capacitive Load (uF)	Efficiency (%)
AM40UW-2412DZ	9-36	±12	±1.65	1600	±1200	89
AM40UW-2415DZ	9-36	±15	±1.35	1600	±750	89
AM40UW-4812DZ	18-75	±12	±1.65	1600	±1200	90
AM40UW-4815DZ	18-75	±15	±1.35	1600	±750	90

Add suffix "-K" for optional heatsink

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 48	9-36 18-75		VDC
Filter	π(Pi) Network			
Start up time		25		ms
Absolute Maximum Rating	24 48		50 100	VDC
Peak Input Voltage time			100	ms
On/Off control	ON -3.0 -12 (or open) ; OFF -0 -1.2 (or short pin 2 to pin 3) Off idle current: 5mA			
No Load Input Current		100		mA
Under voltage lockout	24 ON/OFF 48 ON/OFF	8.6/7.9 17.6/16		VDC
Input reflected ripple current*		20		mA p-p

\* Measured with a 12μH inductor

### Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		1600	VDC
Tested I,O/case voltage	60 sec		1600	VDC
Resistance		>1000		MOhm
Capacitance		2500		pF

## Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±1		%
Cross Regulation (Dual Output Models)	1 <sup>st</sup> output 25% to 100%, 2 <sup>nd</sup> output 100%	±5		%
Over voltage protection	Zener Diode Clamp, 3.3V output	3.9		V
	Zener Diode Clamp, 5V output	6.2		
	Zener Diode Clamp, 12V output	15		
	Zener Diode Clamp, 15V output	18		
	Zener Diode Clamp, ±12V output	±15		
	Zener Diode Clamp, ±15V output	±18		
Over current protection	Full Load	130		%
Short Circuit protection		Continuous		
Short circuit restart		Auto-Restart		
Thermal shutdown	On Case	110		°C
Line voltage regulation	HL-LL		±0.5	% of Vin
Load voltage regulation (Single)	I <sub>out</sub> =0% to 100%		±0.5	%
Load voltage regulation (Dual)	I <sub>out</sub> =1% to 100%		±1	%
Temperature coefficient		±0.02		%/°C
Ripple & Noise*	3.3/5V output models		50	mV p-p
	Dual output models		150	
	Other models		75	
Voltage adjustment range	Inclusive of trim and remote sense		±10	%
Minimum load current		0		% of Max

\* Measured at 20MHz bandwidth a 1.0µF ceramic capacitor.

## General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	270		KHz
Operating temperature	With derating above 55 °C (see graph below)	-40 to +85		°C
Storage temperature		-55 to +125		°C
Maximum case temperature			105	°C
Derating	Above 55 °C	2		%/°C
Cooling		Free Air Convection		
Humidity			95	% RH
Case material		Nickel – coated Copper		
Weight		65		g
Dimensions (L x W x H)	2.00 x 2.00 x 0.40 inches	50.81 x 50.81 10.14 mm		
MTBF	>151000 hrs	Calculated using MIL-HDBK-217 F at +25 °C		
Maximum soldering temperature	1.5mm from case for 10 sec		260	°C
Transient recovery time	25% load step change	250		µS
Transient recovery deviation	25% load step change		±3	%

