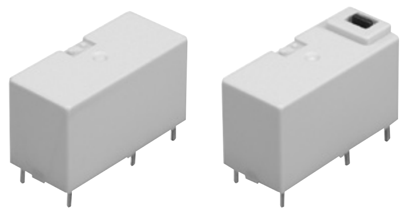
1-pole/2-pole 16A polarized power relays

DJ RELAYS(ADJ)



Without a test button　With a test button

Protective construction: Flux-resistant type/Sealed type

FEATURES

1. **Variety of contact arrangements**
   Wide lineup of 1 Form C, 1 Form A, 1 Form B, 2 Form C, 2 Form A, 2 Form B, 1 Form A 1 Form B.
2. **Latching operation**
   Latching via a polarized magnetic circuit structure allows remote operation and lower energy consumption
3. **Compact with high capacity**
   16A (1-pole type) contact rating in a compact size
   29×13×16.5 mm (L×W×H).
4. **Low power consumption**
   1 coil latching: 150mW
   2 coil latching, single side stable: 250mW
5. **Long insulation distance**
   Both clearance and creepage distance between coil and contact are at 8 mm min.
6. **With operation verification function**
   A test button (manual lever) type to facilitate circuit checks is also available (1 Form C, 1 Form A, 1 Form B types only)

TYPICAL APPLICATIONS

1. **FA equipment (brake circuits of industrial machine and robots, etc.)**
2. **Electric power devices (remote surveillance devices, etc.)**
3. **Household appliance networks (Motor control and lighting control, etc.)**
4. **Time switches**

ORDERING INFORMATION

ADJ □ □ □ □□

Contact arrangement
1: 1 Form C
2: 1 Form A
3: 1 Form B
4: 1 Form A 1 Form B
5: 2 Form C
6: 2 Form A
7: 2 Form B

Operating function and protective construction
1: 1 coil latching, Flux-resistant type
2: 1 coil latching, Sealed type
3: 2 coil latching, Flux-resistant type
4: 2 coil latching, Sealed type
5: Single side stable, Flux-resistant type
6: Single side stable, Sealed type

Auxiliary function
0: Without a test button
1: With a test button

Nominal coil voltage (DC)
05: 5 V, 06: 6 V, 12: 12 V, 24: 24 V, 48: 48 V

TYPES

1. Without a test button

1) Flux-resistant type

Contact arrangement	Nominal coil voltage	Part No.		
		Single side stable type	1 coil latching type	2 coil latching type
1 Form C	5V DC	ADJ15005	ADJ11005	ADJ13005
	6V DC	ADJ15006	ADJ11006	ADJ13006
	12V DC	ADJ15012	ADJ11012	ADJ13012
	24V DC	ADJ15024	ADJ11024	ADJ13024
	48V DC	ADJ15048	ADJ11048	ADJ13048
1 Form A	5V DC	ADJ25005	ADJ21005	ADJ23005
	6V DC	ADJ25006	ADJ21006	ADJ23006
	12V DC	ADJ25012	ADJ21012	ADJ23012
	24V DC	ADJ25024	ADJ21024	ADJ23024
	48V DC	ADJ25048	ADJ21048	ADJ23048
1 Form B	5V DC	ADJ35005	Please use 1 Form A.	Please use 1 Form A.
	6V DC	ADJ35006		
	12V DC	ADJ35012		
	24V DC	ADJ35024		
	48V DC	ADJ35048		
1 Form A 1 Form B	5V DC	ADJ45005	ADJ41005	ADJ43005
	6V DC	ADJ45006	ADJ41006	ADJ43006
	12V DC	ADJ45012	ADJ41012	ADJ43012
	24V DC	ADJ45024	ADJ41024	ADJ43024
	48V DC	ADJ45048	ADJ41048	ADJ43048
2 Form C	5V DC	ADJ55005	ADJ51005	ADJ53005
	6V DC	ADJ55006	ADJ51006	ADJ53006
	12V DC	ADJ55012	ADJ51012	ADJ53012
	24V DC	ADJ55024	ADJ51024	ADJ53024
	48V DC	ADJ55048	ADJ51048	ADJ53048
2 Form A	5V DC	ADJ65005	ADJ61005	ADJ63005
	6V DC	ADJ65006	ADJ61006	ADJ63006
	12V DC	ADJ65012	ADJ61012	ADJ63012
	24V DC	ADJ65024	ADJ61024	ADJ63024
	48V DC	ADJ65048	ADJ61048	ADJ63048
2 Form B	5V DC	ADJ75005	Please use 2 Form A.	Please use 2 Form A.
	6V DC	ADJ75006		
	12V DC	ADJ75012		
	24V DC	ADJ75024		
	48V DC	ADJ75048		

Standard packing: Carton: 100 pcs.; Case: 500 pcs.

