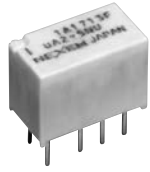


UA2 Series



NEXEM's UA2 relay is a new generation Miniature Signal Relay of super-compact size and slim-package.

FEATURES

- Small mounting size of slim 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)
- Power consumption 140mW, Low power consumption 100mW type is available
- UL recognized (E73266), CSA certified (LR46266), TÜV certified (R2050596)

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, $10 \mu A^{-1}$	
Initial Contact Resistance		100 m Ω max. (Initial)	
Nominal Operating Power	Non-latch type	140 mW (1.5 to 12 V), 230 mW (24 V)	100 mW (low power consumption type)
	Single coil latch type	100 mW (1.5 to 12 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 ($10 \times 160 \mu s^{-2}$)	
	Between coil to contacts	1500 VAC (for one minute) 2500 V surge ($2 \times 10 \mu s^{-2}$)	
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	
Coil Temperature Rise		18 degrees at nominal coil voltage (140 mW)	
Running Specifications	Non-load	$5 \times 10^{7-4}$ operations (Non-latch type)	
	Load	30 VDC, 1 A (resistive), 1×10^5 operations at 20°C, 1 Hz 125 VAC, 0.3 A (resistive), 1×10^5 operations at 20°C, 1 Hz	
Weight		Approx. 1 g	

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

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

*2 Rise time : 10 μs , decay time to half crest : 160 μs

*3 Rise time : 2 μs , decay time to half crest : 10 μs

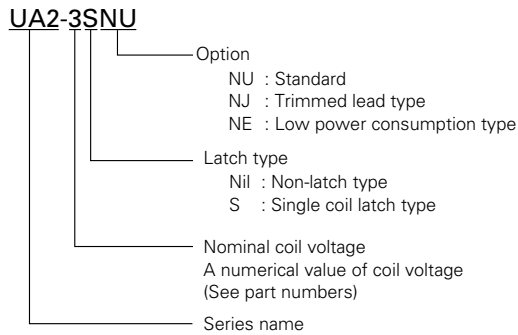
*4 This shows a number of operation where it can be run in by which a fatal defect is not caused, and a number of operation by which a steady characteristic is maintained is 1×10^7 operations.



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UA2 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, 1 A 110 VDC, 0.3 A 125 VAC, 0.3 A	(Resistive) (Resistive) (Resistive)

* Spacing : UL840

† Spacing : CSA std950

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

■ COIL SPECIFICATIONS

• Non-latch Type

at 20°C

Nominal Coil Voltage (VDC)	Coil Resistance (Ω) ± 10%	Must Operate Voltage* (VDC)	Must Release Voltage* (VDC)	Nominal Operating Power (mW)
3	64.3	2.25	0.3	140
4.5	145	3.38	0.45	140
5	178	3.75	0.5	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 (Ω) ± 10%	Set Voltage* (VDC)	Reset Voltage* (VDC)	Nominal Operating Power (mW)
3	90	2.25	2.25	100
4.5	202.5	3.38	3.38	100
5	250	3.75	3.75	100
9	810	6.75	6.75	100
12	1440	9.0	9.0	100

• Non-latch Low Power Consumption Type

at 20°C

Nominal Coil Voltage (VDC)	Coil Resistance (Ω) ± 10%	Must Operate Voltage* (VDC)	Must Release Voltage* (VDC)	Nominal Operating Power (mW)
3	90	2.25	0.3	100
4.5	202.5	3.38	0.45	100
5	250	3.75	0.5	100

