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AM30E-LPZ



The AM30E-LPZ is a 30W 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 18-75VDC, which will benefit your new system design.

This series offers great operating temperatures, from -40°C to 80°C. Furthermore, an isolation of 1500VDC, a high MTBF of 1,000,000h, continuous output short circuit protection (OSCP), over-current protection (OCP) and over-voltage protection (OVP) come standard with the series.


The AM30E-LPZ is suitable for grid power, instrumentation, industrial controls, communication, and civil applications.

Features


- Operating Temp: -40 °C to +80 °C
- Isolation voltage: 1500VDC
- High efficiency: Up to 90% typ.
- Regulated single output
- Output short circuit, over-current, over-voltage
- Standard 2 x1 package



Training



Product Training Video
(click to open)

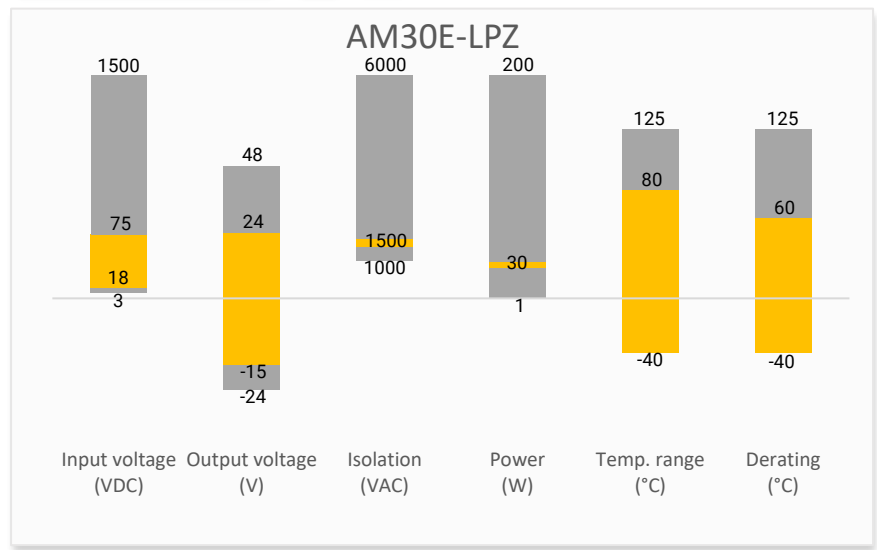


Press Release

Coming Soon!

Application Notes

Summary



Applications



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			
AM30E-2403SLPZ	24 (18-36)	3.3	60	976	6000	10000	85
AM30E-2405SLPZ	24 (18-36)	5	60	1454	6000	10000	88
AM30E-2409SLPZ	24 (18-36)	9	6	1388	3333	4700	86
AM30E-2412SLPZ	24 (18-36)	12	6	1388	2500	2700	88
AM30E-2415SLPZ	24 (18-36)	15	6	1388	2000	1680	90
AM30E-2424SLPZ	24 (18-36)	24	6	1388	1250	680	90
AM30E-4803SLPZ	48 (36-75)	3.3	20	474	6000	10000	86
AM30E-4805SLPZ	48 (36-75)	5	20	710	6000	10000	88
AM30E-4812SLPZ	48 (36-75)	12	5	702	2500	2700	88
AM30E-4815SLPZ	48 (36-75)	15	5	702	2000	1680	89
AM30E-4824SLPZ	48 (36-75)	24	5	702	1250	680	89

Dual 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			
AM30E-2412DLPZ	24 (18-36)	±12	6	1388	±1250	1250	90
AM30E-2415DLPZ	24 (18-36)	±15	6	1388	±1000	680	90

Input Specification				
Parameters	Conditions	Typical	Maximum	Units
Voltage types			2:1	
Absolute maximum rating	24Vin, 1sec. max.		-0.7~50	VDC
	48Vin, 1sec. max.		-0.7~100	VDC
Input reflected ripple current		40		mA
Start-up time	Nominal Vin and constant resistive load	10		mS
Start-up voltage	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 - 8mA			

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	0% to 5% load	±1	±5	%
	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		80	°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, 5G, 0.75mm, along all axis				
MTBF	≥ 1 000 000 hrs (MIL-HDBK -217F, t=+25°C)				

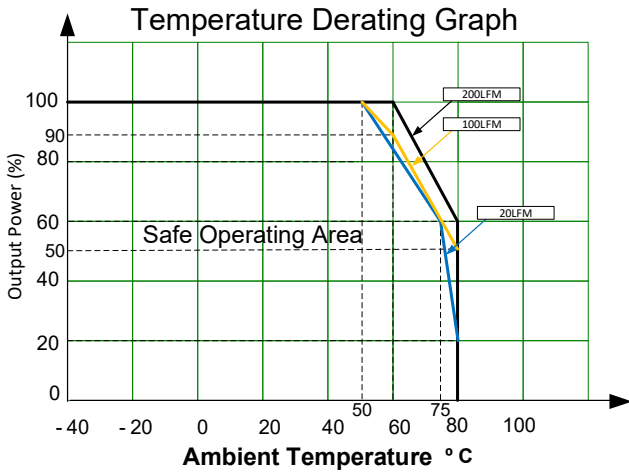
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

