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## AME25-277VZ



Encapsulated

AME25-277VZ series is an efficient 25W AC-DC power supply module. Offering a commercial input voltage range of 85-305VAC, output voltage ranges from 3.3-48V, low power consumption, high efficiency, high reliability and safer isolation.

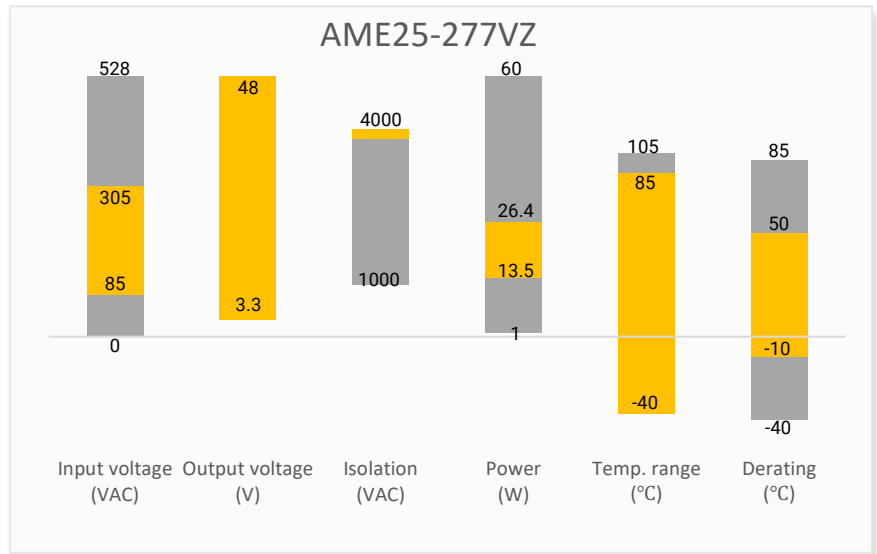
This new series offers great operating temperatures, from -40°C to 85°C with full power up to 50°C also features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 300,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AME25-277VZ is perfect for grid power, LED, instrumentation, industrial controls, communication and civil applications

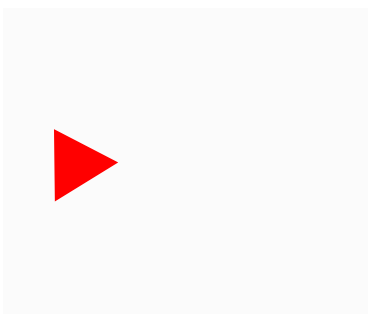
## Features

- Universal Input: 85 - 305VAC/100 - 430VDC
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 50mV(p-p), Typ.
- Output short circuit, over-current, over-voltage protection
- Regulated Output

## Summary



## Training



Product Training Video  
(click to open)



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 (%)
AME25-3S277VZ	85-305/47-63	100-430	13.53	3.3	4.1	48000	75
AME25-5S277VZ	85-305/47-63	100-430	20.5	5	4.1	12240	78
AME25-9S277VZ	85-305/47-63	100-430	22.5	9	2.5	5600	80
AME25-12S277VZ	85-305/47-63	100-430	25	12	2.1	5400	82
AME25-15S277VZ	85-305/47-63	100-430	24	15	1.6	2400	83
AME25-24S277VZ	85-305/47-63	100-430	26.4	24	1.1	1440	85
AME25-48S277VZ	85-305/47-63	100-430	24	48	0.5	600	87

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-Rail mounting (ex. AME25-5S277VZ-ST is chassis mounting and AME25-5S277VZ-STD is DIN-Rail mounting version).

### Input Specifications

Parameters	Conditions	Minimum	Typical	Maximum	Units
Current	115VAC			0.6	A
	230VAC			0.34	A
Inrush current	115VAC		20		A
	230VAC		40		A
External fuse	slow blow type,300V		3.15		A

### Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	3.3V output	±3		%
	Others	±2		%
Line regulation	Full load	±0.5		%
Load regulation	0-100% load	±1		%
Ripple & Noise*	20MHz bandwidth	50	100	mV p-p
Hold up time	115VAC	10		ms
	230VAC	60		ms

\* Ripple and Noise are measured at 20MHz bandwidth by using the referenced Application circuit.

