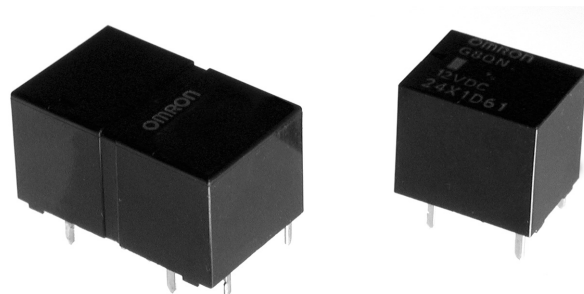


# Miniature Automotive PCB Relay G8QN/G8QW

- SPDT contact form (1C).
- Fully sealed construction.
- Fully automated assembly.
- G8QN suitable for reverse motor applications (2 relays).
- High performance PCB relay.
- Made in USA.



## Ordering Information

| Description               | Model           |
|---------------------------|-----------------|
| Standard                  | G8QN-1C4-12V    |
| Standard                  | G8QW-2C4-12V    |
| High temperature (105° C) | G8QN-1C4-05-12V |
| High temperature (105° C) | G8QW-2C4-05-12V |

## Typical Applications

- Power windows/power door lock
- Smart junction box and module applications
- Seat adjustment
- Sunroof
- Horn
- Fog lamp
- Heated exterior side mirrors
- Wiper motor
- Washer pump

## Specifications

### Contact Data

|                        |                            |
|------------------------|----------------------------|
| Max. switching current | 30 A                       |
| Max switching voltage  | 16 V                       |
| Max. carry current     | 30 A (at 20° C for 1 hour) |
| Min. carry current     | 100 mA                     |
| Contact material       | Silver-tin oxide           |

### Coil Ratings (at 20° C)

| Type            | Rated voltage | Coil resistance<br>(±10%) | Nominal power<br>consumption | Pull in voltage | Dropout voltage |
|-----------------|---------------|---------------------------|------------------------------|-----------------|-----------------|
| G8QN-1C4-12V    | 12 VDC        | 210 Ω                     | 685 mW                       | < 6.6 V         | > 0.6 V         |
| G8QW-2C4-12V    |               |                           |                              |                 |                 |
| G8QN-1C4-05-12V |               |                           |                              |                 |                 |
| G8QW-2C4-05-12V |               |                           |                              |                 |                 |

# Characteristics

|   |                               | G8QN  | G8QW           |
|---|-------------------------------|---|----------------|
| <b>Max. initial contact voltage drop/resistance</b> |                               | 250 mV @ 10 A/25 mΩ @ 1 A   |                |
| <b>Operate time</b>                                 |                               | 10 ms max. (3.5 ms typical) @ 12 VDC  |                |
| <b>Release time</b>                                 |                               | 5 ms max. (1.5 ms typical) (see Note)   |                |
| <b>Bounce time</b>                                  | <b>Operate</b>                | 5 ms max. (0.5 ms typical)  |                |
|   | <b>Release</b>                | 5 ms max. (1.0 ms typical)  |                |
| <b>Switching frequency</b>                          | <b>Mechanical</b>             | 18,000 operations per hour  |                |
| <b>Insulation resistance</b>                        |                               | 100 MΩ min. at 500 VDC  |                |
| <b>Dielectric strength</b>                          |                               | 1.0 mA max leakage at 440 VAC/60 Hz for 1 minute between coil & contacts and between NO & NC contacts |                |
| <b>Vibration</b>                                    | <b>Mechanical durability</b>  | 10-500 Hz, 5 G, 1.5 mm total amplitude  |                |
|   | <b>Malfunction durability</b> | 10-500 Hz, 5 G, 1.5 mm total amplitude  |                |
| <b>Shock</b>  | <b>Mechanical durability</b>  | 100 G half sine 6 ms duration (980 m/s <sup>2</sup> )   |                |
|   | <b>Malfunction durability</b> | 100 G half sine 6 ms duration (980 m/s <sup>2</sup> )   |                |
| <b>Operating ambient temperature range</b>          |                               | -40°C to 85°C (105°C for high temp type)  |                |
| <b>Humidity</b>                                     |                               | 35% to 85% RH   |                |
| <b>Service life</b>                                 | <b>Mechanical</b>             | 1,000,000 operations min.   |                |
|   | <b>Electrical</b>             | 100,000 operations min. (load dependant)  |                |
| <b>Mass</b>   |                               | 5.9 g (approx.)   | 11 g (approx.) |

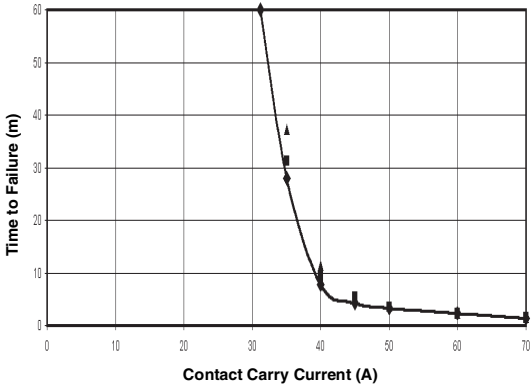
**Note:** External coil suppression will cause a measurable increase in release times and may cause the relay's characteristic to fall out of the specifications given here.

