

Series AM40UW-Z

40 Watt | DC-DC Converter



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	90
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	90

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	90
AM40UW-4812DZ	18-75	±12	±1.65	1600	±1200	80
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

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	3 sec		1600	VDC
Resistance		>1000		MOhm
Capacitance		2500		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±1		%
Cross Regulation (Dual Output Models)	25% load on one output - 100% load on second load	±5		%
Over voltage protection		Zener Diode Clamp		
Over current protection	Full Load	150		%
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 _{out} =0% to 100%	±0.5		%
Load voltage regulation (Dual)	I _{out} =0% to 100%	±1		%
Temperature coefficient		±0.02		%/°C
Ripple & Noise	20MHz Bandwidth	150		mV p-p
Voltage adjustment range		±10		%
Minimum Load Current		0		% of Max

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		-40 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		60		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		>1500000 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		250		µS
Transient recovery deviation		±3		mS

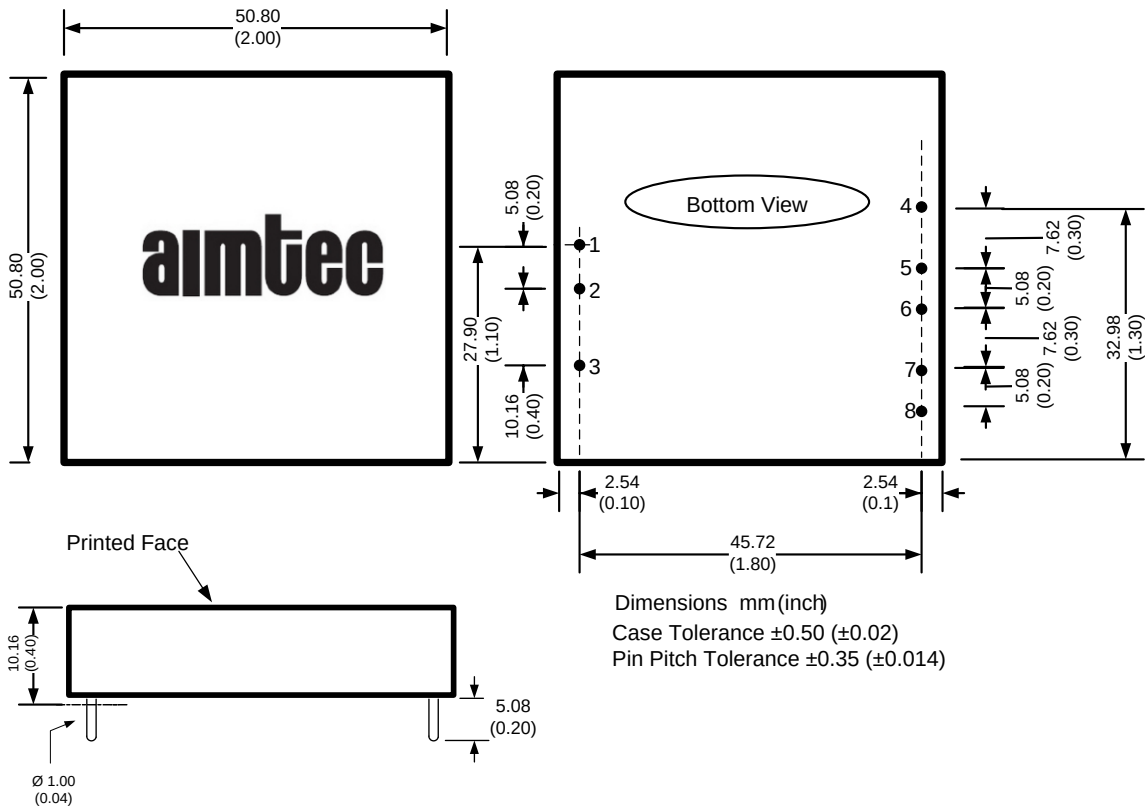
Safety Specifications

Standards	
Agency Approval	CE, meet IEC 60950-1:2001
Safety	EN55022: 2006 + A1:2007, Class A
	EN55024:1998 + A1:2001 + A2:2003
	IEC61000-4-2:1995 + A1:1998 + A2:2000, Perf. Criteria B
	IEC61000-4-3:2006, Perf. Criteria A
	IEC61000-4-4:2004, Perf. Criteria B (external 220µF/100V cap required)
	IEC61000-4-5:2005, Perf. Criteria B (external 220µF/100V cap required)
	IEC61000-4-6:2007, Perf. Criteria A
	IEC61000-4-8, Perf:1993 + A1:2000, Criteria A

