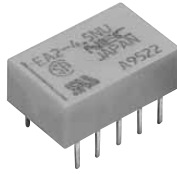


# EA2 Series



The EA2 series has reduced package size and power consumption compared to other NEC TOKIN conventional relays. Furthermore, it complies with 1500 V surge-voltage requirement of FCC Part 68 by the unique structure and the efficient magnetic circuit.

## FEATURES

- Low power consumption
- Compact and light weight
- 2 form c contact arrangement
- Low magnetic interference
- Breakdown voltage : 1000 Vac (surge voltage 1500 V), FCC Part 68 compliant
- Tube packaging
- UL recognized (E73266), CSA certified (LR46266)

## SPECIFICATIONS

Contact Form		2 Form c
Contact Material		Silver alloy with gold alloy overlay
Contact Ratings	Maximum Switching Power	30 W, 62.5 VA
	Maximum Switching Voltage	220 Vdc, 250 Vac
	Maximum Switching Current	1 A
	Maximum Carrying Current	2 A
Minimum Contact Ratings		10 mVdc, 10 $\mu$ A*1
Initial Contact Resistance		75 m $\Omega$ max.(Initial)
Nominal Operating Power	Nonlatch type	140 mW (3 to 12 V), 200 mW (24 V)
	Single coil latch type	100 mW (3 to 12 V), 150 mW (24 V)
	Double coil latch type	140 mW (3 to 12 V), 200 mW (24 V)
Operate Time (Excluding bounce)		Approx. 2 ms
Release Time (Excluding bounce)		Approx. 1 ms without diode
Insulation Resistance		1000 M $\Omega$ at 500 Vdc
Withstand Voltage	Between open contacts	1000 Vac (for one minute)
	Between adjacent contacts	1500 V surge (10 $\times$ 160 $\mu$ s*2)
	Between coil to contacts	1000 Vac (for one minute) 1500 V surge (10 $\times$ 160 $\mu$ s*2)
Shock Resistance		735 m/s <sup>2</sup> (misoperating) 980 m/s <sup>2</sup> (destructive failure)
Vibration Resistance		10 to 55 Hz, double amplitude 3 mm (misoperating) 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)
Running Specifications	Nonload	1 $\times$ 10 <sup>8-9</sup> operations(Non-latch type) 1 $\times$ 10 <sup>7</sup> operations(latch type)
	Load	50 Vdc, 0.1 A (resistive) 1 $\times$ 10 <sup>6</sup> operations at 85°C, 5 Hz 10 Vdc, 10 mA (resistive) 1 $\times$ 10 <sup>6</sup> operations at 85°C, 2 Hz
Weight		Approx. 1.5 g

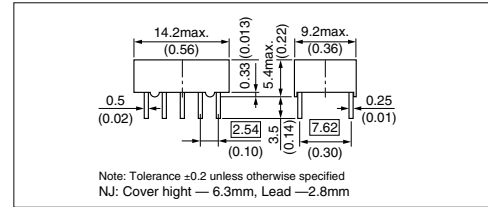
\* 1 This value is a reference value in the resistance load.

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

\* 2 rise time : 10  $\mu$ s, decay time to half crest : 160  $\mu$ s

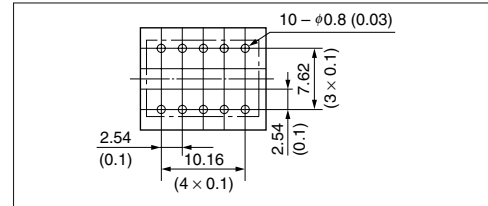
\* 3 This shows a number of operation where it can be running by which a fatal defect is not caused, and a number of operation by which a steady characteristic is maintained is 1 $\times$ 10<sup>7</sup> operations.

## DIMENSIONS mm(inch)

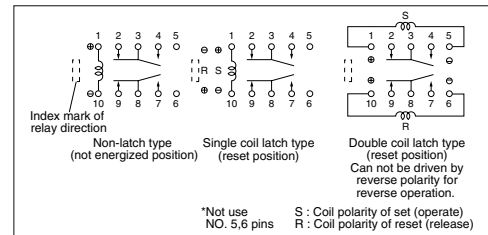


## RECOMMENDED PAD LAYOUT

(bottom view)mm(inch)



## SCHEMATICS (bottom view)



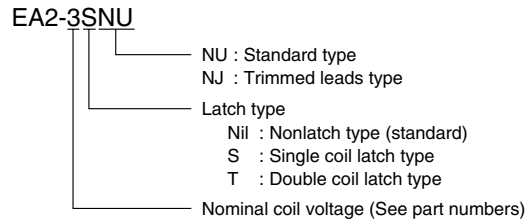
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# EA2 Series

## ■ PART NUMBER SYSTEM



## ■ SAFETY STANDARD AND RATING

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

\* Spacing : UL114, UL478

## ■ PART NUMBERS

### • Nonlatch Type

at 20 °C

Part Number (Standard)	Nominal Coil Voltage (Vdc)	Coil Resistance ( $\Omega$ ) $\pm 10\%$	Must Operate Voltage* (Vdc)	Must Release Voltage* (Vdc)
EA2-3	3	64.3	2.25	0.3
EA2-4.5	4.5	145	3.38	0.45
EA2-5	5	178	3.75	0.5
EA2-6	6	257	4.5	0.6
EA2-9	9	579	6.75	0.9
EA2-12	12	1028	9.0	1.2
EA2-24	24	2880	18.0	2.4

### • Single Coil Latch Type

at 20 °C

Part Number (Standard)	Nominal Coil Voltage (Vdc)	Coil Resistance ( $\Omega$ ) $\pm 10\%$	Must Operate Voltage* (Vdc)	Must Release Voltage* (Vdc)
EA2-3S	3	90	2.25	2.25
EA2-4.5S	4.5	202.5	3.38	3.38
EA2-5S	5	250	3.75	3.75
EA2-6S	6	360	4.5	4.5
EA2-9S	9	810	6.75	6.75
EA2-12S	12	1440	9.0	9.0
EA2-24S	24	3840	18.0	18.0

### • Double Coil Latch Type\*\* (Can not be driven by reverse polarity for reverse operation)

at 20 °C

Part Number (Standard)	Nominal Coil Voltage (Vdc)	Coil Resistance ( $\Omega$ ) $\pm 10\%$	Must Operate Voltage* (Vdc)	Must Release Voltage* (Vdc)
EA2-3T	3	S 64.3	2.25	—
		R 64.3	—	2.25
EA2-4.5T	4.5	S 145	3.38	—
		R 145	—	3.38
EA2-5T	5	S 178	3.75	—
		R 178	—	3.75
EA2-6T	6	S 257	4.5	—
		R 257	—	4.5
EA2-9T	9	S 579	6.75	—
		R 579	—	6.75
EA2-12T	12	S 1028	9.0	—
		R 1028	—	9.0
EA2-24T	24	S 2880	18.0	—
		R 2880	—	18.0

Note \* Test by pulse voltage

\*\* S : Set coil (pin No.1... $\oplus$ , pin No.5... $\ominus$ ) R : Reset coil (pin No.10... $\oplus$ , pin No.6... $\ominus$ )

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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# EA2/EB2 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
Single coil latch type Double 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	

## ■ 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	EA2 series
	EB2 series
Information	EA2 series technical data
	EB2 series technical data
User's manual	Function and note on correct use
Application note	Application circuit of miniature signal relay



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