



Datasheet of EE2-**NQX relay

ERCS 17-046-03
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Field Application Engineering Department
Global Sales Division
EM Devices Corporation

Datasheet of EE2-**NQX relay is attached.

Prepared	Checked	Approved
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DATA SHEET (Ver.3)

Relay part number: EE2-**NQX

GENERAL SPECIFICATIONS (Initial)

Items		EE2-**NQX	
Contact Form		2 Form C	
RoHS		Compliant* ¹	
Contact Material		Silver alloy with gold alloy overlay	
Contact Ratings	Max. Switching Power	60W, 125VA	
	Max. Switching Voltage	220Vdc, 250Vac	
	Max. Switching Current	2A	
	Max. Carrying Current	3.2A* ⁶	
Minimum Contact Ratings		10mVdc, 10 μ A* ²	
Initial Contact Resistance		Max. 75 m Ω (Initial)	
Operate Time (Excluding Bounce) Set Time (Excluding Bounce) Reset Time (Excluding Bounce)		Approx. 2ms	
Release Time (Excluding Bounce)		Approx. 1 ms without diode	
Insulation Resistance		1000 M Ω at 500Vdc	
Withstanding Voltage	Between Open Contacts	1000 Vac (for one minute)	
	Between Adjacent Contacts	1500 V surge (10x160 μ s* ³)	
	Between Coil to Contacts	[Non-latch, Single coil latch type] 1500 Vac (for one minute) 2500 V surge (2x10 μ s* ⁴)	
		[Double coil latch type] 1000 Vac (for one minute) 1500 V surge (10x160 μ s* ³)	
Shock Resistance	Misoperating	735 m/s ²	
	Destructive Failure	980 m/s ²	
Vibration Resistance	Misoperating	10 to 55 Hz at double amplitude 3mm	
	Destructive Failure	10 to 55 Hz at double amplitude 5mm	
Ambient Temperature		-40 to +85 °C	
Coil Temperature Rise		18° at nominal coil voltage (140mW)	
Running Specifications	Non Load		
	100 million* ⁵ Operations (Non-latch type) 10 million Operations (latch type)		
	Load	50Vdc, 0.1A, Resistive	1 million Operations at 85°C, 5Hz
		10Vdc, 10mA, Resistive	1 million Operations at 85°C, 2Hz
		30Vdc, 2A, Resistive	0.1 million Operations at 23°C,
30Vac, 3.5A(Inrush)-1.5A(Steady), Inductive		0.2 million Operations at 23°C,	
Weight		Approx. 1.9 Grams	
Dimensions, Pad layout, Pin configurations, etc.		Refer to attached figure	

*1) (EU) 2015/863 - Restriction of Hazardous Substance

*2) This value is a reference value in the resistance load. Minimum contact rating depends on switching frequency and environment temperature and the load.

*3) rise time: 10 μ s, decay time to half crest: 160 μ s*4) rise time: 2 μ s, decay time to half crest: 10 μ s

*5) 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 10 million times.

*6) Ambient temperature: 20°C / Coil voltage: nominal voltage

COIL SPECIFICATIONS**Non-latch Type**

at 20 °C

Nominal Coil Voltage (VDC)	Coil Resistance () \pm 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	2880	18.0	2.4	200

Single Coil Latch Type

at 20 °C

Nominal Coil Voltage (VDC)	Coil Resistance () \pm 10%	Set Voltage* (VDC)	Reset Voltage* (VDC)	Nominal Operating Power (mW)
1.5	22.5	1.125	1.125	100
2.4	57.6	1.8	1.8	100
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
24	5760	18.0	18.0	100

Double Coil Latch Type

at 20 °C

Nominal Coil Voltage (VDC)	Coil Resistance () \pm 10%	Set Voltage** (VDC)	Reset Voltage** (VDC)	Nominal Operating Power (mW)
2.4	S:41.1	1.8	-	140
	R:41.1	-	1.8	
3	S: 64.3	2.25	-	140
	R: 64.3	-	2.25	
4.5	S: 145	3.38	-	140
	R: 145	-	3.38	
5	S: 178	3.75	-	140
	R: 178	-	3.75	
9	S: 579	6.75	-	140
	R: 579	-	6.75	
12	S: 1028	9.0	-	140
	R: 1028	-	9.0	
24	S: 4114	18.0	-	140
	R: 4114	-	18.0	

