

**FEATURES:**

- I/O Isolation 4000VAC
- Operating Temp: -40 °C to +80 °C or -25 °C to +80 °C
- Input: 90-264VAC, 47-440Hz, or 120-370VDC
- Over load, Over Voltage, Short Circuit Protection
- RoHS compliant
- Energy Star compliant
- Ultra small package
- Soft start



**Models**  
**Single output**

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Temperature range (°C)	Output Voltage (V)	Output Current max (A)	Maximum capacitive Load (µF)	Efficiency (%)
AMEL5-3.3SMAZ	90-264/47-440	120-370	-25 to +80	3.3	1.5	2200	68
AMEL5-5SMAZ	90-264/47-440	120-370	-25 to +80	5	1	1100	70
AMEL5-12SMAZ	90-264/47-440	120-370	-25 to +80	12	0.42	680	73
AMEL5-15SMAZ	90-264/47-440	120-370	-25 to +80	15	0.333	330	73
AMEL5-24SMAZ	90-264/47-440	120-370	-25 to +80	24	0.21	220	75
AMEL5-3.3SEMAZ	90-264/47-440	120-370	-40 to +80	3.3	1.5	2200	68
AMEL5-5SEMAZ	90-264/47-440	120-370	-40 to +80	5	1	1100	70
AMEL5-12SEMAZ	90-264/47-440	120-370	-40 to +80	12	0.42	680	73
AMEL5-15SEMAZ	90-264/47-440	120-370	-40 to +80	15	0.333	330	73
AMEL5-24SEMAZ	90-264/47-440	120-370	-40 to +80	24	0.21	220	75

**Models**  
**Dual output**

Model	Input Voltage (VAC, Hz)	Input Voltage (VDC)	Temperature range (°C)	Output Voltage (V)	Output Current max (A)	Maximum capacitive load (µF)	Efficiency (%)
AMEL5-5DMAZ	90-264/47-440	120-370	-25 to +80	±5	±0.5	±470	72
AMEL5-12DMAZ	90-264/47-440	120-370	-25 to +80	±12	±0.21	±220	73
AMEL5-15DMAZ	90-264/47-440	120-370	-25 to +80	±15	±0.168	±150	75
AMEL5-5DEMAZ	90-264/47-440	120-370	-40 to +80	±5	±0.5	±470	72
AMEL5-12DEMAZ	90-264/47-440	120-370	-40 to +80	±12	±0.21	±220	73
AMEL5-15DEMAZ	90-264/47-440	120-370	-40 to +80	±15	±0.168	±150	75

**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		10	A
	230 VAC		20	A
Leakage current			0.2	mA
External fuse	Recommended slow blow type	1.5		A
Input Dissipation (No Load)		<0.3		W
Start up time	Soft Start	15		mS
Under Voltage Protection		89		VAC

## Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±2		%
Line regulation		±0.5		%
Load regulation (single output)	0-100% load	±0.5		%
Cross Regulation (dual output)	25% load - 1 <sup>st</sup> out, 100% load – 2 <sup>nd</sup> out	±5		%
Transient Recovery Time		200		µs
Transient Response Deviation	25% load step	±2		% of Vout
Minimum load		0		%
Ripple & Noise	20MHz bandwidth	100		mV p-p
Hold-up time (minimum)		15		ms

## Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	3sec		4000	VAC
Isolation Resistance		>1000		MΩ

## General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency		132		KHz
Start up time		900		mS
Over Load protection	Auto recovery, hiccup mode	>116%		
Over voltage protection		Zener diode clamp		
Short circuit protection		Continuous		
Short Circuit restart		Auto recovery		
Operating temperature	With derating above 50°C	Refer to the models table above		°C
Storage temperature		-40 to +95		°C
Maximum Case temperature			100	°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		30		g
Dimensions (L x W x H)		2.03 x 1.10 x 0.70 inches	51.5 x 28 x 17.8mm	
MTBF		> 400 000 hrs (MIL-HDBK -217F, t <sub>a</sub> +25°C)		

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)

