EDA60 SERIES

AC-DC ENCLOSED SWITCHING POWER SUPPLY

FEATURES

- UNIVERSAL INPUT 88~264VAC
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- 3 YEARS WARRANTY
- HIGH EFFICIENCY UP TO 89%
- HIGH AVERAGE EFFICIENCY MEET ErP (except 5V model)
- LOW STANDBY POWER CONSUMPTION

UL 60950-1 EN 60950-1

MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	EFF. (avg.)
Single Output Models							
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		3,000 / 4,242			VAC / VDC
	Input-FG		1,500 / 2,121			VAC / VDC
	Output-FG		500 / 710			VAC / VDC
Isolation resistance	Input-Output, @ 500VDC		100			MΩ
Ambient temperature	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		618,000		Hours
		12V		642,000		Hours
		15V		645,000		Hours
		24V		677,000		Hours
Altitude during operation	IEC 60068-2-13				4,850	m
Dimension			L98 x W82 x H35			mm
Cooling	Free air convection					

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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			1,100 / 600		mA
Rated input current	Vi : 88 VAC, Io nom				1,500	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		11		W
		12V		10		W
		15V		9		W
		24V		8		W
Leakage current	Input-Output				0.25	mA
	Input-FG				3.5	mA
Standby power consumption	Vi nom, Io=0A	5V			0.3	W
		12V, 15V, 24V			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	4.5		5.5	VDC
		12V	10.8		13.2	VDC
		15V	13.5		16.5	VDC
		24V	21.6		27.6	VDC
Rated continuous loading	Vi nom	5V	9 A @ 5Vdc / 8.1 A @ 5.5 Vdc			
		12V	5 A @ 12Vdc / 4.5 A @ 13.2 Vdc			
		15V	4 A @ 15Vdc / 3.6 A @ 16.5 Vdc			
		24V	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				1,500	ms
	24V model				2,000	ms
	Vi nom, Io nom → 5V, 12V &15V models : with 7000 μF CAP				2,000	ms
	24V model : with 3500 μF CAP				2,500	ms
Rise time	Vi nom, Io nom				150	ms
	Vi nom, Io nom → 5V, 12V &15V models : with 7000 μF CAP 24V model : with 3500 μF CAP				500	ms
Fall time	Vi nom, Io nom				150	ms
Transient recovery time	Vi nom, 1~0.5 Io nom				2	ms
Ripple & noise	Vi nom, Io nom, BW = 20MHz				100	mV
Power back immunity	Vi nom, Io nom 1 second	5V	7.5			VDC
		12V	18			VDC
		15V	22			VDC
		24V	35			VDC
Capacitor load	Vi nom, Io nom	5V, 12V &15V			7,000	μF
		24V			3,500	μF
			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, 0.8 Io nom (Auto Recovery)	5V	5.75		6.75	VDC
		12V	13.8		16.2	VDC
		15V	17.25		20.25	VDC
		24V	28.8		32.4	VDC
Output short circuit			Hiccup mode			

APPROVALS AND STANDARDS

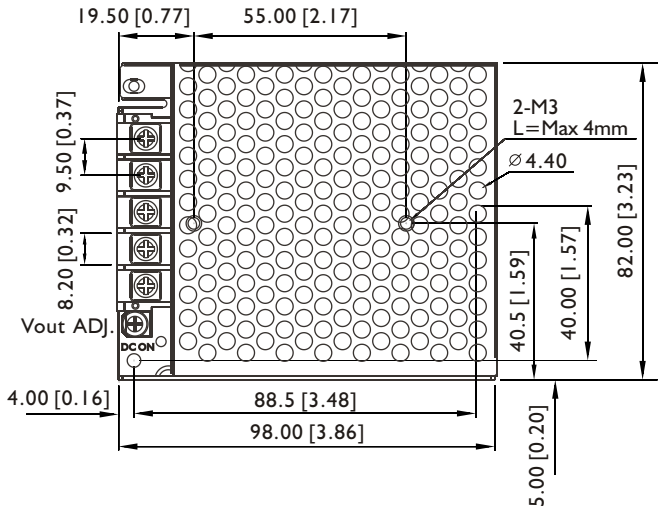
UL / cUL	UL 60950-1 Recognized
TUV	EN 60950-1
CE	EN 61000-6-3, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 55024 EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8 EN 61000-4-11, ENV 50204, EN 61204-3
Vibration resistance	meet IEC 60068-2-6 (10-500 Hz, 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
Packing	0.34kg ; 45pcs / 16kg / 1.01CUFT

