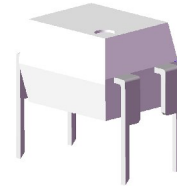


# 4 PIN DIP VERY HIGH ISOLATION VOLTAGE PHOTOCOUPLER

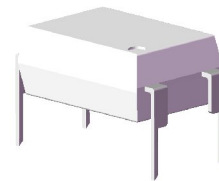
**CNY64 series**  
**CNY65 series**

## Features

- High Voltage  
BV<sub>CEO</sub>=80V (min.)
- Operating temperature up to +85°C
- High isolation voltage between input and output  
Viso = 8200 Vrms
- Rated recurring peak voltage (repetitive)  
VIORM = 1000 VRMS
- Creepage current resistance according to VDE 0303/IEC 60112  
comparative tracking index: CTI ≥ 200
- Thickness through insulation 3mm
- Pb free and RoHS compliant.
- CUL approved (No. E214129)
- VDE approved (No. 40027351)
- FIMKO approved (No. 25464)



CNY64

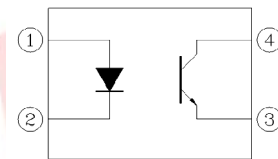


CNY65

## Description

The CNY64 and CNY65 series contains an infrared emitting diode optically coupled to a phototransistor.

These devices are packaged in an 4-pin DIP package and providing a distance between input and output for highest safety requirement of >3mm.



1. Anode
2. Cathode
3. Emitter
4. Collector

## Applications

- Switch mode power supply
- Line receiver
- Computer peripheral interface
- Microprocessor system interface
- Circuits for safe protective separation against electrical shock according to safety class II (reinforced isolation):
  - for appl. class I - IV at mains voltage ≤ 300 V
  - for appl. class I - IV at mains voltage ≤ 600 V
  - for appl. class I - III at mains voltage ≤ 1000 V
 according to DIN EN 60747-5-5



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# 4 PIN DIP VERY HIGH ISOLATION VOLTAGE PHOTOCOUPLER

## CNY64 series CNY65 series

### Absolute Maximum Ratings (T<sub>a</sub>=25°C)

| Parameter                           |                              | Symbol           | Rating   | Unit |
|-------------------------------------|------------------------------|------------------|----------|------|
| Input                               | Forward current              | I <sub>F</sub>   | 75       | mA   |
|                                     | Peak forward current (<10μs) | I <sub>FM</sub>  | 1.5      | A    |
|                                     | Reverse voltage              | V <sub>R</sub>   | 5        | V    |
|                                     | Power dissipation            | P <sub>D</sub>   | 120      | mW   |
| Output                              | Collector current            | I <sub>C</sub>   | 50       | mA   |
|                                     | Collector power dissipation  | P <sub>C</sub>   | 150      | mW   |
|                                     | Collector-Emitter voltage    | V <sub>CEO</sub> | 80       | V    |
|                                     | Emitter-Collector voltage    | V <sub>ECO</sub> | 7        | V    |
| Total power dissipation             |                              | P <sub>tot</sub> | 250      | mW   |
| Isolation voltage <sup>*1</sup>     |                              | V <sub>iso</sub> | 8200     | Vrms |
| Operating temperature               |                              | T <sub>opr</sub> | -55~+85  | °C   |
| Storage temperature                 |                              | T <sub>stg</sub> | -55~+100 | °C   |
| Soldering temperature <sup>*2</sup> |                              | T <sub>sol</sub> | 260      | °C   |

#### Notes

\*1 AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1 & 2 are shorted together, and pins 3 & 4 are shorted together.

\*2 2mm from case, <10 seconds.



