OMRON

Ultra-Miniature Automotive PCB Relay
G8N-1

- Compact size.
- High performance PCB relay.
- Fully automated assembly.
- Fully sealed construction.
- SPDT contacts.



Ordering Information

Description	Model
Standard type	**G8N-1**
High sensitivity (low pull-in voltage)	**G8N-1S**
High temperature (150° C)	**G8N-1L**
High temperature / high sensitivity	**G8N-1H**
Flasher load switching	**G8N-1F**
Ultra-high sensitivity	**G8N-1U**
Reflow solder type	**G8N-1R**
Pin in paste solder type (shortened terminals)	**G8N-1C**

■ Typical Applications

- Power windows/power door lock
- Smart junction box and module applications
- Seat adjustment
- Sunroof

Specifications

■ Contact Data

Max. switching current	30 A
Max. switching voltage	16 V
Max. carry current	25 A (at 20° C for 1 hour)
Min. carry current	100 mA
Contact material	Silver tin oxide – cadmium free (PdRu for -F type)

■ Coil Ratings (at 20° C)

Type	Rated voltage	Coil resistance (±10%)	Nominal power consumption	Pull in voltage	Dropout voltage
G8N-1	12 VDC	225 Ω	640 mW	< 7.2 V	> 1.0 V
G8N-1L					
G8N-1S		180 Ω	800 mW	< 6.5 V	
G8N-1H					
G8N-1F		130 Ω	1108 mW	< 7.2 V	
G8N-1U				< 5.5 V	
G8N-1R		–	–	–	–
G8N-1C					

Characteristics

Max. initial contact voltage drop/resistance		250 mV @ 10 A/50 mΩ @ 1 A
Operate time		10 ms max. (2.5 ms typical) @ 12 VDC
Release time		10 ms max. (1.2 ms typical) (see Note)
Bounce time	**Operate**	5 ms max. (0.5 ms typical)
	Release	10 ms max. (4.0 ms typical)
Switching frequency	**Mechanical**	18,000 operations per hour
	Electrical	1,800 operations per hour (under rated loading)
Insulation resistance		100 MΩ min. (@ 500 VDC)
Dielectric strength		1.0 mA max. leakage at 500 VAC, 50-60 Hz for 1 minute between coil & contacts and between contacts
Vibration	**Mechanical durability**	10-500 Hz, 44.1 m/s^2
	Malfunction durability	10-500 Hz, 44.1 m/s^2
Shock	**Mechanical durability**	1000 m/s^2
	Malfunction durability	100 m/s^2 min.
Ambient operating temperature		-40°C to 85°C (105°C max. for -L and -H types)
Humidity		35% to 85% RH
Service life	**Mechanical**	1,000,000 operations
	Electrical	100,000 operations (load dependant)
Weight		4.1 g (approx.)

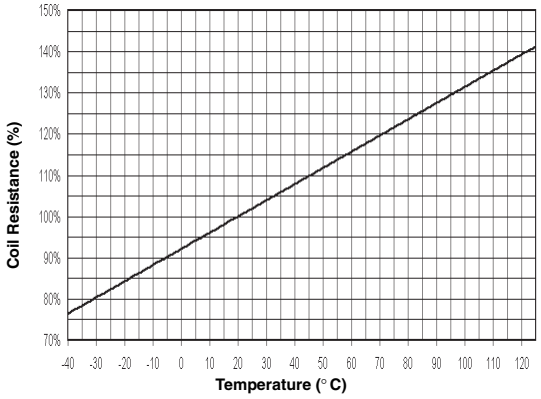
Note: External coil suppression will cause a measurable increase in release times and may cause the relay's characteristics to fall out of the specifications given here.

Characteristics Reference Data

■ Durability Test Data

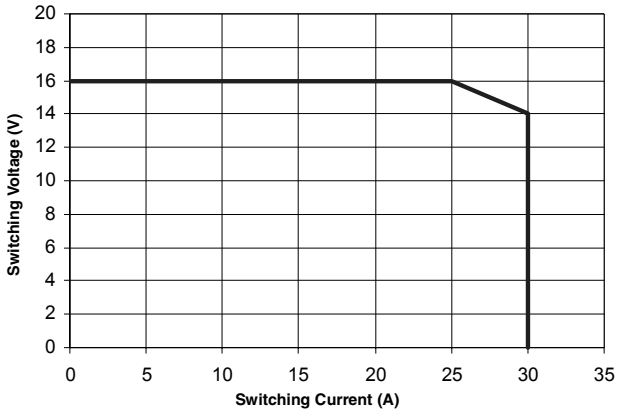
Relay	Load type	Current	Cycles tested
G8N / G8NW / G8ND	Power window motor (locked)	26 A	200,000
	Door lock motor	27 A 8A Steady state	130,000

