aimtec
Your Power Partner

Series AM40E-Z

40 Watt | DC-DC Converter



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

RoHS CE

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		VDC
	48	36-75		VDC
Filter	π (Pi) Network			
Start up time		30		ms
Absolute Maximum Rating	12		25	VDC
	24		50	VDC
	48		100	VDC
Peak Input Voltage time			100	ms
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		VDC
	48V ON/OFF	33.5 / 30.5		VDC

Input Reflected Ripple Current*		20		mA p-p

* The input reflected ripple current should be measured with a 12µH inductor and a 47µF input capacitor (ESR<1Ω at 100 KHz)

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		1600	VDC
Case/Input and Output	60 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		115-140		% 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 *	3.3Vout/5Vout other models		100 150	mV p-p
Voltage adjustment range (single)			±10	%
Minimum Load Current		0		% of Max

* Measured at 20MHz bandwidth with a 1µF CC.

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	270		KHz
Operating temperature	See derating chart	-40 to +71		°C
Storage temperature		-55 to +125		°C
Maximum case temperature			105	°C
Cooling	Free Air Convection(30-65 LFM)			
Humidity			95	% RH
Case material	Nickel coated Copper			
Weight		35		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=+25ºC)hours			
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		%

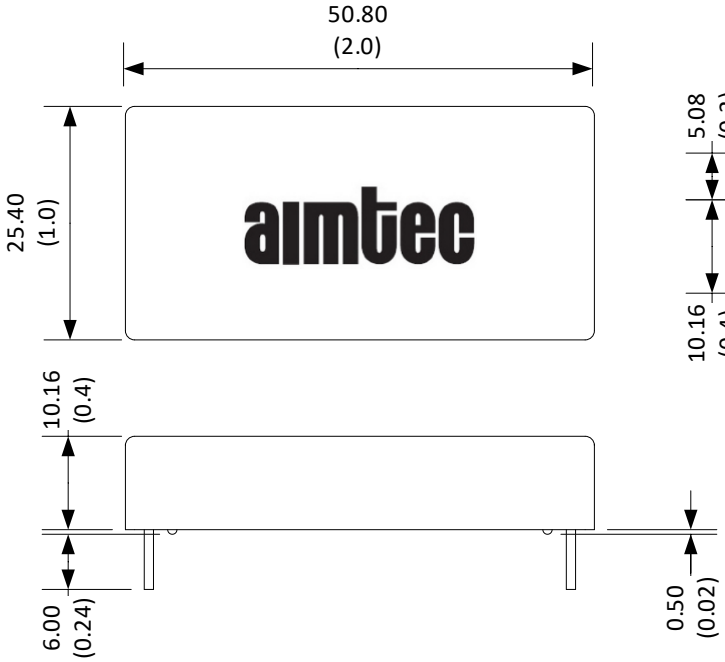
Safety Specifications

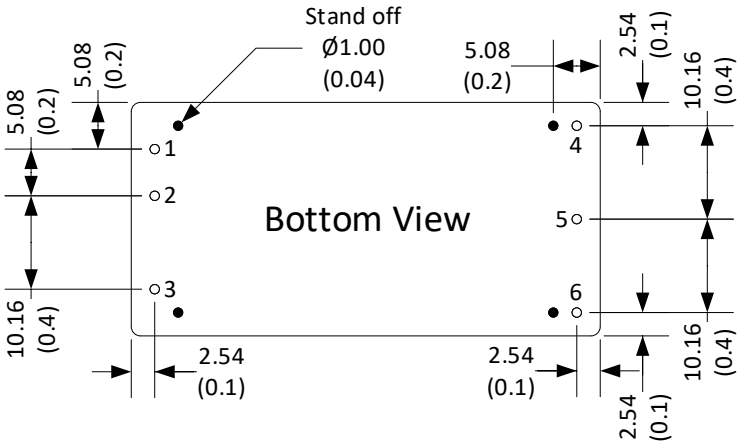
Parameters	
Agency Approval	CE
Safety	EN55032 Class B with the recommended circuit
	IEC61000-4-2, Perf. Criteria A
	IEC61000-4-3, Perf. Criteria A
	IEC61000-4-4, Perf. Criteria A (external 220uF/100V cap required)
	IEC61000-4-5, Perf. Criteria A (external 220uF/100V cap required)
	IEC61000-4-6, Perf. Criteria A
	IEC61000-4-8, Perf. Criteria A
	NOTE: also designed to meet IEC/EN 60950-1, 62368-1