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# 4 PIN DIP VERY HIGH ISOLATION VOLTAGE PHOTOCOUPLER

**CNY64 series**  
**CNY65 series**

## Electrical Characteristics (T<sub>a</sub>=25°C unless specified otherwise)

### Input

| Parameter         | Symbol          | Min. | Typ.* | Max. | Unit | Condition             |
|-------------------|-----------------|------|-------|------|------|-----------------------|
| Forward voltage   | V <sub>F</sub>  | -    | 1.6   | 2.0  | V    | I <sub>F</sub> = 50mA |
| Reverse current   | I <sub>R</sub>  | -    | -     | 10   | μA   | V <sub>R</sub> = 5V   |
| Input capacitance | C <sub>in</sub> | -    | -     | 100  | pF   | V = 0, f = 1MHz       |

### Output

| Parameter                           | Symbol            | Min. | Typ.* | Max. | Unit | Condition                                  |
|-------------------------------------|-------------------|------|-------|------|------|--|
| Collector-Emitter dark current      | I <sub>CEO</sub>  | -    | -     | 200  | nA   | V <sub>CE</sub> = 20V, I <sub>F</sub> =0mA |
| Collector-Emitter breakdown voltage | BV <sub>CEO</sub> | 80   | -     | -    | V    | I <sub>C</sub> = 1mA                       |
| Emitter-Collector breakdown voltage | BV <sub>ECO</sub> | 7    | -     | -    | V    | I <sub>E</sub> = 0.1mA                     |
| Collector-Emitter capacitance       | C <sub>CE</sub>   | -    | -     | 50   | pF   | V <sub>CE</sub> = 0V, f = 1MHz             |

### Transfer Characteristics

| Parameter                            | Symbol               | Min.             | Typ.* | Max. | Unit | Condition  |
|--------------------------------------|----------------------|------------------|-------|------|------|--|
| Current Transfer Ratio               | CNY64<br>CNY65       | 50               | -     | 300  | %    | I <sub>F</sub> = 5mA, V <sub>CE</sub> = 5V                           |
|                                      | CNY64A<br>CNY65A     | 63               | -     | 125  |      |  |
|                                      | CNY64B<br>CNY65B     | 100              | -     | 200  |      |  |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | -                | -     | 0.3  | V    | I <sub>F</sub> = 10mA, I <sub>C</sub> = 1mA                          |
| Coupling capacitance                 | C <sub>IO</sub>      | -                | 0.3   | -    | pF   | f=1MHz   |
| Isolation resistance                 | R <sub>IO</sub>      | 10 <sup>11</sup> | -     | -    | Ω    | V <sub>IO</sub> = 500Vdc   |
| Turn-on time                         | T <sub>on</sub>      | -                | 6     | 18   | μs   | V <sub>CC</sub> = 5V,<br>I <sub>C</sub> = 5mA, R <sub>L</sub> = 100Ω |
| Turn-off time                        | T <sub>off</sub>     | -                | 7     | 18   |      |  |
| Rise time                            | t <sub>r</sub>       | -                | 3     | 18   |      |  |
| Fall time                            | t <sub>f</sub>       | -                | 5     | 18   |      |  |