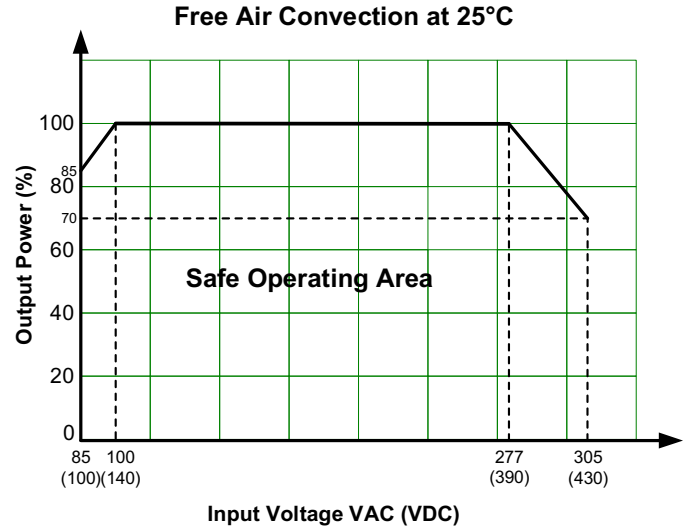
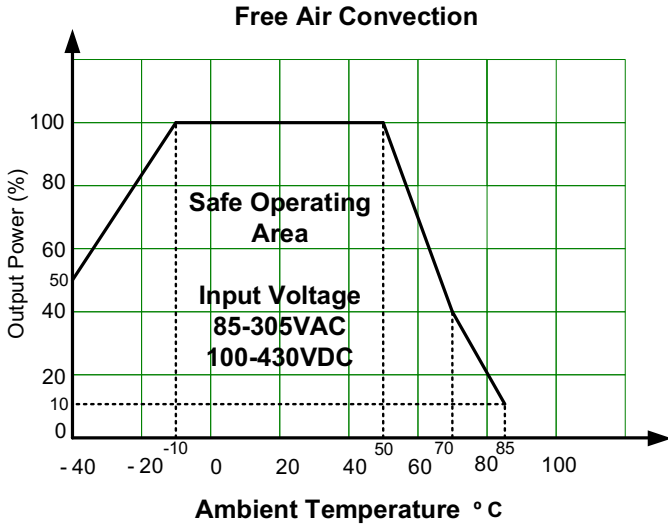
### Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec, leakage current < 5mA		4000	VAC
Tested Input to ground voltage	60 sec, leakage current < 5mA		2500	VAC