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

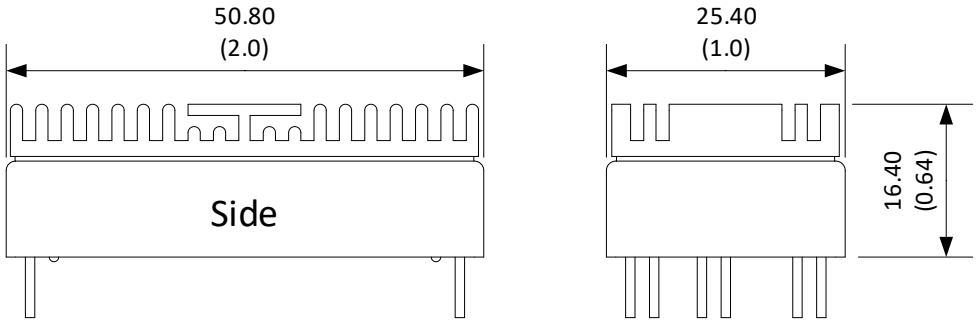




All dimensions are typical: millimeters (inches)
Pin Diameter: 1.0 ± 0.05 (0.04 ± 0.002)
Pin Pitch tolerance: ± 0.35 (±0.014)
Case tolerance: ± 0.5 (±0.02)
Stand off tolerance: ± 0.1 (±0.004)

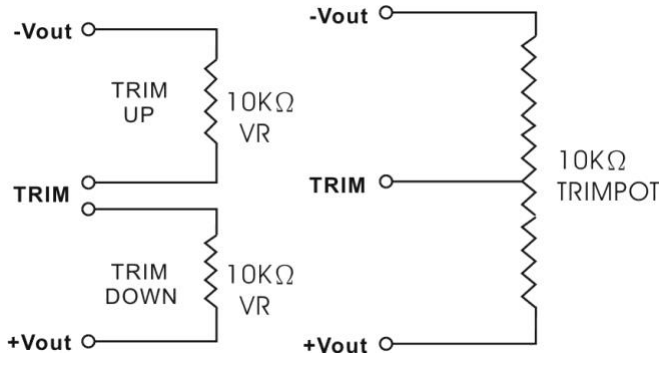
Dimensions with Optional Heat Sink



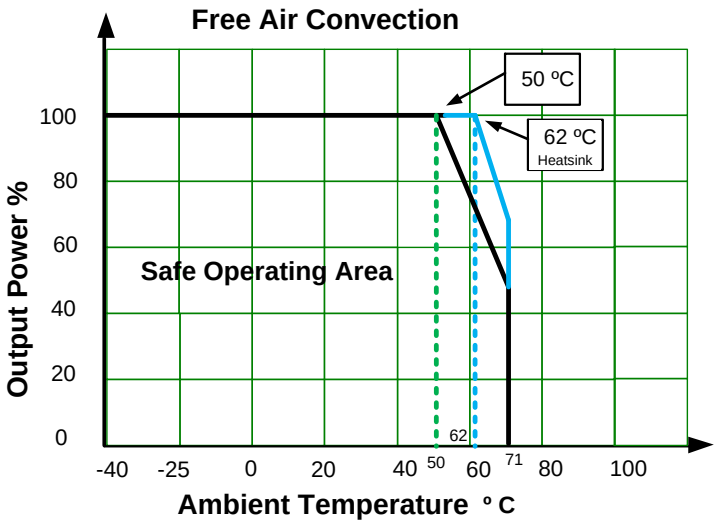


Notes: Add “-K” suffix for ordering, heat sink is affixed with thermally dissipative adhesive tape.
See derating graph for temperature performance. Heat sink material is anodized (black) aluminum, adds weight 11.3g to total mass (46.3g).