## Characteristics Reference Data

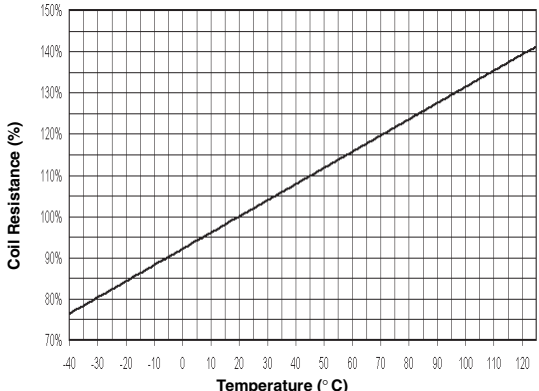
### ■ Durability Test Data

| Relay       | Load type                   | Current   | Cycles tested |
|-------------|-----------------------------|---|---------------|
| G8QN & G8QW | Door lock motor             | 18 - 20 A inrush  | 200,000       |
|             | Power window motor (locked) | 34 A  | 200,000       |
|             | Power window motor (locked) | 23 A  | 200,000       |
|             | Sun roof motor (free)       | 27 A inrush<br>3 A steady state<br>-19 A breaking current | 100,000       |
|             | Horn load                   | 14 A  | 200,000       |

**Current Withstand (20° C)**

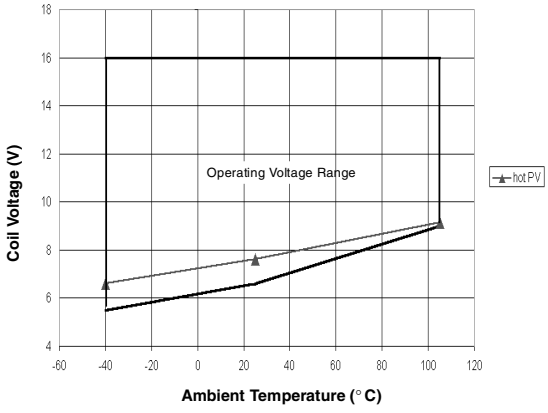


**Normalized Coil Resistance vs. Temperature (20° C reference)**

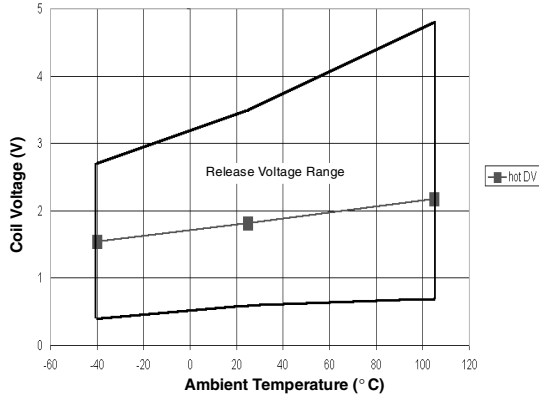


Example: Resistance of 210Ω coil  
 = 75% of 210Ω at -40° C, or 158Ω  
 = 100% of 210Ω at 20° C, or 210Ω  
 = 125% of 210Ω at 85° C, or 263Ω

