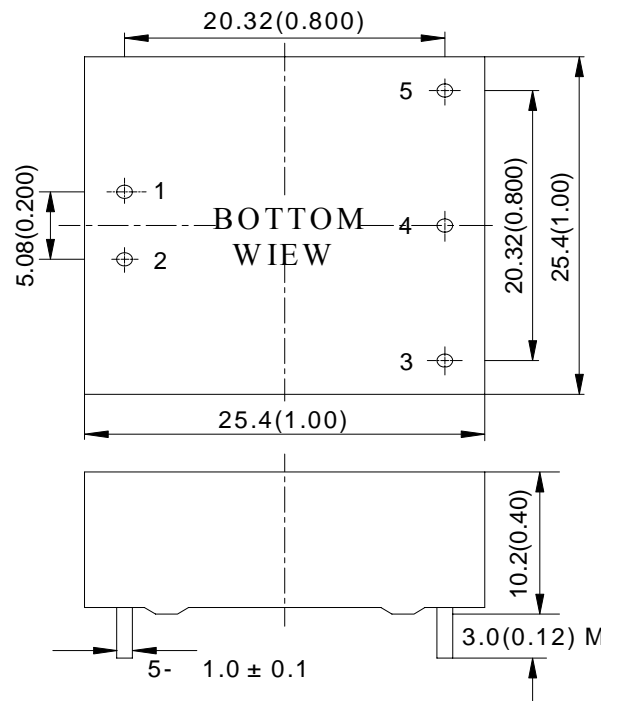


YND5 Series Converter

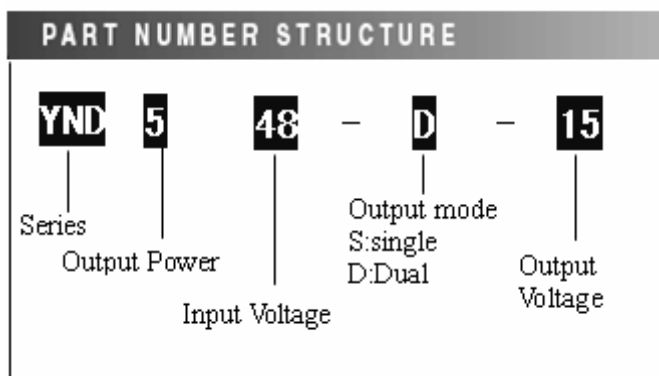


Outline Diagram



Features

- 1 in.×1 in.Standard Size (25.4mm×25.4mm×10.2mm)
- 500Vdc Isolation Voltage
- Operating Case Temp:-25 to 95
- Applications:Telecommunication equipments , data exchange servers and distributed power.



| Pin | single | dual |
|-----|--------|------|
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 3 | -Vo | Vo2 |
| 4 | NP | COM |
| 5 | +Vo | Vo1 |

Case material:Aluminum,black
 Pin:copper with gold plating
 Notes:all dimensions in mm(inches)
 Tolerance:X.X±0.5(X.XX±0.02)
 X.XX±0.25(X.XXX±0.010)
 X.XX±0.25 (X.XXX±0.010)

Performance Specifications And Ordering Guide

Unless otherwise specified, all values are given at: 25 , one standard atmosphere pressure, pure resistive load and basic connection.

| Model | Output | | | | Input Range-DC (Volts) | Efficiency |
|---------------|------------|------------|-----------------------|---------------------|------------------------|------------|
| | Voltage(V) | Current(A) | Ripple and Noise (mV) | Capacitive load(μF) | | |
| single | | | | | | |
| YND5-12S03 | 3.3 | 1.2 | 50 | 2200 | 9-18 | 74% |
| YND5-12S05 | 5.05 | 1 | 50 | 2200 | 9-18 | 75% |
| YND5-12S12 | 12 | 0.41 | 100 | 470 | 9-18 | 77% |
| YND5-12S15 | 15 | 0.33 | 100 | 800 | 9-18 | 77% |
| YND5-12S24 | 24 | 0.21 | 100 | 1000 | 9-18 | 77% |
| YND5-12S48 | 48 | 0.11 | 200 | 50 | 9-18 | 77% |
| YND5-24S03 | 3.3 | 1.2 | 50 | 2200 | 18-36 | 74% |
| YND5-24S05 | 5.05 | 1 | 50 | 2200 | 18-36 | 78% |

