AbN automation

Click to ORDER samples

AM40E-LPZ

2 x 1”

The AM40E-LPZ is a 40W DC/DC converter that offers a regulated output which contributes to a more stable and reliable output performance. It features a wide 2:1 input voltage range of 9-75VDC, which will benefit your new system design.

This series offers great operating temperatures, from -40°C to 85°C. Furthermore, an isolation of 1500VDC, a high MTBF of 500,000h, continuous output short circuit protection (OSCP), over-current protection (OCP) and over-voltage protection (OVP) come standard with the series.

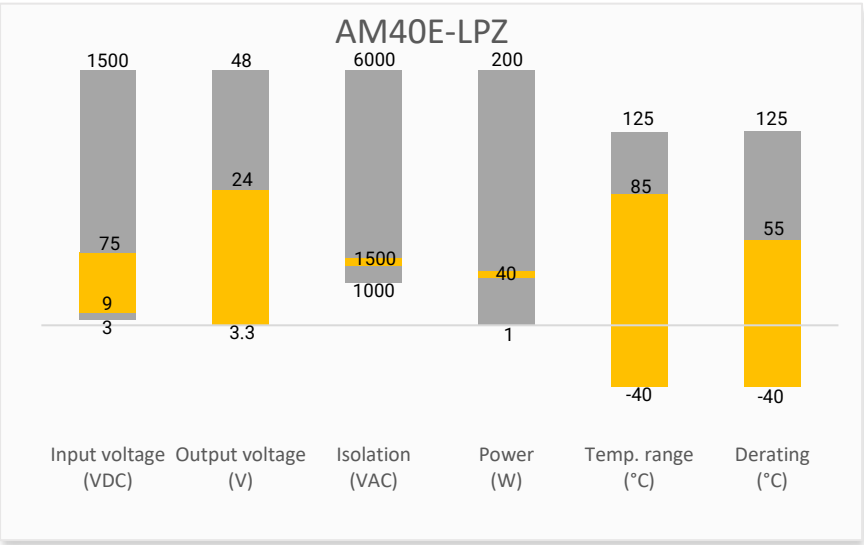
The AM40E-LPZ is suitable for grid power, instrumentation, industrial controls, communication, and civil applications.

Features

- Operating Temp: -40 °C to +85 °C
- Isolation voltage: 1500VDC
- High efficiency: Up to 91% typ.
- Regulated single output
- Output short circuit, over-current, over-voltage
- Standard 2 x1 package

RoHS
3yr Warranty
CE

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

Power Grid
Industrial
Telecom
Instrumentation

Models & Specifications

Single Output							
Model	Input Voltage (VDC)	Output Voltage (VDC)	Nominal Vin Input Current Typ (mA)		Output Current Max (mA)	Maximum capacitive load (µF)	Efficiency Full Load Typ (%)
			No Load	Full Load			
AM40E-1203SLPZ	12 (9-18)	3.3	100	2500	8000	15000	88
AM40E-1205SLPZ	12 (9-18)	5	100	3788	8000	10000	88
AM40E-1212SLPZ	12 (9-18)	12	60	3704	3333	2700	89
AM40E-1215SLPZ	12 (9-18)	15	60	3704	2667	1680	90
AM40E-1224SLPZ	12 (9-18)	24	60	3704	1667	680	90
AM40E-2403SLPZ	24 (18-36)	3.3	60	1250	8000	15000	88
AM40E-2405SLPZ	24 (18-36)	5	60	1894	8000	10000	88
AM40E-2412SLPZ	24 (18-36)	12	12	1852	3333	2700	90
AM40E-2415SLPZ	24 (18-36)	15	12	1852	2667	1680	91
AM40E-2424SLPZ	24 (18-36)	24	12	1852	1667	680	91
AM40E-4803SLPZ	48 (36-75)	3.3	25	625	8000	15000	88
AM40E-4805SLPZ	48 (36-75)	5	25	947	8000	10000	88
AM40E-4812SLPZ	48 (36-75)	12	12	926	3333	2700	90
AM40E-4815SLPZ	48 (36-75)	15	12	926	2667	1680	91
AM40E-4824SLPZ	48 (36-75)	24	12	926	1667	680	91

Input Specification				
Parameters	Conditions	Typical	Maximum	Units
Voltage types			2:1	
Absolute maximum rating	12Vin, 1sec. max.		-0.7~25	VDC
	24Vin, 1sec. max.		-0.7~50	VDC
	48Vin, 1sec. max.		-0.7~100	VDC
Input reflected ripple current		30		mA
Start-up time	Nominal Vin and constant resistive load	10		mS
Start-up voltage	12V input		9	VDC
	24V input		18	VDC
	48V input		36	VDC
Filter	Capacitor			
On/Off control	ON – open or 3.5-12VDC; OFF – short to –Vin or 0-1.2VDC, Idle current: 5 - 10mA			

