aimtec
Your Power Partner

Series AMEL5-MAZ

5 Watt | AC-DC / DC-DC Converter



FEATURES:

- I/O Isolation 4000VAC
- Operating Temp: -40 ˚C to +80 ˚C or -25 ˚C to +80 ˚C
- Input: 90-264VAC, 47-440Hz, or 130-370VDC
- Over load, Over Voltage, Short Circuit Protection
- RoHS compliant
- Energy Star compliant
- Small package
- Soft start

RoHS CE cULus E309075 CB

Models
Single output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Temperature range (ºC)	Output Voltage (V)	Output Current max (A)	Maximum capacitive Load (µF)	Efficiency (%)	
							115 VAC	230 VAC
AMEL5-3.3SMAZ	90-264/47-440	130-370	-40 to +80	3.3	1. 5	2200	71	70
AMEL5-5SMAZ	90-264/47-440	130-370	-40 to +80	5	1	1100	74	74
AMEL5-12SMAZ	90-264/47-440	130-370	-40 to +80	12	0.42	680	77	75
AMEL5-15SMAZ	90-264/47-440	130-370	-40 to +80	15	0.333	330	77	76
AMEL5-24SMAZ	90-264/47-440	130-370	-40 to +80	24	0.21	220	76	75
AMEL5-3.3SEMAZ	90-264/47-440	130-370	-40 to +80	3.3	1. 5	2200	71	70
AMEL5-5SEMAZ	90-264/47-440	130-370	-40 to +80	5	1	1100	74	74
AMEL5-12SEMAZ	90-264/47-440	130-370	-40 to +80	12	0.42	680	76	76
AMEL5-15SEMAZ	90-264/47-440	130-370	-40 to +80	15	0.333	330	76	76
AMEL5-24SEMAZ	90-264/47-440	130-370	-40 to +80	24	0.21	220	76	75

Note: Optional mounting plate version can be ordered by adding "-ST" suffix to part number (ex. AMEL5-5SMAZ-ST)

Models
Dual output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Temperature range (ºC)	Output Voltage (V)	Output Current max (A)	Maximum capacitive load (µF)	Efficiency (%)	
							115 VAC	230 VAC
AMEL5-5DMAZ	90-264/47-440	130-370	-40 to +80	±5	±0.5	±470	72	72
AMEL5-12DMAZ	90-264/47-440	130-370	-40 to +80	±12	±0.21	±220	73	73
AMEL5-15DMAZ	90-264/47-440	130-370	-40 to +80	±15	±0.168	±150	72	73
AMEL5-5DEMAZ	90-264/47-440	130-370	-40 to +80	±5	±0.5	±470	72	72
AMEL5-12DEMAZ	90-264/47-440	130-370	-40 to +80	±12	±0.21	±220	73	73
AMEL5-15DEMAZ	90-264/47-440	130-370	-40 to +80	±15	±0.168	±150	72	73

Note: Optional mounting plate version can be ordered by adding "-ST" suffix to part number (ex. AMEL5-5SMAZ-ST)

Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Current (full load)	115 VAC		120	mA
	230 VAC		70	mA
Inrush current <2ms (cold start)	115 VAC		15	A
	230 VAC		30	A
Leakage current			0.2	mA
External fuse	Recommended slow blow type	1.5		A
Input Dissipation (No Load)	No load (110/230VAC)	≤ 0.1		W
Start up time	Soft Start	780		mS
Under Voltage Protection		85		VAC

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±2		%
Line regulation		±1		%

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Load regulation (single output)	0-100% load	±1		%
Cross Regulation (dual output)	25% load – 1st out, 100% load – 2nd out	±5		%
Transient Recovery Time		300		µs
Transient Response Deviation	25% load step	±2		% of Vout
Minimum load		0		%
Ripple & Noise *	3.3 / 5V models 12 / 15V models 24V	75 100 150		mV p-p
Hold-up time (minimum)		15		ms

*Ripple and Noise are measured at 20MHz bandwidth by using a 0.1µF (M/C) and 47µF (E/C) parallel capacitor.

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec	4000		VAC
Isolation Resistance		>1000		MΩ

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency		132		KHz
Protection class	Class II			
Over Load protection	Fold back			
Over voltage protection	Zener diode clamp			
Short circuit protection	Auto recovery			
Operating temperature	With derating above 50ºC	Refer to the models table above		ºC
Storage temperature		-40 to +95		ºC
Maximum Case temperature			100	ºC
Temperature coefficient		0.02		% / ºC
Cooling	Free air convection			
Humidity	Non condensing	20 ~ 95		% RH
Case material	Plastic (flammability to UL 94V-0)			
Weight		30		g
Dimensions (L x W x H)	2.03 x 1.11 x 0.71 inches 51.6 x 28.3 x 18mm			
MTBF	> 400,000 hrs (MIL-HDBK -217F, t=+25ºC)/Full Load > 100,000 hrs (MIL-HDBK -217F, t=at highest operating temperature)/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.