**Operating Voltage Range with "hot" PV shown (210Ω coil - High Temperature Type)**

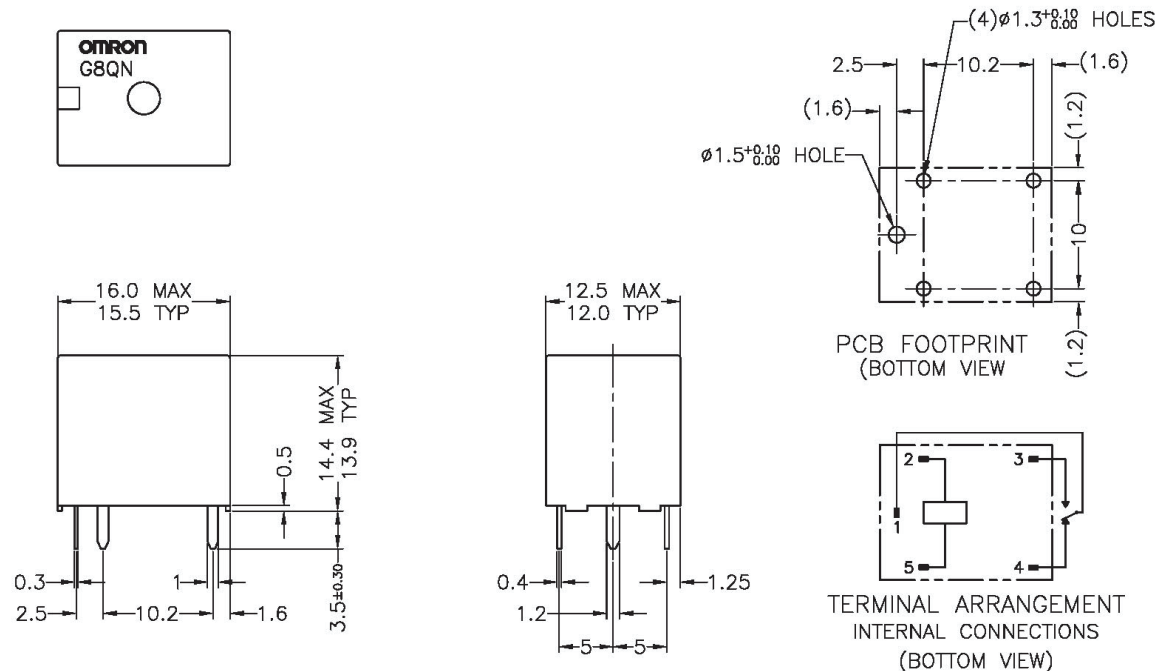


**Release Voltage Range with "hot" DV shown (210Ω coil - High Temperature Type)**

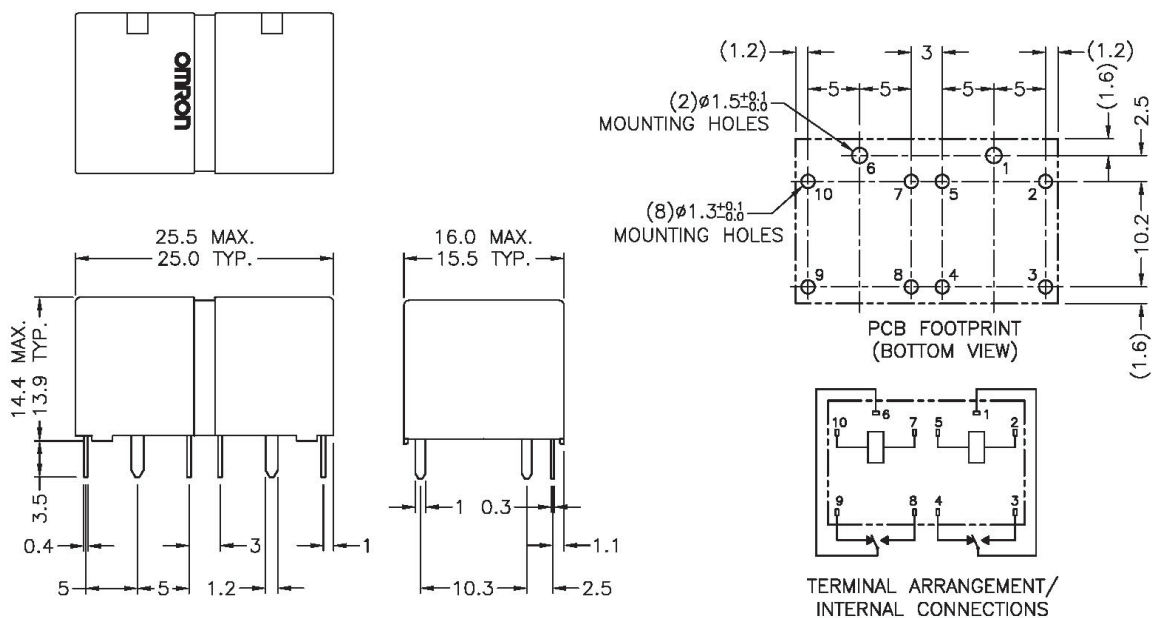


# Dimensions

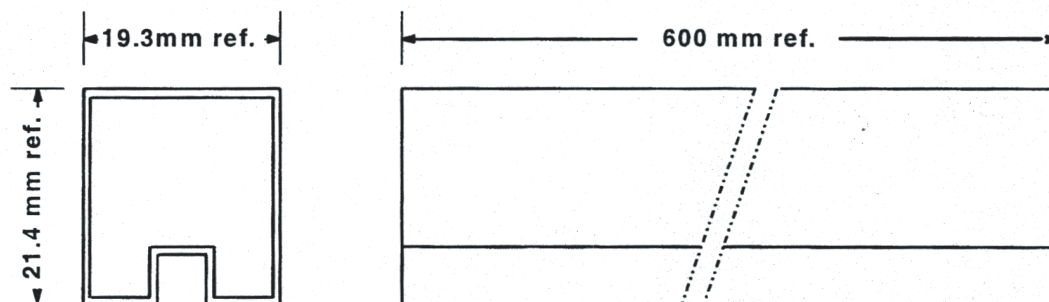
## ■ G8QN



## ■ G8QW



## ■ Tube Packaging



G8QN: 47 relays per tube, 36 tubes per box (1692 relays per box).

G8QW: 22 dual relays per tube, 36 tubes per box (792 relays per box).

**Note:** 1. For additional information, please contact Omron.

2. Prior to receipt of order, specifications subject to change without notice.

3. This specification sheet is intended to be a guideline for application of this product. The information contained is believed to be correct. However, it is impossible for Omron to evaluate every possible use. It is the user's responsibility to determine product suitability in any application.

4. Omron can meet some special performance characteristics upon request.

5. All data at 20° C unless otherwise noted.

6. If several relays are to be mounted on a single PCB, they must be given at least 3 mm clearance on all sides.

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