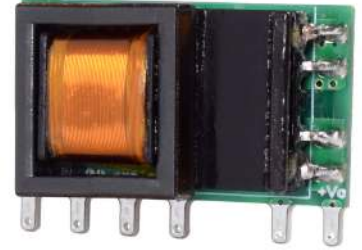


SERIES: PBO-3E | **DESCRIPTION:** AC-DC POWER SUPPLY

FEATURES

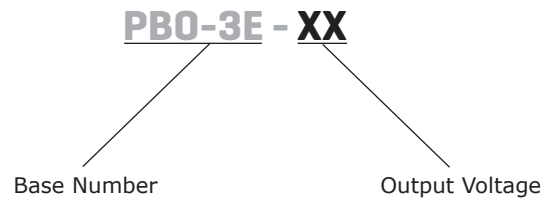
- small size, industrial design
- PCB SIP mounting
- universal input voltage range 85~305 Vac / 100~430 Vdc
- IEC/EN/UL 62368-1 certified
- designed to meet IEC/EN 61558 and IEC/EN 60335
- operating temperature -40°C ~ 85°C
- short-circuit, over current, and over voltage protection
- isolation voltage 4,000 Vac
- OVC III



MODEL	output voltage	output current	output power	ripple and noise ¹	efficiency
	(Vdc)	max (mA)	max (W)	max (mVp-p)	typ (%)
PBO-3E-3	3.3	600	1.98	150	68
PBO-3E-5	5	600	3.0	150	73
PBO-3E-12	12	250	3.0	150	77
PBO-3E-15	15	200	3.0	150	78
PBO-3E-24	24	125	3.0	150	81

Notes: 1. 20 MHz bandwidth oscilloscope, 10% to full load.
2. All specifications are measured at Ta=25°C, humidity <75%, 115 or 230 Vac input voltage, and rated output load unless otherwise specified.

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
voltage	ac input	85		305	Vac
	dc input	100		430	Vdc
frequency		47	50~60	63	Hz
current	at 110 Vac			0.15	A
	at 230 Vac			0.07	A
fuse	1A, slow-blow, required				
no load power consumption	at 230 Vac		0.10	0.15	W

OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load ³	3.3 Vdc output model			820	μF
	5 Vdc output model			680	μF
	12 Vdc output model			470	μF
	15 Vdc output model			330	μF
	24 Vdc output model			220	μF
initial set point accuracy	from 10~100% load		±5		%
line regulation	at rated load				
	3.3 Vdc output model all other models		±2.5 ±1.5		% %
load regulation	from 10~100% load		±3		%
temperature coefficient			±0.15		%/°C

Notes: 3. The maximum capacitive load is tested within the input voltage range and under full load conditions.

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over current protection		110			%
short circuit protection	continuous, auto recovery				

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute, 5mA max	4,000			Vac
safety approvals	certified to 62368: IEC, EN, UL				
	designed to meet 61558: IEC, EN				
	designed to meet 60335: IEC, EN				
safety class	Class II				
conducted emissions	CISPR32/EN55032 Class A (see Application Circuit)				
	CISPR32/EN55032 Class B (see Recommended Circuit)				
radiated emissions	CISPR32/EN55032 Class A (see Application Circuit)				
	CISPR32/EN55032 Class B (see Recommended Circuit)				
radiated immunity	IEC/EN61000-4-3 10 V/m, perf. Criteria A				
EFT/burst	IEC/EN61000-4-4 ±2 kV (see Application Circuit), perf. Criteria B				
	IEC/EN61000-4-4 ±4 kV (see Recommended Circuit), perf. Criteria B				
surge	IEC/EN61000-4-5 line to line ±1 kV (see Application Circuit), perf. Criteria B				
	IEC/EN61000-4-5 line to line ±2 kV (see Recommended Circuit), perf. Criteria B				
conducted immunity	IEC/EN61000-4-6 10 Vrms, perf. Criteria A				
MTBF	as per MIL-HDBK-217F at 25 °C	1,000,000			hours
RoHS	yes				