Continue

| Model | Output | | | | Input | Efficiency |
|-------------|-------------|-------------|-----------------------|---------------------------|------------------|------------|
| | Voltage(V) | Current(A) | Ripple and Noise (mV) | Capacitive load(μ F) | Range-DC (Volts) | |
| YND5-24S12 | 12 | 0.41 | 100 | 470 | 18-36 | 78% |
| YND5-24S15 | 15 | 0.33 | 100 | 330 | 18-36 | 78% |
| YND5-24S24 | 24 | 0.21 | 100 | 100 | 18-36 | 79% |
| YND5-24S48 | 48 | 0.11 | 200 | 47 | 18-36 | 79% |
| YND5-48S03 | 3.3 | 1.2 | 50 | 2200 | 36-72 | 77% |
| YND5-48S05 | 5.05 | 1 | 50 | 2200 | 36-72 | 79% |
| YND5-48S12 | 12 | 0.41 | 100 | 800 | 36-72 | 79% |
| YND5-48S15 | 15 | 0.33 | 100 | 470 | 36-72 | 79% |
| YND5-48S24 | 24 | 0.21 | 100 | 100 | 36-72 | 80% |
| YND5-48S48 | 48 | 0.11 | 100 | 220 | 36-72 | 80% |
| dual | | | | | | |
| YND5-12D05 | +5.05/-5.05 | +0.5/-0.5 | 50/50 | 2200/2200 | 9-18 | 74% |
| YND5-12D12 | +12/-12 | +0.21/-0.21 | 100/100 | 470/470 | 9-18 | 76% |
| YND5-12D15 | +15/-15 | +0.16/-0.16 | 100/100 | 220/220 | 9-18 | 76% |
| YND5-24D05 | +5.05/-5.05 | +0.5/-0.5 | 50/50 | 1000/1000 | 18-36 | 77% |
| YND5-24D12 | +12/-12 | +0.21/-0.21 | 100/100 | 330/330 | 18-36 | 79% |
| YND5-24D15 | +15/-15 | +0.16/-0.16 | 100/100 | 220/220 | 18-36 | 80% |
| YND5-48D05 | +5.05/-5.05 | +0.5/-0.5 | 50/50 | 1000/1000 | 36-72 | 78% |
| YND5-48D12 | +12/-12 | +0.21/-0.21 | 100/100 | 330/330 | 36-72 | 79% |
| YND5-48D15 | +15/-15 | +0.16/-0.16 | 100/100 | 220/220 | 36-72 | 80% |

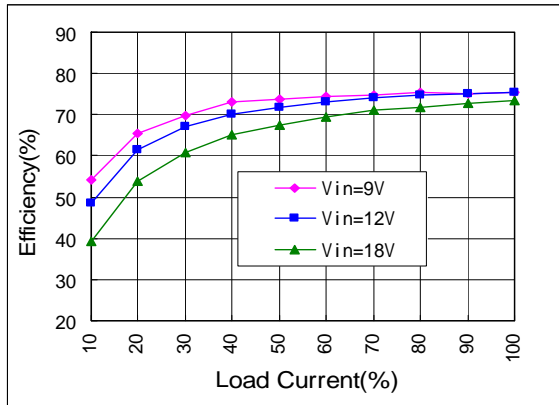
Performance/Functional Specifications

| Input | | |
|---|--|-----|
| Input Voltage: | See Ordering Guide | |
| Output | | |
| Voltage Accuracy: | $\pm 1\%$ Vo1 $\pm 3\%$ Vo2 | |
| Line Regulation: | $\pm 0.2\%$ max | Vo1 |
| Load Regulation: | $\pm 0.5\%$ max | Vo1 |
| Ripple and Noise: | 50mVp-p Vo \leq 5Vdc 100 mVp-p Other 200 mVp-p Vo \geq 48Vdc | |
| Efficiency: | See Ordering Guide | |
| Transient Response Recovery Time(μs): | see respective data sheet | |
| Transient Response Voltage Deviation (%): | see respective data sheet | |
| Start-up Delay Time: | see respective data sheet | |
| Rise Time: | see respective data sheet | |

| General | |
|----------------------------------|---------------------------------------|
| Isolation Voltage: | 500Vdc/1min/1mA (Input-Output) |
| Switching Frequency: | 300kHz(typ.) |
| MTBF : | 2×10^6 h(BellcoreTR332, 25) |
| Temperature Coefficient: | $\pm 0.02\%$ / per (Nom) |
| Case Temperature: | -25 ~ +95 (Industry) |
| Storage Temperature: | -55 ~ +125 |
| Relative Humidity: | 10% ~ 90% |
| Short-circuit Protection: | Continuous, Automatic Recovery |
| Isolation Resistance: | 50M Ω min(500Vdc,90%RH) |
| Manual Soldering: | 425 max (5s Max) |
| Wave Soldering: | 255 max (10s Max) |
| Weight: | 10g-12g |

