

Slim, Miniature Relay with 1-pole 5-A Switching Capability

- Slim 5-mm width and miniature size. (21.3 x 5.08 x 12.5 mm max.)
- Ideal for high-density mounting.
- Delivers high switching performance (5 A at 250 VAC/30 VDC) and enables various loads all in a slim, miniature size.
- Highly sensitive coil type (120 mW) also available.
- Satisfies EN 61131-2 (PLC) and EN 61010 (measuring instrument/control equipment) reinforced insulation requirement.
- Special socket also added to the series.



Applications:

PLCs, I/O modules, I/O ports, Timers, Temperature Controllers, and Control Boards.

RoHS Compliant

Ordering Information

| Classification | Contact form | Enclosure ratings | Model |
|------------------|--------------|-------------------|-----------|
| Standard | SPST-NO | Fully sealed | G6DS-1A |
| High-sensitivity | | | G6DS-1A-H |

Note: When ordering, add the rated coil voltage to the model number.
Example: G6DS-1A 12 VDC

Rated coil voltage

G6DS- - VDC
1 2 3 4

- Number of Poles**
1: 1 pole
- Contact Form**
A: SPST-NO
- Classification**
None: Standard
H: High-sensitivity
- Rated Coil Voltage**
5, 12, 24 VDC

Accessories (Order Separately)

| | |
|--------------------|-----------------|
| Connecting Socket | P6DS-04P |
| Relay Pullout Tool | R99-01 for G6DS |

Coil Ratings

| Item | Standard | | | High-sensitivity | | |
|----------------------|---------------------------------|--------|--------|------------------|--------|--------|
| | 5 VDC | 12 VDC | 24 VDC | 5 VDC | 12 VDC | 24 VDC |
| Rated voltage | 5 VDC | 12 VDC | 24 VDC | 5 VDC | 12 VDC | 24 VDC |
| Rated current | 36 mA | 15 mA | 7.5 mA | 24 mA | 10 mA | 5 mA |
| Coil resistance | 139Ω | 800Ω | 3,200Ω | 208Ω | 1,200Ω | 4,800Ω |
| Must operate voltage | 70% max. of rated voltage | | | | | |
| Must release voltage | 5% min. of rated voltage | | | | | |
| Max. voltage | 160% of rated voltage (at 23°C) | | | | | |
| Power consumption | Approx. 180 mW | | | Approx. 120 mW | | |

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

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

3. "Max. voltage" refers to the maximum voltage that can be applied to the relay coil. It is not the maximum voltage that can be applied continuously.

Contact Ratings

| Item | Resistive load (cosφ=1) | Inductive load (cosφ=0.4, L/R=7 ms) |
|--|-------------------------------|-------------------------------------|
| Rated load | 5 A at 250 VAC, 5 A at 30 VDC | 2 A at 250 VAC, 2 A at 30 VDC |
| Contact Material | AgNi | |
| Rated carry current | 5 A | |
| Max. switching voltage | 250 VAC, 30 VDC | |
| Max. switching current | 5 A | |
| Max. switching power | 1,250 VA, 150 W | |
| Failure rate (reference value) (See note.) | 5 mA at 24 VDC | |

Note: P level: $\lambda_{60} = 0.1 \times 10^{-6}$ operation

Characteristics

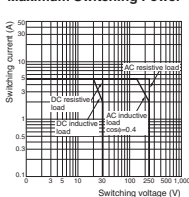
| | | |
|-------------------------------------|--|---|
| Contact resistance (See note 1.) | 100 mΩ max. | |
| Operate time | 10 ms max. | |
| Release time | 5 ms max. | |
| Insulation resistance (See note 2.) | 1,000 MΩ min. (at 500 VDC) | |
| Dielectric strength | 3,000 VAC, 50/60 Hz for 1 min between coil and contacts 750 VAC, 50/60 Hz for 1 min between contacts of same polarity | |
| Impulse withstand voltage | 6,000 V (1.2 x 50 μs) between coil and contacts | |
| Insulation Distance | Creepage (Typ) | 6.4mm |
| | Clearance (Typ) | 5.2mm |
| Tracking Resistance (CTI) | 175V | |
| Vibration resistance | Destruction: | 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude) |
| | Malfuction: | 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude) |
| Shock resistance | Destruction: | 1,000 m/s ² |
| | Malfuction: | 150 m/s ² (standard type), 130 m/s ² (high-sensitivity type) |
| Endurance | Mechanical: | 20,000,000 operations min. (at 18,000 operations/hr) |
| | Electrical: | 100,000 operations min. (at 1,800 operations/hr) for standard type. 80,000 operations min. (at 1,800 operations/hr) for high-sensitivity type. (at 23ΩC) |
| Ambient temperature | Operating: -40°C to 85°C (with no icing) | |
| Ambient humidity | Operating: 5% to 85% | |
| Weight | Approx. 2.3 g | |

Note: The data shown above are initial values.

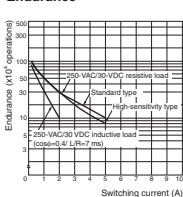
- The contact resistance is possible with 1 A applied at 5 VDC using a fall-of-potential method.
- The insulation resistance is possible between coil and contacts and between contacts of the same polarity at 500 VDC.