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

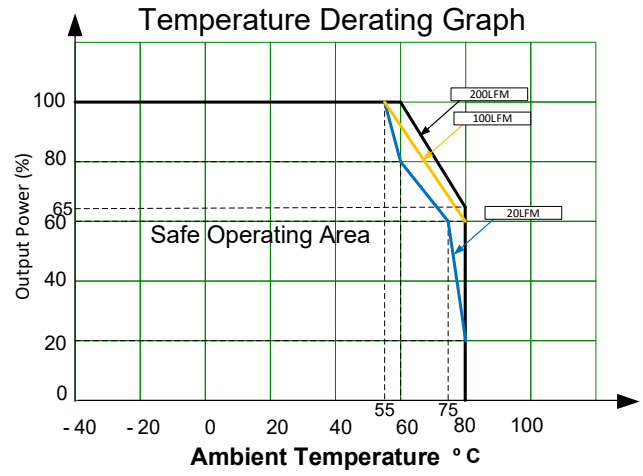
Derating



3.3/5Vout models



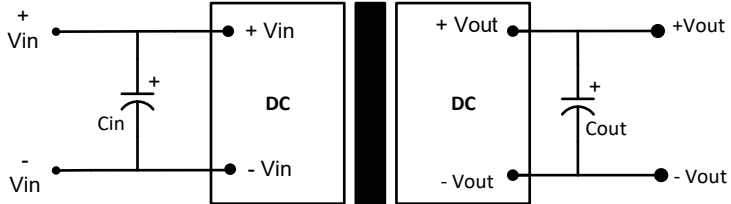
Other models



Typical Application Circuit

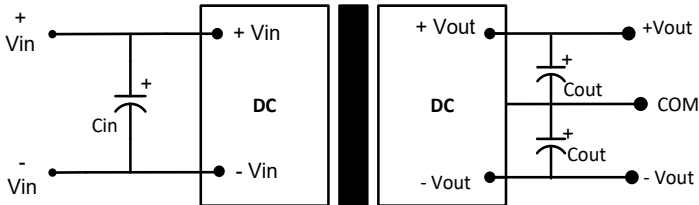


Single Output models

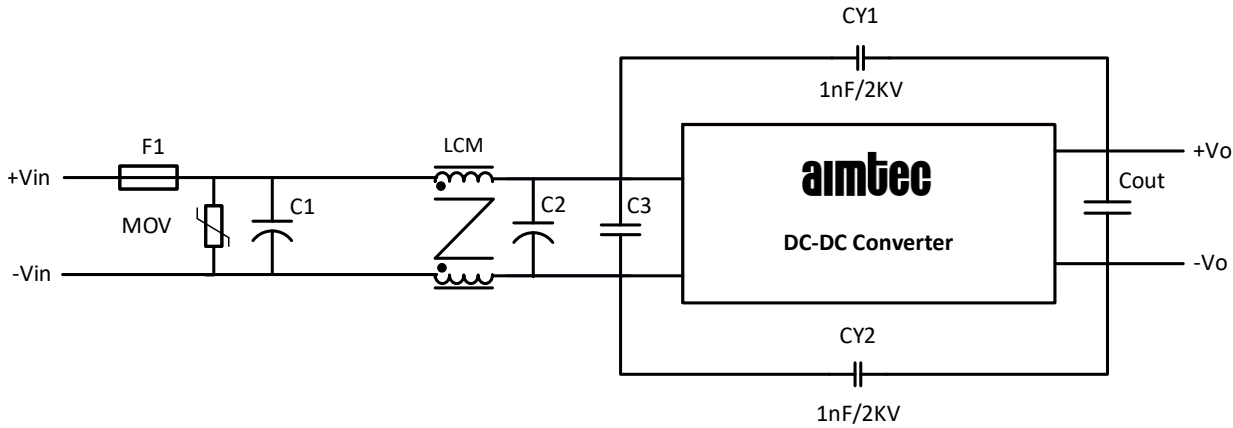


Vin	Cin	Vout	Cout
24Vin	100μF, 50V	3.3Vout	220μF
48Vin	100μF, 100V	5Vout	220μF
		9Vout	220μF
		12Vout	100μF
		15Vout	100μF
		24Vout	100μF