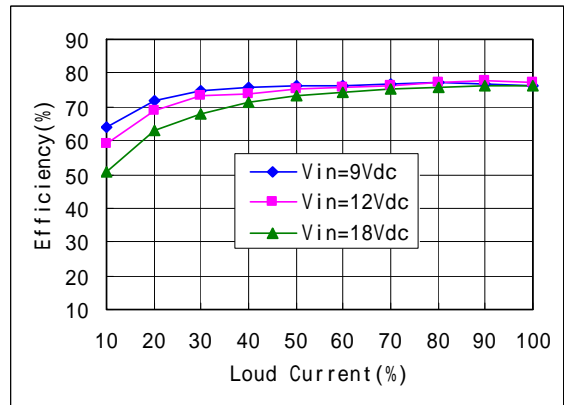
Characteristic Curves

Efficiency

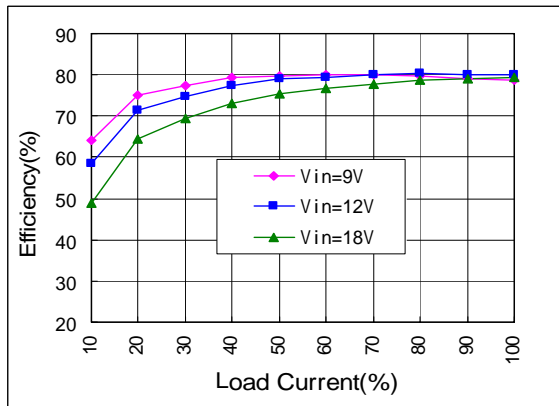


YND5-12S03

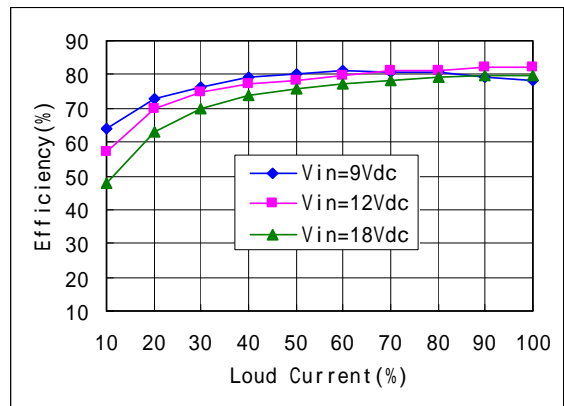
Efficiency



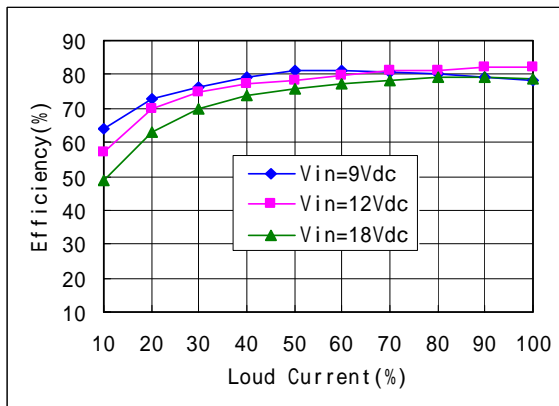
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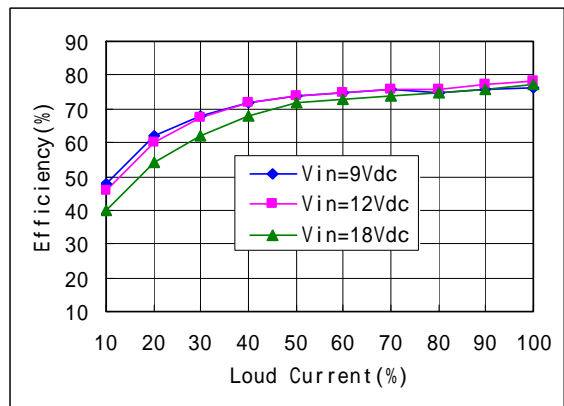
YND5-12S12