2) Sealed type

Contact arrangement	Nominal coil voltage	Part No.		
		Single side stable type	1 coil latching type	2 coil latching type
1 Form C	5V DC	ADJ16005	ADJ12005	ADJ14005
	6V DC	ADJ16006	ADJ12006	ADJ14006
	12V DC	ADJ16012	ADJ12012	ADJ14012
	24V DC	ADJ16024	ADJ12024	ADJ14024
	48V DC	ADJ16048	ADJ12048	ADJ14048
1 Form A	5V DC	ADJ26005	ADJ22005	ADJ24005
	6V DC	ADJ26006	ADJ22006	ADJ24006
	12V DC	ADJ26012	ADJ22012	ADJ24012
	24V DC	ADJ26024	ADJ22024	ADJ24024
	48V DC	ADJ26048	ADJ22048	ADJ24048
1 Form B	5V DC	ADJ36005	Please use 1 Form A.	Please use 1 Form A.
	6V DC	ADJ36006		
	12V DC	ADJ36012		
	24V DC	ADJ36024		
	48V DC	ADJ36048		
1 Form A 1 Form B	5V DC	ADJ46005	ADJ42005	ADJ44005
	6V DC	ADJ46006	ADJ42006	ADJ44006
	12V DC	ADJ46012	ADJ42012	ADJ44012
	24V DC	ADJ46024	ADJ42024	ADJ44024
	48V DC	ADJ46048	ADJ42048	ADJ44048
2 Form C	5V DC	ADJ56005	ADJ52005	ADJ54005
	6V DC	ADJ56006	ADJ52006	ADJ54006
	12V DC	ADJ56012	ADJ52012	ADJ54012
	24V DC	ADJ56024	ADJ52024	ADJ54024
	48V DC	ADJ56048	ADJ52048	ADJ54048
2 Form A	5V DC	ADJ66005	ADJ62005	ADJ64005
	6V DC	ADJ66006	ADJ62006	ADJ64006
	12V DC	ADJ66012	ADJ62012	ADJ64012
	24V DC	ADJ66024	ADJ62024	ADJ64024
	48V DC	ADJ66048	ADJ62048	ADJ64048
2 Form B	5V DC	ADJ76005	Please use 2 Form A.	Please use 2 Form A.
	6V DC	ADJ76006		
	12V DC	ADJ76012		
	24V DC	ADJ76024		
	48V DC	ADJ76048		

Standard packing: Carton: 100 pcs.; Case: 500 pcs.

2. With a test button

Flux-resistant type

Contact arrangement	Nominal coil voltage	Part No.		
		Single side stable type	1 coil latching type	2 coil latching type
1 Form C	5V DC	ADJ15105	ADJ11105	ADJ13105
	6V DC	ADJ15106	ADJ11106	ADJ13106
	12V DC	ADJ15112	ADJ11112	ADJ13112
	24V DC	ADJ15124	ADJ11124	ADJ13124
	48V DC	ADJ15148	ADJ11148	ADJ13148
1 Form A	5V DC	ADJ25105	ADJ21105	ADJ23105
	6V DC	ADJ25106	ADJ21106	ADJ23106
	12V DC	ADJ25112	ADJ21112	ADJ23112
	24V DC	ADJ25124	ADJ21124	ADJ23124
	48V DC	ADJ25148	ADJ21148	ADJ23148
1 Form B	5V DC	ADJ35105	Please use 1 Form A.	Please use 1 Form A.
	6V DC	ADJ35106		
	12V DC	ADJ35112		
	24V DC	ADJ35124		
	48V DC	ADJ35148		

Standard packing: Carton: 100 pcs.; Case: 500 pcs.

RATING

1.Coil data

- Operating characteristics such as ‘Operate voltage’ and ‘Release voltage’ are influenced by mounting conditions, ambient temperature, etc.
  Therefore, please use the relay within ± 5% of rated coil voltage.
- ‘Initial’ means the condition of products at the time of delivery.

1) Single side stable

Nominal coil voltage	Pick-up voltage (at 20°C 68°F)	Drop-out voltage (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Nominal operating power	Max. applied voltage (at 20°C 68°F)
5V DC	75%V or less of nominal voltage (Initial)	10%V or more of nominal voltage (Initial)	100Ω	250mW	130%V of nominal voltage
6V DC			144Ω		
12V DC			576Ω		
24V DC			2,304Ω		
48V DC			9,216Ω		

2) 1 coil latching

Nominal coil voltage	Set voltage (at 20°C 68°F)	Reset voltage (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Nominal operating power	Max. applied voltage (at 20°C 68°F)
5V DC	70%V or less of nominal voltage (Initial)	70%V or less of nominal voltage (Initial)	167Ω	150mW	130%V of nominal voltage
6V DC			240Ω		
12V DC			960Ω		
24V DC			3,840Ω		
48V DC			15,360Ω		

3) 2 coil latching

Nominal coil voltage	Set voltage (at 20°C 68°F)	Reset voltage (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Nominal operating power	Max. applied voltage (at 20°C 68°F)
5V DC	70%V or less of nominal voltage (Initial)	70%V or less of nominal voltage (Initial)	100Ω	250mW	130%V of nominal voltage
6V DC			144Ω		
12V DC			576Ω		
24V DC			2,304Ω		
48V DC			9,216Ω		