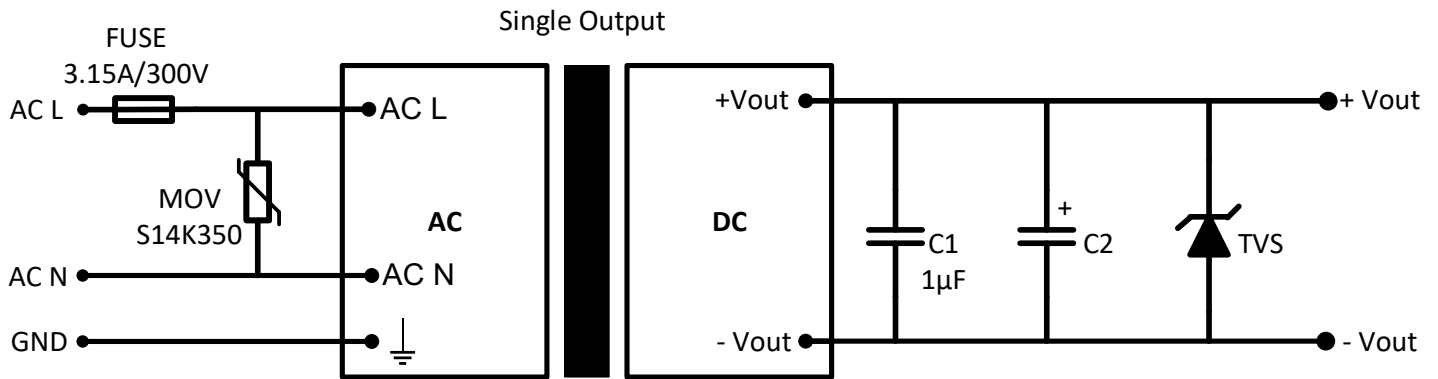
General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Safety class	Class I			
Over Current protection	Auto recovery	≥ 120	300	% of Iout
Over voltage protection	3.3V/5V Vout		7.5	VDC
	9V Vout		15	VDC
	12V/15V Vout		20	VDC
	24V Vout		30	VDC
	48V Vout		60	VDC
Short circuit protection	Hiccup, Continuous, Auto recovery			
Operating temperature	See derating graph	-40 to +85		°C
Storage temperature		-40 to +85		°C
Lead temperature	Wave soldering	260 ± 5 °C; time : 5 - 10s		
	Hand soldering	360 ± 10 °C; time : 3 - 5s		
Power consumption	230VAC		0.5	W
Power derating	-40 °C ~ -10 °C	1.67		% / °C
	55 °C ~ 70 °C	3		% / °C
	70 °C ~ 85 °C	2		% / °C
	85VAC ~ 100VAC	1		% / VAC
	277VAC ~ 305VAC	1		% / VAC
Temperature coefficient		±0.02		% / °C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	Heat resistant black Plastic (flammability to UL 94V-0)			
Weight	PCB mountable models	120		g
	With optional -ST mounting plate:	170		
	With optional -STD mounting plate:	210		
Dimensions (L x W x H)	PCB mountable models	2.76 x 1.89 x 0.93 inches (70.0 x 48.0 x 23.5mm)		
	With optional -ST mounting plate:	3.78 x 2.13 x 1.26 inches (96.1 x 54.0 x 32.0mm)		
	With optional -STD mounting plate:	3.78 x 2.13 x 1.40 inches (96.1 x 54.0 x 35.6mm)		
MTBF	> 300 000 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			
Agency approvals	UL 62368-1		
Standards	Information technology Equipment	Design to meet IEC/EN 62368-1	
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B	
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±6KV / Air ±8KV, Criteria B	
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 10V/m, Criteria A	
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 ±2KV, Criteria B	
		IEC 61000-4-4 ±4KV, with EMC recommended circuit, Criteria B	
	Surge Immunity	IEC 61000-4-5 L-L ±1KV/L-G ±2KV, Criteria B	
		IEC 61000-4-5 L-L ±2KV/L-G ±4KV, with EMC recommended circuit, Criteria B	
	RF, Conducted Disturbance Immunity	IEC 61000-4-6 10Vr.m.s, Criteria A	
Voltage dips, Short Interruptions Immunity	IEC 61000-4-11 0%, 70%, Criteria B		

Derating



Typical Application Circuit

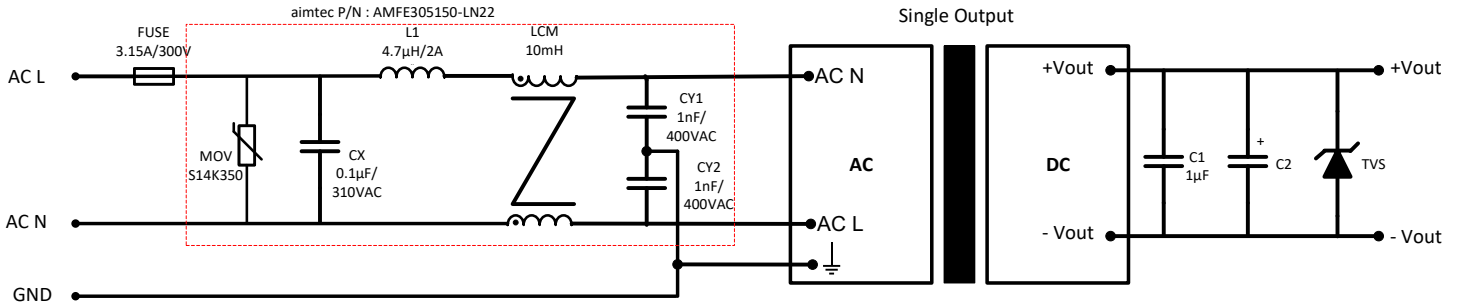


Model	C2	TVS
3.3 / 5 Vout	330 µF / 10V	SMBJ7.0A
9 Vout	330 µF / 16V	SMBJ12A
12 / 15 Vout	330 µF / 25V	SMBJ20A
24 Vout	120 µF / 35V	SMBJ30A
48 Vout	68 µF / 63V	SMBJ64A

