



**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

Add suffix “-K” for optional heat sink

**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

Add suffix “-K” for optional heat sink

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)			
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	HL-LL	±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	See derating chart		-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

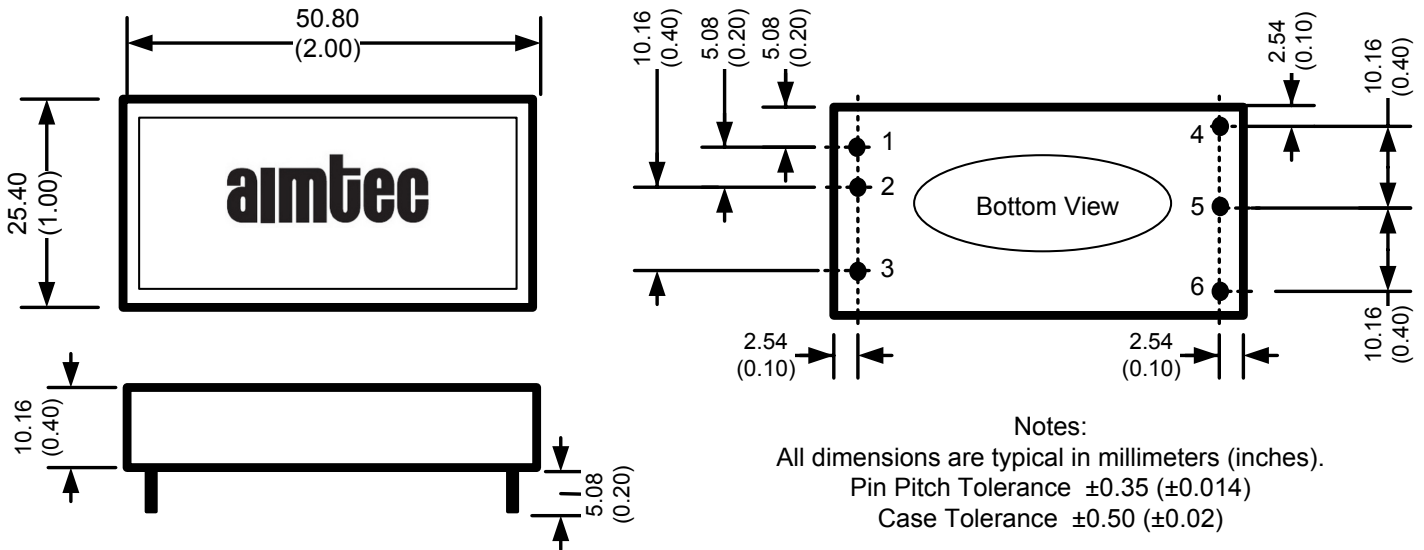
Parameters	
Agency Approval	CE
Safety	EN55022: 2006 + A1:2007, Class B
	IEC61000-3-2:2006+A2:2009
	IEC61000-3-3:2008
	EN55024:1998 + A1:2001 + A2:2003
	IEC61000-4-2: 2008
	IEC61000-4-3:2006+A1: 2007
	IEC61000-4-4:2004
	IEC61000-4-5:2005
	IEC61000-4-6:2008
	IEC61000-4-8:2009
	NOTE: also designed to meet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

### Pin Out Specifications

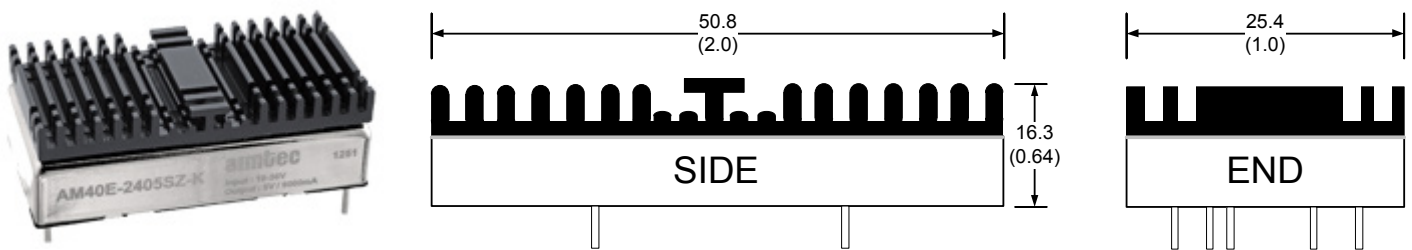
Pin	Single	Dual
1	+ V Input	+ V Input
2	- V Input	- V Input
3	On/Off Control	On/Off Control
4	+ V Output	+ V Output
5	-V Output	Common
6	Trim	- V Output

