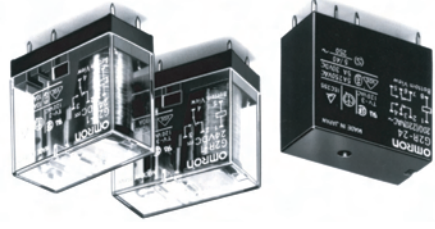


PCB Power Relay – G2R

A Power Relay for a Variety of Purposes with Various Models

- ROHS compliant
- Conforms to EN 61810-1, UL508, CSA22.2, SEV, SEMKO.
- Meets EN60335-1 requirements for household products.
- Clearance and creepage distance: 8 mm/8 m.
- Models with CT1250 material available.
- High-sensitivity (360 mW) and high-capacity (16 A) types available.
- Double-winding latching type available.



Ordering Information

| Classification | Enclosure Ratings | Coil Ratings | Contact Form | | |
|--|--------------------|-----------------|--------------|---------|--------|
| | | | SPDT-NO | SPDT | DPDT |
| PCB terminal (upper bracket mounting) | General-purpose | Flux protection | G2R-1A | G2R-2A | G2R-2 |
| | | Fully sealed | G2R-1A4 | G2R-2A4 | G2R-24 |
| | Bifurcated contact | Flux protection | G2R-1AZ | G2R-1Z | - |
| | | Fully sealed | G2R-1AZ4 | G2R-1Z4 | - |
| | High-capacity | Flux protection | G2R-1A-E | G2R-1-E | - |
| | | Fully sealed | G2R-1A-H | G2R-1-H | - |
| High-sensitivity | Flux protection | G2R-1A-H | G2R-2A-H | G2R-2-H | |
| Double-winding latching | Flux protection | G2RK-1A | G2RK-1 | G2RK-2 | |
| Quick connect (upper bracket mounting) | General-purpose | Unsealed | G2R-1A-T | G2R-1-T | - |
| | | AC | - | - | - |
| | | DC | - | - | |

Note: 1. When ordering, add the rated coil voltage to the model number.
 Example: G2R-1A 12 VDC
 Rated coil voltage
 2. Models with CT1250 material are also available.
 Contact your OMRON representative for more details.

116

Specifications

Coil Ratings

| Rated voltage | Rated current (50/60Hz) | Coil resistance | Coil inductance | (H) (ref. value) | Must operate voltage | Must release voltage | Max. voltage | Power consumption |
|---------------|-------------------------|-----------------|-----------------|------------------|---------------------------|---------------------------|---------------------------------|---|
| 12 VAC | 93 mA | 65 Ω | 0.19 | 0.39 | 80% max. of rated voltage | 30% min. of rated voltage | 140% of rated voltage (at 23°C) | Approx. 0.9 VA at 60 Hz (approx. 0.7 VA at 60 Hz) |
| 24 VAC | 46.5 mA | 260 Ω | 0.81 | 1.55 | 80% max. of rated voltage | 30% min. of rated voltage | 140% of rated voltage (at 23°C) | - |
| 24 VAC | 37.5 mA | 4,600 Ω | 13.34 | 26.84 | 80% max. of rated voltage | 30% min. of rated voltage | 140% of rated voltage (at 23°C) | - |
| 100/(110) VAC | 9/(10.6) mA | 6,500 Ω | 13.34 | 26.84 | 70% max. of rated voltage | 15% min. of rated voltage | 170% of rated voltage (at 23°C) | Approx. 0.53 W |
| 120 VAC | 9.3 mA | 4,600 Ω | 13.34 | 26.84 | 70% max. of rated voltage | 15% min. of rated voltage | 170% of rated voltage (at 23°C) | - |
| 200/(220)VAC | 5.5 mA | 25,000 Ω | 51.3 | 117 | 70% max. of rated voltage | 15% min. of rated voltage | 170% of rated voltage (at 23°C) | - |
| 220 VAC | 5.1 mA | 26,850 Ω | 57.5 | 124 | 70% max. of rated voltage | 15% min. of rated voltage | 170% of rated voltage (at 23°C) | - |
| 230 VAC | 4.7 mA | 30,000 Ω | 62 | 131 | 70% max. of rated voltage | 15% min. of rated voltage | 170% of rated voltage (at 23°C) | - |
| 240 VAC | 4.7 mA | 30,000 Ω | 62 | 131 | 70% max. of rated voltage | 15% min. of rated voltage | 170% of rated voltage (at 23°C) | - |

Coil Ratings

| Rated voltage | Rated current (50/60Hz) | Coil resistance | Coil inductance | (H) (ref. value) | Must operate voltage | Must release voltage | Max. voltage | Power consumption |
|---------------|-------------------------|-----------------|-----------------|------------------|---------------------------|---------------------------|---------------------------------|-------------------|
| 5 VDC | 106 mA | 47 Ω | 0.20 | 0.39 | 80% max. of rated voltage | 30% min. of rated voltage | 140% of rated voltage (at 23°C) | Approx. 0.53 W |
| 6 VDC | 88.2 mA | 68 Ω | 0.28 | 1.15 | 80% max. of rated voltage | 30% min. of rated voltage | 140% of rated voltage (at 23°C) | - |
| 12 VDC | 43.6 mA | 275 Ω | 1.15 | 4.27 | 80% max. of rated voltage | 30% min. of rated voltage | 140% of rated voltage (at 23°C) | - |
| 12 VDC | 21.8 mA | 1,100 Ω | 4.27 | 13.86 | 80% max. of rated voltage | 30% min. of rated voltage | 140% of rated voltage (at 23°C) | - |
| 24 VDC | 11.5 mA | 4,170 Ω | 13.86 | 27.71 | 80% max. of rated voltage | 30% min. of rated voltage | 140% of rated voltage (at 23°C) | - |
| 48 VDC | 5.3 mA | 18,660 Ω | 67.2 | 93.2 | 80% max. of rated voltage | 30% min. of rated voltage | 140% of rated voltage (at 23°C) | - |

Model Number Legend

G2R □ - □ - □ □ □ □ □ □ □ □ □ □ VDC
 1 2 3 4 5 6 7 8 9

1. Relay Function

- None: Single-side stable
- K: Double-winding latching

2. Number of Poles

- 1: 1 pole
- 2: 2 poles

3. Contact Form

- None: □PDT
- A: □PST-NO

4. Contact Type

- None: Single
- Z: Bifurcated

5. Enclosure Ratings

- None: Flux protection
- 4: Fully sealed

6. Terminals

- None: Straight PCB
- T: Quick-connect (upper bracket mounting)

7. Classification

- None: General-purpose
- E: High-capacity
- H: High-sensitivity

8. Safety Standards

- None: UL/CSA/EN/SEV/TÜV
- SKVD: UL/CSA/EN/SEV/TÜV/SEMKO

9. Rated Coil Voltage

- Refer to Coil Ratings

PCB Power Relay – G2R

117

PCB Power Relay – G2R

| Rated voltage | Rated current (50/60Hz) (see Note 1) | Must operate voltage | | Must release voltage | | Max. voltage | Power consumption |
|---------------|--------------------------------------|---------------------------|---------------------------|---------------------------|---------------------------------|--------------|-------------------|
| | | 70% max. of rated voltage | 15% min. of rated voltage | 70% max. of rated voltage | 170% of rated voltage (at 23°C) | | |
| 5 VDC | 71.4 mA | 70 Ω | 100 Ω | 1.07 | 4.27 | 15.60 | Approx. 0.36 W |
| 6 VDC | 60 mA | 70 Ω | 100 Ω | 0.53 | 2.14 | 7.80 | |
| 12 VDC | 30 mA | 400 Ω | 1,600 Ω | 0.37 | 1.80 | 15.60 | |
| 24 VDC | 15 mA | 1,600 Ω | 6,400 Ω | 0.37 | 1.80 | 15.60 | |
| 48 VDC | 7.5 mA | 6,400 Ω | 25,600 Ω | 0.37 | 1.80 | 15.60 | |

