



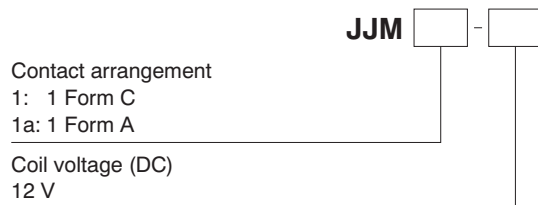
FEATURES

- **Compact size**
- **Perfect for automobile electrical systems**
Over 2×10^5 openings possible with a 14 V DC motor load, an inrush current of 25 A, and steady state current of 5 A. (N.O. side)
- **Standard terminal pitch employed**
The terminal array used is identical to that used in small automotive relays.
- **Plastic sealed type.**
Plastically sealed for automatic cleaning.
- **Line-up of 1 Form A and 1 Form C**

TYPICAL APPLICATIONS

- Power windows
- Auto door lock
- Electrically powered sun roof
- Electrically powered mirror
- Cornering lamp, etc.

ORDERING INFORMATION



TYPES

| Contact arrangement | Coil voltage | Part No. |
|---------------------|--------------|-----------|
| 1 Form A | 12 V DC | JJM1a-12V |
| 1 Form C | 12 V DC | JJM1-12V |

Standard packing; Carton (tube): 50 pcs.; Case: 1,000 pcs.

RATING

1. Coil data

| Nominal coil voltage | Pick-up voltage (at 20°C 68°F) | Drop-out voltage (at 20°C 68°F) | Nominal operating current [$\pm 10\%$] (at 20°C 68°F) | Coil resistance [$\pm 10\%$] (at 20°C 68°F) | Nominal operating power (at 20°C 68°F) | Usable voltage range |
|----------------------|--------------------------------|---------------------------------|---|---|--|----------------------|
| 12V DC | Max. 7.2 V DC (Initial) | Min. 1.0 V DC (Initial) | 53.3 mA | 225Ω | 640 mW | 10 to 16V DC |

Note: Other pick-up voltage types are also available. Please contact us for details.

2. Specifications

| Characteristics | Item | | Specifications | |
|----------------------------|---|---------------------------|---|---|
| | | | 1 Form A | 1 Form C |
| Contact | Arrangement | | 1 Form A | |
| | Contact resistance (Initial) | | Typ 5mΩ (By voltage drop 6V DC 1A) | |
| | Contact material | | Ag alloy (Cadmium free) | |
| Rating | Nominal switching capacity (resistive load) | | 20 A 14V DC | N.O.: 20 A 14V DC N.C.: 10 A 14V DC |
| | Max. carrying current (12V DC)*3 | | N.O.: 35 A (at 20°C 68°F for 2 minutes), 25 A (at 20°C 68°F for 1 hour), 30 A (at 85°C 185°F for 2 minutes), 20 A (at 85°C 185°F for 1 hour) | |
| | Nominal operating power | | 640 mW | |
| | Min. switching capacity (resistive load)*1 | | 1 A 12V DC | |
| Electrical characteristics | Insulation resistance (Initial) | | Min. 100 MΩ (at 500V DC, Measurement at same location as "Break down voltage" section) | |
| | Breakdown voltage (Initial) | Between open contacts | 500 Vrms for 1 min. (Detection current: 10mA) | |
| | | Between contacts and coil | 500 Vrms for 1 min. (Detection current: 10mA) | |
| | Operate time (at nominal voltage) | | Max. 10ms (at 20°C 68°F, excluding contact bounce time) (Initial) | |
| | Release time (at nominal voltage) | | Max. 10ms (at 20°C 68°F, excluding contact bounce time) (Initial) | |
| Mechanical characteristics | Shock resistance | Functional | Min. 100 m/s ² {10G} (Half-wave pulse of sine wave: 11ms; detection time: 10μs) | |
| | | Destructive | Min. 1,000 m/s ² {100G} (Half-wave pulse of sine wave: 6ms) | |
| | Vibration resistance | Functional | 10 Hz to 100 Hz, Min. 44.1 m/s ² {4.5G} (Detection time: 10μs) | |
| | | Destructive | 10 Hz to 500 Hz, Min. 44.1 m/s ² {4.5G}, Time of vibration for each direction; X, Y direction: 2 hours, Z direction: 4 hours | |
| Expected life | Mechanical | | Min. 10 ⁷ (at 120 cpm) | |
| | Electrical | | <Resistive load> Min. 10 ⁵ (at nominal switching capacity) (operating frequency: 1s ON, 9s OFF) <Motor load> Min. 2 × 10 ⁵ (at Inrush 25A, Steady 5A 14 V DC) Min. 5 × 10 ⁴ (at 20A 14 V DC motor lock) (operating frequency: 0.5s ON, 9.5s OFF) | <Resistive load> N.O.: Min. 10 ⁵ (at nominal switching capacity) N.C.: Min. 10 ⁵ (at nominal switching capacity) (operating frequency: 1s ON, 9s OFF) <Motor load> N.O.: Min. 2 × 10 ⁵ (at Inrush 25A, Steady 5A 14 V DC), Min. 5 × 10 ⁴ (at 20A 14 V DC motor lock) N.C.: Min. 2 × 10 ⁵ (at 20A 14 V DC brake correct) (operating frequency: 0.5s ON, 9.5s OFF) |
| Conditions | Conditions for operation, transport and storage*2 | | Ambient temperature: -40°C to +85°C -40°F to +185°F, Humidity: 5% R.H. to 85% R.H. (Not freezing and condensing at low temperature) | |
| | Max. operating speed | | 6 cpm (at nominal switching capacity) | |
| Mass | | | Approx. 5g .176 oz | |

