FUJITSU

MINIATURE RELAY

2 POLES - 1 to 2 A (For Signal Switching)

NA Series

■ FEATURES

- Slim type relay for high density mounting
- Conforms to Telcordia specification and FCC Part 68
  - Dielectric strength 1,500 VAC between coil and contacts
  - Surge strength 2,500 V between coil and contacts (at 2 × 10 s surge wave)
- UL, CSA recognized
- High sensitivity and low consumption power
- High reliability - bifurcated contacts
- DIL pitch terminals
- Plastic sealed type
- RoHS compliant.

Please see page 8 for more information

■ PARTNUMBER INFORMATION

	NA	L	-	D	12	W	-	K
[Example]	(a)	(b)	(*)	(c)	(d)	(e)		(f)

(a)	Relay type	NA	: NA Series
(b)	Coil type	Nil L	: Standard type : Latching type
(c)	Number of coil	Nil D	: Single winding type : Double winding type
(d)	Coil rated voltage	12	: 1.5....48VDC Coil rating table at page 3
(e)	Contact style	W	: Bifurcated type
(f)	Enclosure	K	: Plastic sealed

Note: Actual marking omits the hyphen (-) of (*).

■ SPECIFICATION

Item			Standard type	Single winding latching type	Double winding latching type
			NA - ( ) W - K	NAL - ( ) W - K	NAL-D ( ) W - K
Contact Data	Configuration		2 form C (DPDT)		
	Construction		Bifurcated		
	Material		Gold overlay silver alloy (AgPd)		
	Resistance (Initial)		Max. 50 mΩ at 1 A, 6 VDC		
	Contact rating (resistive)		0.5A, 125VAC or 1A, 30VDC		
	Max. carrying current		2A		
	Max. switching voltage		250VAC / 220VDC		
	Max. switching power		62.5 AV / 30W		
	Max. switching current		2A		
	Min. switching load *		0.01 mA, 10 mVDC		
	Capacitance		Approx. 0.5 pF (open contacts, adjacent contacts) Approx. 1.0 pF (between coil and contacts)		
Life	Mechanical		Min. 100 x 10^6 operations	Min. 10 x 10^6 operations	
	Electrical		Min. 200 x 10^3 operations (0.5A, 125VAC), Min. 500 x 10^3 operations (1A, 30VDC)		
Coil Data	Rated power		140 - 300 mW	100 - 150 mW	200 - 300 mW
	Operate power		80 - 70 mW	60 - 85 mW	115 - 170 mW
	Operating temperature range		-40 °C to +85 °C (no frost)		
Timing Data	Operate (at nominal voltage)		Max. 6 ms	Max. 6 ms (set)	
	Release (at nominal voltage)		Max. 4 ms	Max. 6 ms (reset)	
Insulation	Resistance (Initial)		Min. 1,000MOhm at 500VDC		
	Dielectric strength	Open contacts / adjacent contacts	1,000VAC (50/60Hz) 1min		
		Contacts to coil	1,500VAC (50/60Hz) 1min.		1,000VAC (50/60Hz) 1min
	Surge strength	Open contacts / adjacent contacts	1,500V / 10 x 700μs standard wave		
		Coil to contacts	2,500V / 2 x 10μs standard wave		1,500V / 10 x 160μs standard wave
Other	Vibration resistance	Misoperation	10 to 55Hz double amplitude 3.3mm		
		Endurance	10 to 55Hz double amplitude 5.0mm		
	Shock	Misoperation	500m/s² (11 ± 1ms)		
		Endurance	1,000m/s² (6 ± 1ms)		
	Weight		Approximately 1.5 g		

* Minimum switching loads mentioned above are reference values. Please perform the confirmation test with actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

■ COIL RATING

Standard type

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release-Voltage (VDC) *	Max. Coil Voltage (VDC)	Rated Power (mW)
1.5	1.5	16.1	+1.13	+0.15	3.6	140
3	3	64.3	+2.25	+0.3	7.2	
4.5	4.5	145	+3.38	+0.45	10.8	
5	5	178	+3.75	+0.5	12.0	
6	6	257	+4.5	+0.6	14.4	
9	9	579	+6.75	+0.9	21.6	
12	12	1,028	+9	+1.2	28.8	
18	18	1,620	+13.5	+1.8	36.0	200
24	24	2,880	+18	+2.4	48.0	
48	48	7,680	+36	+4.8	84.0	300

Single winding latching type

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Set Voltage (VDC) *	Reset Voltage (VDC) *	Rated Power (mW)
1.5	1.5	22.5	+1.13	-1.13	100
3	3	90	+2.25	-2.25	
4.5	4.5	203	+3.38	-3.38	
5	5	250	+3.75	-3.75	
6	6	360	+4.5	-4.5	
9	9	810	+6.75	-6.75	
12	12	1,440	+9	-9	
18	18	2,160	+13.5	-13.5	150
24	24	3,840	+18	-18	

Note: All values in the table are valid for 20°C and zero contact current.
* Specified operate values are valid for pulse wave voltage.

