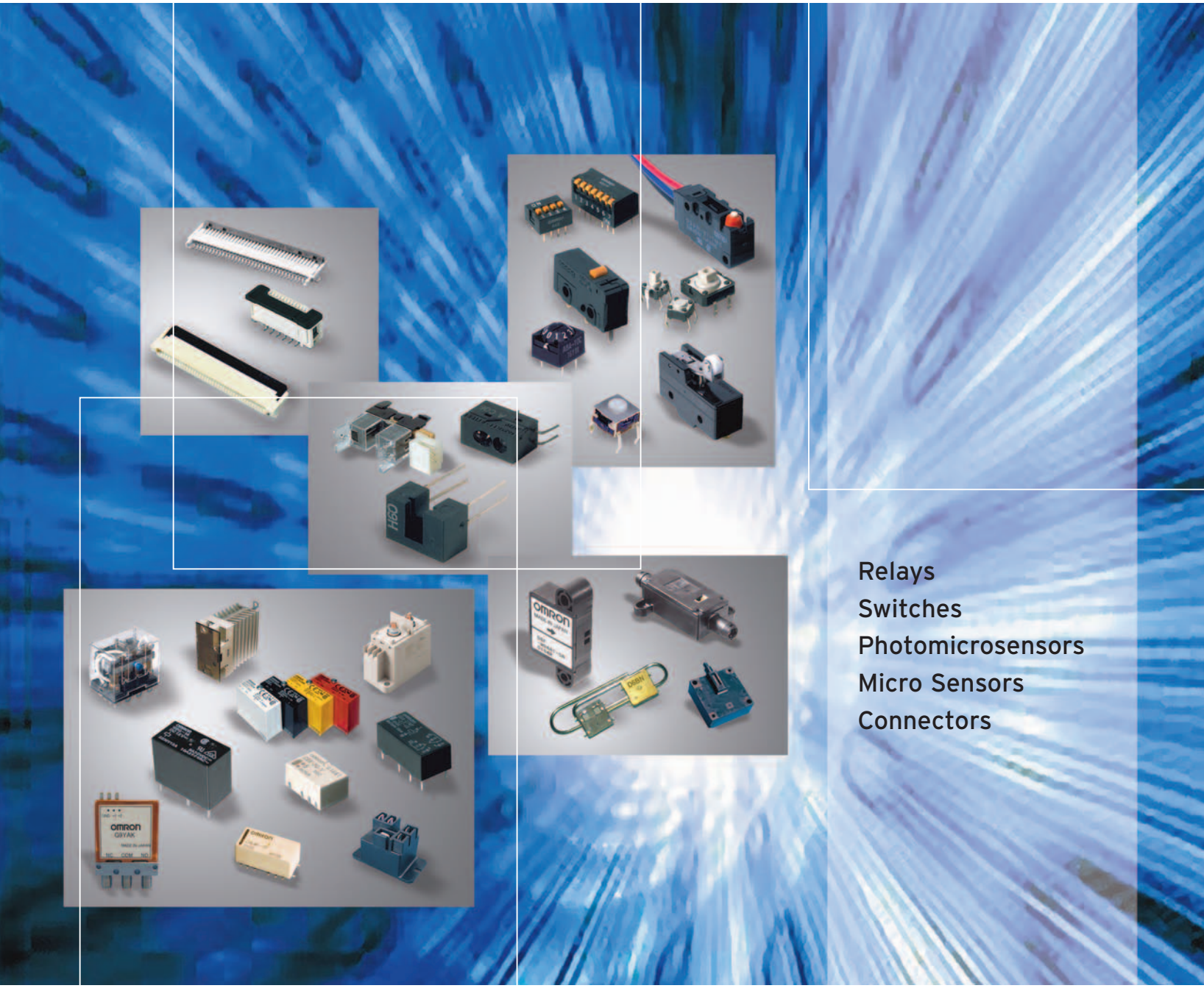
# Electronic Components

## Master Selection Guide



Relays
Switches
Photomicrosensors
Micro Sensors
Connectors

OMRON
ELECTRONIC COMPONENTS

# Omron Electronic Components LLC

**Stability and Experience**
With over 70 years experience, Omron continues to apply the latest technologies providing you with innovative efficient control component solutions. Our wide range of relays, switches, sensors, and connectors allows our customers to streamline vendor lists and reduce the cost of procurement.

**Quality First**
**Our commitment, your benefit**
Omron makes a conscious choice to relentlessly pursue quality. Our quality engineers are part of the design and manufacturing from the start. We design and evaluate at the component level, test and adjust during manufacturing, and examine every physical, mechanical, and electrical aspect of each final product before it leaves the factory.

**Customer Support**
Omron's sales engineers, inside sales representatives, and customer service staff have experience with all types of electronic applications. No matter what the application or volume, we will find just the right component for your project.

**RoHS Compliant Products**
Most of Omron's electronic components are already compliant, and we are striving for 100% compliance by mid 2006.

**Broad Product Offering**

**Relays, The #1 Supplier In The World:**
- MOS FET
- Low Signal
- RF/HF
- Power PCB
- Automotive
- General-Purpose
- Solid State

**Switches:**
- Snap Action
- Tactile
- DIP
- Dome Array
- Thumbwheel
- Rocker

**Photomicrosensors:**
- Slotted
- Reflective

**Micro Sensors:**
- Pressure
- Tilt
- Flow
- Shock/Vibration
- Clog Filter

**Connectors**
- FPC
- FFC

Additional information can be found at www.components.omrom.com, or by calling us at: 847.882.2288 Monday through Friday 7:30 AM until 6:00 PM CST. Our inside sales staff will be ready to provide you with detailed product information, technical design support, or the location of your local Omron sales office or authorized distributor.

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**Email: components@omron.com**
**Or visit: www.components.omron.com**

OMRON
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# World-Wide Headquarter Locations

## The Americas

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### Japan

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ELECTRONIC COMPONENTS

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* Sealed Snap Action switches are available on pages 26 & 27.

# Omron History & Profile

**History:**
Omron was founded May 10, 1933 in Kyoto, Japan, by founder Kazuma Tateisi. The first product developed and released by Omron was a timer for X-ray equipment. Since then, Omron has expanded globally and produced a steady stream of breakthroughs in electronic components that have contributed to the improvement of productivity in many different industries. Omron's consistent striving to accurately anticipate the potential needs of society and develop businesses to satisfy those needs has made the Omron Group what it is today. Dr. Tateisi's passion and progressive attitude are instilled to this day in all Omron employees, and the challenge-oriented spirit remains the main source of Omron's identity. By consistently preserving the spirit and philosophy of Omron's founder, we are determined to continue meeting the challenges of creating a better tomorrow.

**Achievements:**
- December 1943 – Development of Japan's first precision switch; established Omron (then Tateisi Electric) as a 'technological pioneer' in Japan.
- 1948 – Establishment of Omron Tateisi Electronics Co. coincided with the successful development and production of a new current limiter integrating Omron's precision switch and protective relay technologies.
- 1955-1965 – Launched the full-scale production of control components and the introduction of a steady stream of new products including advanced precision switches & compact protective relays.
- 1960 – Development of the innovative solid-state proximity switch and solid-state relay.
- 1963 – Introduction of the world's first automatic meal-ticket vending machine.
- 1969 and 1971 – Development of the first off-line and on-line automatic cash dispensers which established Omron as one of the pioneers of the banking revolution in Japan.
- 1967 – Completion of the world's first automated train station system achieved by drawing on the company's advanced card system technology.
- January 1990 – the company was renamed to Omron Corporation and marked a commitment to continue expansion of business lines and global-scale production.
- April 1999 – Omron establishes a strategic system of five specialized, independent business units.
- 2002 – Establishment of Omron China to accelerate market expansion in to China and Asia-Pacific.

**Profile:**
Omron Corporation is a $5.5 billion global leading supplier of electronics and control system components and services.

## Omron Business Fields:

**Electronic Components Business**

**Industrial Automation Business**

**Automotive Electronics Business**

**Social System Business**

**Healthcare Business**

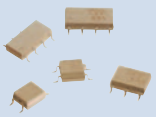
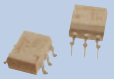
# Omron's Core Competencies, Technologies & Markets Served

**Design Synthesis:**
Our products' designs are based on a combination of our core competencies and core technologies to effectively meet customer and market needs. By efficiently and creatively manipulating these competencies, we are able to develop and manufacture a broad offering of cost effective, high quality, and environmentally friendly products. As the global market's demand for new and innovative products continues to grow, Omron pledges to expand its research and development of new core technologies.

**Commitment to the Environment:**
Omron is committed to creating products that are designed with consideration for the environment throughout their entire lifespan (what we call "Eco-Products"). These considerations address energy and resource conservation, extended product life, reuse and recycling, as well as avoidance of hazardous chemical substances. Our goal is to make a proactive contribution to reducing the harm caused by our societal system to the environment through the development of more environmentally sound products.

# Relays - MOS FET

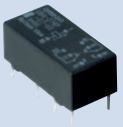


| |  | | |  | |
|---|---|---|---|---|---|
| ***General Attributes*** | **G3VM-200** | **G3VM-350** | **G3VM-400** | **G3VM High Voltage & Dielectric** | **G3VM Current Limiting** |
| **Dimensions mm (in)** | Please refer to specific data sheets for all dimensional information | Please refer to specific data sheets for all dimensional information | Please refer to specific data sheets for all dimensional information | Please refer to specific data sheets for all dimensional information | Please refer to specific data sheets for all dimensional information |
| **Features** | • 1 & 2 channel configurations<br>• Ideal for Instrumentation, Broadband Systems, Measurement Devices, Data Loggers, Consumer Electronics, Medical Equipment | • Broad product offering<br>• Form A & Form B configurations<br>• Ideal for Instrumentation, Broadband Systems, Measurement Devices, Data loggers, Consumer Electronics, Security Systems, Electronic Automatic Exchange Systems, Industrial Automation Equipment, Medical Equipment | • Broad product offering<br>• 10kV surge withstand models available<br>• Ideal for Instrumentation, Broadband Systems, Measurement Devices, Data Loggers, Consumer Electronics, Security Systems, Electronic Automatic Exchange Systems, Industrial Automation Equipment, Medical Equipment | • Capable of switching loads up to 600V (AC and DC)<br>• 10kV surge withstand<br>• Ideal for Instrumentation, Electronic Automatic Exchange Systems, Industrial Automation Systems, Measurement Devices, Security Systems, Medical Equipment | • Current limiting of 150 to 300mA<br>• Ideal for Electronic Automatic Exchange Systems, Multi-function Telephones, Cordless Telephones, Measurement Devices, Instrumentation |
| **Load voltage** | 0-200V (AC or DC) | 0-350V (AC or DC) | 0-400V (AC or DC) | 0-600V (AC or DC) | 0-350V (AC or DC) |
| ***Maximum Ratings and Electrical Characteristics***<br>**Continuous load current** | 0-50mA & 0-200mA | 0-90mA, 0-100mA, 0-110mA, 0-120mA, 0-150mA | 0-120mA | 0-100mA | 0-120mA |
| **ON resistance (typical)** | 5Ω & 30Ω | 15Ω, 27Ω, 30Ω, 25Ω, 40Ω | 17Ω & 18Ω | 25Ω | 22Ω |
| **Output capacitance** | – | – | – | – | – |
| **Available switching configurations** | 1 Form A, 2 Form A | 1 Form A, 1 Form B,<br>1 Form A + 1 Form B<br>2 Form A, 2 Form B | 1 Form A, 2 Form A | 1 Form A | 1 Form A, 2 Form A |
| **Leakage current** | 10nA (max.) & 1.0μA (max.) | 1.0μA (max.) | 1.0μA (max.) | 1.0μA (max.) | 1.0μA (max.) |
| **turn-ON time (typical)** | 40ms & 600ms | 0.1ms, 0.25ms, 0.3ms, 0.5ms, 1.0ms | 0.3ms & 0.5ms | 0.2ms | 0.3ms & 0.5ms |
| **turn-OFF time (typical)** | 100ms | 0.1ms, 0.15ms, 0.5ms, 1.0ms, 3.0ms | 0.1ms & 0.5ms | 0.2ms | 0.3ms & 0.5ms |
| **Dielectric strength (AC for 1 minute between input and output)** | 1,500Vrms (min.) | 1,500Vrms (min.)<br>2,500Vrms (min.) | 1,500Vrms (min.)<br>2,500Vrms (min.)<br>5,000Vrms (min.) | 5,000Vrms (min.) | 1,500Vrms (min.)<br>2,500Vrms (min.) |
| **Available packaging & terminal choices** | SOP<br>4 PIN, 6 PIN, 8 PIN | PCB, SMT, SOP<br>4 PIN, 6 PIN, 8 PIN | PCB, SMT, SOP<br>4 PIN, 6 PIN, 8 PIN | PCB & SMT<br>6 PIN | PCB, SMT & SOP<br>4 PIN, 6 PIN, 8 PIN |
| **Accessories** | Tape & reel | Tape & reel | Tape & reel | Tape & reel | Tape & reel |
| **Approved standards** | UL 1577 | UL 1577 | UL 1577 | UL 1577 | UL 1577 |

