

## Series AMEL20-MAZ

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



#### FEATURES:

- I/O Isolation 4000VAC
- Operating Temp: -40 °C to +70 °C
- Over load, Over Voltage, Short Circuit Protection
- Up to 82% efficiency
- Energy Star compliant
- Ultra small package

#### 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 (%)
AMEL20-3.3SMAZ	90-264/47-440	120-370	13.2	3.3	4	5600	74
AMEL20-5SMAZ	90-264/47-440	120-370	20	5	4	4700	78
AMEL20-12SMAZ	90-264/47-440	120-370	20	12	1.66	3300	82
AMEL20-15SMAZ	90-264/47-440	120-370	20	15	1.33	2200	82
AMEL20-24SMAZ	90-264/47-440	120-370	20	24	0.84	1000	82

#### Models Asymmetric Dual output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Max Output wattage (W)	Output Voltage (V)	Rated Output Current (A)	Maximum capacitive load (µF)	Efficiency (%)
AMEL20-3.35DMAZ	90-264/47-440	120-370	17.5	3.3/5	1.4/2.5	1000	75
AMEL20-3.312DMAZ	90-264/47-440	120-370	18	3.3/12	1.4/1.1	1000	78
AMEL20-3.315DMAZ	90-264/47-440	120-370	18	3.3/15	1.4/0.89	1000	77
AMEL20-3.324DMAZ	90-264/47-440	120-370	18	3.3/24	1.4/0.55	1000	76
AMEL20-512DMAZ	90-264/47-440	120-370	18	5/12	1.6/0.83	680	76
AMEL20-515DMAZ	90-264/47-440	120-370	18	5/15	1.6/0.66	680	78
AMEL20-524DMAZ	90-264/47-440	120-370	18	5/24	1.6/0.46	680	76
AMEL20-1215DMAZ	90-264/47-440	120-370	18	12/15	0.66/0.66	560	77
AMEL20-1224DMAZ	90-264/47-440	120-370	18	12/24	0.58/0.42	560	79
AMEL20-1524DMAZ	90-264/47-440	120-370	18	15/24	0.54/0.42	560	80
AMEL20-3.3N5DMAZ	90-264/47-440	120-370	14.8	-3.3/5	-0.7/2.5	680	75
AMEL20-3.3N12DMAZ	90-264/47-440	120-370	18	-3.3/12	-1.4/1.1	680	76
AMEL20-3.3N15DMAZ	90-264/47-440	120-370	18	-3.3/15	-1.4/0.89	680	76
AMEL20-5N5DMAZ	90-264/47-440	120-370	14	-5/5	-0.8/2	680	75
AMEL20-5N12DMAZ	90-264/47-440	120-370	18	-5/12	-1.6/0.83	470	75
AMEL20-5N15DMAZ	90-264/47-440	120-370	18	-5/15	-1.6/0.66	470	75
AMEL20-12N12DMAZ	90-264/47-440	120-370	18	-12/12	-0.66/0.83	470	77
AMEL20-12N15DMAZ	90-264/47-440	120-370	18	-12/15	-0.66/0.66	330	76

\*Output power must not exceed the listed values.

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.

#### Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Current	115VAC	0.46		A
	230VAC	0.29		A
Inrush current <2ms (cold start)	115VAC		10	A
	230VAC		20	A
Leakage current			0.25	mA
External fuse	slow blow type	1.5		A

### Input Specifications (continued)

Parameters	Conditions	Typical	Maximum	Units
Input dissipation	No Load	<0.5		W
Start up time		50		ms

### Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±2		%
Line regulation		±1		%
Load regulation (single output)	0-100% load	±2		%
Load regulation (dual output)	Unbalanced (0-100%) load	±3		%
Transient recovery time		500		µs
Transient response deviation	25% load step	±2		% of Vout
Ripple & Noise*	3.3 & 5V models	75		mV p-p
	12, 15 & 24V models	100		
Hold-up time (min)	110VAC	10		ms
	230VAC	25		

\*Ripple and Noise are measured at 20MHz bandwidth by using a 0.1µF (M/C) parallel capacitor.

### Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	3 sec, 1.2mA		4000	VAC
Isolation resistance		>1000		MΩ
Isolation Capacitance		2200		pF

### General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	65		KHz
Over load protection	Auto recovery, Foldback	150		%
Over voltage protection		Zener Diode Clamp		
Short circuit protection		Continuous		
Short circuit restart		Auto recovery		
Operating temperature	See derating table	-40 to +70		°C
Maximum case temperature			100	°C
Storage temperature		-45 to +95		°C
Temperature coefficient		±0.02		% / °C
Cooling		Free air convection		
Humidity	Non condensing	20 ~ 95		% RH
Case material		Plastic resin + Fiberglass (flammability to UL 94V-0)		
Weight		70		g
Dimensions (L x W x H)		2.22 x 1.21 x 0.99 inches	56.48 x 30.86 x 25.10mm	
MTBF		> 400 000 hrs (MIL-HDBK -217F, t=+25°C)		

### Environment Approval

Test	Parameters	Conditions
Shock	Wave form	Half sine wave
	Acceleration amplitude	5gn
	Bump duration	30 ms
	Converter operation	before and after test, body mounted (on chassis)
	Number of bumps	18 (3 in each direction for every axis)
Vibration	Test mode	Sweep sine
	Displacement	1mm
	Acceleration	3g
	Converter operation	10-100Hz, speed 0.05Hz/s

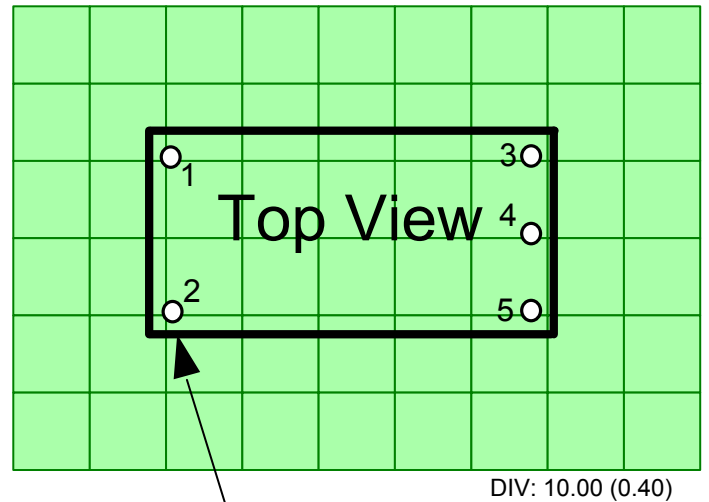
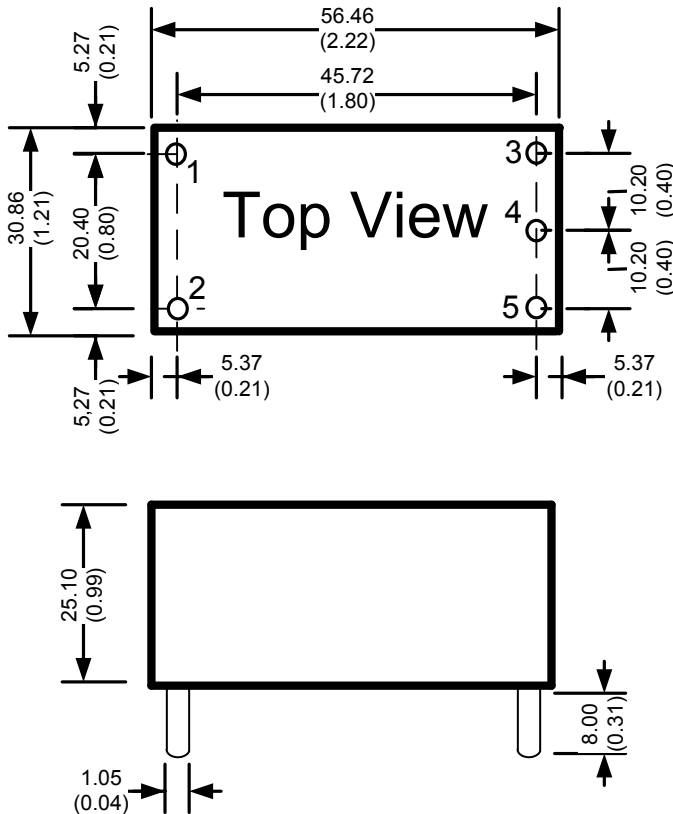
## Safety Specifications

