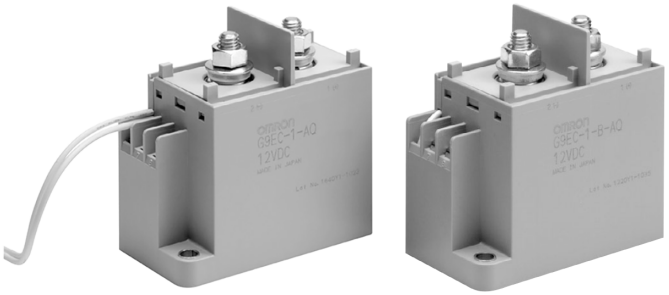
G9EC-1(-B)(-AQ)

DC Power Relay (200 A type)

Capable of Interrupting High voltage, High-current Loads

- A compact relay (L98 x W44 x H86.7 mm) capable of switching 400 VDC, 200 A. (Capable of interrupting max. 400 VDC, 1,000 A)
  1,000 VDC 100 A type are also added.
  (Capable of interrupting 500 A at 1,000 VDC max.)
- The switching section and driving section are gas-injected and hermetically sealed, allowing these compact relays to interrupt high-current. The sealed construction also achieves no arc space, space saving, and helps to ensure safe applications. In addition, the contacts have a high contact reliability that is unaffected by ambient atmosphere.
- Downsizing of parts and optimum design allow no restrictions on the mounting direction.



⚠ Refer to "**DC Power Relays Common Precautions**".

Type standard

G9EC-□-□-□-□-□

(1) (2) (3) (4) (5)

	Classification	Symbol	Meaning of the symbol
(1)	Number of contact poles	1	1 pole
(2)	Contact structure	Blank	1a contact
(3)	Coil terminal form	B	M3.5 screw terminals
		Blank	Lead wires
(4)	Special Functions	X1	High Voltage type (1,000 V)
(5)	Automotive use	AQ	Available for automotive use (G9EC-1-B-X1 is automotive use, but there is no AQ display.)

Classification

Classification	Terminal form		Contact structure	Rated coil voltage	Type name
	Coil terminals	Contact terminals			
Switching / current conduction type	Screw terminals	Screw terminals	1a	12 VDC 24 VDC	**G9EC-1-B-AQ**
	Lead wires				**G9EC-1-AQ**
	Screw terminals				**G9EC-1-B-X1**

Note: 1. Come with two M8 nuts for main terminals (contacts).
Note: 2. Come with two M3.5 screws for screw-type coil terminal products.
Note: 3. If you are interested in a connector joint for coil terminal, please contact our sales representatives.

Note: Please confirm Omron Safety Precautions for all automotive relays first.
Omron can not guarantee automotive relays before finish making a contract with product specifications.

Ratings

Operation coil

Rated voltage (V)	Rated current (mA)	Coil resistance (Ω)	Operating voltage (V)	Release voltage (V)	Maximum voltage (V)	Power consumption (W)
DC 12	583	20.6	75% or less of rated voltage	8% or more of rated voltage	130% of rated voltage (at 23°C within 10 minutes)	Approx. 7
DC 24	292	82.3				

Note: 1. Values of the rated current and the coil resistance are at coil temperature of +23°C, and have a tolerance of ±10%.
Note: 2. The figures for the operating characteristics are at a coil temperature of 23°C.
Note: 3. Value of the maximum voltage is the maximum voltage that can be applied to the relay coil.