Output Filter Components:

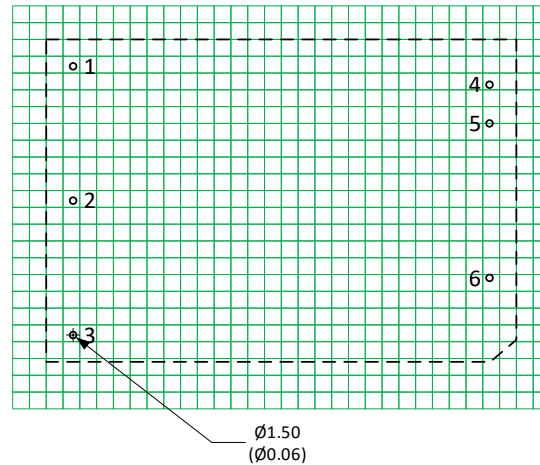
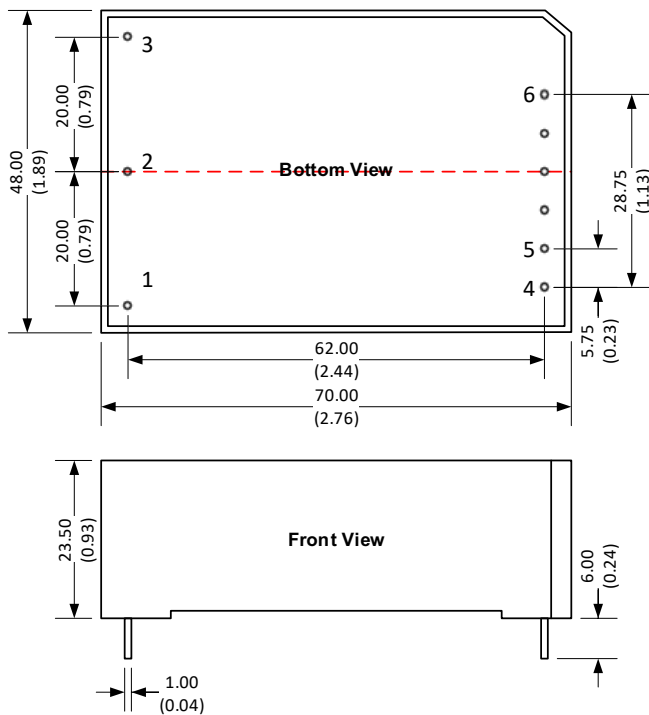
We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode.

## EMC Recommended Circuit



Note : AMFE305150-LN22 is aimtec 2KV/4KV EMC filter.

