



RoHS

LD03 Series

UNIVERSAL INPUT VOLTAGE ISOLATED & REGULATED SINGLE OUTPUT AC-DC CONVERTER

PRODUCT FEATURES

Compact, light Weight
 Universal input voltage(via same terminals)
 Wide input voltage range :
 85~264VAC(120~370VDC)
 Efficiency up to 73%
 Operating temperature :-20°C~+85°C
 Heat dissipation : natural
 Switching frequency :40~150kHz
 Continuous over load protection and
 short circuit protection
 MTBF>300,000Hours
 Industrial class
 Leakage current≤0.1mA@230Vac/50Hz

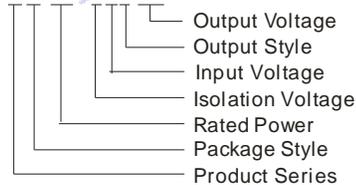
APPLICATION

LD03 series has many features such as wide input voltage range (Universal input voltage, applicable for global electric supply network), stable output voltage, high transfer efficiency, compact size, simple external circuit, high reliability and safety isolation.

This is a single output model. Main applications are: AC electric supply where needs safety isolation, mini-power, multiple output and specially occasions where request compact size and simple external circuit.

SELECTION GUIDE

LD03-00B03



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PRODUCT PROGRAM

Model	Input voltage		Output				Efficiency (%) (Typ)	Standby Power (W) (Typ)	Package style
	Rating (VAC)	Range (VAC)	Voltage (VDC)	Current (mA)	Ripple & Noise (mV)				
					Typ	Max			
LD03-00B03	100-240	85-264	3.3	700	75	150	65	0.2	DIP
LD03-00B05	100-240	85-264	5.0	500	50	100	70	0.2	DIP
LD03-00B09	100-240	85-264	9.0	300	50	100	71	0.3	DIP
LD03-00B12	100-240	85-264	12	250	50	100	72	0.4	DIP
LD03-00B15	100-240	85-264	15	200	50	100	72	0.55	DIP
LD03-00B24	100-240	85-264	24	120	50	100	73	0.7	DIP

ISOLATION FEATURES

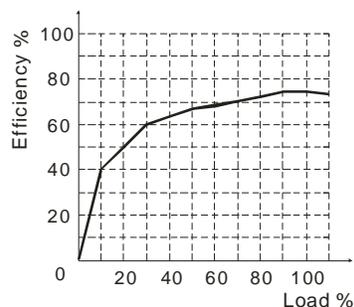
Item	Operation Conditions	
Isolation Voltage	Input & Output	2500Vac / 1min
Isolation Voltage	Input & Case	2000Vac / 1min
Isolation Voltage	Output & Case	500Vac / 1min
Isolation Resistance	Isolation Voltage:500VDC	100MΩ (typ)

OUTPUT FEATURES

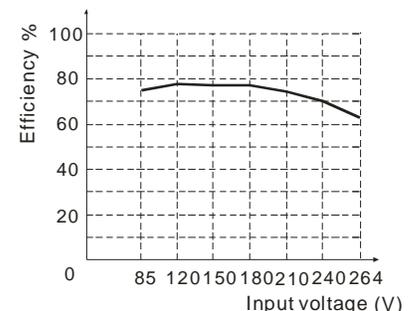
Item	Operation Conditions	Min	Typ	Max	Units
Rated output power	Please refer to model list for details		3		W
Output voltage (Setting accuracy)	Refer to recommended circuit		±1	±3	%
Load regulation	From 10% to 100% load		±1		
Voltage regulation	Input voltage from low to high		±0.5		
Temperature drift(Vout)	Refer to recommended circuit		0.03		%/°C
Starting delay			≤1		S
Switching frequency	100% load, rated input voltage	40	100	150	kHz
Package		37x23x15mm			

