Product Overview

Compact & High-Power AC power Relay

G9KA 800VAC / 200A

OMRON

What's new?

- High power PCB relay: G9KA is designed for high voltage / current applications in energy market such as industry PV inverter.
- 800VAC, 200A high-current breaking capability.
- Omron original low-heat generating design with class-leading low contact resistance of *0.2 m ohm.

*As an initial value, under 200A 30min

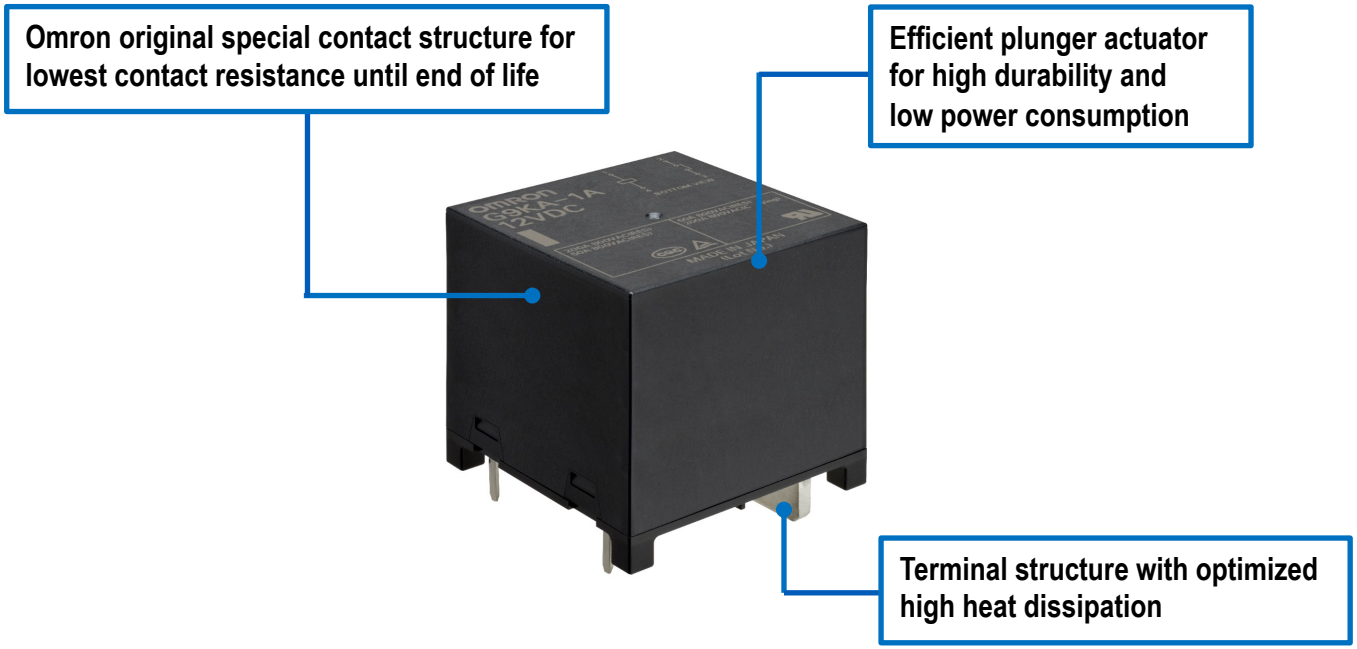
- Super compact and low-profile package (51mm X 51mm X 47.2mm)

Omron advanced technologies

Class-leading low-heat performance

Dramatically reduced contact resistance : **0.2 m ohm** (as an initial value, under , under 200A 30)
Current shunt ： Disperse the current value with twin contacts.

Super compact and low-profile package



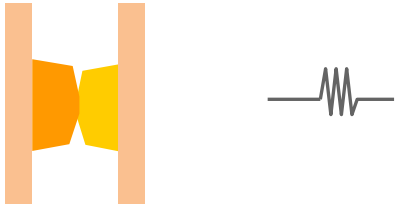
Low heat generation / Technical features

By reducing the contact resistance and shunting the current, heat generation is greatly suppressed even at a high load of 800VAC and 200A. Supports board heat dissipation design.

1.Contact resistance reduction: Achieves a low contact resistance of 0.2 mΩ with a unique contact material.

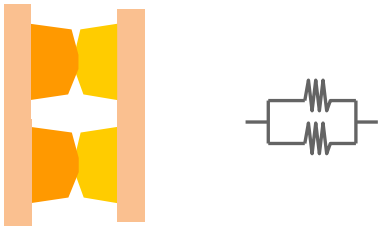
2. Current shunt：Disperse the current value with twin contacts.