## Dimensions



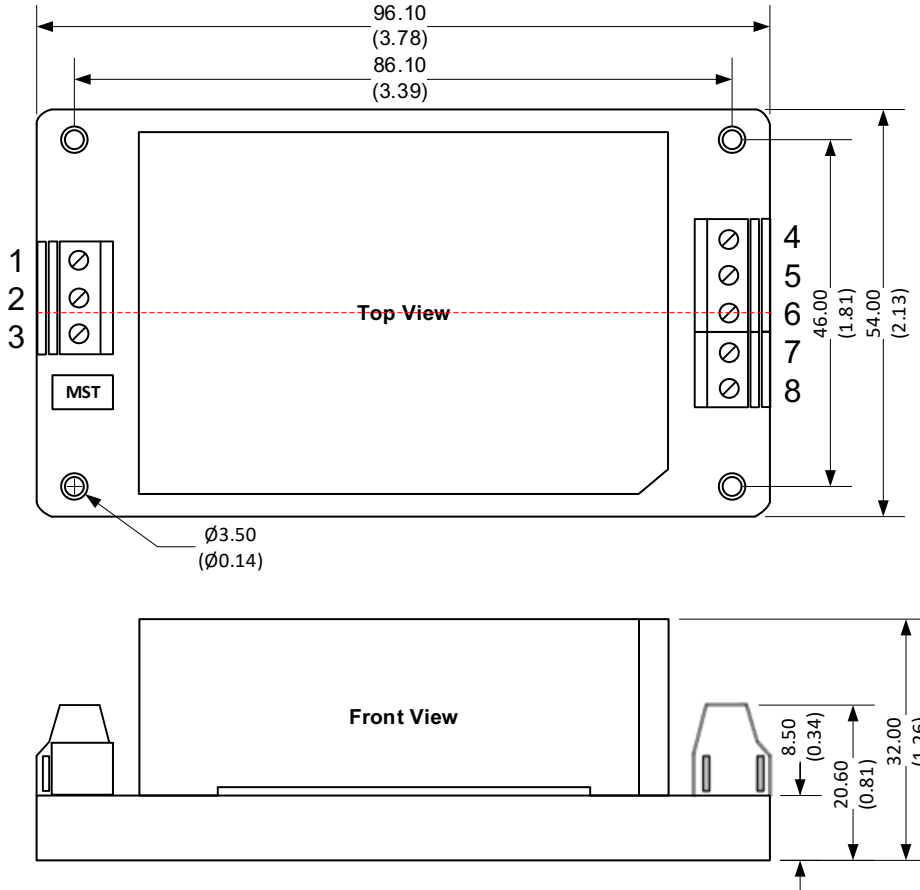
Note : Grid 2.54\*2.54 mm

**Notes:**  
All dimensions are typical in millimeters (inches).  
Pin diameter tolerances :  $\pm 0.10$  ( $\pm 0.004$ )  
General tolerance :  $\pm 0.50$  ( $\pm 0.02$ )

