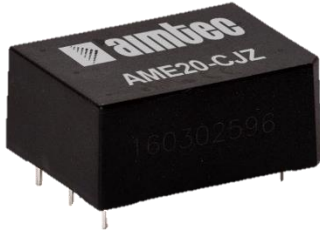


## Series AME20-CJZ

### 20 Watt | AC-DC / DC-DC Converter



#### FEATURES:

- I/O Isolation 3000VAC
- Operating Temp: -40 °C to +70 °C
- Input: 85-264VAC, 47-63Hz, or 100-370VDC
- Over current, Over Voltage Protection
- Continuous Short circuit protection
- Energy Star compliant
- Compact package
- Efficiency up to 85%



#### Models

##### Single output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Output Voltage (V)	Output Current max (A)	Maximum capacitive Load (μF)	Efficiency 230VAC (%)
AME20-3.3SCJZ	85-264/47-63	100-370	3.3	4.1	48000	74
AME20-5SCJZ	85-264/47-63	100-370	5	3.5	12240	78
AME20-9SCJZ	85-264/47-63	100-370	9	2.1	7200	80
AME20-12SCJZ	85-264/47-63	100-370	12	1.6	5400	82
AME20-15SCJZ	85-264/47-63	100-370	15	1.3	2720	83
AME20-24SCJZ	85-264/47-63	100-370	24	0.85	1840	85

#### Models

##### Dual output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Output Voltage (V)	Output Current max (A)	Maximum capacitive Load (μF)	Efficiency 230VAC (%)
AME20-5DCJZ	85-264/47-63	120-370	±5	±2	±8000	75
AME20-12DCJZ	85-264/47-63	120-370	±12	±0.83	±960	82
AME20-15DCJZ	85-264/47-63	120-370	±15	±0.65	±880	83

#### Models

##### Triple output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Output Voltage (V)	Auxiliary Output Voltage (V)	Output Current max (A)	Maximum capacitive Load (μF)	Efficiency 230VAC (%)
AME20-505TCJZ	85-264/47-63	120-370	5	±5	2.5/±0.5	11200/±4480	74
AME20-512TCJZ	85-264/47-63	120-370	5	±12	2/±0.4	16000/±1600	75
AME20-515TCJZ	85-264/47-63	120-370	5	±15	2/±0.3	13520/±370	76
AME20-524TCJZ	85-264/47-63	120-370	5	±24	2/±0.2	11200/±370	77

#### Models

##### Asymmetric Separated Dual output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Output Voltage (V)	Output Current max (A)	Maximum capacitive Load (μF)	Efficiency 230VAC (%)
AME20-512DCJZ	85-264/47-63	120-370	5/12	2.5/0.6	32400/3250	75
AME20-515DCJZ	85-264/47-63	120-370	5/15	2.5/0.5	28000/1980	76
AME20-524DCJZ	85-264/47-63	120-370	5/24	2.5/0.3	28000/720	77

**Note:** Add suffix “-ST” for optional screw terminal bottom plate or “-STD” for optional DIN rail mountable screw terminal bottom plate.

\*Output power must not exceed the listed values.

### Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Current (full load)	115 VAC		600	mA
	230 VAC		340	mA
Inrush current <2ms (cold start)	115 VAC	16		A
	230 VAC	30		A
Leakage current	230VAC/50Hz		0.3	mA
External fuse	Recommended slow blow type	3.15/250V		A

### Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±2		%
Line regulation	Full load, main output	±0.5		%
	Full load, auxiliary output	±1.5		%
Load regulation (single output)	0-100% load	±1		%
Load Regulation (dual output)	10-100% Balanced load	±2		%
Load Regulation (triple & asymmetric separated output)	10-100% Balanced load, main output	±3		
	10-100% Balanced load, auxiliary output	±5		
Minimum load	Single output	0		%
	Others	10		%
Ripple & Noise		50	100	mV p-p
Hold-up time	115VAC, 20MHz bandwidth	15		ms
	230VAC, 20MHz bandwidth	80		ms
Voltage adjustment range	Single output models only		±10	% of Vout