| | | | | | |
|---|---|---|---|---|---|
| ***General Attributes*** | **G3VM GR** | **G3VM LR** | **G3VM-60** | **G3VM-80** | **G3VM-22** |
| **Dimensions mm (in)** | Please refer to specific data sheets for all dimensional information | Please refer to specific data sheets for all dimensional information | Please refer to specific data sheets for all dimensional information | Please refer to specific data sheets for all dimensional information | Please refer to specific data sheets for all dimensional information |
| **Features** | • C x R characteristics as low as 5pF*Ω<br>• Low leakage current<br>• Very high operating speed<br>• Ideal for IC and Memory Test Equipment, SoC Testers, Measurement Devices, Instrumentation, Medical Equipment, Broadband Systems, Data Loggers, Security Systems | • Smallest MOS FET relay on the market<br>• C x R characteristics as low as 5pF*Ω<br>• Low leakage current<br>• Very high operating speed<br>• Ideal for IC and Memory Test Equipment, SoC Testers, Measurement Devices, Instrumentation, Medical Equipment, Broadband Systems, Data Loggers, Security Systems | • High current switching capability<br>• Low ON-resistance<br>• Low leakage current<br>• Cost effective solutions<br>• Ideal for Measurement Devices, Instrumentation, Security Systems, Medical Equipment, Alarm Controls, Consumer Electronics | • High current switching capability<br>• Low leakage current<br>• Ideal for Broadband Systems, Measurement Devices, Instrumentation, Medical Equipment, Data Loggers, Consumer Electronics | • Single input channel with dual output channels<br>• Low ON-resistance<br>• Ideal for Inline Interface Applications, Data Loggers, ADSL Modems and Routers, Edge Routers, Data Storage Devices |
| **Load voltage** | 0-20V (AC or DC)<br>0-40V (AC or DC) | 0-20V (AC or DC)<br>0-40V (AC or DC) | 0-60V (AC or DC) | 0-80V (AC or DC) | 0-20V (AC or DC) |
| ***Maximum Ratings and Electrical Characteristics***<br>**Continuous load current** | 0-120mA<br>0-160mA<br>0-300mA | 0-120mA<br>0-160mA<br>0-300mA<br>0-450mA | 0-400mA<br>0-500mA<br>0-1,000mA<br>0-2,000mA<br>0-2,500mA | 0-350mA<br>0-1,250mA | 0-150mA |
| **ON resistance (typical)** | 1Ω, 5Ω, 10Ω | 0.8Ω, 1Ω, 5Ω, 10Ω | 0.12Ω (max.)<br>7Ω (max.)<br>1Ω (typ.) | 0.11Ω & 1.0Ω | 2Ω |
| **Output capacitance** | 1.0pF (typ.)<br>5.0pF (typ.)<br>10pF (typ.) | 0.8pF (typ.)<br>1.0pF (typ.)<br>5.0pF (typ.)<br>10pF (typ.) | – | – | – |
| **Available switching configurations** | 1 Form A | 1 Form A | 1 Form A | 1 Form A | Dual 1 Form A |
| **Leakage current** | 1.0nA (max.) | 1.0nA (max.) | 1.0nA (max.) & 1.0μA (max.) | 0.2nA (typ.) & 1.2nA (typ.) | 1.0μA (max.) |
| **turn-ON time (typical)** | 0.3ms | 0.3ms | 0.8ms<br>1.0ms<br>1.4ms | 0.3ms<br>2.0ms | 0.5ms |
| **turn-OFF time (typical)** | 0.3ms | 0.3ms | 0.1ms<br>0.2ms<br>0.6ms | 0.3ms<br>0.7ms | 0.5ms |
| **Dielectric strength (AC for 1 minute between input and output)** | 1,500Vrms (min.) | 1,500Vrms (min.) | 1,500Vrms (min.)<br>2,500Vrms (min.) | 1,500Vrms (min.) | 2,500Vrms (min.) |
| **Available packaging & terminal choices** | SOP<br>4 PIN | SOP<br>4 PIN | SOP, PCB, SMT<br>4 PIN, 6 PIN | SOP<br>4 PIN, 6 PIN | PCB & SMT<br>8 PIN |
| **Accessories** | Tape & reel | Tape & reel | Tape & reel | Tape & reel | Tape & reel |
| **Approved standards** | UL 1577 | UL 1577 | UL 1577 | UL 1577 | UL 1577 |

# Relays - Low Signal



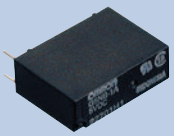
| | | | | |  |
|---|---|---|---|---|---|
| ***General Attributes*** | **G6J-Y** | **G6K** | **G6H** | **G6S** | **G6A** |
| **Dimensions mm (in)** | 10.0 H x 10.6 L x 5.7 W (0.39 x 0.42 x 0.22) | 5.30 H x 10.20 L x 6.70 W (0.21 x 0.40 x 0.26) | 5.08 H x 13.97 L x 8.89 W (0.20 x 0.55 x 0.35) | 9.40 H x 15 L x 7.50 W (0.37 x 0.59 x 0.30) | 8.40 H x 20.20 L x 10.10 W (0.33 x 0.80 x 0.40) |
| **Switching** | 1A max. | 1A max. | 1A max. | 2A max. | 2A max. |
| **Features** | • Slimline, 2 Form C, 1 Amp relay<br>• SMT & PCB versions<br>• 2.5kV surge withstand<br>• Available in SMT & PCB<br>• Latching & non-latching versions<br>• Ideal for Telecom, Test & Measurement, Medical, Security, Computer Peripheral, Office Automation | • Small real estate, 2 Form C, 1 Amp relay<br>• 100mW power consumption<br>• 2.5kV surge withstand<br>• SMT & PCB versions<br>• Latching & non-latching models<br>• Ideal for Telecom, Test & Measurement, Medical, Security, Office Automation, Computer Peripheral | • Low profile (5mm), 2 Form C, 1 Amp relay)<br>• Available in SMT & PCB<br>• 1.5kV surge withstand<br>• 140mW power consumption<br>• Ideal for Telecom, Test & Measurement, Medical, Security, Office Automation, Computer Peripheral | • Industry standard, 2 Form C, 2 Amp relay<br>• 2.5 kV surge withstand<br>• SMT gullwing, SMT inside-L, PCB models<br>• Latching & non-latching versions<br>• European version available (supplementary insulation at 250V at pollution degree 2 per EN60950/EN41003)<br>• Ideal for Telecom, Thermostats, Medical, Test & Measurement, Security | • Industry standard, 2 Form C, 2 Amp relay<br>• 200mW, 400mW versions<br>• 2 Pole & 4 Pole models<br>• Latching & non-latching versions<br>• 1.5kV surge withstand<br>• Ideal for Telecom, Test & Measurement, Security |
| ***Contact Information***<br>**Contact form** | 2 Form C | 2 Form C | 2 Form C | 2 Form C | 2 Form C, 4 Form C |
| **Contact type** | Bifurcated crossbar | Bifurcated crossbar | Bifurcated crossbar | Bifurcated crossbar | Bifurcated crossbar |
| **Contact material** | Ag with Au alloy clad | Ag with Au clad | Ag with Au clad | Ag with Au clad;<br>AgPd with Au clad | Ag with Au clad;<br>AgPd with Au clad |
| **Rated load (under resistive load)** | 0.3A @ 125VAC,<br>1A @ 30VDC | 0.3A @ 125VAC,<br>1A @ 30VDC | 0.5A @ 125VAC,<br>1A @ 30VDC | 0.5 @ 125VAC,<br>2A @ 30VDC | 0.3A to 0.5A @ 125VAC,<br>1A to 2A @ 30VDC |
| **Max. operating voltage** | 125VAC, 110VDC | 125VAC, 60VDC | 125VAC, 110VDC | 250VAC, 220VDC | 250VAC, 220VDC |
| **Max. switching capacity under resistive load** | 37.5VA, 30W (NO) | 37.5VA, 30W | 62.5VA, 33W | 62.5VA, 60W | 125VA, 60W |
| **Min. electrical service life (operations at rated load)** | 100,000 | 100,000 | 100,000 | 100,000 | 500,000 |
| **Min. permissible load (for reference only)** | 10µA @ 10mVDC | 10µA @ 10mVDC | 10µA @ 10mVDC | 10µA @ 10mVDC | 10µA @ 10mVDC |
| ***Coil Information***<br>**Coil voltage** | 3, 4.5, 5, 12, 24VDC | 3, 4.5, 5, 6, 9, 12, 24VDC | 3, 5, 6, 9, 12, 24, 48VDC | 3, 4.5, 5, 6, 9, 12, 24VDC | 3, 5, 6, 9, 12, 24, 48VDC |
| **Power consumption** | 140mW<br>(230mW for DC24) | 100mW<br>(standard and latching) | 140mW (standard) | 140mW (standard)<br>140mW, 200mW (latching) | 200mW (DPDT standard)<br>180mW (DPDT latching)<br>360mW (4PDT standard) |
| ***Characteristics***<br>**Dielectric strength between coil & contacts (50/60 Hz for 1 minute)** | 1,500VAC | 1,500VAC | 1,000VAC | 2,000VAC | 1,000VAC |
| **Surge withstand** | 2.5kV (2 x 10µs) | 2.5kV (2 x 10µs) | 1.5kV (10 x 160µs) | 2.5kV (2 x 10µs) | 1.5kV (10 x 160µs) |
| **Terminal choices** | SMT Gullwing, PCB | SMT Gullwing,<br>SMT Inside-L, PCB | PCB (G6H),<br>SMT Gullwing (G6H-2F) | SMT Gullwing,<br>SMT Inside-L, PCB | PCB |
| **Packaging** | Tape & reel available | Tape & reel available | Tape & reel available | Tape & reel available | – |
| **Approved standards** | Bellcore 2.5kV / Telcordia GR-1089-CORE 2.5kV between coil and contacts | Bellcore 2.5kV / Telcordia GR-1089-CORE 2.5kV between coil and contacts | UL, CSA, (FCC Part 68) | Bellcore 2.5 kV / Telcordia GR-1089-CORE 2.5 kV (between coil and contacts) | UL, CSA, (FCC Part 68) |

| General Attributes | G5A | G5V-1 | G6L | G5V-2 | G6E |
|---|---|---|---|---|---|
| | | | | | |
| **Dimensions mm (in)** | 8.38 H x 16 L x 9.9 W (0.33 x 0.63 x 0.39) | 10.0 H x 12.50 L x 7.50 W (0.39 x 0.49 x 0.30) | 4.5 H x 10.6 L x 7.0 W (0.18 x 0.42 x 0.28 | 11.43 H x 20.32 L x 9.91 W (0.45 x 0.80 x 0.39) | 8.38 H x 16 L x 9.9 W (0.33 x 0.63 x 0.39) |
| **Switching** | 1A max. | 1A max. | 1A max. | 2A max. | 3A max. |
| **Features** | • General use, 2 Form C, 1 Amp relay<br>• Semi-sealed or fully-sealed construction<br>• Ideal for Telecom, Security, Computer Peripheral, Office Automation | • General use, 1 Form C, 1 Amp relay<br>• 150mW power consumption<br>• 1.5kV surge withstand<br>• Ideal for Telecom, Security, Computer Peripheral | • Very low profile, 1 Form A, 1 Amp relay<br>• 1.5kV surge withstand<br>• SMT & PCB versions<br>• Ideal for Security & General Use | • 2 Form C, 1-2 Amp relay<br>• Ideal for general use<br>• Industry standard footprint<br>• 150mW, 360mW & 500mW coil power versions<br>• 1.5 kV surge withstand | • General use, 1 Form C, 3 Amp relay<br>• 2.5 kV surge withstand<br>• 200mW, 400mW models<br>• Latching and non-latching versions |
| ***Contact Information*** | | | | | |
| **Contact form** | 2 Form C | 1 Form C | 1 Form A | 2 Form C | 1 Form C |
| **Contact type** | Bifurcated crossbar | Single crossbar | Single crossbar | Bifurcated crossbar | Bifurcated crossbar |
| **Contact material** | Ag with Au clad | Ag with Au clad | Ag with Au clad | Ag with Au clad | Ag with Au clad |
| **Rated load (under resistive load)** | 0.5A @ 24VAC, 1A @ 24VDC | 0.5A @ 125VAC, 1A @ 24VDC | 0.3A @ 125VAC, 1A @ 24VDC | 0.5A @ 125VAC, 2A @ 30VDC | 0.4A @ 125VAC, 2A @ 30VDC |
| **Max. operating voltage** | 125VAC, 125VDC | 125VAC, 60VDC | 125VAC, 60VDC | 125VAC, 125VDC | 250VAC, 220VDC |
| **Max. switching capacity under resistive load** | 37.5VA, 33W | 62.5VA, 30W | 37.5VA, 24W | 62.5VA, 60W | 50VA, 60W |
| **Min. electrical service life (operations at rated load)** | 100,000 | 100,000 | 100,000 | 300,000 | 100,000 |
| **Min. permissible load (for reference only)** | 1mA @ 5VDC | 1mA @ 5VDC | 1mA @ 5VDC | 10µA @ 10mVDC | 10µA @ 10mVDC |
| ***Coil Information*** | | | | | |
| **Coil voltage** | 5, 6, 9, 12, 24, 48VDC | 5, 6, 9, 12, 24VDC | 3, 4.5, 5, 12, 24VDC | 3, 5, 6, 9, 12, 24, 48VDC | 3, 5, 6, 9, 12, 24, 48VDC |
| **Power consumption** | 200mW (standard & latching) | 150mW | 180mW (standard) | 500mW (standard)<br>360mW (high-sensitivity)<br>150mW (ultra-sensitive) | 200mW (standard)<br>400mW (standard) |
| ***Characteristics*** | | | | | |
| **Dielectric strength between coil & contacts (50/60 Hz for 1 minute)** | 1,000VAC | 1,000VAC | 1,000VAC | 1,000VAC | 1,500VAC |
| **Surge withstand** | _ | 1.5kV (10 x 160µs) | – | 1.5kV (10 x 160µs) | 2.5kV (2 x 10µs) |
| **Terminal choices** | PCB | PCB | PCB, SMT Gullwing | PCB | PCB |
| **Packaging** | – | – | Tape & reel available | – | – |
| **Approved standards** | UL, CSA | UL, CSA | UL/CSA (FCC Part 68) | UL, CSA | UL/CSA (FCC Part 68)<br>Bellcore 2.5kV / Telcordia GR-1089-CORE 2.5kV between coil and contacts |