■ COIL RATING

Double winding latching type

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Set Voltage (VDC) *	Reset Voltage (VDC) *	Rated Power (mW)
1.5	1.5	P 11.25	+1.13		200
		S 11.25		+1.13	
3	3	P 45	+2.25		
		S 45		+2.25	
4.5	4.5	P 101	+3.38		
		S 101		+3.38	
5	5	P 125	+3.75		
		S 125		+3.75	
6	6	P 180	+4.5		
		S 180		+4.5	
9	9	P 405	+6.75		
		S 405		+6.75	
12	12	P 720	+9		
		S 720		+9	
18	18	P 1,080	+13.5		300
		S 1,080		+13.5	
24	24	P 1,920	+18		
		S 1,920		+18	

Note: All values in the table are measured at 20°C and zero contact current. P: Primary coil S: Secondary coil
* Specified values are measured with pulse wave voltage

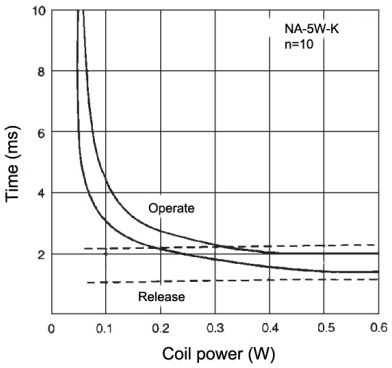
■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508, UL 1950 E 45026	Flammability: UL 94-V0 (plastics) 0.5A, 125VAC (general use) 2A, 30VDC (resistive) 0.3A, 110VDC (resistive)
CSA	C22.2 No. 14, No. 950 LR 35579	

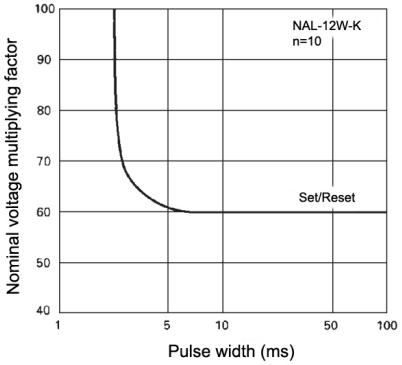
Complies to IEC60950-1; FCC part 68: Telcordia
(Relay is only marked with UL and CSA logo)

■ CHARACTERISTIC DATA

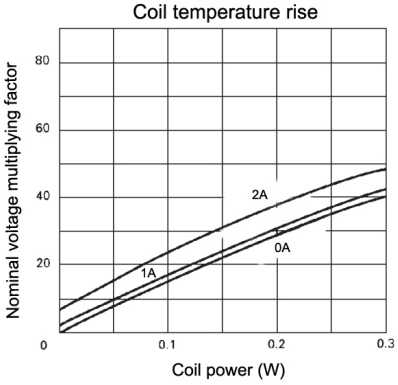
Timing



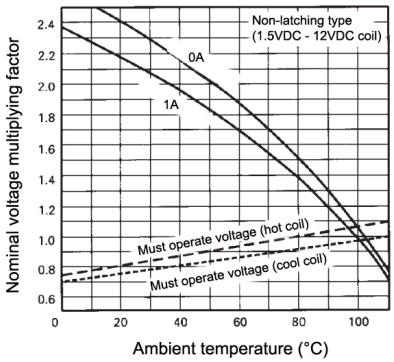
Pulse Characteristics (Latching type)