### Isolation Specifications

Parameters	Conditions	Typical	Rated	Units	
Tested I/O voltage	60 sec		3000	VAC	
Isolation voltage between Main and Auxiliary output			500	VDC	
Isolation voltage Input to Ground				2000	VAC
Isolation Resistance			>1000		MΩ

### General Specifications

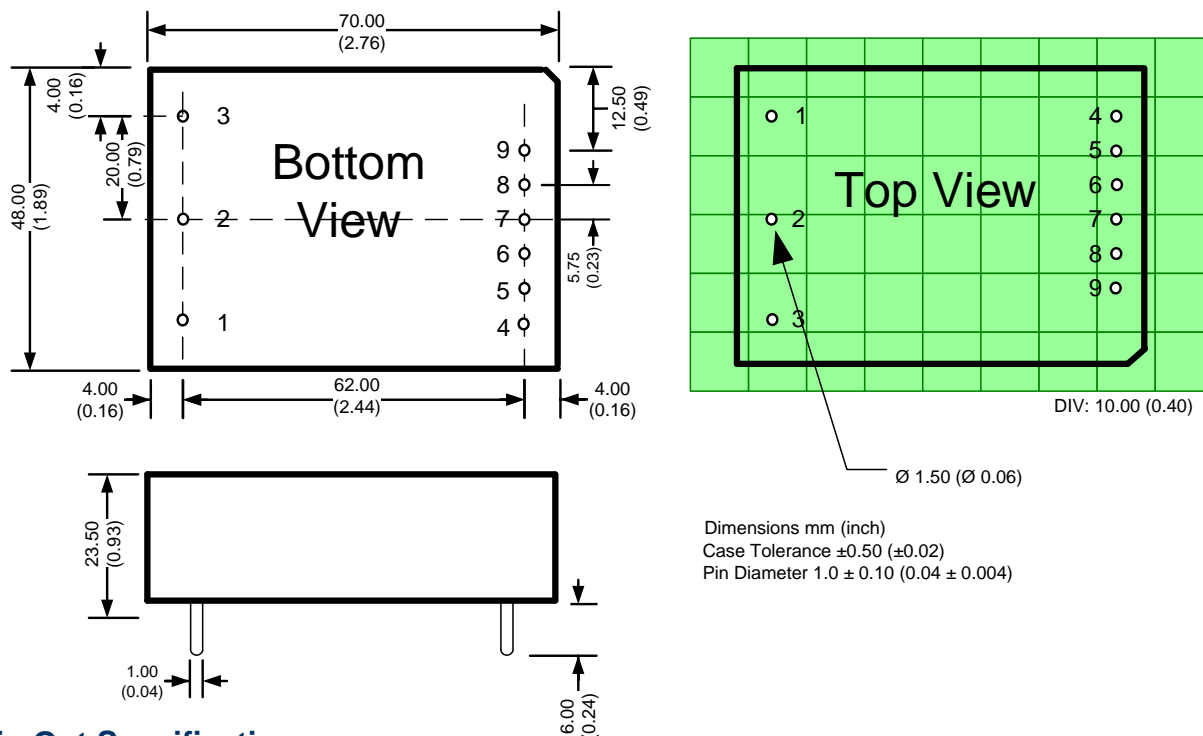
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	65		KHz
Protection class		Class I		
Over current protection		≥110		% of Iout
Over voltage protection		Zener diode clamp		
Short circuit protection		Continuous, Auto recovery		
Operating temperature	See derating curve	-40 to +70		°C
Storage temperature		-40 to +85		°C
Maximum Case temperature			100	°C
Temperature coefficient		±0.02		% / °C
Cooling	Free air convection			
Humidity	Non condensing		95	% RH
Case material		Plastic (flammability to UL 94V-0)		
Weight	Pin mountable	120		g
	With optional -ST mounting plate	170		
	With optional -STD mounting plate	210		
Dimensions (L x W x H)	Pin mountable: 2.76 x 1.89 x 0.93 inches 70.0 x 48.0 x 23.5 mm			
	With optional -ST mounting plate: 3.78 x 2.13 x 1.26 inches 96.1 x 54.0 x 32.0 mm			
	With optional -STD mounting plate: 3.78 x 2.13 x 1.44 inches 96.1 x 54.0 x 36.6 mm			
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	cULus (except dual output, AME20-515TCJZ, and AME20-524TCJZ models), CE	
Standards	Information technology Equipment	IEC/EN/UL 60950-1
	EMI - Conducted and radiated emission	EN55022, class B
	Electrostatic Discharge Immunity	IEC 61000-4-2: Contact $\pm 6\text{KV}$ /Air $\pm 8\text{KV}$ , Criteria B
	RF, Electromagnetic Field Immunity	IEC 61000-4-3: 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4: $\pm 2\text{KV}$ , Criteria B
	Surge Immunity	IEC 61000-4-5: line to line $\pm 1\text{KV}$ , line to GND $\pm 2\text{KV}$ , Criteria B
	RF, Conducted Disturbance Immunity	IEC 61000-4-6: 10Vrms, Criteria A
	Power frequency Magnetic Field Immunity	IEC 61000-4-8: 10A/m, Criteria A
	Voltage dips, Short Interruptions Immunity	IEC 61000-4-11: 0-70%, Criteria B