2. Specifications

Characteristics	Item		Specifications
Contact	Arrangement		1 Form C, 1 Form A, 1 Form B, 1 Form A 1 Form B, 2 Form C, 2 Form A, 2 Form B
	Contact resistance (Initial)		Max. 100 mΩ (By voltage drop 6 V DC 1A)
	Contact material		$AgSnO_2$ type (1 Form C, 1 Form A, 1 Form B), Au-flashed $AgSnO_2$ type (1 Form A 1 Form B, 2 Form C, 2 Form A, 2 Form B)
Rating	Nominal switching capacity (resistive load)		16 A 250V AC (1 Form C, 1 Form A, 1 Form B), 10 A 250V AC (2 Form C, 2 Form A, 2 Form B, 1 Form A 1 Form B)
	Max. switching power (resistive load)		4,000 V A (1 Form C, 1 Form A, 1 Form B), 2,500 V A (2 Form C, 2 Form A, 2 Form B, 1 Form A 1 Form B)
	Max. switching voltage		250V AC
	Max. switching current		16 A (1 Form C, 1 Form A, 1 Form B), 10 A (1 Form A 1 Form B, 2 Form C, 2 Form A, 2 Form B)
	Min. switching capacity (Reference value)*1		100mA 5 V DC
Electrical characteristics	Insulation resistance (Initial)		Min. 1,000MΩ (at 500V DC) Measurement at same location as “Breakdown voltage” section.
	Breakdown voltage (Initial)	Between open contacts	1,000 Vrms for 1min. (Detection current: 10mA)
		Between contact and coil	4,000 Vrms for 1min. (Detection current: 10mA)
		Between contact sets	2,000 Vrms for 1min. (Detection current: 10mA) (Only 2 Form C, 2 Form A, 2 Form B, 1 Form A 1 Form B)
	Surge breakdown voltage*2 (Initial)	Between contact and coil	Min. 10,000 V
	Operate time [Set time] (at 20°C 68°F) (Initial)		Max. 20 ms [20 ms] (Nominal voltage applied to the coil, excluding contact bounce time.)
	Release time [Reset time] (at 20°C 68°F) (Initial)		Max. 20 ms [20 ms] (Nominal voltage applied to the coil, excluding contact bounce time, without diode.)
Mechanical characteristics	Shock resistance	Functional	Min. 200 m/s^2 (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)
		Destructive	Min. 1,000 m/s^2 (Half-wave pulse of sine wave: 6 ms.)
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 2 mm (Detection time: 10μs.)
		Destructive	10 to 55 Hz at double amplitude of 3 mm
Expected life	Mechanical		Min. 5×10^6 (at 180 times/min.)
Conditions	Conditions for operation, transport and storage*4		Ambient temperature: –40°C to +70°C –40°F to +158°F Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)
Unit weight			Approx. 14 g .49 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. Wave is standard shock voltage of ±1.2×50μs according to JEC-212-1981
*3. In order to obtain the full rated life cycles, the relay should be properly vented by removing the vent nib. More detail, please look at caution for NOTES.
*4. The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to Usage, transport and storage conditions in NOTES.

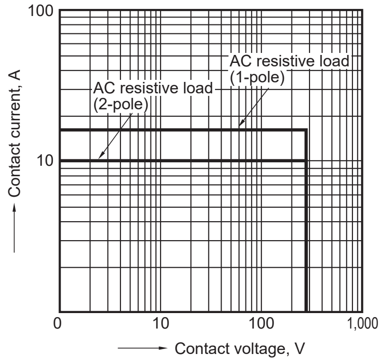
3. Electrical life

Condition: Resistive load, at 20 times/min.

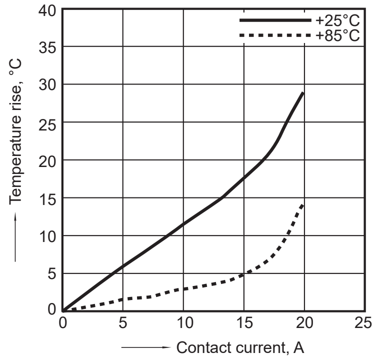
Type	Switching capacity	No. of operations
1 Form A, 1 Form B, 1 Form C	16A 250V AC	min. 1×10^5
2 Form A, 2 Form B, 2 Form C, 1 Form A 1 Form B	10A 250V AC	min. 1×10^5

REFERENCE DATA

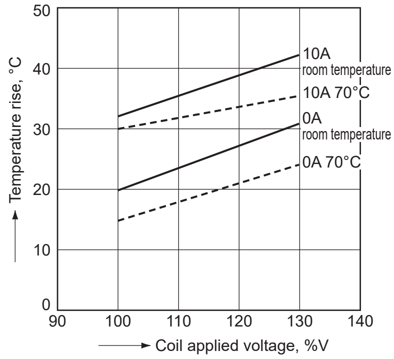
1. Max. switching capacity



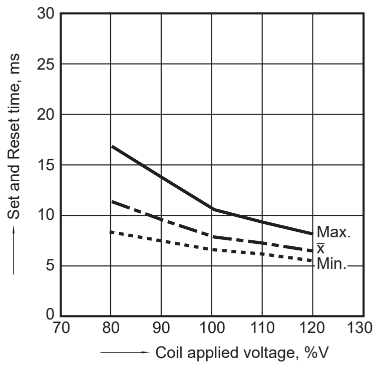
2. Temperature rise
Tested sample: ADJ12024, 6 pcs.
Coil applied voltage: 0%V, Contact current: 16 A, 20 A
Measured portion: Contact, Ambient temperature: 25°C 77°F, 85°C 185°F



