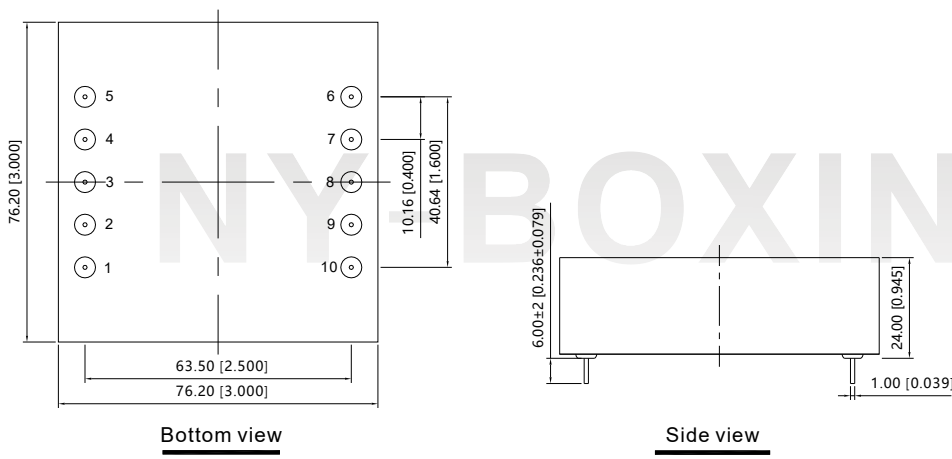


50W AC/DC SMPS
DESCRIPTION


- ★ 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

NR50-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 | FG | FG |
| 2 | NP | NP |
| 3 | NP | NP |
| 4 | N | DC |
| 5 | L | DC |
| 6 | +Vo | +Vo |
| 7 | -Vo | -Vo |
| 8 | NP | NP |
| 9 | TRIM | TRIM |
| 10 | NP | NP |

Note:
 Unit:mm[inch]
 Pin length: 6.0[0.236]
 Pin diameter tolerances:±0.20[±0.008]
 General tolerances:±0.50[±0.020]
 NP:NO PIN
 TRIM:No Function

Selection Guide

| Part No. | Output Power | Nominal Output Voltage and Current | Efficiency at 230VAC (%) Typ. | Capacitive Load (μF) Max. | Dimensions (L×W×H) |
|----------|--------------|------------------------------------|-------------------------------|---------------------------|--------------------|
| NR50-A03 | 33W | 3.3V/10000mA | 75% | 10000μF | 76.2×76.2×24.0mm |
| NR50-A05 | | 5V/10000mA | 76% | 10000μF | |
| NR50-A09 | | 9V/5550mA | 78% | 4700μF | |
| NR50-A12 | 50W | 12V/4120mA | 81% | 3300μF | |
| NR50-A15 | | 15V/3330mA | 83% | 2500μF | |
| NR50-A24 | | 24V/2100mA | 86% | 1000μF | |

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 | -- | 1200mA | -- |
| | 230VAC | -- | 600mA | -- |

Output Specifications

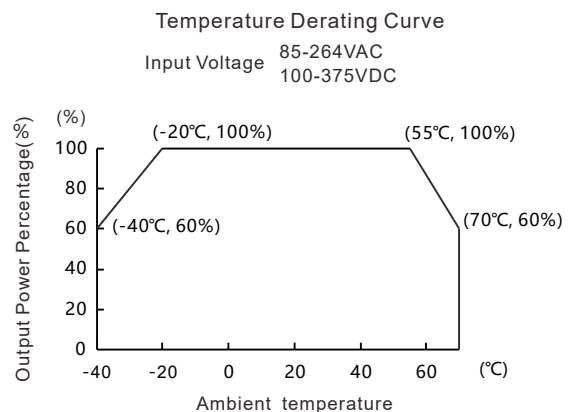
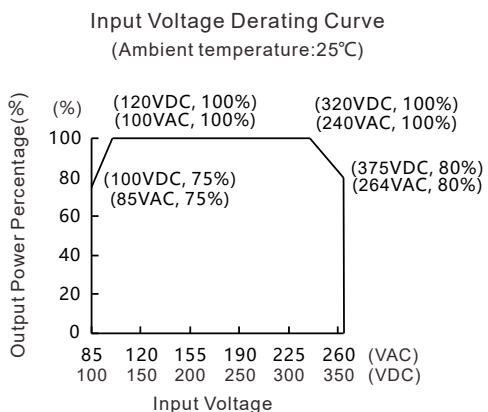
| Item | Operating Conditions | Min | Typ | Max |
|--------------------------|---|---------|-------|-----|
| Output Voltage Accuracy | | -- | ±1% | -- |
| Line Regulation | Full load | -- | ±1.5% | -- |
| Load Regulation | 10%~100% Load | -- | ±2.5% | -- |
| Ripple & Noise* | 20MHz bandwidth (peak-to-peak value) | -- | 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°C | -- | +70°C |
| Storage Temperature | | -40°C | | +105°C |
| Storage Humidity | | -- | -- | 95%RH |
| Working frequency | | -- | 65KHz | -- |
| MTBF | MIL-HDBK-217F, 25°C | | 215,000h | |
| Casing Material | Metallic aluminum | | | |

Product Characteristic Curve



Design Reference

1 Typical application

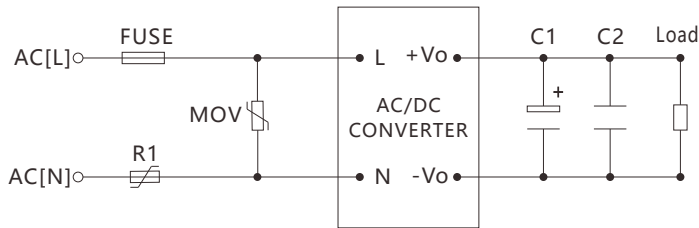


Fig. 1: Typical circuit diagram

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

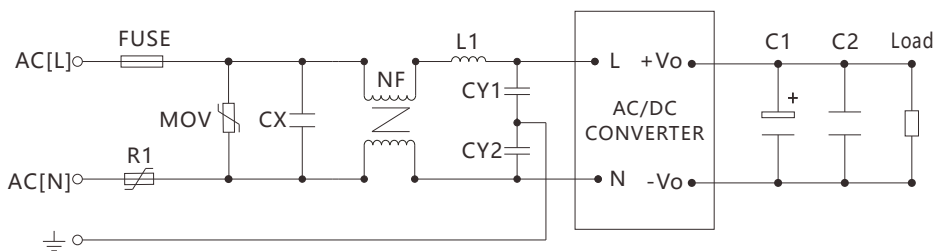


Fig 2: EMC application circuit with higher requirements

3 Input part: parameter recommendation

| Component | Recommended value |
|-----------|-------------------------------|
| FUSE | 3.15A/250V slow-blow required |
| R1 | 5D-9 |
| MOV | 471KD10 |
| CX | 0.33 μ F/275VAC |
| L1 | 330 μ H |
| NF | 10mH-30mH |
| CY1,CY2 | 1000pF/400V |

4 Output part: parameter recommendation

| Output Voltage | 3.3V | 5V | 9V | 12V | 15V | 24V |
|----------------|------------------|----|-----------------|-----|-----------------|-----|
| C1 | 1000 μ F/10V | | 680 μ F/25V | | 470 μ F/35V | |
| C2 | 1 μ 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 or email us (sales@gzny-boxing.com) .