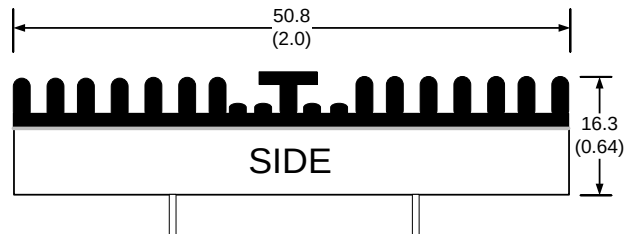
Pin Out Specifications

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

Dimensions

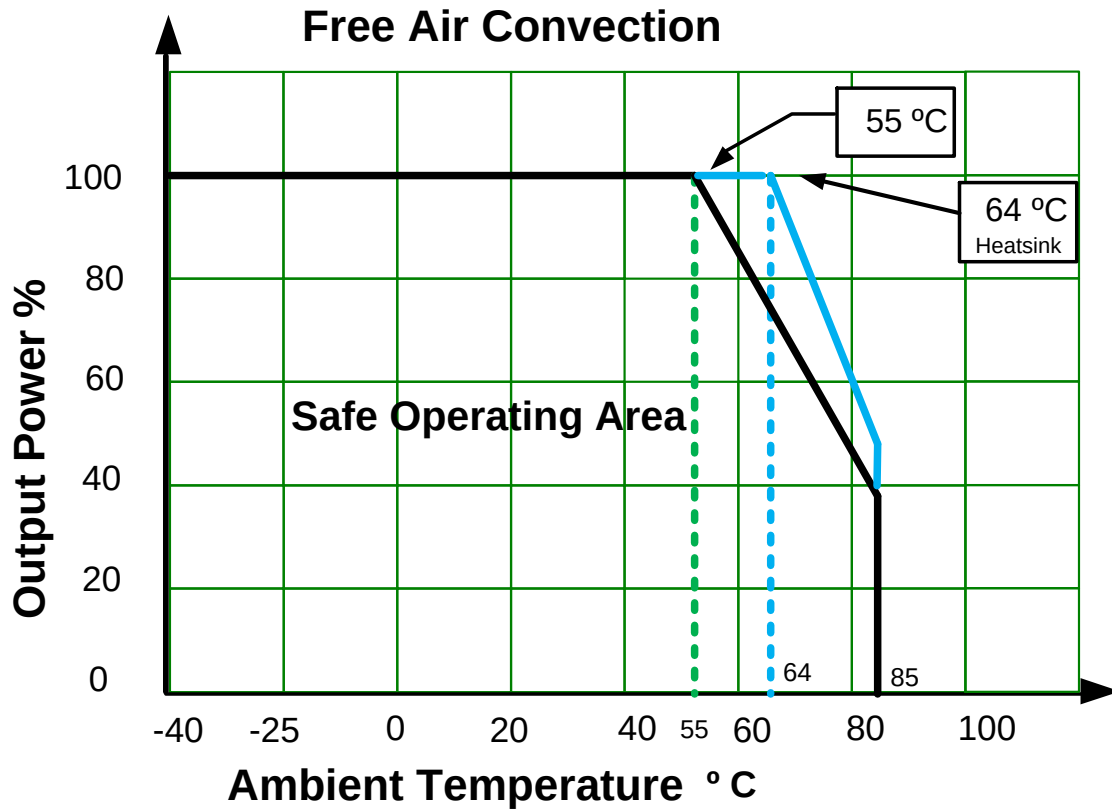


Dimensions with Optional Heatsink



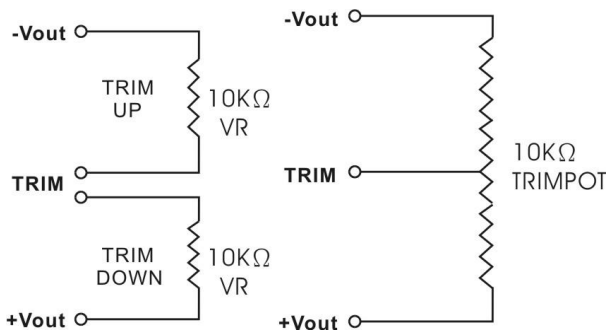
Notes: Add "-K" suffix for ordering, heatsink is affixed with thermally dissipative adhesive tape.
See derating graph for temperature performance. Heatsink material is anodized (black) aluminum, adds weight 22g to total mass (60g). Thermal impedance of converter is: without heatsink 10°C/W and 8.8°C/W with heatsink.