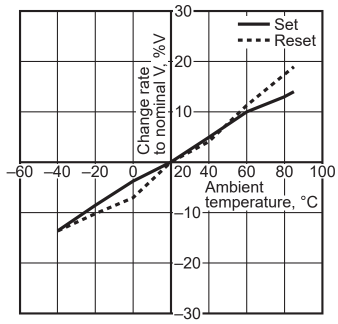
3. Coil temperature rise
Tested sample: ADJ56024, 6 pcs.
Coil applied voltage: 100%V, 130%V of rating
Contact current: 0 A, 10 A
Measured portion: Inside the coil, Ambient temperature: Room temperature, 70°C 158°F



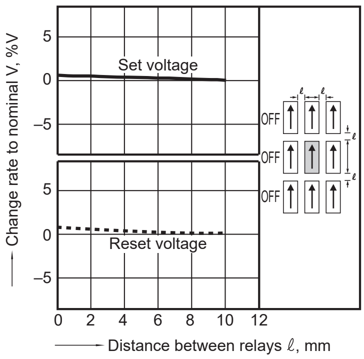
4. Set and Reset time
Tested sample: ADJ12024, 10 pcs
Coil applied voltage: 80%V, 100%V, 120%V of rating



5. Ambient temperature characteristics
Tested sample: ADJ12024, 6pcs
Ambient temperature: –40°C to 85°C –40°F to 185 °F



6. Influence of adjacent mounting
Tested sample: ADJ12024, 6pcs
Ambient temperature: Room temperature



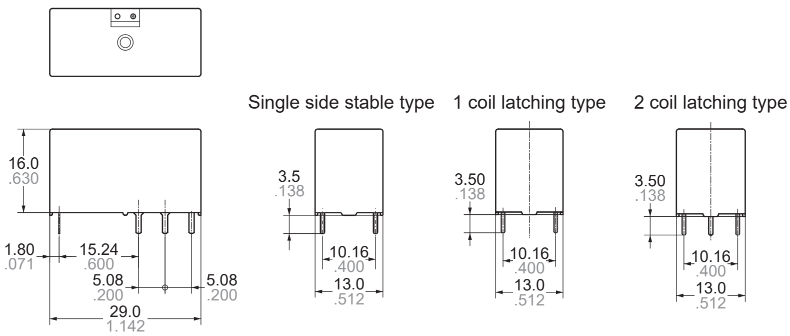
DIMENSIONS (mm inch)

CAD The CAD data of the products with a “CAD” mark can be downloaded from our Website.

1. 1 Form C, without a test button

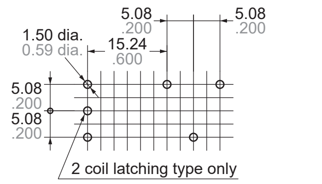
CAD

External dimensions



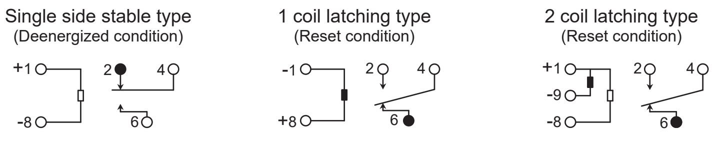
General tolerance: ±0.3 ±.012

PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

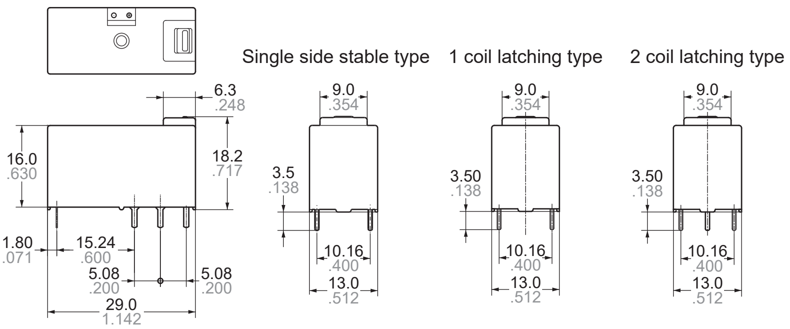
Schematic (Bottom view)



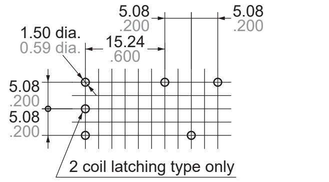
2. 1 Form C, with a test button

CAD

External dimensions



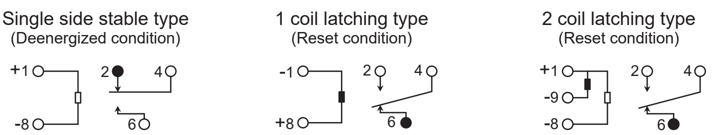
PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