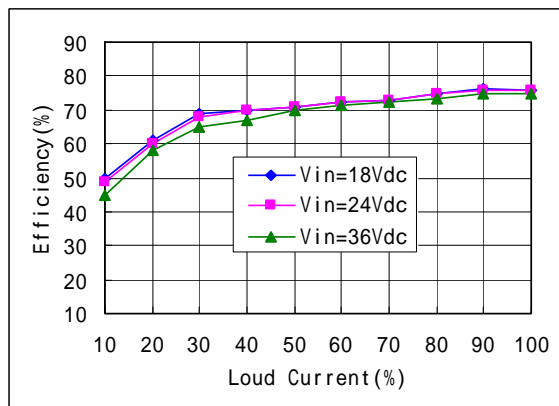
YND5-12S15



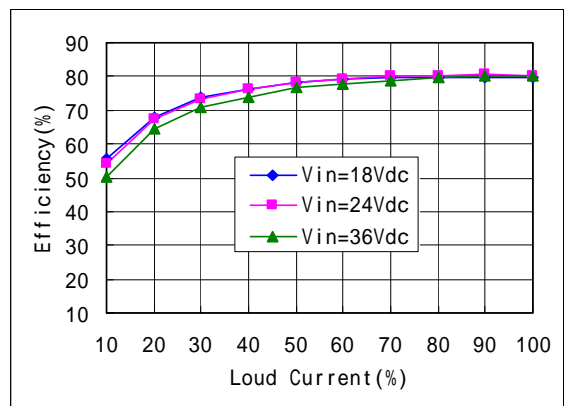
YND5-12S24



YND5-12S48



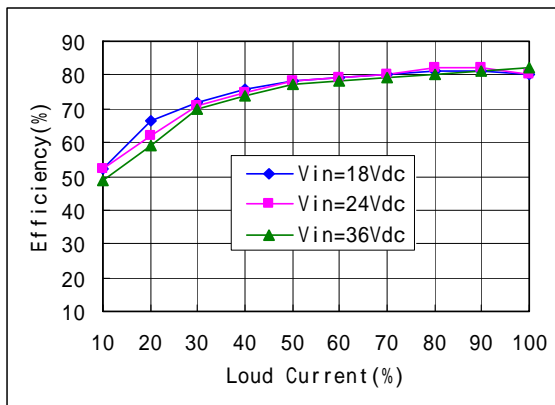
YND5-24S03



YND5-24S05

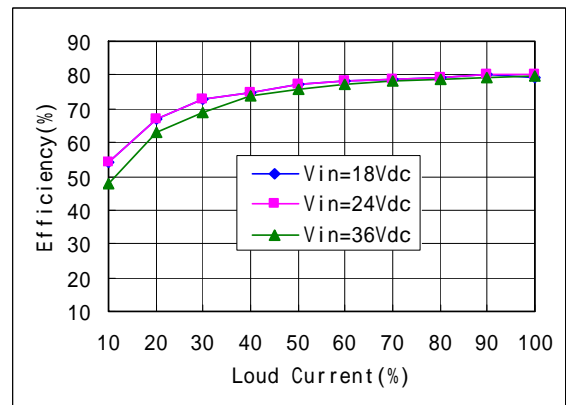
DC-DC Converter YND5 Series

Efficiency

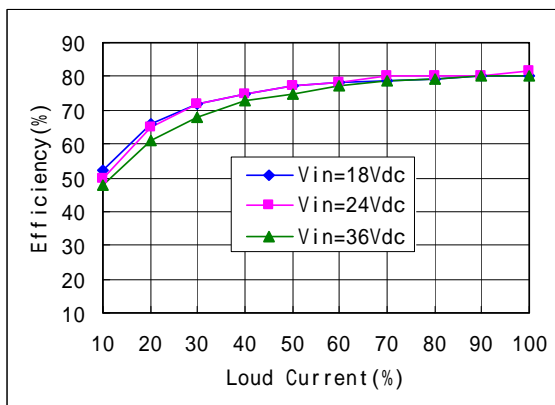


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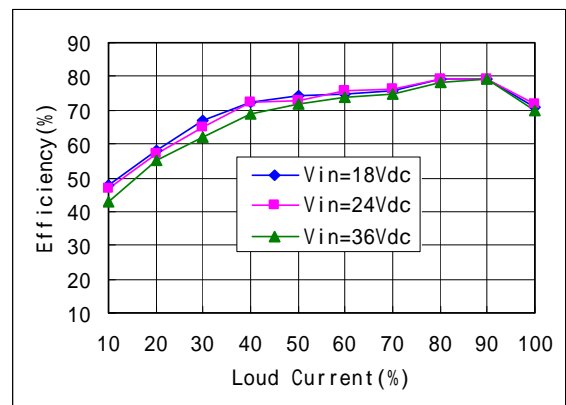
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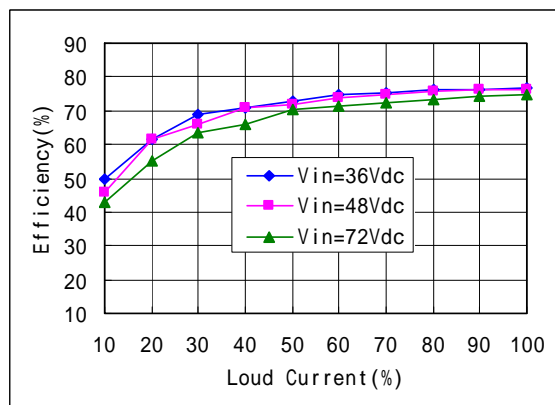
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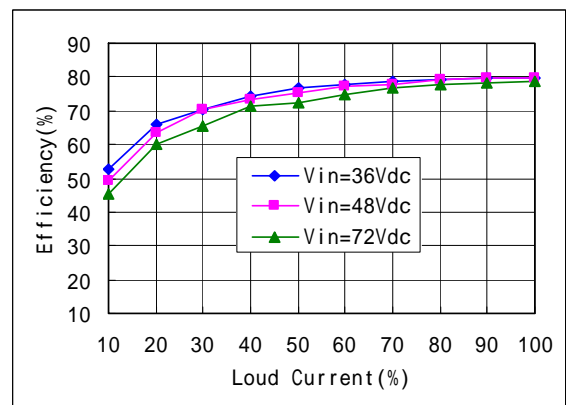
YND5-24S24