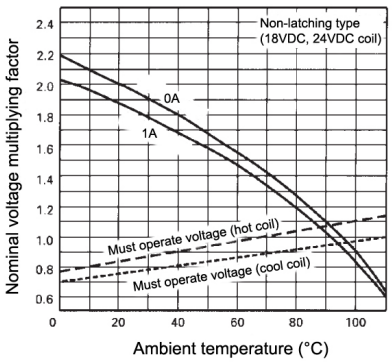
Coil temperature rise



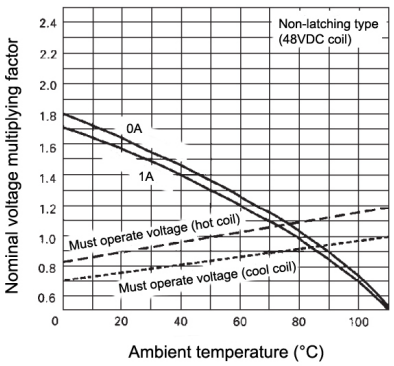
Operating range



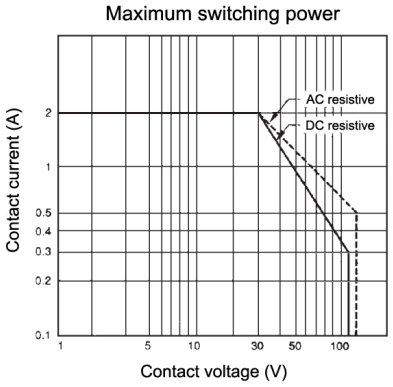
Operating range



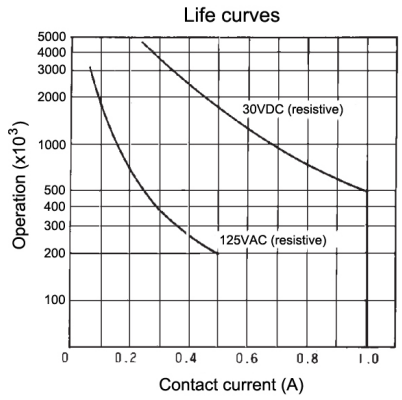
Operating range



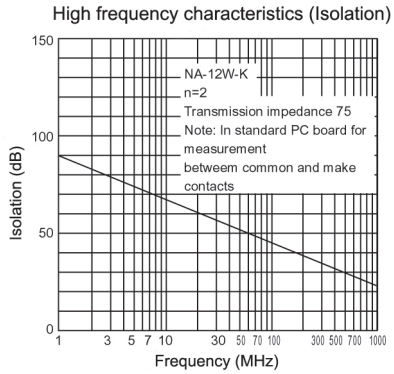
Maximum switching power



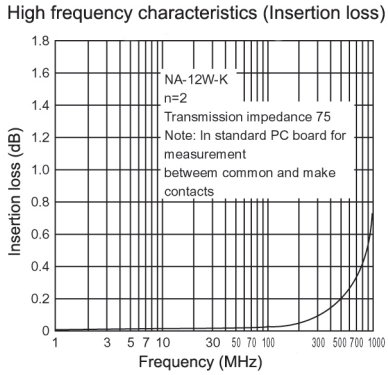
Life curves



High frequency characteristics (Isolation)

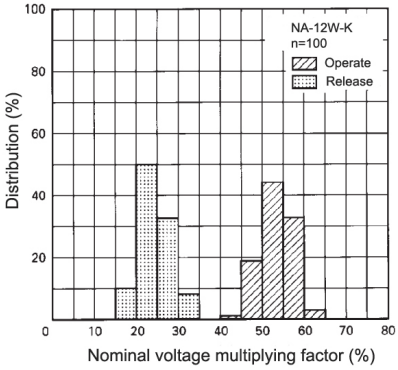


High frequency characteristics (Insertion loss)

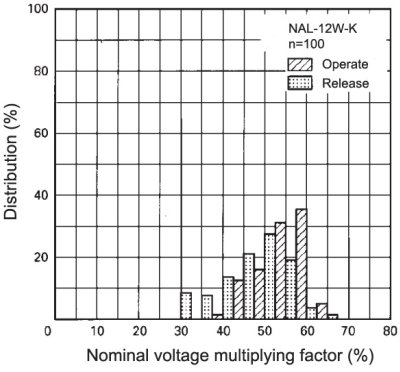


■ REFERENCE DATA

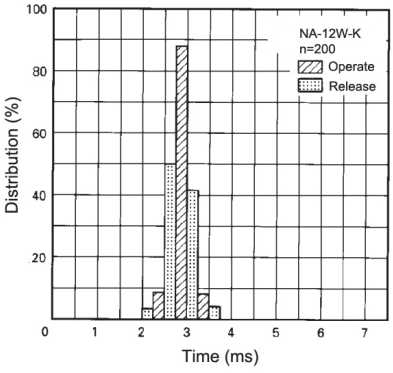
Distribution of operate & release voltage