General tolerance: ±0.3 ±.012

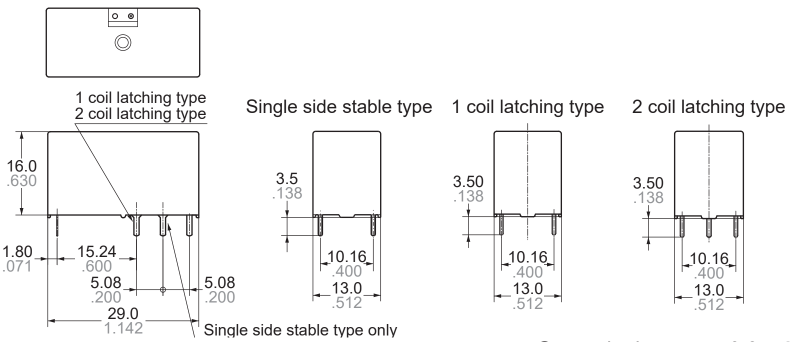
Schematic (Bottom view)



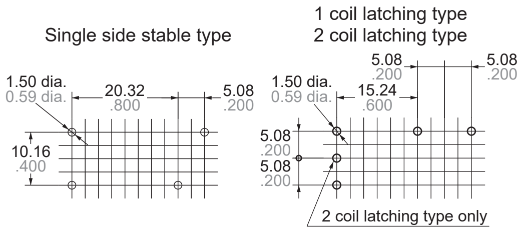
3. 1 Form A, without a test button

CAD

External dimensions



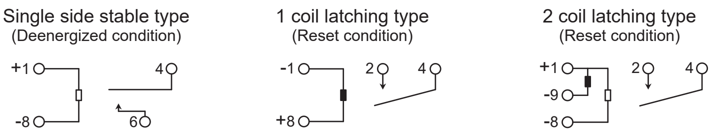
PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

General tolerance: ±0.3 ±.012

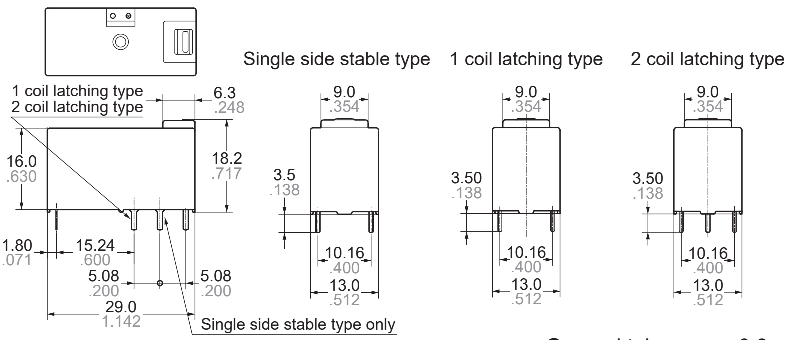
Schematic (Bottom view)



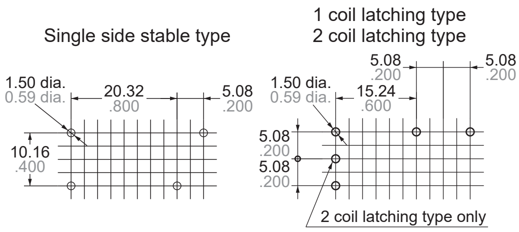
4. 1 Form A, with a test button

CAD

External dimensions



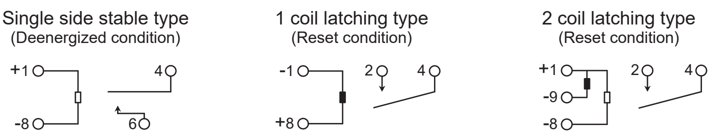
PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

General tolerance: ±0.3 ±.012

Schematic (Bottom view)

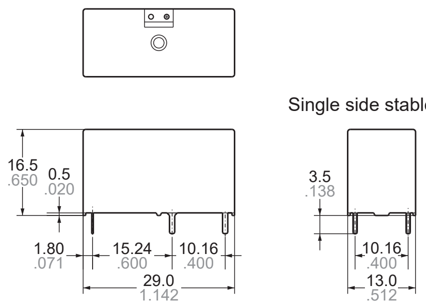


5. 1 Form B, without a test button

CAD

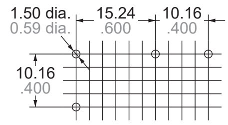
External dimensions

Single side stable type



General tolerance: ±0.3 ±.012

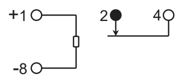
PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

Schematic (Bottom view)

(Deenergized condition)

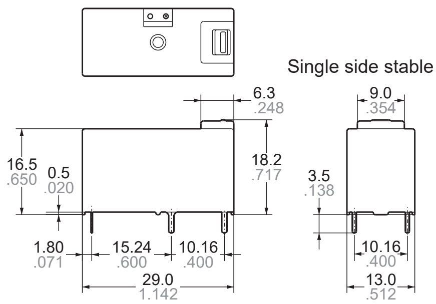


6. 1 Form B, with a test button

CAD

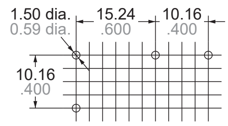
External dimensions

Single side stable type



General tolerance: ±0.3 ±.012

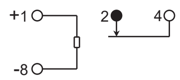
PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