# Relays - Low Signal RF/HF



| General Attributes | G6W | G6Y | G6Z | G6K-RF | G9YA |
|---|---|---|---|---|---|
| | | | | | NEW! |
| **Dimensions mm (in)** | 8.9 H x 20 L x 9.4 W (0.35 x 0.79 x 0.37) | 9.20 H x 20.70 L x 11.70 W (0.36 x 0.81 x 0.46) | 8.9 H x 20 L x 8.6 W (0.35 x 0.79 x 0.34) | 5.4 H x 10.3 L x 6.9 W (0.21 x 0.41 x 0.27) | 39.0 H x 34.0 L x 13.2 W (1.54 x 1.34 x 0.52) |
| **Switching** | 0.5A max. | 1A max. | 0.5A max. | 1A max. | 100mA max. |
| **Features** | • 5GHz+ HF relay<br>• 1 Form C<br>• Tri-plate micro strip line technology<br>• Latching & non-latching models<br>• SMT and PCB versions<br>• Ideal for Base Station LNA & TMA switching, Test & Measurement, Broadcast, FWA | • 900MHz+ HF relay<br>• 1 Form C<br>• Micro strip line technology<br>• Ideal for CATV, Digital TV tuners, Test & Measurement | • 2.6GHz+ HF relay<br>• 1 Form C<br>• Micro strip line technology<br>• 75 Ω & 50 Ω impedance models<br>• Latching & non-latching models<br>• Reverse terminal configurations<br>• Y & E terminal configurations<br>• SMT and PCB versions<br>• Ideal for Base Station LNA & TMA switching, CATV, Digital TV tuners, Test & Measurement, Broadcast, FWA | • 1GHz+ HF relay<br>• 2 Form C<br>• 100mW coil power<br>• Smallest 2 Form C on the market<br>• Ideal for Test & Measurement, CATV, Digital TV tuners | • 26.5GHz bandwidth<br>• Coaxial HF relay<br>• 60dB isolation (26.5GHz)<br>• Contact carry power of 120W at 3GHz<br>• Available in failsafe & TTL-driven models<br>• Also available in non-latching and dual latching configuraitons<br>• Ideal for Mobile Communications Infrastructure Equipment, Broadcast Equipment, Test and Measurement Equipment, Wireless LAN |
| ***HF Characteristics*** **Isolation** | 65dB (2GHz)<br>60dB (2.5GHz)<br>40dB (5.0GHz) | 65dB (900MHz) | 60 - 65dB (900MHz)<br>30 - 45dB (2.6GHz) | 20 - 30dB (1GHz) | 60dB (26.5GHz)<br>65dB (12.4GHz) |
| **Insertion loss** | 0.2dB (2GHz)<br>0.2dB (2.5GHz)<br>0.4dB (5.0GHz) | 0.5dB (900MHz) | 0.1 - 0.2dB (900MHz)<br>0.3 - 0.5dB (2.6GHz) | 0.2dB (1GHz) | 0.8dB (26.5GHz)<br>0.4dB (12.4GHz)<br>0.3dB (8GHz) |
| **VSWR** | 1.2 (2GHz)<br>1.2 (2.5GHz)<br>1.5 (5.0GHz) | 1.5 (900MHz) | 1.1 - 1.2 (900MHz)<br>1.3 - 1.5 (2.6GHz) | 0.2dB (1GHz) | 1.7 (26.5GHz)<br>1.35 (12.4GHz)<br>1.25 (8GHz) |
| ***Contact Information*** **Contact form** | 1 Form C | 1 Form C | 1 Form C | 2 Form C | 1 Form C |
| **Contact type(s)** | Twin crossbar | Twin crossbar | Twin crossbar | Bifurcated crossbar | Twin crossbar |
| **Contact material** | Au clad Cu alloy | Au clad Cu alloy | Au clad Cu alloy | Au alloy on Ag base | Au clad Cu alloy |
| **Rated load (under resistive load)** | 10mA @ 30VAC<br>10mA @ 30VDC<br>2.5GHz, 10W | 10mA @ 30VAC;<br>10mA @ 30VAC;<br>900 MHz, 1W | 10mA @ 30VAC;<br>10mA @ 30VDC;<br>900MHz, 10W | 0.3A @ 125VAC;<br>1A @ 30VDC | 100mA @ 30VDC |
| **Max. operating voltage** | 30VDC, 30VAC | 30VDC, 30VAC | 30VDC, 30VAC | 60VDC, 125VAC | 30VDC |
| **Max. switching capacity under resistive load** | 10VA, 10W | 10VA, 10W | 10VA, 10W | 37.5VA, 30W | 120W (3GHz) |
| **Min. electrical service life (operations at rated load)** | 300,000 | 300,000 | 300,000 | 300,000 | 5,000,000 |
| ***Coil Information*** **Coil voltage** | 3, 4.5, 9, 12, 24VDC | 3, 4.5, 5, 6, 9, 12, 24VDC | 3, 4.5, 5, 9, 12, 24VDC | 3, 4.5, 5, 6, 9, 12, 24VDC | 4.5, 5, 12, 15, 24, 28VDC |
| **Power consumption** | 200mW (standard)<br>200mW (single latching)<br>360mW (dual latching) | 200mW | 200mW (standard)<br>200mW (single latching)<br>360mW (dual latching) | 100mW | 500mW (dual latching)<br>700mW (failsafe) |
| ***Characteristics*** **Dielectric strength between coil & contacts (50/60 Hz for 1 minute)** | 1,000VAC | 1,000VAC | 1,000VAC | 750VAC | 500VAC |
| **Terminal choices** | PCB, SMT Gullwing | PCB | PCB, SMT Gullwing | SMT Gullwing | SMA Terminals, Solder Terminals, Pin Terminals |
| **Packaging / Options** | – | – | Tape & reel available | – | Connector Cables |

| | NEW! | NEW!  | NEW! | |
|---|---|---|---|---|
| ***General Attributes*** | **G5NB** | **G5NB-E** | **G5SB** | **G6D-ASI** |
| **Dimensions mm (in)** | 15.3 H x 20.5 L x 7.2 W (0.60 x 0.81 x 0.28) | 15.3 H x 20.5 L x 7.2 W (0.60 x 0.81 x 0.28) max. | 15.8 H x 20.3 L x 10.3 W (0.62 x 0.80 x 0.41) | 12.5 H x 17.5 L x 6.5 W (0.49 x 0.69 x 0.26) |
| **Switching** | 3A/5A | 3A/5A | 5A(NO)/3A(NC) | 5A |
| **Features** | • High capacity 5A version available<br>• Meets EN tracking resistance CTI>250<br>• HA version for home appliances | • Small compact form for 10 kV impulse and 5A switching capability<br>• Meets EN tracking resistance CTI>250 | • High insulation between coil & contact<br>• Impulse withstand of 8kV<br>• Fully Sealed<br>• Incorporates 5A NO contact | • Subminiature, slim lightweight design<br>• Low power consumption<br>• Fully Sealed |
| ***Contact Information*** | | | | |
| **Contact form** | 1 Form A | 1 Form A | 1 Form A | 1 Form A |
| **Contact type(s)** | Single button | Single button | Single button | Single button |
| **Contact material(s)** | AgNi | AgSnIn | AgNi/AgSnIn | AgNi/AgSnIn |
| **Electrical service life (@ 1800 ops./hr.)** | (resistive load)<br>200,000 (resistive):<br>3A @ 125VAC/30VDC | 200,000 (resistive):<br>3A @ 30VDC<br>100,000:<br>5A @ 250VAC | For resistive loads:<br>200,000: 3 A (NO)/3 A (NC) at 125 VAC; 50,000: 5 A (NO)/3 A (NC) at 125 VAC; 50,000: 5 A (NO) at 250 VAC; 10,000: 3 A (NC) at 250 VAC; 10,000: 5 A (NO)/3 A (NC) at 30 VDC | 300,000: 2A @ 30VDC/250VAC<br>70,000: 5A @ 30VDC/250VAC |
| **Max. switching capacity (and resistive load)** | 375VA, 90W | 1,250VA, 90W | 1,250VA, 150W(NO)<br>750VA, 30W(NC) | 1,250VA, 150W |
| **Minimum permissible load (for reference only)** | 10mA @ 5VDC | 10mA @ 5VDC | 10mA @ 5VDC | 10mA @ 5VDC |
| ***Coil Information*** | | | | |
| **Coil voltage** | 5, 12, 18, 24VDC | 5, 12, 18, 24VDC | 5, 9, 12, 24VDC | 5, 12, 24, 48, 110/120VDC |
| **Power consumption** | 200mW | 200mW | 400mW | 200mW |
| **Insulation class** | Class A | Class B | Class B | Class B |
| ***Characteristics*** | | | | |
| **Operating temperature** | -40 to +70°C | -40 to +85°C | -40 to +70°C | -25 to +70°C |
| **Impulse withstand voltage (1.2 x 50µ sec. unless noted)** | 10kV | 10kV | 8kV | 6kV |
| **Dielectric strength (50/60 Hz for 1 minute)** | 4,000VAC (coil-contact)<br>750VAC (open contacts) | 4,000VAC (coil-contact)<br>750VAC (open contacts) | 4,000VAC (coil-contact)<br>1,000VAC (open contacts) | 3,000VAC (coil-contact)<br>750VAC (open contacts) |
| **Terminal choices** | PCB | PCB | PCB | PCB |
| **Protection level** | Semi-sealed | Semi-sealed | Semi-sealed | Semi-sealed |
| **Accessories** | N/A | N/A | N/A | Socket for back connecting, sockets with PCB terminals |
| **Approved standards** | UL, CSA, VDE | UL, CSA, VDE | UL, CSA, VDE | UL, CSA, TUV, SEV |

# Relays - Power PCB

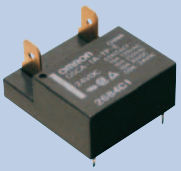
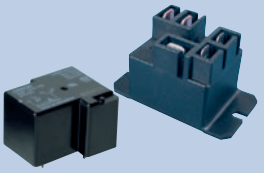


| General Attributes | NEW! G6DS | NEW! G6M | G2RG | G6B |
|---|---|---|---|---|
| | | | | |
| **Dimensions mm (in)** | 12.4 H x 20 L x 5.0 W<br>(0.60 x 0.81 x 0.28) | 17.7 H x 20.3 L x 5.08 W<br>(0.70 x 0.80 x 0.20) | 25.5 H x 29 L x 13 W<br>(1.00 x 1.14 x 0.51) | 9.91 H x 20.07 L x 9.91 W<br>(0.39 x 0.79 x 0.39) |
| **Switching** | 5A | 5A | 8A | 8A/5A |
| **Features** | • Slim 5mm for max. density mounting<br>• High sensitive coil option reduces power consumption<br>• Meets EN reinforced insulation requirement for control equipment<br>• Fully sealed<br>• Resistant to mechanical shock | • Slim 5mm width, & reduced PCB area (103mm$^2$) ideal for high-density mounting<br>• Highly efficient magnetic circuit for high sensitivity<br>• UL Class I, Division II approved for hazardous locations | • 1.5mm contact gap x 2 poles=3mm total gap meeting UPS standards<br>• Dimensions & mounting holes are same as G2R relay series<br>• Sealed construction, standard<br>• Meets EN tracking resistance CTI > 250<br>• UL508/CSA 22.2 | • Subminiature and low power<br>• Sealed construction standard<br>• Single & dual coil latching available |
| ***Contact Information***<br>**Contact form** | 1 Form A | 1 Form A | 2 Form A | 1 Form A, 2 Form A, 2 Form B<br>1 Form A + 1 Form B |
| **Contact type(s)** | Single button | Single button | Single button | Single button |
| **Contact material(s)** | AgNi | Ag-Alloy | $AgSnO_2$ | $AgSnO_2$ |
| **Electrical service life (@ 1800 ops./hr.) (resistive load)** | 100,000: 5A @ 30VDC/250VAC<br>80,000 (high sensitivity):<br>5A @ 30VDC/250VAC | 100,000: 3A @ 30VDC/250VAC<br>6,000: 5A @ 250VAC/24VDC | 10,000: 8A @ 250VAC | 100,000: 5A @ 30 VDC/250VAC<br>8A @ 30 VDC/250VAC (high-capacity) |
| **Max. switching capacity (resistive load)** | 1,250VA, 150W | 750VA, 90W | 2,000 VA | 1,250VA, 150W<br>2,000VA, 240W (high-capacity type) |
| **Minimum permissible load (for reference only)** | 5mA @ 24VDC | 10mA @ 5VDC | 10mA @ 5VDC | 10mA @ 5VDC |
| ***Coil Information***<br>**Coil voltage** | 5, 12, 24VDC | 5, 12, 24VDC | 12, 24VDC | 5, 6, 12, 24VDC |
| **Power consumption** | 180mW<br>120mW (high-sensitivity) | 120mW | 800mW | 200mW (1 pole)<br>300mW (2 pole) |
| **Insulation class** | Class B | Class B | Class B | Class A |
| ***Characteristics***<br>**Operating temperature** | -40 to +85°C | -40 to +85°C | -40 to +70°C | -25 to +70°C |
| **Impulse withstand voltage (1.2 x 50µ sec. unless noted)** | 6kV | 5.08kV | 10kV | — |
| **Dielectric strength (50/60 Hz for 1 minute)** | 3,000VAC (coil-contacts)<br>750VAC (open contacts) | 3,000VAC, (coil-contact)<br>750VAC, (open contacts) | 5,000VAC, (coil-contact)<br>3,000VAC, (contacts pole-pole)<br>1,000VAC (open contacts) | 4,000VAC (coil-contact)<br>2,000VAC (contacts pole-pole)<br>1,000VAC (open contacts) |
| **Terminal choices** | PCB | PCB | PCB | PCB |
| **Protection level** | Fully Sealed | Fully sealed | Fully sealed | Fully sealed |
| **Accessories** | Socket for back connecting, sockets with PCB terminals | N/A | N/A | Sockets & clips for back connecting sockets with PCB terminals |
| **Approved standards** | UL, CSA, VDE | UL, CSA, VDE, EN, IEC 61131-2, IEC 61010 | UL, CSA, VDE (0700/0110) | UL, CSA, (FCC Part 68)<br>SEV, TUV, IEC |