High-sensitivity Relays

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of $\pm 15\%$ (AC rated current) or $\pm 10\%$ (DC coil resistance).
 2. Operating characteristics are measured at a coil temperature of 23°C.
 3. Depending on the type of relay, some relays do not have coil specifications. Contact your Omron representative for more details.

| Rated voltage | Rated current (see note 1.) | Coil resistance (see note 1.) | | Rated current | Coil resistance | | Must set voltage | Must reset voltage | Max. voltage | Power consumption |
|---------------|-----------------------------|-------------------------------|--------|---------------|-----------------|-------|------------------|---------------------------------|--|-------------------|
| | | 30 Ω | 43.5 Ω | | 60 Ω | 960 Ω | | | | |
| 5 VDC | 167 mA | 30 Ω | 43.5 Ω | 119 mA | 42 Ω | 960 Ω | 0.006 | 140% of rated voltage (at 23°C) | Set coil: Approx. 850 mW; Reset coil: Approx. 600 mW | |
| 6 VDC | 138 mA | 30 Ω | 43.5 Ω | 100 mA | 42 Ω | 960 Ω | 0.005 | | | |
| 12 VDC | 70.6 mA | 30 Ω | 43.5 Ω | 50 mA | 42 Ω | 960 Ω | 0.018 | | | |
| 24 VDC | 34.6 mA | 30 Ω | 43.5 Ω | 25 mA | 42 Ω | 960 Ω | 0.079 | | | |
| 48 VDC | 17.0 mA | 30 Ω | 43.5 Ω | 12.5 mA | 42 Ω | 960 Ω | 0.208 | | | |

Note: 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.

Double-winding Latching Relays

PCB Power Relay – G2R

| Item | Number of poles | Load | Rated Load | Contact material | Rated carry current | Max. switching voltage | Max. switching current | Max. switching power | Failure rate (reference value) |
|------------------|-----------------|---------------------------|----------------------------------|------------------|---------------------|------------------------|------------------------|----------------------|--------------------------------|
| | | | | | | | | | |
| High-capacity | 1 pole | Resistive load (cosφ = 1) | 10 A at 250 VAC; 7.5 A at 30 VDC | AgSnIn | 10 A | 380 VAC, 125 VDC | 10 A | 2,500 VA, 300 W | 100 mA at 5 VDC |
| | 2 poles | Resistive load (cosφ = 1) | 5 A at 250 VAC; 3 A at 30 VDC | | 5 A | 380 VAC, 125 VDC | 5 A | 1,250 VA, 150 W | 100 mA at 5 VDC |
| High-sensitivity | 1 pole | Resistive load (cosφ = 1) | 5 A at 250 VAC; 3 A at 30 VDC | | 5 A | 380 VAC, 125 VDC | 5 A | 1,250 VA, 150 W | 100 mA at 5 VDC |
| | 2 poles | Resistive load (cosφ = 1) | 2 A at 250 VAC; 1 A at 30 VDC | | 3 A | 380 VAC, 125 VDC | 3 A | 750 VA, 90 W | 100 mA at 5 VDC |

PCB/Flux Protection, Plug-in, Quick-connect Terminal Relays

Contact Ratings

| Item | Number of poles | Load | Rated Load | Rated carry current | Max. switching voltage | Max. switching current | Max. switching power | Failure rate (reference value) |
|------------------|-----------------|---------------------------|-------------------------------|---------------------|------------------------|------------------------|----------------------|--------------------------------|
| | | | | | | | | |
| High-sensitivity | 1 pole | Resistive load (cosφ = 1) | 5 A at 250 VAC; 3 A at 30 VDC | 5 A | 380 VAC, 125 VDC | 5 A | 1,250 VA, 150 W | 100 mA at 5 VDC |
| | 2 poles | Resistive load (cosφ = 1) | 2 A at 250 VAC; 1 A at 30 VDC | 3 A | 380 VAC, 125 VDC | 3 A | 750 VA, 90 W | 100 mA at 5 VDC |

PCB/Flux Protection Relays

Note: 1. P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation.
 Note: 2. P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation.

PCB Power Relay – G2R

| Rated voltage | Rated current (50/60Hz) (see Note 1) | Must operate voltage | | Must release voltage | | Max. voltage | Power consumption |
|---------------|---|----------------------|-------------|---------------------------|---------------------------|---------------------------------|-------------------|
| | | (H) (ref. value) | Armature ON | 15% min. of rated voltage | 70% max. of rated voltage | | |
| 5 VDC | 71.4 mA | 60 mA | 0.75 | 100 Ω | 15% min. of rated voltage | 170% of rated voltage (at 23°C) | Approx. 0.36 W |
| 6 VDC | 60 mA | 53 | 1.07 | 400 Ω | 15% min. of rated voltage | 170% of rated voltage (at 23°C) | |
| 12 VDC | 30 mA | 2.14 | 4.27 | 1,600 Ω | 15% min. of rated voltage | 170% of rated voltage (at 23°C) | |
| 24 VDC | 15 mA | 7.80 | 15.60 | 6,400 Ω | 15% min. of rated voltage | 170% of rated voltage (at 23°C) | |

High-sensitivity Relays

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of $\pm 15\%$ / $\pm 20\%$ (AC rated current) or $\pm 10\%$ (DC coil resistance)
 2. Operating characteristics are measured at a coil temperature of 23°C
 3. Depending on the type of relay, some relays do not have coil specifications. Contact your Omron representative for more details.

| Rated voltage | Rated current (see note 1.) | Coil resistance (see note 1.) | | Rated current | Coil resistance | | Must set voltage | Must reset voltage | Max. voltage | Power consumption |
|---------------|-----------------------------|-------------------------------|--------|---------------|------------------|-------------|---------------------------|---------------------------|---------------------------------|--|
| | | 30 Ω | 43.5 Ω | | (H) (ref. value) | Armature ON | | | | |
| 5 VDC | 167 mA | 30 Ω | 43.5 Ω | 119 mA | 42 Ω | 0.006 | 70% max. of rated voltage | 70% max. of rated voltage | 140% of rated voltage (at 23°C) | Set coil: Approx. 850 mW; Reset coil: Approx. 600 mW |
| 6 VDC | 138 mA | 30 Ω | 43.5 Ω | 100 mA | 60 Ω | 0.005 | 70% max. of rated voltage | 70% max. of rated voltage | 140% of rated voltage (at 23°C) | |
| 12 VDC | 70.6 mA | 30 Ω | 43.5 Ω | 50 mA | 240 Ω | 0.018 | 70% max. of rated voltage | 70% max. of rated voltage | 140% of rated voltage (at 23°C) | |
| 24 VDC | 34.6 mA | 30 Ω | 43.5 Ω | 25 mA | 960 Ω | 0.079 | 70% max. of rated voltage | 70% max. of rated voltage | 140% of rated voltage (at 23°C) | |

Note: 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.

PCB Power Relay – G2R

| Item | Number of poles | Load | Rated Load | Contact material | Rated carry current | Max. switching voltage | Max. switching current | Max. switching power | Failure rate (reference value) |
|---|-----------------|---|-------------------------------------|------------------|---------------------|------------------------|------------------------|----------------------|-----------------------------------|
| | | | | | | | | | |
| PCB/Flux Protection, Plug-in, Quick-connect Terminal Relays | 1 pole | Resistive load ($\cos\phi = 1$) | 10 A at 250 VAC; 7.5 A at 30 VDC | AgSnIn | 10 A | 380 VAC, 125 VDC | 10 A | 2,500 VA, 300 W | 100 mA at 5 VDC |
| | | | 5 A at 250 VAC; 5 A at 30 VDC | | | | | | |
| | 2 poles | Resistive load ($\cos\phi = 1$) | 5 A at 250 VAC; 3 A at 30 VDC | AgSnIn | 5 A | 380 VAC, 125 VDC | 5 A | 1,250 VA, 150 W | 100 mA at 5 VDC |
| | | | 2 A at 250 VAC; 2 A at 30 VDC | | | | | | |
| High-capacity | 1 pole | Inductive load ($\cos\phi = 0.4$; L/R = 7 ms) | 16 A at 250 VAC; 8 A at 30 VDC | AgSnIn | 16 A | 380 VAC, 125 VDC | 16 A | 4,000 VA, 480 W | 100 mA at 5 VDC |
| | | | 8 A at 250 VAC; 8 A at 30 VDC | | | | | | |
| High-capacity | 2 poles | Inductive load ($\cos\phi = 0.4$; L/R = 7 ms) | 16 A at 250 VAC; 8 A at 30 VDC | AgSnIn | 16 A | 380 VAC, 125 VDC | 16 A | 4,000 VA, 480 W | 100 mA at 5 VDC |
| | | | 8 A at 250 VAC; 8 A at 30 VDC | | | | | | |