Environment Approval

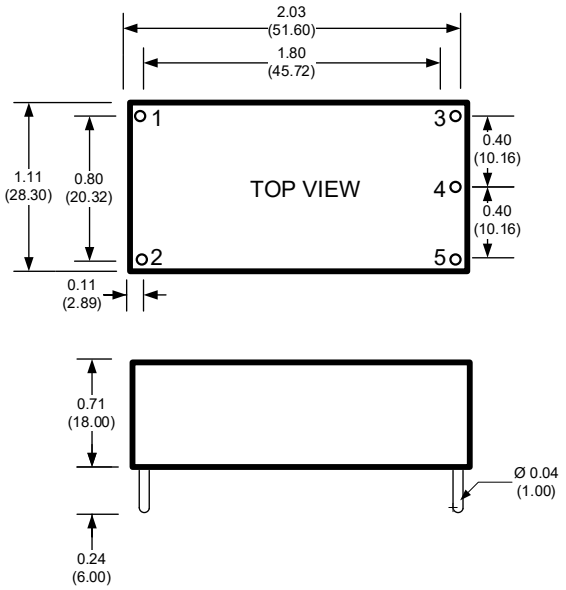
Parameters	Conditions
Shock	Wave form: Half sine wave
	Acceleration amplitude: 5gn
	Bump duration: 30 ms
	Number of bumps: 18 (3 in each direction for every axis)
	Converter operation before and after test, body mounted (on chassis)
Vibrations	Test mode: Sweep sine
	10-100Hz, speed 0.05Hz/s
	Displacement: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

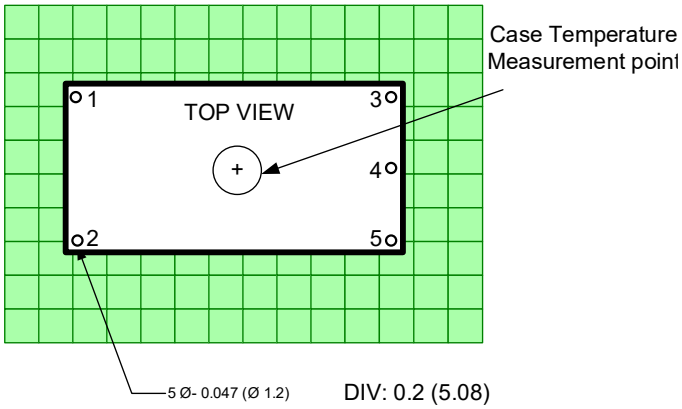
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Safety Specifications

Parameters		
Agency approvals	cULus, CE, CB	
Standards	Medical Electrical Equipment	IEC\EN\UL 60601-1, 2 x MOOP, CSA-C22.2 No. 601.1-M90
	Information technology Equipment	EN 60950-1:2006+A11:2009
	EMI - Conducted and radiated emission	EN55032, class B with the recommended External EMI circuit
	Harmonic Current Emissions	IEC/EN 61000-3-2, Class A
	Voltage fluctuations and flicker	IEC/EN 61000-3-3, (EN60555-3)
	Electrostatic Discharge Immunity	IEC 61000-4-2 Level 3
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 Level 2
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 Level 3
	Surge Immunity	IEC 61000-4-5 Level 3
	RF, Conducted Disturbance Immunity	IEC 61000-4-6 Level 2
	Power frequency Magnetic Field Immunity	IEC 61000-4-8 Level 2
	Voltage dips, Short Interruptions Immunity	IEC 61000-4-11

