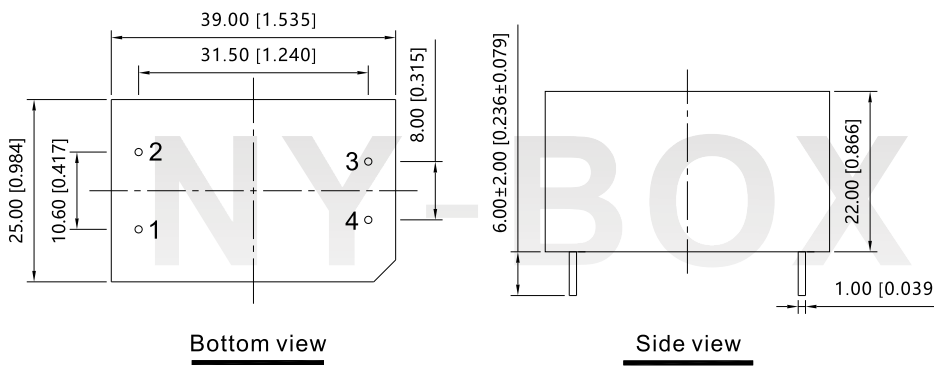


**12W AC/DC SMPS**
**DESCRIPTION**


- ★ Wide input : AC85~264V & DC100~375V
- ★ Output short circuit, over-current protection
- ★ Compact size, high power density
- ★ I/O isolation test voltage 3k VAC
- ★ Low ripple & noise
- ★ RoHS Compliant
- ★ Industrial grade, high reliability

NQ12-Axx series is one of Nyboxing's highly efficient green power AC-DC Converter series. They feature ultra-wide wide input range accepting either AC or DC voltage, high efficiency, low power consumption and Class II reinforced insulation.

**Dimensions**


PIN	Function	
	AC IN	DC IN
1	N	DC
2	L	DC
3	+Vo	+Vo
4	-Vo	-Vo

Note:  
 Unit:mm[inch]  
 Pin length: 6.0[0.236]  
 Pin diameter tolerances:±0.20[±0.008]  
 General tolerances:±0.50[±0.020]

**Selection Guide**

Part No.	Output Power	Nominal Output Voltage and Current	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.	Dimensions (L×W×H)
NQ12-A03	6.6W	3.3V/2000mA	75%	1000μF	39.0×25.0×22.0mm
NQ12-A05	10W	5V/2000mA	78%	1000μF	
NQ12-A09	12W	9V/1330mA	80%	820μF	
NQ12-A12		12V/1000mA	81%	680μF	
NQ12-A15		15V/800mA	82%	470μF	
NQ12-A24		24V/500mA	84%	330μF	

**Input Specifications**

Item	Operating Conditions	Min	Typ	Max
Input Voltage Range	AC input	85VAC	--	264VAC
	DC input	100VDC	--	375VDC

Input Frequency		47Hz	--	63Hz
Stand-by Power Consumption		--	0.2W	--
Input Current	115VAC	--	250mA	--
	230VAC	--	125mA	--

## Output Specifications

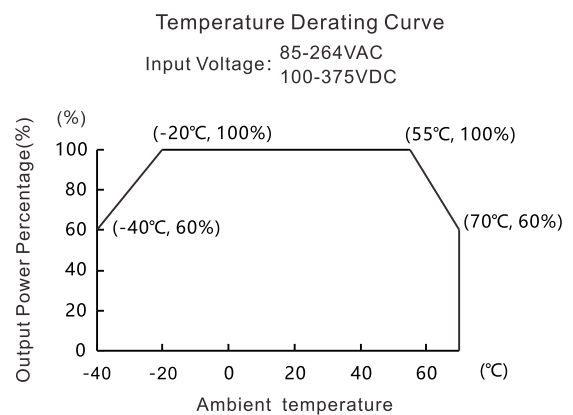
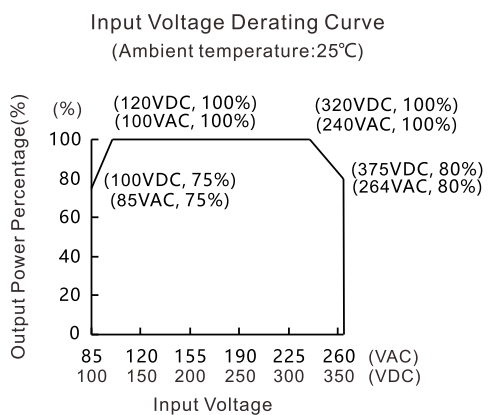
Item	Operating Conditions	Min	Typ	Max	
Output Voltage Accuracy		--	±1%	--	
Line Regulation	Full load	--	±1.5%	--	
Load Regulation	10%~100% Load	--	±2.5%	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	3.3V Output	--	150mV	--
		5V Output	--	150mV	--
		Other Output	--	100mV	--
Short Circuit Protection	Hiccup, continuous, self-recovery				
Over-current Protection		≥110%Io			
Minimum Load		0	--	--	
Start delay time		--	500ms	--	
Hold-up Time		--	10ms	--	

