



**FEATURES:**

- Wide 2:1 Input Range
- Adjustable Single Output Voltage
- Undervoltage lockout
- High Power Density
- Efficiency up to 92%
- Remote On/Off Function
- Soft start

**Models**  
Single output



Model	Input Voltage (V)	Output Voltage (V)	Output Current max (A)	Maximum Capacitive load (μF)	Efficiency (%)
AM40E-1203SZ	9-18	3.3	8	21800	90
AM40E-1205SZ	9-18	5	8	13600	91
AM40E-1212SZ	9-18	12	3.33	2300	91
AM40E-1215SZ	9-18	15	2.67	1500	91
AM40E-2403SZ	18-36	3.3	8	21800	91
AM40E-2405SZ	18-36	5	8	13600	92
AM40E-2412SZ	18-36	12	3.33	2300	91
AM40E-2415SZ	18-36	15	2.67	1500	92
AM40E-4803SZ	36-75	3.3	8	21800	91
AM40E-4805SZ	36-75	5	8	13600	92
AM40E-4812SZ	36-75	12	3.33	2300	91
AM40E-4815SZ	36-75	15	2.67	1500	92

**Models**  
Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (A)	Maximum Capacitive load (μF)	Efficiency (%)
AM40E-1212DZ	9-18	±12	±1.67	±1200	91
AM40E-1215DZ	9-18	±15	±1.33	±750	92
AM40E-2412DZ	18-36	±12	±1.67	±1200	91
AM40E-2415DZ	18-36	±15	±1.33	±750	92
AM40E-4812DZ	36-75	±12	±1.67	±1200	92
AM40E-4815DZ	36-75	±15	±1.33	±750	92

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	12	9-18		VDC
	24	18-36		
	48	36-75		
Filter	π (Pi) Network			
Start up time		30		ms
Absolute Maximum Rating	12		25	VDC
	24		50	
	48		100	
Peak Input Voltage time			1	s
On/Off control	ON: 3 ~12VDC or open circuit ; OFF – 0 ~ 1.2VDC or Short circuit between pin 2 and pin 3 (OFF idle current: 5mA Typical)			

### Input Specifications (continued)

Parameters	Nominal	Typical	Maximum	Units
Under voltage lockout	12V ON/OFF		8.6 / 7.9	VDC
	24V ON/OFF		17.8 / 16	
	48V ON/OFF		33.5 / 30.5	
Input Reflected Ripple Current		20		mA p-p

### Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	3 sec		1600	VDC
Case/Input and Output	3 sec	1600		VDC
Resistance		<1000		MOhm
Capacitance		1000		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 load protection		130		% of Iout
Short Circuit protection		Continuous		
Short circuit restart		Auto-Recovery		
Line voltage regulation		±0.5		%
Load voltage regulation (Single)	0% to 100% load	±0.5		%
Load voltage regulation (Dual)	0% to 100% load	±1		%
Temperature coefficient		±0.02		%/°C
Ripple & Noise (20MHz Bandwidth)	3.3Vout/5Vout other models	100 150		mV p-p
Voltage adjustment range (single)			±10	%
Minimum Load Current		0		% of Max

### General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load		270	KHz
Operating temperature	Derating above 55		-40 to +71	°C
Storage temperature		-40 to +125		°C
Maximum case temperature			105	°C
Derating		2.5		%/°C
Cooling		Free Air Convection		
Humidity			95	% RH
Case material		Nickel coated Copper		
Weight		32		g
Dimensions (L x W x H)		2.00 x 1.00 x 0.40 inches	50.80 x 25.40 x 10.16 mm	
MTBF		>328,000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)hours		
Maximum soldering temperature	1.5mm from case for 10 sec		260	°C
Transient recovery time		250		µS
Transient recovery deviation		±3		%