## Safety Specifications

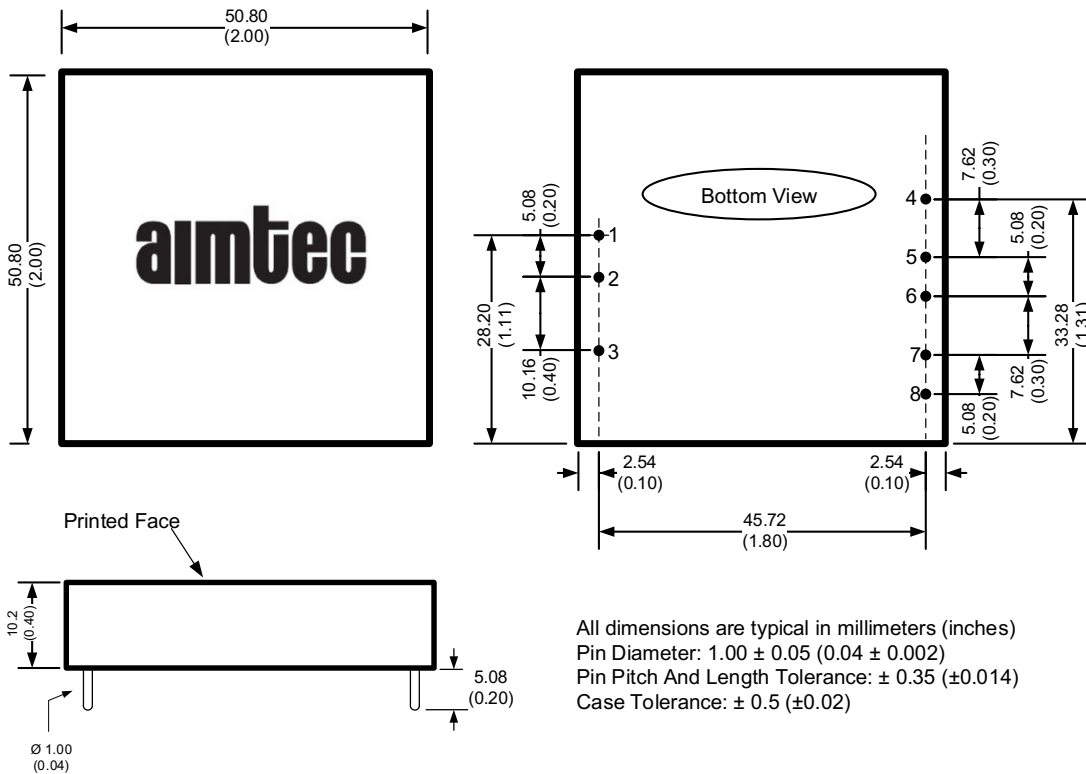
Standards	
Safety	Design to meet IEC/EN/UL 60950, 62368
	EN55032, Class A with the recommended circuit
	IEC61000-4-2 Perf. Criteria A
	IEC61000-4-3 Perf. Criteria A
	IEC61000-4-4 Perf. Criteria A (external 220µF/100V cap required)
	IEC61000-4-5 Perf. Criteria A (external 220µF/100V cap required)
	IEC61000-4-6 Perf. Criteria A
IEC61000-4-8 Perf. Criteria A	

### Pin Out Specifications

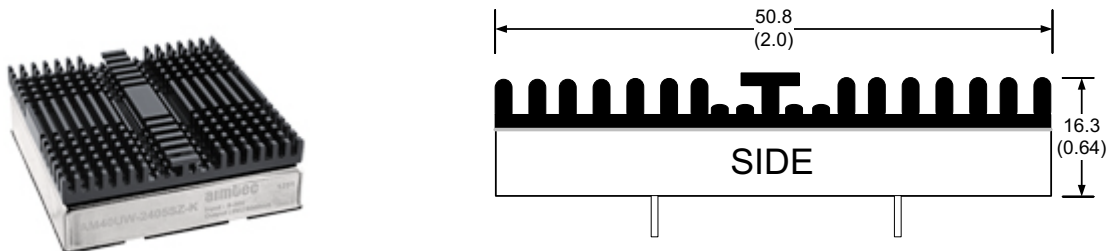
Pin	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	On/Off Control	On/Off Control
4	- Sense	+V Output
5	+ Sense	Common
6	+V Output	Common
7	-V Output	-V Output
8	Trim	Trim

**Note:**  
When not using the sense function, connect the +sense to +Vout and -sense to -Vout with the shortest possible traces to avoid interference and minimize the voltage drop.