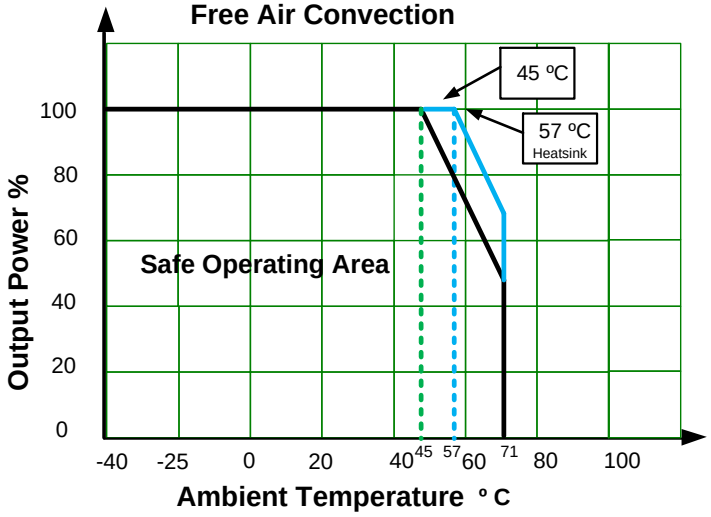
Trimming



Derating



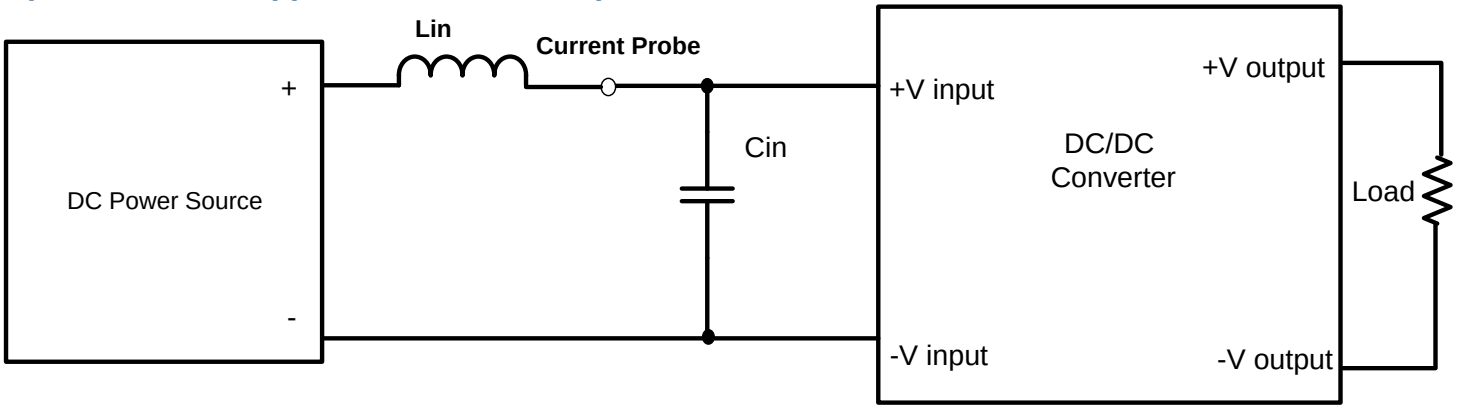
24V & 48V input models



12V input models

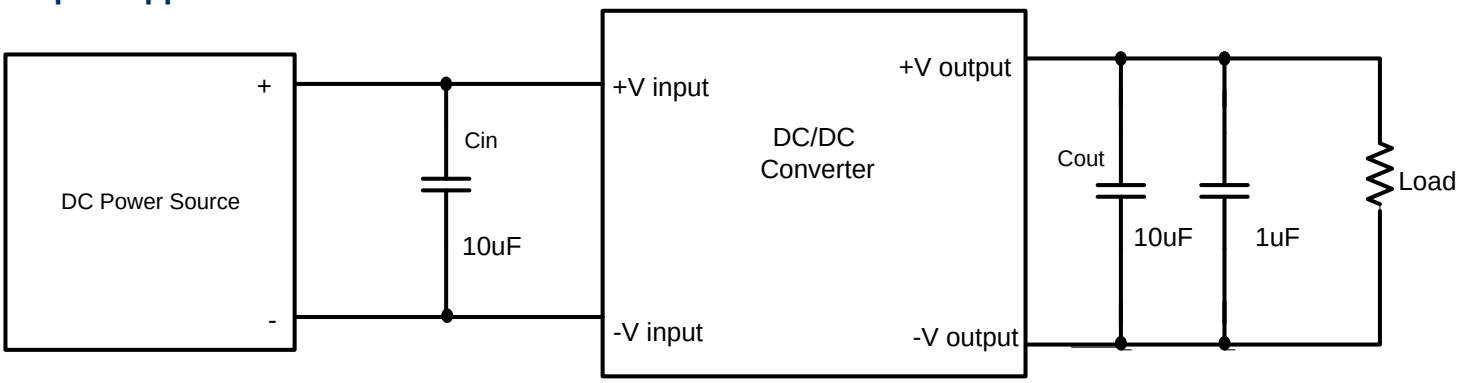
Extended temperature performance can be achieved with optional heat sink. (add suffix “–K” to part number)