## Safety Specifications

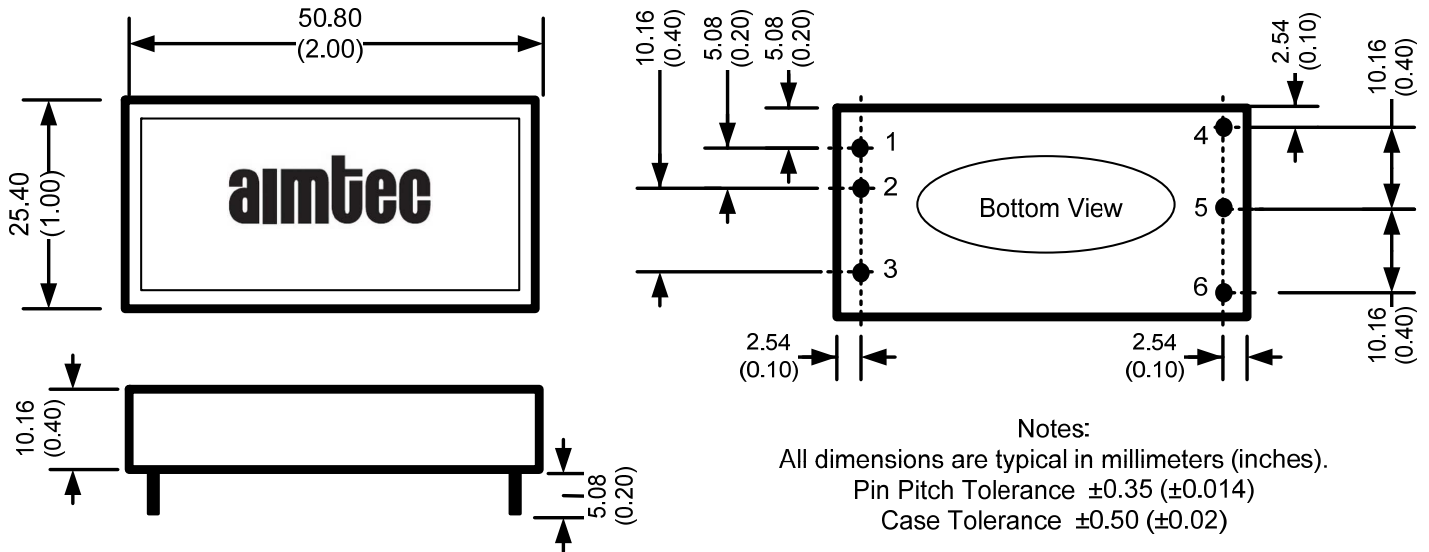
Parameters	
Agency Approval	CE
Safety	EN55022: 2006 + A1:2007, Class B
	IEC61000-3-2:2006+A2:2009
	IEC61000-3-3:2008
	EN55024:1998 + A1:2001 + A2:2003
	IEC61000-4-2: 2008
	IEC61000-4-3:2006+A1: 2007
	IEC61000-4-4:2004
	IEC61000-4-5:2005
	IEC61000-4-6:2008
	IEC61000-4-8:2009
NOTE: also designed to meet IEC 60950-1:2001	

## Pin Out Specifications

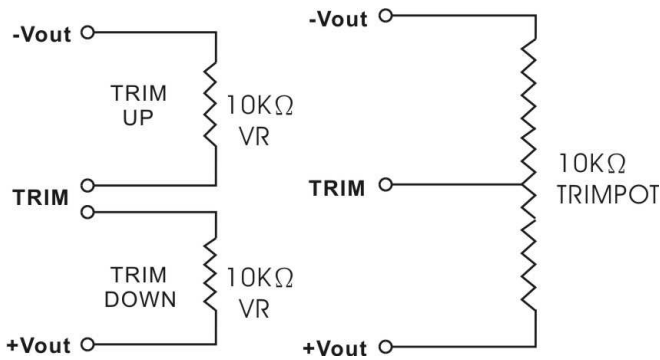
Pin	Single	Dual
1	+ V Input	+ V Input
2	- V Input	- V Input
3	On/Off Control	On/Off Control
4	+ V Output	+ V Output
5	-V Output	Common
6	Trim	- V Output