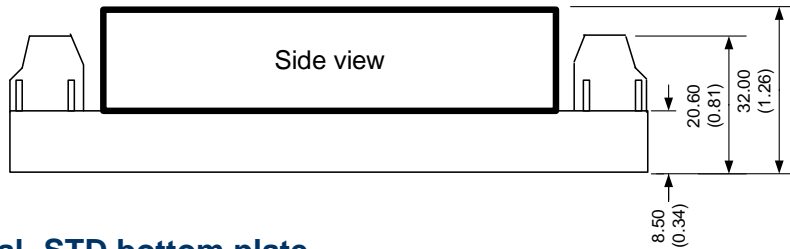
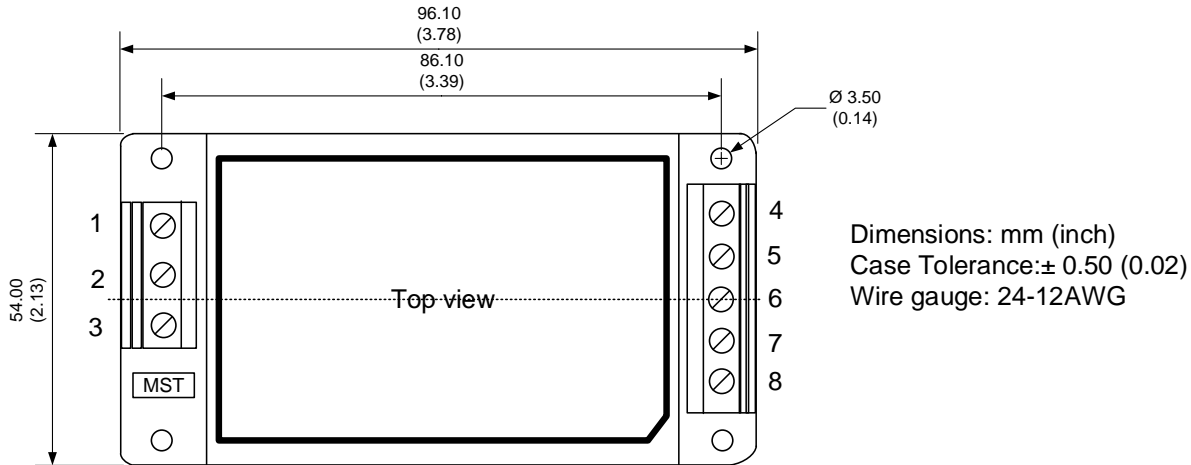
## Dimensions



