AME25-277LPZ

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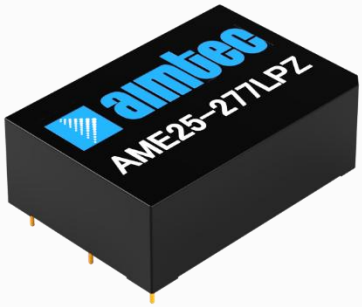


Encapsulated

The AME25-277LPZ is a whole new AC/DC converter that offers much greater cost effectiveness due to material normalization and production automation also leading to improved reliability and performance. Offering a commercial input voltage range of 85-305VAC and an output voltage range from 3.3-24V, this series will offer many benefits to your new system design.

This new series offers great operating temperatures from -40°C to 85°C, also features an isolation of 4200VAC for improved reliability and system safety. Furthermore, a higher MTBF of 1,000,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AME25-277LPZ is suitable for street lighting controls, grid power, EVSE, industrial controls, UPS, battery storage system and energy management applications.

Features

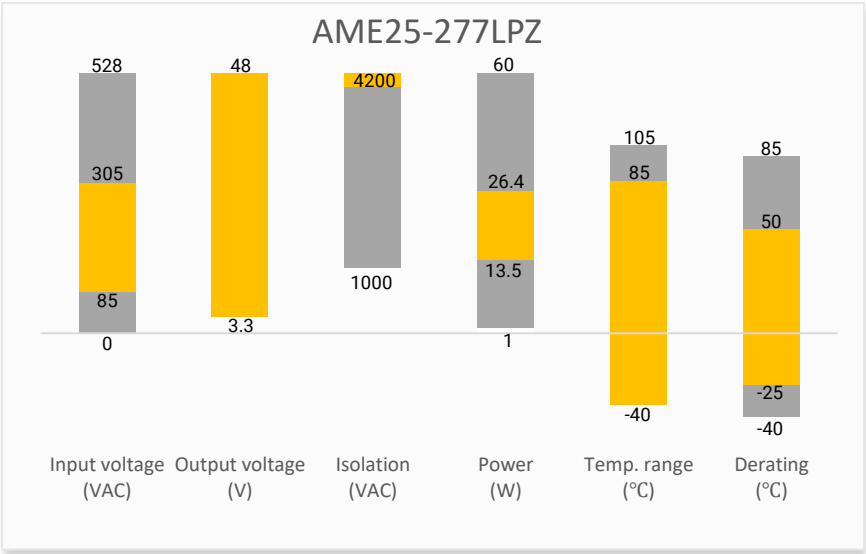
- Universal Input: 85 - 305VAC/100 - 430VDC
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 4200VAC
- Low ripple & noise, 150mV(p-p), max.
- Output short circuit, over-current, over-voltage protection
- Low no-load power consumption of 0.1W
- Efficiency up to 87%
- Designed to meet: IEC/EN/UL 62368-1, UKCA, EN 60335-1, EN 61558-1
- Regulated Output

RoHS

3yr Warranty

CE

Summary



Training

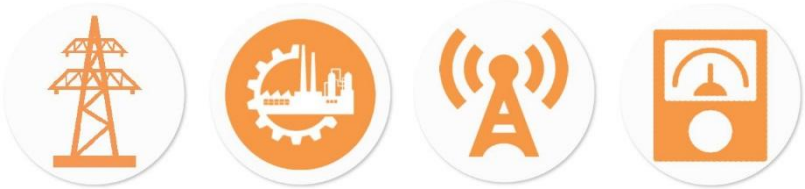
Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications



Power Grid | Industrial | Telecom | Instrumentation

Models & Specifications

Single Output							
Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Max Output wattage (W)	Output Voltage (V)	Output Current max (A)	Maximum capacitive load (µF)	Efficiency @ 230VAC Typ. (%)
AME25-3S277LPZ	85-305/47-63	100-430	13.5	3.3	4.1	48000	80
AME25-5S277LPZ	85-305/47-63	100-430	20.5	5	4.1	12240	85
AME25-9S277LPZ	85-305/47-63	100-430	22.5	9	2.5	5600	82
AME25-12S277LPZ	85-305/47-63	100-430	25.2	12	2.1	5400	84
AME25-15S277LPZ	85-305/47-63	100-430	24	15	1.6	2400	85
AME25-24S277LPZ	85-305/47-63	100-430	26.4	24	1.1	1440	86
AME25-48S277LPZ	85-305/47-63	100-430	24	48	0.5	600	87

