

UD2 Series



NEC TOKIN's UD2 relay is a new generation Miniature Singnal Relay of super-compact size and flat-package for surface mounting.

FEATURES

- Small mounting size of flat package for dense mounting.
- Telcordia (2500 V) and FCC (1500 V) surge capability.
- IEC60950 / UL1950 / EN60950 spacing and high breakdown voltage. (Basic insulation class on 200 V working voltage)
- Low power consumption 100 mW type is available
- UL recognized (E73266), CSA certified (LR46266)
- Tube or embossed tape packaging.

SPECIFICATIONS

| | | | |
|---------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Contact Form | | 2 Form c | |
| Contact Material | | Silver alloy with gold alloy overlay | |
| Contact Ratings | Maximum Switching Power | 30 W, 37.5 VA | |
| | Maximum Switching Voltage | 220 Vdc, 250 Vac | |
| | Maximum Switching Current | 1 A | |
| | Maximum Carrying Current | 1 A | |
| Minimum Contact Ratings | | 10 mVdc, 10 μ A* ¹ | |
| Initial Contact Resistance | | 100 m Ω max.(Initial) | |
| Nominal Operating Power | Nonlatch type | 140 mW (1.5 to 12 V), 230 mW (24 V) | 100mW(Low power consumption type) |
| | Single coil latch type | 100 mW (1.5 to 12 V), 120 mW (24 V) | |
| Operate Time (Excluding bounce) | | Approx. 2 ms | |
| Release Time (Excluding bounce) | | Approx. 1 ms | |
| Insulation Resistance | | 1000 M Ω at 500 Vdc | |
| Withstand Voltage | Between open contacts | 1000 Vac (for one minute) | |
| | Between adjacent contacts | 1500 V surge (10 \times 160 μ s* ²) | |
| | Between coil to contacts | 1500 Vac (for one minute) 2500 V surge (2 \times 10 μ s* ³) | |
| Shock Resistance | | 735 m/s ² (misoperation) 980 m/s ² (destructive failure) | |
| Vibration Resistance | | 10 to 55 Hz, double amplitude 3 mm (misoperation) 10 to 55 Hz, double amplitude 5 mm (destructive failure) | |
| Ambient Temperature | | -40 to +85°C (Low power consumption type: -40 to +70°C) | |
| Coil Temperature Rise | | 18 degrees at nominal coil voltage (140 mW) | |
| Running Specifications | Nonload | 5 \times 10 ⁷ * ⁴ operations(Nonlatch type) | |
| | Load | 30 Vdc, 1 A (resistive), 1 \times 10 ⁵ operations at 20°C | |
| | | 125 Vac, 0.3 A (resistive), 1 \times 10 ⁵ operations at 20°C | |
| Weight | | Approx. 0.8 g | |

* 1 This value is a reference value in the resistance load.

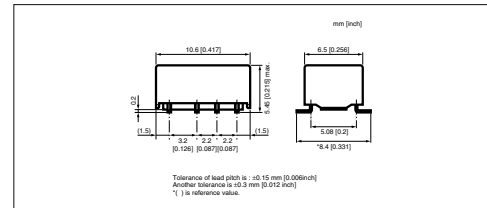
Minimum capacity changes depending on switching frequency and environment temperature and the load.

* 2 rise time : 10 μ s, decay time to half crest : 160 μ s

* 3 rise time : 2 μ s, decay time to half crest : 10 μ s

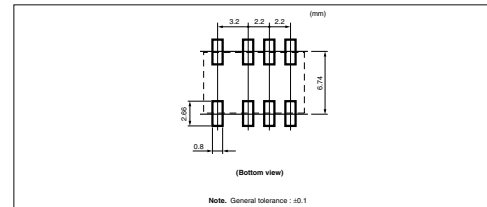
* 4 This shows a number of operation where it can be running by which a fatal defect is not caused, and a number of operation by which a steady characteristic is maintained is 1 \times 10⁷ operations.

DIMENSIONS mm(inch)

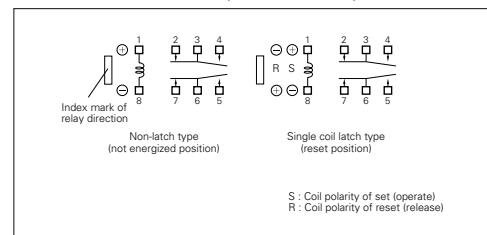


RECOMMENDED PAD LAYOUT

(bottom view)mm(inch)



SCHEMATICS (bottom view)