ENVIRONMENTAL

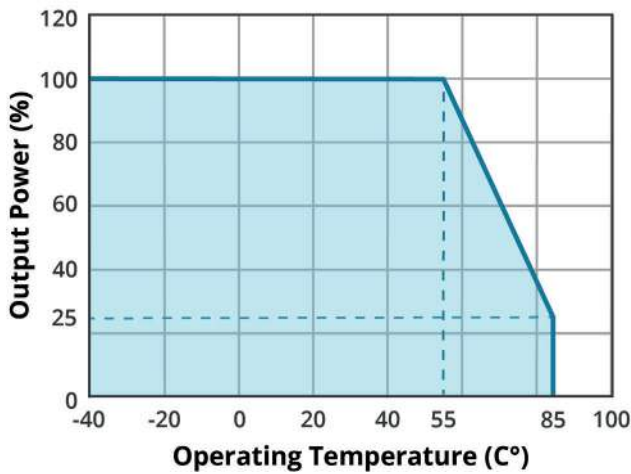
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curves	-40		85	°C
storage temperature		-40		105	°C

SOLDERABILITY

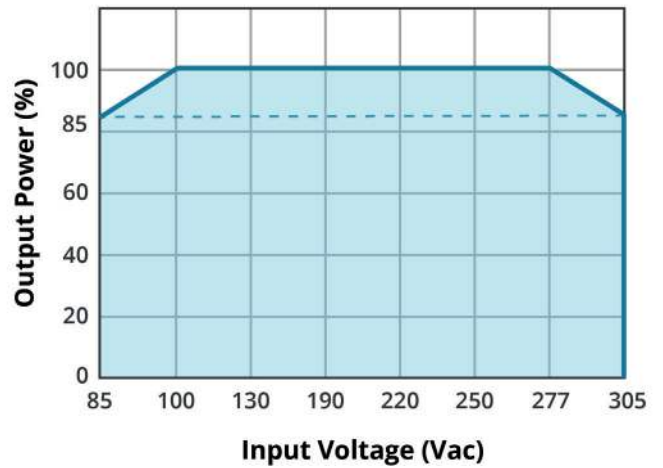
parameter	conditions/description	min	typ	max	units
wave soldering	for 5~10 seconds	255	260	265	°C
hand soldering	for 3~5 seconds	355	360	365	°C

DERATING CURVES

TEMPERATURE DERATING CURVE



INPUT VOLTAGE DERATING CURVE (25°C)

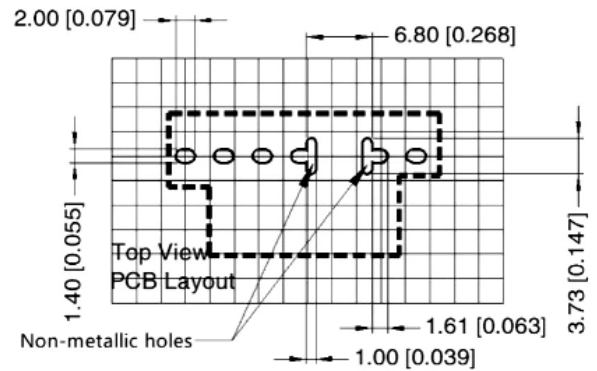
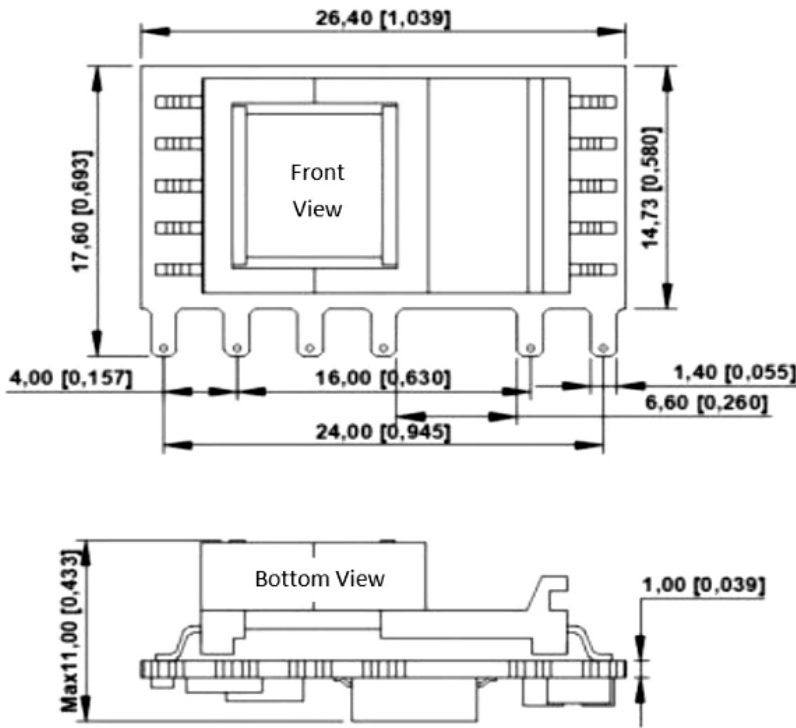


MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	26.40 x 17.60 x 11.00 [1.039 x 0.623 x 0.433 inch]				mm
weight			5.0		g

MECHANICAL DRAWING

units: mm [inch]
 pin section tolerance: $\pm 0.10[\pm 0.004]$
 tolerance: $\pm 0.50[\pm 0.020]$



Grid size: 2.54 x 2.54mm

PIN CONNECTIONS	
PIN	Function
1	AC (L)
2	AC (N)
3	+V(CAP)
4	-V(CAP)
5	-Vo
6	+Vo

APPLICATION DESIGN REFERENCE

Figure 1

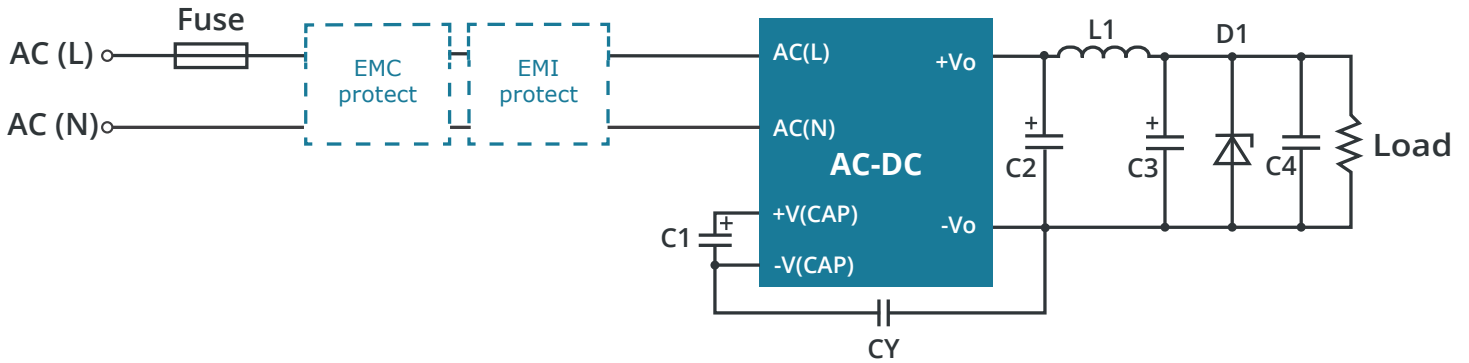


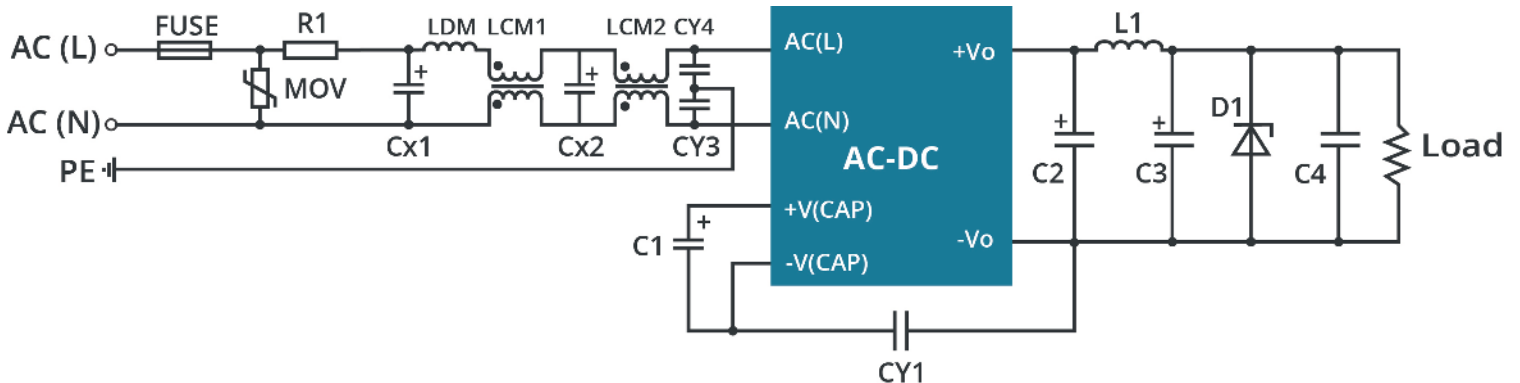
Table 1

Additional component selection guide							
Vout	C1 (required)	C2 (required)	L1 (required)	C3 (required)	C4	CY (required)	D1
3.3, 5	10µF/450V	470µF/16V (solid-state capacitor)	2.2µH 3A 15 mΩ max	150µF/16V	0.1µF/50V	1nF/400V	D1 is a TVS transistor that can protect the downstream circuit in case of module abnormalities. It is recommended to choose a model that is 1.2 times the output voltage
12		270µF/16V (solid-state capacitor)		150µF/25V			
15, 24		470µF/35V	3.3µH 3A 25 mΩ max	100µF/35V			

Note: 1. FUSE, EMC protection, and EMI protection are selected based on actual application needs.
 2. C1 is a filtering electrolytic capacitor, which is a required component. It is recommended to use ripple current > 400mA at 100KHz electrolytic capacitors.
 3. C2, C4, and L1 form a Pi type filtering circuit, and it is recommended to use high-frequency low resistance electrolytic capacitors or solidstate capacitors. When selecting L1, ripple requirements can be considered, while paying attention to current and internal resistance values.