Switching area

Item	Resistance load	
	G9EC-1(-B)-AQ	G9EC-1-B-X1
Rated load	400 VDC, 200 A	1,000 VDC, 100 A
Rated current	200 A	200 A
Maximum switching voltage	400 V	1,000 V
Maximum switching current	200 A	200 A

Performance

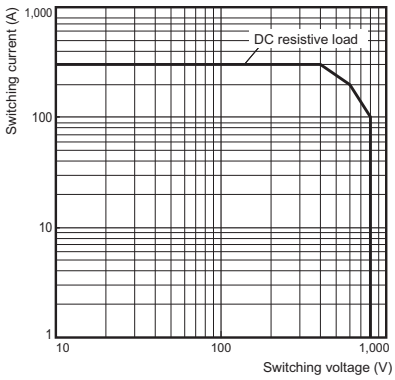
Item	model	G9EC-1(-B)-AQ	G9EC-1-B-X1
Contact resistance *1		30 mΩ or less (Typ. 0.2 mΩ)	
Contact voltage drop		0.1 V or less (at 200 A)	
Operating time		50 ms or less	
Release time		30 ms or less	
Insulation resistance *2	Between coil and contacts	1,000 MΩ or more	
	Between homopolar contacts	1,000 MΩ or more	
Withstand voltage	Between coil and contacts	2,500 VAC for 1 minute	4,000 VAC for 1 minute
	Between homopolar contacts	2,500 VAC for 1 minute	4,000 VAC for 1 minute
Vibration tolerance	Durability	5 to 200 to 5 Hz Single amplitude 0.75 mm (Acceleration: 2.94 to 88.9 m/s^2)	5 to 200 to 5 Hz (Acceleration: 44.1 m/s^2)
	Malfunction	5 to 200 to 5 Hz Single amplitude 0.75 mm (Acceleration: 2.94 to 88.9 m/s^2)	5 to 200 to 5 Hz (Acceleration: 44.1 m/s^2)
Shock resistance	Durability	490 m/s^2	
	Malfunction	200 m/s^2	
Mechanical endurance *3		200,000 times or more	
Electrical endurance (Resistance load) *4		400 VDC, 200 A (3,000 operations min.)	1,000 VDC, 100 A (6,000 operations min.) 1,000 VDC, 150 A (1,000 operations min.)
Short time carry current		300 A (for 15 min)	
Maximum interruption current		400 VDC, 1,000 A (10 operations min.)	1,000 VDC, 500 A (5 operations min.)
Overload interruption		400 VDC, 700 A (40 operations min.)	850 VDC, 900 A (3 operations min.)
Reverse polarity interruption		200 VDC, -200 A (1,000 operations min.)	850 VDC, -600 A (1 operation min.) 1,000 VDC, -300 A (1 operation min.)
Minimum load current		1 A	
Ambient temperature		-40 to 85°C (with no icing or condensation)	
Ambient humidity		5% to 85%RH	
Weight (including accessories)		Approx. 650 g	

Note: All values above are in early time under an ambient temperature of +23°C unless stated.
✻1. Measurement condition: By voltage drop method at 5 VDC 1 A.
✻2. Measurement condition: By insulation resistance at 500 VDC.
✻3. Test condition / Switching frequency: 3,600 operations/hour.
✻4. Test condition / Switching frequency: 60 operations/hour.

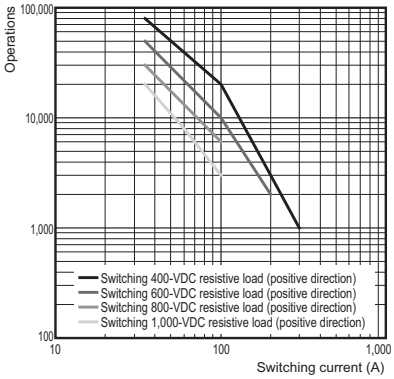
Note: Please confirm Omron Safety Precautions for all automotive relays first.
Omron can not guarantee automotive relays before finish making a contract with product specifications.