### Dimensions

Single and Dual Output Models

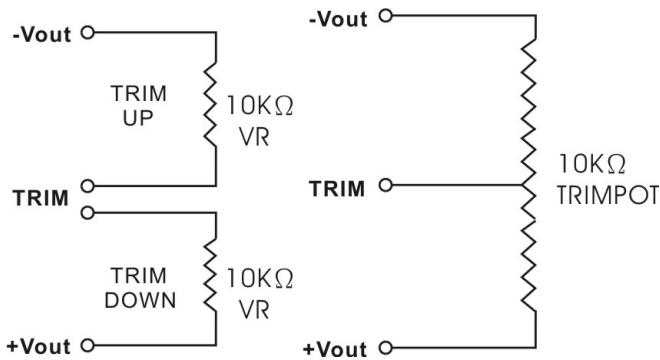


### Dimensions with Optional Heatsink

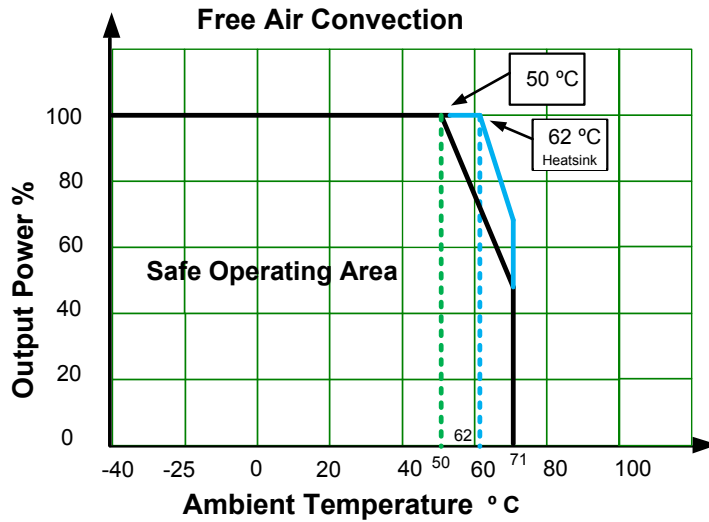


Notes: Add “-K” suffix for ordering, heat sink is affixed with thermally dissipative adhesive tape. See derating graph for temperature performance. Heat sink material is anodized (black) aluminum, adds weight 11.2g to total mass (42.2g). Thermal impedance of converter is: with heat sink 10°C/W and 12°C/W without heat sink.