Notes:

*1. This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

*2. The upper operation ambient temperature limit is the maximum temperature that can satisfy the coil temperature rise value. Refer to "6. Usage, Storage and Transport Conditions" in [AMBIENT ENVIRONMENT section in Relay Technical Information](#).

Please inquire if you will be using the relay in a high temperature atmosphere (110°C 230°F).

*3. Depends on connection conditions. Also, this does not guarantee repeated switching. We recommend that you confirm operation under actual conditions.

REFERENCE DATA

1. Coil temperature rise

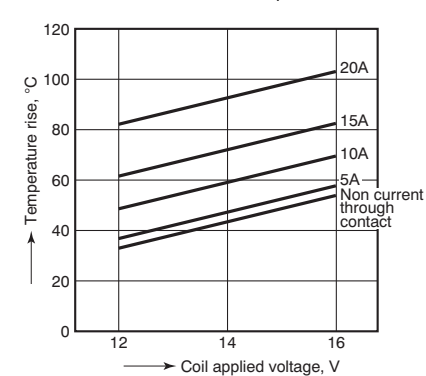
Sample: JJM1-12V, 6pcs

Point measured: Inside the coil

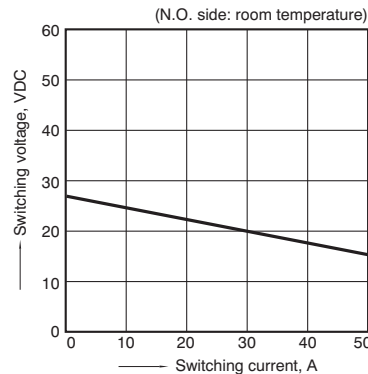
Contact current: Non current through

contact, 5A, 10A, 15A, 20A

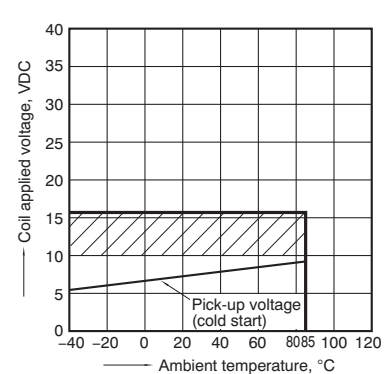
Resistance method, ambient temperature 85°C 185°F



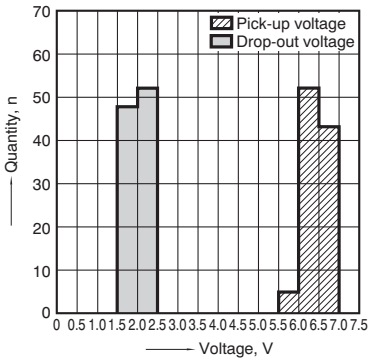
2. Max. switching capability (Resistive load, initial)



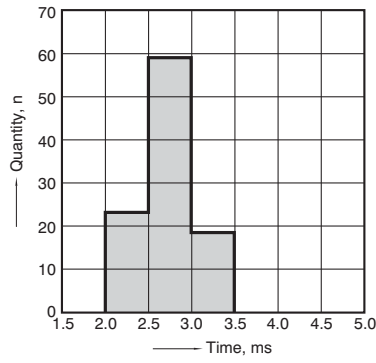
3. Ambient temperature and operating voltage range