Schematic (Bottom view)

(Deenergized condition)

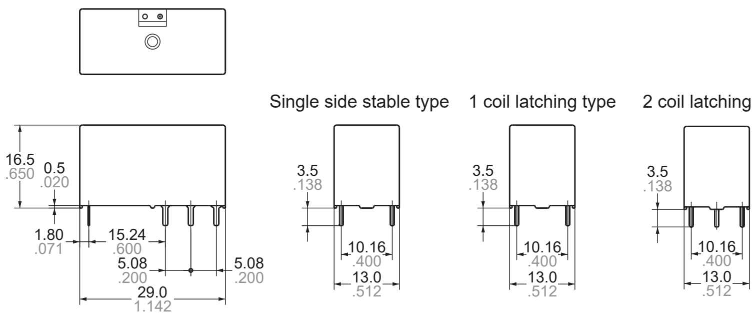


7. 1 Form A 1 Form B, without a test button

CAD

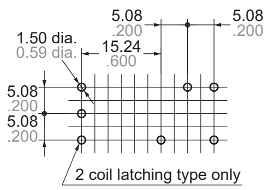
External dimensions

Single side stable type 1 coil latching type 2 coil latching type



General tolerance: ±0.3 ±.012

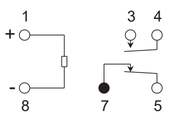
PC board pattern (Bottom view)



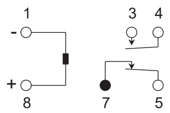
Tolerance: ±0.1 ±.004

Schematic (Bottom view)

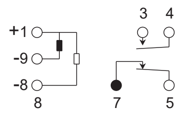
Single side stable type
(Deenergized condition)



1 coil latching type
(Reset condition)



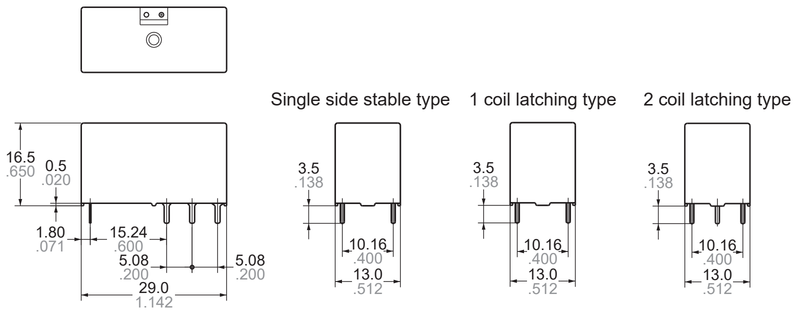
2 coil latching type
(Reset condition)



8. 2 Form C, without a test button

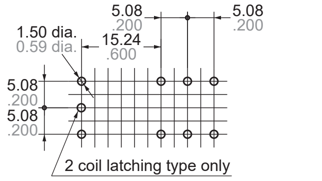
CAD

External dimensions



General tolerance: ±0.3 ±.012

PC board pattern (Bottom view)



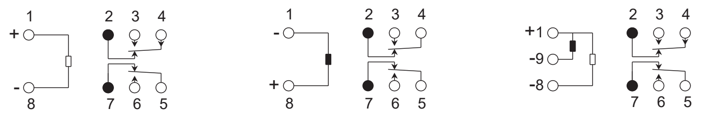
Tolerance: ±0.1 ±.004

Schematic (Bottom view)

Single side stable type (Deenergized condition)

1 coil latching type (Reset condition)

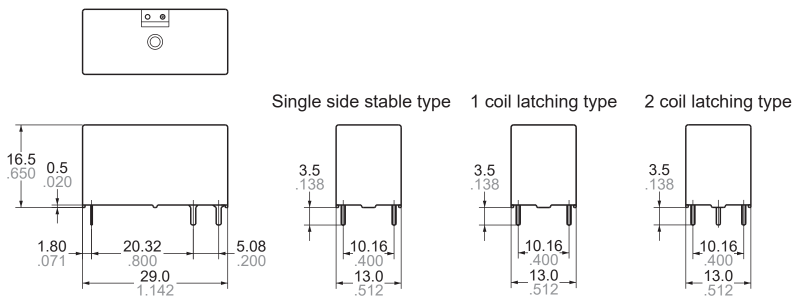
2 coil latching type (Reset condition)



9. 2 Form A, without a test button

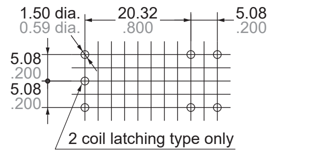
CAD

External dimensions



General tolerance: ±0.3 ±.012

PC board pattern (Bottom view)



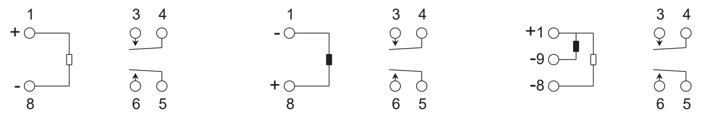
Tolerance: ±0.1 ±.004

Schematic (Bottom view)

