VISHAY

The DNA of tech.

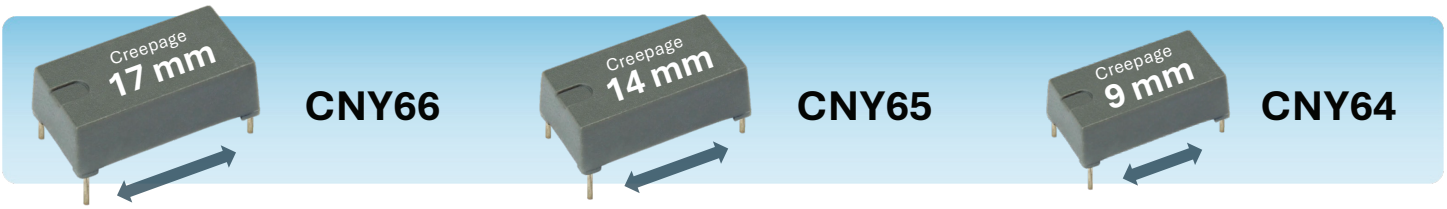
DID YOU KNOW?

1800 V COUPLER UPGRADE

Did You Know?

Vishay has officially upgraded our CNY series high voltage optocouplers to meet the latest industry standards. By enhancing the maximum repetitive peak isolation voltage (V_{IORM}) from 1450 V to 1800 V, these optocouplers now offer improved insulation performance and greater application flexibility.

All updated datasheets are available online, and the newly certified CNY series is available immediately for order.



Why Does This Matter?

With this upgrade, the CNY series can now support a broader range of high voltage applications, making it an ideal choice for industries requiring enhanced insulation and reliable isolation. In 1500 V solar inverters, it provides superior insulation, ensuring the safe and efficient operation of renewable energy systems. Similarly, in energy storage systems (ESS), it enables secure isolation for both grid-tied and off-grid storage solutions, enhancing system stability and performance.

By supporting higher working voltages with reinforced insulation, the upgraded CNY series enables the design of more efficient, compact, and cost-effective power systems. This is made possible by reducing the number of strings and inverters required, minimizing overall system complexity. Additionally, the lower current flow at higher voltage levels allows for the use of thinner cables, further cutting material costs while reducing power losses - resulting in optimized energy conversion across demanding environments.

Beyond solar applications, the CNY series is also well-suited for industrial power supplies and converters, where growing voltage demands necessitate reinforced insulation for safe and efficient power conversion. Additionally, in wind power converters and inverters, these optocouplers contribute to the reliable and efficient transfer of high voltages, ensuring stable operation in high power wind energy systems.

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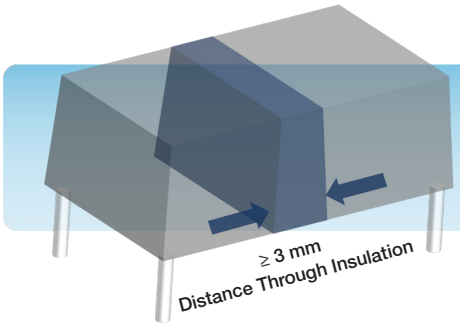
Distance Through Insulation (DTI):

One highlight of the CNY series is its high internal insulation distance of 3 mm, setting an industry benchmark for critical safety applications. This ensures that even in worst-case breakdown scenarios, there is no risk of high voltage leakage through the component, preventing damage or harm.



Insulation:
≥ 3 mm

V_{IORM} = **1800 V_{PEAK}**

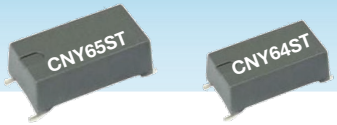
Examples:

Each application, depending on the environment and use case, has different creepage distance requirements to ensure safe electrical isolation. Below are tables for 1000 V and 1500 V working voltages, outlining the conditions under which different Vishay CNY series optocouplers are best suited.

Vishay offers two variations of HV couplers that have been upgraded to 1800 V_{PEAK}: the THT variant with a CTI of 200 (material group IIIa) and the SMD variant with a CTI of 475 (material group 2).

THT Packages
CTI = 200 (Material Group IIIa)

SMD Packages
CTI = 450 (Material Group II)



Explanation of Parameters:

- **System voltage:** this represents the working voltage of the system, which affects the required creepage distance. Higher voltages require larger creepage distances for safe insulation
- **Pollution degree:** this classifies the level of contamination (dust, moisture, conductive particles) in the operating environment, as defined by IEC 60664-1
- **Material group (CTI - comparative tracking index):** this refers to the insulating material's ability to withstand electrical tracking (measured in volts). IEC 60112 defines the material groups
- **Altituderating:** at **higher altitudes**, the air density decreases, reducing its dielectric strength, which increases the risk of insulation breakdown. IEC 60664-1 defines altitude correction factors, requiring an increase in creepage distance for installations above 2000 m
- **Required creepage distance:** this is the minimum distance along the surface of an insulator that must be maintained to prevent arcing between high voltage points. The required distance increases with higher pollution degrees, higher voltages, and greater altitude
- **Vishay PN (part number):** this suggests the most suitable Vishay CNY series optocoupler based on the system voltage, environment, and creepage requirements

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Each table provides the optimal Vishay CNY optocoupler for different voltage levels and environmental conditions, ensuring compliance with safety standards and maximizing reliability in high voltage applications.

1000 V Systems:					
System Voltage	**Pollution Degree**	**Material Group**	**Altitude Rating**	**Required Creepage Distance**	**Vishay PN**
1000 V	1	IIIa (CTI 200)	< 2000 m	**3.2 mm**	CNY64
1000 V	2	IIIa (CTI 200)	< 2000 m	**10.0 mm**	CNY65
1000 V	2	IIIa (CTI 200)	2000 m to 5000 m	**14.8 mm**	CNY66
1000 V	2	II (CTI 450)	< 2000 m	**7.1 mm**	CNY64ST
1000 V	2	IIIa (CTI 200)	2000 m to 5000 m	**10.5 mm**	CNY65ST
1000 V	3	II (CTI 450)	< 2000 m	**14.0 mm**	CNY65ST

1500 V Systems:					
System Voltage	**Pollution Degree**	**Material Group**	**Altitude Rating**	**Required Creepage Distance**	**Vishay PN**
1500 V	1	IIIa (CTI 200)	< 2000 m	**4.8 mm**	CNY64
1500 V	2	IIIa (CTI 200)	< 2000 m	**15.0 mm**	CNY66
1500 V	2	II (CTI 450)	< 2000 m	**10.65 mm**	CNY65ST
1500 V	2	II (CTI 450)	2000 m to 4000 m	**13.8 mm**	CNY65ST

The creepage distances stated in the below tables are according to IEC 60664-1 and show recommended matching Vishay products.

Please reach out to optocoupleranswers@vishay.com with any **inquiries or questions** - our HV coupler team is happy to assist you in selecting the **best solution** for your high voltage applications.