PCB/Flux Protection, Plug-in, Quick-connect Terminal Relays

Contact Ratings

Note: 1. P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation.

| Item | Number of poles | Load | Rated Load | Rated carry current | Max. switching voltage | Max. switching current | Max. switching power | Failure rate (reference value) |
|----------------------------|-----------------|---|------------------------------------|---------------------|------------------------|------------------------|----------------------|-----------------------------------|
| | | | | | | | | |
| PCB/Flux Protection Relays | 1 pole | Resistive load ($\cos\phi = 1$) | 5 A at 250 VAC; 3 A at 30 VDC | 5 A | 380 VAC, 125 VDC | 5 A | 1,250 VA, 90 W | 1 mA at 5 VDC |
| | | | 2 A at 250 VAC; 2 A at 30 VDC | | | | | |
| | 1 pole | Resistive load ($\cos\phi = 1$) | 5 A at 250 VAC; 3 A at 30 VDC | 5 A | 380 VAC, 125 VDC | 5 A | 1,250 VA, 90 W | 1 mA at 5 VDC |
| | | | 2 A at 250 VAC; 2 A at 30 VDC | | | | | |
| High-sensitivity | 2 poles | Inductive load ($\cos\phi = 0.4$; L/R = 7 ms) | 5 A at 250 VAC; 1.5 A at 30 VDC | 5 A | 380 VAC, 125 VDC | 5 A | 1,250 VA, 90 W | 1 mA at 5 VDC |
| | | | 3 A at 250 VAC; 1.5 A at 30 VDC | | | | | |

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

PCB Power Relay – G2R

| Item | General-purpose (single contact) | | Bifurcated contact | |
|--------------------------------|----------------------------------|---|----------------------------------|---|
| Number of poles | 1 pole | | 2 poles | |
| Load | Resistive load (cosφ = 1) | Inductive load (cosφ = 0.4; L/R = 7 ms) | Resistive load (cosφ = 1) | Inductive load (cosφ = 0.4; L/R = 7 ms) |
| Rated Load | 8 A at 250 VAC; 8 A at 30 VDC | 6 A at 250 VAC; 4 A at 30 VDC | 4 A at 250 VAC; 4 A at 30 VDC | 1.5 A at 250 VAC; 5 A at 30 VDC |
| Rated carry current | 8 A | | 5 A | |
| Max. switching voltage | 380 VAC, 125 VDC | | | |
| Max. switching current | 8 A | | 5 A | |
| Max. switching power | 2,000 VA, 1,500 VA, 120 W | 1,000 VA, 750 VA, 120 W | 1,250 VA, 150 W | 1 mA at 5 VDC |
| Failure rate (reference value) | 100 mA at 5 VDC | | 10 mA at 5 VDC | |

PCB/Fully Sealed Relays

Note: F level: λ₆₀ = 0.1 x 10⁶/operation.

| Number of poles | 1 pole | | 2 poles | |
|--------------------------------|----------------------------------|---|----------------------------------|---|
| Load | Resistive load (cosφ = 1) | Inductive load (cosφ = 0.4; L/R = 7 ms) | 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 | 3.5 A at 250 VAC; 2.5 A at 30 VDC | 3 A at 250 VAC; 3 A at 30 VDC | 1.5 A at 250 VAC; 2 A at 30 VDC |
| Rated carry current | 5 A | | 3 A | |
| Max. switching voltage | 380 VAC, 125 VDC | | | |
| Max. switching current | 5 A | | 3 A | |
| Max. switching power | 1,250 VA, 150 W | 875 VA, 75 W | 750 VA, 90 W | 10 mA at 5 VDC |
| Failure rate (reference value) | 100 mA at 5 VDC | | 10 mA at 5 VDC | |

Note: F level: λ₆₀ = 0.1 x 10⁶/operation.

PCB Power Relay – G2R

| Item | 1 Pole | 2 Poles |
|---------------------------|--|--|
| Contact resistance | 30 mΩ max. (high-capacity type: 100 mΩ max.) | 50 mΩ max. |
| Operate (set) time | 15 ms max | |
| Release (reset) time | AC: 10 ms max.; DC: 5 ms max. (w/built-in diode: 20 ms max.) | |
| Max. operating frequency | Electrical: 18,000 operations/hr Mechanical: 1,800 operations/hr (under rated load) | |
| Insulation resistance | 1,000 MΩ min. (at 500 VDC) | |
| Impulse withstand voltage | 10kV 1*40usec | |
| Insulation | Creepage (Typ) 10.0 mm | Distance 9.3 mm |
| Tracking Resistance (CTI) | 175 V | |
| Dielectric strength | 5,000 VAC, 50/60 Hz for 1 min between coil and contacts*; 1,000 VAC, 50/60 Hz for 1 min between contacts of different polarity; 3,000 VAC, 50/60 Hz for 1 min between contacts of same polarity | 5,000 VAC, 50/60 Hz for 1 min between contacts of same polarity |
| Vibration resistance | Destruction: 10 to 55 to 10 Hz, 0.75mm single amplitude (1.5mm double amplitude) Malfunction: 10 to 55 to 10 Hz, 0.75mm single amplitude (1.5mm double amplitude) | |
| Shock resistance | Destruction: 1,000 m/s ² Malfunction: 200 m/s ² when energized; 100 m/s ² when not energized | |
| Endurance | Mechanical: AC coil: 10,000,000 operations min.; DC coil: 20,000,000 operations min. (at 18,000 operations/hr) Electrical: 100,000 operations min. (at 1,800 operations/hr under rated load) | |
| Ambient temperature | Operating: -40°C to 70°C (with no icing) Operating: 5% to 85% | |
| Ambient humidity | Approx. 17 g | |
| Weight | Approx. 17 g | |

Standard Relays

■ Characteristics

Power Relays

■ Accessories (Order Separately)

Connecting Sockets

| Number of poles | Applicable Relay model | Track/surface-mounting Socket | Terminals | Model |
|-----------------|---|-------------------------------|------------------|-------------------|
| 1 pole | G2R-1-S(N)(D)(N)(ND)G2R-13; S(G2R-1A3-S) | P2RF-05-E | Solder terminals | P2R-05F, P2R-057P |
| 2 poles | G2R-2-S(N)(D)(N)(ND)I P2RF-08-E | P2RF-08 | PCB terminals | P2R-08F, P2R-087P |

Note: See Dimensions for details on socket size.

| Applicable socket | Description | Model |
|-------------------------|--|-----------------|
| Track connecting socket | Mounting track 1 m () x 7.3 mm () PFP-100N 1 m () x 16 mm () PFP-100N2 | PFP-M |
| Back connecting socket | Spacer End plate | P2R-P* PFP-S |

*Used to mount several P2R-05A and P2R-08A connecting sockets side by side.