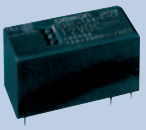
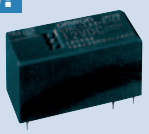
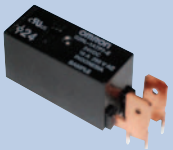
| General Attributes | G6RN | G5LE/-E | G5LB/-25 | G5Q |
|---|---|---|---|---|
| | | NEW! | NEW! | |
| **Dimensions mm (in)** | 15 H x 28.5 L x 10 W<br>(0.59 x 1.12 x 0.39) | 19 H x 22.5 L x 16.5 W<br>(0.75 x 0.89 x 0.65) | 15.2 H x 19.6 L x 15.6 W<br>(0.60 x 0.77 x 0.61) | 15.8 H x 20.3 L x 10.3 W<br>(0.62 x 0.80 x 0.41) |
| **Switching** | 8A | 10A (16A for Semi-sealed "E" type) | 10A | 10A (NO contacts) |
| **Features** | • 8 mm coil/contact creepage<br>• Low profile<br>• Sealed construction standard<br>• Ideal for switching contactors, solenoids & motors | • Small "sugar cube" size used as common platform<br>• Sealed construction optional<br>• High capacity contacts:-E<br>• Increased (0.8) contact gap:-G8<br>• Special application versions available | • Sealed construction optional<br>• 10A switching in low profile "sugar cube" package<br>• Optional -25 type meets stringent EU requirements, including tracking resistance CTI > 250 & extended life<br>• 4.5kV impulse withstand<br>• Low power consumption | • Compact PCB relay with high insulation<br>• Withstands impulse of 8kV coil-contacts<br>• Meets EN tracking resistance CTI >250<br>• Class F coil insulation standard<br>• Low power consumption |
| ***Contact Information***<br>**Contact form** | 1 Form A, 1 Form C | 1 Form A, 1 Form C | 1 Form A, 1 Form C | 1 Form A, 1 Form C |
| **Contact type(s)** | Single button | Single button | Single button | Single button |
| **Contact material(s)** | AgNi +gold plating | $AgSnO_2$/AgSnIn (either with gold plating option) | $AgSnO_2$ | AgNi |
| **Electrical service life (@ 1800 ops./hr.) (resistive load)** | 100,000:<br>8A @ 250VAC<br>5A @ 30VDC | 100,000:<br>13A @ 120VAC (@ 85°C/87°C)<br>5A @ 250 VAC (AgSnO2)<br>6 FLA, 6 LRA @ 120VAC @ 85°C<br>TV-5 @120VAC<br>50,000: 10A @ 250VAC<br>50,000 16A @ 250VAC<br>1/8 HP @ 120 VAC (@ 85°C)<br>30,000: 12A @ 120VAC | 100,000:<br>10A @ 120VAC/250VAC<br>8A @ 30VDC | 200,000:<br>3A (NO)/3 A (NC) @ 125VAC<br>100,000:<br>3A (NO)/3 A (NC) @ 250VAC<br>5A (NO)/3 A (NC) @ 30VDC<br>50,000: 10A (NO) @125VAC<br>(900 ops.per hour) |
| **Max. switching capacity (resistive load)** | 2,000VA,150W | 1,200VA,240W | 1,200VA, 240W<br>2,500VA, 240W (-25 type) | 1,250VA,150W (NO)<br>375 VA, 90W (NC) |
| **Minimum permissible load (for reference only)** | 10mA @ 5 VDC | 100mA @ 5VDC, | 100mA @ 5VDC | 10mA @ 5VDC |
| ***Coil Information***<br>**Coil voltage** | 5, 6, 12, 24, 48VDC | 5, 6, 9, 12, 24, 48VDC | 3, 5, 6, 9, 12, 24, 36, 48VDC | 5, 12, 24VDC |
| **Power consumption** | 220mW, 250mW (DC24/48) | 400mW /360mW available | 360mW (standard)<br>400mW ("-40" style)<br>600mW ("-60" style) | 400mW Form C<br>200mW Form A |
| **Insulation class** | Class B | Class B, F (UL/CSA ONLY) | Class B, F (-25 type) | Class F |
| ***Characteristics***<br>**Operating temperature** | -40 to +85°C | -40 to +85°C | -40 to +85°C | -40 to +105°C |
| **Impulse withstand voltage (1.2 x 50µ sec. unless noted)** | — | 4.5kV | 4.5kV | 8kV |
| **Dielectric strength (50/60 Hz for 1 minute)** | 4,000VAC (coil-contact)<br>1,000 (open contacts) | 2,000VAC (coil-contact)<br>750VAC (open contacts) | 2,000VAC (coil-contact)<br>750VAC (open contacts) | 4,000VAC (coil-contact)<br>1,000VAC (open contacts) |
| **Terminal choices** | PCB | PCB | PCB | PCB |
| **Protection level** | Sealed | Standard: Semi-sealed/vented, Option: sealed | Standard: Semi-sealed/vented, Option: sealed | Standard: Semi-sealed/vented, Option: sealed |
| **Accessories** | N/A | N/A | N/A | N/A |
| **Approved standards** | UL, CSA, VDE | UL, CSA, TUV, VDE | UL, CSA, VDE | UL, CSA, VDE |

# Relays - Power PCB



| General Attributes | G6C | G5CA | G5PA-1 | G8PT |
|---|---|---|---|---|
| | |  | NEW TYPES |  |
| **Dimensions mm (in)** | 9.91 H x 20.07 L x 14.99 W<br>(0.39 x 0.79 x 0.59) | 11 H x 16 L x 22 W (10A)<br>(0.43 x 0.63 x 0.87)<br>11 H x 22 L x 25 W (15A) | 25 H x 24 L x W 10<br>(0.985 x 0.95 x 0.40) | Multiple, refer to catalog. Basic:<br>20.1(H)x 32.1(L) x 27.7(W) |
| **Switching** | 10A | 10A (15A high capacity) | 5A (10A option) | 30A (SPST)<br>10A-30A (SPDT) |
| **Features** | • Low power consumption for high power switching<br>• Low profile 10A power relay<br>• Single & dual coil latching types available<br>• Sealed construction available<br>• Meets EN tracking resistance CTI > 250 | • Fully sealed or flux-sealed<br>• High capacity versions<br>• High sensitivity types<br>• PCB or PCB+QC versions | • Ideal for TVs, tuner, & audio power supply switching, both front panel and remote controlled. Also auxiliary switched power outlets on tuners and TVs.<br>• A variety of versions in a single standard package meet most UL/FCC power isolation requirements<br>• Rated to 100A inrush @ 250 VAC for minimum 40,000 operations | • Industry standard form with 30A switching<br>• UL Class F insulation standard<br>• Wide range of coil ratings<br>• Various sealing forms: open frame, vented/flux sealed, fully sealed<br>• UL508/UL873 Column A spacings<br>• Meets EN Tracking resistance CTI > 175<br>• High dielectric at open contacts |
| ***Contact Information*** | | | | |
| **Contact form** | 1 Form A + 1 Form B, 1 Form A | 1 Form A | 1 Form A | 1 Form A, 1Form C |
| **Contact type(s)** | Single button | Single button | Single button | Single button |
| **Contact material(s)** | Ag-Alloy | AgSnIn | $AgSnO_2$ | AgSnIn (other alloys available) |
| **Electrical service life (@ 1800 ops./hr.) (resistive load)** | 100,000: 10A @ 30VDC/250VAC | 100,000:<br>10A @ 30VDC<br>15A @ 110VAC (high capacity)<br>10A @ 250VAC (fully sealed, std)<br>300,000:<br>10A @ 250VAC (semi-sealed) | 30,000: 54@277 VAC 5A @ 30VDC / 277VAC (high capacity type)<br>25,000: TV-5 TV-8 (optional)<br>6,000: 5A @ 30VDC<br>100,000: 10A @ 250 VAC (high-capacity type) | 100,000: 30A @ 277VAC (NO)<br>50,000: 30A @ 277VAC (NC)<br>Consult catalog for other ratings |
| **Max. switching capacity (resistive load)** | 2,500VA, 300W<br>2,000VA, 240W (latching) | 2,500VA, 300W | N/A | 1 Form A: 7,500VA, 560W<br>1 Form C: 5000/2500VA, 560W/280W* |
| **Minimum permissible load (for reference only)** | 10mA @ 5VDC | 100mA @ 5VDC | 10mA @ 5 VDC | 500mA @ 5VDC |
| ***Coil Information*** **Coil voltage** | 3, 5, 6, 12, 24VDC | 5, 12, 24VDC | 5, 6, 9, 12, 24 VDC<br>(4.5 VDC non-standard) | 5, 9, 12, 24, 48, 110VDC<br>Other coil voltages available |
| **Power consumption** | 200mW (monostable & single coil latching)<br>280mW (dual coil latching) | 200mW (standard & high capacity)<br>150mW (high sensitivity) | 250mW<br>530mW (high capacity, extended electrical life)<br>150mW (under development) | 900mW |
| **Insulation class** | Class A | Class B | Class B | Class F |
| ***Characteristics*** **Operating temperature** | -40 to +70°C | -25 to +70°C | -40 to +70°C | -55°C to +105°C |
| **Impulse withstand voltage (1.2 x 50µ sec. unless noted)** | 4.5kV | 4.5kV | 10kV<br>12kV | 6kV |
| **Dielectric strength (50/60 Hz for 1 minute)** | 2,000VAC (coil -contact)<br>2,000VAC (contacts pole-pole)<br>1,000VAC (open contacts) | 2,500VAC (coil-contact)<br>1,000VAC (open contacts) | 4,000VAC (coil-contacts)<br>1,000VAC (open contacts) | 2,500VAC, (coil-contact)<br>1,500VAC, (open contacts) |
| **Terminal choices** | PCB, self clinching | PCB<br>Optional: PCB+quick-connect contact terminals | PCB | PCB (optional self-clinching)<br>PCB coil /quick connect contact<br>Flange mount all quick connect |
| **Protection level** | Semi-sealed<br>Fully sealed option | Semi-sealed<br>Fully sealed option | Semi-sealed | Open frame, Vented/semi-sealed, Fully sealed |
| **Accessories** | Socket for QC contact terms., PCB terms., socket clip | N/A | N/A | N/A |
| **Approved standards** | UL, CSA, VDE, SEV | UL, CSA, SEV, SEMKO, IEC/TUV | UL, CSA, SEMKO TUV, VDE | UL, CSA, VDE |

