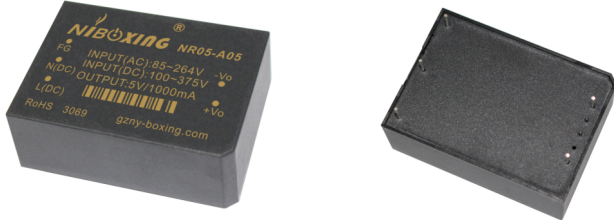
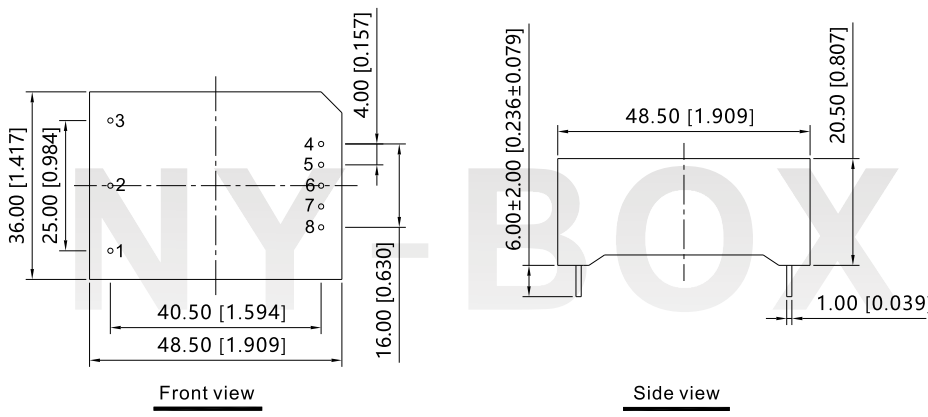


5W AC/DC SMPS
DESCRIPTION


- ★ 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
- ★ Single output, double output, positive and negative output

NR05-A,B,Cxx 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 | | |
|-----|----------|--------|--------|
| | NR05-A | NR05-B | NR05-C |
| 1 | FG | FG | FG |
| 2 | N | N | N |
| 3 | L | L | L |
| 4 | +Vo | +Vo2 | +Vo |
| 5 | NP | -Vo2 | NP |
| 6 | NP | NP | COM |
| 7 | NP | +Vo1 | NP |
| 8 | -Vo | -Vo1 | -Vo |

Note:
 Unit:mm[inch]
 Pin diameter tolerances:±0.20[±0.008]
 General tolerances:±0.50[±0.020]
 NP:NO PIN

Selection Guide

| Part No. | Output Power | Nominal Output Voltage and Current | | Efficiency at 230VAC (%) Typ. | Capacitive Load (μF) Max. | Dimensions (L×W×H) |
|----------|--------------|------------------------------------|---------|-------------------------------|---------------------------|--------------------|
| | | Vo1/Io1 | Vo2/Io2 | | | |
| NR05-A03 | 4W | 3.3V/1200mA | -- | 70% | 1500μF | 48.5×36.0×20.5mm |
| NR05-A05 | | 5V/1000mA | -- | 73% | 1000μF | |
| NR05-A09 | | 9V/550mA | -- | 75% | 680μF | |
| NR05-A12 | 5W | 12V/420mA | -- | 78% | 560μF | |
| NR05-A15 | | 15V/330mA | -- | 79% | 470μF | |
| NR05-A24 | | 24V/210mA | -- | 82% | 330μF | |

| | | | | | | |
|------------|----|------------|------------|-----|--------|------------------|
| NR05-B0505 | 5W | 5V/900mA | 5V/100mA | 70% | 1000μF | 48.5×36.0×20.5mm |
| NR05-B0512 | | 5V/750mA | 12V/100mA | 72% | 820μF | |
| NR05-B0515 | | 5V/700mA | 15V/100mA | 75% | 820μF | |
| NR05-B0524 | | 5V/600mA | 24V/100mA | 77% | 680μF | |
| NR05-C05 | 5W | +5V/500mA | -5V/500mA | 73% | 680μF | 48.5×36.0×20.5mm |
| NR05-C12 | | +12V/210mA | -12V/210mA | 75% | 330μF | |
| NR05-C15 | | +15V/160mA | -15V/160mA | 77% | 220μF | |
| NR05-C24 | | +24V/100mA | -24V/100mA | 80% | 220μF | |