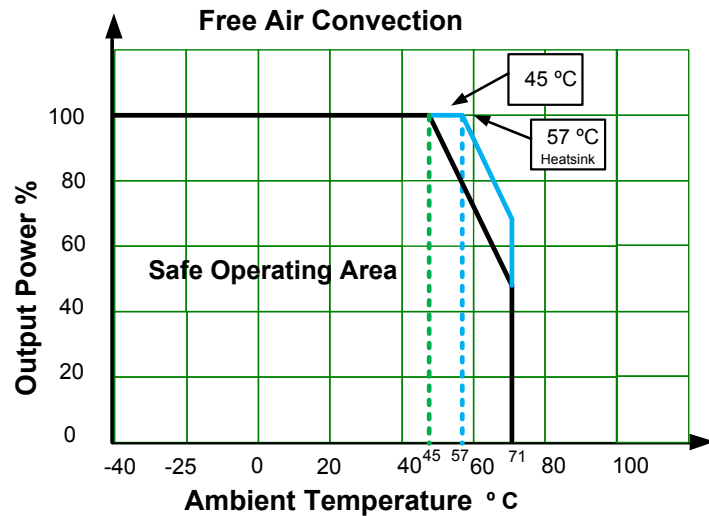
**Trimming**



**Derating**



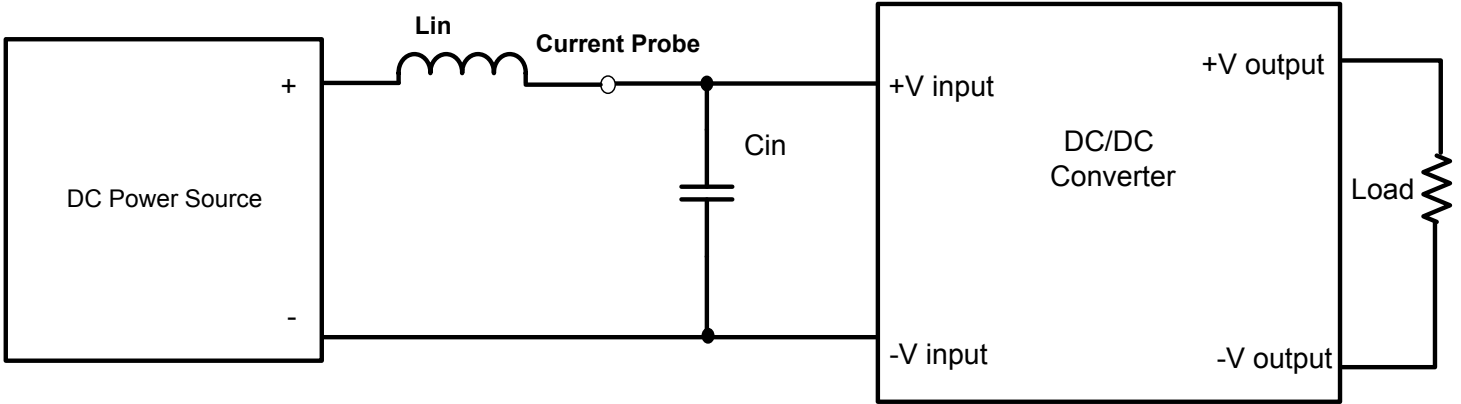
24V & 48V input models



12V input models

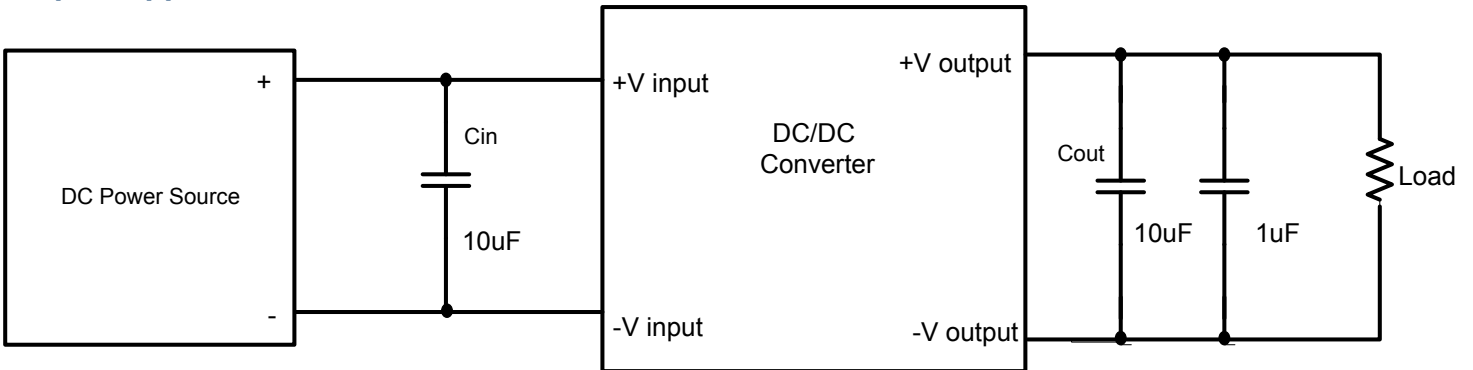
Extended temperature performance can be achieved with optional heat sink. (add suffix “-K” to part number)