Mounting Track

PCB Power Relay – G2R

| Item | General-purpose (single contact) | | Bifurcated contact | |
|--------------------------------|--------------------------------------|---|--------------------------------------|---|
| Number of poles | 1 pole | | 2 poles | |
| Load | Resistive load ($\cos\phi = 1$) | Inductive load ($\cos\phi = 0.4$; L/R = 7 ms) | Resistive load ($\cos\phi = 1$) | Inductive load ($\cos\phi = 0.4$; L/R = 7 ms) |
| Rated Load | 8 A at 250 VAC; 8 A at 30 VDC | 6 A at 250 VAC; 4 A at 30 VDC | 4 A at 250 VAC; 4 A at 30 VDC | 1.5 A at 250 VAC; 5 A at 30 VDC |
| Rated carry current | 8 A | | 5 A | |
| Max. switching voltage | 380 VAC, 125 VDC | | 380 VAC, 125 VDC | |
| Max. switching current | 8 A | | 5 A | |
| Max. switching power | 2,000 VA, 1,500 VA, 120 W | 1,000 VA, 750 VA, 120 W | 1,250 VA, 150 W | 1 mA at 5 VDC |
| Failure rate (reference value) | 100 mA at 5 VDC | | 10 mA at 5 VDC | |

PCB/Fully Sealed Relays

Note: F level: $\lambda_{60} = 0.1 \times 10^{-6}/\text{operation}$.

| Number of poles | 1 pole | | 2 poles | |
|--------------------------------|--------------------------------------|---|--------------------------------------|---|
| Load | Resistive load ($\cos\phi = 1$) | Inductive load ($\cos\phi = 0.4$; L/R = 7 ms) | Resistive load ($\cos\phi = 1$) | Inductive load ($\cos\phi = 0.4$; L/R = 7 ms) |
| Rated Load | 5 A at 250 VAC; 5 A at 30 VDC | 3.5 A at 250 VAC; 2.5 A at 30 VDC | 3 A at 250 VAC; 3 A at 30 VDC | 1.5 A at 250 VAC; 2 A at 30 VDC |
| Rated carry current | 5 A | | 3 A | |
| Max. switching voltage | 380 VAC, 125 VDC | | 380 VAC, 125 VDC | |
| Max. switching current | 5 A | | 3 A | |
| Max. switching power | 1,250 VA, 150 W | 875 VA, 75 W | 750 VA, 90 W | 10 mA at 5 VDC |
| Failure rate (reference value) | 100 mA at 5 VDC | | 10 mA at 5 VDC | |

Note: F level: $\lambda_{60} = 0.1 \times 10^{-6}/\text{operation}$.

120

PCB Power Relay – G2R

| Item | 1 Pole | 2 Poles |
|---------------------------|--|---|
| Contact resistance | 30 m Ω max. (high-capacity type: 100 m Ω max.) | 50 m Ω max. |
| Operate (set) time | 15 ms max | |
| Release (reset) time | AC: 10 ms max.; DC: 5 ms max. (w/built-in diode: 20 ms max.) | |
| Max. operating frequency | Electrical: 18,000 operations/hr Mechanical: 1,800 operations/hr (under rated load) | |
| Insulation resistance | 1,000 M Ω min. (at 500 VDC) | |
| Impulse withstand voltage | 10 kV, 1 μ sec | |
| Insulation | Creepage (Typ) 10.0 mm | Distance 9.3 mm |
| Tracking Resistance (CTI) | 175 V | |
| Dielectric strength | 5,000 VAC, 50/60 Hz for 1 min between coil and contacts*; 1,000 VAC, 50/60 Hz for 1 min between contacts of different polarity | 5,000 VAC, 50/60 Hz for 1 min between contacts of same polarity 1,000 VAC, 50/60 Hz for 1 min between contacts of different polarity |
| Vibration resistance | Destruction: 10 to 55 to 10 Hz, 0.75mm single amplitude (1.5mm double amplitude) Malfunction: 10 to 55 to 10 Hz, 0.75mm single amplitude (1.5mm double amplitude) | |
| Shock resistance | Destruction: 1,000 m/s ² Malfunction: 200 m/s ² when energized; 100 m/s ² when not energized | |
| Endurance | Mechanical: AC coil: 10,000,000 operations min.; DC coil: 20,000,000 operations min. (at 18,000 operations/hr) Electrical: 100,000 operations min. (at 1,800 operations/hr under rated load) | |
| Ambient temperature | Operating: -40°C to 70°C (with no icing) Operating: 5% to 85% | |
| Ambient humidity | Approx. 17 g | |
| Weight | Approx. 17 g | |

Standard Relays

■ Characteristics

Power Relays

■ Accessories (Order Separately)

Connecting Sockets

| Number of poles | Applicable Relay model | Track/surface-mounting Socket | Terminals | Model |
|-----------------|---|-------------------------------|------------------|-------------------|
| 1 pole | G2R-1-S(N)(D)(N)(ND)G2R-13; S(G2R-1A3-S) | P2RF-05-E | Solder terminals | P2R-05F, P2R-057P |
| 2 poles | G2R-2-S(N)(D)(N)(ND)I P2RF-08-E | P2RF-08 | PCB terminals | P2R-08F, P2R-087P |

Note: See Dimensions for details on socket size.

| Applicable socket | Description | Model |
|-------------------------|--|--------|
| Track connecting socket | Mounting track 1 m (1) x 7.3 mm (1); PFP-100N 1 m (1) x 16 mm (1); PFP-100N2 | PFP-M |
| Back connecting socket | Spacer | PFP-S |
| | Mounting plate | P2R-P* |

*Used to mount several P2R-05A and P2R-08A connecting sockets side by side.

Mounting Track

121

PCB Power Relay – G2R

| Item | | 1 Pole | 2 Poles |
|------------------------------------|--|--|---|
| Contact resistance | | 30 mΩ max. | 50 mΩ max. |
| Set time | | 20 ms max. | |
| Reset time | | 20 ms max. | |
| Min. set/reset signal width | | 30 ms max. | |
| Max. operating frequency | | Electrical: 1,800 operations/hr (under rated load) | |
| Insulation resistance | | 1,000 MΩ min. (at 500 VDC) | |
| Dielectric strength | | 5,000 VAC, 50/60 Hz for 1 min between coil and contacts*; 1,000 VAC, 50/60 Hz for 1 min between contacts of same pole; 1,000 VAC, 50/60 Hz for 1 min between set and reset coil | 5,000 VAC, 50/60 Hz for 1 min between contacts of same pole 1,000 VAC, 50/60 Hz for 1 min between set and reset coil |
| Vibration resistance | | Destruction: 10 to 55 to 10 Hz, 0.75mm single amplitude (1.5mm double amplitude) Malfunction: 10 to 55 to 10 Hz, 0.75mm single amplitude (1.5mm double amplitude) | |
| Shock resistance | | Destruction: 1,000 m/s ² (approx. 10G) Malfunction: Set: 500 m/s ² (approx. 50G); 200 m/s ² (approx. 20G) Reset: 100 m/s ² (approx. 10G) | |
| Endurance | | Mechanical: 10,000,000 operations min (at 18,000 operations/hr under rated load) Electrical: 100,000 operations min. (at 1,800 operations/hr under rated load) | |
| Ambient temperature | | Operating: -40°C to 70°C (with no icing) | |
| Ambient humidity | | Operating: 5% to 85% | |
| Weight | | Approx. 17 g (Quick-connect type: approx. 20g) | |

Double-winding Latching Relays

Note: Values in the above table are the initial values.

