Series AME20-BJZ

20 Watt | AC-DC / DC-DC Converter

FEATURES:

- Input: 90-528VAC, 47-63Hz, or 100-745VDC
- Operating Temp: -40°C to +70°C
- Over current Protection
- I/O Isolation of 4000VAC
- Class II power supply
- Over Voltage Protection
- Up to 83% efficiency
- Short Circuit Protection

Models

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 (%)
							230 VAC
AME20-3.3SBJZ	90-528/47-63	100-745	11.88	3.3	3.6	10,000	74
AME20-5SBJZ #	90-528/47-63	100-745	18	5	3.6	10,000	78
AME20-9SBJZ	90-528/47-63	100-745	20	9	2.23	7,000	79
AME20-12SBJZ #	90-528/47-63	100-745	20	12	1.66	5,000	82
AME20-15SBJZ #	90-528/47-63	100-745	20	15	1.33	3,000	83
AME20-24SBJZ #	90-528/47-63	100-745	20	24	0.833	1,000	83

Note: Add suffix “-ST” for optional screw terminal bottom plate or “-STD” for optional DIN Rail screw terminal bottom plate. (ex. AME20-3.3SBJZ-ST, AME20-3.3SBJZ-STD).

Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Current (full load)	115 VAC		800	mA
	230 VAC		400	mA
Inrush current <2ms (cold start)	115 VAC	35		A
	230 VAC	60		A
Leakage current	230VAC/50Hz		0.25	mA
External fuse	Recommended slow blow type	3.15		A
No load consumption			0.75	W

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	3.3Vout	±3.0		%
	Others	±2.0		%
Line regulation	(LL-HL)	±0.5		%
Load regulation	0-100% load	±1.0		%
Ripple & Noise*	20MHz bandwidth		150	mV p-p
Hold up time	230 VAC	35		ms
	400 VAC	100		

*Tested as per the referenced Application Circuit.

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	Input to Output, 60 sec		4000	VAC
Isolation resistance		>1000		MΩ

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency		65		KHz
Protection class		Class II		
Over current protection		130 - 400		% of Iout
Over voltage protection	3.3, 5Vout, Voltage clamp		7.5	VDC
	9Vout, Voltage clamp		15	VDC
	12, 15Vout, Voltage clamp		20	VDC

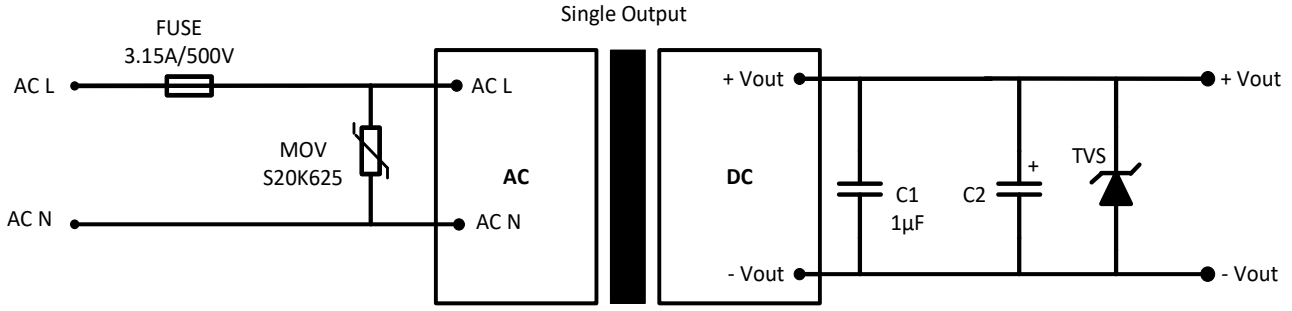
	24Vout, Voltage clamp		30	VDC
Short circuit protection	Continuous, Hiccup, Auto recovery			
Operating temperature	See derating curve	-40 to +70		°C
Storage temperature		-40 to +85		°C
Temperature coefficient		±0.02		% / °C
Power derating	+55 to +70°C	3		% / °C
	-40 to -10°C	1		% / °C
	90 to 110VAC	2		% / VAC
	480 to 528VAC	0.417		% / VAC
Cooling	Free air convection			
Humidity	Non condensing		95	% RH
Soldering temperature	Wave soldering, duration 5 to 10s	260		°C
	Manual soldering, duration 3 to 5s	360		°C
Case material	Plastic (flammability to UL 94V-0)			
Weight	PCB mountable models	160		g
	With optional -ST mounting plate	210		g
	With optional -STD mounting plate	250		g
Dimensions (L x W x H)	PCB mountable models	70.00 x 48.00 x 30.0 mm (2.76 x 1.89 x 1.18 inches)		
	With optional -ST mounting plate	96.1 x 54.0 x 38.5 mm (3.78 x 2.13 x 1.52 inches)		
	With optional -STD mounting plate	96.1 x 54.0 x 43.1 mm (3.78 x 2.13 x 1.70 inches)		
MTBF	> 300 000 hrs (MIL-HDBK -217F, t=+25ºC)/ Full Load			