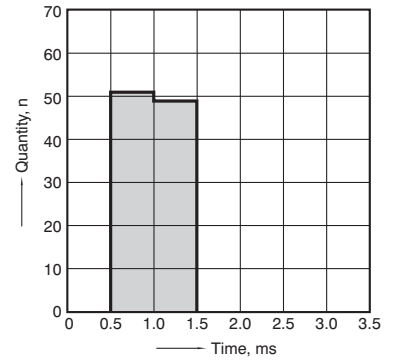
4. Distribution of pick-up and drop-out voltage
Sample: JJM1-12V, 100pcs



5. Distribution of operate time
Sample: JJM1-12V, 100pcs

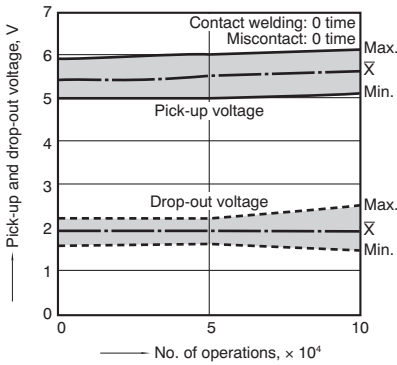


6. Distribution of release time
Sample: JJM1-12V, 100pcs
* Without diode



7-(1). Electrical life test (at resistive load)

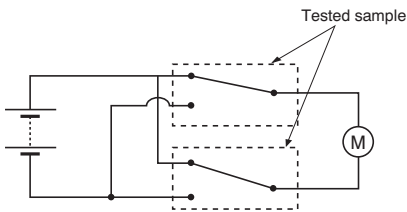
Sample: JJM1-12V
Quantity: n = 6 (NC = 3, NO = 3)
Load: Resistive load (NC side: 10A 14 V DC, NO side: 20 A 14 V DC); Operating frequency: ON 1s, OFF 9s
Ambient temperature: Room temperature



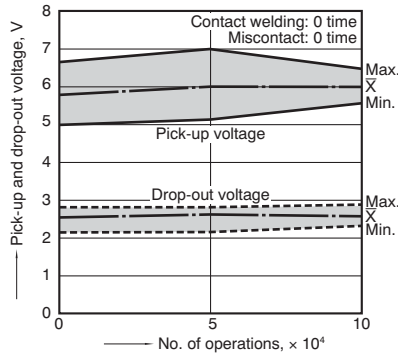
7-(2). Electrical life test (Motor free)

Sample: JJM1-12V, 6pcs.
Load: Inrush 25A, Steady 5A, Brake current 18A 14V DC, Power window motor load (Free condition).
Operating frequency: ON 0.5s, OFF 9.5s
Ambient temperature: Room temperature

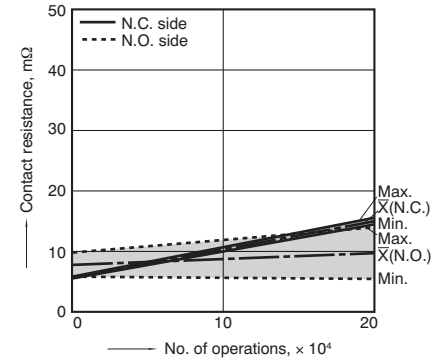
Circuit :



Change of pick-up and drop-out voltage



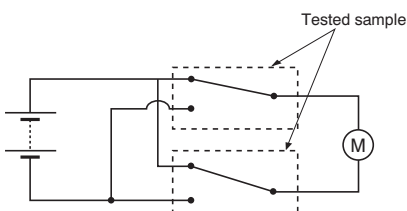
Change of contact resistance



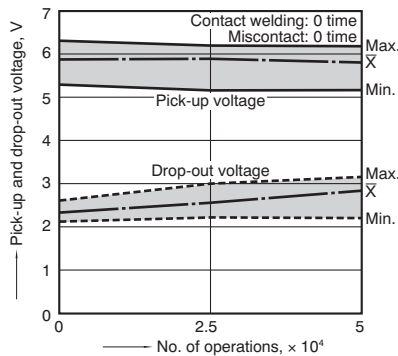
7-(3). Electrical life test (Motor lock)

Sample: JJM1-12V, 6pcs.
Load: 20A, 14VDC, Power window motor actual load (lock condition).
Operating frequency: ON 1s, OFF 5s
Ambient temperature: Room temperature