PCB Power Relay – G2R

| Model | Contact form | Coil ratings | Contact ratings |
|------------|--------------|--------------|---|
| G2R-1 | S PDT | 3 to 110 VDC | 10 A, 30 VDC (resistive) 10 A, 250 VAC (general use) 10 A, 250 VAC (general use) TV-3 (NO contact only) |
| G2R-1-H | | | |
| G2R-1-S | | | |
| G2R-1-T | | | |
| G2R-1A | | | |
| G2R-1A-H | SPST-NO | | 16 A, 30 VDC (resistive, NO contact only) 16 A, 250 VAC (general use, NO contact only) TV-3 (NO contact only); (1/3 hp, 120 VAC For UL) |
| G2R-1A-E | SPST-NO | | 5 A, 30 VDC (resistive) 5 A, 250 VAC (general use) TV-3 (NO contact only) |
| G2R-2 | | | |
| G2R-24 | DPDT | | |
| G2R-2-H | | | |
| G2R-2-S | | | |
| G2R-2A | DPST-NO | | |
| G2R-2A4 | | | |
| G2R-2A-H | | | |
| G2R-2A-S | | | |
| G2R-1A-ASI | SPST-NO | | 10 A, 30 VDC (resistive) 10 A, 250 VAC (general use) TV-5/TV-8 (NO contact only), (For UL) TV-8 (NO contact only); 1/4 hp, 125 VAC (For CSA) |

■ Approved Standards
UL 508 (File No. E41643), CSA 22.2 No.14 (File No. LR31928)

Power Relays

PCB Power Relay – G2R

| Item | | 1 Pole | 2 Poles |
|------------------------------------|--|--|---|
| Contact resistance | | 30 mΩ max. | 50 mΩ max. |
| Set time | | 20 ms max. | |
| Reset time | | 20 ms max. | |
| Min. set/reset signal width | | 30 ms max. | |
| Max. operating frequency | | Electrical: 1,800 operations/hr (under rated load) | |
| Insulation resistance | | 1,000 MΩ min. (at 500 VDC) | |
| Dielectric strength | | 5,000 VAC, 50/60 Hz for 1 min between coil and contacts*; 1,000 VAC, 50/60 Hz for 1 min between contacts of same pole; 1,000 VAC, 50/60 Hz for 1 min between set and reset coil | 5,000 VAC, 50/60 Hz for 1 min between contacts of same pole 1,000 VAC, 50/60 Hz for 1 min between set and reset coil |
| Vibration resistance | | Destruction: 10 to 55 to 10 Hz, 0.75mm single amplitude (1.5mm double amplitude) Malfunction: 10 to 55 to 10 Hz, 0.75mm single amplitude (1.5mm double amplitude) | |
| Shock resistance | | Destruction: 1,000 m/s ² (approx. 10G) Malfunction: Set: 500 m/s ² (approx. 50G); 200 m/s ² (approx. 20G) Reset: 100 m/s ² (approx. 10G) | |
| Endurance | | Mechanical: 10,000,000 operations min (at 18,000 operations/hr under rated load) Electrical: 100,000 operations min. (at 1,800 operations/hr under rated load) | |
| Ambient temperature | | Operating: -40°C to 70°C (with no icing) | |
| Ambient humidity | | Operating: 5% to 85% | |
| Weight | | Approx. 17 g (Quick-connect type: approx. 20g) | |

Double-winding Latching Relays

Note: Values in the above table are the initial values.

PCB Power Relay – G2R

| Model | Contact form | Coil ratings | Contact ratings |
|------------|--------------|--------------|---|
| G2R-1 | S PDT | 3 to 110 VDC | 10 A, 30 VDC (resistive) 10 A, 250 VAC (general use) 10 A, 250 VAC (general use) TV-3 (NO contact only) |
| G2R-1-H | | | |
| G2R-1-S | | | |
| G2R-1-T | | | |
| G2R-1A | | | |
| G2R-1A-H | | | |
| G2R-1A-T | | | |
| G2R-1A-E | | | |
| G2R-2 | | | |
| G2R-24 | | | |
| G2R-2-H | | | |
| G2R-2-S | | | |
| G2R-2A | | | |
| G2R-2A-H | | | |
| G2R-2A-S | | | |
| G2R-1A-ASI | SPST-NO | | 10 A, 30 VDC (resistive) 10 A, 250 VAC (general use) TV-5/TV-8 (NO contact only), (For UL) TV-8 (NO contact only); 1/4 hp, 125 VAC (For CSA) |

■ Approved Standards
UL 508 (File No. E41643), CSA 22.2 No.14 (File No. LR31928)

Power Relays

PCB Power Relay – G2R

| Contact form | Coil ratings | Contact ratings |
|--------------|--------------|--|
| 1 pole | 3 to 110 VDC | 16 A, 250 VAC1 (AgShIn contact) |
| 1 pole | 3 to 240 VAC | 16 A, 30 VDC1 (AgShIn contact) |
| 2 poles | | 10 A, 250 VAC1 5 A, 250 VAC3 10 A, 30 VDC1 |
| 2 poles | | 5 A, 250 VAC1 2 A, 380 VAC1 5 A, 30 VDC1 |

SEV

| Contact form | Coil ratings | Contact ratings |
|--------------|--------------|------------------------------------|
| 1 pole | 3 to 110 VDC | 10/80 A, 250 VAC |
| 1 pole | 3 to 240 VAC | 3/100 A, 250 VAC |
| 2 poles | | 16/128 A, 250 VAC (AgShIn contact) |
| 2 poles | | 5/40 A, 250 VAC |

SEMKO

| Contact form | Coil ratings | Contact ratings |
|--------------|---|---|
| 1 pole | 3 to 110 VDC, 6 VAC to 240 VAC | 10 A, 250 VAC (cosφ = 1.0) 10 A, 30 VDC (0 ms) 16 A, 250 VAC (cosφ = 1.0) |
| 1 pole | 3 to 48 VDC (for K, U coil) 3 to 70 VDC (for H coil) | (for Standard coil) (AgShIn contact) |
| 2 poles | | 8 A, 250 VAC (cosφ = 0.4) 5 A, 250 VAC (cosφ = 1.0) 5 A, 30 VDC (0 ms) 2.5 A, 250 VAC (cosφ = 0.4) |

TÜV (EN61810-1)

| Contact form | Coil ratings | Contact ratings |
|--------------|--|---|
| 1 pole | 5, 6, 9, 12, 18, 24, 48, 60, 100, 110 VDC | 10 A, 250 VAC (cosφ = 1.0) 10 A, 30 VDC (0 ms) 16 A, 250 VAC (cosφ = 1.0) |
| 1 pole | 12, 18, 24, 48, 50, 100/(110, 110, 120, 200/(220), 220, 230, 240 VAC | |
| 2 poles | 5, 6, 9, 12, 18, 24, 48, 60, 100, 110 VDC | 5 A, 250 VAC (cosφ = 1.0) 5 A, 30 VDC (0 ms) |

EN 61810-1 (VDE)

| Contact form | Coil ratings | Contact ratings |
|--------------|--|---|
| 1 pole | 5, 6, 9, 12, 18, 24, 48, 60, 100, 110 VDC | 10 A, 250 VAC (cosφ = 1.0) 10 A, 30 VDC (0 ms) 16 A, 250 VAC (cosφ = 1.0) |
| 1 pole | 12, 18, 24, 48, 50, 100/(110, 110, 120, 200/(220), 220, 230, 240 VAC | |
| 2 poles | 5, 6, 9, 12, 18, 24, 48, 60, 100, 110 VDC | 5 A, 250 VAC (cosφ = 1.0) 5 A, 30 VDC (0 ms) |

| Contact ratings |
|--|
| 10 A, 30 VDC (resistive) |
| 10 A, 250 VAC (general use, NO contact only) |
| 16 A, 250 VAC (general use, NO contact only) |
| 16 A, 30 VDC (resistive, NO contact only) |
| TV-3 (NO contact only) |
| 5 A, 30 VDC (resistive) |
| 5 A, 250 VAC (general use) |
| TV-3 (NO contact only) |
| 10 A, 30 VDC (resistive) |
| 10 A, 250 VAC (general use) |
| TV-8 (NO contact only); 1/4 hp, 125 VAC |

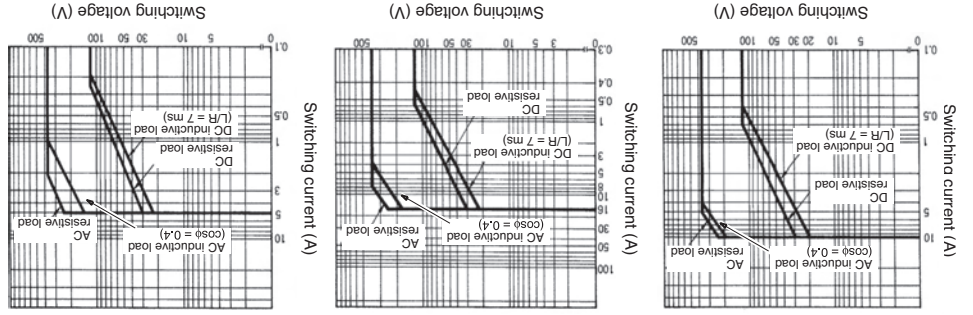
PCB Power Relay – G2R

Maximum Switching Power
Flux Protection/Plug-in Relays

| Model | Switching current (A) | Switching voltage (V) |
|----------------------------------|-----------------------|-----------------------|
| G2R-1, G2R-1A, G2R-1-T, G2R-1A-T | 100 | 500 |
| G2R-1-E, G2R-1A-E | 100 | 500 |
| G2R-1-Z, G2R-1A-Z | 100 | 500 |