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage (115/230VAC) and at rated output load unless otherwise specified.

Safety Specifications

Parameters		
Agency approvals	UL 62368-1 (Only for the models marked #)	
Standards	Information Technology Equipment	Designed to meet IEC/EN/UL 62368-1
	EMI - Conducted and radiated emission	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, Criteria B with the recommended EMC circuit
	Surge Immunity	IEC 61000-4-5: L-L ±2KV, Criteria B IEC 61000-4-5: L-L ±4KV, Criteria B with the recommended EMC circuit
	RF, Conducted Disturbance Immunity	IEC 61000-4-6: 10Vrms, Criteria A
	Voltage dips, Short Interruptions Immunity	IEC 61000-4-11: 0-70%, Criteria B

Typical Application circuit

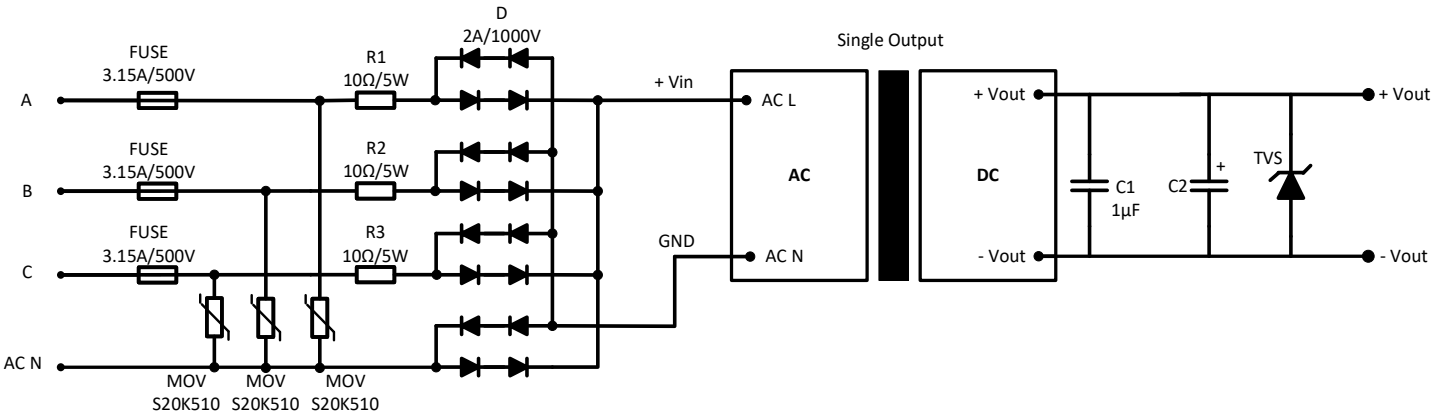


Vout	C2	TVS
3.3 & 5V	330 µF/50V	7A
9V	220 µF/50V	12A
12V		20A
15 & 24V		30A

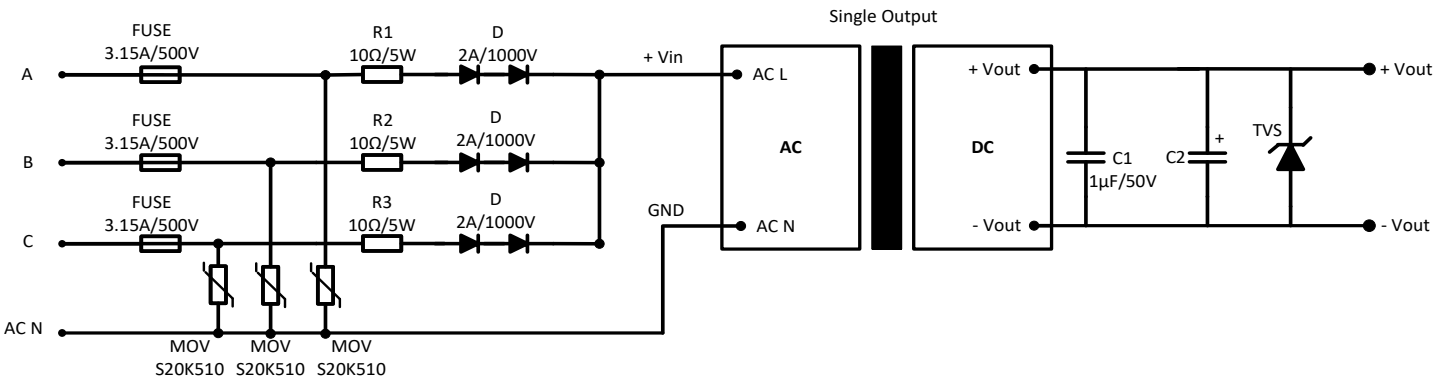
For filtering components:
Choose capacitors with at least 20% voltage margin. The C2 capacitor is recommended to use electrolytic type with high frequency and low ESR rating. The C1 capacitor is recommended to use ceramic type for filtering high-frequency noise.

3 Phase 4 Wire EMC recommended circuit

Full-wave Rectification for 4KV differential mode inrush standard

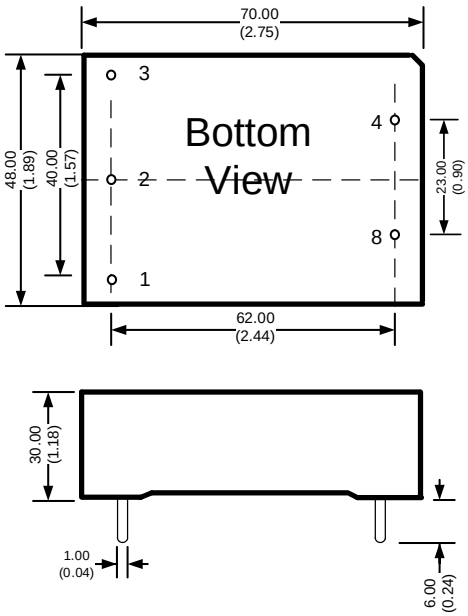


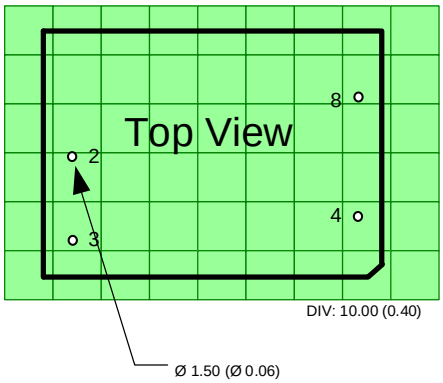
Half-wave Rectification for 4KV differential mode inrush standard