Dual Output models



Recommended EMC Circuit



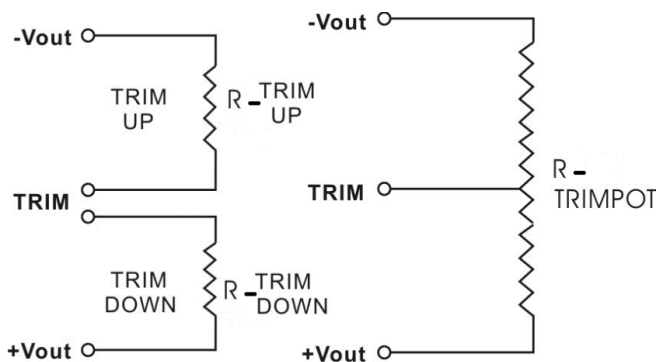
Component	24Vin	48Vin
C1	680 μ F, 50V	330 μ F, 100V
C2	330 μ F, 50V	330 μ F, 100V
C3	4.7 μ F, 50V	2.2 μ F, 100V
Cout	Refer to Cout in Typical Application Circuit	
LCM	1mH	
MOV	S20K30	S14K60

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 (K Ω)	195.198	107.438	70.997	51.044	38.453	29.785	23.453	18.625	14.822	11.749
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 (K Ω)	298.695	101.771	57.515	37.984	26.983	19.925	15.012	11.395	8.622	6.428

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	4.680	4.600	4.550	4.500
Rt down (KΩ)	110.182	53.582	32.644	21.738	15.047	10.524	9.100	4.798	2.871	1.323
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	5.060	5.100	5.150	5.200	5.250	5.300	5.350	5.400	5.450	5.500
Rt up (KΩ)	130.380	68.870	40.959	27.639	19.840	14.718	11.096	8.401	6.316	4.655

9V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	8.910	8.820	8.730	8.640	8.550	8.460	8.370	8.280	8.190	8.100
Rt down (KΩ)	375.533	207.430	139.157	102.145	78.924	62.997	51.393	42.562	35.617	30.011
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	9.090	9.180	9.270	9.360	9.450	9.540	9.630	9.720	9.810	9.900
Rt up (KΩ)	314.532	112.639	64.148	42.357	29.975	21.990	16.412	12.297	9.134	6.629

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)	496.092	301.452	212.527	161.585	128.573	105.442	88.332	75.164	64.716	56.223
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)	706.435	158.920	83.879	54.075	38.077	28.095	21.274	16.317	12.552	9.595

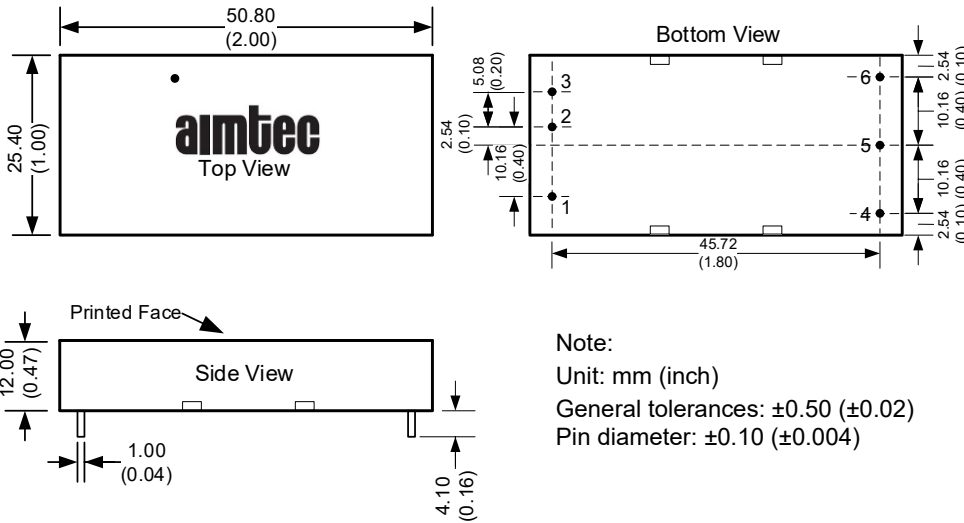
15V Output

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)	259.486	206.711	170.213	143.469	123.029	106.899	93.847	83.067	74.014	66.304
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)	--	--	--	468.181	149.393	84.045	55.873	40.178	30.174	23.241

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)	1291.721	794.249	566.971	436.771	352.397	293.276	249.546	215.890	189.186	167.481
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)	797.750	178.809	93.978	60.286	42.201	30.917	23.206	17.602	13.346	10.003

Dimensions



Note:

Unit: mm (inch)

General tolerances: ± 0.50 (± 0.02)

Pin diameter: ± 0.10 (± 0.004)

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

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