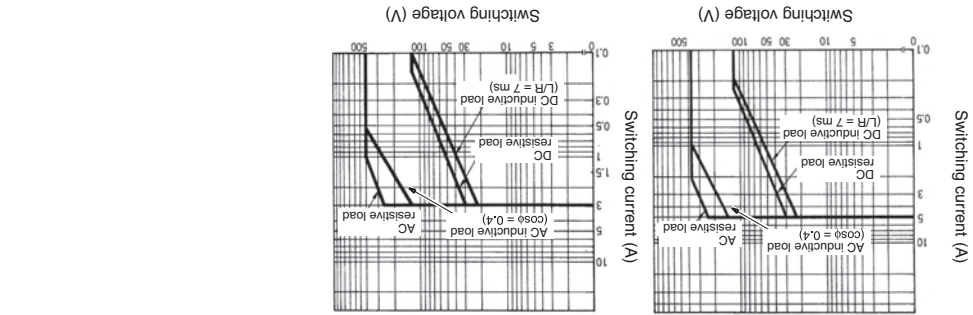
Engineering Data

Power Relays



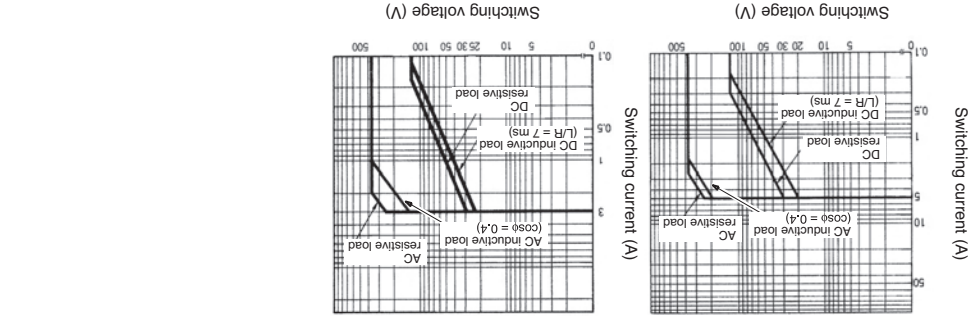
G2R-1-H, G2R-1A-H, G2R-2A-H

G2R-2-H, G2R-2A-H



G2R-1-A, G2R-1

G2R-2-A, G2R-2



G2R-1-A, G2R-1

G2R-2-A, G2R-2

PCB Power Relay – G2R

| Contact form | Coil ratings | Contact ratings |
|--------------|--------------|--|
| 1 pole | 3 to 110 VDC | 16 A, 250 VAC1 (AgShIn contact) |
| 1 pole | 3 to 240 VAC | 16 A, 30 VDC1 (AgShIn contact) |
| 2 poles | | 10 A, 250 VAC1 5 A, 250 VAC3 10 A, 30 VDC1 |
| 2 poles | | 5 A, 250 VAC1 2 A, 380 VAC1 5 A, 30 VDC1 |

SEV

| Contact form | Coil ratings | Contact ratings |
|--------------|--------------|------------------------------------|
| 1 pole | 3 to 110 VDC | 10/80 A, 250 VAC |
| 1 pole | 3 to 240 VAC | 3/100 A, 250 VAC |
| 2 poles | | 16/128 A, 250 VAC (AgShIn contact) |
| 2 poles | | 5/40 A, 250 VAC |

SEMKO

| Contact form | Coil ratings | Contact ratings |
|--------------|---|---|
| 1 pole | 3 to 110 VDC, 6 VAC to 240 VAC (for Standard coil) | 10 A, 250 VAC (cosφ = 1.0) 10 A, 30 VDC (0 ms) 16 A, 250 VAC (cosφ = 1.0) |
| 1 pole | 3 to 48 VDC (for K, U coil) 3 to 70 VDC (for H coil) | 10 A, 250 VAC (cosφ = 1.0) (AgShIn contact) |
| 2 poles | | 8 A, 250 VAC (cosφ = 0.4) 5 A, 250 VAC (cosφ = 1.0) 5 A, 30 VDC (0 ms) 2.5 A, 250 VAC (cosφ = 0.4) |

TÜV (EN61810-1)

| Contact form | Coil ratings | Contact ratings |
|--------------|---|---|
| 1 pole | 5, 6, 9, 12, 18, 24, 48, 60, 100, 110 VDC 12, 18, 24, 48, 50, 100/(10), 110, 120, 200/(20), 220, 230, 240 VAC | 10 A, 250 VAC (cosφ = 1.0) 10 A, 30 VDC (0 ms) 16 A, 250 VAC (cosφ = 1.0) |
| 2 poles | 5, 6, 9, 12, 18, 24, 48, 60, 100, 110 VDC 12, 18, 24, 48, 50, 100/(10), 110, 120, 200/(20), 220, 230, 240 VAC | 5 A, 250 VAC (cosφ = 1.0) 5 A, 30 VDC (0 ms) |

EN 61810-1 (VDE)

| Contact form | Coil ratings | Contact ratings |
|--------------|---|---|
| 1 pole | 5, 6, 9, 12, 18, 24, 48, 60, 100, 110 VDC 12, 18, 24, 48, 50, 100/(10), 110, 120, 200/(20), 220, 230, 240 VAC | 10 A, 250 VAC (cosφ = 1.0) 10 A, 30 VDC (0 ms) 16 A, 250 VAC (cosφ = 1.0) |
| 2 poles | 5, 6, 9, 12, 18, 24, 48, 60, 100, 110 VDC 12, 18, 24, 48, 50, 100/(10), 110, 120, 200/(20), 220, 230, 240 VAC | 5 A, 250 VAC (cosφ = 1.0) 5 A, 30 VDC (0 ms) |

| Contact ratings |
|--|
| 10 A, 30 VDC (resistive) |
| 10 A, 250 VAC (general use, NO contact only) |
| 16 A, 250 VAC (general use, NO contact only) |
| TV-3 (NO contact only) |
| 5 A, 30 VDC (resistive) |
| 5 A, 250 VAC (general use) |
| TV-3 (NO contact only) |
| 10 A, 30 VDC (resistive, NO contact only) |
| 16 A, 250 VAC (general use, NO contact only) |
| TV-3 (NO contact only) |
| 5 A, 30 VDC (resistive) |
| 10 A, 250 VAC (general use) |
| TV-8 (NO contact only); 1/4 hp, 125 VAC |