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 | -- | 120mA | -- |
| | 230VAC | -- | 60mA | -- |

Output Specifications

| Item | Operating Conditions | Min | Typ | Max | |
|-----------------------------|---|---|-------|------|----|
| Output Voltage | 3.3V Output | -- | ±3% | -- | |
| Accuracy | Other Output | -- | ±1% | -- | |
| Line Regulation | Full load | Primary output | -- | ±1% | -- |
| | | Secondary output | -- | ±3% | -- |
| Load Regulation | 10%~100% Load | Single output | -- | ±3% | -- |
| | | Dual output (balanced load) ^① | -- | ±10% | -- |
| Ripple & Noise ^② | 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 | | -- | 1s | -- | |
| Hold-up Time | | -- | 20ms | -- | |

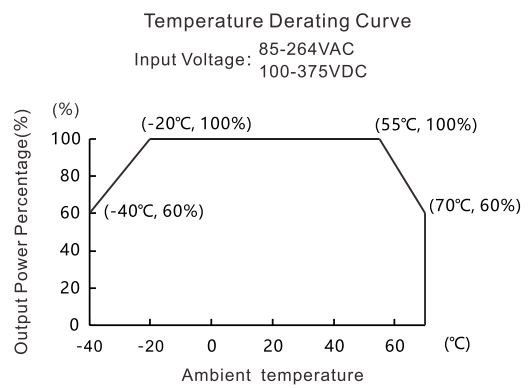
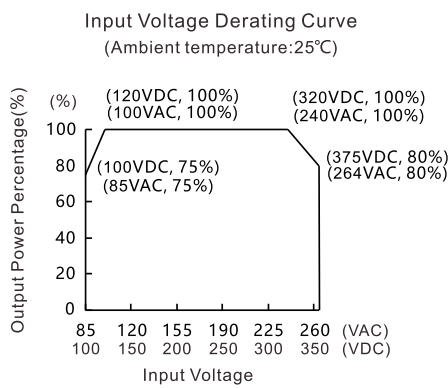
Note: ^①The balanced load is that the output load of the primary output and the secondary output changes in the same proportion.

^②The "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 | Electric Strength Test for 1min | -- | 3000VAC | -- |
| Operating Temperature | | -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 | Black flame-retardant and heat-resistant plastic (UL94-V0) | | | |