\* Typical values at T<sub>a</sub> = 25°C



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# CNY64 series CNY65 series

## Typical Performance Curves

Figure 1. Forward Current vs. Forward Voltage

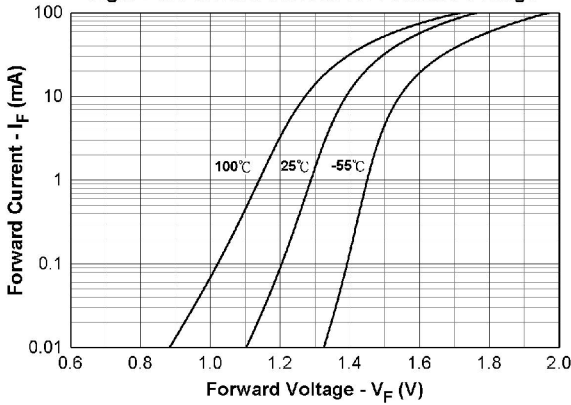


Figure 2. Normalized Current Transfer Ratio vs. Forward Current

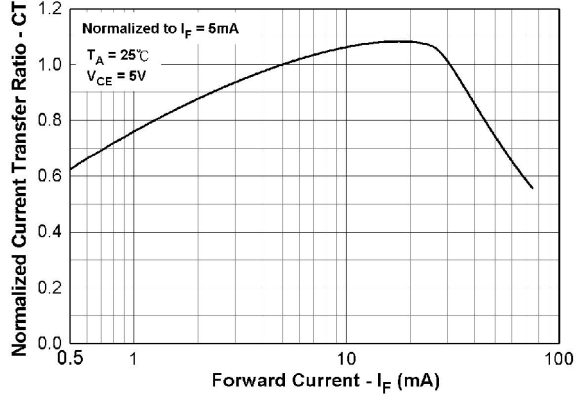


Figure 3. Normalized Current Transfer Ratio vs. Ambient Temperature

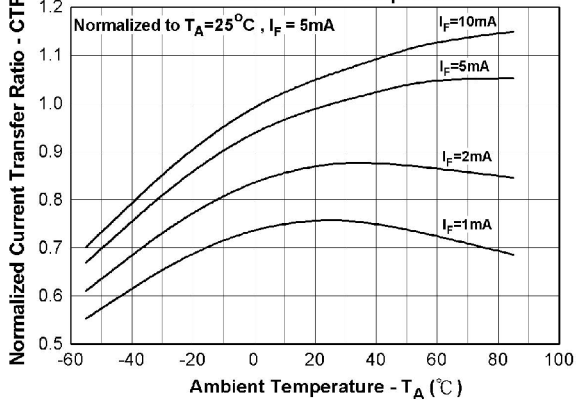


Figure 4. Collector Current vs. Forward Current

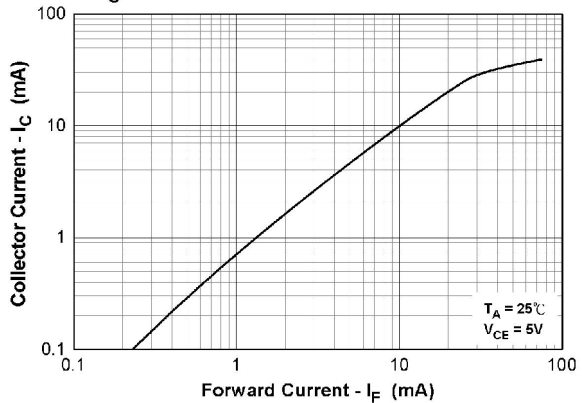


Figure 5. Collector-Emitter Saturation Voltage vs. Collector Current

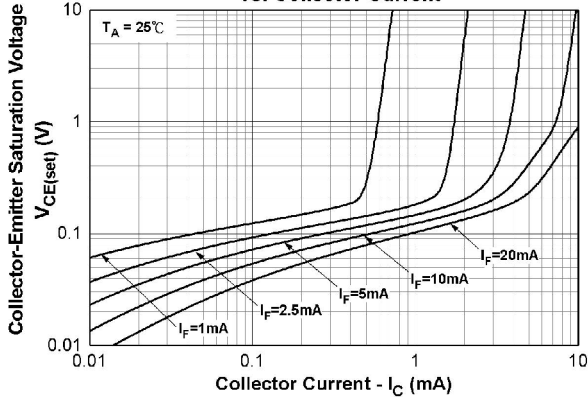
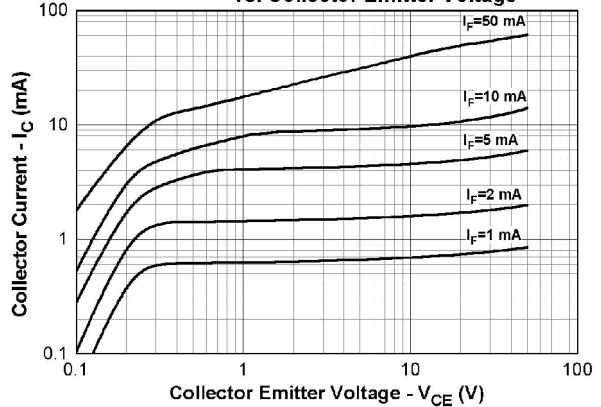