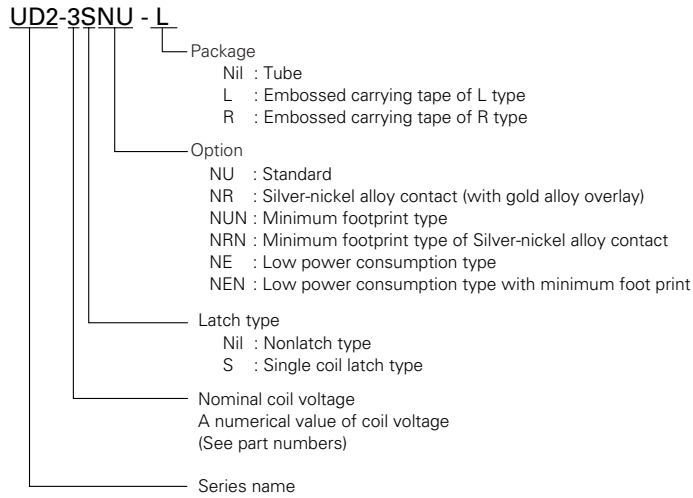
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■ PART NUMBER SYSTEM



■ SAFETY STANDARD AND RATING

| | |
|----------------------------------------------|-----------------------------------------------------------|
| UL Recognized (UL508)* File No. E73266 | CSA Certificated (CSA C22.2 No14)* File No. LR46266 |
| 30 Vdc, 1 A (Resistive) | |
| 110 Vdc, 0.3 A (Resistive) | |
| 125 Vac, 0.5 A (Resistive) | |

* Spacing : UL508
+ Spacing : CSA std950

| |
|------------------------------------------------------------------------------------|
| TUV Certified (EN61810) |
| No. R 2050596 |
| Creepage and clearance of coil to contact is over than 2 mm (According EN60950) |
| Basic insulation class |

■ PART NUMBERS

• Nonlatch Type

at 20 °C

| Part Number (Standard) | Nominal Coil Voltage (Vdc) | Coil Resistance (Ω) ±10% | Must Operate Voltage* (Vdc) | Must Release Voltage* (Vdc) |
|---------------------------|----------------------------------|--------------------------------|-----------------------------------|-----------------------------------|
| UD2-1.5NU | 1.5 | 16 | 1.13 | 0.15 |
| UD2-3NU | 3 | 64.3 | 2.25 | 0.3 |
| UD2-4.5NU | 4.5 | 145 | 3.38 | 0.45 |
| UD2-5NU | 5 | 178 | 3.75 | 0.5 |
| UD2-6NU | 6 | 257 | 4.5 | 0.6 |
| UD2-9NU | 9 | 579 | 6.75 | 0.9 |
| UD2-12NU | 12 | 1028 | 9.0 | 1.2 |
| UD2-24NU | 24 | 2504 | 18.0 | 2.4 |

• Single Coil Latch Type

at 20 °C

| Part Number (Standard) | Nominal Coil Voltage (Vdc) | Coil Resistance (Ω) ±10% | Must Operate Voltage* (Vdc) | Must Release Voltage* (Vdc) |
|---------------------------|----------------------------------|--------------------------------|-----------------------------------|-----------------------------------|
| UD2-1.5SNU | 1.5 | 22.5 | 1.13 | 1.13 |
| UD2-3SNU | 3 | 90 | 2.25 | 2.25 |
| UD2-4.5SNU | 4.5 | 202.5 | 3.38 | 3.38 |
| UD2-5SNU | 5 | 250 | 3.75 | 3.75 |
| UD2-6SNU | 6 | 360 | 4.5 | 4.5 |
| UD2-9SNU | 9 | 810 | 6.75 | 6.75 |
| UD2-12SNU | 12 | 1440 | 9.0 | 9.0 |
| UD2-24SNU | 24 | 4800 | 18.0 | 18.0 |

• Nonlatch NE Type (Low power consumption)

at 20 °C

| Part Number (Standard) | Nominal Coil Voltage (Vdc) | Coil Resistance (Ω) ±10% | Must Operate Voltage* (Vdc) | Must Release Voltage* (Vdc) |
|---------------------------|----------------------------------|--------------------------------|-----------------------------------|-----------------------------------|
| UD2-3NE | 3 | 90 | 2.4 | 0.3 |
| UD2-4.5NE | 4.5 | 202.5 | 3.6 | 0.45 |
| UD2-5NE | 5 | 250 | 4.0 | 0.5 |