Input Specifications				
Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC	--	0.6	A
	230VAC	--	0.34	A
Inrush current	115VAC	25	--	A
	230VAC	40	--	A
Leakage current	277VAC/50Hz	--	0.1	mA (RMS)
Fuse	2A/300V, Slow blow, built-in			

Output Specifications				
Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	3.3V, 5V output models	±3	--	%
	Others	±2	--	%
Line regulation	Full load	±0.5	--	%
Load regulation	0-100% load	±1	--	%
Ripple & Noise*	20MHz bandwidth	70	150	mV_{p-p}
Hold up time	115VAC	10	--	ms
	230VAC	60	--	ms

* Ripple and Noise are measured at 20MHz bandwidth by using a 12" twisted pair-wire with a 47µF electrolytic capacitor and a 0.1µF ceramic capacitor.

Isolation Specifications				
Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec	--	4200	VAC
Tested input to PE voltage	60 sec	--	2500	VAC
Tested output to PE voltage	60 sec	--	1250	VAC
Impulse withstand voltage	1.2/50uS impulse waveforms, three positive and three negative pulses at intervals 5s minimum.	--	6000	VDC
Insulation resistance	500VDC	--	≥ 100	MΩ

General Specifications

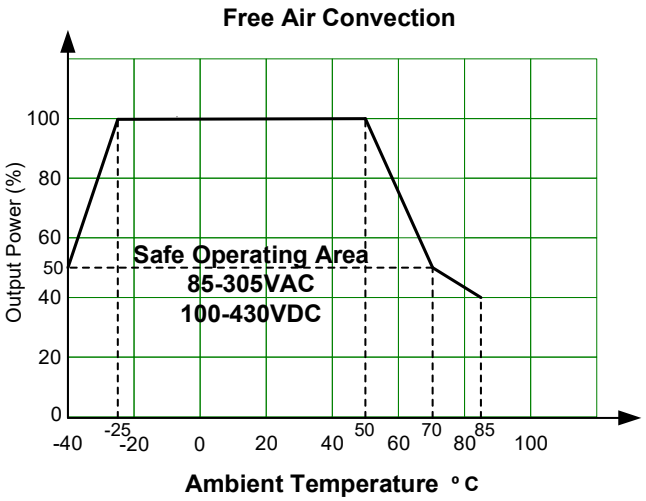
Parameters	Conditions	Typical	Maximum	Units
Protection class	Class II			
Overvoltage category	OVC III			
Switching frequency	--	65	--	KHz
Over Current protection	Auto recovery	≥ 150	--	% of I_{out}
Over voltage protection	3.3V / 5V Vout, voltage clamp, hiccup	--	7.5	VDC
	9V Vout, voltage clamp, hiccup	--	15	VDC
	12V /15V Vout, voltage clamp, hiccup	--	20	VDC
	24V Vout, voltage clamp, hiccup	--	30	VDC
	48V Vout, voltage clamp, hiccup	--	60	VDC
Short circuit protection	Hiccup, Continuous, Auto recovery			
Operating temperature	See derating graph	-40 to +85	---	°C
Storage temperature		-40 to +105	--	°C
Lead temperature	Wave soldering	260 ± 5 °C; time：5 - 10s		
	Hand soldering	360 ± 10 °C; time：3 - 5s		
Power consumption	--	0.1	--	W
Power derating	-40 °C ~ -25 °C	3.33	--	% / °C
	50 °C ~ 70 °C	2.5	--	% / °C
	70 °C ~ 85 °C	0.67	--	% / °C
	85VAC ~ 100VAC	1	--	% / VAC
	277VAC ~ 305VAC	0.71	--	% / VAC
	2000m – 5000m	6.67	--	% / Km
Temperature coefficient	--	±0.02	--	% / °C
Maximum case temperature	--	--	95	°C
Altitude	See derating graph	--	5000	m
Vibration	10Hz to 55Hz, 5G, 30minutes along X, Y and Z axis			
Cooling	Free air convection			
Humidity	Non-condensing	> 10	95	% RH
Case material	Heat resistant black Plastic (flammability to UL 94V-0)			
Weight		120	--	g
Dimensions (L x W x H)	2.76 x 1.89 x 0.93 inches (70.0 x 48.0 x 23.5mm)			
MTBF	> 1 000 000 hrs (MIL-HDBK -217F, t=+25°C)/Full Load			