Engineering Data

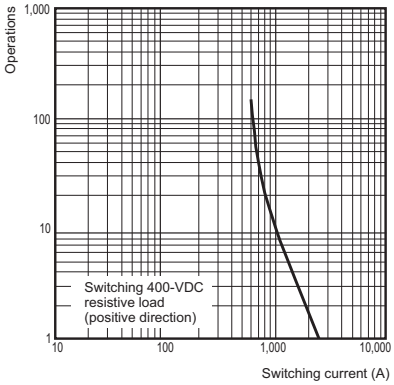
Maximum Switching Capacity



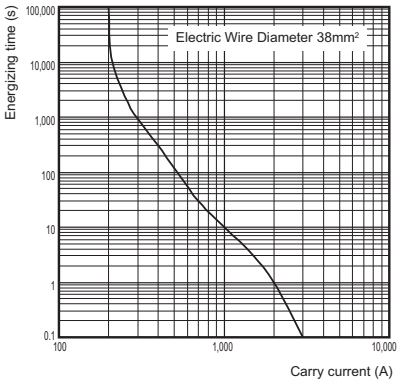
Electrical Endurance (Switching Performance)



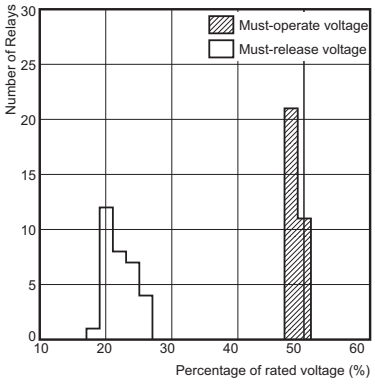
Electrical Endurance (Interruption Performance)



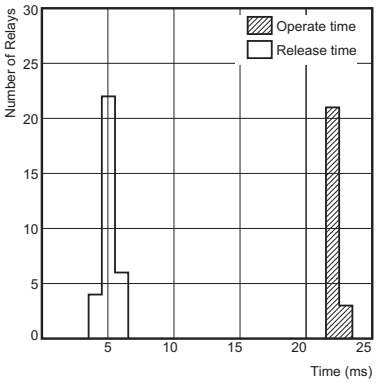
Carry Current vs Energizing Time



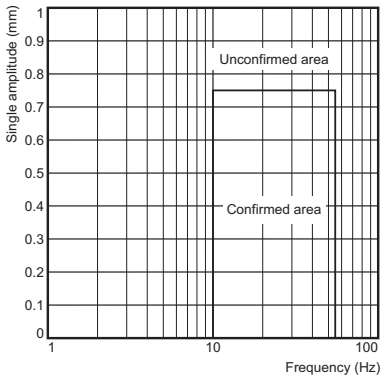
Must-operate Voltage and Must-release Voltage Distributions



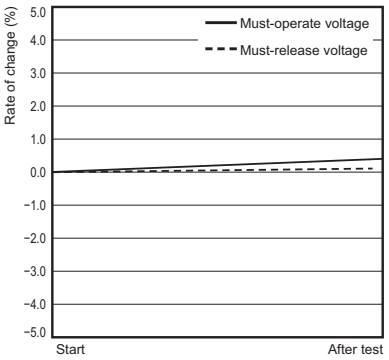
Time Characteristic Distributions



Vibration Malfunction

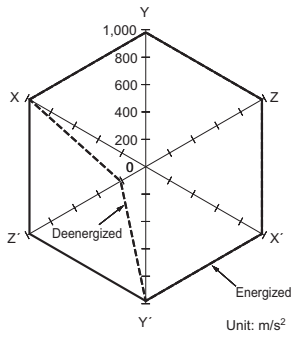


Vibration Resistance



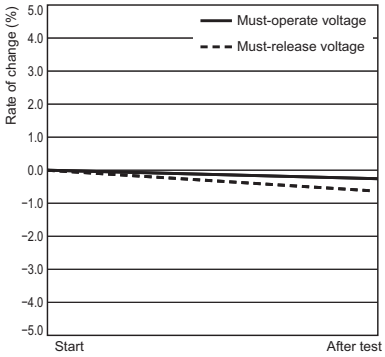
Characteristics were measured after applying vibration at a frequency of 10 to 55 Hz (single amplitude of 0.75 mm) to the test piece (not energized) for 2 hours each in 3 directions. The percentage rate of change is the average value for all of the samples.