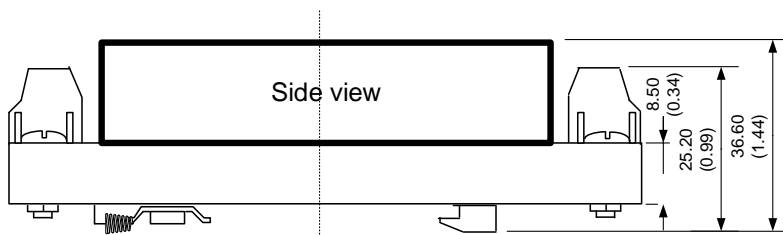
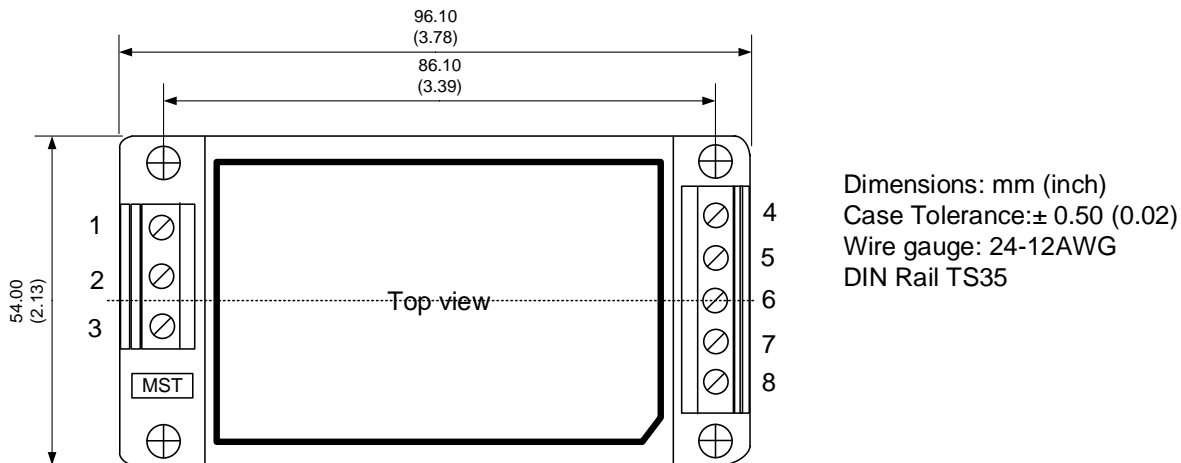
## Pin Out Specifications

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

**Optional -ST bottom plate**



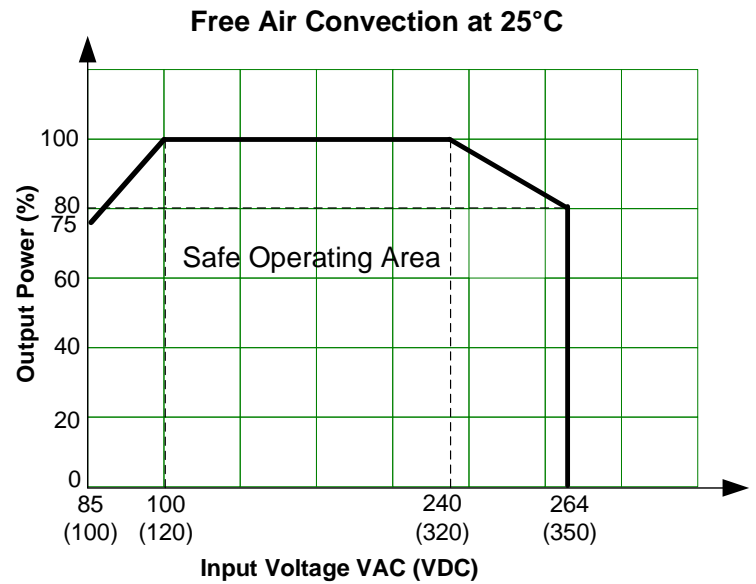
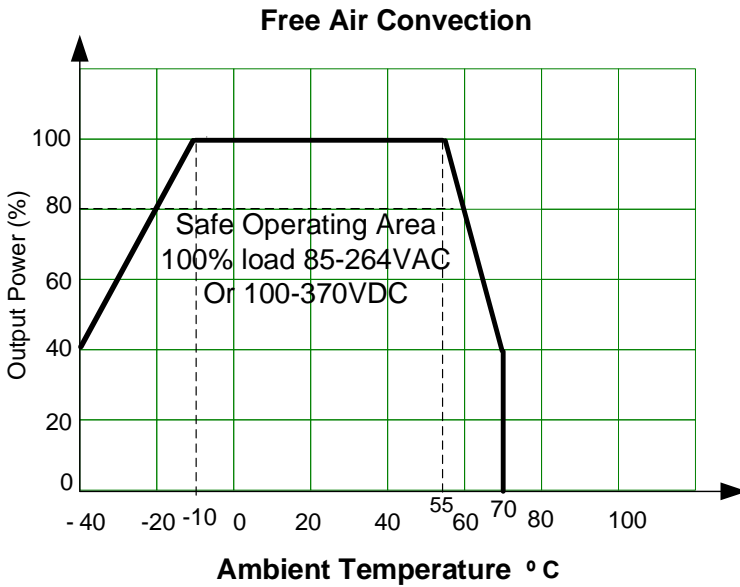
**Optional -STD bottom plate**