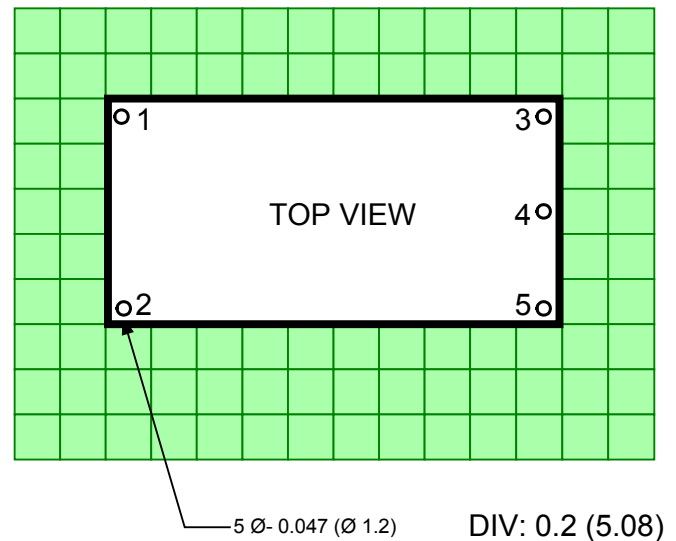
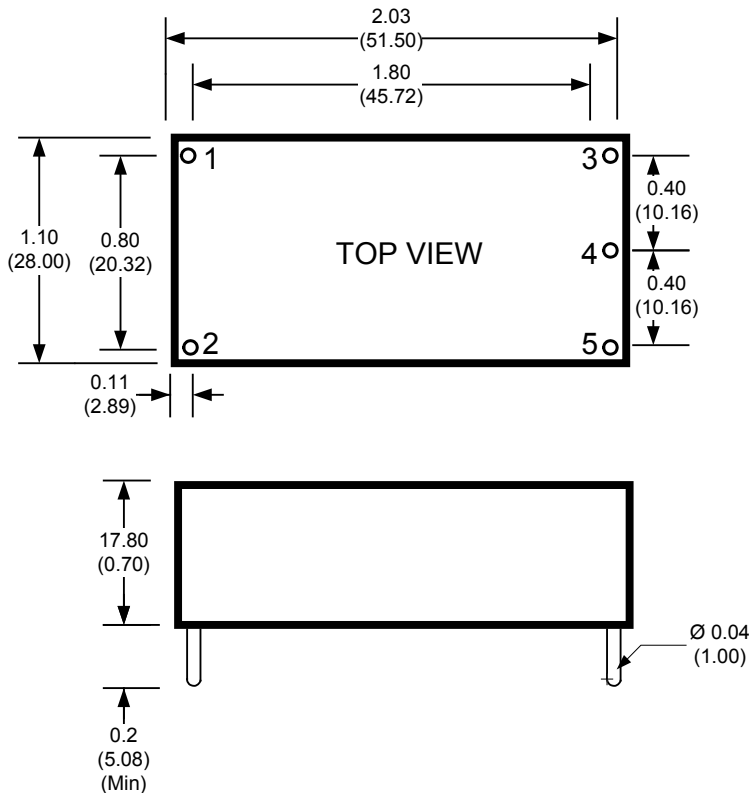
## Safety Specifications

Parameters		
Agency approvals	cULus, CE, CB	
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	

## Pin Out Specifications

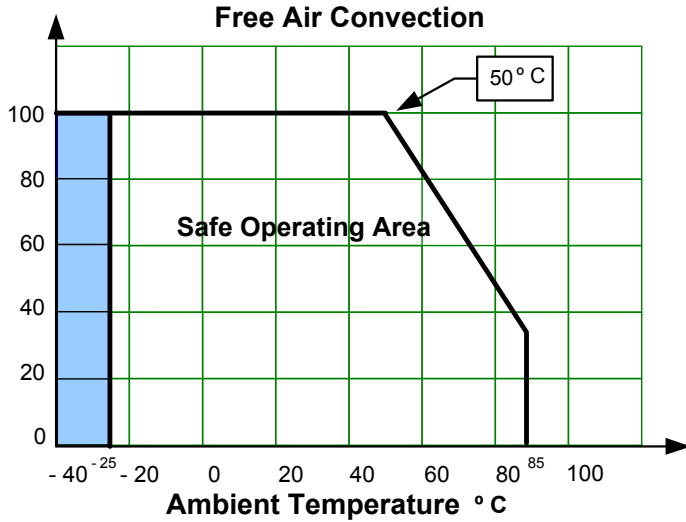
Pin	Single	Dual
1	AC Input (N)	AC Input (N)
2	AC Input (L)	AC Input (L)
3	+V Output	+V Output
4	-V Output	Common
5	No pin	-V Output

## Dimensions



Dimensions: inch (mm)  
Case Tolerance:  $\pm 0.012$  (0.30)  
Pin Pitch Tolerance:  $\pm 0.012$  (0.30)

## Derating



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