# **UB2 Series**



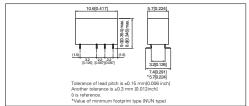


NEC TOKN's UB2 relay is a new generation Miniature Singnal Relay of super-compact size and slim-package for surface mounting.

#### **■ FEATURES**

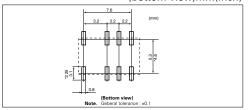
- Small mounting size of slim package for dence mounting.
- •Telcordia (2500 V) and FCC (1500 V) surge capability.
- IEC60950 / UL1950 / EN60950 spacing and high breakdown voltage. (Basic insulation class on 200 V working voltage)
- Power consumption 140 mW, Low power consumption 100 mW type is available.
- UL recognized (E73266), CSA certified (LR46266)
- •Tube or embossed tape packaging.

## ■ DIMENSIONS mm(inch)

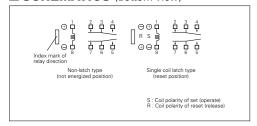


#### **■ RECOMMENDED PAD LAYOUT**

(bottom view)mm(inch)



# ■ SCHEMATICS (bottom view)



## **■ SPECIFICATIONS**

Contact Form		2 Form c	
Contact Material		Silver alloy with gold alloy overlay	
	Maximum Switching Power	30 W, 37.5 VA	
Contact Ratings	Maximum Switching Voltage	220 Vdc, 250 Vac	
g-	Maximum Switching Current	1 A	
	Maximum Carrying Current	1 A	
Minimum Contact Ratings		10 mVdc, 10 μA*1	
Initial Contact Resistance		100 mΩ max.(Initial)	
Nominal Operating Power	Nonlatch type	140 mW (1.5 to 12 V), 230 mW (24 V) 100 mW (low power consumption type)	
Nominal Operating Fower	Single coil latch type	100 mW (1.5 to 12 V), 120 mW (24 V)	
Operate Time (Excluding bound	ce)	Approx. 2 ms	
Release Time (Excluding bound	ce)	Approx. 1 ms	
Insulation Resistance		1000 MΩ at 500 Vdc	
	Between open contacts	1000 Vac (for one minute)	
Withstand Voltage	Between adjacent contacts	1500 V surge (10 × 160 μs*²)	
vviinstana voitage	Between coil to contacts	1500 Vac (for one minute)	
	Botween con to contacts	2500 V surge (2 × 10 μs*3)	
Shock Resistance		735 m/s <sup>2</sup> (misoperation)	
Shock nesistance		980 m/s <sup>2</sup> (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	
Coil Temperature Rise		18 degrees at nominal coil voltage (140 mW)	
	Nonload	5 × 10 <sup>7</sup> *4 operations(Nonlatch type)	
Running Specifications	Load	30 Vdc, 1 A (resistive), 1 × 10 <sup>5</sup> operations at 20°C	
	Loud	125 Vac, 0.3 A (resistive), 1 × 10⁵ operations at 20°C	
Weight		Approx. 1 g	

<sup>\* 1</sup> 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  $\mu$ s, decay time to half crest : 160  $\mu$ s
- \* 3 rise time : 2 μs, decay time to half crest : 10 μs
  \* 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 1×107 operations.

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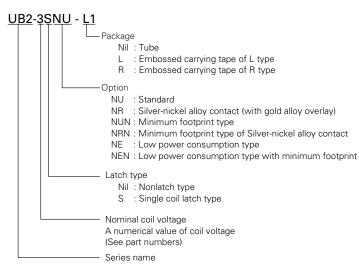
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# **UB2 Series**

#### **■ PART NUMBER SYSTEM**

#### ■ SAFETY STANDARD AND RATING



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

<sup>\*</sup> Spacing: UL840 + 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)
UB2-1.5NU	1.5	16	1.13	0.15
UB2-3NU	3	64.3	2.25	0.3
UB2-4.5NU	4.5	145	3.38	0.45
UB2-5NU	5	178	3.75	0.5
UB2-6NU	6	257	4.5	0.6
UB2-9NU	9	579	6.75	0.9
UB2-12NU	12	1028	9.0	1.2
UB2-24NU	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)
UB2-1.5SNU	1.5	22.5	1.13	1.13
UB2-3SNU	3	90	2.25	2.25
UB2-4.5SNU	4.5	202.5	3.38	3.38
UB2-5SNU	5	250	3.75	3.75
UB2-6SNU	6	360	4.5	4.5
UB2-9SNU	9	810	6.75	6.75
UB2-12SNU	12	1440	9.0	9.0
UB2-24SNU	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)
UB2-3NE	3	90	2.25	0.3
UB2-4.5NE	4.5	202.5	3.38	0.45
UB2-5NE	5	250	3.75	0.5

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

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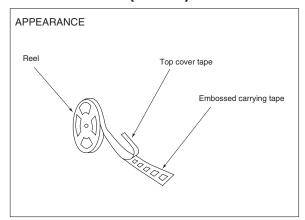
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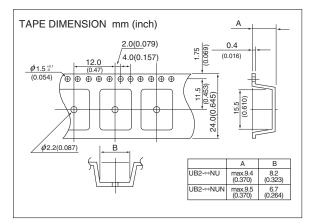


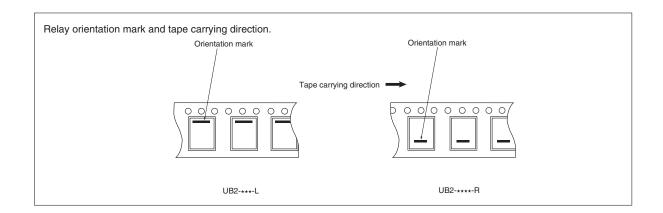
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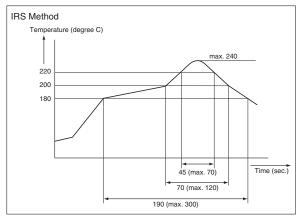
# **■ TAPE PACKAGE (OPTION)**







### **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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# **UA2/UB2 Series**

# ■ Recommended relay drive conditions

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

Nonlatch type	Voltage:within ±5% at nominal voltage	
Single coil latch type Double coil latch type	Square pulse (rise and fall time is rapidly) Pulse height: within ±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 NECTOKIN's World-wide-web site. (http://www.nec-tokin.com)

ITEM	TITLE
Data sheet	UA2/UB2 series
Data shiest	UA2/UB2 series NE type
Information	UA2/UB2 series technical data
User's manual	Function and note on correct use
Application note	Application circuit of miniature signal relay

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