【Single contact】
200A / contact



【Heat generation】
$Q_{sgl}=CR1*(200A)^2*t$
$=CR1*4*10^4*t$

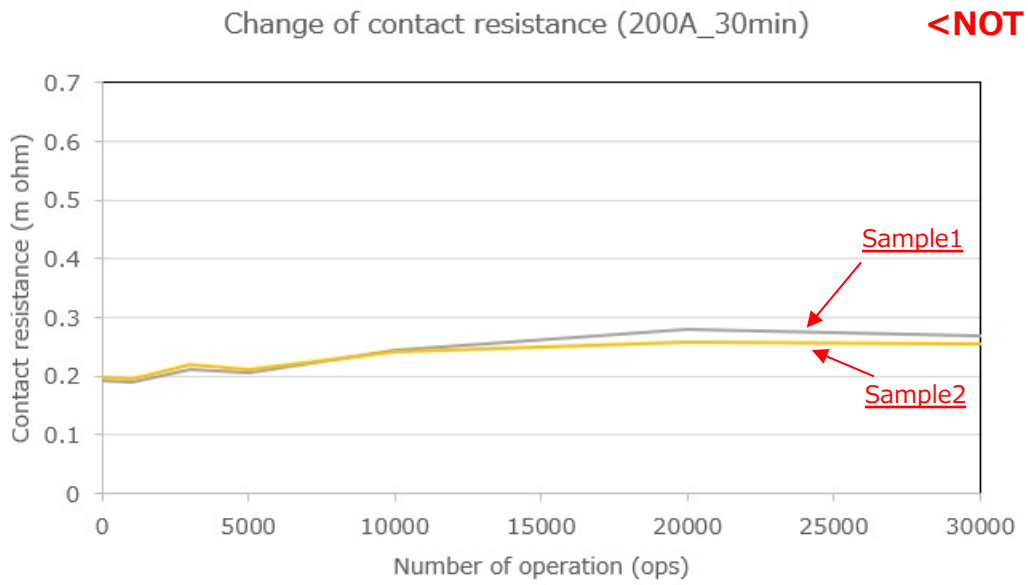
【Twin contact / G9KA】
100A / contact * 2



【 Heat generation 】
$Q_{twn}=CR1*(100A)^2*t$ *2 contacts
$=CR1*2*10^4*t$

Low heat generation / Stable CR performance through life

Our unique challenge in structures, materials, and production methods realize low CR through the life.



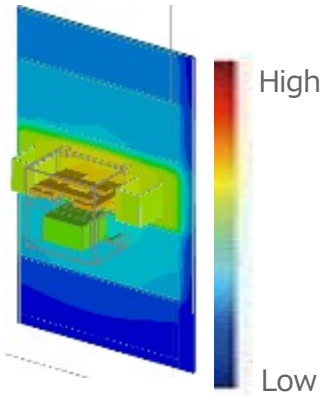
<Test Conditions>

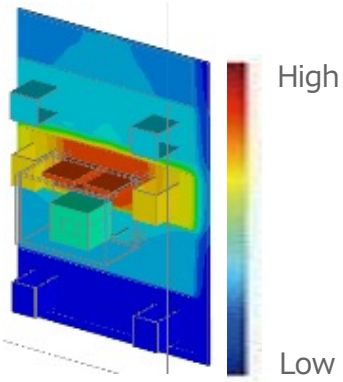
- Resistive load: 800 VAC, Making 50A, Carrying 200A, Breaking 50A
- Applied coil voltage: 12 V (100%) ➔ 6 V (Holding 50%)
- Ambient temperature: 85 deg.C
- Contact resistance: Measured at conditions of 200A, 30minutes

Low-heat generation / Simulation results

Omron's low-heat generation design with low contact resistance realize low heat generation under high current condition.
The following table shows the results of temperature rise simulation.

	G9KA	High CR Relay
Contact Resistance *Initial reference values	Measured average, not guaranteed **0.18mΩ**	**0.40mΩ**
Simulation Results 800VAC/200A — **Temperature Distribution** *Reference values	**166.2℃** **ΔT : 81.2K**	**139.1℃** **ΔT : 54.1K**

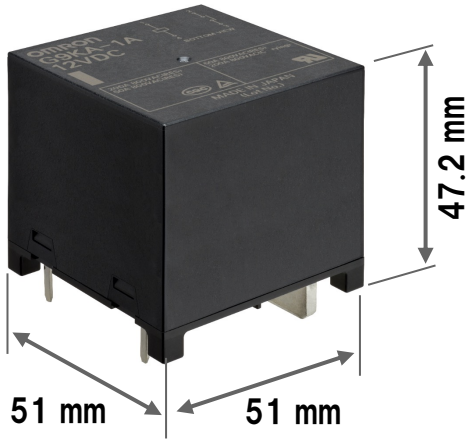




<Simulation Conditions>
Thermal simulation results, at 480VAC 200A.
A relay and a terminal block on a board with a fan, a duct, and heatsinks.

<Notes>
For actual use, please use fans or heatsinks to lower board temperature to upper limit board temperature for equipment.

Product specifications



Outline dimensions

Item		Specifications		
Rated load	800Vac/200A			
Max. contact voltage	800Vac			
E-Life @85°C	Max. current	Make	Break	Endurance
	200A	150A	200A	10ops
	200A	50A	50A	30,000ops
Coil voltage	12Vdc/24Vdc (Holding voltage 45～60%)			
Contact resistance (initial)	0.2mΩ @200A 30min			
Contact gap	4.0mm			
Ambient operating temperature	-40～85°C			
Terminal type	PCB			
Safety standard	TUV, UL, CQC			

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