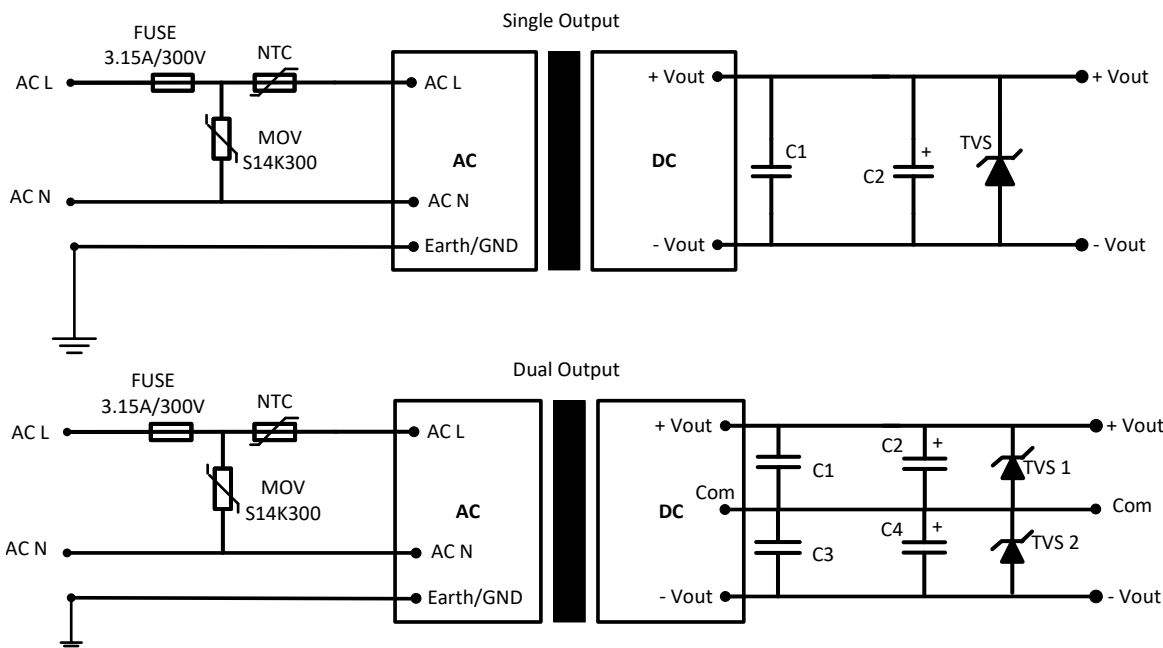
**Pin Out Specifications for -ST and -STD models**