Parameters		
Agency approvals	cULus, CE, CB, TÜV Rheinland (cTUVus), Bauart-Mark	
Standards	Medical Electrical Equipment	IEC/EN/UL 60601-1, CSA-C22.2 No. 601.1-M90
	Information technology Equipment	EN 60950-1:2006+A11:2009
	EMI - Conducted and radiated emission	EN55011, class B
	Harmonic Current Emissions	IEC/EN 61000-3-2, (EN60555-2)
	Voltage fluctuations and flicker	IEC/EN 61000-3-3, (EN60555-3)
	Electrostatic Discharge Immunity	IEC 61000-4-2
	RF, Electromagnetic Field Immunity	IEC 61000-4-3
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4
	Surge Immunity	IEC 61000-4-5
	RF, Conducted Disturbance Immunity	IEC 61000-4-6
	Power frequency Magnetic Field Immunity	IEC 61000-4-8
	Voltage dips, Short Interruptions Immunity	IEC 61000-4-11
	Information Technology Equipment	UL 60950-1:2007
Information Technology Equipment	CAN/CSA-C22.2 No.60950-1-07	

## Pin Out Specifications

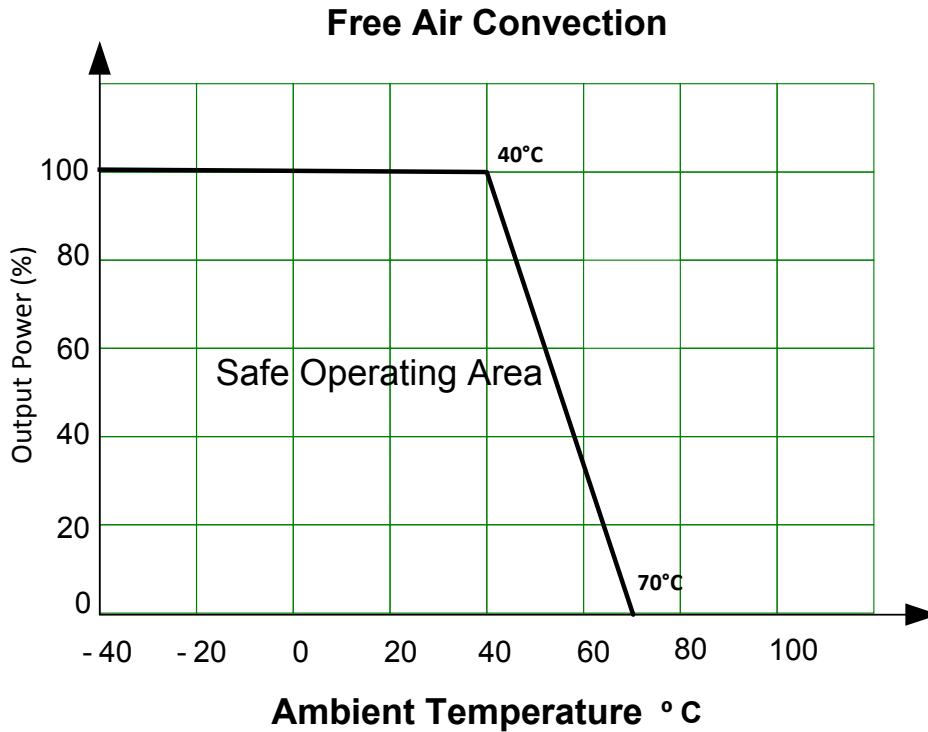
Pin	Single	Dual positive	Dual negative/positive
1	AC Input (N)	AC Input (N)	AC Input (N)
2	AC Input (L)	AC Input (L)	AC Input (L)
3	+V Output	+V1 Output	+V1 Output
4	-V Output	Common	Common
5	No pin	+V2 Output	-V2 Output

## Dimensions



Dimensions mm (inch)  
Case Tolerance  $\pm 0.50$  ( $\pm 0.02$ )  
Pin Diameter  $1.0 \pm 0.05$  ( $0.04 \pm 0.002$ )  
Pin Pitch Tolerance  $\pm 0.35$  ( $\pm 0.014$ )

**Derating**



**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).