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

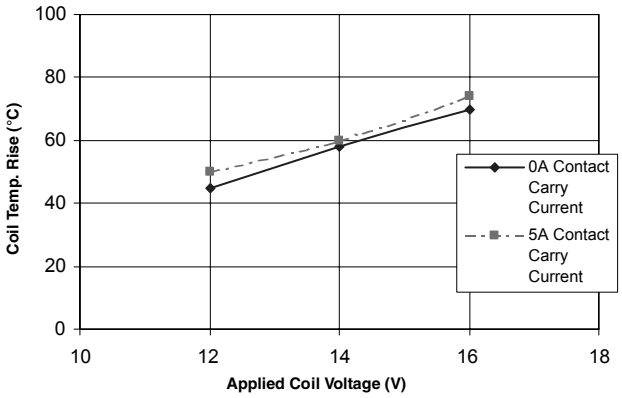


Example: Resistance of 225Ω coil
= 75% of 225Ω at -40° C, or 169Ω
= 100% of 225Ω at 20° C, or 225Ω
= 125% of 225Ω at 85° C, or 281Ω

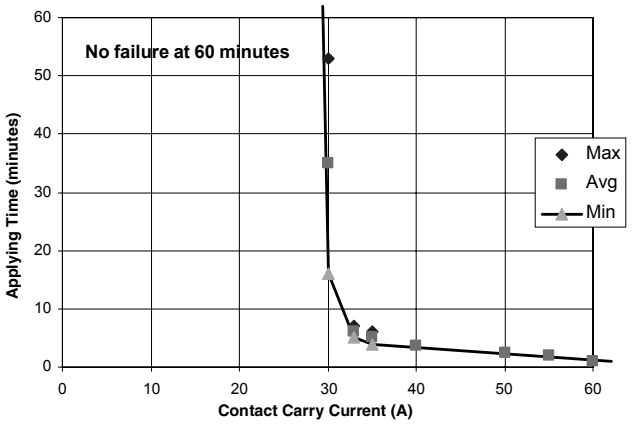
Load Limit Curve



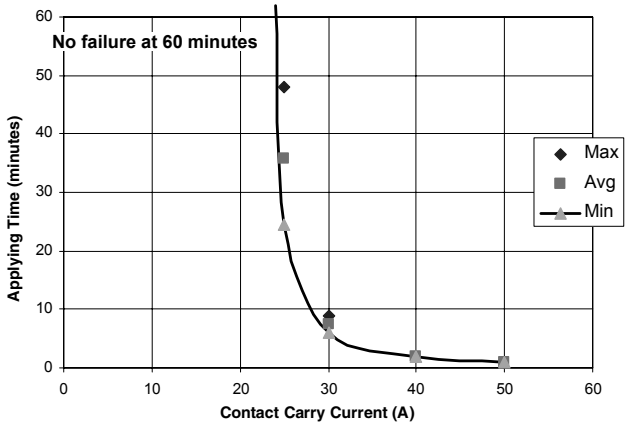
Coil Temperature vs. Applied Voltage at 20°C (G8N-1, 225Ω coil)



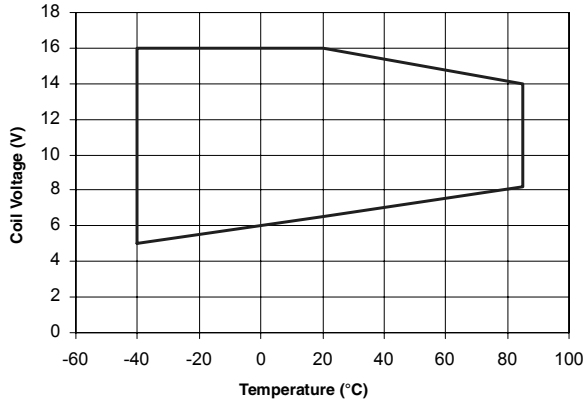
Overcurrent Energization (20°C, G8N-1 225Ω coil, 4 samples)