### Pin Output Specifications

Pin	Single
1	GND
2	AC Input (N)
3	AC Input (L)
4	Trim
5	-V Output
6	+V Output

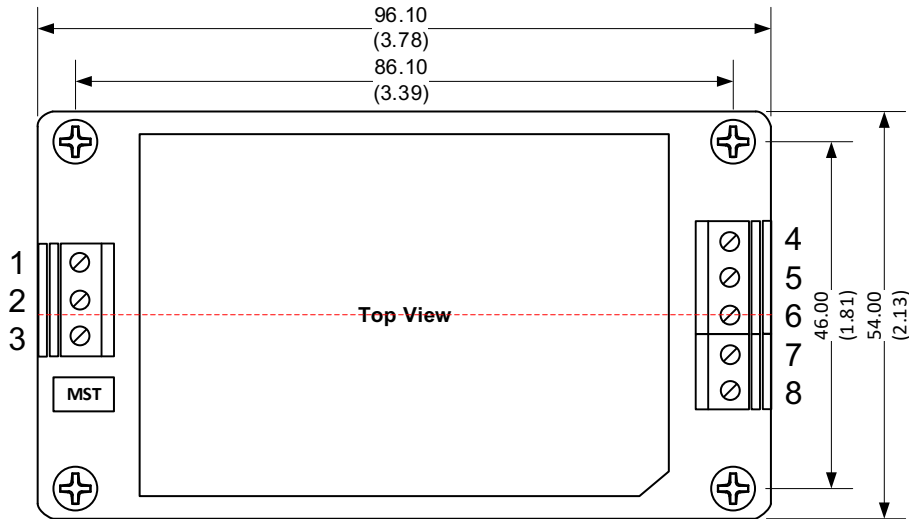
## Dimensions with ST Optional



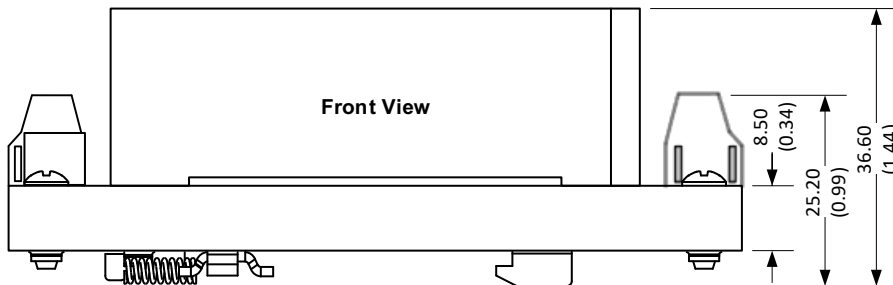
Pin Output Specifications	
Pin	Single
1	GND
2	AC Input (N)
3	AC Input (L)
4	-V Output
5	NC
6	Trim
7	NC
8	+V Output

**Notes:**  
 All dimensions are typical in millimeters (inches).  
 Wire range : 24-12 AWG  
 Tightening torque : Max 0.4 N.m  
 General tolerance  $\pm 1.00$  : ( $\pm 0.04$ )

## Dimensions with STD Optional



Pin Output Specifications	
Pin	Single
1	GND
2	AC Input (N)
3	AC Input (L)
4	-V Output
5	NC
6	Trim
7	NC
8	+V Output



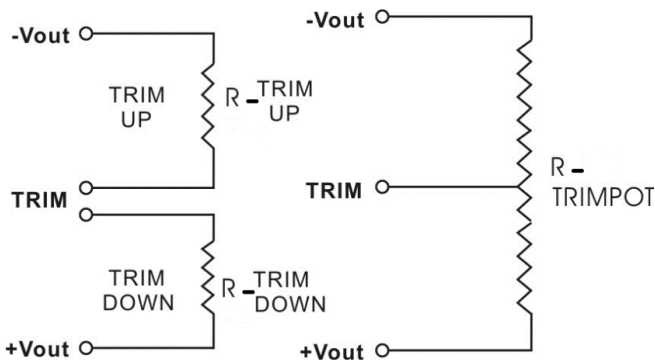
**Notes:**  
 All dimensions are typical in millimeters (inches).  
 Mounting rail : TS35, rail need to connect safety ground  
 Wire range : 24-12 AWG  
 Tightening torque : Max 0.4 N.m  
 General tolerance  $\pm 1.00$  : ( $\pm 0.04$ )

## Trimming

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

**Fixed Resistor**

**Variable Potentiometer**



Leave open if not used.

**AME25-3S277VZ**

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)	70.081	43.295	30.877	23.713	19.049	15.772	13.343	11.471	9.983	8.773
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)	275.589	58.095	32.081	21.970	16.593	13.256	10.983	9.335	8.085	7.105

**AME25-5S277VZ**

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)	160.700	78.200	50.700	36.950	28.700	23.200	19.271	16.325	14.033	12.200
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)	164.000	81.500	54.000	40.250	32.000	26.500	22.571	19.625	17.333	15.500

**AME25-9S277VZ**

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)	389.533	221.430	153.157	116.145	92.924	76.997	65.393	56.562	49.617	44.011
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)	328.532	126.639	78.148	56.357	43.975	35.990	30.412	26.297	23.134	20.629



### AME25-12S277VZ

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)	183.233	111.590	79.474	61.246	49.499	41.299	35.249	30.602	26.921	23.933
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)	211.778	57.030	32.596	22.642	17.238	13.845	11.516	9.819	8.527	7.511

### AME25-15S277VZ

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)	616.500	304.000	199.833	147.750	116.500	95.667	80.786	69.625	60.944	54.000
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)	124.000	61.500	40.667	30.250	24.000	19.833	16.857	14.625	12.889	11.500

### AME25-24S277VZ

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)	471.081	287.942	205.845	159.249	129.221	108.258	92.793	80.914	71.504	63.865
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)	239.556	64.606	36.982	25.728	19.619	15.783	13.150	11.232	9.771	8.622

### AME25-48S277VZ

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)	4309.220	1577.161	956.816	682.305	527.471	428.058	358.828	307.846	268.737	237.787
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)	98.559	57.291	40.209	30.870	24.982	20.930	17.971	15.716	13.940	12.505

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