Single side stable type (Deenergized condition)

1 coil latching type (Reset condition)

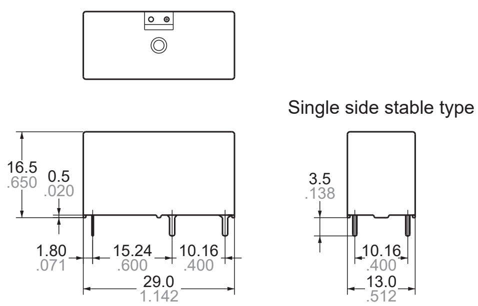
2 coil latching type (Reset condition)



10. 2 Form B, without a test button

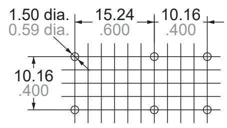
CAD

External dimensions



General tolerance: ±0.3 ±.012

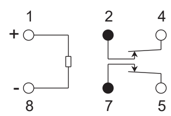
PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

Schematic (Bottom view)

Single side stable type (Deenergized condition)



SAFETY STANDARDS

Types	UL/C-UL (Recognized)*1				VDE (Certified)	
	File No.	Contact rating	Temperature	Cycles	File No.	Contact rating
1 pole (ADJ1, 2, 3)	E43149	16A 277V AC Resistive	40°C 104°F	5×10^4	40009736	16A 250V AC (cosφ =1.0)
		20A 277V AC Resistive*2	40°C 104°F	2×10^4		20A 230V AC (cosφ =1.0)*2
2 pole (ADJ4, 5, 6, 7)	E43149	10A 277V AC Resistive	40°C 104°F	10^5	40009736	10A 250V AC (cosφ =1.0)

*1. CSA standard: Certified by C-UL
*2. 1 Form A (ADJ2) only

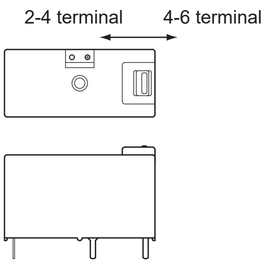
Types	CQC	
	File No.	Contact rating
1 pole (ADJ1, 2, 3)	CQC10002042641	16A 250V AC
2 pole (ADJ4, 5, 6, 7)	CQC10002042641	10A 250V AC

EN/IEC VDE Certified
INSULATION CHARACTERISTICS (IEC61810-1)

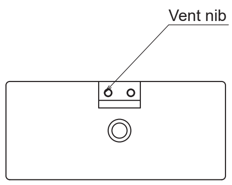
Item	Characteristics
Clearance/Creepage distance (IEC61810-1)	Min. 5.5mm/8.0mm
Category of protection (IEC61810-1)	RT II
Tracking resistance (IEC60112)	PTI 175
Insulation material group	III a
Over voltage category	III
Rated voltage	250
Pollution degree	3
Type of insulation (Between contact and coil)	Reinforced insulation
Type of insulation (Between open contacts)	Micro disconnection

NOTES

1. **For cautions for use, please read "GENERAL APPLICATION GUIDELINES".**
2. **Test button (manual lever) operation**
   The relay contacts switch over as follows:



3. **Electrical life (Sealed type)**
   In order to obtain the full rated life cycles, the relay should be properly vented by removing the vent nib after the soldering/washing process.



Please refer to **"the latest product specifications"** when designing your product.
• Requests to customers :
https://industrial.panasonic.com/ac/e/salespolicies/

GUIDELINES FOR POWER RELAYS AND HIGH-CAPACITY DC CUT OFF RELAYS USAGE

For cautions for use, please read “GUIDELINES FOR RELAY USAGE”.
https://industrial.panasonic.com/ac/e/control/relay/cautions_use/index.jsp

Precautions for Coil Input

■ Long term current carrying
A circuit that will be carrying a current continuously for long periods without relay switching operation. (circuits for emergency lamps, alarm devices and error inspection that, for example, revert only during malfunction and output warnings with form B contacts) Continuous, long-term current to the coil will facilitate deterioration of coil insulation and characteristics due to heating of the coil itself.
For circuits such as these, please use a magnetic-hold type latching relay. If you need to use a single stable relay, use a sealed type relay that is not easily affected by ambient conditions and make a failsafe circuit design that considers the possibility of contact failure or disconnection.

■ DC Coil operating power
Steady state DC current should be applied to the coil. The wave form should be rectangular. If it includes ripple, the ripple factor should be less than 5%.
However, please check with the actual circuit since the electrical characteristics may vary. The rated coil voltage should be applied to the coil and the set/reset pulse time of latching type relay differs for each relays, please refer to the relay's individual specifications.

■ Coil connection
When connecting coils of polarized relays, please check coil polarity (+,-) at the internal connection diagram (Schematic). If any wrong connection is made, it may cause unexpected malfunction, like abnormal heat, fire and so on, and circuit do not work. Avoid impressing voltages to the set coil and reset coil at the same time.