* Test by pulse voltage



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UB2 Series



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

FEATURES

- Small mounting size of slim 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)
- Power consumption 140 mW, Low power consumption 100 mW type is available.
- UL recognized (E73266), CSA certified (LR46266), TÜV certified (R2050596)
- 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, $10 \mu A^{-1}$	
Initial Contact Resistance		100 m Ω max. (Initial)	
Nominal Operating Power	Non-latch type	140 mW (1.5 to 12 V), 230 mW (24 V)	100 mW (low power consumption type)
	Single coil latch type	100 mW (1.5 to 12 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 ($10 \times 160 \mu s^{-2}$)	
	Between coil to contacts	1500 VAC (for one minute) 2500 V surge ($2 \times 10 \mu s^{-3}$)	
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	
Coil Temperature Rise		18 degrees at nominal coil voltage (140 mW)	
Running Specifications	Non-load	$5 \times 10^{7-4}$ operations (Non-latch type)	
	Load	30 VDC, 1 A (resistive), 1×10^5 operations at 20°C, 1 Hz 125 VAC, 0.3 A (resistive), 1×10^5 operations at 20°C, 1 Hz	
Weight		Approx. 1 g	

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

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

*2 Rise time : 10 μs , decay time to half crest : 160 μs

*3 Rise time : 2 μs , decay time to half crest : 10 μs

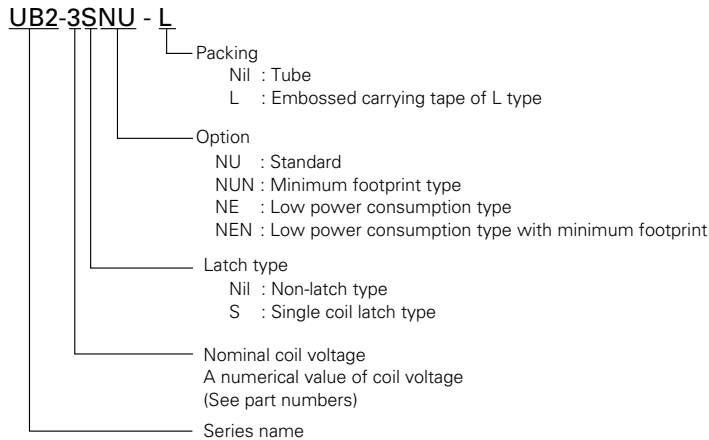
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UB2 Series

■ 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 110 VDC, 0.3 A 125 VAC, 0.3 A	(Resistive) (Resistive) (Resistive)

* Spacing : UL840
† Spacing : CSA std950

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

■ COIL SPECIFICATIONS

• Non-latch Type

at 20°C

Nominal Coil Voltage (VDC)	Coil Resistance (Ω) ± 10%	Must Operate Voltage* (VDC)	Must Release Voltage* (VDC)	Nominal Operating Power (mW)
3	64.3	2.25	0.3	140
4.5	145	3.38	0.45	140
5	178	3.75	0.5	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 (Ω) ± 10%	Set Voltage* (VDC)	Reset Voltage* (VDC)	Nominal Operating Power (mW)
3	90	2.25	2.25	100
4.5	202.5	3.38	3.38	100
5	250	3.75	3.75	100
9	810	6.75	6.75	100
12	1440	9.0	9.0	100

• Non-latch Low Power Consumption Type

at 20°C

Nominal Coil Voltage (VDC)	Coil Resistance (Ω) ± 10%	Must Operate Voltage* (VDC)	Must Release Voltage* (VDC)	Nominal Operating Power (mW)
3	90	2.25	0.3	100
4.5	202.5	3.38	0.45	100
5	250	3.75	0.5	100

