

## UA2/UB2 Series



NEC's UA2/UB2 relay is a new generation slim package Miniature Signal Relay for use in high density applications.

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### FEATURES

- Small mounting size for high density applications
  - Bellcore (2500 V surge coil to contacts) and FCC (1500 V) surge capability.
  - IEC950/UL1950/EN60950 spacing and high breakdown voltage. (Basic insulation class on 200 V working voltage)
  - Low power consumption 140 mW
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### APPLICATIONS

Electronic switching systems, PBX, terminal equipment, telephone system, test equipment.

## PERFORMANCE CHARACTERISTICS (Community)

Contact Form		2 Form c	
Contact Ratings	Maximum Switching Power	30 W (resistive)	37.5 VA (resistive)
	Maximum Switching Voltage	110 Vdc	125 Vac
	Maximum Switching Current	1 A	
	Maximum Carrying Current	1 A	
Minimum Contact Ratings		10 mV.dc, 10 $\mu$ A * 4	
Initial Contact Resistance		70 mOhm typ. (Initial)	
Contact Material		Silver alloy with gold alloy overlay	
Nominal Operating Power	Non-Latch Type	140mW (230 mW fro 24V)	
	Single Coil Latch Type	100 to 140 mW	
Operate Time (Excluding Bounce)		Approximately 2 ms	
Release Time (Excluding Bounce)		Approximately 1 ms without diode	
Insulation Resistance		1000 MOhm at 500 Vdc	
Breakdown Voltage	Between Open Contacts	1000 Vac for one minute (1500 V surge, 10 x 160 $\mu$ s * 1 )	
	Between Adjacent Contacts		
	Between Coil and Contact	1500 Vac for one minute (2500 V surge, 2 x 10 $\mu$ s * 2 )	
Shock Resistance		735 m / s <sup>2</sup> (75 G) (misoperating) 980 m / s <sup>2</sup> (100 G) (destructive failure)	
Vibration Resistance		10 to 55 Hz at double amplitude of 3 mm (20 G) (misoperating) 10 to 55 Hz, double amplitude of 5 mm (30 G) (Destructive failure)	
Ambient Temperature		-40 to +85°C	
Coil Temperature Rise		18 degrees at nominal coil voltage (140 mW)	
Running specifications	No-load	5 x 10 <sup>7</sup> * 3 operations (Non-latch type)	
		1 x 10 <sup>7</sup> operations (Latch type)	
	Load	50 Vdc 0.1 A (resistive), 1 x 10 <sup>6</sup> operations at 85°C	
		10 Vdc 10 mA (resistive), 1 x 10 <sup>6</sup> operations at 85°C	
Weight		Approximately 1 gram	