Shock Malfunction



The value at which malfunction occurred was measured after applying shock to the test piece 3 times each in 6 directions along 3 axes.

Shock Resistance



Characteristics were measured after applying a shock of 490 m²/s to the test piece 3 times each in 6 directions along 3 axes. The percentage rate of change is the average value for all of the samples.

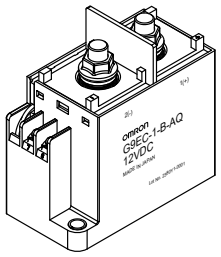
Note: Please confirm Omron Safety Precautions for all automotive relays first.
Omron can not guarantee automotive relays before finish making a contract with product specifications.

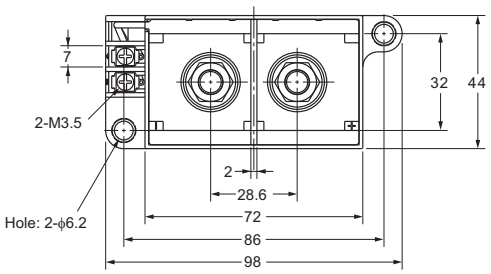
G9EC-1(-B)(-AQ)

Dimensions (Unit: mm)

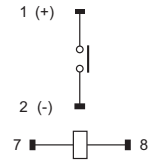
Relay with Screw Terminals

G9EC-1-B-AQ



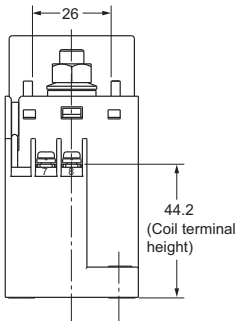


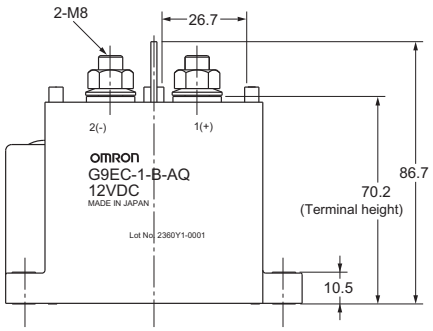
Terminal arrangement / Internal connections
(TOP VIEW)



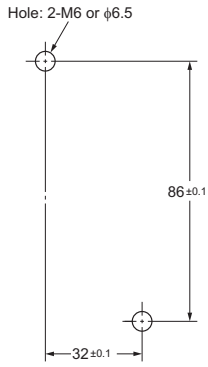
Note: Be sure to connect terminals with the correct polarity. Coils do not have polarity.

Size (mm)	Tolerance (mm)
to 10	±0.3
10 to 50	±0.5
50 to	±1

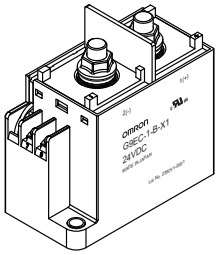


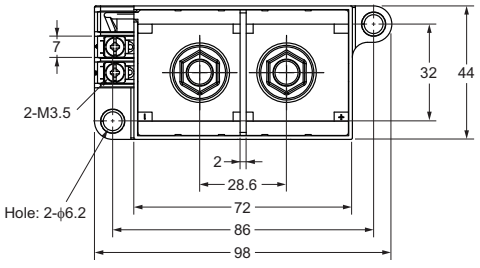


Mounting holes
(BOTTOM VIEW)

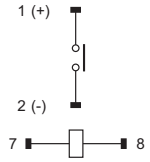


G9EC-1-B-X1



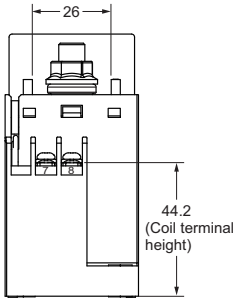


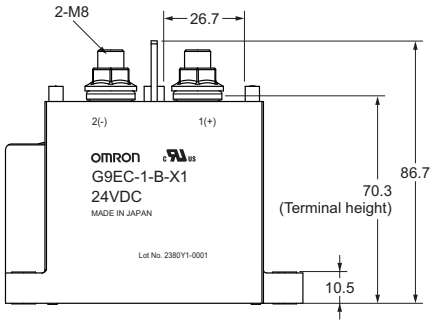
Terminal arrangement / Internal connections
(TOP VIEW)