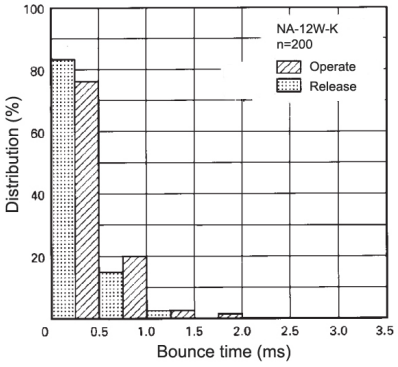
Distribution of set & reset voltage



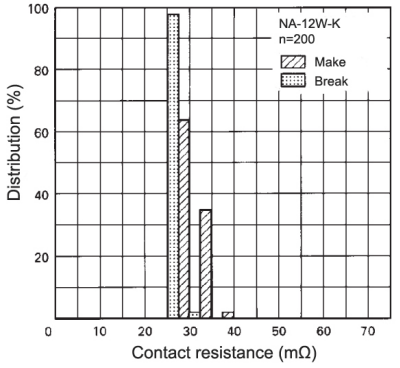
Distribution of operate & release time



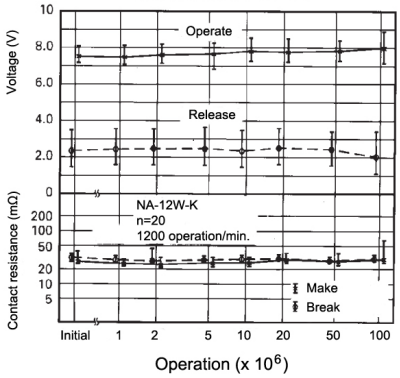
Distribution of bounce time



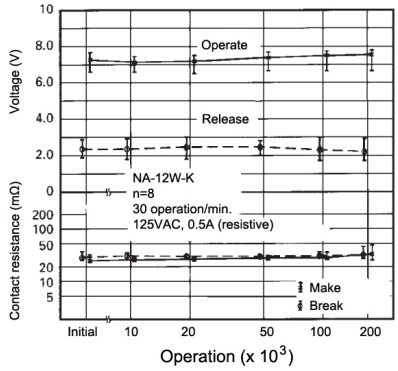
Distribution of contact resistance



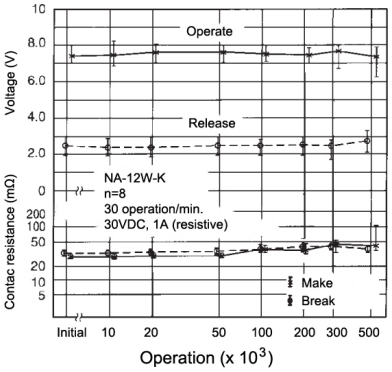
Mechanical life test



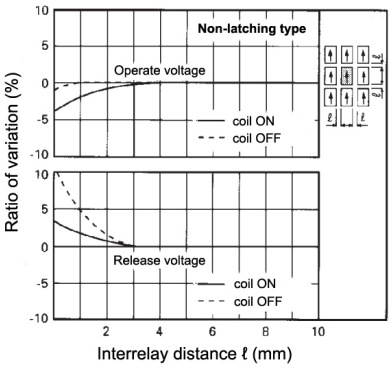
Electrical life test



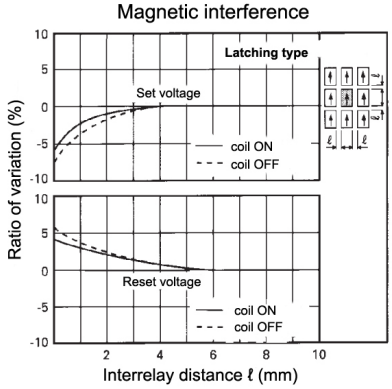
Electrical life test



Magnetic interference



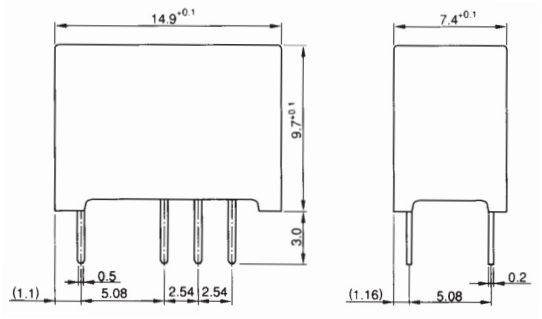
Magnetic interference



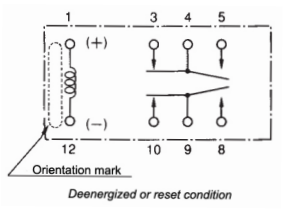
■ DIMENSIONS

- **Dimensions**

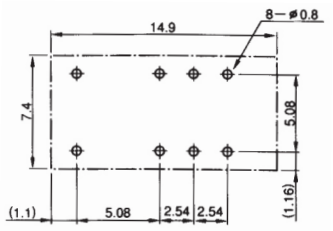
NA, NAL (Standard type, Single winding latching type)



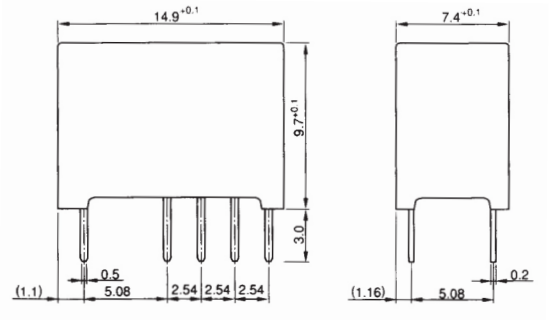
- Schematics (BOTTOM VIEW)

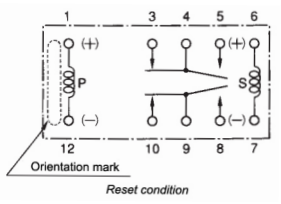


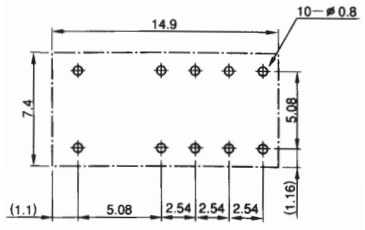
- **PC board mounting hole layout** (BOTTOM VIEW)



NAL-D (Double winding latching type)







Unit: mm

RoHS Compliance and Lead Free Information

1. General Information

- All signal and power relays produced by Fujitsu Components are compliant with RoHS directive 2002/95EC including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives on October 21st, 2005. (Amendment to Directive 2002/95/EC)
- All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf
- Lead free solder plating on relay terminals is Sn-3.0Ag-0.5Cu, unless otherwise specified. This material has been verified to be compatible with PbSn assembly process.

2. Recommended Lead Free Solder Profile

- Recommended solder Sn-3.0Ag-0.5Cu.

Flow Solder condition:

Pre-heating:	maximum 120˚C