\*1 rise time :10  $\mu$ s, fall time : 160  $\mu$ s

\*2 rise time :2  $\mu$ s, fall time : 10  $\mu$ s

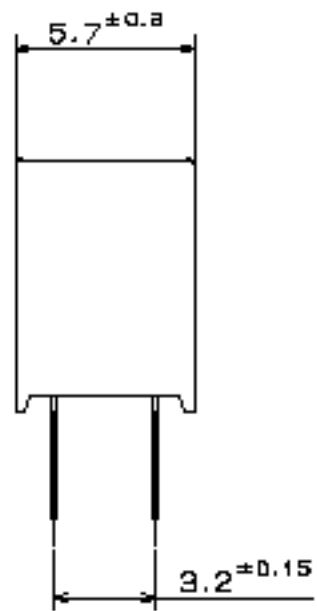
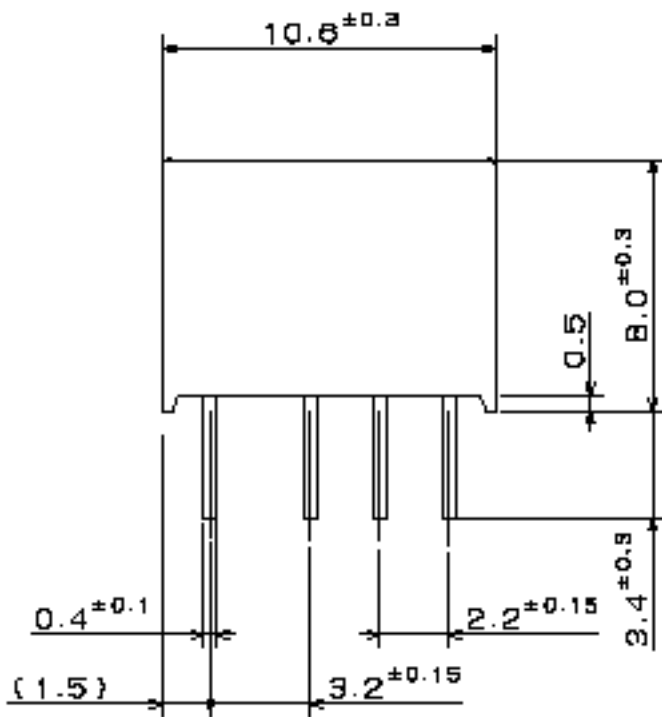
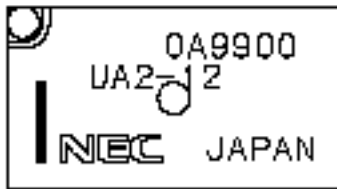
\*3 Number of operations without mechanical failure. Note, the number of operations under which steady electrical characteristics are maintained is 1 x 10<sup>7</sup> operations

\*4 This value is a reference value based upon a resistive load. Minimum contact ratings change based upon switching frequency / drive characteristics, ambient temperature and load.

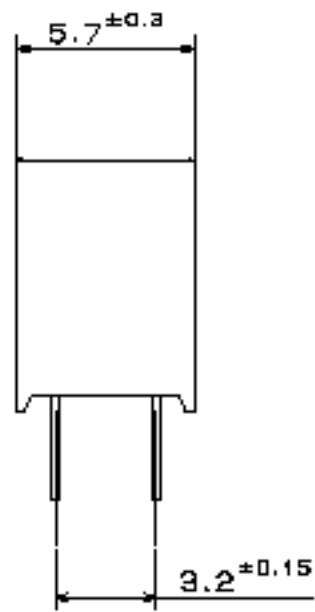
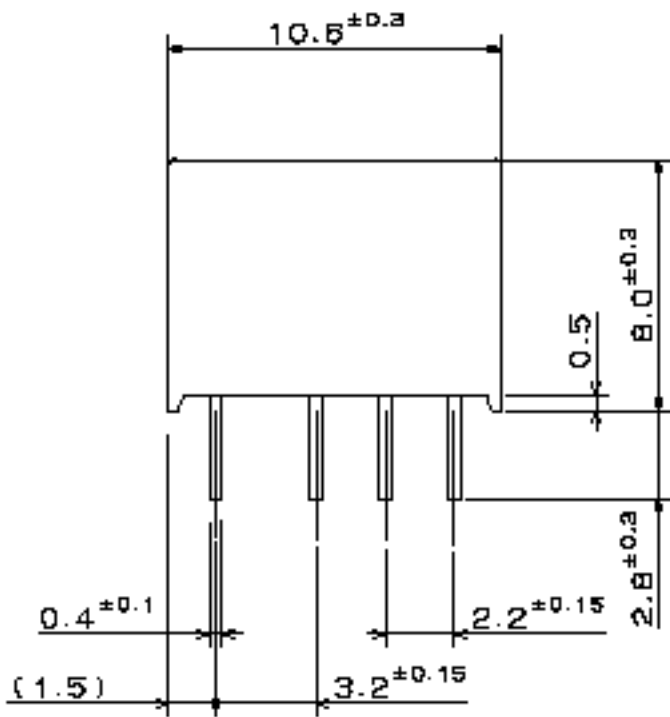
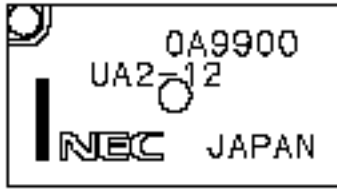
DIMENSIONS