* N.O. Contact / N.C. Contact

| | |  | NEW!  | NEW!  |
|---|---|---|---|---|
| ***General Attributes*** | **G2R** | **G2RL** | **G5RL** | **G2RL-TP** |
| **Dimensions mm (in)** | 25.5 H x 29 L x 13 W<br>(1 x 1.14 x 0.51) | 15.5 H x 29 L x 12.7 W<br>(0.61 x 1.14 x 0.50) | 15.7 H x 28.8 L x 12.5 W<br>(0.61 x 1.14 x 0.49) | 15.7H x 40.4 L x 12.5 W<br>(0.61 x 1.60 x 0.49) |
| **Switching** | 16A max. | 16A max. | 16A max. (NO), 5A max. (NC) | 16A max. |
| **Features** | • High dielectric withstand<br>• 8mm coil/contact spacing<br>• 1 & 2 pole models<br>• 3mm contact gap version available (see G2RG)<br>• Meets EN tracking resistance CTI > 250 | • Low profile for power rating<br>• High isolation<br>• Class F insulation option<br>• Low power consumption<br>• Quick connect terminal option<br>• Meets EN tracking resistance CTI > 250 | • High dielectric due to large internal creepage distances.<br>• AC coil in industry standard package | • Increased temperature & insulation ratings in low profile package.<br>• Simplifies PCB design by allowing removal of high power PCB tracings.<br>• Contact/load terminals in both 5mm for RAST5 connection & 7.5mm existing standard<br>• Single mounting/soldering process for both types of terminals reduces PCB assembly costs. |
| ***Contact Information***<br>**Contact form** | 1 Form A, 1 Form C, 2 Form A, 2 Form C | 1 Form A, 1 Form C, 2 Form A, 2 Form C | 1 Form C | 1 Form A |
| **Contact type(s)** | Single button, bifurcated button | Single button (bifurcated available) | Single button | Single button |
| **Contact material(s)** | Ag alloy | $AgSnO_2$ (1 pole); AgNi (2 pole) | AgSnIn | Ag alloy |
| **Electrical service life (@ 1800 ops./hr.) (resistive load)** | 100,000: (high-capacity type)<br>16A @ 30VDC/250VAC<br>Consult catalog for other ratings | 100,000: 16A @ 250VAC<br>6,000: 25A @ 240VAC<br>Consult catalog for other ratings | 50,000: 16A @ 24VDC/277VAC (NO)<br>25,000: TV-5 (NO) | 50,000: 16A @ 24VDC/277VAC<br>20A @ 24 VAC (@ 85ºC)<br>25,000: TV-5 |
| **Max. switching capacity (resistive Load)** | 4,000VA, 480W (high-capacity 1 pole)<br>Consult catalog for other ratings | 4,000VA, 384W (high-capacity 1 pole)<br>Consult catalog for other ratings | 4,000VA, 384W (NO)<br>1,250VA, 120W (NC) | 4,000VA, |
| **Minimum permissible load (@1800 ops./hr.)** | 1 pole: 100mA @ 5VDC;<br>2 pole: 10mA @ 5VDC | 40mA, 24VDC | 40mA @ 24VDC | — |
| ***Coil Information***<br>**Coil voltage** | 12, 18, 24, 48, 50, 100, 110/120, 110, 120, 200/220, 220, 230, 240VAC<br>5, 6, 9, 12, 18, 24, 48,60, 100, 110VDC | 5, 12, 24, 48VDC | 24, 100, 115/120, 200, 230/240 VAC<br>5, 12, 24, 48VDC | 12, 24VDC<br>Consult catalog for other coil voltages |
| **Power consumption** | 0.9VA, 530mW (standard)<br>360mW (high sensitivity)<br>850mW (latching set),<br>600mW (latching reset) | 400mW (430mW for 48VDC) | 0.75VA<br>400mW (430mW @ 48VDC) | 400mW (430mW for 48VDC) |
| **Insulation class** | Class B available | Class F | — | Class F |
| ***Characteristics***<br>**Operating temperature** | -40 to +70°C (+85°C option) | -40 to +85°C | -40 to +70°C (AC coil)<br>-40 to +85°C (DC coil) | -40 to +105°C |
| **Impulse withstand voltage (1.2 x 50µ sec. unless noted)** | 10kV | 10kV | 10kV | 10kV |
| **Dielectric strength (50/60 Hz for 1 minute)** | 5,000VAC (coil-contact)<br>1,000 VAC (open contacts) | 5,000VAC (coil-contact)<br>1,000 VAC (open contacts) | 6,000VAC (coil-contact)<br>1,000VAC (open contacts) | 5,000 VAC, (coil-contact)<br>1,000 VAC, (open contacts) |
| **Terminal choices** | PCB, plug in<br>quick-connect (flange mount) | PCB, optional quick-connect contact terminals (-TP type) | PCB | PCB (coil terminals)<br>Quick-connect (contact terminals) |
| **Protection level** | Semi-sealed<br>Fully sealed option | Semi-sealed<br>Fully sealed option | Semi-sealed | Semi-sealed |
| **Accessories** | N/A | N/A | N/A | N/A |
| **Approved standards** | UL, CSA, SEV SEMKO, VDE, TUV | UL, CSA, VDE | UL, CSA, VDE | UL, CSA, EN 60335 |

# Relays - DC Power

**The switching and driving sections are isolated, gas injected and hermetically sealed.**
**This advanced construction requires no arc space, saves space, & helps ensure safety.**

| *General Attributes* | G9EA | | G9EB | G9EC |
|---|---|---|---|---|
| **Model** | **G9EA-1(-B)** | **G9EA-1(-B)-CA** | **G9EB (-1B)** | **G9EC-1(-B)** |
| **Classification** | Switching/current conduction | High-current conduction | Switching/current conduction | Switching/current conduction |
| **Features** | Standard compact model carries/switches 400VDC, 60A loads | Carries 100A Low contact resistance when carrying current | Smallest in series 250VDC, 25A loads | Largest capacity in series Carries/switches 400V, 200A loads |
| ***Contact Information*** | | | | |
| **Contact Form** | SPST-NO | SPST-NO | SPST-NO | SPST-NO |
| **Contact structure** | Double-break, single | Double-break, single | Double-break, single | Double-break, single |
| **Contact resistance** | 30mΩ max. (0.6mΩ typical) | 10mΩ max. (0.3mΩ typical) | 30mΩ max. | 30mΩ max. (0.2mΩ typical) |
| **Switching voltage drop** | 0.1V max. (for a carry current of 60A) | 0.1V max. (for a carry current of 100A) | 0.1V max (for a carry current of 25A) | 0.1V max. (for a carry current of 200A) |
| ***Electrical endurance** | 120VDC, 100A, 3,000 operations min. 400VDC, 60A, 3,000 operations min. 400VDC, 30A, 30,000 operations min. | 400VDC, 30A, 1,000 operations min. 120VDC, 30A, 2,500 operations min. | 250VDC, 25A, 30,000 operations min. | 400VDC, 200A, 3,000 operations min. |
| **Max. switching current** | 100A | 30A | 25A | 200A |
| **Rated carry current** | 60A | 100A | 25A | 200A |
| **Short-time carry current** | 100A (10 min.) | 150A (10 min.) | 50A (5 min.), 40A (10min.) | 300A (15min.) |
| ***Max. interruption current** | 600A @ 300VDC (5 times) | — | 100A @ 250VDC (5 times) | 1,000A @ 400VDC (10 times) |
| ***Overload interruption** | 180A @ 400VDC (100 times min.) | 100A @ 120VDC (150 times min.) | 50A @ 250VDC (50 times min.) | 700A @ 400VDC (40 times min.) |
| **Reverse polarity interruption** | -60A @ 200VDC (1,000 times min.) | — | — | -200A @ 200VDC (1,000 times min.) |
| ***Coil Information*** | | | | |
| **Rated voltage** | 12, 24, 48, 60 & 100VDC | 12, 24, 48, 60 & 100VDC | 12, 24, 48, 60 & 100VDC | 12, 24, 48, 60 & 100VDC |
| **Power consumption** | Approx. 5 to 5.4W | Approx. 5 to 5.4W | Approx. 2W | Approx. 11W |
| **Mechanical endurance** | 200,000 operations min. | 200,000 operations min. | 100,000 operations min. | 200,000 operations min. |
| ***Insulation resistance*** | | | | |
| **Between Coil & Contacts** | 1,000MΩ min. | 1,000MΩ min. | 1,000MΩ min. | 1,000MΩ min. |
| **Between contacts of the same polarity** | 1,000MΩ min. | 1,000MΩ min. | 1,000MΩ min. | 1,000MΩ min. |
| ***Dielectric strength*** | | | | |
| **Between coil & contacts** | 2,500VAC for 1min. | 2,500VAC for 1min. | 2,500VAC for 1min. | 2,500VAC for 1min. |
| **Between contacts of the same polarity** | 2,500VAC for 1min. | 2,500VAC for 1min. | 2,500VAC for 1min. | 2,500VAC for 1min. |
| **Impulse withstand voltage** | 4,500V | 4,500V | 4,500V | 4,500V |
| **Ambient operating temperature** | -40 to +70°C (with no icing or condensation) | -40 to +70°C (with no icing or condensation) | -40 to +70°C (with no icing or condensation) | -40 to +50°C (with no icing or condensation) |
| ***Terminals*** | | | | |
| **Screw terminals** | Yes | Yes | Yes | Yes |
| **Lead wire output** | Yes | Yes | Yes | Yes |

*When using a varistor as protective circuit against reverse surge in the relay coil

# Relays - General Purpose

| | | | | |
|---|---|---|---|---|
| ***General Attributes*** | **MY4H** | **MK** | **MY** | **LY** |
| **Dimensions mm (in)** | 35 H x 28.5 L x 22 W<br>(1.38 x 1.12 x 0.87) | 52.58 H x 34.54 L x 34.54 W<br>(2.07 x 1.36 x 1.36) | 36 H x 28 L x 21.5 W<br>(1.42 x 1.10 x 0.85) | 35.56 H x 27.94 L x 21.59 W<br>(1.40 x 1.10 x 0.85) |
| **Switching** | 3A | 10 A max. | 10A (2 pole);<br>5 A (4 pole) | 15A |
| **Features** | • Full hermetic seal for hazardous applications<br>• UL Class1, Division II approved<br>• Signal level switching option using bifurcated contacts | • Octal base plug-in<br>• Exceptional reliability<br>• Push-to-test button standard<br>• CENELEC conformity | • Exceptional reliability<br>• Push-to-test button standard<br>• Arc barrier built into 4 pole<br>• Built in diode (DC) or C/R Circuit<br>• Name plate and mechanical indicator, standard | • Compact power relay<br>• LED, Push-to-test button, bifurcated contacts and other features available<br>• Space efficient power switching<br>• Extended life to 500,000/200,000 operations |
| ***Contact Information***<br>**Contact form** | 4 Form C | 2 Form C, 3 Form C | 2 Form C, 4 Form C | 1 Form C, 2 Form C,<br>3 Form C, 4 Form C |
| **Contact type(s)** | Single button, bifurcated button | Single button | Single button, bifurcated button | Single button, bifurcated |
| **Contact material(s)** | AgSnIn | Ag (fine silver) | AgNi | Ag-Alloy |
| **Electrical service life (@ 1800 ops./hr.) (resistive load)** | 100,000 min.<br>3A@24VDC/110VAC<br>(50,000 min. bifurcated) | 100,000 min.<br>10A @ 28VDC/250VAC | 2P 500,000: 5A @ 30VDC/250VAC<br>4P 200,000: 3A @ 30VDC/250VAC<br>100,000: 3A@30VDC/250VAC<br>(bifurcated) | 200,000 min:<br>15A @ 24VDC/110VAC<br>10A @ 24VDC/110VAC<br>500,000 min: (2 pole)<br>10A @ 110VAC |
| **Max. switching capacity (resistive load)** | 330VA, 72W | 2,500VA, 280W | 2,500VA, 300W<br>1,250VA, 150W (4-pole) | 1,700VA, 360W (1 pole)<br>1,100VA, 240W (2, 3, 4 pole)<br>550VA, 120W (bifurcated) |
| **Minimum permissible load (@1800 ops./hr.)** | 100µA @ 1VDC for MY4H<br>100µA @ 100mVDC for MY4ZH<br>(Bifurcated contacts) | 100mA @ 1VDC | 2 pole: 1mA @ 5VDC<br>4 pole: 1mA @ 5VDC<br>10µA @ 1 VDC (bifurcated contacts) | 100mA @ 5VDC<br>10mA @ 5VDC (bifurcated contacts) |
| ***Coil Information***<br>**Coil voltage** | 24, 110/120VAC<br>12, 24VDC | 12, 24, 110/120, 220/240VAC;<br>12, 24, 48, 100VDC | 6, 12, 24, 48, 110/120,<br>220/240 VAC;<br>6,12, 24, 48, 100/110VDC | 12, 24, 110/120, 220/240VAC,<br>12, 24, 48, 100VDC |
| **Power consumption** | 900 mW; 0.9 - 1.1VA | 2.7VA, 1.5W | AC Coil: 0.9 to 1.2VA<br>DC Coil: 0.9W | 1.1VA, 0.9W (1 pole);<br>1.1VA, 0.9W (DPDT);<br>1.6VA, 1.4W (3PDT);<br>1.95VA, 1.5W (4PDT) |
| **Insulation class** | — | N/A | Class A | Class A |
| ***Characteristics***<br>**Operating temperature** | -25°C to +60°C | -10°C to +40°C | -55°C to +70°C | -25°C to +70°C |
| **Impulse withstand voltage (1.2 x 50µ sec. unless noted)** | — | — | — | — |
| **Dielectric strength (50/60 Hz for 1 minute)** | 1,000VAC (coil-contact)<br>1,000VAC (contacts pole pole)<br>700VAC (open contacts) | 2,500VAC (coil-contact)<br>1,000VAC (open contacts) | 2,000VAC (coil-contact)<br>1,000VAC (open contacts) | 2,000VAC (coil-contact)<br>1,000VAC (open contacts) |
| **Terminal choices** | Plug-in | Plug-in | PCB, plug-in | Track mounted socket PCB with .187/.250 QC |
| **Protection level** | Hermetic seal | Unsealed | Unsealed | Unsealed, semi-sealed |
| **Accessories** | PYF14A-E Socket<br>PYC-A1 Clip | Sockets & clips for track mount sockets with screw terminals, & back connecting sockets with solder & PCB terminals | Sockets & clips for track mount sockets with screw terminals, & back connecting sockets with solder & PCB terminals. Note: PYF-S series screwless clamp terminal socket available Mounting rails= PFP | Sockets & clips for track mount sockets with screw terminals, & back connecting sockets with solder & PCB terminals |
| **Approved standards** | UL, CSA | UL, CSA, TUV, VDE, SEMKO | UL, CSA, SEV, CE, VDE, IMA | UL, CSA, SEV, VDE, CE<br>(UL, CSA only with varistors) |