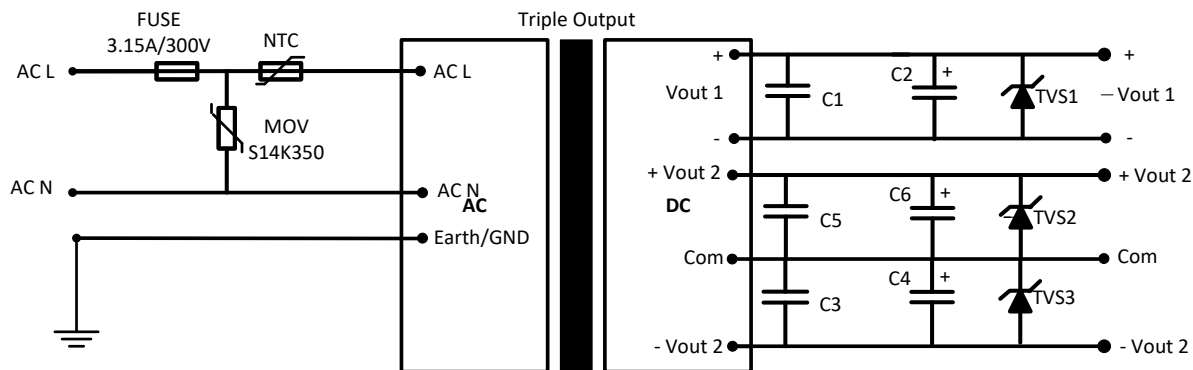
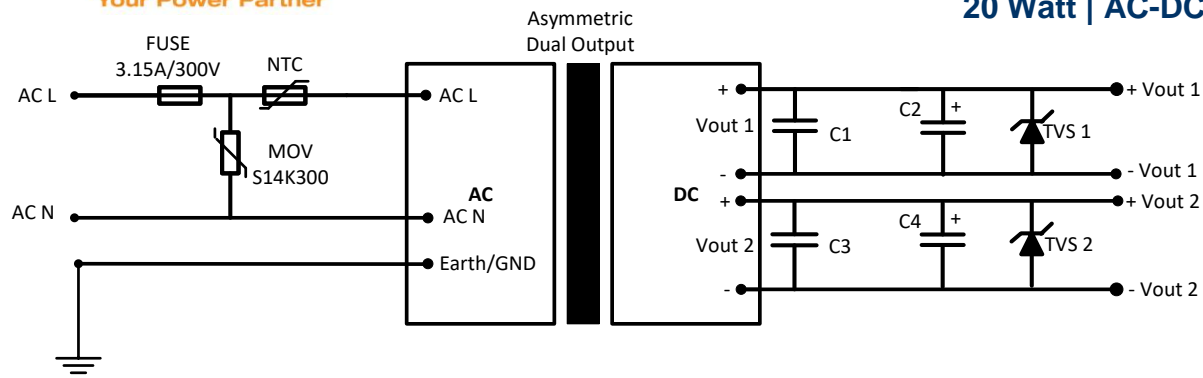
Pin	Single	Dual	Triple	Asymmetric Dual
1	Ground	Ground	Ground	Ground
2	AC Input (N)	AC Input (N)	AC Input (N)	AC Input (N)
3	AC Input (L)	AC Input (L)	AC Input (L)	AC Input (L)
4	-V Output	-V Output	-V Output 1	-V Output 1
5	N.C.	N.C.	+V Output 1	+V Output 1
6	Trim	Common	-V Output 2	N.C.
7	N.C.	N.C.	Common	-V Output 2
8	+V Output	+V Output	+V Output 2	+V Output 2

**Derating**



**Typical application circuits**





Model	C2	C4	C6	TVS1	TVS2	TVS3
Single 3.3 & 5 Vout	330 $\mu$ F	-	-	7V	-	-
Single 9 Vout	220 $\mu$ F	-	-	12V	-	-
Single 12 & 15 Vout	220 $\mu$ F	-	-	20V	-	-
Single 24 Vout	220 $\mu$ F	-	-	30V	-	-
Dual $\pm$ 5 Vout	470 $\mu$ F	470 $\mu$ F	-	7V	7V	-
Dual $\pm$ 12 Vout	120 $\mu$ F	120 $\mu$ F	-	20V	20V	-
Dual $\pm$ 15 Vout	68 $\mu$ F	68 $\mu$ F	-	20V	20V	-
Triple 5/ $\pm$ 5 Vout	330 $\mu$ F	120 $\mu$ F	120 $\mu$ F	7V	7V	7V
Triple 5/ $\pm$ 12 Vout	330 $\mu$ F	120 $\mu$ F	120 $\mu$ F	7V	20V	20V
Triple 5/ $\pm$ 15 Vout	330 $\mu$ F	120 $\mu$ F	120 $\mu$ F	7V	20V	20V
Triple 5/ $\pm$ 24 Vout	330 $\mu$ F	47 $\mu$ F	47 $\mu$ F	7V	30V	30V
Dual 5/12 Vout	330 $\mu$ F	220 $\mu$ F	-	7V	20V	-
Dual 5/15 Vout	330 $\mu$ F	220 $\mu$ F	-	7V	20V	-
Dual 5/24 Vout	330 $\mu$ F	120 $\mu$ F	-	7V	30V	-