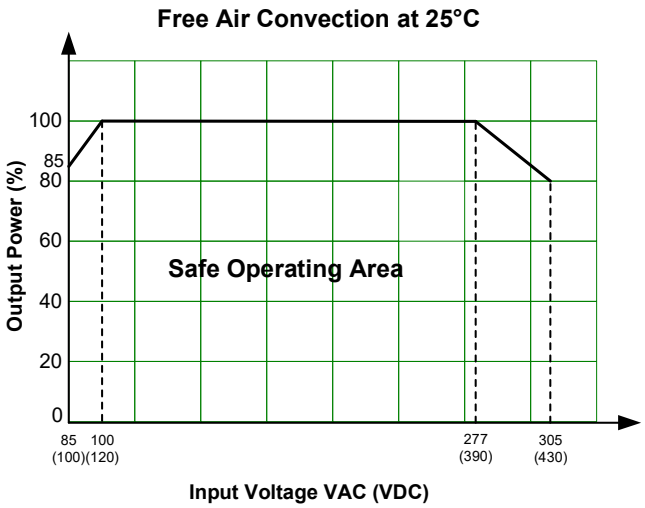
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

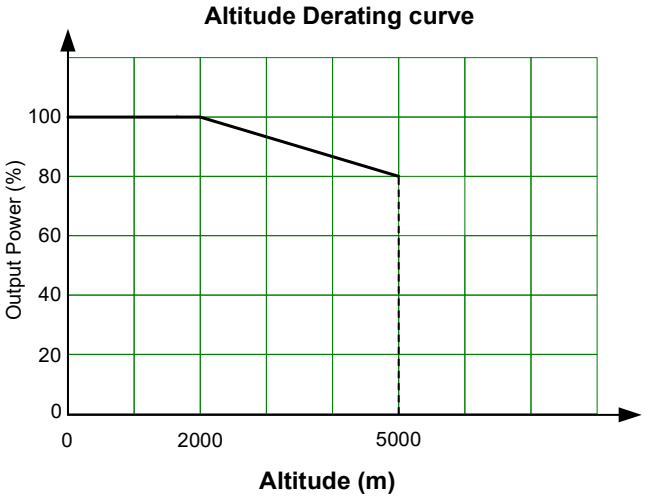
Safety Specifications

Parameters		
Standards	Information technology Equipment	Designed to meet IEC/EN/UL 62368-1, UKCA, EN60335-1, EN61558-1
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B (without external circuit)
	Electrostatic Discharge Immunity	IEC/EN 61000-4-2 Contact ±6KV, Air ±8KV, Criteria B
	RF, Electromagnetic Field Immunity	IEC/EN 61000-4-3 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC/EN 61000-4-4 ±2KV, Criteria B
	Surge Immunity	IEC/EN 61000-4-5 L-L ±2KV, Criteria B
	RF, Conducted Disturbance Immunity	IEC/EN 61000-4-6 10Vr.m.s, Criteria A
	Voltage dips, Short Interruptions Immunity	IEC/EN 61000-4-11 0%, 70%, Criteria B