Isolation Specification				
Parameters	Conditions	Typical	Maximum	Units
Tested isolation voltage	Input / output, 60 sec, 1 mA	≥1500		VDC
Resistance	Input / output, 500VDC	≥1000		MΩ
Capacitance	Input / output, 100KHz/0.1V	2000		pF

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage Tolerance	5% to 100% load	±1	±3	%
Line Regulation	LL to HL at Full Load	±0.2	±0.5	%
Load Regulation	5% to 100% load	±0.5	±1	%
Transient Recovery Time	25% load step change	300	500	µs
Transient recovery deviation	25% load step change, 3.3/5Vout models	±5	±8	%
	25% load step change, others	±3	±5	%
External Trim Adj. Range			±10	%
Ripple & Noise	20MHz Bandwidth, 100% load	50	100	mV pk-pk

General Specifications

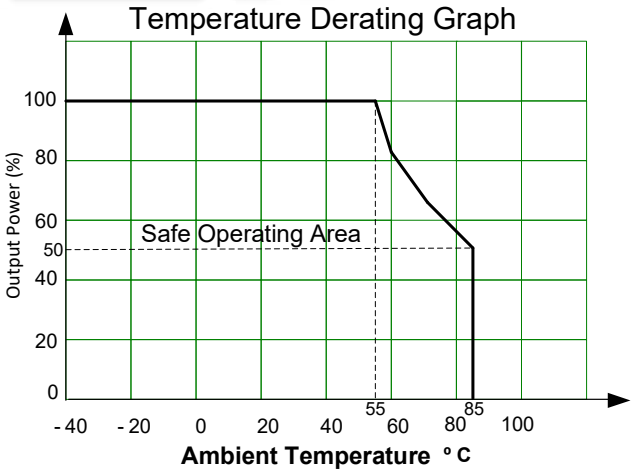
Parameters	Conditions	Minimum	Typical	Maximum	Units
Switching frequency	100% load		300		KHz
Short circuit protection	Continuous, Auto recovery				
Over current protection		110		190	% of Io
Over voltage protection	Input voltage range	110		160	%Vo
Operating temperature	See derating curve	-40		85	°C
Maximum soldering temperature	1.5mm from case for 10 sec			300	°C
Storage temperature		-55		125	°C
Temperature coefficient	100% Load			± 0.03	%/ °C
Cooling	Free air convection				
Humidity			≥5	95	% RH
Weight			30		g
Dimensions (L x W x H)	2.00x 1.00 x 0.47 inches (50.8 x 25.4 x 12.0 mm)				
Case material	Aluminum alloy				
Vibration	10-150Hz, 10G, 30min, along all axis				
MTBF	≥ 500 000 hrs (MIL-HDBK -217F, t=+25°C)				

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.

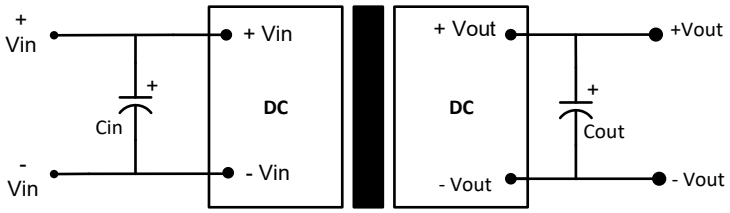
Safety Specifications

Parameters		
Standards	Information technology Equipment	Designed to meet UL/EN/IEC 62368-1
	EMI - Conducted and radiated emission	CISPR32/EN 55032, Class B, with the recommended EMC circuit
	Electrostatic Discharge Immunity	EN61000-4-2
	RF, Electromagnetic Field Immunity	EN61000-4-3
	Electrical Fast Transient/Burst Immunity	EN61000-4-4
	Surge Immunity	EN61000-4-5
	RF, Electromagnetic Field Immunity	EN61000-4-6

Derating



Typical Application Circuit



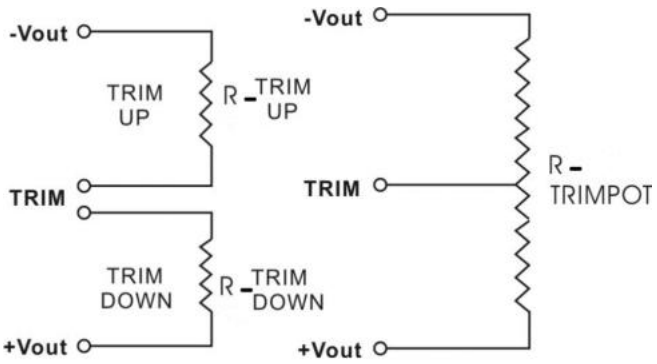
Vin	Cin	Vout	Cout
12Vin	100µF, 25V	3.3Vout	220µF
24Vin	100µF, 50V	5Vout	220µF
48Vin	100µF, 100V	12Vout	100µF
		15Vout	100µF
		24Vout	100µF

AbN automation

Trimming

Output voltage can be externally trimmed by utilizing the methods as shown below

Fixed Resistor **Variable Potentiometer**



Leave open if not used.