EMC RECOMMENDED CIRCUIT

Figure 2



EMC RECOMMENDED CIRCUIT (CONTINUED)**Table 2**

Component	Recommended value
FUSE	2A/300V, slow-blow, required
R1	12Ω/3W, winding resistance, required
MOV	14D561
LDM	2.2mH/max: 4Ω/min: 0.24A
LDM	2.2mH/max: 4Ω/min: 0.24A
LCM1	200μH / 0.8A
LCM2	12.6mH/min: 0.5A
Cx1, Cx2	0.1μF/310Vac
CY1, CY3, CY4	1nF/400Vac
other	see Table 1

- Notes:
4. The input voltage must remain within the specified range to prevent potential permanent and irreparable damage.
 5. It is recommended to use at a load of over 5%. If the load is below 5%, the ripple index of the product may exceed the specifications, but it does not affect the reliability of the product.
 6. Recommended load imbalance for the dual output module: $\leq \pm 5\%$. Exceeding this threshold may result in the product failing to meet all performance specifications outlined in this manual.

REVISION HISTORY

rev.	description	date
1.0	initial release	04/16/2025
1.01	input current, safeties and recommended circuits updated	06/18/2025

The revision history provided is for informational purposes only and is believed to be accurate.



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CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

CUI reserves the right to make changes to the product at any time without notice. Information provided by CUI is believed to be accurate and reliable. However, no responsibility is assumed by CUI for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.