■ Maximum allowable voltage and temperature rise
Proper usage requires that the rated coil voltage be impressed on the coil. Note, however, that if a voltage greater than or equal to the maximum continuous voltage is impressed on the coil, the coil may burn or its layers short due to the temperature rise. Furthermore, do not exceed the usable ambient temperature range listed in the catalog.

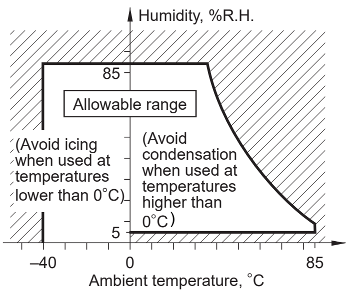
■ Operate voltage change due to coil temperature rise (Hot start)
In DC relays, after continuous passage of current in the coil, if the current is turned OFF, then immediately turned ON again, due to the temperature rise in the coil, the pick-up voltage will become somewhat higher. Also, it will be the same as using it in a higher temperature atmosphere. The resistance/temperature relationship for copper wire is about 0.4% for 1°C, and with this ratio the coil resistance increases. That is, in order to operate of the relay, it is necessary that the voltage be higher than the pick-up voltage and the pick-up voltage rises in accordance with the increase in the resistance value. However, for some polarized relays, this rate of change is considerably smaller.

Ambient Environment

• Usage, Transport, and Storage Conditions
During usage, storage, or transportation, avoid locations subjected to direct sunlight and maintain normal temperature, humidity and pressure conditions.

• Temperature/Humidity/Pressure
When transporting or storing relays while they are tube packaged, there are cases the temperature may differ from the allowable range. In this case be sure to check the individual specifications. Also allowable humidity level is influenced by temperature, please check charts shown below and use relays within mentioned conditions. (Allowable temperature values differ for each relays, please refer to the relay's individual specifications.)

1) Temperature:
   The tolerance temperature range differs for each relays, please refer to the relay’s individual specifications
2) Humidity:
   5 to 85 % RH
3) Pressure:
   86 to 106 kPa



• Dew condensation
Condensation occurs when the ambient temperature drops suddenly from a high temperature and humidity, or the relay is suddenly transferred from a low ambient temperature to a high temperature and humidity. Condensation causes the failures like insulation deterioration, wire disconnection and rust etc. Panasonic Corporation does not guarantee the failures caused by condensation.
The heat conduction by the equipment may accelerate the cooling of device itself, and the condensation may occur. Please conduct product evaluations in the worst condition of the actual usage. (Special attention should be paid when high temperature heating parts are close to the device. Also please consider the condensation may occur inside of the device.)

• Icing
Condensation or other moisture may freeze on relays when the temperature become lower than 0°C.This icing causes the sticking of movable portion, the operation delay and the contact conduction failure etc. Panasonic Corporation does not guarantee the failures caused by the icing.
The heat conduction by the equipment may accelerate the cooling of relay itself and the icing may occur. Please conduct product evaluations in the worst condition of the actual usage.

• Low temperature and low humidity
The plastic becomes brittle if the switch is exposed to a low temperature, low humidity environment for long periods of time.

• High temperature and high humidity
Storage for extended periods of time (including transportation periods) at high temperature or high humidity levels or in atmospheres with organic gases or sulfide gases may cause a sulfide film or oxide film to form on the surfaces of the contacts and/or it may interfere with the functions. Check out the atmosphere in which the units are to be stored and transported.

• **Package**

In terms of the packing format used, make every effort to keep the effects of moisture, organic gases and sulfide gases to the absolute minimum.

• **Silicon**

When a source of silicone substances (silicone rubber, silicone oil, silicone coating materials and silicone filling materials etc.) is used around the relay, the silicone gas (low molecular siloxane etc.) may be produced.

This silicone gas may penetrate into the inside of the relay. When the relay is kept and used in this condition, silicone compound may adhere to the relay contacts which may cause the contact failure. Do not use any sources of silicone gas around the relay (Including plastic seal types).

• **NOx Generation**

When relay is used in an atmosphere high in humidity to switch a load which easily produces an arc, the NOx created by the arc and the water absorbed from outside the relay combine to produce nitric acid. This corrodes the internal metal parts and adversely affects operation. Avoid use at an ambient humidity of 85%RH or higher (at 20°C). If use at high humidity is unavoidable, please contact our sales representative.

Others

■ Cleaning

1) Although the environmentally sealed type relay (plastic sealed type, etc.) can be cleaned, avoid immersing the relay into cold liquid (such as cleaning solvent) immediately after soldering. Doing so may deteriorate the sealing performance.
2) Cleaning with the boiling method is recommended(The temperature of cleaning liquid should be 40°C or lower).
   Avoid ultrasonic cleaning on relays. Use of ultrasonic cleaning may cause breaks in the coil or slight sticking of the contacts due to ultrasonic energy.

Please refer to **"the latest product specifications"** when designing your product.
•Requests to customers:
https://industrial.panasonic.com/ac/e/salespolicies/

Please contact ....

Panasonic Corporation

Electromechanical Control Business Division

■ 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8506, Japan

industrial.panasonic.com/ac/e/

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