Dimensions



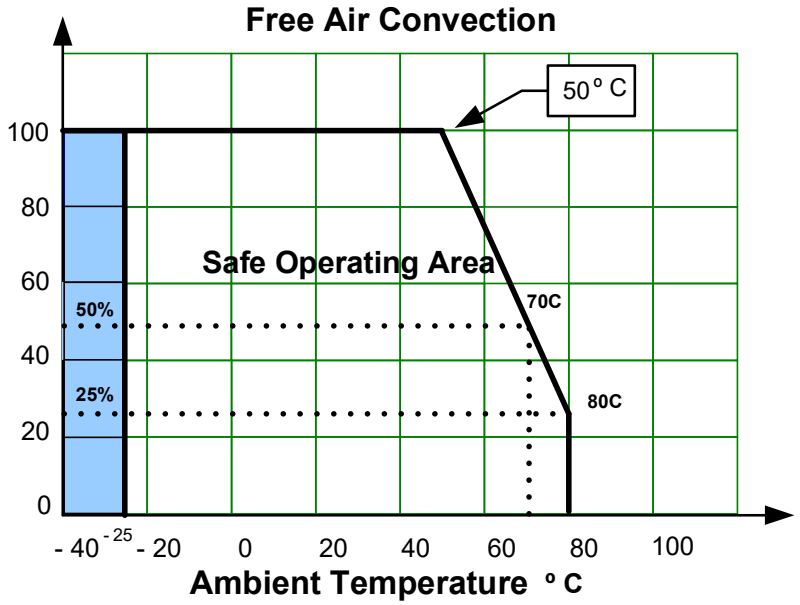


Dimensions: inch (mm)
Case Tolerance:± 0.02 (0.50)
Pin Pitch Tolerance: ± 0.02 (0.50)

Pin Out Specifications

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

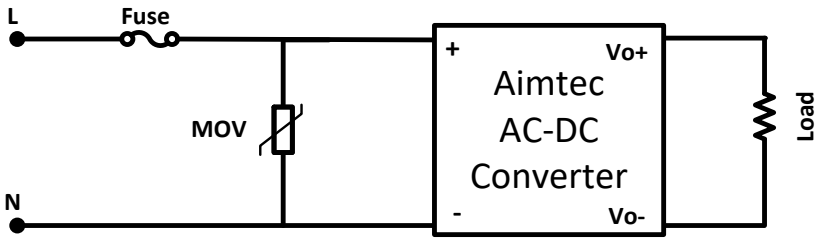
Derating



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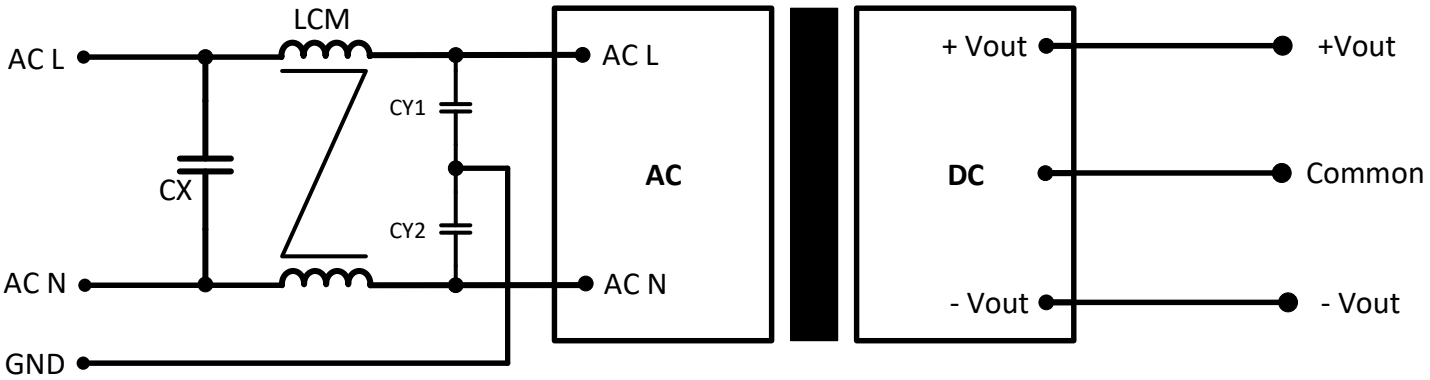
Additional Surge Protective Circuitry

The AMEL5-MAZ series design level surge protection is certified to IEC 61000-4-5 surge Line to Line of 1KV. However greater protection can be enhanced by adding protective devices to ingress circuitry. For example, by adding an MOV (Metal Oxide Varistor) device example TVR10471KSY to the N / L input lines 2KV surge protection or greater, can be achieved.