Figure 6. Collector Current vs. Collector Emitter Voltage



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Figure.7 Collector Dark Current vs. Ambient Temperature

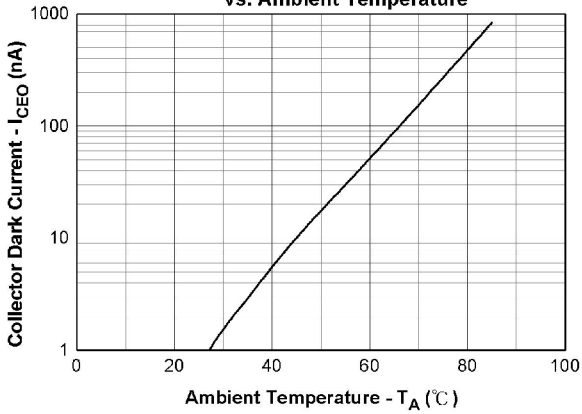


Figure 8. Turn on/off Time vs. Forward Current

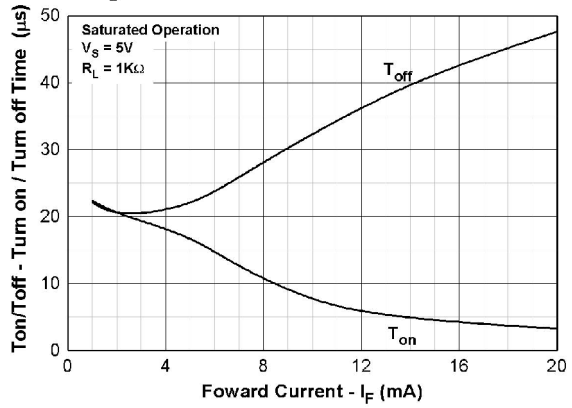


Figure 9. Turn on/off Time vs. Collector Current

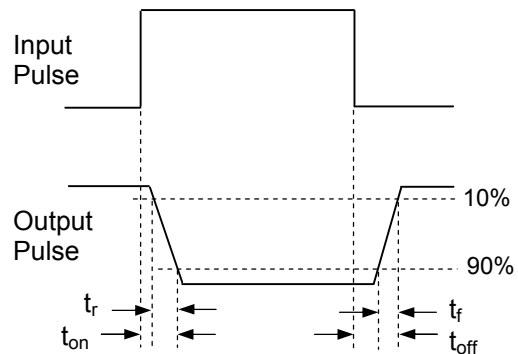
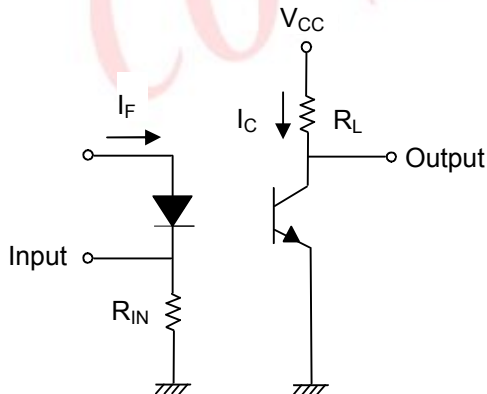
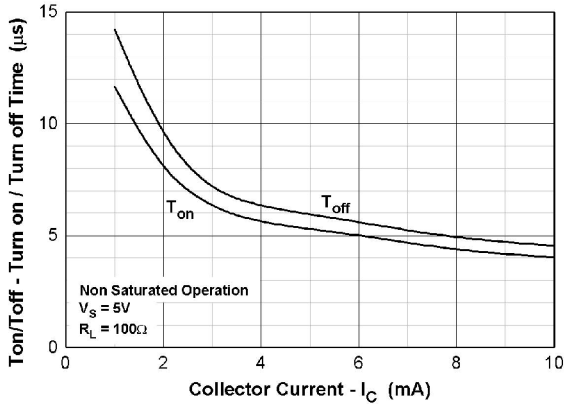


Figure 10. Switching Time Test Circuit & Waveforms



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**CNY64 series**  
**CNY65 series**

