

- for reference
- for recognition



CUSTOMER _____

PRODUCT SPECIFICATION
FOR

NAME OF PRODUCT : Surface mount Relay

MODEL : G6S-2F

SPECIFICATION : DC 3,4,5,5,6,9,12,24,48 V

Revision	Contents	By/Date

ATTN : _____

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1. Classification	Single stable relay
2. Construction	
2.1 Outline dimensions	Drawing NO. 3458522-3
2.2 Structure drawing	Drawing NO. -----
2.3 Contact configuration	DPDT (2c contact)
2.4 Contact structure	Bifurcated crossbar
2.5 Contact material	Face material Au Alloy Base material Ag
2.6 Protective construction	Fully sealed
3. Standards	
3.1 Approved by standard(s)	UL File No. :E41515 CSA File NO:LR31928
3.2 Others	FCC Part68
4. Ratings	
4.1 Coil ratings	See table1
4.2 Contact ratings	
(1) Rated load	
Resistive load	125 V AC 0.5 A 30 VDC 2 A
Inductive load	---VAC ---A (p. f. = ---) --- VDC --- A (L/R= --- ms)
(2) Rated carry current	2A
(Note1)Refer to the figure for carry current VS. ambient temperature Shown in item 1 2	
(3) Maximum rated voltage	250 V AC 220VDC
(4) Maximum rated current	
Resistive load	AC 2 A DC 2 A
Inductive load	AC --- A (p. f. = ---) DC --- A (L/R= --- ms)
(5) Maximum switching capacity	
Resistive load	AC 62.5VA DC 60 W
Inductive load	AC--- V A (p. f. = ---) DC --- W

(L/R= --- ms)

(6) Failure rate (reference value)

DC 10 mV 10 μ A
(P level) ($\lambda_{60}=0.1*10^{-6}/ops.$)

5. Characteristics (initial value)

5.1 Contact resistance

75 m Ω max.Measured by the voltage drop method with
DC 1V 10mA applied.5.2 Must operate voltage
(or set voltage)

See table 1

5.3 Must release voltage
(or reset voltage)

See table 1

5.4 Operate time (or set time)

4 ms max. (at rated voltage)

5.5 Release time (or reset time)

4 ms max. (at rated voltage)

5.6 Minimum input pulse width
(Applicable to latching relay only, at rated voltage)

--- ms

5.7 Insulation resistance

500VDC

(1) Between coil terminals and contact terminals
1000 M Ω min.(2) Between non-continuous current-carrying contact terminals
1000 M Ω min.(3) Between contact terminals of the same polarity
1000 M Ω min.(4) Between set coil and reset coil
--- M Ω min.(5) Between current-carrying terminal and exposed non-current carrying Metal part.
--- M Ω min.

5.8 Dielectric strength (leakage current 1mA, 50/60Hz for one minute)

(1) Between coil terminals and contact terminals
AC 2000V(2) Between non-continuous current-carrying terminals
AC 1500V(3) Between contact terminals of the same polarity
AC 1000V(4) Between set coil and reset coil
AC --- V(5) Between current-carrying terminal and exposed non-current carrying metal part.
AC --- V

5.9 Temperature rise

(1) Coil

50°C MAX

(by the coil resistance method) at ---°C

Applied voltage of coil : 100%

Of rated voltage --- HZ

Carry current of contact 2A

(2) Contact

65°C max.

(by the thermometer method) at --- °C

Applied voltage of coil : 100%

Of rated voltage --- HZ

Carry current of contact 2A

5.10 Vibration

(1) Mechanical durability

Must be free from any abnormality in both the construction and characteristics after the relay is subjected to a variable vibration of 2.5 mm single amplitude 5 mm double amplitude at a vibration frequency of 10~55~10 Hz in each direction for 2 hours.

(2) Malfunction durability
(When energized)
or set status

Contacts must not open for 10 μ s or longer after the relay is subjected to a variable vibration of 1.65 mm single amplitude 3.3 mm double amplitude at a vibration frequency of 10~55~10 Hz in each direction for 1 cycle.

(When not energized)
or reset status

Contacts must not open for 10 μ s or longer after the relay is subjected to a variable vibration of 1.65 mm single amplitude 3.3mm double amplitude at a vibration frequency of 10~55~10Hz in each direction for 1 cycle.