Input Reflected Ripple Current Test Step



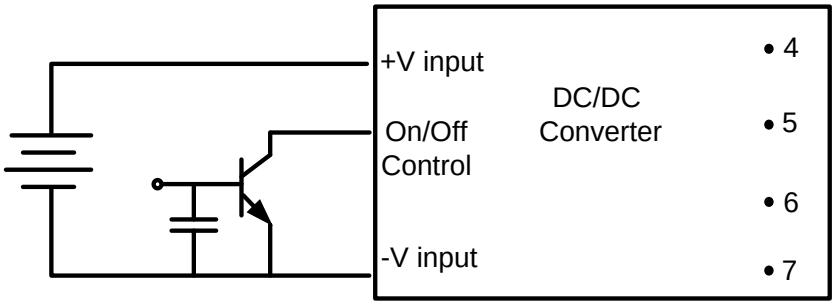
Input reflected ripple current is measured through a source inductor Lin(4.7uH) and a source capacitor Cin (47uF, ESR<1.0ohm at 100KHz) at a nominal input and full load

Output Ripple and noise reduction

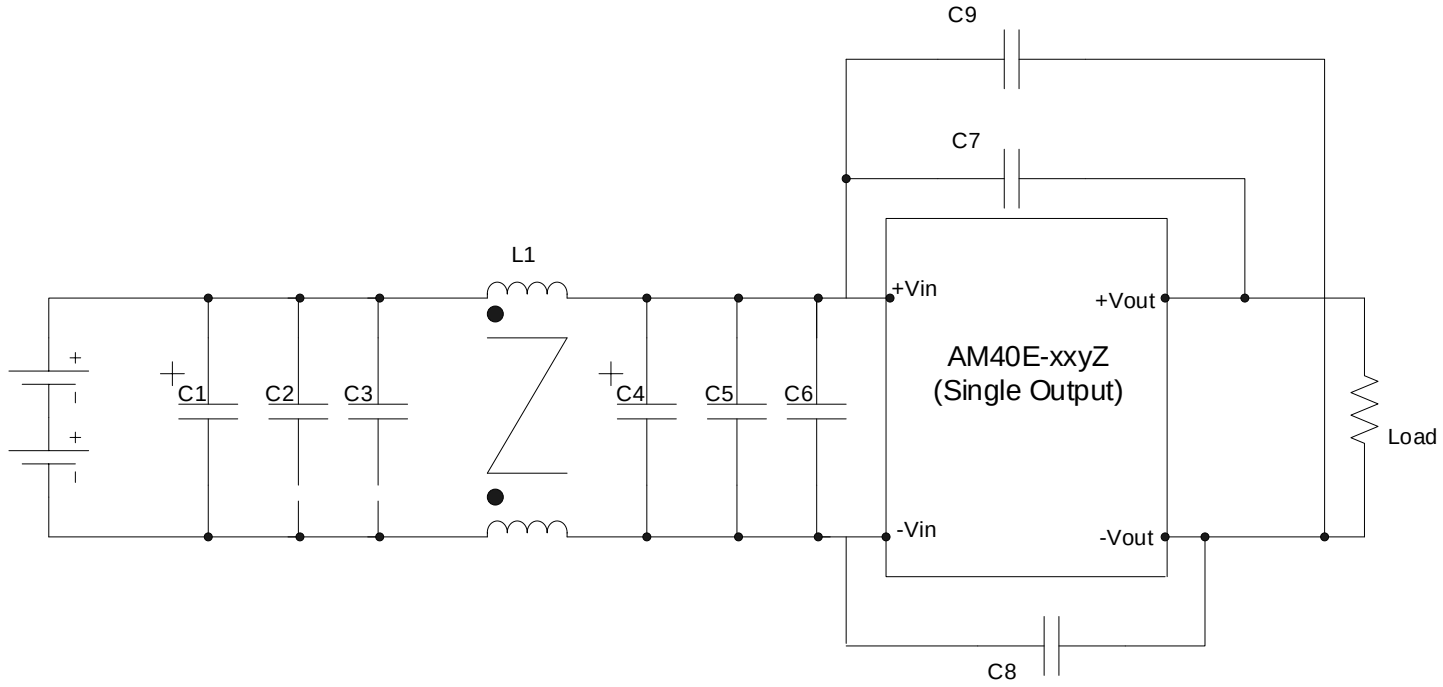


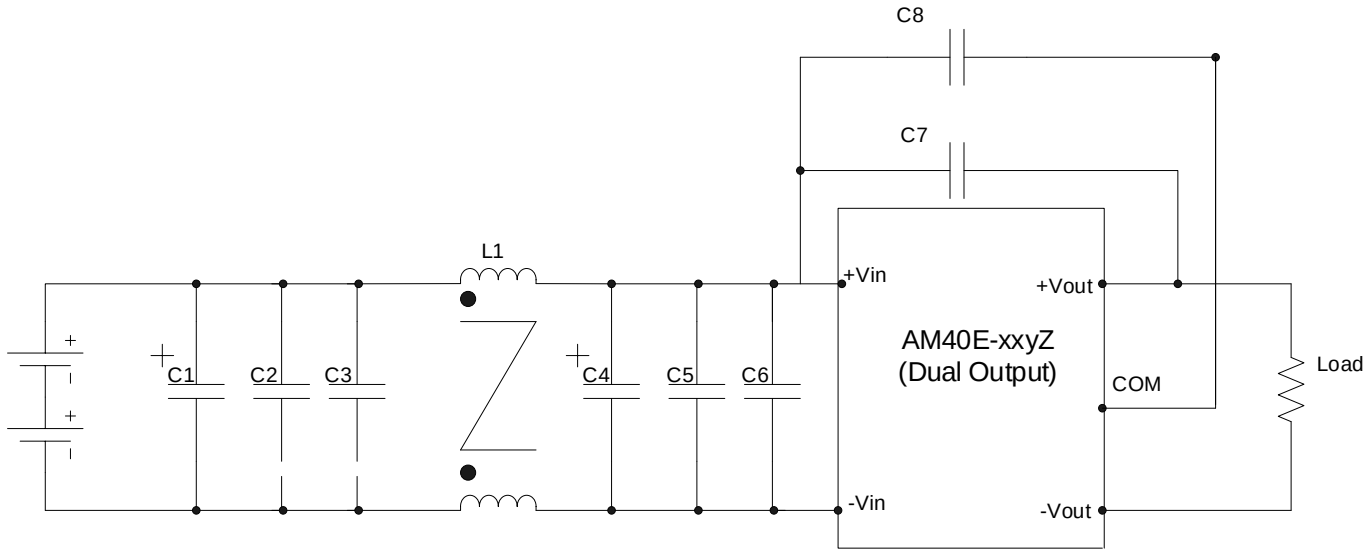
To reduce ripple and noise, it is recommended to use a 1µF ceramic disk capacitor and a 10µF electrolytic

Control ON/OFF pin connection example



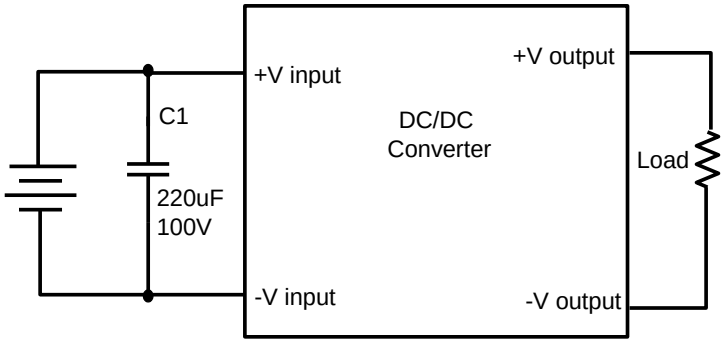
EMI Filter





Model	C1	L1	C2/C3/C5/C6	C4	C7	C8	C9
AM40E-12xxSZ	220µF, 100V	Common Choke 68µH	1812,6.8µF, 50V	330µF, 100V	-	-	1206,1000pF, 2KV
AM40E-24xxSZ	220µF, 100V	Common Choke 68µH	1812,4.7µF, 50V	220µF, 100V	1206,1000pF, 2KV	1206,1000pF, 2KV	-
AM40E-48xxSZ	220µF, 100V	Common Choke 68µH	1812,1.5µF, 100V	220µF, 100V	1206,1000pF, 2KV	1206,1000pF, 2KV	-
AM40E-12xxDZ	220µF, 100V	Common Choke 68µH	1812,6.8µF, 50V	330µF, 100V	1206,1000pF, 2KV	1206,1000pF, 2KV	-
AM40E-24xxDZ	220µF, 100V	Common Choke 68µH	1812,4.7µF, 50V	220µF, 100V	1206,1000pF, 2KV	1206,1000pF, 2KV	-
AM40E-48xxDZ	220µF, 100V	Common Choke 68µH	1812,1.5µF, 100V	220µF, 100V	1206,1000pF, 2KV	1206,1000pF, 2KV	-

EFT/Surge



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