mm

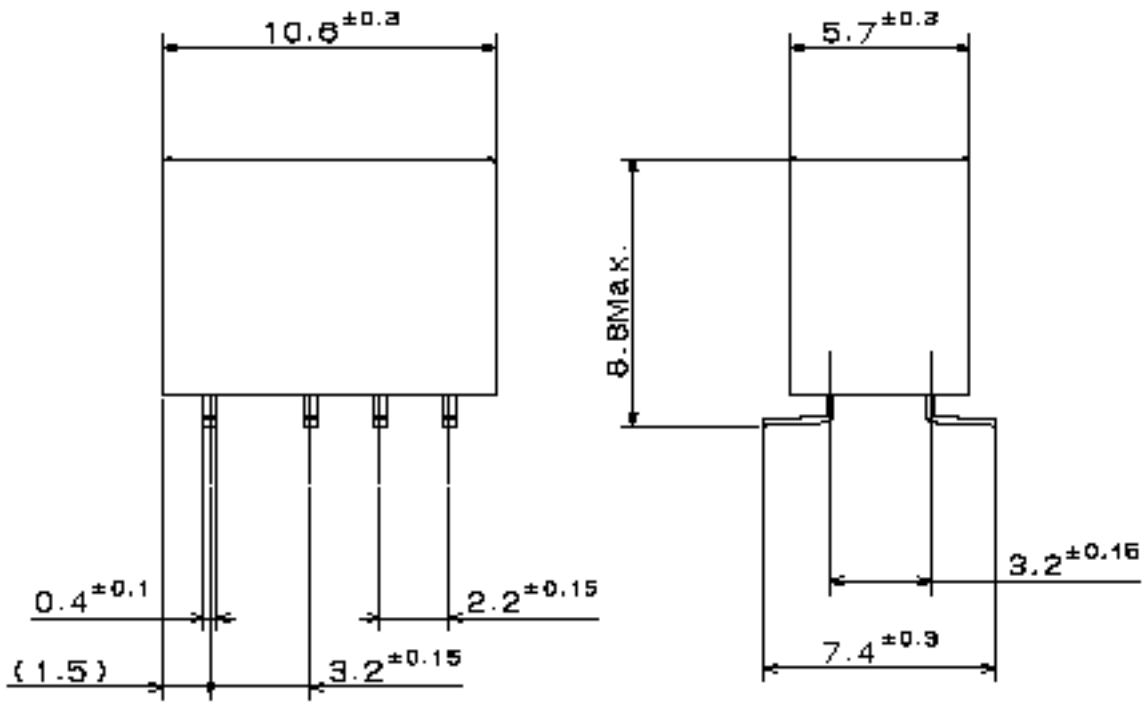
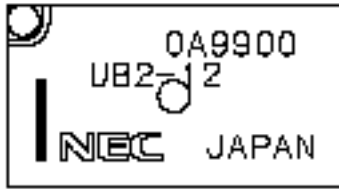
UA2