3.3V Output

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	2.970
Rt down (KΩ)	427.676	238.456	161.034	118.924	92.454	74.275	61.019	50.925	42.982	36.569
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	3.630
Rt up (KΩ)	602.334	220.929	131.234	91.163	68.458	53.840	43.642	36.123	30.349	25.776

5V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	4.950	4.900	4.850	4.800	4.750	4.700	4.650	4.600	4.550	4.500
Rt down (KΩ)	37.913	21.480	12.723	7.281	3.572	0.881	-1.159	-2.760	-4.050	-5.111
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	5.050	5.100	5.150	5.200	5.250	5.300	5.350	5.400	5.450	5.500
Rt up (KΩ)	--	153.523	56.231	30.531	18.656	11.815	7.367	4.243	1.928	0.145

12V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	11.880	11.760	11.640	11.520	11.400	11.280	11.160	11.040	10.920	10.800
Rt down (KΩ)	479.255	258.883	172.448	126.302	97.600	78.024	63.817	53.038	44.579	37.765
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	12.120	12.240	12.360	12.480	12.600	12.720	12.840	12.960	13.080	13.200
Rt up (KΩ)	223.497	82.593	45.704	28.705	18.926	12.572	8.112	4.809	2.265	0.245

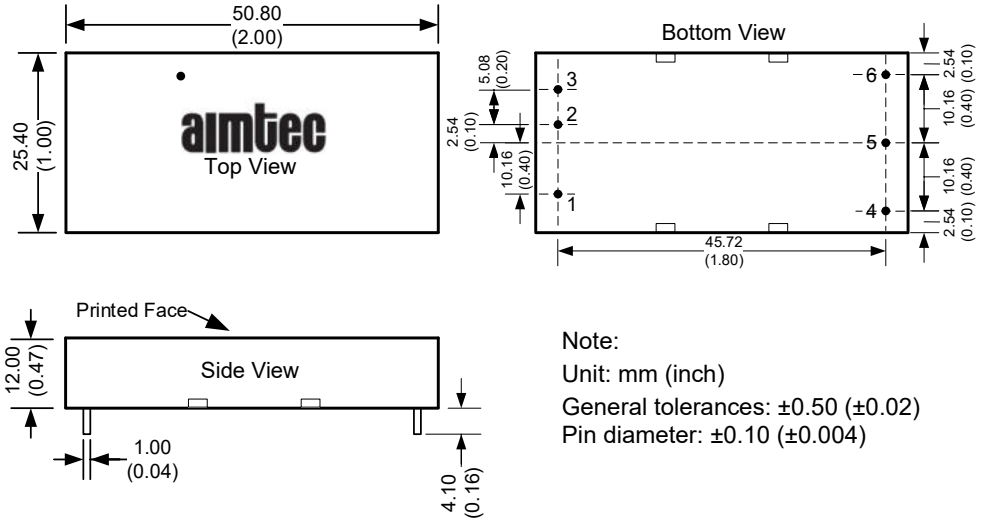
15V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	14.850	14.700	14.550	14.400	14.250	14.100	13.950	13.800	13.650	13.500
Rt down (KΩ)	711.551	394.533	266.855	197.897	154.724	125.152	103.628	87.261	74.395	64.015
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	15.150	15.300	15.450	15.600	15.750	15.900	16.050	16.200	16.350	16.500
Rt up (KΩ)	286.046	100.095	54.414	33.755	21.979	14.370	9.049	5.119	2.098	--

24V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	23.760	23.520	23.280	23.040	22.800	22.560	22.320	22.080	21.840	21.600
Rt down (KΩ)	718.061	384.608	258.557	192.310	151.466	123.765	103.742	88.594	76.733	67.194
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	24.240	24.480	24.720	24.960	25.200	25.440	25.680	25.920	26.160	26.400
Rt up (KΩ)	122.074	47.664	26.700	16.815	11.062	7.298	4.644	2.671	1.148	--

Dimensions



Note:
Unit: mm (inch)
General tolerances: ±0.50 (±0.02)
Pin diameter: ±0.10 (±0.004)

Pin Out Specifications	
Pin	Single
1	On/off control
2	-Vin
3	+Vin
4	Trim
5	-Vout
6	+Vout

NOTE: 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. **2.** Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. **3.** Mechanical drawings and specifications are for reference only. **4.** All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. **5.** Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. **6.** This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. **7.** Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.