Vout	C2	TVS
3.3 & 5V	330 µF/50V	7A
9V	220 µF/50V	12A
12V		20A
15 & 24V		30A

Dimensions





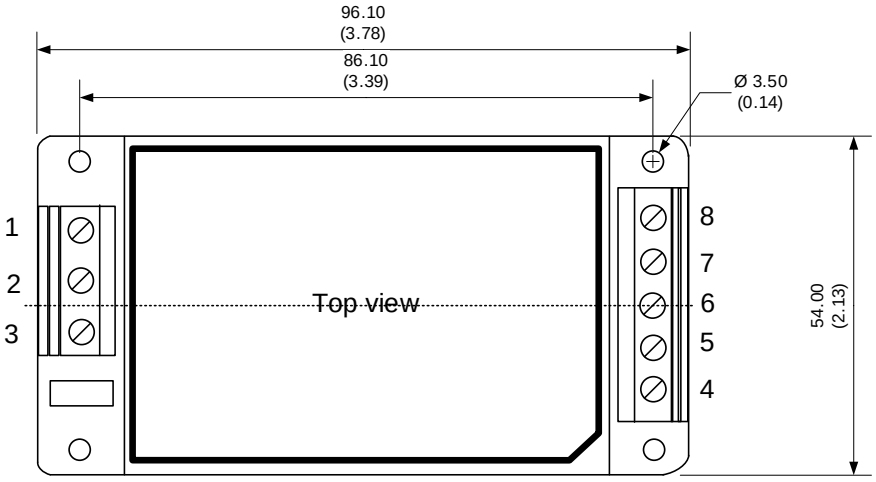
Dimensions mm (inch)
Case Tolerance ±0.50 (±0.02)
Pin Diameter 1.0 ± 0.10 (0.04 ± 0.004)

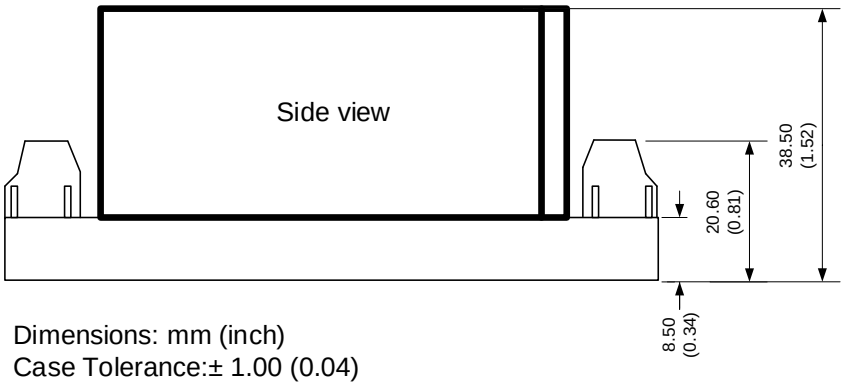
Pin Out Specifications

Pin	Single
1	NA (No Pin Present)
2*	AC Input (N) or (L1)
3*	AC Input (L) or (L2)
4	+ V output
5	- V output

* Note: Input Pins 1 and 2 can be “N” and "L" respectively when the input voltage is supplied from a single phase.
Input Pins 1 and 2 can be “L1” and "L2" respectively when the input voltage is supplied from 3 phase line to line voltage 208-480Vac (208 Y/ 120V 3-phase, 240 Y/ 120V 3-phase, 400 Y/ 230V 3-phase or 480 Y/ 277V 3-phase).