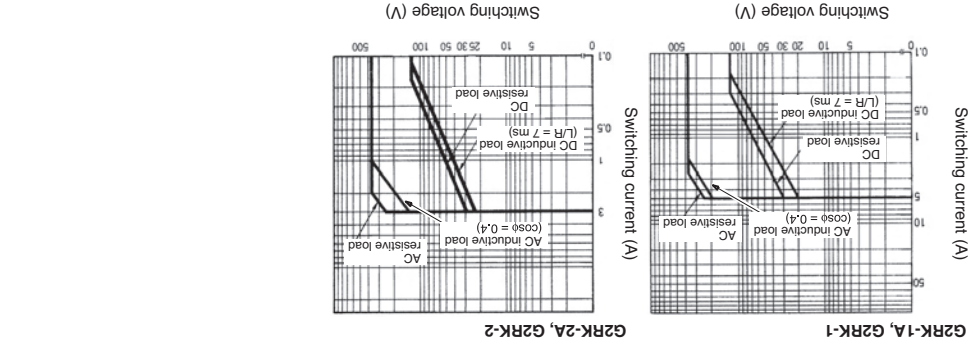
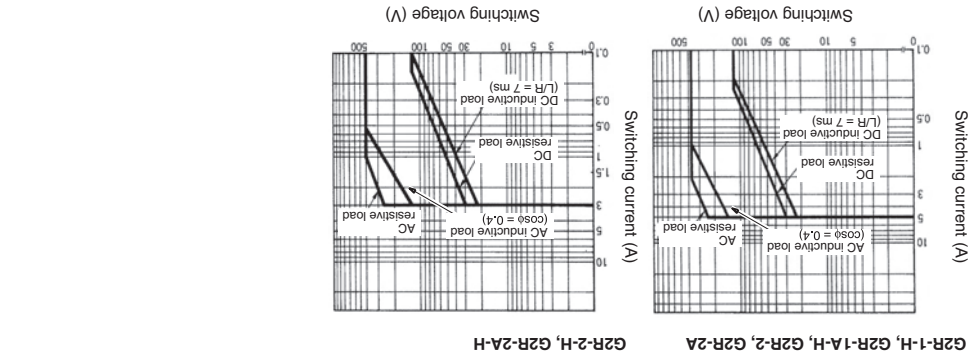
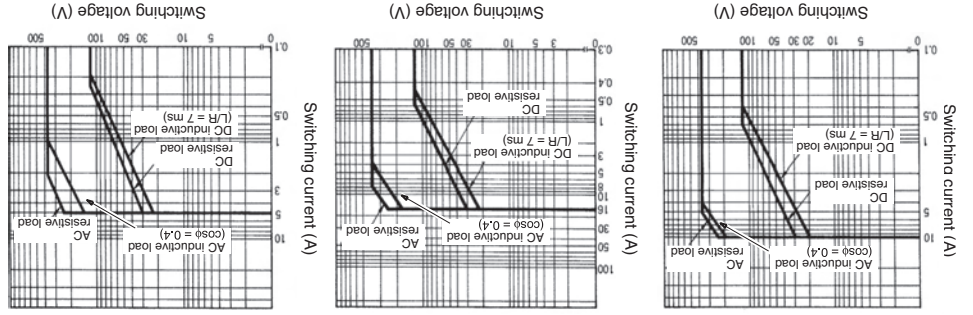
PCB Power Relay – G2R

Maximum Switching Power
Flux Protection/Plug-in Relays

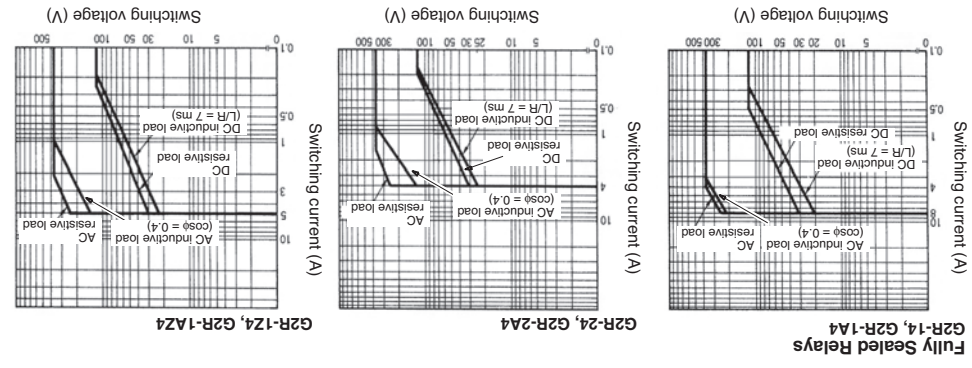
| Model | AC inductive load (cosφ = 0.4) | AC resistive load | DC inductive load (L/R = 7 ms) | DC resistive load |
|----------------------------------|--------------------------------|-------------------|--------------------------------|-------------------|
| G2R-1, G2R-1A, G2R-1-T, G2R-1A-T | 100 A | 100 A | 100 A | 100 A |
| G2R-1-E, G2R-1A-E | 100 A | 100 A | 100 A | 100 A |
| G2R-1-Z, G2R-1A-Z | 100 A | 100 A | 100 A | 100 A |

Engineering Data

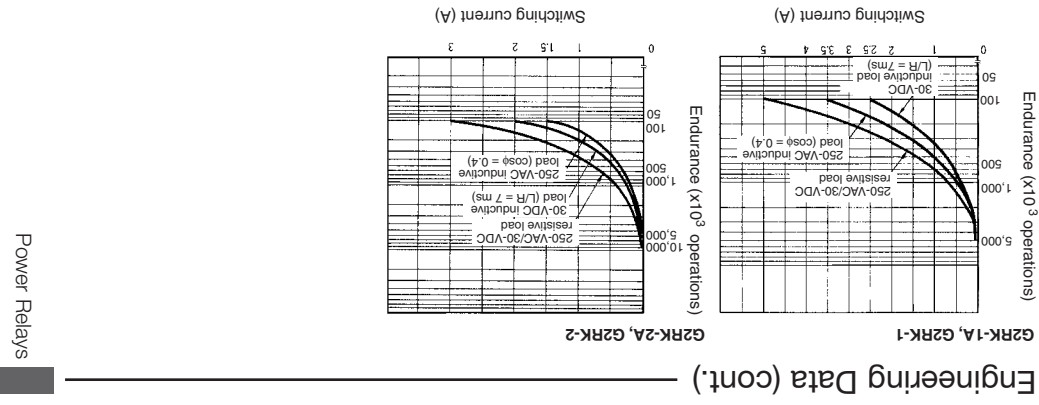
Power Relays



PCB Power Relay – G2R

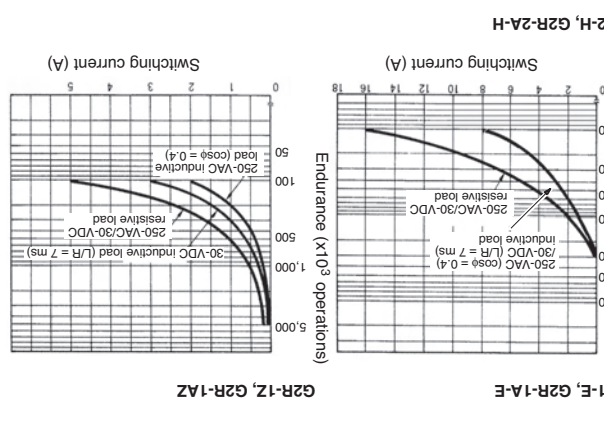
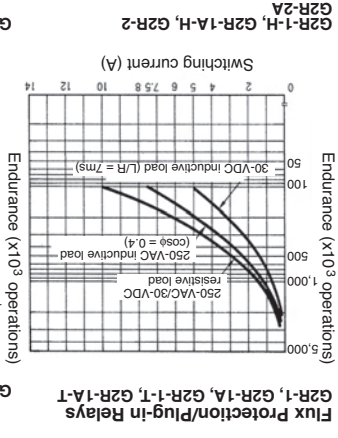


PCB Power Relay – G2R

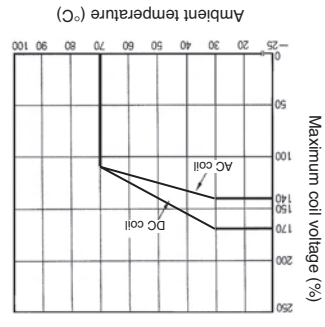


Engineering Data (cont.)