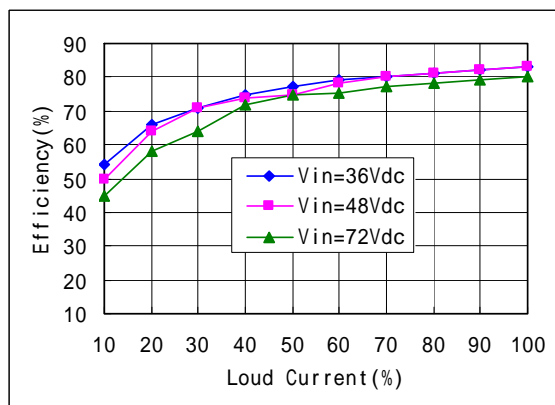
YND5-24S48



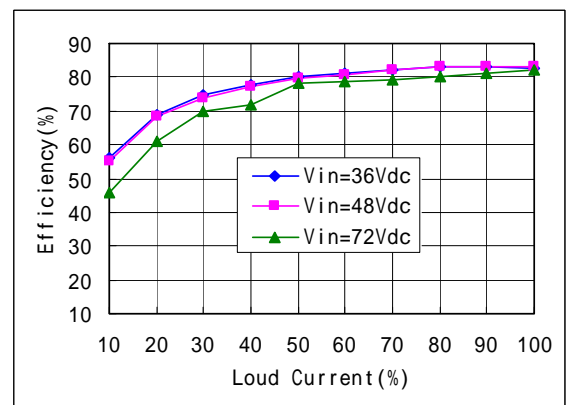
YND5-48S03



YND5-48S05



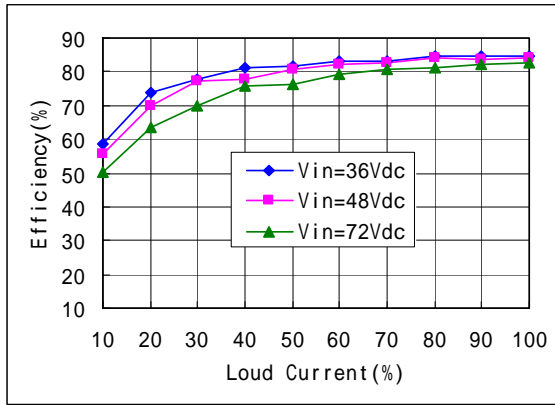
YND5-48S12



YND5-48S15

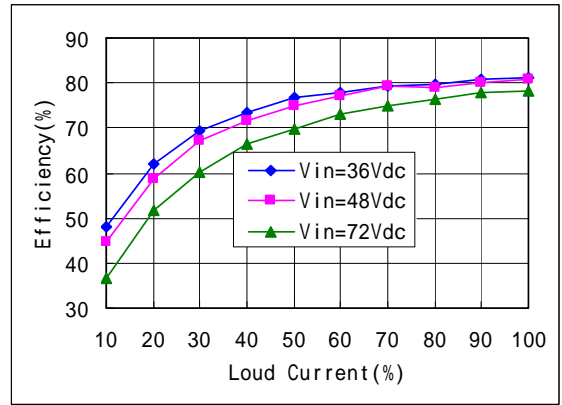
DC-DC Converter YND5 Series

Efficiency

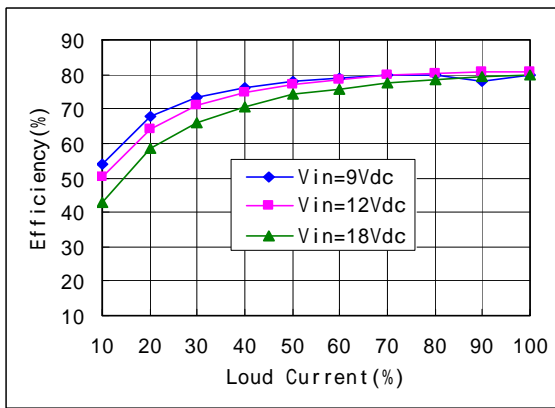


YND5-48S24

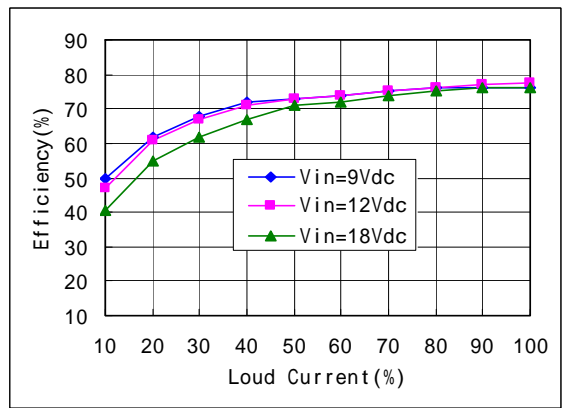