### Dimensions

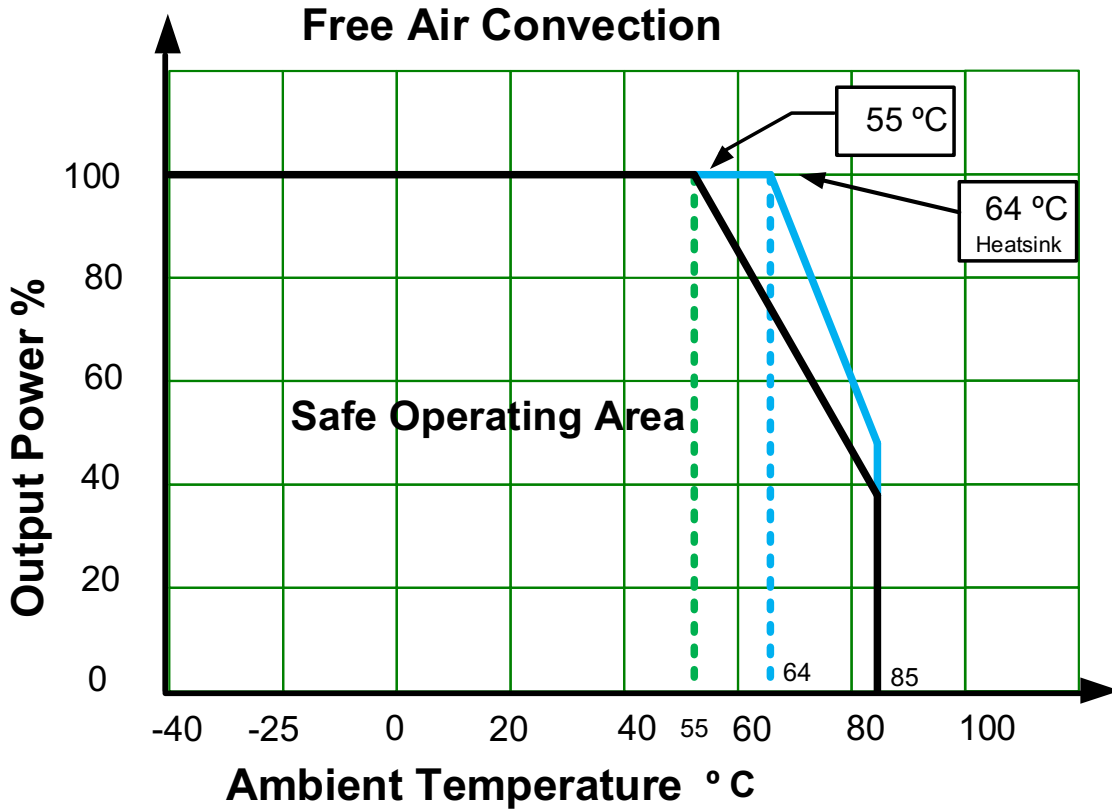


### Dimensions with Optional Heatsink



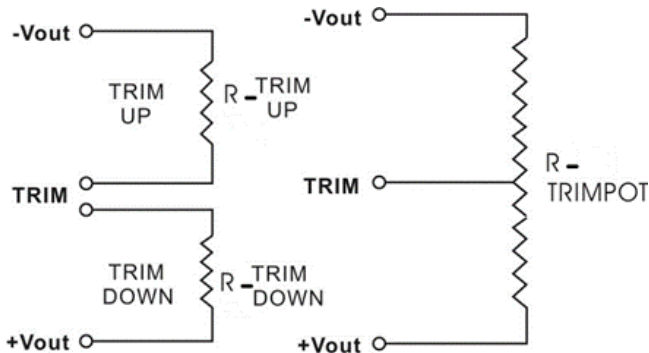
**Notes:** Add "-K" suffix for ordering, heatsink is affixed with thermally dissipative adhesive tape. See derating graph for temperature performance. Heatsink material is anodized (black) aluminum, adds weight 22g to total mass (60g).

**Derating**



Extended temperature performance can be achieved with optional heatsink. (add suffix “-K” to part number)

**Trimming**



**AM40UW-XX03SZ**

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	2.97
Rt down (KΩ)	315.932	172.257	112.528	79.806	59.153	44.930	34.539	26.616	20.374	15.330
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	3.63
Rt up (KΩ)	544.612	184.034	103.305	67.715	47.676	34.824	25.880	19.297	14.249	10.255

**AM40UW-XX05SZ**

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 (KΩ)	230.566	106.182	64.301	43.281	30.643	22.207	16.177	11.651	8.129	5.310
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 (KΩ)	244.547	113.776	70.631	49.142	36.274	27.707	21.592	17.010	13.447	10.598

**AM40UW-XX12SZ**

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 (KΩ)	327.351	142.100	83.928	55.470	38.591	27.418	19.477	13.542	8.939	5.264
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 (KΩ)	371.425	183.645	117.623	83.929	63.489	49.767	39.919	32.508	26.728	22.094

**AM40UW-XX15SZ**

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 (KΩ)	433.811	174.916	100.946	65.907	45.468	32.077	22.625	15.596	10.165	5.842
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 (KΩ)	347.293	178.523	115.235	82.084	61.683	47.863	37.882	30.336	24.430	19.682

