

# EDA60 SERIES

## AC-DC ENCLOSED SWITCHING POWER SUPPLY



### FEATURES

- UL / cUL / TUV / CE
- COMPLY WITH ErP (except 5V model)
- UNIVERSAL INPUT 88~264VAC
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- 2 YEARS WARRANTY
- HIGH EFFICIENCY UP TO 89%
- HIGH AVERAGE EFFICIENCY
- LOW STANDBY POWER CONSUMPTION



## MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	EFF. (avg.)
<b>Single Output Models</b>							
EDA60-05	88~264 VAC	45 WATTS	+ 5 VDC	9000 mA	80%	82%	81%
EDA60-12	88~264 VAC	60 WATTS	+ 12 VDC	5000 mA	86%	88%	87%
EDA60-15	88~264 VAC	60 WATTS	+ 15 VDC	4000 mA	87%	89%	87%
EDA60-24	88~264 VAC	60 WATTS	+ 24 VDC	2500 mA	87%	89%	87%

## SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

GENERAL							
Characteristics	Conditions		min.	typ.	max.	unit	
Switching frequency	Vi nom, Io nom		40		100	KHz	
Isolation voltage	Input-Output		3000 / 4242			VAC / VDC	
	Input-FG		1500 / 2121			VAC / VDC	
Isolation resistance	Input-Output, @ 500VDC		100			MΩ	
Ambient temperature *1	Operating at Vi nom		-40		+ 71	°C	
Derating (see derating curve)	Vi nom, from 61°C to +71°C				2.5	% / °C	
Storage temperature	Non operational		-40		+ 85	°C	
Relative humidity	Vi nom, Io nom		20		95	% RH	
Temperature coefficient	Vi nom, Io min				± 0.03	% / °C	
MTBF	Bellcore Issue 6 @40°C, GB		5V model		570000		Hours
			12V model		588000		Hours
			15V model		602000		Hours
			24V model		615000		Hours
Altitude during operation	IEC 60068-2-13				4850	m	
Dimension			L98 x W82 x D35			mm	
Cooling	Free air convection						

\*1. It is permissible to be lower than -25°C, but minimum load is 2%

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### INPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Rated input voltage	Io nom		100		240	VAC
Absolute input max. range		AC in	88		264	VAC
		DC in	120		375	VDC
Input current	Vi : 115 / 230 VAC, Io nom			1100 / 600		mA
Rated input current	Vi : 88 VAC, Io nom				1500	mA
Line frequency	Vi nom, Io nom		47		63	Hz
Inrush current	Vi : 115 / 230 VAC, Io nom				30 / 60	A
Power dissipation	Vi : 230 VAC, Io nom	5V model		11		W
		12V model		10		W
		15V model		9		W
		24V model		8		W
Leakage current	Input-Output				0.25	mA
	Input-FG				3.5	mA
Standby power consumption	Vi nom, Io=0A				0.5	W

### OUTPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Output voltage accuracy (Adjusted before shipment)	Vi nom, Io max		0		+ 1	%
Minimum load	Vi nom		0			%
Line regulation	Io nom, Vi min ...Vi max				± 0.5	%
Load regulation	Vi nom, Io min ...Io nom				± 1	%
Voltage trim range	Vi nom, 0.8 Io nom	5V model	4.75		5.5	VDC
		12V model	10.8		13.2	VDC
		15V model	13.5		16.5	VDC
		24V model	21.6		27.6	VDC
Rated continuous loading	Vi nom	5V model	9 A @ 5Vdc / 8.1 A @ 5.5 Vdc			
		12V model	5 A @ 12Vdc / 4.5 A @ 13.2 Vdc			
		15V model	4 A @ 15Vdc / 3.6 A @ 16.5 Vdc			
		24V model	2.5 A @ 24Vdc / 2.15 A @ 27.6 Vdc			
Hold up time	Vi : 115 / 230 VAC, Io nom		10 / 80			ms
Turn on time	Vi nom, Io nom → 5V, 12V & 15V models				1500	ms
	24V model				2000	ms
Rise time	Vi nom, Io nom				150	ms
	Vi nom, Io nom → 5V, 12V & 15V models : with 7000 μF CAP				500	ms
Fall time	Vi nom, Io nom				150	ms
	Vi nom, Io nom → 5V, 12V & 15V models : with 7000 μF CAP				500	ms
Transient recovery time	Vi nom, I ~ 0.5 Io nom				2	ms
Ripple & noise	Vi nom, Io nom, BW = 20MHz				100	mV
Power back immunity	Vi nom, Io nom 1 second	5V model	7.5			VDC
		12V model	18			VDC
		15V model	22			VDC
		24V model	35			VDC
Capacitor load	Vi nom, Io nom	5V, 12V & 15V models			7000	μF
		24V model			3500	μF
Efficiency	Vi nom, Io nom, Po / Pi		Up to 89%, See model list and typ efficiency curve			

### CONTROL AND PROTECTION

Characteristics	Conditions		min.	typ.	max.	unit
Input fuse			T2A / 250VAC internal			
Internal surge voltage protection	IEC 61000-4-5		Varistor			
Rated over load protection	Vi nom (see typ current limited curve)		110		150	%

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### CONTROL AND PROTECTION

Characteristics	Conditions		min.	typ.	max.	unit
Over voltage protection	Vi nom, Io nom (Auto Recovery)	5V model	5.75		6.75	VDC
		12V model	13.8		16.2	VDC
		15V model	17.25		20.25	VDC
		24V model	28.8		32.4	VDC
Output short circuit			Hiccup mode			