Efficiency



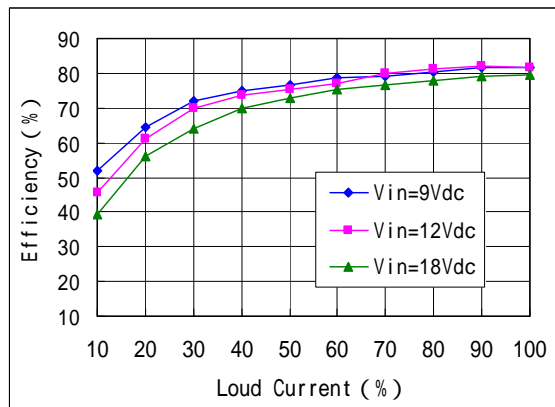
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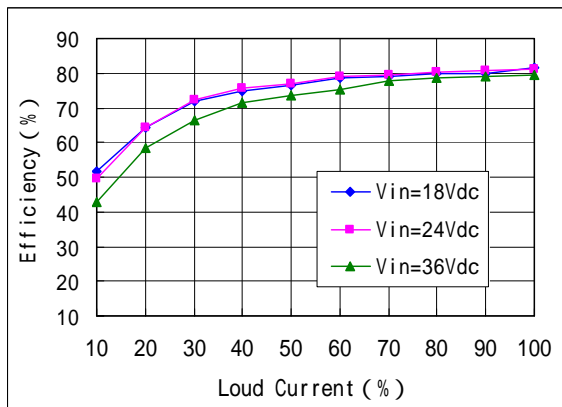
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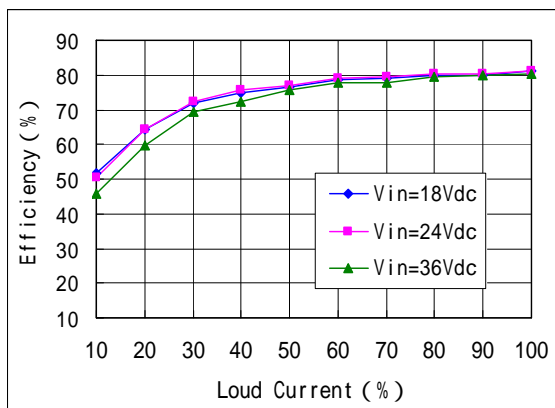
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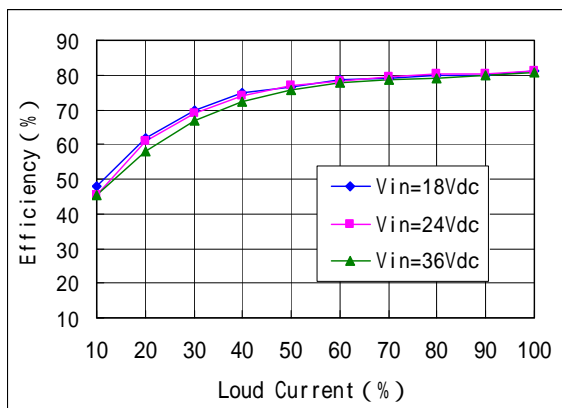
YND5-12D15