**AM40UW-XX12DZ**

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 (KΩ)	231.849	106.217	63.546	42.058	29.116	20.468	14.280	9.634	6.017	3.122
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 (KΩ)	229.254	103.827	62.826	42.473	30.309	22.218	16.449	12.128	8.769	6.085

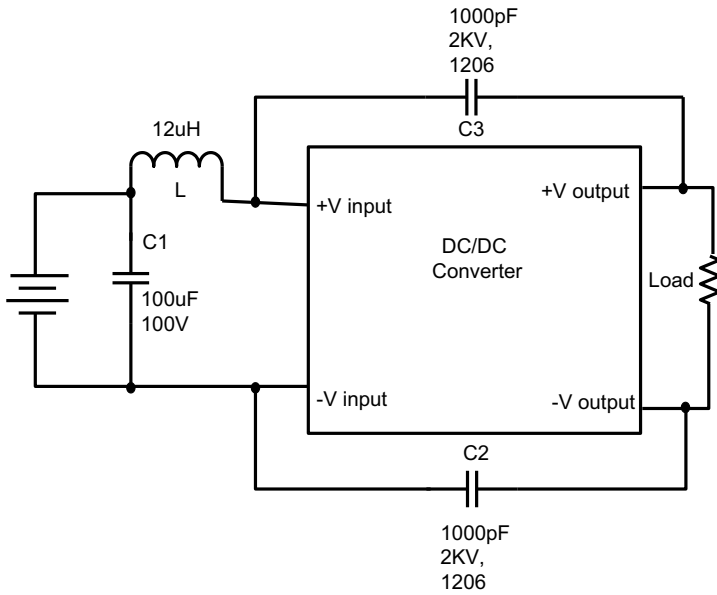
**AM40UW-XX15DZ**

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 (KΩ)	351.590	146.987	85.137	55.280	37.693	26.101	17.886	11.760	7.015	3.232
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 (KΩ)	239.820	116.162	71.431	48.344	34.251	24.754	17.919	12.765	8.740	5.509

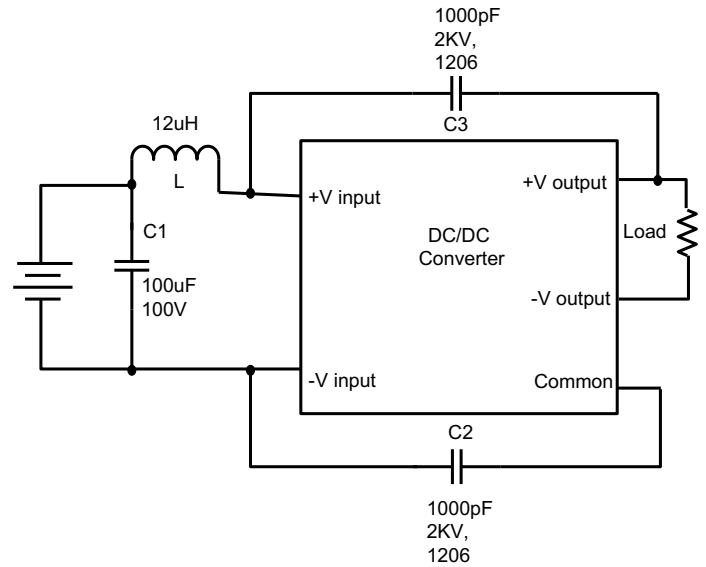
## Recommended Circuits

### Conducted and Radiated Emissions

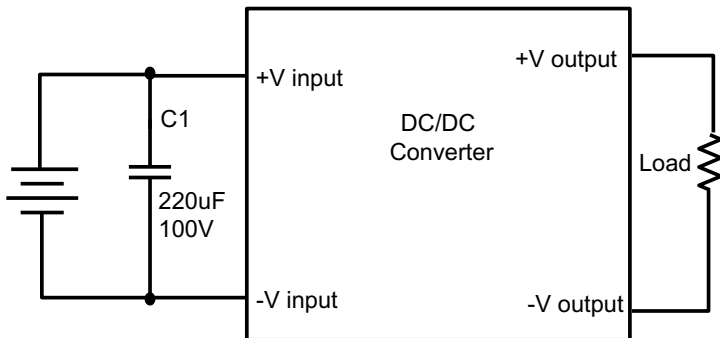
Single Output



Dual Output



### EFT/Surge



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