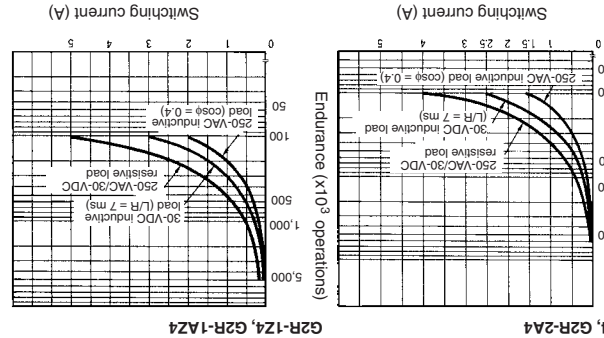
Power Relays



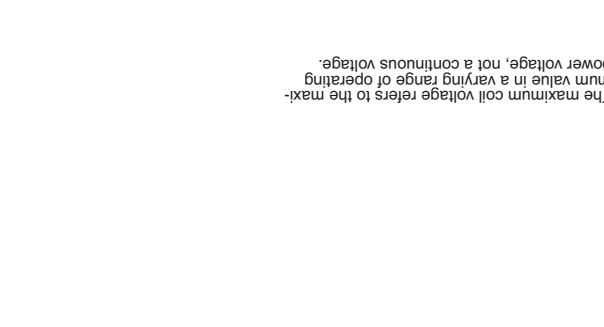
Ambient Temperature vs Maximum Coil Voltage



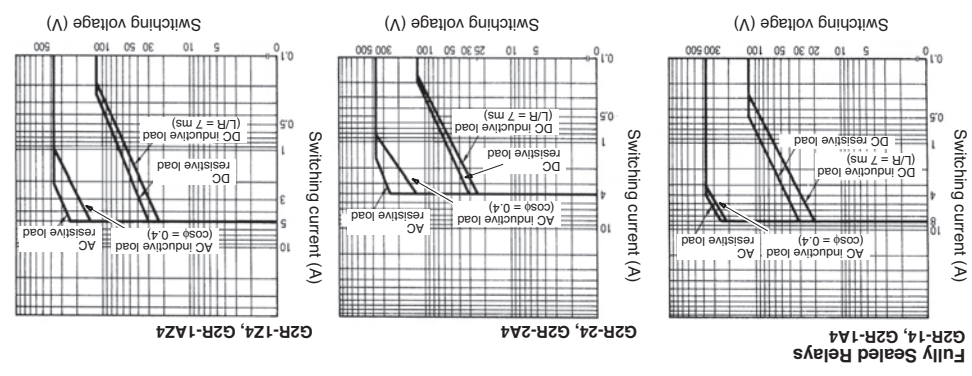
Note: The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.



Ambient Temperature vs Maximum Coil Voltage



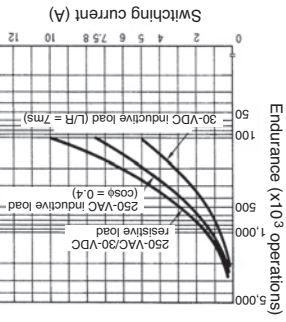
PCB Power Relay – G2R



Fully Sealed Relays
G2R-14, G2R-1A4

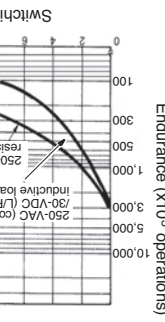
Endurance

Flux Protection/Plug-in Relays



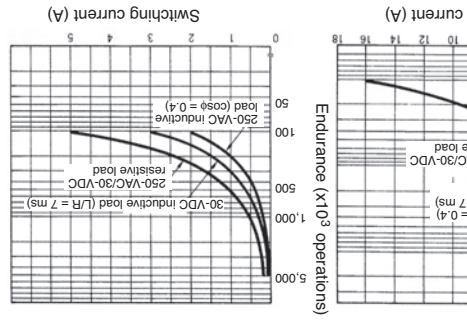
G2R-1-H, G2R-1A-H, G2R-2

Endurance



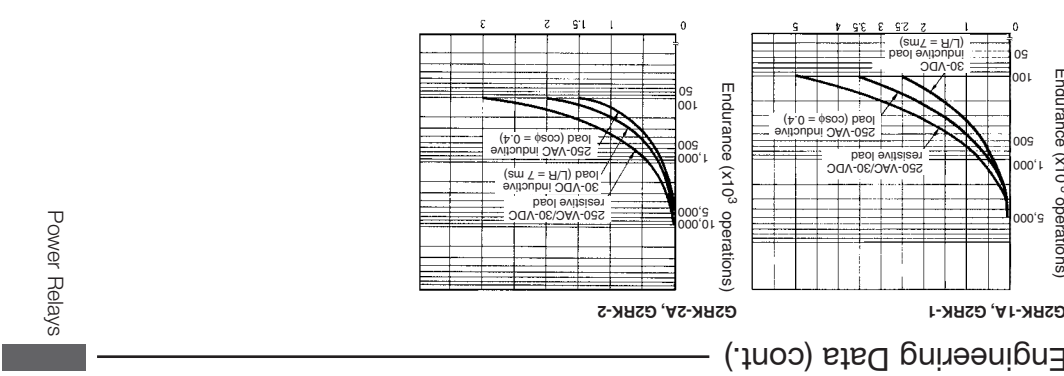
G2R-2-H, G2R-2A-H

Endurance



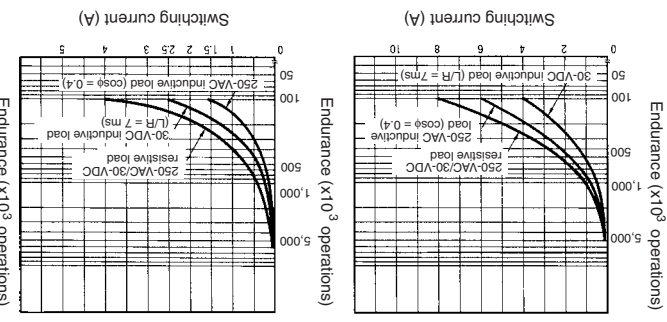
G2R-1-Z, G2R-1A-Z

PCB Power Relay – G2R



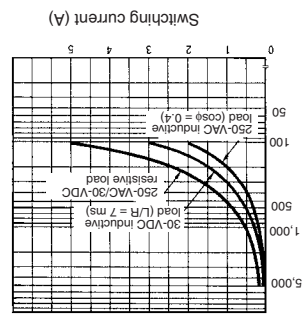
Fully sealed Relays
G2R-14, G2R-1A4

Endurance



G2R-2-H, G2R-2A-H

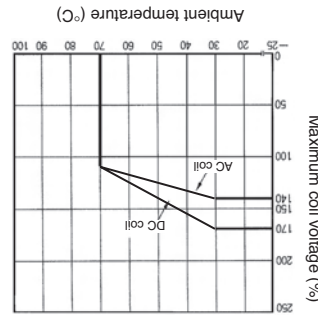
Endurance



G2R-1-Z, G2R-1A-Z

Power Relays

Engineering Data (cont.)



Ambient Temperature vs Maximum Coil Voltage

Note: The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [General Purpose Relays](#) category:

Click to view products by [Omron](#) manufacturer:

Other Similar products are found below :

[APF30318](#) [JVN1AF-4.5V-F](#) [PCN-105D3MHZ](#) [5JO-10000S-SIL](#) [5JO-1000CD-SIL](#) [5JO-400CD-SIL](#) [LY2S-AC220/240](#) [LYQ20DC12](#)
[6031007G](#) [6131406HQ](#) [6-1393099-3](#) [6-1393099-8](#) [6-1393122-4](#) [6-1393123-2](#) [6-1393767-1](#) [6-1393843-7](#) [6-1415012-1](#) [6-1419102-2](#) [6-](#)
[1423698-4](#) [6-1608051-6](#) [6-1608067-0](#) [6-1616170-6](#) [6-1616248-2](#) [6-1616282-3](#) [6-1616348-2](#) [6-1616350-1](#) [6-1616350-8](#) [6-1616358-7](#) [6-](#)
[1616359-9](#) [6-1616360-9](#) [6-1616931-6](#) [6-1617039-1](#) [6-1617052-1](#) [6-1617090-2](#) [6-1617090-5](#) [6-1617347-5](#) [6-1617353-3](#) [6-1617801-8](#) [6-](#)
[1617802-2](#) [6-1618107-9](#) [6-1618248-4](#) [M83536/1-027M](#) [CX-4014](#) [MAHC-5494](#) [MAVCD-5419-6](#) [703XCX-120A](#) [7-1393100-5](#) [7-1393111-7](#)
[7-1393144-5](#) [7-1393767-8](#)