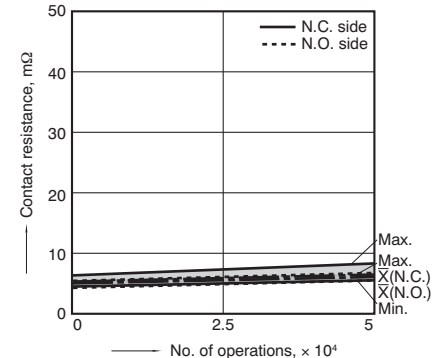
Circuit :



Change of pick-up and drop-out voltage



Change of contact resistance



7-(4). Electrical life test (Lamp load)

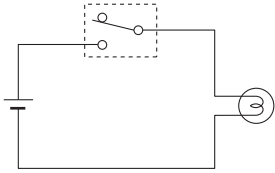
Sample: JJM1-12V, 6pcs.

Load: 27W+21W, steady min. 4A, Lamp actual load

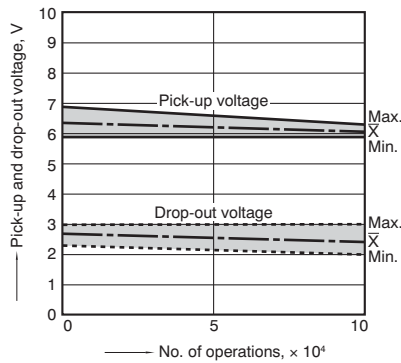
Operating frequency: ON 2s, OFF 13s

Ambient temperature: Room temperature

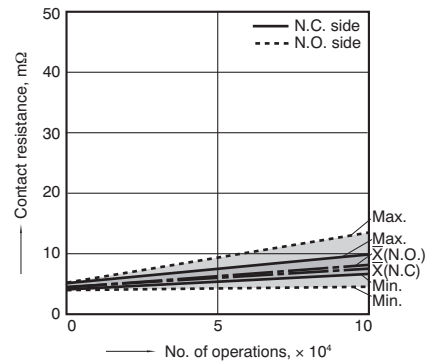
Circuit :



Change of pick-up and drop-out voltage

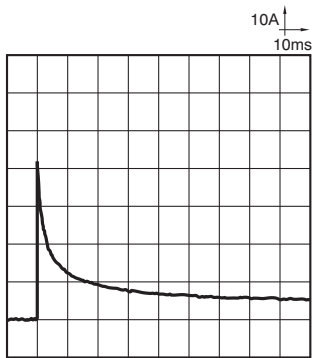


Change of contact resistance



Load current waveform

Inrush current: 42A, Steady current: 4.4A



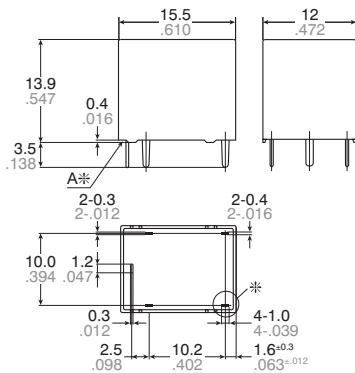
DIMENSIONS (mm inch)

Download [CAD Data](#) from our Web site.

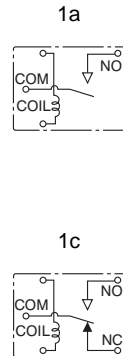
[CAD Data](#)



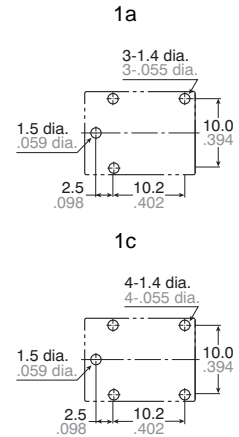
External dimensions



Schematic (Bottom view)



PC board pattern (Bottom view)



* Dimensions (thickness and width) of terminal is measured before pre-soldering.
Intervals between terminals is measured at A surface level.

| Dimension: | General tolerance |
|-----------------------------|-------------------|
| Max. 1mm .039 inch: | ±0.1 ±.004 |
| 1 to 3mm .039 to .118 inch: | ±0.2 ±.008 |
| Min. 3mm .118 inch: | ±0.3 ±.012 |

Tolerance: ±0.1 ±.004

Note: * Marked terminal is only for 1 Form C type

For Cautions for Use, see [Relay Technical Information](#).

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А