MOV PN	Vrms V	Vdc V	Wmax (2ms) J	Pmax W
TVR10471KSY	300	385	70	0.4

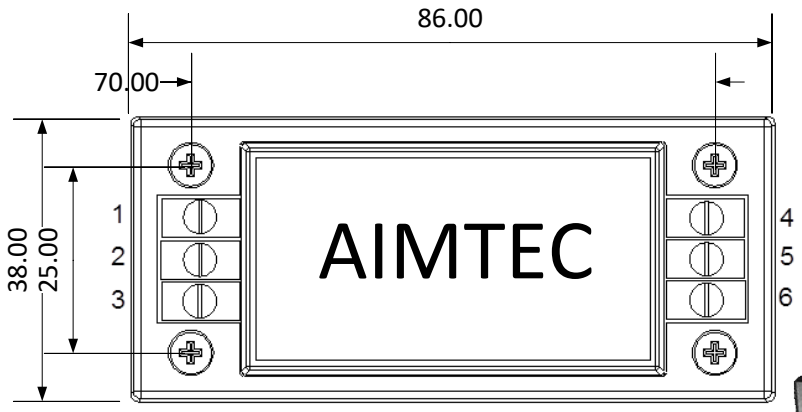
Recommended EMI Circuit for Dual output models

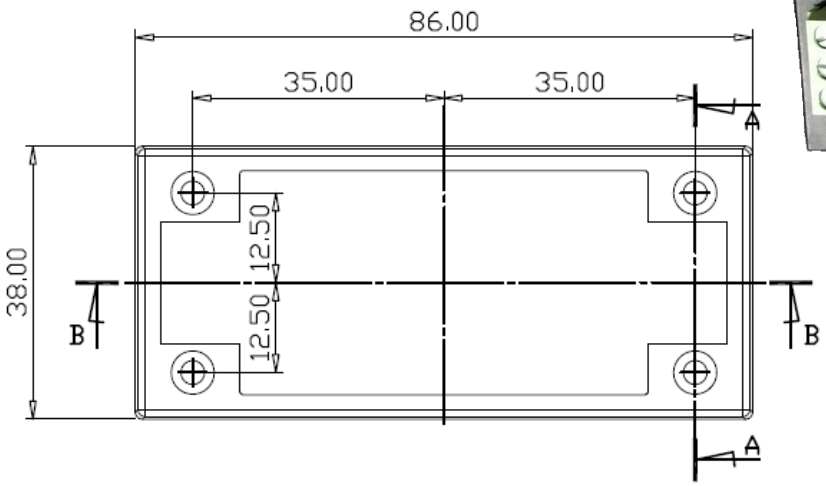


CX	LCM PN	CY1/CY2
330nF/275VAC	2mH, Recommended SU9V-05020	1000pF/400VAC

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Dimensions of Optional ST Mounting Plate Version

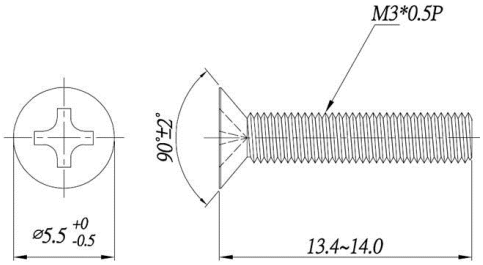


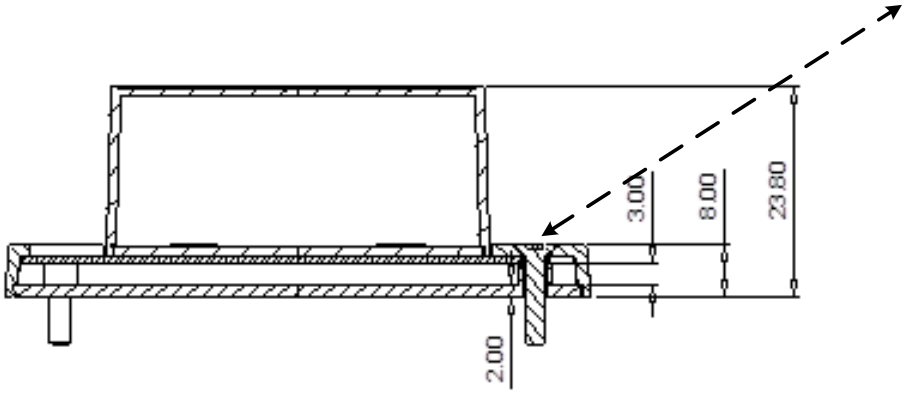


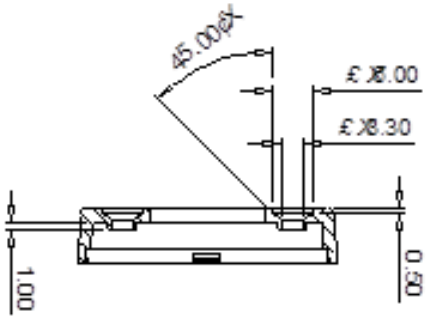
Pin Out Specification ST

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









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 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.

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