# Relays - General Purpose



| General Attributes | NEW! G2RV | G2R-S (S) | G7J | G7L |
|---|---|---|---|---|
| **Dimensions mm (in)** | 91.0 H x 94.0 L x 6.1 W<br>(3.58 x 3.7 x 0.24)<br>Relay & terminal block | 35.5 H x 29 L x 13 W<br>(1.40 x 1.14 x .51) | 64 H x 53.5 L x 34.5 W<br>(2.52 x 2.11 x 1.36) | 49.02 H x 68.58 L x 34.54 W<br>(1.93 x 2.70 x 1.36) |
| **Switching** | 6A max. | 1 pole: 10A max.<br>2 pole: 5A max. | 25A max. | 30A max. |
| **Features** | • Slimmest control relay available<br>• Capable of switching both electrical control loads (6A) and signal level loads (1mA)<br>• Relay available separately<br>• Sealed for unprotected environments | • Nameplate and mechanical flag indicator standard<br>• LED diode, and lockable test button option available<br>• Socket mount 10A relay (1-pole) | • Variety of contact forms<br>• Ideal for 3 phase motor control<br>• 4 pole mini contactor<br>• DIN rail mountable<br>• Minimal chattering<br>• UL94V-0 | • Reliable high power relay<br>• 3 mm contact gap<br>• Conforms to IEC 950/UL 1950<br>• Class B insulation standard<br>• Most cost effective solution in its class.<br>• Ideal for pump, motor loads |
| ***Contact Information***<br>**Contact form** | 1 Form C | 1 Form C<br>2 Form C | 4 Form A, 3 Form A/1 Form B,<br>2 Form A/2 Form B | 1 Form A-(Double Make)<br>2 Form A-(Double Make) |
| **Contact type(s)** | Crossbar | Single button, bifurcated crossbar | Single button | Single button |
| **Contact material(s)** | Ag Alloy | Ag Alloy | Ag Alloy | Ag Alloy |
| **Electrical service life (@ 1800 ops./hr.) (resistive load)** | 6,000: 6A @ 30 VDC /250VAC | 100,000 min. (at rated loads)<br>(see data sheet for more information) | 100,000 min. (at rated loads)<br>(see data sheet for more information) | 100,000 min. (at rated loads)<br>(see data sheet for more information) |
| **Maximum switching capacity** | 1,500VA, 18W (resistive load) | 2,500VA, 300W<br>(1-pole resistive load) | 5,500VA, 750W (NO contacts)<br>1,760VA, 240W (NC contacts) | 4,400VA |
| **Minimum permissible load (@1800 ops./hr.)** | 5mA @ 5VDC | 100mA @ 5VDC ,<br>10mA @ 5VDC (2 pole) | 100mA @ 24VDC | 100mA @ 5VDC |
| ***Coil Information***<br>**Coil voltage** | 12, 24, 48VDC<br>24, 48, 110, 230VAC | 6, 12, 24, 48VDC;<br>24, 110 120, 230, 240VAC | 6, 12, 24, 48, 100/110VDC;<br>6, 12, 24, 50, 100/120,<br>200/240VAC | 12, 24, 48, 100VDC;<br>12, 24, 100/120, 200/240VAC |
| **Power consumption** | 300mW | 0.9VA, 0.53W | 1.8 to 2.6VA, 2.0W | 1.7 to 2.5VA, 1.9W |
| **Insulation class** | Class A | Class A | Class A, Class B (available) | Class B |
| ***Characteristics***<br>**Operating temperature** | -40ºC to +60ºC | -40 to +70°C | -25ºC to +60°C | -20ºC to +85°C |
| **Impulse withstand voltage (1.2 x 50µ sec. unless noted)** | 6kV | 8kV | 10kV (coil-contacts) | 10kV (coil-contacts) |
| **Dielectric strength (50/60 Hz for 1 minute)** | 4,000VAC (coil-contacts)<br>1,000VAC (open contacts) | 1 pole: 5,000VAC (coil-contacts)<br>1,000VAC (open contacts)<br>2 pole: 5,000VAC (coil-contacts)<br>3,000VAC (different polarity)<br>1,000VAC (open contacts) | 4,000VAC (coil-contacts)<br>4,000VAC (different polarity)<br>2,000VAC (open contacts) | 4,000VAC (coil-contacts)<br>2,000VAC (different polarity)<br>2,000VAC (open contacts) |
| **Terminal choices** | Relay: Quick-connect<br>Socket: screw terminals, push-in wire connections (sold separately) | Plug-in | Quick-connect, screw, PCB | Quick-connect, screw, PCB |
| **Protection level** | Semi-sealed | Unsealed | Unsealed<br>Semi-sealed | Unsealed<br>Semi-sealed |
| **Accessories** | Socket: G2RV-SL (UL 508)<br>SSR Option: G3MB / G3MC | Sockets for track mount, sockets with screw terminals, & back connecting sockets with solder & PCB terminals. Note: P2RF-S series screwless clamp terminal socket available. SSR option: G3R. | R99-04V for G5D W-bracket | R99-07G5D E bracket;<br>P7LF-D adapter;<br>P7LF-06 front connecting socket |
| **Approved standards** | UL, CSA | UL, CSA, VDE, IEC, LR, CE | UL, CSA, TUV, CE, IEC | UL, CSA, TUV, CE, VDE available |

# Relays - General Purpose

| General Attributes | NEW! G7Z | MGN | MJN |
|---|---|---|---|
| **Dimensions mm (in)** | 84 H x 62 L x 45 W<br>(3.31 x 2.44 x 1.77) | Short Base: 55.88 H x 63.50 L x 63.50 W<br>(2.20 x 2.50 x 2.50)<br>Long Base: 60.45 H x 84.33 L x 63.50 W<br>(2.38 x 3.32 x 2.50) | 48.38 H x 35.56 L x 38.73 W<br>(1.91 x 1.40 x 1.53) |
| **Switching** | 40A max. (160A max. in parallel) | 30A max. | 10A, 20A, 30A (UL ratings)<br>(see: Electrical service life) |
| **Features** | • Each pole able to switch and carry 40A in parallel<br>• Capable of switching up to 160A<br>• Reduced power consumption & size<br>• Low noise<br>• Safety function included as standard<br>• Optional auxiliary contact block enables concurrent signal (1mA) switching | • 30 Amp heavy duty power relay<br>• Class F coil insulation system for 155°C (total temperature)<br>• Coil molded in DuPont Rynite® for environmental protection<br>• Rugged construction rivets terminals to base<br>• Magnetic blow-out option | • Rugged power driver offers superior 3/16" through-air & 3/8" over-surface spacing<br>• Interlocked frame & contact block prevent contact misalignment during plug-in<br>• Indicator lamp, push-to-operate options<br>• 10A-30A in same package<br>• Continous duty at 125% coil voltage |
| ***Contact Information***<br>**Contact form** | 4A, 3A/1B, 2A/2B | 1 Form A, 1Form B, 1Form C, 2 Form A, 2 Form C (long base) | 1 Form C, 2 Form C, 3 Form C (monostable);<br>1 Form C, 2 Form C (latching/unlatching) |
| **Contact type(s)** | Bifurcated Crossbar | Single button | Single button |
| **Contact material(s)** | AgSnIn | 5/16" diameter $AgCdO_2$ | 3/16" diameter $AgCdO_2$ |
| **Electrical service life (@ 1800 ops./hr.) (resistive load)** | 100,000: 5A @ 110VDC (at 1,2000 ops/hr)<br>80,000: 40A @ 440VAC | 100,000 min.<br>30A @ 28VDC/240VAC | 100,000 min.<br>10A @ 28VDC/240VAC<br>20A @ 28VDC/277VAC<br>30A @ 28VDC |
| **Max. Switching Capacity (resistive load)** | 17,600VA, 550W<br>440VA, 110W (auxiliary contact block) | N/A | N/A |
| **Minimum permissible load (@1800 ops./hr.)** | 2A @ 24VDC<br><1mA @ 5VDC (auxiliary contact block) | N/A | N/A |
| ***Coil Information***<br>**Coil voltage** | 12, 24VDC | 6, 12, 24, 120, 240, 480VAC;<br>6, 12, 24, 48, 110VDC | 6, 12, 24, 120VAC<br>5, 6, 12, 24, 48, 110VDC |
| **Power consumption** | 3.7W | 9.5VA nominal; 2W nominal | AC 1.7VA (1, 2PDT)<br>2.0VA (3PDT DC 1.2W |
| **Insulation class** | Class B | Class F | Class A |
| ***Characteristics***<br>**Operating temperature** | -25ºC to +60ºC | At 30Amps:<br>-45ºC to +80°C (AC coil)<br>-45ºC to +115°C (DC coil) | -45ºC to +60°C (1 & 2 pole AC coil), + 70°C (DC coil)<br>-45ºC to +45°C (3 pole AC coil)<br>-45ºC to +70°C (3 pole DC coil) |
| **Impulse withstand voltage (1.2 x 50µ sec. unless noted)** | 10kV (coil to contacts or different polarity)<br>4.5kV (open contacts) | N/A | N/A |
| **Dielectric strength (50/60 Hz for 1 minute)** | 4,000VAC (coil-contacts)<br>4,000VAC (different polarity)<br>2,000VAC (open contacts) | 2,200Vrms, 60Hz between contacts;<br>2,200Vrms, 60Hz between other elements | 750VAC, rms 60Hz across open contacts;<br>2,500VAC, rms 60Hz all other mutually insulated elements |
| **Terminal choices** | Screw | Screw | Quick-connect plug-in |
| **Protection level** | Unsealed, fully sealed | None | Semi-sealed |
| **Accessories** | Auxiliary Contact Block (2 poles of 4 poles)<br>Signal level switching capability (2 poles of 4 poles) | Aluminum dust cover - sealed knock-out holes for standard conduit fittings. Relay mounts on pre-drilled base. Snap action cover release<br>127 W x 76.20 H x 101.60 D (5 x 3 x 4) | PTF11PC Socket; PTF11QDC Socket; PTF21PC Socket;<br>PTFPCB Socket; PYMJN-PCB Retaining Clips;<br>PYMJN-S Retaining Clips |
| **Approved standards** | UL, CSA, TUV, VDE | UL | UL, CSA |

# Relays - Solid State

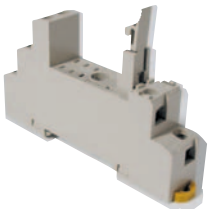


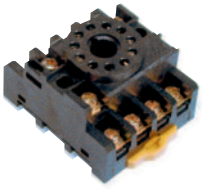
| General Attributes | SIP G3MB | SIP G3MC | DIP G3R I/O | DIP G3DZ |
|---|---|---|---|---|
| **Dimensions mm (in)** | 20.5 H x 24.5 L x 5.5 W (0.81 x 0.96 x 0.22) | 13.5 H x 24.5 L x 4.5 W (0.53 x 0.96 x 0.18) | Input & Output modules: 28 H x 29 L x 13 W (1.10 x 1.14 x 0.51) | 12.5 max. H x 18.5 L x 6.5 W (0.49 x 0.73 x 0.26) max. |
| **Switching current (resistive)** | 2A @ 240VAC | 2A @ 240VAC | Input module: 100mA; Output module: 2A | 0.6A @ 240VAC |
| **Features** | • Space saving SIP design<br>• Industry standard footprint<br>• Monoblock construction results in ultimate reliability | • Reduced height thin profile SIP<br>• Ideal for close PCB mounting<br>• Monoblock construction results in ultimate reliability<br>• Industry standard footprint | • 4 kV insulation<br>• Operation indicator standard<br>• Interchangeable with G2R electromechanical relay<br>• Ideal for DIN rail mount I/O operations | • AC/DC & AC half-wave switching with one model<br>• 10µA max. leakage current<br>• Matches G6D form factor |
| **Operating temperature** | -30ºC to +80°C | -30ºC to +80°C | -30ºC to +80°C | -30ºC to +85°C |
| **Operating input** | 5, 12, 24VDC | 5, 12, 24VDC | Input module: 5VDC; 6.6-32VDC; 60-264VAC; Output module: 4-32VDC | 5, 12, 24VDC |
| **Output voltage** | 75-264VAC | 75-264VAC | Input module: 4-32VDC; Output module: 75-264VAC, 4-200VDC | 5, 12, 24VDC |
| **Leakage Current (max.)** | 1.5mA (at 200VAC) | 1.5mA (at 200VAC) | Input Module: 5µA<br>Output Module: 1.5mA (AC)<br>1mA (DC) | 10µA (at 125VDC) |
| **Isolation** | Phototriac | Phototriac | Photocoupler, Phototriac | Phototriac |
| **Dielectric strength (50/60Hz for 1 min.)** | 2,500VAC | 2,500VAC | 4,000VAC | 2,500VAC |
| **Zero crossing** | Optional | Yes | Input module: No; Output module: Yes | No |
| **Snubber circuit** | Optional | Yes | Input module: No; Output module | Yes (Built-in Varistor) |
| **Life (MTTF)** | 100,000 hours | 100,000 hours | 100,000 hours | 100,000 hours |
| **Mounting** | PCB | PCB | Socket | PCB or Socket |
| **Terminal** | PCB | PCB | Plug-in | PCB |
| **Approvals** | UL, CSA, TUV | UL, CSA, VDE | UL, CSA, TUV | UL, CSA |
| **Equivalent Omron EMR footprint** | G2RV similar for terminal block | G2RV similar for terminal block | G2R | G6D, G6DS |
| **Optional heat sink** | N/A | N/A | N/A | N/A |
| **Socket** | N/A | N/A | P2RF-05E | P6D-04P |