5.11 Shock

(1) Mechanical durability

Must be free from any abnormality in both the construction and characteristics after the relay is subjected to a shock of 1000 m/s² in each direction 3 times.

(2) Malfunction durability
(When energized)
or set status

Contacts must not open for 10 μ s or longer after the relay is subjected to a shock of 750 m/s² in each direction 3 times.

(When not energized)
or reset status

Contacts must not open for 10 μ s or longer after the relay is subjected to a shock of 750 m/s² in each direction 3 times.

5.12 Terminal strength	Must be free from any abnormality after a tensile stress of <u>9.8</u> N is applied to the terminal in any direction vertical to the terminal tip for <u>10</u> seconds. Any deformation of the terminal by the load shall not be regard as a mechanical damage.
5.13 Temperature resistance	(1) Heat resistance Must be free from any abnormality in both the construction and characteristics after the relay is left in a temperature of <u>85±2</u> °C for <u>16</u> hours and then in room temperature and humidity for <u>2</u> hours.
(2) Cold resistance	Must be free from any abnormality in both the construction and characteristics after the relay is left in a temperature of <u>-55±3</u> °C for <u>72</u> hours and then in room temperature and humidity for <u>2</u> hours.
5.14 Moisture resistance	Must be free from any abnormality in both the construction and characteristics after the relay is left in a humidity of <u>90%</u> to <u>95%</u> RH for <u>48</u> hours at a temperature of <u>40±2</u> °C, and then in room temperature and humidity for <u>2</u> hours. Insulation resistance, however, must be <u>5</u> MΩ min.
5.15 Soldering heat	The product shall be free from any abnormality In both the construction and characteristics After the terminals are dipped into molten solder at <u>---</u> °C for <u>---</u> seconds and then left in room temperature and humidity for <u>2</u> hours or after mounted by the recommended Condition of temperature profiles shown in item 13.
5.16 Endurance	(1) Mechanical endurance 100,000,000 operations min. (Under no load at operating frequency of 36000 operations/hour)
(2) Electrical endurance	AC 100,000 operations min. (Under rated load, at operating frequency of 1800 operations/hour) DC 100,000 operations min. (Under rated load, at operating frequency of 1200 operations/hour)

※ Unless otherwise specified, the above mentioned item 4 (ratings) and 5 (characteristics) values are under the following standard conditions of Ambient temperature 23°C and Humidity 65%RH.

6. Storage conditions

(1) Store in locations in normal temperature, humidity and atmosphere pressure.

(2) Environments

- . Store in locations where the product or container is not exposed to corrosive gas such as hydrogen sulfide gas or salty air.
- . Store in locations where no visible dust exists.
- . Store in locations where the product is not exposed to the direct ray of the sun and rain, snow. Also please do not apply the force to the product which may result in the deformation or a change in quality of the product.

7. Operating conditions

Use the product under the following conditions.

7.1 Ambient temperature -40 to +85°C (Note2)(Without freezing or condensation)

7.2 Relative humidity 5 to 85 %RH

7.3 Mounting direction Free

7.4 Environments

- (1) Use in locations where the product is not exposed to corrosive gas such as hydrogen sulfide gas or salty air.
- (2) Use in locations where no visible dust exists.
- (3) Use in locations where the product is not exposed to the direct ray of the sun and rain, snow. Also please do not apply the force to the product which may result in the deformation or a change in quality of the product.

8. Others

8.1 Impulse withstand voltage

Between coil and contact	2500V(at $2 \times 10 \mu s$)
Between non-continuous contact	2500V(at $2 \times 10 \mu s$)
Between continuous contact	1500V(at $10 \times 160 \mu s$)

9. PRECAUTIONS

(1) Following terms are defined as below.

- 1) Conditions; Use conditions, rating, performance, operating environment, handling procedure, precautions and/or prohibited use described in this "product specifications", documentations or manuals

2) User Application; Application of this product by a customer, including but not limited to embedding this product into customer's components, electronic circuit boards, devices, equipments or systems

3) Fitness; (a)Fitness, (b)performance, (c) no infringement of intellectual property of third party, (d) compliance with laws and regulations and (e)conformity to various standards

(2) Note about this specification

1) The product may be discontinued or change its specification without prior notice, unless the specification is not returned or the product is not ordered within one year after issue of this specification. Please confirm current specifications if you return this specification or you place an order of this product one year after issue of this specification.