TYPICAL EFFICIENCY CURVE

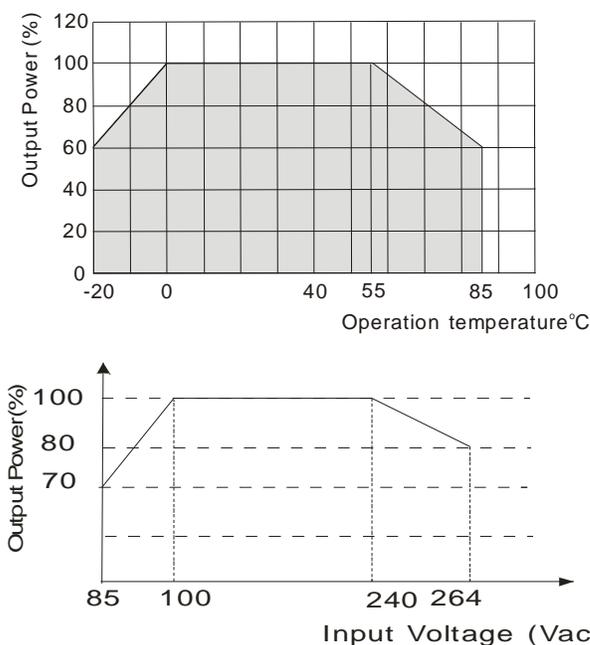
Efficiency VS Load



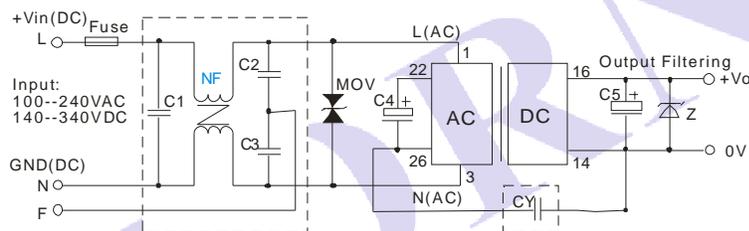
Efficiency VS Input voltage



TYPICAL DERATING CURVE

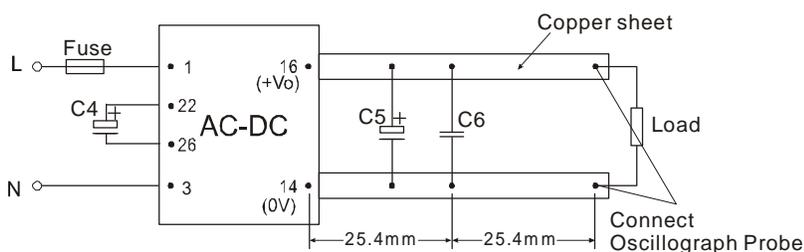


TYPICAL APPLICATION CIRCUIT



(Figure 1)

RIPPLE TESTING DEMONSTRATION



TYPICAL APPLICATION GUIDE

AC/DC application

1. Recommended circuit: Typical application circuit is shown as Figure 1. If EMC performance is not required, circuit in frame of dashed line can be removed.
2. Clearance and creepage: for application Environment of Class I and Class II devices, users should guarantee there is clearance no less than 2mm and creepage no less than 2.5mm between L and N before the fuse.
3. Fuse, 1A/250V or 10Ω/2W wire-wound resistor.
4. Input filtering capacitor. Terminals 22 and 26 are internal rectification and filtering terminals. To protect the models further, it is recommended to connect an electrolytic capacitor C4 (it is recommended to be 4.7μF/400V). If operation voltage of the module is between 160~264VAC, C4 can be removed.
5. Input EMI filtering network. (Refer to Figure 1) Combination of NF, C1, C2 and C3 form input EMI filtering network.
MOV: Voltage dependent resistor, model 471KD07.
C1: X capacitor, recommended parameter 0.1μF/275V
C2, C3: Recommended parameter 470pF/2000V
CY: 102K/400V
NF: Common model choke, UU9.8 or ring core, inductance is about 10mH, wire diameter 0.22mm.
6. To make sure the product work at perfect operation status with full loading external capacitor is necessary and it is recommended to use high frequency low resistance electrolytic capacitor. Recommended value refer to the below table.