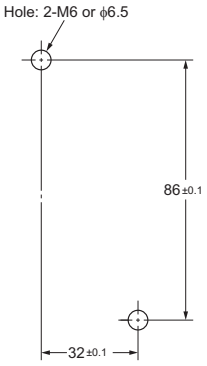
Note: Be sure to connect terminals with the correct polarity. Coils do not have polarity.

Size (mm)	Tolerance (mm)
to 10	±0.3
10 to 50	±0.5
50 to	±1





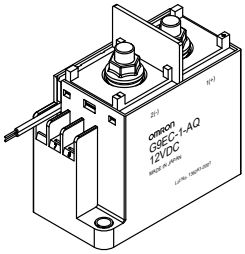
Mounting holes
(BOTTOM VIEW)

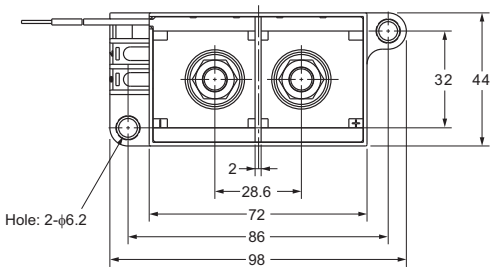


Note: Please confirm Omron Safety Precautions for all automotive relays first.
Omron can not guarantee automotive relays before finish making a contract with product specifications.

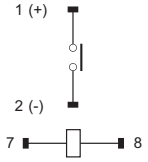
Relay with Lead Wires

G9EC-1-AQ



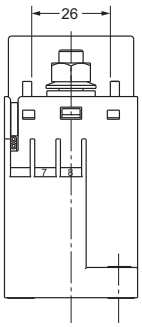


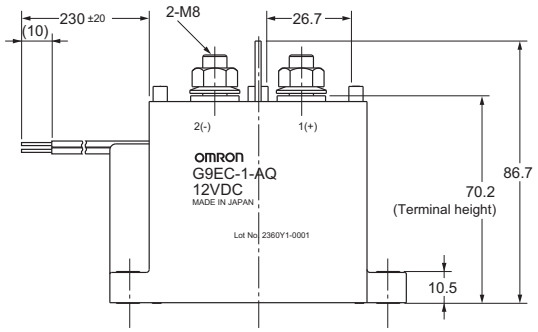
Terminal arrangement / Internal connections
(TOP VIEW)



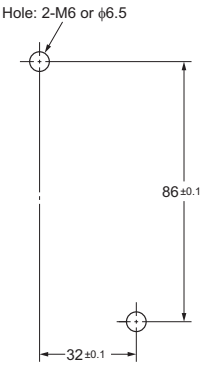
Note: Be sure to connect terminals with the correct polarity. Coils do not have polarity.

Size (mm)	Tolerance (mm)
to 10	±0.3
10 to 50	±0.5
50 to	±1





Mounting holes
(BOTTOM VIEW)



Note: Please confirm Omron Safety Precautions for all automotive relays first.
Omron can not guarantee automotive relays before finish making a contract with product specifications.

MEMO

MEMO

Please check each region's Terms & Conditions by region website.

OMRON Corporation
Device & Module Solutions Company

Regional Contact

Americas
https://components.omron.com/us

Europe
https://components.omron.com/eu

Asia-Pacific
https://components.omron.com/ap

China
https://components.omron.com.cn

Korea
https://components.omron.com/kr

Japan
https://components.omron.com/jp

Cat. No. J238-E1-02
0123 (1122)

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Omron:

G9EC-1-B-AQ DC12