Engineering Data

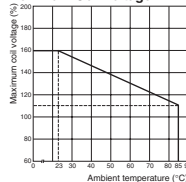
Maximum Switching Power



Endurance

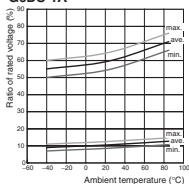


Ambient Temperature vs. Maximum Coil Voltage

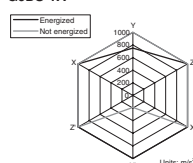


Note: The maximum coil voltage is the maximum voltage that can be applied to the relay coil.

Ambient Temperature vs. Operating/Recovery Voltage G6DS-1A



Malfuncting Shock G6DS-1A



Units: ms²
Measurement conditions: Impose a shock in the -X, +Y, and +Z directions three times each with the Relay energized to check the shock values that cause the Relay to malfunction.

■ Approved Standards

- The rated values approved by each of the safety standards may be different from the performance characteristics individually defined in this catalog.

UL 508 (File No. E41515)/CSA C22.2 No.14 (File No. LR31928)

| Model | Contact form | Coil ratings | Contact ratings |
|-----------|--------------|--------------|--|
| G6DS-1A | SPST-NO | 5 to 24 VDC | 5 A, 250 VAC (Resistive & General Use) |
| G6DS-1A-H | | | 5 A, 30 VDC (Resistive & General Use) |
| | | | 5 A, 250 VAC (Resistive & General Use) |
| | | | 5 A, 30 VDC (Resistive & General Use) |

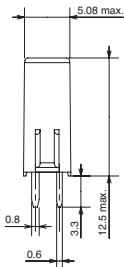
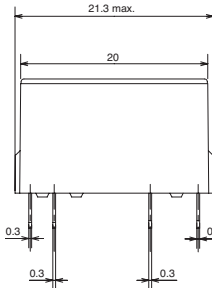
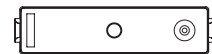
VDE (EN61810-1) (License No. B161)

| Model | Contact form | Coil ratings | Contact ratings |
|-----------|--------------|---------------|-------------------------|
| G6DS-1A | SPST-NO | 5, 12, 24 VDC | 5 A, 250 VAC (cosφ=1.0) |
| G6DS-1A-H | | | 5 A, 30 VDC (0 ms) |
| | | | 5 A, 250 VAC (cosφ=1.0) |
| | | | 5 A, 30 VDC (0 ms) |

Dimensions

Note: All units are in millimetres unless otherwise indicated.

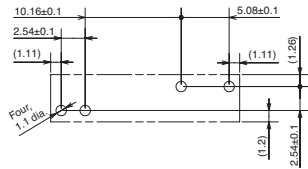
G6DS-1A/1A-H



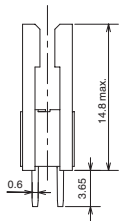
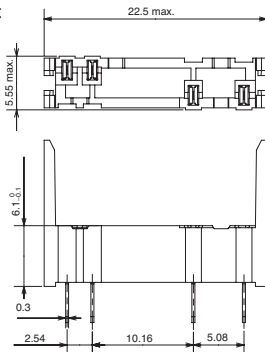
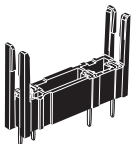
Terminal Arrangement/ Internal Connections (Bottom View)



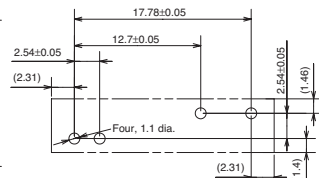
Mounting Holes (Bottom View)



Connecting Socket P6DS-04P



Mounting Holes (Bottom View)



Relay Pullout Tool

R99-01 for G6DS

A convenient removal pullout tool (R99-01 for G6DS) is available to pull Relays out of special sockets mounted closely side by side.

Packing

■ Stick packing

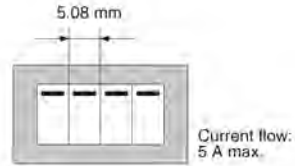
1 stick = 25 Relays

1 packing case = 20 sticks (500 Relays)

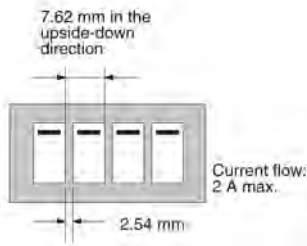
1 carton box = 6 packing cases (3,000 Relays)

Precautions

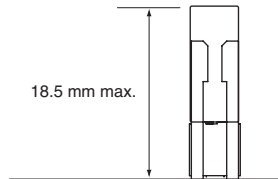
More than two Relays can be closely mounted right side up as shown in the following illustration. (This applies to the P6DS as well.)



More than two Relays can be closely mounted upside down as shown in the following illustration.



Note: The space between Relays required for heat radiation may vary with operating conditions. Contact your OMRON representative for details.



When mounting the Relay, insert it into the Socket as vertically as possible so that the Relay terminals contact securely with the contact pins on the Socket.

The P6DS is flux-resistant. Do not wash the P6DS with water. Dismount the Relay from the Socket before soldering the Socket to a PCB.

Disclaimer:

All technical performance data applies to the product as such; specific conditions of individual applications are not considered. Always check the suitability of the product for your intended purpose. OMRON does not assume any responsibility or liability for noncompliance herein, and we recommend prior technical clarification for applications where requirements, loading, or ambient conditions differ from those applying to general electric applications. Any responsibility for the application of the product remains with the customer alone. THIS COMPONENT CAN NOT BE USED FOR AUTOMOTIVE APPLICATIONS.