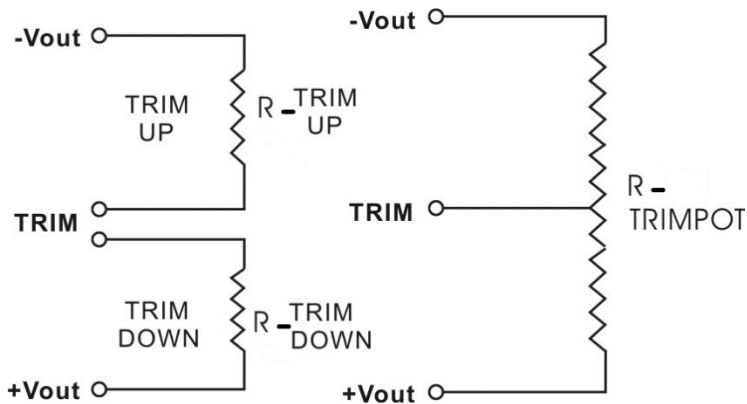
\*C1, C3, C5 are C/C used for high frequency noise filtering.

## Trimming

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

### Fixed Resistor

### Variable Potentiometer



Leave open if not used.

#### AME20-3.3SCJZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	3.27	3.23	3.2	3.17	3.14	3.1	3.07	3.04	3	2.97
Rt down (KΩ)	181.7	84.657	59.638	45.602	36.62	28.7	24.517	21.275	17.939	15.957
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	3.33	3.37	3.4	3.43	3.47	3.5	3.53	3.56	3.6	3.63
Rt up (KΩ)	174.371	63.611	42.843	32.178	24.053	20.166	17.322	15.153	12.95	11.656

#### AME20-5SCJZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	4.95	4.9	4.85	4.8	4.75	4.7	4.65	4.6	4.55	4.5
Rt down (KΩ)	160.7	78.2	50.7	36.95	28.7	23.2	19.271	16.325	14.033	12.2
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	5.05	5.1	5.15	5.2	5.25	5.3	5.35	5.4	5.45	5.5
Rt up (KΩ)	164	81.5	54	40.25	32	26.5	22.571	19.625	17.333	15.5

#### AME20-9SCJZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	8.91	8.82	8.73	8.64	8.55	8.46	8.37	8.28	8.19	8.1
Rt down (KΩ)	389.533	221.43	153.157	116.145	92.925	76.997	65.393	56.562	49.617	44.011
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	9.09	9.18	9.27	9.36	9.45	9.54	9.63	9.72	9.81	9.9
Rt up (KΩ)	328.532	126.639	78.148	56.357	43.975	35.99	30.412	26.297	23.134	20.629

AME20-12SCJZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	11.88	11.76	11.64	11.52	11.4	11.28	11.16	11.04	10.92	10.8
Rt down (KΩ)	183.233	111.59	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)	12.12	12.24	12.36	12.48	12.6	12.72	12.84	12.96	13.08	13.2
Rt up (KΩ)	211.778	57.03	32.596	22.642	17.238	13.845	11.516	9.819	8.527	7.511

AME20-15SCJZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	14.85	14.7	14.55	14.4	14.25	14.1	13.95	13.8	13.65	13.5
Rt down (KΩ)	616.5	304	199.833	147.75	116.5	95.667	80.786	69.625	60.944	54
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	15.15	15.3	15.45	15.6	15.75	15.9	16.05	16.2	16.35	16.5
Rt up (KΩ)	124	61.5	40.667	30.25	24	19.833	16.857	14.625	12.889	11.5

AME20-24SCJZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	23.76	23.52	23.28	23.04	22.8	22.56	22.32	22.08	21.84	21.6
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)	24.24	24.48	24.72	24.96	25.2	25.44	25.68	25.92	26.16	26.4
Rt up (KΩ)	239.556	64.606	36.982	25.728	19.619	15.783	13.15	11.232	9.771	8.622

**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](http://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](http://www.aimtec.com).