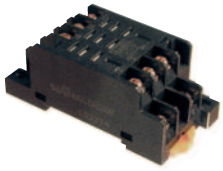
| General Attributes | SIP G3S/G3SD | SIP G3CN | SIP G3M | SIP G3TB |
|---|---|---|---|---|
| **Dimensions mm (in)** | 16.5 H x 20 L x 10 W<br>(0.65 x 0.79 x 0.39) | 26H x 33H x 14 W<br>(1.04 x 1.30 x .55) max. | 20 H x 40 L x 9 W<br>(0.79 x 1.58 x 0.35) | Input module:<br>20.5 H x 43.5 L x 10 W<br>(0.81 x 1.70 x 0.39)<br>Output module:<br>30.5 H x 43.5 L x 10 W<br>(1.20 x 1.70 x 0.39) |
| **Switching current (resistive) (max.)** | 1A @ 240VAC<br>(1.2A, G3S-PD & heatsink)<br>(1.1A, G3SD-PD & heatsink) | 2A, 3A, @ 53VDC, 26VAC | 2, 3A, 5A @ 250VAC | Input module: 25mA @ 4 to 32VDC<br>Output module: 3mA max. @ 5 to 48VDC<br>3mA max. @ 100 to 240 VAC<br>1.5 max. @ 48 to 200 VDC |
| **Features** | • AC and DC models available<br>• Socketable<br>• Heatsink, available<br>• Interchanges with G6B SPST electrical mechanical relay | • Flat & vertical packages<br>• Ideal for FA & OA equipment | • Multi-input SSR<br>• Space-saving SIP design<br>• Ideal for high density Power PCB applications<br>• High current switching capability | • Color-coded input & output modules<br>• Industry standard footprint<br>• 4kV dielectric strength<br>• LED indicator |
| **Operating temperature** | -30°C to +80°C | -30°C to +80°C | -30°C to +80°C | -30°C to +85°C |
| **Operating input** | 5, 12, 24VDC | 5, 12, 24; 3~28VDC | 5, 12, 24VDC | Input module:<br>80-264VAC, 3-32VDC;<br>Output module: 3-32VDC |
| **Output voltage** | 5, 12. 24VDC | 75~264VAC<br>3~53VDC | 75-264VAC | Input module: 4-32VDC;<br>Output module:<br>75-264VAC, 4-200VDC |
| **Leakage Current (max.)** | 2mA (G3S)<br>0.1mA @ 26VDC (G3S) | 2.5/5mA | 2mA @ 100VAC/5mA @ 200VAC<br>(2Amp versions)<br>1.5mA @ 200VAC (3 & 5 Amp versions) | Input module: 100µA max.<br>Output module: 5mA @ 200VAC (AC)<br>1mA max. (DC) |
| **Isolation** | Phototriac (G3S)<br>Photocoupler (G3SD) | Phototriac<br>Photocoupler | Phototriac | Photocoupler |
| **Dielectric strength (50/60Hz for 1 min.)** | 2,500VAC | 2,500VAC | 2,000VAC (2A versions)<br>2,500VAC (3A and 5A versions) | 4,000VAC |
| **Zero crossing** | No | Optional | Optional | Input module: No;<br>Output module: Yes |
| **Snubber circuit** | Yes (Built-in Varistor) | No | Yes | Input module: No;<br>Output module: Yes |
| **Life (MTTF)** | 100,000 hours | 100,000 hours | 100,000 hours | 100,000 hours |
| **Mounting** | PCB or Socket | PCB | PCB | PCB |
| **Terminal** | PCB | PCB | PCB | PCB |
| **Approvals** | UL, CSA | UL (114), CSA (22.2) | UL, CSA, TUV | UL, CSA |
| **Equivalent Omron EMR footprint** | G6B | N/A | N/A | N/A |
| **Optional heat sink** | Y92B-S08N | N/A | N/A | N/A |
| **Socket** | P6B-04P (PCB) | N/A | N/A | N/A |

# Relays - Solid State

| General Attributes | SIP G3TC | Quick Connect G3NE | Quick Connect G3NA | G3PA/B |
|---|---|---|---|---|
| **Dimensions mm (in)** | 31.8 H x 43.2 L x 15.2 W (1.25 x 1.7 x 0.6) | 11.5 H x 47 L x 37.5 W (0.45 x 1.90 x 1.50) | 27 H x 58 L x 43 W (1.06 x 2.28 x 1.69) | Consult Omron |
| **Switching current (resistive) (max.)** | Input Module: 12mA, 15mA, or 18mA (depending on model) Output Module: 3A (1A on DC output models rated< 200VDC) | 20A max.@ 240VAC (264VAC max.) | Versions range from 10A to 90A max. (when using heat sink) | up to 45A |
| **Features** | • Color-coded modules • Industry standard footprint • Built-in anchor screw • Optical isolation – Dielectric 4kV • Zero cross on AC output modules | • High capacity • Panel Mount • Quick-connect terminals | • Ideal for industrial controls & commercial cooking • "Hockey Puck" standard • Operation indicator standard | • Built-in heat sink increases life and reliability • Voltage turn-on at zero cross-ing reduces initial inrush load currents • LED indicator when control power applied |
| **Operating temperature** | -30ºC to +80°C | -30ºC to +80°C | -30ºC to +80°C | -30ºC to +80°C |
| **Operating input** | Input Module: 90-140VDC/AC, 180-280 VDC/AC, 10-32VDC/AC Output Module: 5, 15, 24VDC | 5, 12, 24VDC | 4-32VDC; 75-264VAC | 12-24VDC |
| **Output voltage** | Input Module: 4.5-6VDC, 12-18VDC, 20-30VDC Output Module: 75-140 VAC, 75-280VAC, 5-60 VDC, 5-200VDC | 75-264VAC | 19 - 264VAC 180 - 528VAC 4 - 220VDC (10A model) 400 - 600VAC (10, 25, 50A models) | 75 - 264VAC 180 - 528VAC |
| **Leakage Current (max.)** | Input Module: 100µA AC Output Modules: 5mA @ 240VAC 2.5mA @ 120VAC DC Output Modules: 1mA | 2mA (at 100VAC) 5mA (at 200VAC) | 5mA @ 100VAC 10mA @ 200VAC 20mA @ 400VAC | 10mA @ 200VAC 20mA @ 400VAC |
| **Isolation** | AC Input, DC Input, DC Output: Photocoupler AC Output: Phototriac | Phototriac | Phototriac, Photocoupler | Phototriac |
| **Dielectric strength (50/60Hz for 1 min.)** | 4,000VAC | 2,000VAC | 2,500VAC 4000VAC (75 and 90A models) | G3PA: 4,000VAC G3PB: 2,500VAC |
| **Zero crossing** | Yes (AC output modules only) | Optional | Yes | Yes |
| **Snubber circuit** | Yes (AC output modules only) | Yes (built in varistor) | Yes | Yes |
| **Life (MTTF)** | 100,000 hours | 100,000 hours | 100,000 hours | 100,000 hours |
| **Mounting** | PCB with anchor screw | Plug-in | Panel | Panel, DIN |
| **Terminal** | PCB | Quick connect | Screw | Screw |
| **Approvals** | UL, CSA, TUV, CE | UL, CSA, TUV | UL, CSA, TUV | UL, CSA, TUV, VDE |
| **Equivalent Omron EMR footprint** | N/A | N/A | N/A | N/A |
| **Optional heat sink** | N/A | Y92B-N50, -N100 | Y92B-A□ □,-B□ ,-P | N/A |
| **Socket** | N/A | Mounting plate | Mounting plate | PFP-xxx |







| Relay Type | Track Mount Sockets | Back Connecting Sockets | |
|---|---|---|---|
| | | Solder terminals | PCB terminals |
| G2R-1-S | P2RF-05<br>P2RF-05-E<br>P2RF-05-S | P2R-05A | P2R-05P |
| G2R-2-S | P2RF-08<br>P2RF-08-E<br>P2RF-08-S | P2R-08A | P2R-08P |
| G2RV | G2RL-SL500, -SL700 | – | – |
| G6B | – | – | P6B-04P (1-pole), P6B-26P (2-pole) |
| G6D | – | – | P6D-04P |
| G6BK | – | – | P6B-06P |
| G6BU | – | – | P6B-04P |
| G6C-1, G6C-2 | – | – | P6C-06P |
| G6CK | – | – | P6C-08P |
| G6CU | – | – | P6C-06P |
| LY1, LY2 | PTF08A-E | PT08 | PT08-0 |
| LY3 | PTF11A | PT11 | PT11-0 |
| LY4 | PTF14A-E | PT14 | PT14-0 |
| MK2 | PFO83A-E | PL08 | PLE08-0 |
| MK3 | PF113A-E | PL11 | PLE11-0 |
| MY2 | PYF08A-E<br>PYF08A-N<br>PYF08-S | PY08 | PY08-02 |
| MY3 | PYF11A | PY11 | PY11-02 |
| MY4 | PYF14A-E<br>PYF14A-N<br>PYF14S | PY14 | PY14-02 |
| MY2K | PYF14A-E | PY14 | PY14-02 |
| MY4(Z)H | PYF14A-E | – | – |

**NOTES:** **1.** -E and -N models are finger-protect construction. Round terminals cannot be used. Use Y-shaped terminals.
**2.** -S types are screwless terminal styles.

| Relay Type | Mounting | Adaptor | Front Connecting Socket |
|---|---|---|---|
| | Bracket | Track Mount/Panel Mount | Track Mount/Panel Mount |
| G7J-(ALL) | R99-04-FOR-G5F W bracket | – | – |
| G7L-1A-T | R99-07G5D E bracket | P7LF-D | P7LF-06 |
| G7L-1A-TJ | | | P7LF-06 |
| G7L-1A-B | | | – |
| G7L-1A-BJ | | | – |
| G7L-2A-T | | | P7LF-06 |
| G7L-2A-TJ | | | P7LF-06 |
| G7L-2A-B | | | – |
| G7L-2A-BJ | | | – |

| Terminal Cover | Socket Bridge |
|---|---|
| P&LE-C | PYDM |

| Mounting Track | Length |
|---|---|
| PFP-100N | 1 meter |
| PFP-50N | .5 meter |

# Designed to "Drop-In" Your Application.

Omron Electronic Components has a great variety of standard options. We can deliver a snap action switch that will drop right into your application. Saving you time, component counts, & cost while improving your products overall quality.

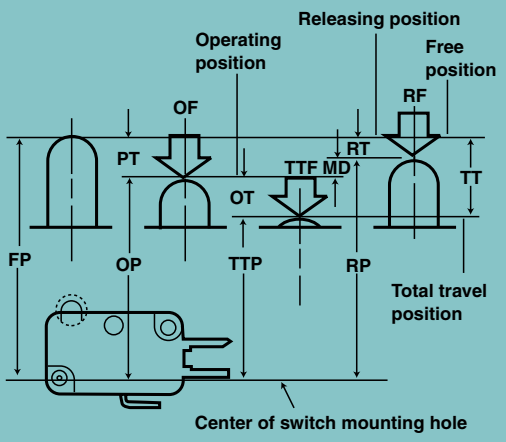
These options include:

Actuators:
- Long & short panel mount plungers
- Long & short spring plungers
- Hinge levers in various lengths & orientation
- Roller levers in various lengths & orientations
- Simulated roller
- Leaf

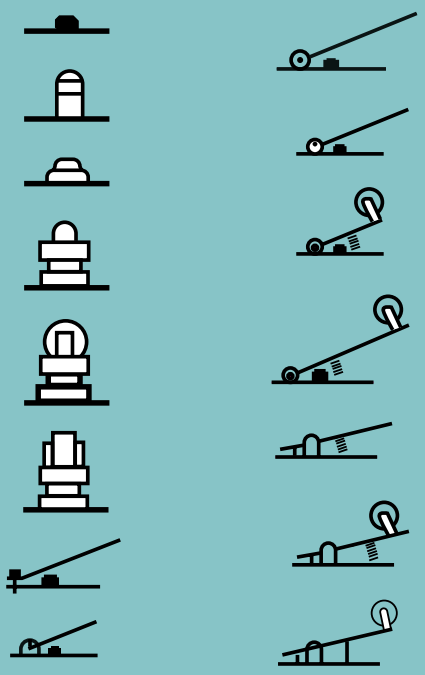
Termination styles:
- PCB
- Solder
- Quick Connect
- Screw
- Wire Leads
- Connector

Additional Features:
- Sealed / Unsealed versions available.
- Class N (200C) types available. (D3V-T)

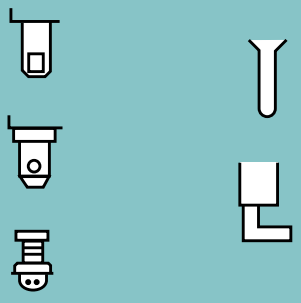
**Contact Omron Components and have it your way. Configure a switch that meets your application needs.**

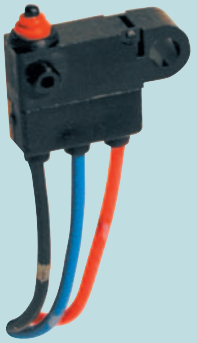


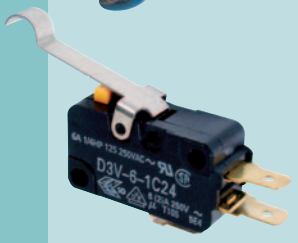

## Plunger & Lever Options

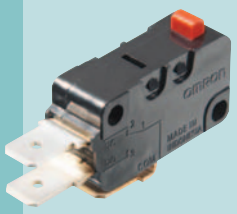


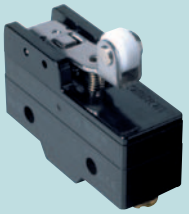
## Terminal Options



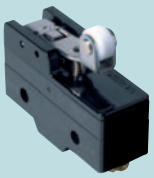






Designed to "Drop-In" Your Application.