2) Rating and performance is tested separately. Combined conditions are not warranted.

3) Reference data is intended to be used just for reference. Omron does not warrant that the product can work properly in the range of reference data.

4) Examples are intended for reference. Omron does not warrant the fitness in usage of the examples.

5) Omron may, at its discretion, change factors other than rating, performance, structure, outside dimensions or mounting dimensions.

(3) Note about adoption and use

1) Please use the product in conformance to the conditions, including rating and performance.

2) Please confirm the Fitness and decide whether or not the product is able to be

3) Omron will not warrant any items in (1) 3)(b) ~ (e) of User Application nor the fitness.

4) If you use the product in the application below, please ensure followings;
(i) allowance in aspect of rating and performance,
(ii) safety design which can minimize danger of the User Application when the product does not work properly and
(iii) periodical maintenance of the product and the User Application.

(a)Applications requiring safety, including, without limitation, nuclear control facilities, combustion facilities, aerospace and aviation facilities, railroad facilities, elevating facilities, amusement facilities, medical facilities, safety devices or other applications

which has possibility to influence lives or bodies

(b) Applications requiring high reliability, including, without limitation, supplying systems of gas, water and electric power and applications handling right, title, ownership or property, such as payment systems

(c) Applications in a harsh condition or environment, including, without limitation, outdoor facilities, facilities with potential of chemical contamination or electromagnetic interference, facilities with vibration or impact and facilities on continual operation for a long period

(d) Applications under conditions or environment which are not described in this specification

5) This product is not intended to be used in automotive applications (including two wheel vehicles). Please do not use this product in the automotive application.

(4) Warranty

1) Warranty period; One year after your purchase

2) Warranty; Omron will provide, free of charge, replacements of the same number of malfunctioning products

3) Exceptions; This warranty does not cover malfunctions caused by any of the following.

(a) Usage in the manner other than its original purpose

(b) Usage out of the condition

(c) Cause which could not be foreseen by the level of science and technology at the time of shipment of the product

(d) Cause outside Omron or the product, including force majeure such as disasters

(5) The warranty described in this "conditions" is a whole and sole liability for the products. There are no other warranties, expressed or implied. Omron and distributors are not liable for any damages arisen from or relating to the products.

(6) Please comply with laws and regulations of security trade control in relevant countries if you export or provide a nonresident with the product or technical information.

10. Coil ratings (Table 1)

Rated voltage (V)	Rated current (mA)	Coil resistance (Ω)	Must operate voltage	Must release voltage	Maximum Voltage	Rated power consumption (mW)
DC 3	46.7	64.3	75%max. of rated voltage.	10%min of rated voltage.	200% Of rated voltage (at 23°C)	Approx.140
DC 4.5	31.0	145				
DC 5	28.1	178				
DC 6	23.3	257				
DC 9	15.5	579				
DC 12	11.7	1028				
DC 24	8.3	2880			170%(at23°C)	Approx.200
DC 48	5.8	8229	110%(at23°C)	Approx.280		

1:The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of $\pm 10\%$.

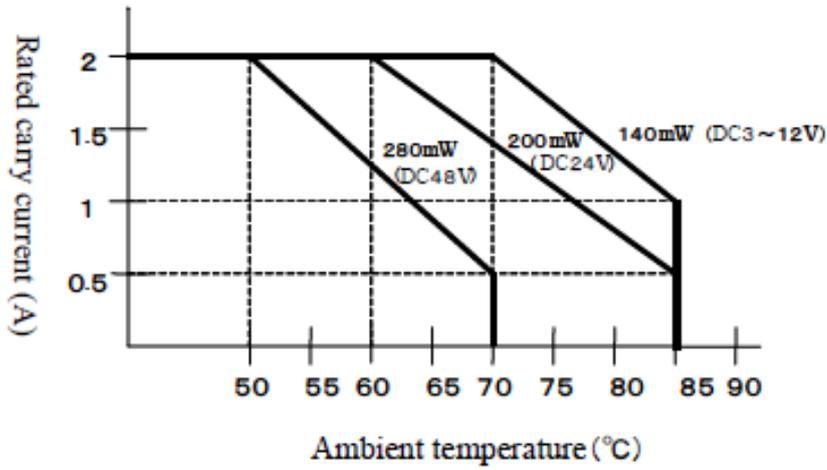
2: Operating characteristics are measured at a coil temperature of 23°C..