## Dimensions

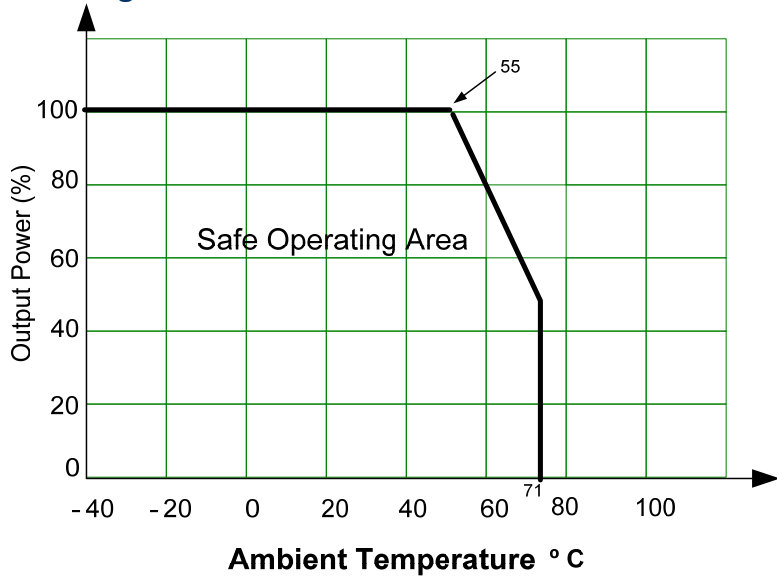
Single and Dual Output Models



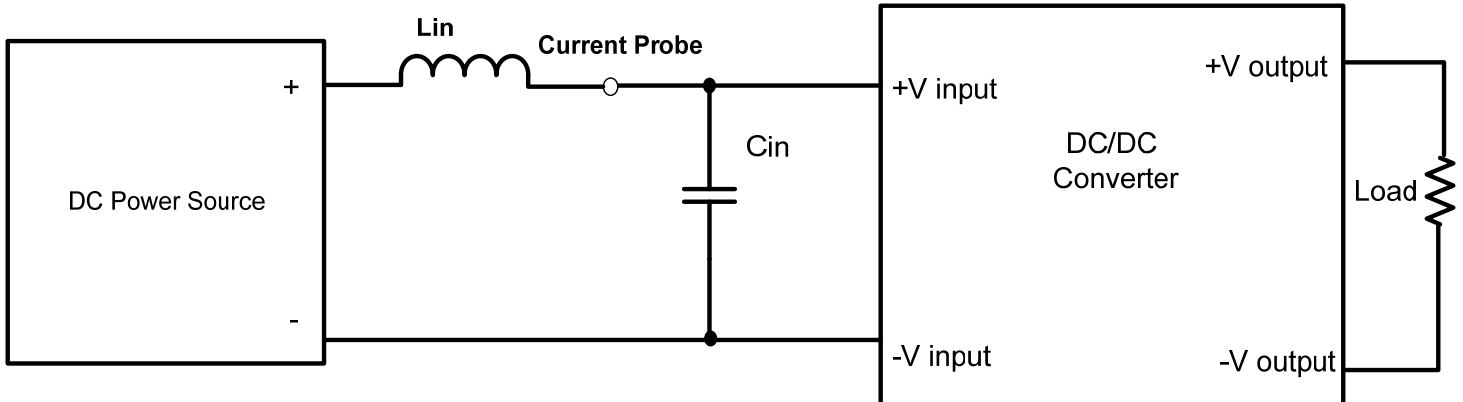
**Trimming**



**Derating**

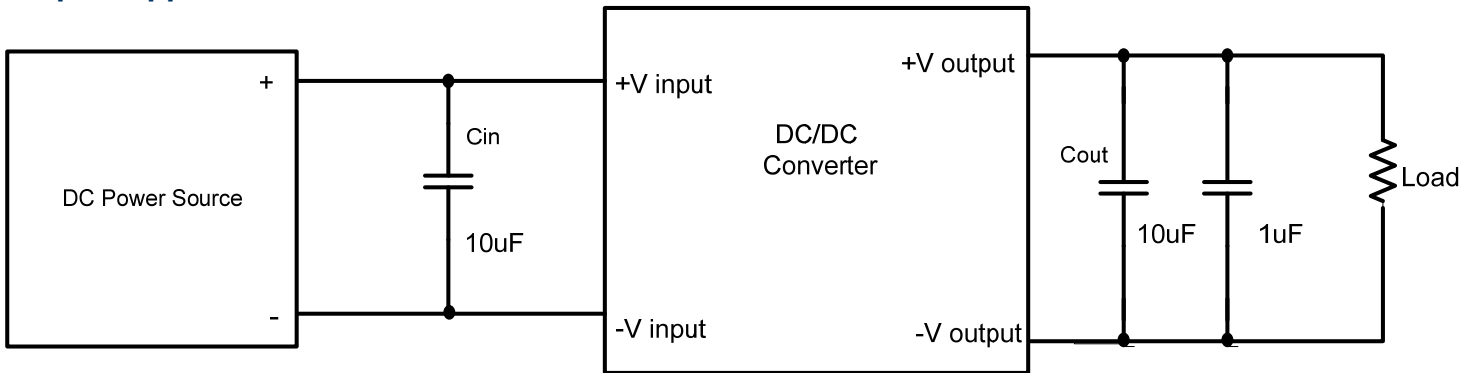


### Input Reflected Ripple Current Test Step



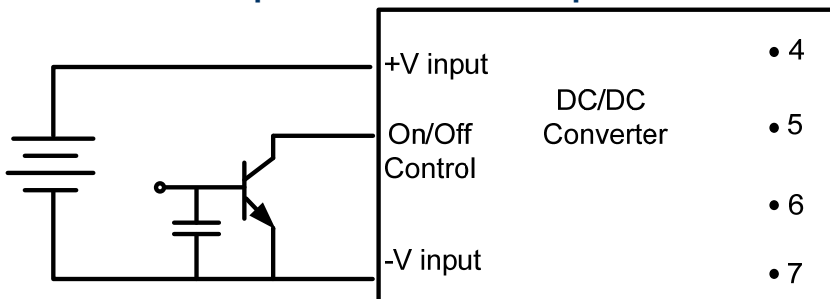
Input reflected ripple current is measured through a source inductor  $L_{in}$ (4.7uH) and a source capacitor  $C_{in}$  (47uF, ESR<1.0ohm at 100KHz) at a nominal input and full load