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

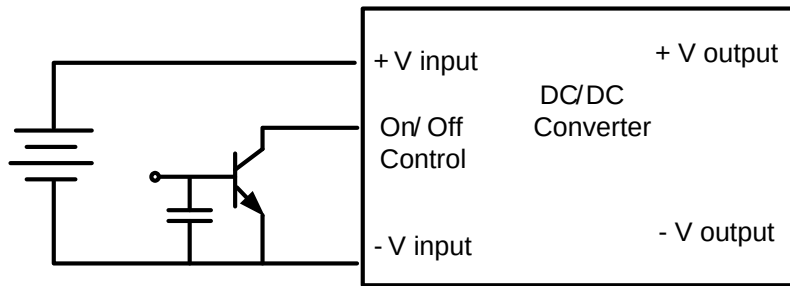
AM40UW-XX12DZ

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

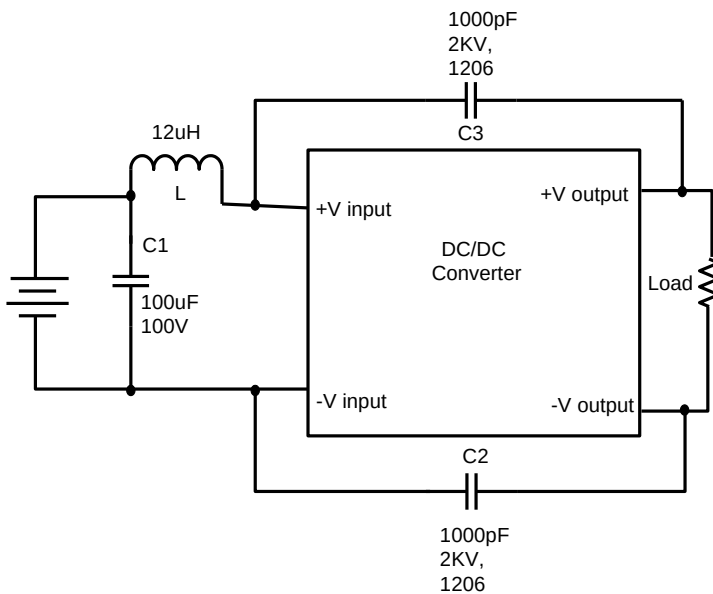
Control ON/OFF



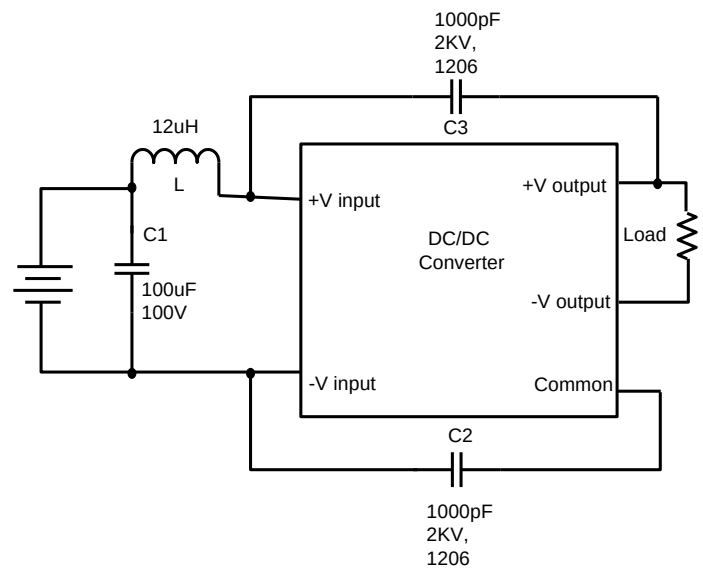
Recommended Circuits

Conducted and Radiated Emissions

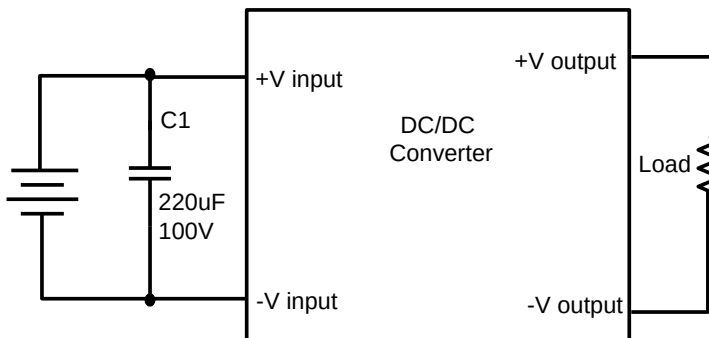
Single Output



Dual Output



EFT/Surge



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