### APPROVALS AND STANDARDS

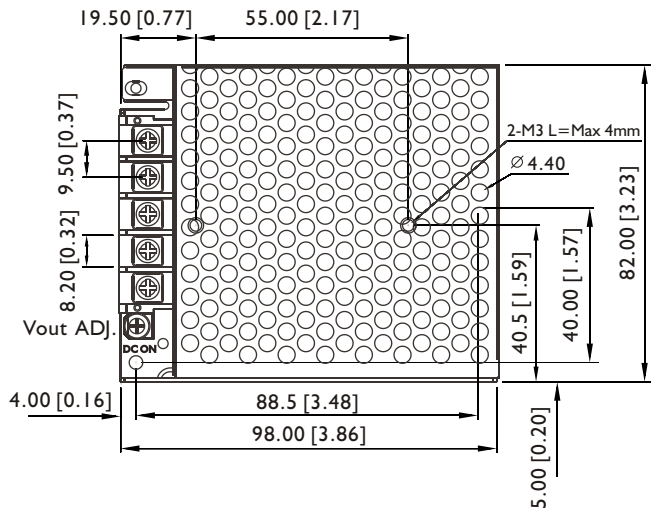
UL / cUL	UL 60950-1 Recognized
TUV	EN 60950-1, CB scheme
CE	EN 61000-6-3, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 55024 EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8 EN 61000-4-11, ENV 50204, EN 61204-3
Vibration resistance	meet IEC 60068-2-6 (10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)
Shock resistance	meet IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 Faces, 3 times for each Face)

### PHYSICAL CHARACTERISTICS

Case size	98 x 82 x 35 mm (3.86 x 3.23 x 1.38 inches)
Case material	Metal
Weight	310 g

### MECHANISM & PIN CONFIGURATION

mm [inch]

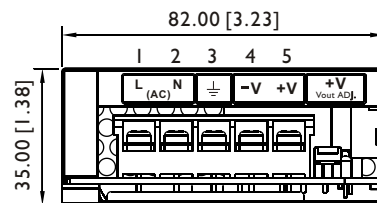
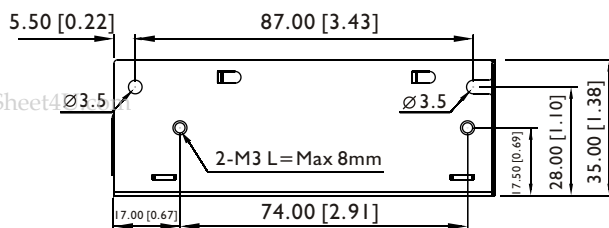


#### INSTALLATION

Ventilation / Cooling  
Normal convection  
Connector size range  
AWG22-14 (0.2~2mm<sup>2</sup>) flexible / solid cable,  
connector can withstand torque at maximum  
12 pound-inches.

#### GENERAL TOLERANCE

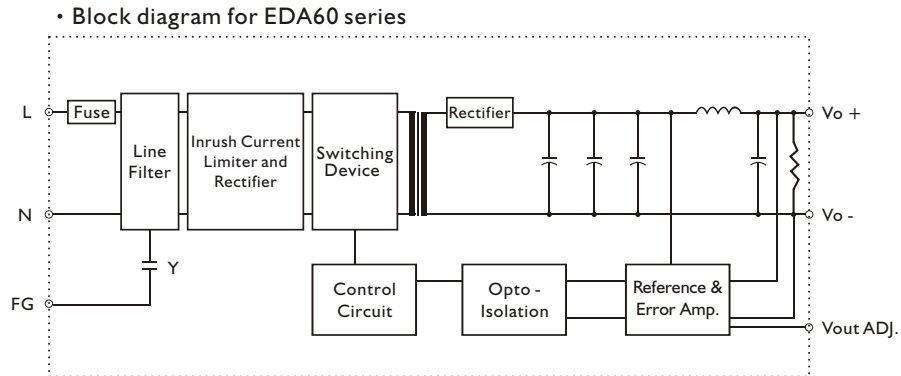
0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]



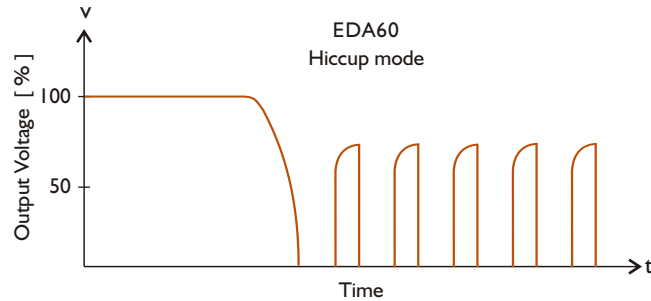
## PIN ASSIGNMENT

PIN NO.	Designation	Description
1	IN	L
2		N
3		⊕
4	OTHER OUT	V -
5		V +
		Vout ADJ.
		DC ON

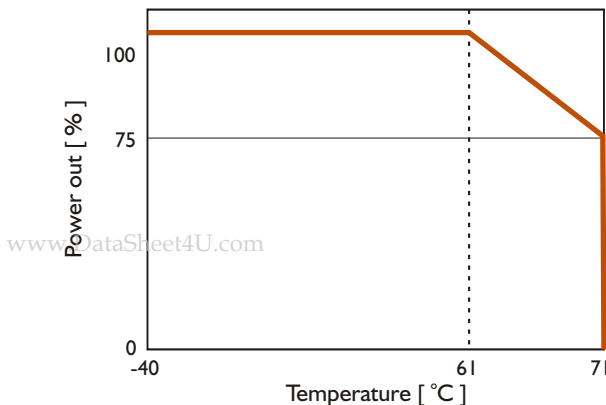
## CIRCUIT SCHEMATIC



## TYP. CURRENT LIMITED CURVE



## DERATING CURVE



## TYP. EFFICIENCY CURVE