YND5-24D05

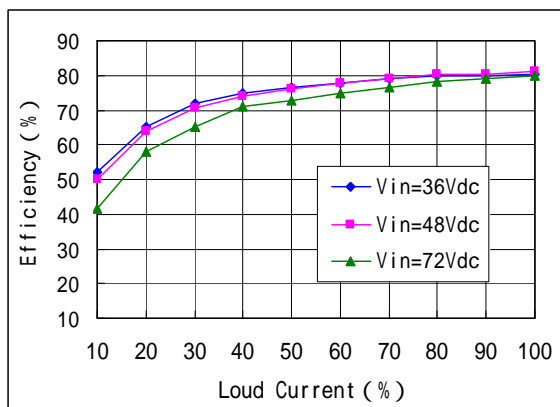


YND5-24D12



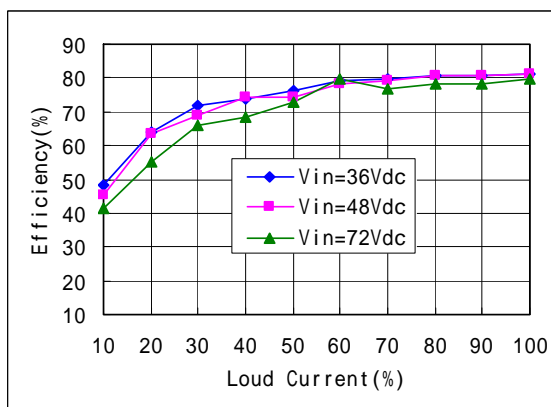
YND5-24D15

Efficiency



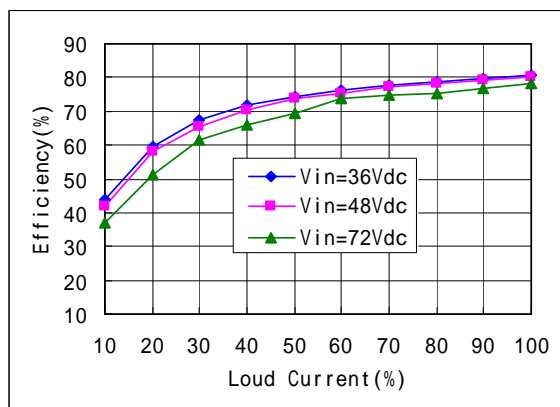
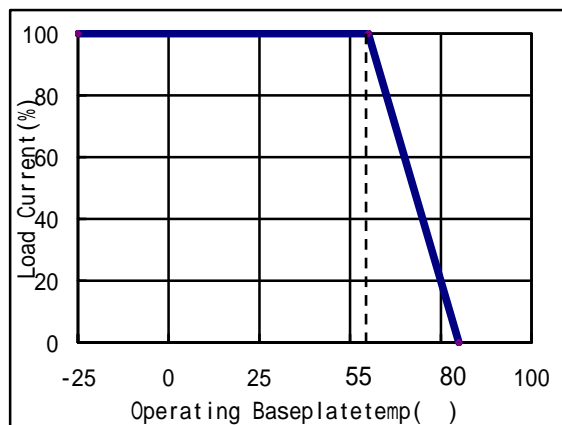
YND5-48D05