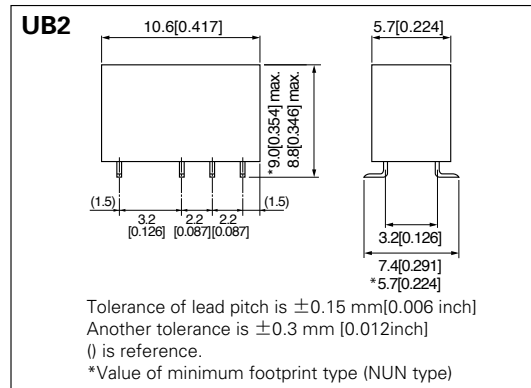
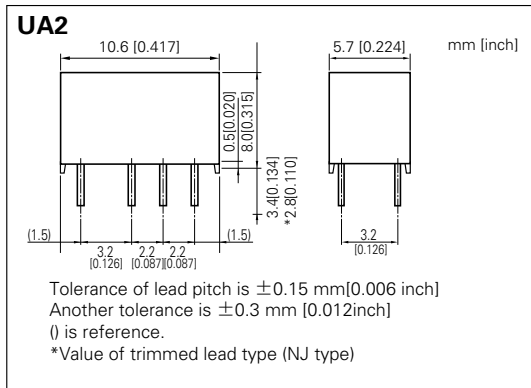
* Test by pulse voltage



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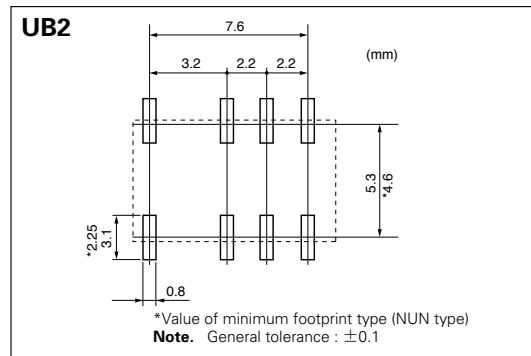
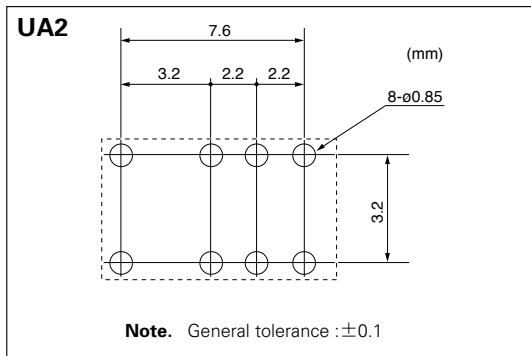
UA2/UB2 Series

■ DIMENSIONS mm(inch)

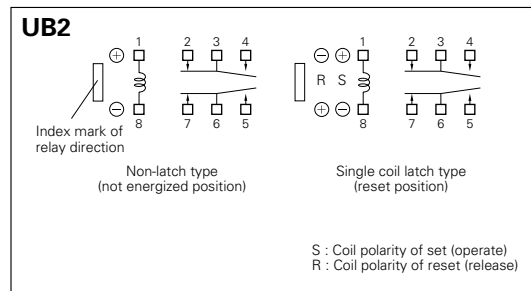
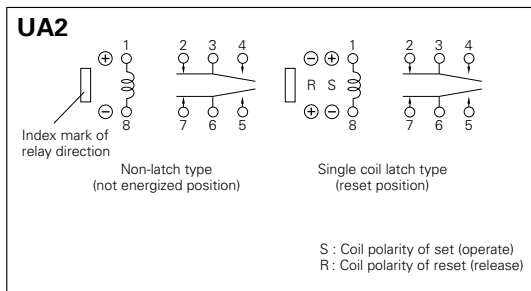


■ RECOMMENDED PAD LAYOUT

(bottom view)



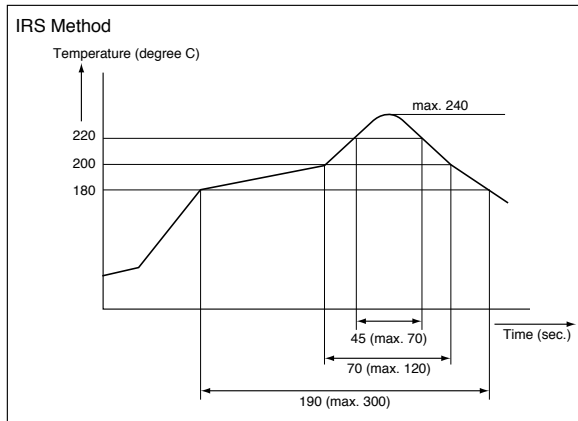
■ SCHEMATICS (bottom view)



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UA2/UB2 Series

■ SOLDERING CONDITION (UB2 Series)



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.