### Output Ripple and noise reduction

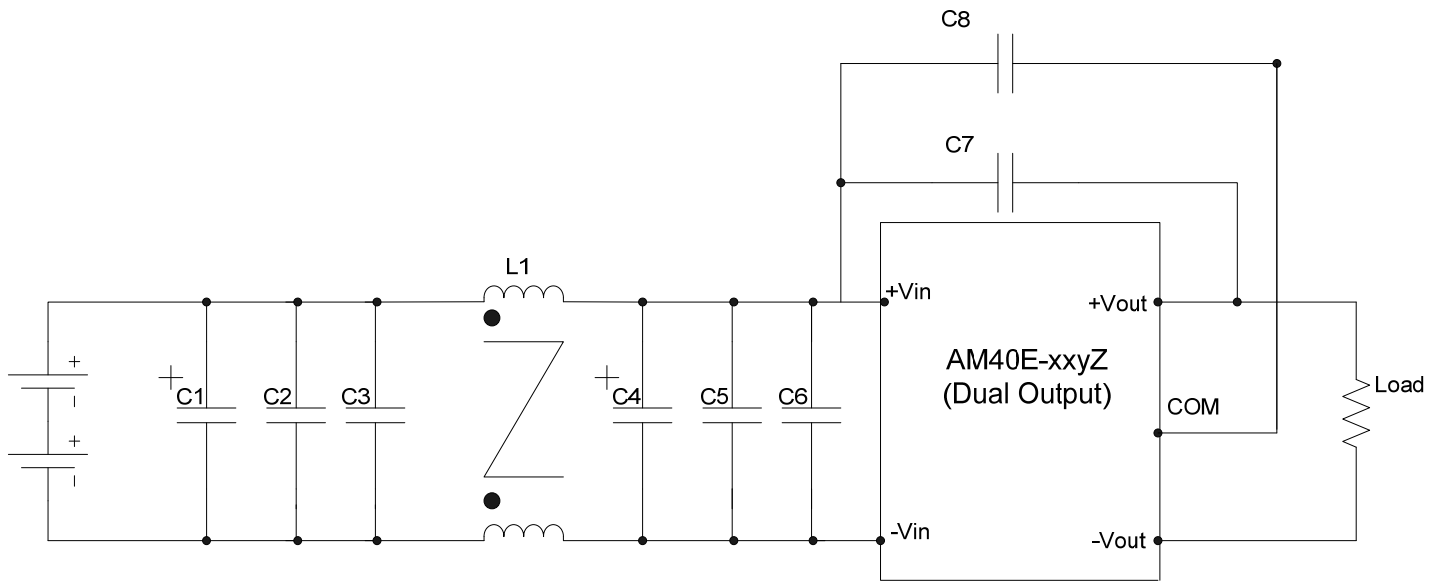
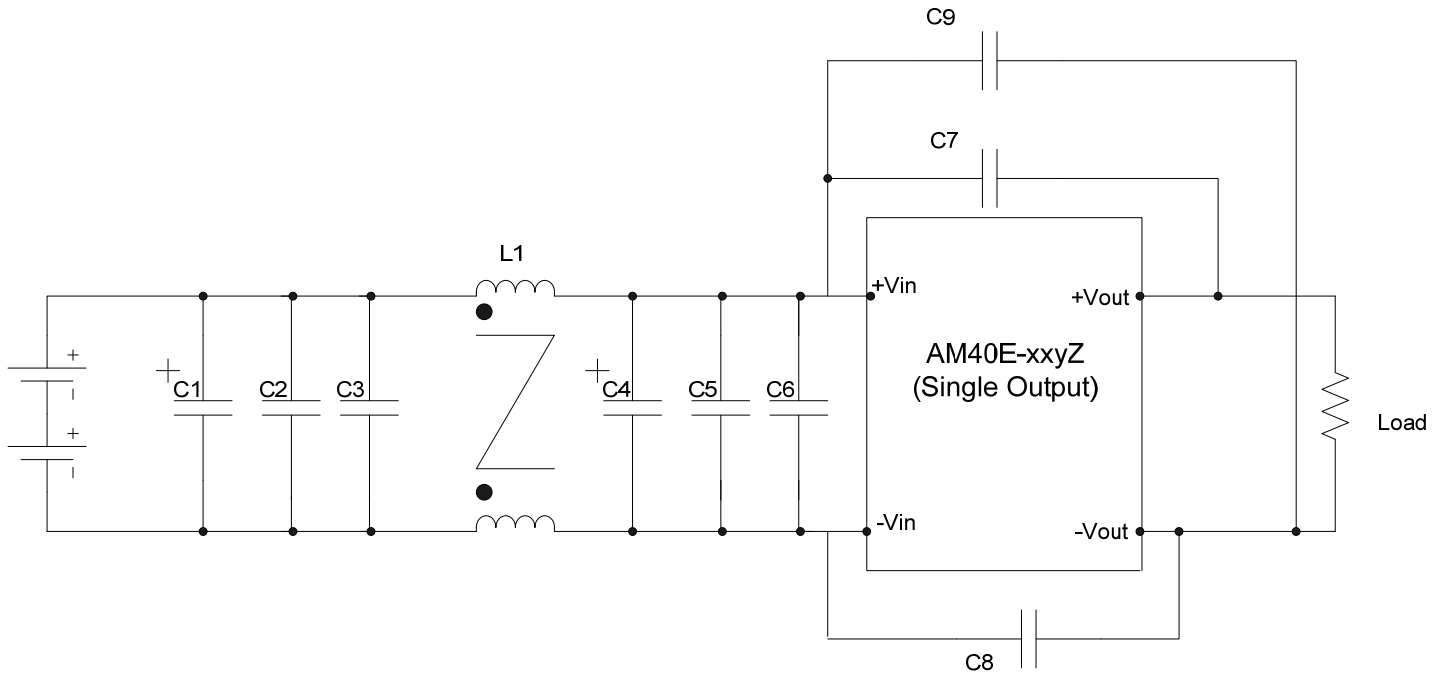