Efficiency



YND5-48D12

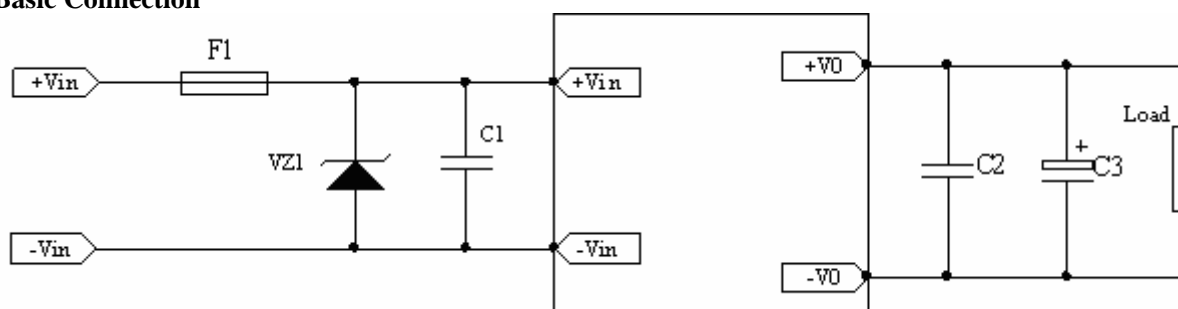
Derating



YND5-48D15

Design Considerations

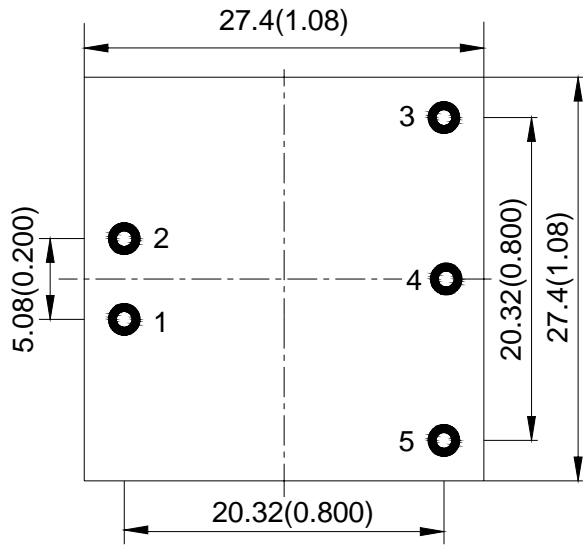
Basic Connection



Notes :

1. Please refer to the respective data sheet for further information.
2. F1: fuse ; VZ1: TVS; C1:10μF~100μF , C2: 1μF~22μF ; C3: 10μF~1000μF。

Recommended Layout



| NO. | Recommendation & Notes |
|--------------------|--|
| Pad Design | Pad holes 1 ~ 5:1.2mm , pad diameter including hol:2.5mm |
| Mounting Direction | heatsink face up, for natural convection |
| Safety | Isolated Converters, care to the spacing between input and output |
| Electrical | The Vin(-) and Vo(-) planes should be placed under of the converter separately. Avoid routing sensitive signal or high disturbance AC signal under the converter |

External Capacitance

Unless special purpose (i.e. prolonging hold-up time, input impedance matching), the recommended input filter’s capacitance ranges 10μF to 100μF, which not only offers a stable system, and reduces the cost, but also lessens the inrush current when the power supplies.

When larger capacitance is required, a circuit of suppressing the inrush current is recommended when the regulator start-up and a discharge circuit is recommended when the output dropped, ensuring the reliability and safety of other equipments in the system.

Thermal Consideration

The converters operate in a variety of thermal environments; however, sufficient cooling should be provided to ensure reliable operation of the unit. Heat is removed by conduction, convection and radiation to the surrounding environment.

When case temperature is higher than the permitted operating, the derating curves should be referred or external heat dissipation measures. Forced air cooling or heatsink, should be used. The air tunnel should be considered for forced air cooling, to avoid heated air be hindered or forming swirl; when heatsink used, it should be attached the converter closely, through double-side thermal conductivity insulation adhesive or thermal conductivity silicone for heat exchange.

Safety Consideration

The converters, as one component for the end user, should be installed into the equipment, and all the safety considerations are achieved under certain condition. It is required to meet safety requirements in system design for the user. The converter output is considered SELV, and the expected input is

considered TNV2, the primary to secondary is basic insulation to EN60950.The maximum operating temperature for PCB is 130 .

To avoiding fire and be protected when short circuit occurred, it is recommended that a fast blow fuse with rating 2.5 to 3 times of converter’s continuous input peak current is used in series at the input terminal.(Inrush current suppression circuit is required for greater filter capacitance at input terminal, or it will result in the misoperation of the fuse).

Series and Parallel Operation

The converters should not be paralleled directly to increase power, but they can be paralleled each other through o-ring switches or diodes. Make sure that every converter’s maximum load current should not exceed the rated current at anytime if they are paralleled without using external current sharing circuits. The converters can operate in series. To prevent against start-up failure due to start up time difference,

SBD with low voltage difference can be paralleled at the output pins(SBD negative terminal connect to the positive pin of the output) for each converter.

Cleaning Notice

The converter case is not a hermetically-sealed construction, a sufficient drying process is required after the converter cleaning, make sure the liquid congregated is removed, or it will damage the converter or degradation of performance

After surface treatment, the appearance of the converter may be affected by the organic solvent, protection measures should be taken before cleaning when appearance is concerned.

DC-DC Converter YND5 Series**Delivery Package Information**

Package material is multiple wall corrugated, internal material is anti-static foam, its surface resistance is from $10^5 \Omega$ to $10^{12} \Omega$. Tray capacity: $2 \times 32 = 64$ PCS/box, Tray weight: 0.75~0.80kg; Carton capacity: $15 \times 64 = 960$ PCS, Carton weight: 11.5 ~12.5kg.

Quality Statement

The converters are manufactured in accordance with ISO 9001 system requirements, in compliant with YD/T1376-2005, and are monitored 100% by auto-testing system, 100% burn in. The warranty for the converters is 5-year.

Contact Information

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