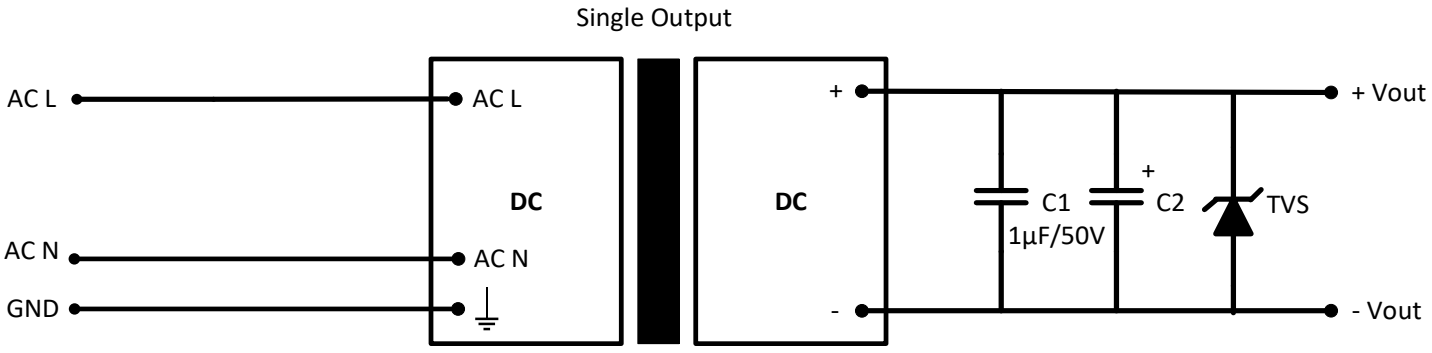
Derating







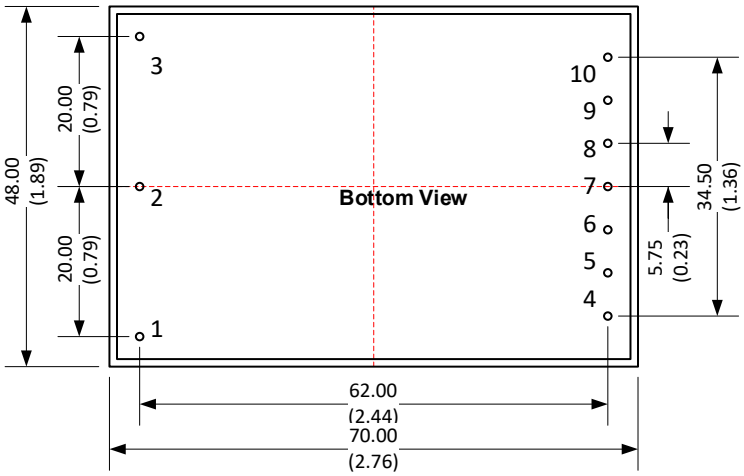
Typical Application Circuit

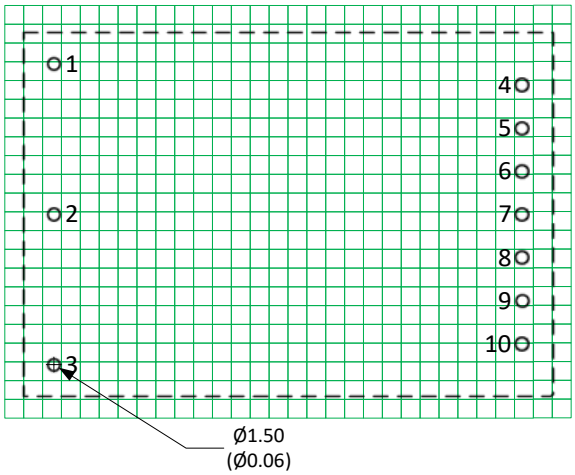


Model	C2	TVS
3.3 / 5V Vout	470 µF / 10V	SMBJ7.0A
9 Vout	330 µF / 16V	SMBJ12A
12 / 15 Vout	330 µF / 25V	SMBJ20A
24 Vout	330 µF / 35V	SMBJ30A
48 Vout	330 µF / 63V	SMBJ64A