To reduce ripple and noise, it is recommended to use a 1uF ceramic disk capacitor and a 10uF electrolytic

### Control ON/OFF pin connection example

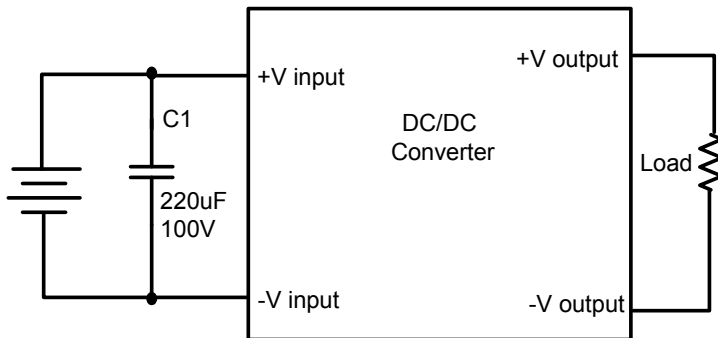


**EMI Filter**



Model	C1	L1	C2/C3/C5/C6	C4	C7	C8	C9
AM40E-12xxSZ (single)	220 $\mu$ F, 100V	Common Choke 68 $\mu$ H	1812,6.8 $\mu$ F, 50V	330 $\mu$ F, 100V			1206,1000pF, 2KV
AM40E-24xxSZ (single)	220 $\mu$ F, 100V	Common Choke 68 $\mu$ H	1812,4.7 $\mu$ F, 50V	220 $\mu$ F, 100V	1206,1000pF, 2KV	1206,1000pF, 2KV	
AM40E-48xxSZ (single)	220 $\mu$ F, 100V	Common Choke 68 $\mu$ H	1812,1.5 $\mu$ F, 50V	220 $\mu$ F, 100V	1206,1000pF, 2KV	1206,1000pF, 2KV	
AM40E-12xxDZ (dual)	220 $\mu$ F, 100V	Common Choke 68 $\mu$ H	1812,6.8 $\mu$ F, 50V	330 $\mu$ F, 100V	1206,1000pF, 2KV	1206,1000pF, 2KV	
AM40E-24xxDZ (dual)	220 $\mu$ F, 100V	Common Choke 68 $\mu$ H	1812,4.7 $\mu$ F, 50V	220 $\mu$ F, 100V	1206,1000pF, 2KV	1206,1000pF, 2KV	
AM40E-48xxDZ (dual)	220 $\mu$ F, 100V	Common Choke 68 $\mu$ H	1812,1.5 $\mu$ F, 50V	220 $\mu$ F, 100V	1206,1000pF, 2KV	1206,1000pF, 2KV	

### EFT/Surge



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