### Input Reflected Ripple Current Test Step



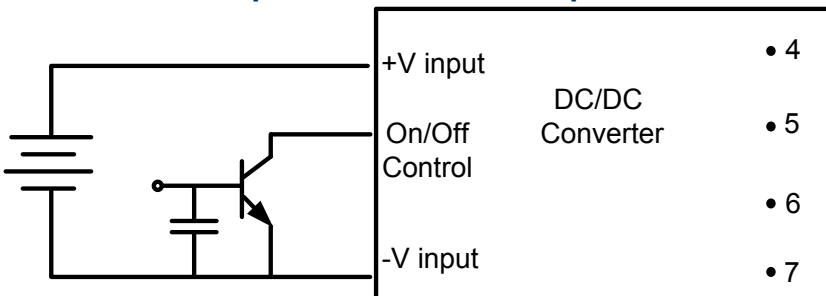
Input reflected ripple current is measured through a source inductor  $L_{in}$  (4.7 $\mu$ H) and a source capacitor  $C_{in}$  (47 $\mu$ F, ESR<1.0 $\Omega$  at 100KHz) at a nominal input and full load

### Output Ripple and noise reduction

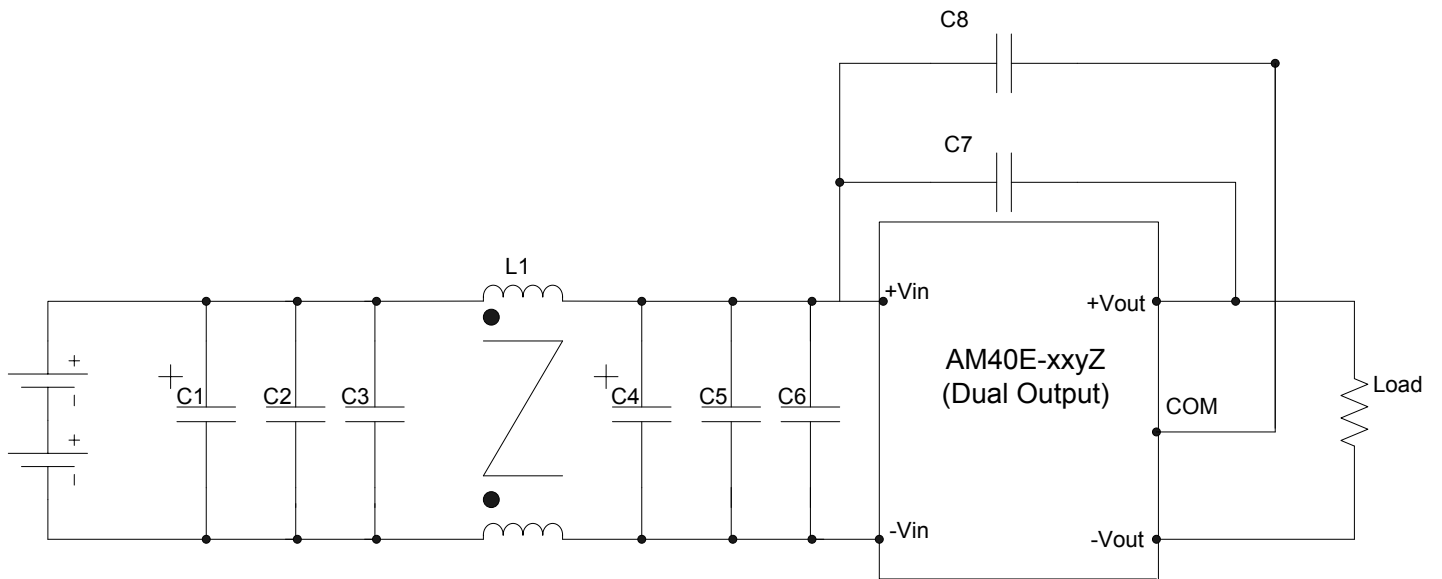