Soldering:	dip within 5 sec. at 260˚C solder bath

Solder by Soldering Iron:

Soldering Iron Temperature:	maximum 360˚C
Duration:	maximum 3 sec.

We highly recommend that you confirm your actual solder conditions

3. Moisture Sensitivity

- Moisture Sensitivity Level standard is not applicable to electromechanical relays, unless otherwise indicated.

4. Tin Whiskers

- Dipped SnAgCu solder is known as presenting a low risk to tin whisker development. No considerable length whisker was found by our in house test.

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LifeElectronics
Живое партнерство

ООО «ЛайфЭлектроникс» **“LifeElectronics” LLC**

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

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- *Специальные условия для постоянных клиентов.*
- *Подбор аналогов.*
- *Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.*

- *Приемлемые сроки поставки, возможна ускоренная поставка.*
- *Доставку товара в любую точку России и стран СНГ.*
- *Комплексную поставку.*
- *Работу по проектам и поставку образцов.*
- *Формирование склада под заказчика.*

- *Сертификаты соответствия на поставляемую продукцию (по желанию клиента).*
- *Тестирование поставляемой продукции.*
- *Поставку компонентов, требующих военную и космическую приемку.*
- *Входной контроль качества.*
- *Наличие сертификата ISO.*

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- *Регистрацию проекта у производителя компонентов.*
- *Техническую поддержку проекта.*
- *Защиту от снятия компонента с производства.*
- *Оценку стоимости проекта по компонентам.*
- *Изготовление тестовой платы монтаж и пусконаладочные работы.*

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