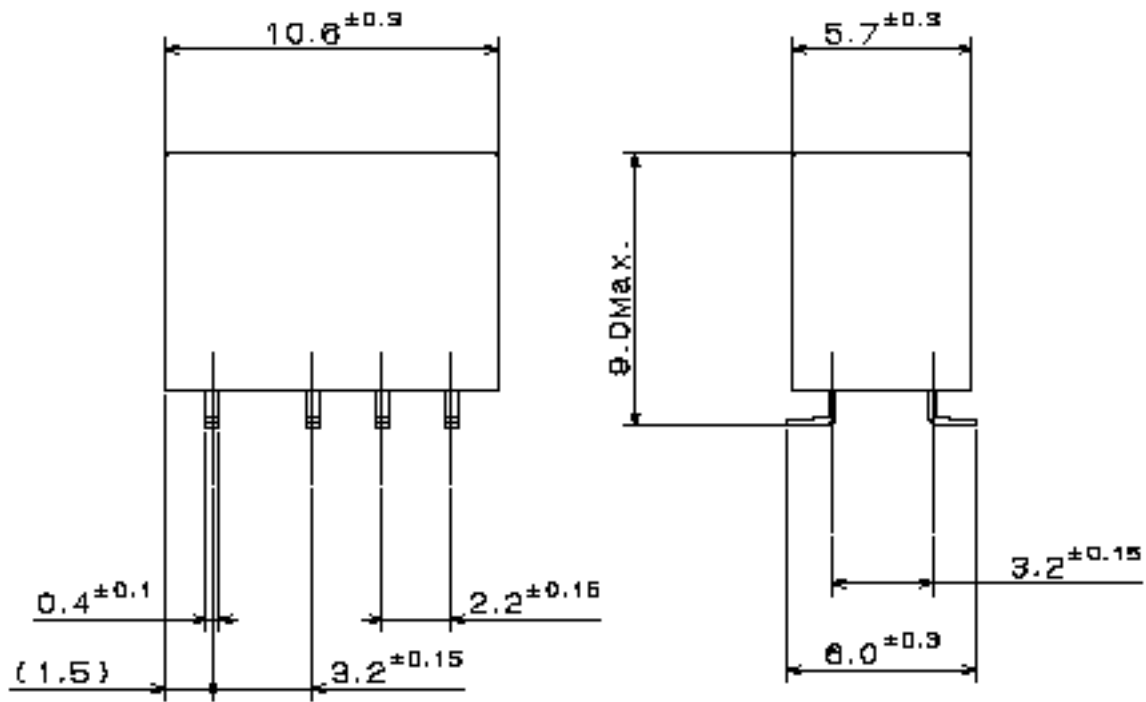
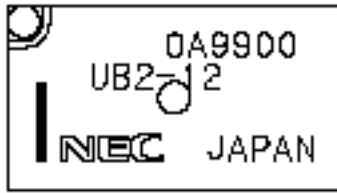
UA2-NJ