Note: \* The "parallel cable" method is used for Ripple and noise test, please refer to AC-DC Converter Application Notes for specific information.

## General Specifications

Item	Operating Conditions	Min	Typ	Max
Isolation	Input-Output, Test for 1min	--	3000VAC	--
Operating Temperature	1min leakage current <5mA	-40℃	--	+70℃
Storage Temperature		-40℃	--	+105℃
Storage Humidity		--	--	95%RH
Working frequency		--	65KHz	--
MTBF	MIL-HDBK-217F, 25℃		215,000h	
Casing Material	Black flame-retardant and heat-resistant plastic (UL94-V0)			

## Product Characteristic Curve



## Design Reference

### 1 Typical application

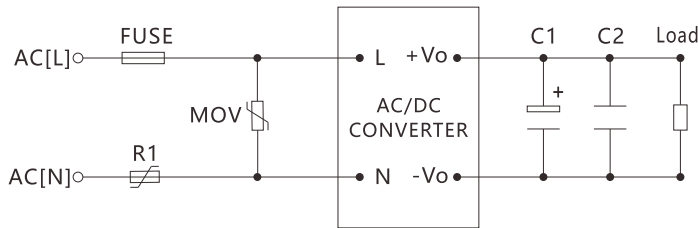


Fig. 1: Typical circuit diagram

#### Note

We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C1 (refer to manufacturer's datasheet). Choose a Capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. C2 is a ceramic capacitor used for filtering high-frequency noise.

### 2 EMC compliance recommended circuit

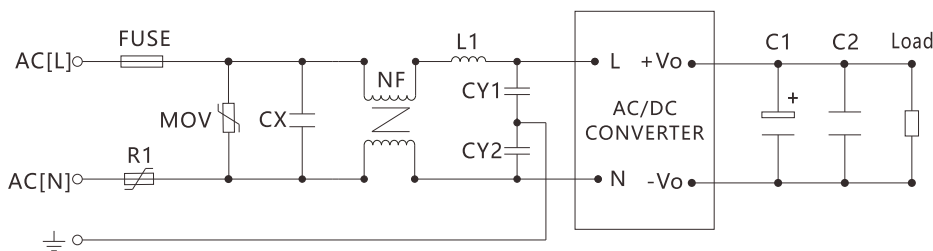


Fig 2: EMC application circuit with higher requirements

### 3 Input part: parameter recommendation

Component	Recommended value
FUSE	2A/250V slow-blow required
R1	5D-9
MOV	471KD10
CX	0.1 $\mu$ F/275VAC
L1	470 $\mu$ H
NF	10mH-30mH
CY1,CY2	1000pF/400V

### 4 Output part: parameter recommendation

Output Voltage	3.3V	5V	9V	12V	15V	24V
C1	220 $\mu$ F/10V		100 $\mu$ F/25V		68 $\mu$ F/35V	
C2	1 $\mu$ F/50V					

## Safety precautions

- 1.If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on our Company's corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. For more product information, please visit our official website ( [www.gzny-boxing.com](http://www.gzny-boxing.com) ) or email us ( [sales@gzny-boxing.com](mailto:sales@gzny-boxing.com) ) .