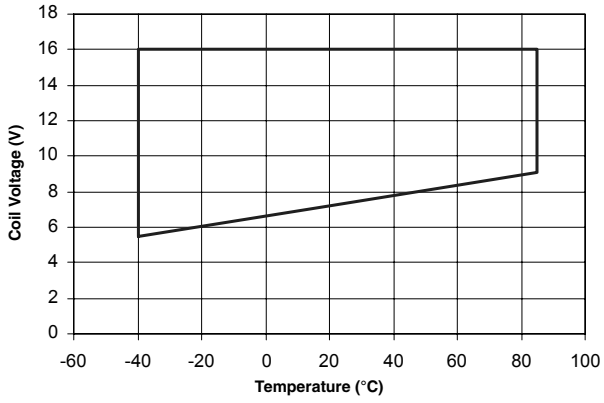
Overcurrent Energization (85°C, G8N-1 225Ω coil, 4 samples)



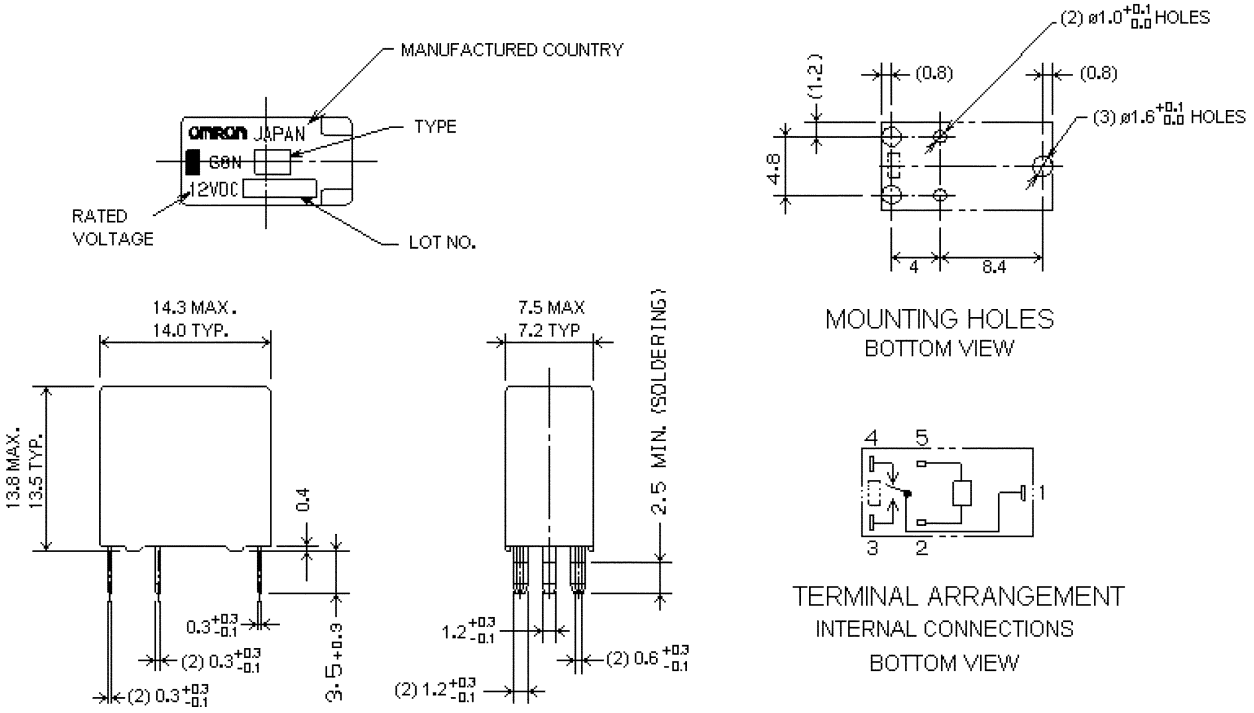
Operating Voltage Range (G8N-1, 180Ω coil)



Operating Voltage Range (G8N-1, 225Ω coil)

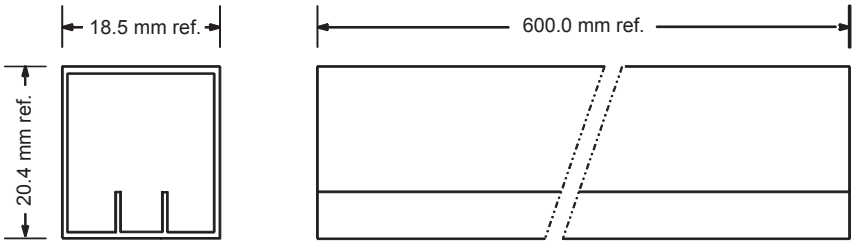


Dimensions



Note: G8N-1C type has 1.9+0.3mm (not 3.5±0.3mm) terminals for pin in paste solder process.

■ Tube Packaging



80 relays per tube, 30 tubes per box (2400 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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