MECHANISM & PIN CONFIGURATION

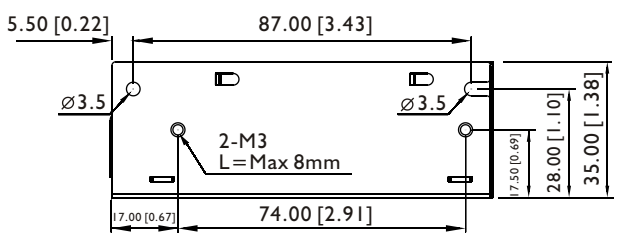
mm [inch]

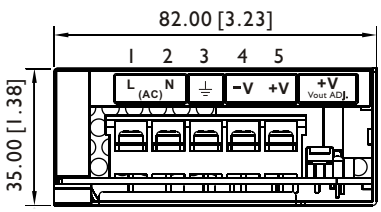


INSTALLATION

Ventilation / Cooling
Normal convection
Connector size range
AWG22-14 (0.2~2mm^2) 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]



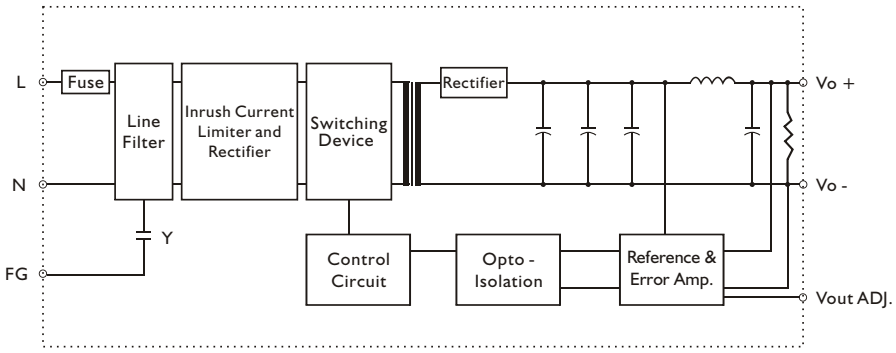


PIN ASSIGNMENT

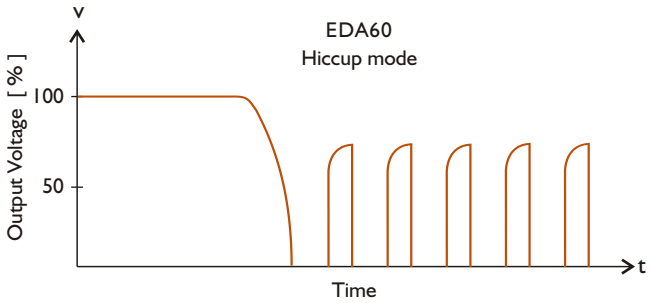
PIN NO.	Designation		Description
1	IN	L	Input terminals (phase conductor, no polarity at DC input)
2		N	Input terminals (neutral conductor, no polarity at DC input)
3		⏚	Ground this terminal to minimize high-frequency emissions
4	OUT	V -	Negative output terminal
5		V +	Positive output terminal
	OTHER	Vout ADJ.	Trimmer-potentiometer for Vout adjustment
		DC ON	Operation indicator LED

CIRCUIT SCHEMATIC

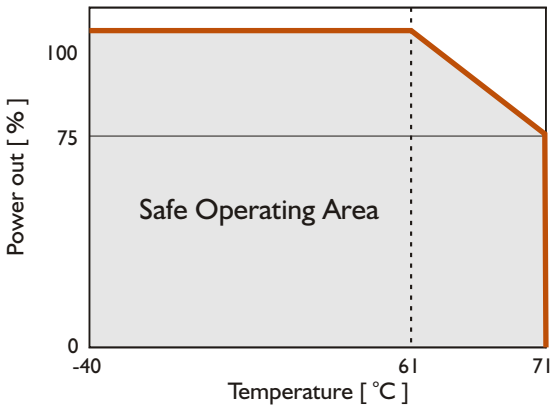
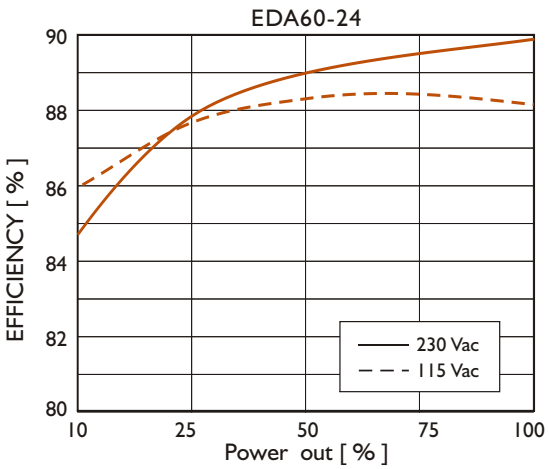
• Block diagram for EDA60 series



TYP. CURRENT LIMITED CURVE



DERATING CURVE



TYP. EFFICIENCY CURVE