■ Recommended relay drive conditions

Drive under conditions. If it is impossible, please inquire to EM Devices.

Non-latch type	Voltage: within $\pm 5\%$ of 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 $\pm 5\%$ of nominal voltage Pulse width: more than 10 ms	

■ Technical document

Please confirm technical document before use.

It is able to receive a document at EM Devices' World-wide-web site.

(<http://www.em-devices.com>)

ITEM	TITLE
Data sheet	UA2/UB2 series
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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UA2/UB2 Series

ORDERING PART NUMBERS

• UA2 series

Option		Nominal Coil Voltage (VDC)	Coil Type		
Terminal	Packing		Non-latch	Single Coil Latch	Non-latch Low Power Consumption
Standard	Tube	3	UA2-3NU	UA2-3SNU	UA2-3NE
		4.5	UA2-4.5NU	UA2-4.5SNU	UA2-4.5NE
		5	UA2-5NU	UA2-5SNU	UA2-5NE
		9	UA2-9NU	UA2-9SNU	-
		12	UA2-12NU	UA2-12SNU	-
		24	UA2-24NU	-	-
Trimmed lead		3	UA2-3NJ	UA2-3SNJ	-
		4.5	UA2-4.5NJ	UA2-4.5SNJ	-
		5	UA2-5NJ	UA2-5SNJ	-
		9	UA2-9NJ	UA2-9SNJ	-
		12	UA2-12NJ	UA2-12SNJ	-
		24	UA2-24NJ	-	-

• UB2 series

Option		Nominal Coil Voltage (VDC)	Coil Type		
Terminal	Packing		Non-latch	Single Coil Latch	Non-latch Low Power Consumption
Standard	Tube	3	UB2-3NU	UB2-3SNU	UB2-3NE
		4.5	UB2-4.5NU	UB2-4.5SNU	UB2-4.5NE
		5	UB2-5NU	UB2-5SNU	UB2-5NE
		9	UB2-9NU	UB2-9SNU	-
		12	UB2-12NU	UB2-12SNU	-
		24	UB2-24NU	-	-
	Taping	3	UB2-3NU-L	UB2-3SNU-L	UB2-3NE-L
		4.5	UB2-4.5NU-L	UB2-4.5SNU-L	UB2-4.5NE-L
		5	UB2-5NU-L	UB2-5SNU-L	UB2-5NE-L
		9	UB2-9NU-L	UB2-9SNU-L	-
		12	UB2-12NU-L	UB2-12SNU-L	-
		24	UB2-24NU-L	-	-
Minimum footprint	Tube	3	UB2-3NUN	UB2-3SNUN	UB2-3NEN
		4.5	UB2-4.5NUN	UB2-4.5SNUN	UB2-4.5NEN
		5	UB2-5NUN	UB2-5SNUN	UB2-5NEN
		9	UB2-9NUN	UB2-9SNUN	-
		12	UB2-12NUN	UB2-12SNUN	-
		24	UB2-24NUN	-	-
	Taping	3	UB2-3NUN-L	UB2-3SNUN-L	UB2-3NEN-L
		4.5	UB2-4.5NUN-L	UB2-4.5SNUN-L	UB2-4.5NEN-L
		5	UB2-5NUN-L	UB2-5SNUN-L	UB2-5NEN-L
		9	UB2-9NUN-L	UB2-9SNUN-L	-
		12	UB2-12NUN-L	UB2-12SNUN-L	-
		24	UB2-24NUN-L	-	-



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