Product Characteristic Curve



Design Reference

1 Typical application

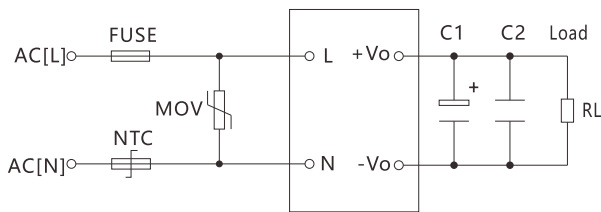


Fig. 1: NR05-Axx typical circuit diagram

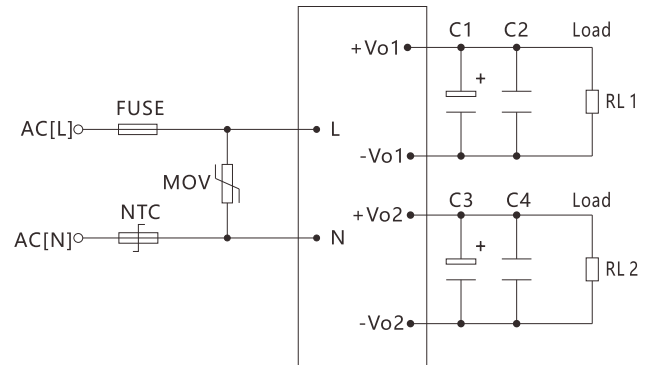


Fig. 2: NR05-Bxx typical circuit diagram

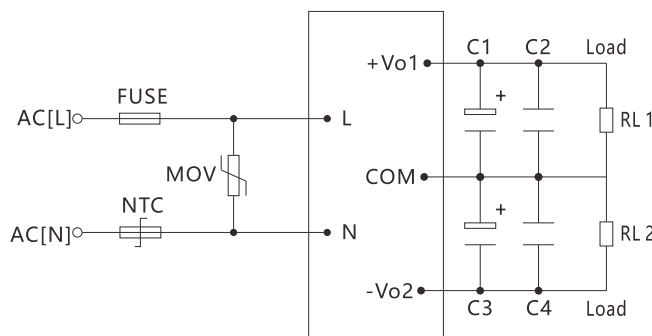


Fig. 2: NR05-Cxx typical circuit diagram

2 EMC compliance recommended circuit

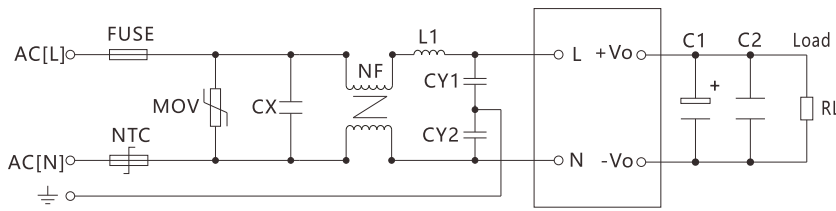


Fig 4: NR05-Axx EMC application circuit with higher requirements

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.

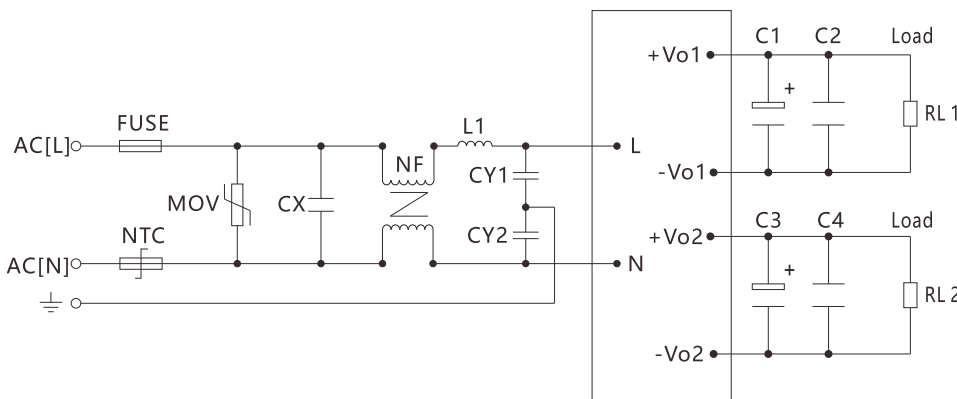


Fig 5: NR05-Bxx EMC application circuit with higher requirements

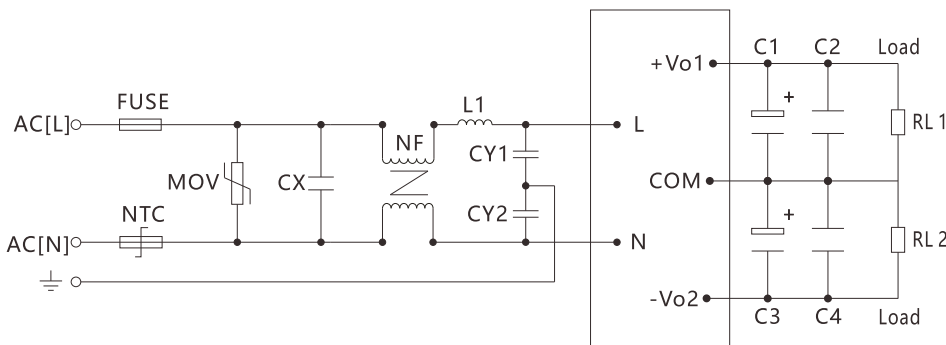


Fig 6: NR05-Cxx EMC application circuit with higher requirements

3 Input part: parameter recommendation

| Component | Recommended value |
|-----------|------------------------------|
| FUSE | 1.0A/250V slow-blow required |
| NTC | 5D-9 |
| MOV | 471KD10 |
| CX | 0.1 μ F/275VAC |
| L1 | 470 μ H |
| NF | 10mH-30mH |
| CY1,CY2 | 1000pF/250V |

4 Output part: parameter recommendation

| Output Voltage | 3.3V | 5V | 9V | 12V | 15V | 24V |
|----------------|-----------|----|-----------|-----|-----|----------|
| C1,C3 | 220μF/10V | | 220μF/25V | | | 68μF/35V |
| C2,C4 | 1μF/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) .