Vout(VDC)	C5	Vout(VDC)	C5
3.3	330μF/16V	12	220μF/25V
5	330μF/16V	15	220μF/25V
9	330μF/16V	24	150μF/35V

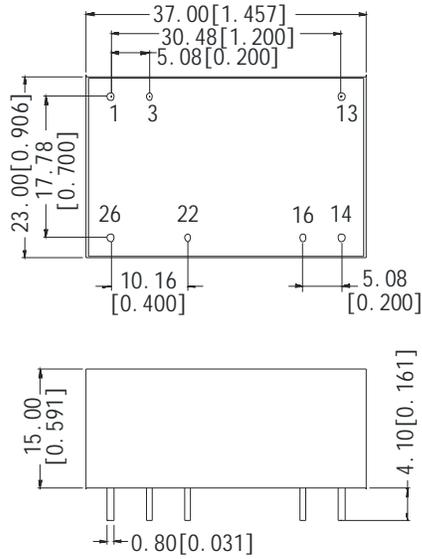
7. "Z" is a TVS to protect post circuits (if module works incorrectly), is recommended.
8. Refer to RIPPLE TESTING DEMONSTRATION, C6 is recommended to be 0.1μF.

APPLICATION NOTE

1. Please make sure all terminals are connected in accordance with instruction manual.
2. The module is a sort of electronic components, installing and using should be implemented by professionals.
3. This series of power module is a sort of first level power supply, safety standard must be strictly abided in application.
4. Make sure the input of module is connected with a fuse, to meet the requirement of safety standard. The parameters of fuse should be appropriate.
5. The input and output of module are dangerous energies, and it must be guaranteed that end users will not be able to touch them.
6. Application circuits and parameters are for reference only. They should be confirmed by experiment before finish a circuit design.
7. You may not be noticed for amendments and updated of this document. Please pay attention on new application in actual application.
8. No parallel connection or plug and play.

DIMENSIONS AND PINOUTS

MECHANICAL DIMENSIONS



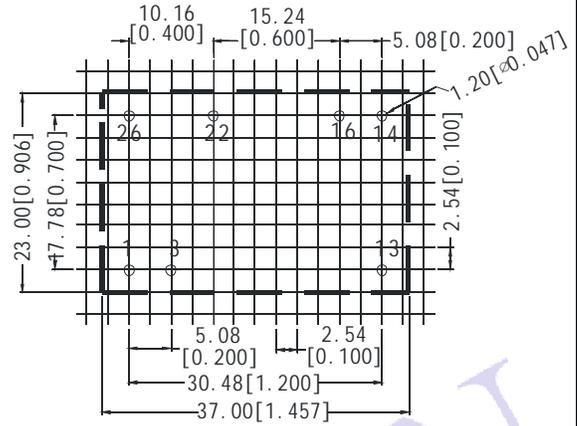
Note:
 First Angle projection
 Unit: mm[inch]
 Pin diameter tolerance: $\pm 0.10\text{mm}$ [$\pm 0.004\text{inch}$]
 General tolerance: $\pm 0.50\text{mm}$ [$\pm 0.020\text{inch}$]

FOOTPRINT DETAILS

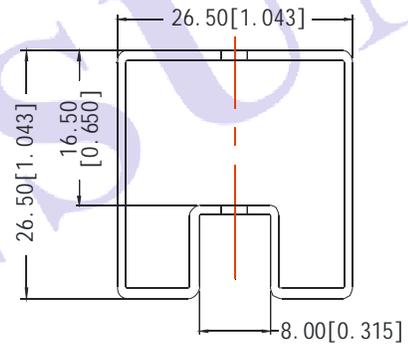
Pin	Function
1	L
3	N
13	NC
14	-Vo
16	+Vo
22	+Vin(DC)
26	-Vin(DC)

NC: No connection

RECOMMENDED FOOTPRINT



TUBED OUTLINE DIMENSIONS



Note:
 Unit: mm[inch]
 General tolerances: $\pm 0.50\text{mm}$ [$\pm 0.020\text{inch}$]
 L=530mm[20.866inch] Devices per tube quantity: 13pcs
 L=220mm[8.661inch] Devices per tube quantity: 5pcs
 Short tube inner packaging dimensions: L*W*H=255*170*80mm
 Short tube outer packaging dimensions: L*W*H=375*280*270mm
 Long tube inner packaging dimensions: L*W*H=580*200*100mm
 Long tube outer packaging dimensions(with two inner packaging boxes): L*W*H=600*215*220mm
 Long tube outer packaging dimensions(with three inner packaging boxes):L*W*H=600*215*325mm

- Note:
1. All specifications measured at $T_a=25^\circ\text{C}$, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
 2. Only typical models listed, specifications of custom product may be different. Please contact our service people directly for certain conditions.