Note * Test by pulse voltage

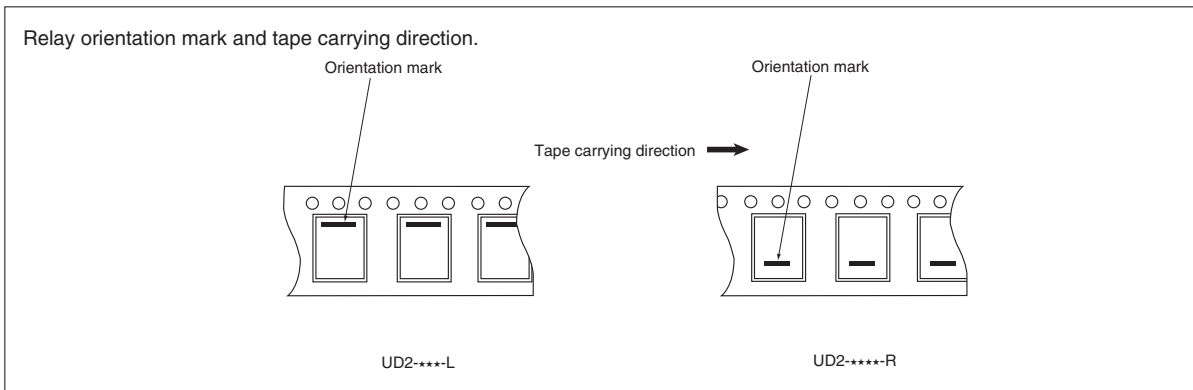
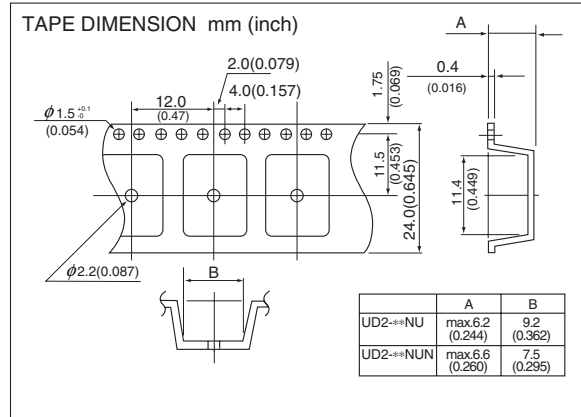
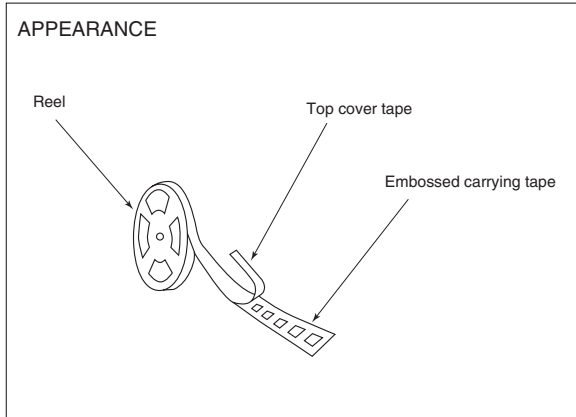
The latch type relays should be initialized at appointed position before using, and should be energized to specific polarity by above polarity to avoid wrong operation.
Any special coil requirement, Please contact NEC TOKIN for availability.



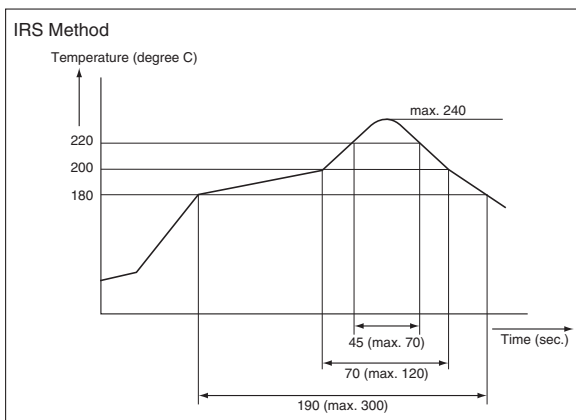
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TAPE PACKAGE (OPTION)



SOLDERING CONDITION



Note

1. Temperature profile shows printed circuit board surface temperature on the relay terminal portion.
2. Check the actual soldering condition to use other method except above mentioned temperature profiles.



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UC2/UD2 Series

■ Recommended relay drive conditions

Drive under conditions. If it is impossible, please inquire to NEC TOKIN.

| | | |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Nonlatch type | Voltage: within $\pm 5\%$ at nominal voltage | Ambient temperature -40~+85°C |
| Nonlatch NE type | | Ambient temperature -40~+70°C |
| Single coil latch type | Square pulse (rise and fall time is rapidly) Pulse height: within $\pm 5\%$ at nominal voltage Pulse width: more than 10 ms | Ambient temperature -40~+85°C |

■ Technical document

Please confirm technical document before use.

It is able to receive a document at NEC TOKIN's World-wide-web site.

(<http://www.nec-tokin.com>)

| ITEM | TITLE |
|------------------|-----------------------------------------------|
| Data sheet | UC2/UD2 series |
| | UC2/UD2 series NE type |
| Information | UC2/UD2 series technical data |
| User's manual | Function and note on correct use |
| Application note | Application circuit of miniature signal relay |



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