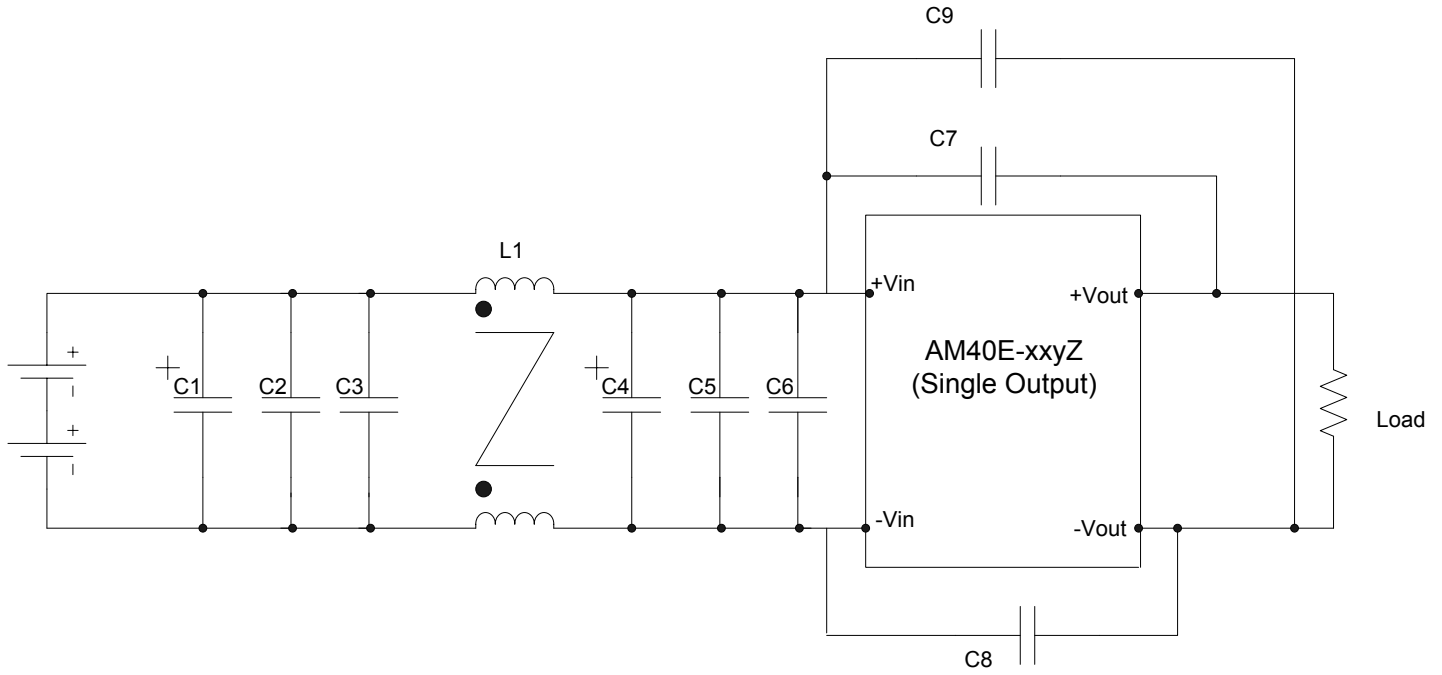


To reduce ripple and noise, it is recommended to use a 1 $\mu$ F ceramic disk capacitor and a 10 $\mu$ F electrolytic

### Control ON/OFF pin connection example

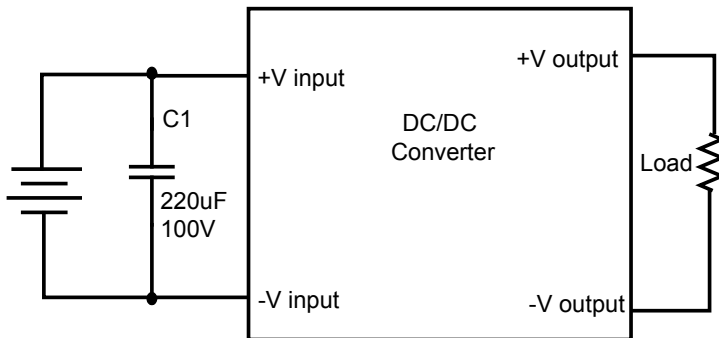


**EMI Filter**



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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