UB2



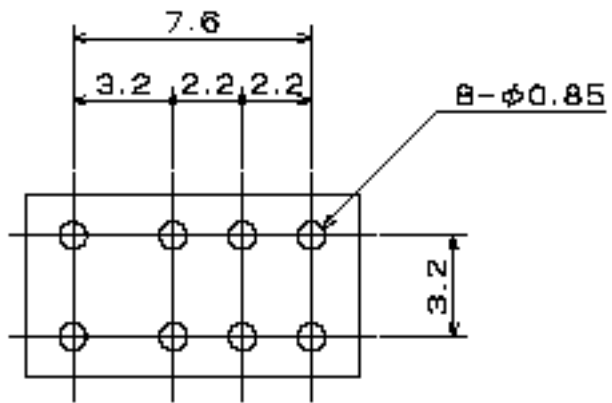
UB2-N



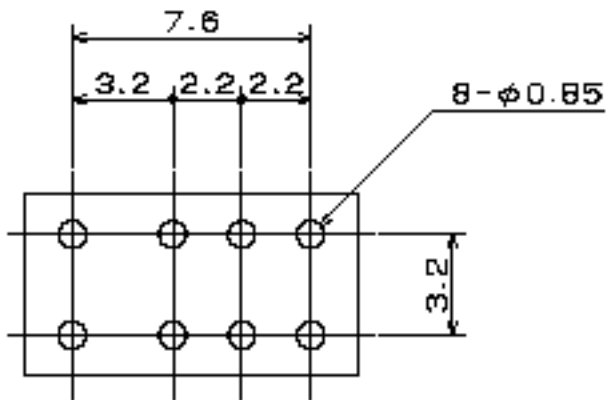
## RECOMMENDED PAD LAYOUT

(bottom view) mm

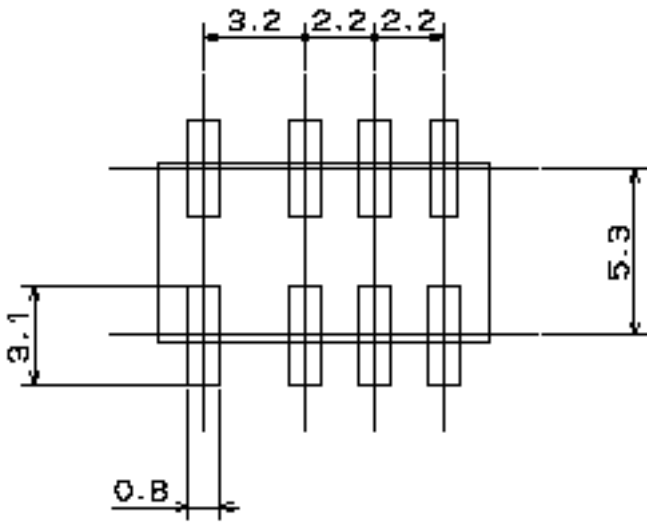
### UA2



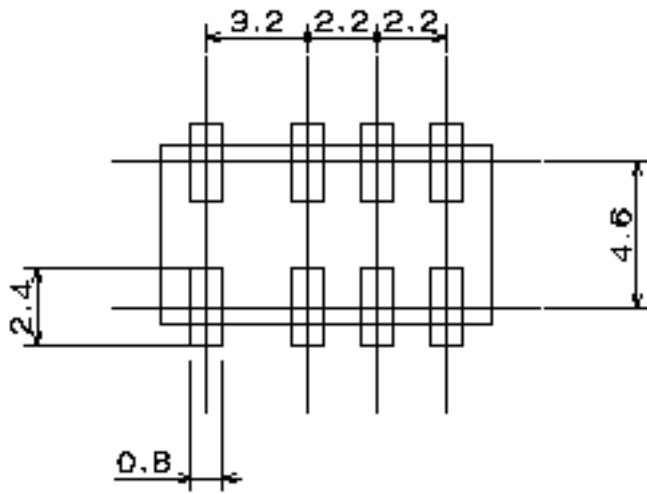
### UA2-NJ



**UB2**



**UB2-N**

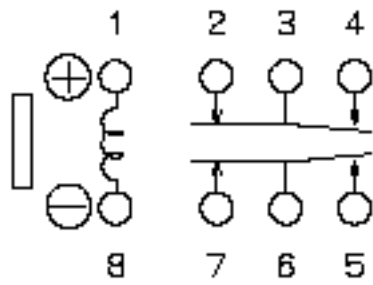




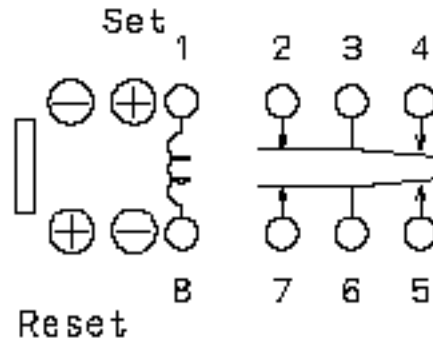
SCHEMATICS

(bottom view)

UA2

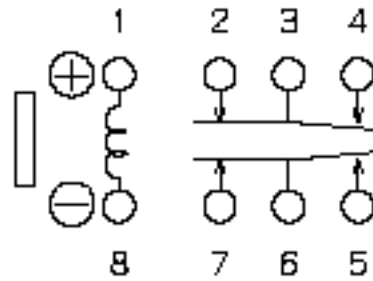


Non-latch type  
(not energized  
position)

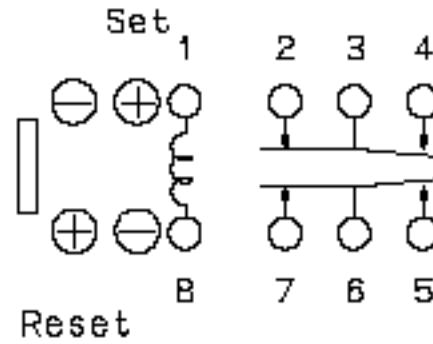


Single coil  
latch type  
(reset position)