## Order Information

### Part Number

**CNY64X-V**  
or  
**CNY65X-V**

#### Note

X = CTR rank option (A, B or none)

V = VDE safety (optional)

| Option  | Description    | Packing quantity  |
|---------|----------------|-------------------|
| CNY64   | Standard       | 60 units per tube |
| CNY64-V | Standard + VDE | 60 units per tube |
| CNY65   | Standard       | 45 units per tube |
| CNY65-V | Standard + VDE | 45 units per tube |

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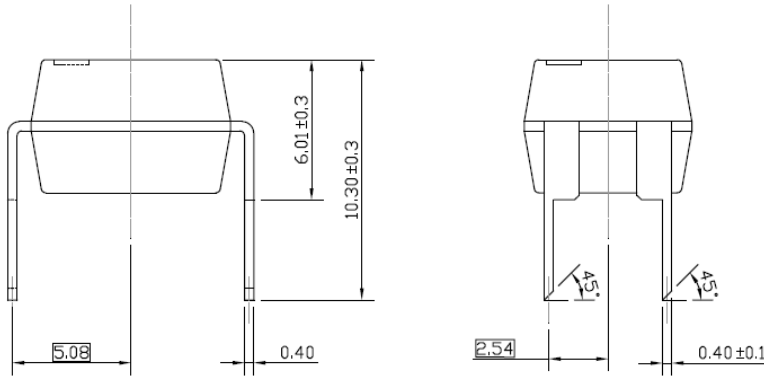
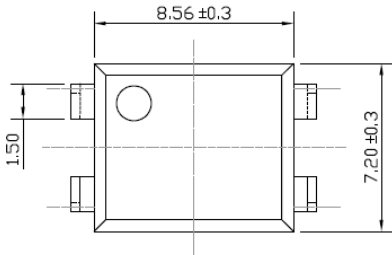
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## CNY64 series CNY65 series

### Package Drawings (Dimensions in mm)

CNY64



CNY65

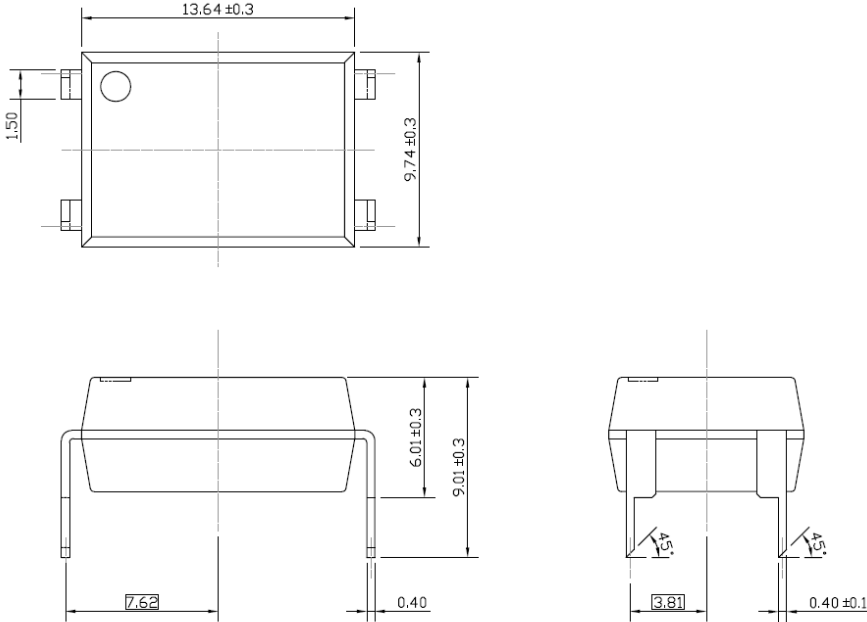
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## CNY64 series CNY65 series



### Device Marking



### Notes

- EL denotes Everlight
- CNY64 denotes Part no.
- R denotes CTR rank (A or B)
- Y denotes 1 digit Year code
- WW denotes 2 digit Week code
- V denotes VDE safety (optional)





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CNY64 series  
CNY65 series

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