3: The maximum coil voltage refers to the maximum value in a varying range of operating power voltage.

11. Handling precautions

- 1: Please avoid micro-wave washing not to cause the internal which cause coil wire cutting and sticking of the contact.
- 2: Don't give the relay dropping shock to keep initial performance.
- 3:The relay mounted on the PCB may be coated or washed but do not apply silicone coating or detergent coating silicone, otherwise the silicone coating or detergent may remain on the surface of the relay.
- 4: After opened the damp-proof package, please use the relay as soon as possible. If the relay left for long term after opened the damp-proof package, Appearance and seal-ability failure may take place after solder mounting process. If store the relay after opened the damp-proof package, put it into the original package and sealed the package by adhesive tape.
- 5: If wash the product after soldered the relay on PCB, please use water-based solvent or alcohol-based solvent. At that time, please keep the solvent temp. Less than 40 degree C. Do not put the relay in a cold cleaning bath immediately after soldering .

12. Relations between carry current and ambient temperature.

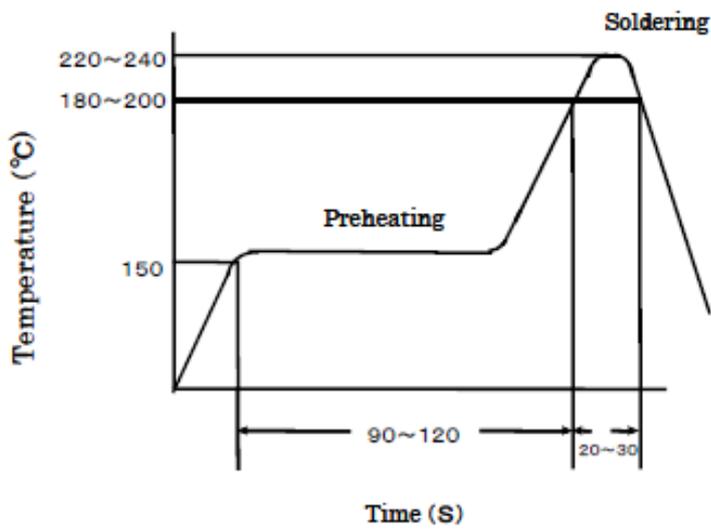


13. The recommended conditions according to soldering.(IRS)

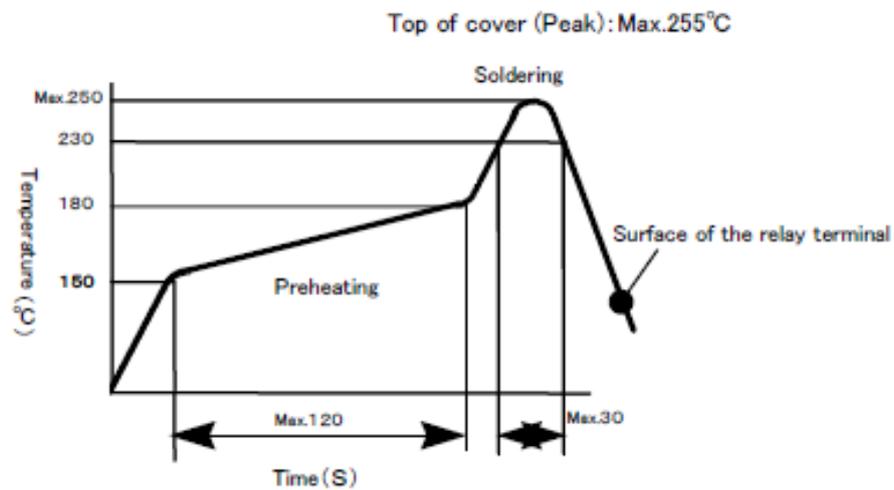
13.1.IRS method

(1) Solder for IRS: SnPb solder

(Temperature indicate the surface temperatures of the PCB.)



- 2) Solder for IRS : Pb-Free solder
(Temperature indicate the terminal part of relay.)



13.2.The recommended thickness of solder paste is from 150µm to 200µm.

13.3.The recommended land pattern is due to our mounting pads scale.

14 RoHS compliant.

(1) Detail information of RoHS compliant

We, OMRON ELECTRONIC COMPONENTS (SHENZHEN) LTD, are fully aware of reducing the environmental impact of our products accordance with EU directive.