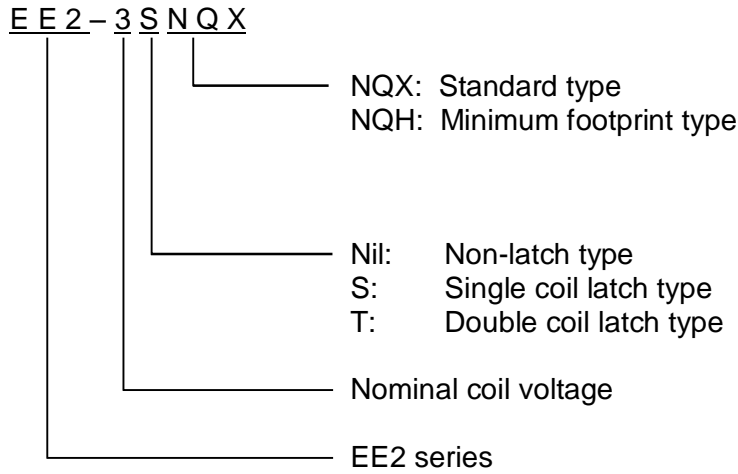
Note *Test by pulse voltage

** S: Set coil (pin No.1 ... (+), pin No.12 ... (-)) R: Reset coil (pin No.6... (+), pin No.7... (-))

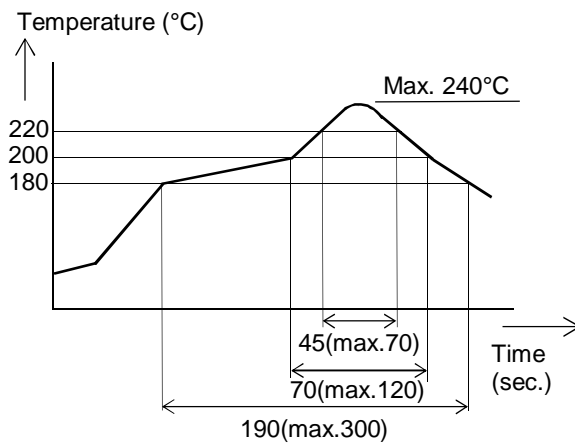
The latch type relays should be initialized at appointed position before using, and should be energized to specific polarity by above polarity to avoid wrong operation.



PART NUMBER SYSTEM



SOLDERING TEMPERATURE CONDITION



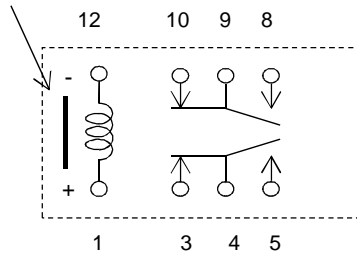
Note

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

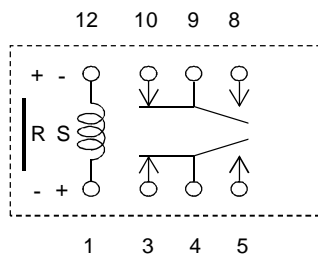


PIN CONFIGURATIONS (TOP VIEW)

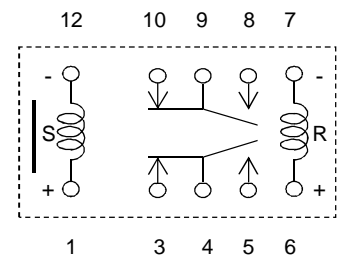
Direction mark



Non-latch type
(Not energized position)



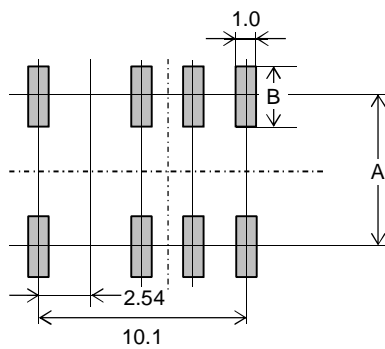
Single coil latch type
(Reset position)



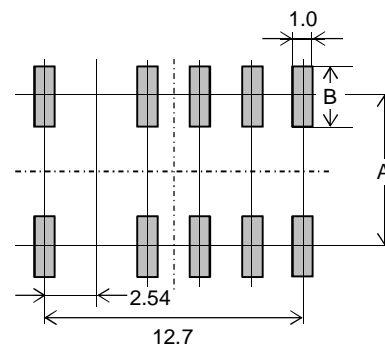
Double coil latch type
(Reset position)
Cannot be driven by reverse
polarity for reverse operation.

S: Coil polarity of set (operate)
R: Coil polarity of reset (release)

PAD LAYOUT Unit: mm



Non-latch type and Single coil latch type



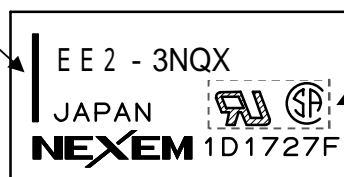
Double coil latch type

Type	A	B
EE2-...NQX	7.02	2.73
EE2-...NQH	6.29	2.0

Tolerance ± 0.1 mm unless otherwise specified

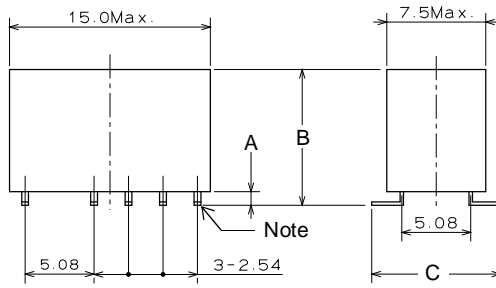
MARKING

Direction mark



Under study

DIMENSIONS Unit: mm



Type	A	B	C
EE2-...NQX	1.35	10.35 Max.	9.0
EE2-...NQH	1.0	10.0 Max.	7.5

Tolerance ± 0.2 mm unless otherwise specified

Note: this pair of pins at the right end applies double latch type only.