UA2-NJ

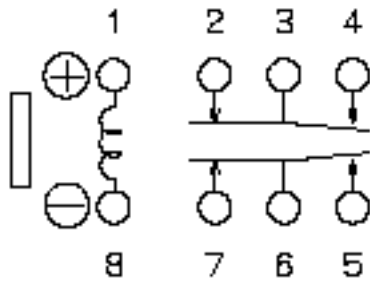


Non-latch type  
(not energized  
position)

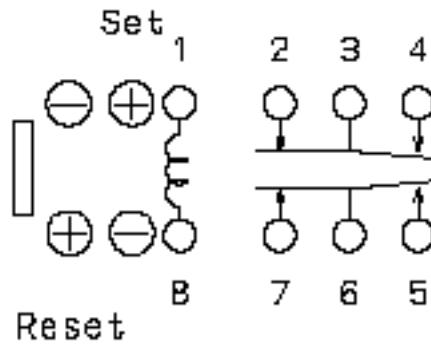


Single coil  
latch type  
(reset position)

## UB2

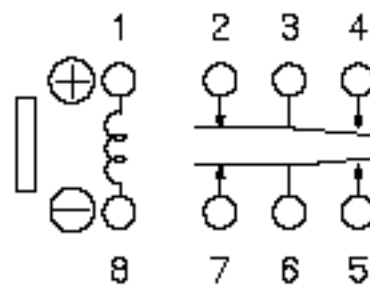


Non-latch type  
(not energized  
position)

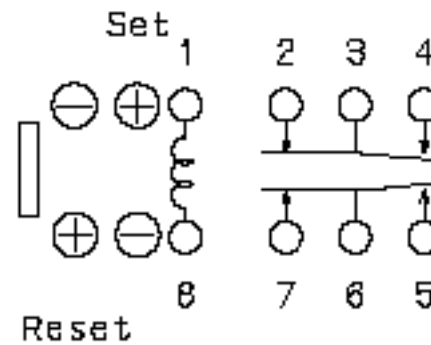


Single coil  
latch type  
(reset position)

## UB2-N



Non-latch type  
(not energized  
position)



Single coil  
latch type  
(reset position)

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## PART NUMBER SYSTEM

### UA2-3 SNU

① ②③④

#### ① Series

UA2 : Through-hole  
UB2 : Surface Mount

#### ② Nominal coil voltage (See Nominal Lineup)

#### ③ Latch type

Nil : Non-latch type  
S : Single coil latch type

#### ④ NU:

Standard type (NJ: trimmed lead type UA2 )(NUN: Minimum footprint UB2)

## NOMINAL LINEUP

### Non-latch Type

at 20°C

Nominal Coil Voltage (Vdc)	Coil Resistance (Ohm) $\pm 10\%$	Must Operate Voltage (Vdc)	Must Release Voltage (Vdc)	Nominal operate power (mW)
1.5	16	1.13	0.15	140
3	64.3	2.25	0.3	140
4.5	145	3.38	0.45	140
5	178	3.75	0.5	140
6	257	4.5	0.6	140
9	579	6.75	0.9	140
12	1028	9.0	1.2	140
24	2504	18.0	2.4	230

### Single-Coil Latch Type

at 20°C

Nominal Coil Voltage (Vdc)	Coil Resistance (Ohm) $\pm 10\%$	Must Operate Voltage (Vdc)	Must Release Voltage (Vdc)	Nominal operate power (mW)
1.5	22.5	1.13	1.2	100
3	90	2.25	2.4	100
4.5	202.5	3.38	3.6	100
5	250	3.75	4	100
6	360	4.5	4.8	100
9	810	6.75	7.2	100
12	1440	9.0	9.6	100
24	4800	18.0	19.2	120

## SAFETY STANDARD AND RATING

UL Recognized (UL508)* File No. E73266	CSA Certified (CSA C22.2 No. 14) File No. LR46266
30 Vdc, 2A (Resistive) 110 Vdc, 0.6 A (Resistive) 125 Vac, 0.5 A (Resistive)	

\* Spacing: UL114, UL478

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