With optional -ST bottom plate



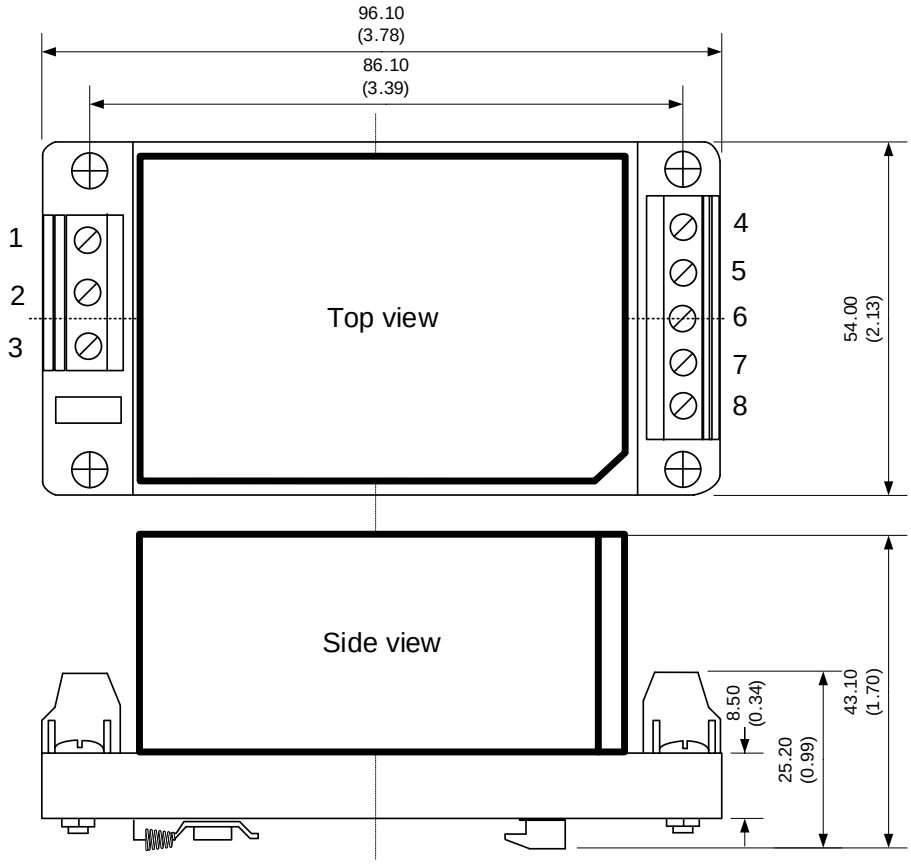


Dimensions: mm (inch)
Case Tolerance:± 1.00 (0.04)
Wire gauge: 24-12AWG
Tightening torque: 0.4N-m max.

Pin Out Specifications

Pin	Single
1	No Pin
2	AC Input (N)
3	AC Input (L)
4	+V Output
5	No Pin
6	No Pin
7	No Pin
8	-V Output

With optional -STD bottom plate

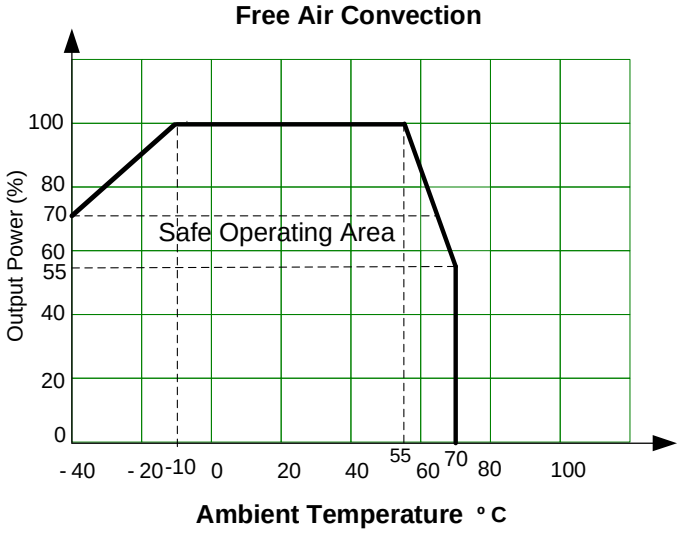


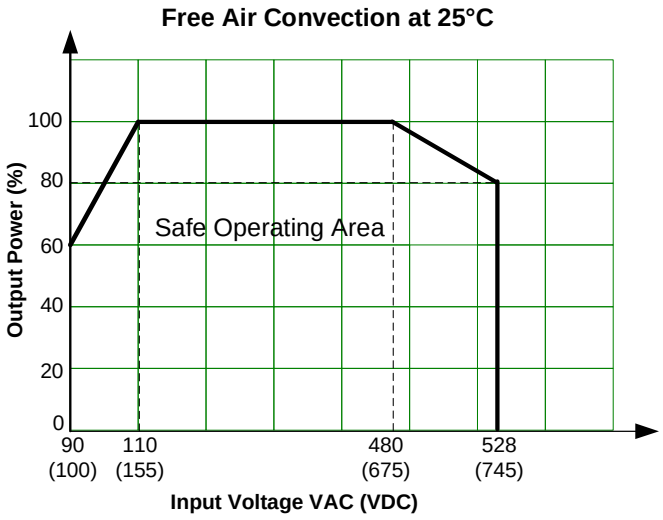
Dimensions: mm (inch)
Case Tolerance:± 1.00 (0.04)
Wire gauge: 24-12AWG
Tightening torque: 0.4N-m max.
DIN Rail TS35

Pin Out Specifications

Pin	Single
1	No Pin
2	AC Input (N)
3	AC Input (L)
4	+V Output
5	No Pin
6	No Pin
7	No Pin
8	-V Output

Derating





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