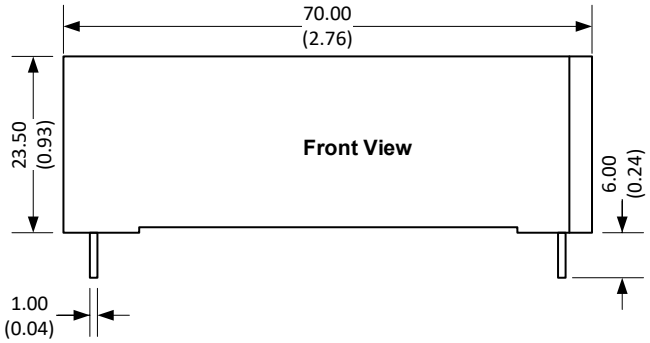
Output Filter Components:
We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode.

Dimensions





Note : Grid 2.54*2.54 mm



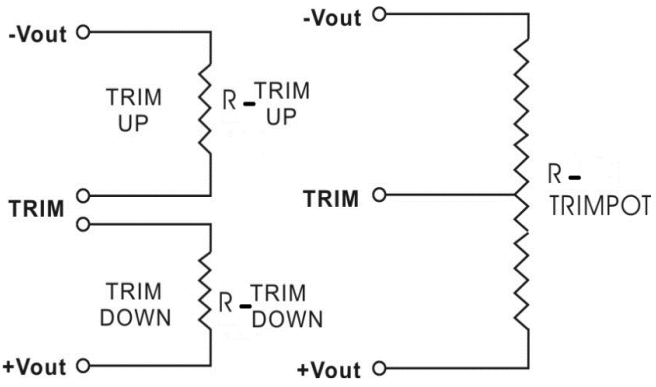
Notes:
All dimensions are typical in millimeters (inches).
Pin diameter tolerances : ±0.15 (±0.006)
General tolerance : ±1.00 (±0.04)

Pin Output Specifications			
Pin	Single	Pin	Single
1	Ground	6	No pin
2	AC Input (N)	7	No pin
3	AC Input (L)	8	No pin
4	Trim	9	+V Output
5	-V Output	10	No pin

Trimming

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

Fixed Resistor **Variable Potentiometer**



Leave open if not used.

AME25-3S277LPZ

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)	240.741	154.964	113.111	88.321	71.927	60.280	51.580	44.834	39.450	35.053
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)	2987.087	256.530	133.563	90.076	67.832	54.320	45.243	38.725	33.817	29.988

AME25-5S277LPZ

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)	169.169	112.938	83.743	65.865	53.792	45.092	38.524	33.390	29.267	25.883
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)	--	445.226	202.762	131.024	96.647	76.473	63.208	53.821	46.829	41.419

AME25-9S277LPZ

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)	682.347	378.845	259.708	196.082	156.501	129.500	109.904	95.034	83.365	73.964
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)	485.777	200.712	126.214	91.902	72.168	59.348	50.351	43.689	38.557	34.482

AME25-12S277LPZ

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)	1291.752	754.558	528.676	404.287	325.536	271.199	231.447	201.102	177.179	157.834
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)	910.025	321.824	195.168	139.891	108.918	89.109	75.349	65.235	57.488	51.362

AME25-15S277LPZ

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)	893.077	571.417	417.212	326.705	267.184	225.063	193.684	169.404	150.057	134.280
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)	2105.383	286.791	153.446	104.544	79.162	63.621	53.128	45.566	39.858	35.397

AME25-24S277LPZ

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)	1063.929	700.514	518.971	410.098	337.538	285.720	246.862	216.643	192.470	172.694
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)	68999.000	248.097	123.774	82.233	61.443	48.964	40.642	34.696	30.236	26.767

AME25-48S277LPZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	47.520	47.040	46.560	46.080	45.600	45.120	44.640	44.160	43.680	43.200
Rt down (KΩ)	1352.055	871.467	639.143	502.197	411.899	347.882	300.130	263.143	233.650	209.583
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	48.480	48.960	49.440	49.920	50.400	50.880	51.360	51.840	52.320	52.800
Rt up (KΩ)	1094.199	123.623	65.071	43.951	33.063	26.421	21.946	18.727	16.300	14.405

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