| | | |  | |
|---|---|---|---|---|
| | **Z** | **A** | **X** | **DZ** |
| **Dimensions mm (in)** | 24.2 H x 17.45 D x 49.2 W (0.95 x 0.69 x 1.93) | 24.2 H x 17.45 D x 49.2 W (0.95 x 0.69 x 1.93) | 24.2 H x 17.45 D x 49.2 W (0.95 x 0.69 x 1.93) | 22.7 H x 17.45 D x 49.2 W (0.89 x 0.69 x 1.93) |
| **Features** | • General Purpose Snap Action Switch<br>• High precision 15 A switch available in a variety of styles | • General Purpose Snap Action Switch<br>• High capacity switch handles loads with large inrush currents | • DC switch<br>• Magnetic blowout to extinguish arc | • DPDT basic switch<br>• Incorporates two completely independent built-in switches<br>• Can switch two independent circuits operating on different voltages |
| ***Contact Rating(s)*** | | | | |
| **Resistive load** | 0.1A @ 125VAC<br>15A @ 250VAC* | 20A @ 250VAC | 10A @ 125VDC<br>3 A @ 250VDC | 10A @ 250VAC |
| **Contact form** | SPDT | SPDT | SPDT | DPDT |
| **Operating force (OF)*** | 250g to 350g | 400g to 625g | 510g | 570g |
| **Mechanical service life** | Refer to "SPECIFICATIONS" section of data sheet for detailed service life information | 1,000,000 ops. min. (at rated OT load) | 1,000,000 operations min. | 1,000,000 operations min. |
| **Electrical service life** | Refer to "SPECIFICATIONS" section of data sheet for detailed service life information | 500,000 ops. min. (at rated OT load) | 100,000 operations min. | 500,000 operations min. |
| **Mounting pitch mm (in)** | 25.4 (1.0) | 25.4 (1.0) | 25.4 (1.0) | 25.4 (1.0) |
| **Actuator types** | Pin plunger, slim spring plunger, short spring plunger, panel mount plunger, panel mount roller plunger, panel mount cross roller plunger, hinge lever, low force hinge lever, short hinge roller lever, hinge roller lever, unidirectional short hinge roller lever, spring plunger, flexible rod | Pin plunger, short spring plunger, panel mount plunger, panel mount roller plunger, panel mount cross roller, short hinge lever, hinge lever, short hinge roller lever, hinge roller lever | Pin plunger, short spring plunger, slim spring plunger, panel mount plunger, panel mount cross-roller plunger, panel mount roller plunger, leaf spring, hinge lever, hinge roller lever, short hinge lever, short hinge roller lever | Pin plunger, hinge lever, short hinge roller lever, hinge roller lever |
| **Terminal choices** | Solder, Screw | Solder, Screw, or Quick connect (#250) | Solder, Screw | Solder, Screw |
| **Approved standards** | UL, CSA, SEV | UL, CSA, SEV | UL, CSA | UL, CSA |

*Values are for pin plunger type only

# Switches - Snap Action



| | | | | |
|---|---|---|---|---|
| | **TZ** | **D3V** | **V** | **VX** |
| **Dimensions mm (in)** | 32 H x 17.45 D x 49.2 W<br>(1.26 x 0.69 x 1.93) | 15.9 H x 10.3 D x 27.8 W<br>(0.63 x 0.41 x 1.09) | 15.9 H x 10.3 D x 27.8 W<br>(0.63 x 0.41 x 1.09) | 18.8 H x 10.3 D x 27.8 W<br>(0.74 x 0.41 x 1.09) |
| **Features** | • Stable operation at 400°C ambient temperature<br>• High contact reliability<br>• Smooth operation | • Miniature Snap Action Switch<br>• Environmentally friendly: free of beryllium copper & lead<br>• Maximum operating temperature of 105°C (standard versions)<br>• Internally or externally fitted levers<br>• 200°C versions available (D3V-T) | • Miniature Snap Action Switch<br>• Industry standard design with 15 A (V-15G) or 10 A (V-10G) rating<br>• Cadmium-free contacts<br>• Internal lever options | • Miniature Snap Action<br>• Low operating force<br>• High contact reliability<br>• 0.1 A to 5 A |
| ***Contact Rating(s)***<br>**Resistive load** | 1A @ 250VAC | 21/16/11/6A @ 125/250VAC<br>0.1A @ 125VAC | 15A @ 250VAC (V-15G)<br>10A @ 250VAC (V-10G) | 5A @ 250VAC<br>0.1A @ 125VAC |
| **Contact form** | SPST | SPDT, SPST-NC, SPST-NO | SPDT, SPST-NC, SPST-NO | SPDT, SPST-NO, SPST-NC |
| **Operating force (OF)*** | 500g | 50g, 100g, or 200g | 100g, 200g, or 400g (V-15G)<br>100g or 200g (V-10G) | 25g, 50g |
| **Mechanical service life** | 100,000 operations min. | 10,000,000 operations min. | 50,000,000 operations min. | 50,000,000 (5A)<br>10,000,000 (0.A) |
| **Electrical service life** | 50,000 operations min. | 100,000 operations min. (D3V-16)<br>200,000 operations min. (D3V-11)<br>500,000 operations min. (D3V-6 / D3V-01) | 100,000 operations min. (V-15G)<br>300,000 operations min. (V-10G) | 500,000 (5A )<br>1,000,000 (0.1A ) |
| **Mounting pitch mm (in)** | 25.4 (1.0) | – | 10.3 x 22.2 (0.41 x 0.87) | 22.2 |
| **Actuator types** | Pin plunger, hinge lever, short hinge roller lever, hinge roller lever | Pin plunger, short hinge lever, hinge lever, long hinge lever, simulated roller lever, short hinge roller lever, hinge roller lever | Pin plunger, short hinge lever, hinge lever, long hinge lever, simulated roller lever, short hinge roller lever, hinge roller lever | Pin plunger, short hinge lever, hinge lever, long hinge lever, simulated roller lever, short hinge roller lever, hinge roller lever |
| **Terminal choices** | Bolt | Solder/Quick connect (#187)<br>Quick connect (#187)<br>Quick connect (#250) | Solder/Quick connect (#187)<br>Quick connect (#187), Quick connect (#250), Short solder, Screw | Solder, Quick-connect (#187) |
| **Approved standards** | – | UL, CSA, VDE, SEMKO | UL, CSA, SEV, VDE, SEMKO, DENMARK | UL, CSA, VDE |

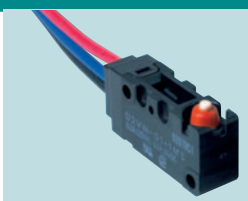
* Values are for pin plunger type only

# Switches - Snap Action

| | | NEW! | NEW! | |
|---|---|---|---|---|
| | **SS-P/SS** | **SSG** | **D3M** | **D2F** |
| **Dimensions mm (in)** | 10.2 H x 6.4 D x 19.8 W<br>(0.40 x 0.25 x 0.78) | 10.2 H x 6.4 D x 19.8 W<br>(0.40 x 0.25 x 0.78) | 10 H x 7 D x 31.6 W<br>(0.39 x 0.28 x 1.24) | 6.5 H x 5.8 D x 12.8 W<br>(0.26 x 0.23 x 0.50) |
| **Features** | • Subminiature Snap Action Switch<br>• SS-01: Switches microcurrent/ microvoltage load with crossbar contacts<br>• SS-3: Single-leaf moveable spring<br>• SS-5: Split double spring mechanism for a long life of up to 30 million operations<br>• SS-10: Split double spring mechanism for a long life of up to 10 million operations<br>• Internal lever options | • Subminiature Snap Action Switch<br>• SS-01: Switches microcurrent/ microvoltage load with crossbar contacts<br>• SS-5: Split double spring mechanism for a long life of up to 30 million operations<br>• Wide operating temp. range of -25 to + 125°C<br>• Internal lever options<br>• Global switch conforming to EN, UL & CSA | • External actuators<br>• Easy wiring through connector terminals | • Subminiature Snap Action Switch<br>• Switches microvoltage/ micro-current loads<br>• Long lifespan assured by high-precision dual spring reverse-action mechanism |
| ***Contact Rating(s)*** | | | | |
| **Resistive load** | 0.1A @ 125VAC (SS-01)<br>3A @ 125VAC (SS-3)<br>5A @ 125VAC (SS-5)<br>10.1A @ 125/250VAC (SS-10) | 3A @ 250VAC<br>0.1A @ 250VAC | 0.1A @ 30VDC | 0.1A @ 30VDC (D2F-01)<br>3A @ 125VAC (D2F)<br>1A @ 125VAC (D2F-F) |
| **Contact form** | SPDT (SPST-NC, SPST-NO per request) | SPDT, SPST-NO, SPST-NC | SPST-NC, SPST-NO | SPDT |
| **Operating force (OF)*** | 25g, 50g, or 150g (SS-01)<br>150g (SS-3)<br>50g or 150g (SS-5)<br>150g (SS-10) | 25g, 51g, 153g | 153g | 75g (D2F-01)<br>150g (D2F)<br>75g (D2F-F) |
| **Mechanical service life** | 30,000,000 ops. min. (SS-01, SS-5)*<br>1,000,000 ops. min. (SS-01P, SS-3)<br>10,000,000 ops. min. (SS-10)* | 10,000,000 operations min. | 500,000 operations min. | 1,000,000 operations min. |
| **Electrical service life** | 200,000 operations min. (SS-01, SS-5)**<br>70,000 operations min. (SS-3)<br>50,000 operations min. (SS-10)** | 200,000 operations min. | 200,000 operations min. | 30,000 operations min.<br>(OT: full stroke) |
| **Mounting pitch mm (in)** | 9.5 (0.37) | 9.5 | 9.5 | 6.5 (0.26) |
| **Actuator types** | Pin plunger, hinge lever, simulated roller lever, formed hinge lever, hinge roller lever | Pin plunger, hinge lever, simulated roller lever, hinge roller lever | Pin plunger, hinge lever, hinge roller lever, simulated roller lever | Pin plunger, hinge lever, simulated roller lever, roller lever |
| **Terminal choices** | SS-01, SS-3, SS-5: PCB (straight, parallel left, parallel right), Solder, Quick connect SS-10: PCB (straight), Solder, Quick connect (#110) | Solder, quick-connect (#110), PCB | Dipole XA Connector | PCB (straight, self-supporting, right and left angle), Solder |
| **Approved standards** | UL, CSA, EN | UL, CSA, EN | UL, CSA | UL, CSA |
| * Values are for pin plunger type only | *at rated OT value<br>**at rated load | | | |

# Switches - Sealed Snap Action

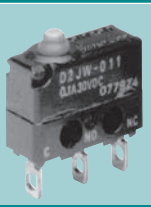
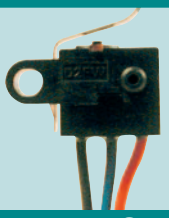
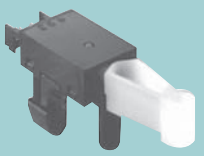


| |  | NEW! | | |
|---|---|---|---|---|
| | **D2VW** | **D2RW** | **D2SW** | **D2SW-P** |
| **Dimensions mm (in)** | 15.9 H x 10.3 D x 33 W (0.63 x 0.41 x 1.29) | 15.9 H x 10.3 D x 35.9 W (0.63 x 0.41 x 1.41) | 10.1 H x 6.4 D x 19.8 W (0.40 x 0.25 x 0.78) | 7.7 H x 6.4 D x 19.8 W (0.30 x 0.25 x 0.78) |
| **Features** | • Miniature Snap Action Switch<br>• Sealed water-tight switch conforms to IP67 & IP68 | • Suitable for microloads to 1 million operations minimum<br>• Internal Reed Switch sealed to IP67 ensures stable operation<br>• Extended humidity operating range, up to 95% RH<br>• Available with internally fitted levers | • Subminiature snap action switch<br>• Small sealed switch conforms to IP67 & IP68 | • Sealed basic switch (IP67)<br>• Single leaf movable spring construction<br>• Microload versions available |
| ***Contact Rating(s)*** | | | | |
| **Resistive load** | 0.1A @ 125VAC or 5A @125/250VAC | 0.25A @ 100VDC | 0.1A @ 125VAC or 3A @ 125VAC | 2A @ 250VAC or 0.1A @ 125VAC |
| **Contact form** | SPDT (SPST-NC, SPST-NO per request) | SPST-NO | SPDT (SPST-NC, SPST-NO per request) | SPDT, SPST-NO, SPST-NC |
| **Operating force (OF)*** | 200g | 153g | 180g | 183g |
| **Mechanical service life** | 10,000,000 operations min. | 1,000,000 operations min. | 5,000,000 operations min. | 1,000,000 operations min. |
| **Electrical service life** | 1,000,000 operations min. (0.1A, 125VAC)<br>100,000 operations min. (3A, 125/250VAC) | 1,000,000 operations min. | 200,000 operations min. (0.1 or 3A, 125VAC)<br>100,000 operations min. (2A, 250VAC) | 50,000 (2 A) or 200,000 (0.1A) operations min. |
| **Mounting pitch mm (in)** | 10.3 x 22.2 (0.41 x 0.87) | 22.2mm | 9.5 (0.37) | 9.5mm |
| **Actuator types** | Pin plunger, short hinge lever, hinge lever, long hinge lever, simulated roller lever, short hinge roller lever, hinge roller lever | Pin plunger, hinge lever, hinge roller lever, simulated roller lever | Pin plunger, hinge lever, simulated roller lever, hinge roller lever | Pin plunger, hinge lever, hinge roller lever, simulated roller lever |
| **Terminal choices** | Solder/Quick connect (#187 tab terminals) lead wires | Molded lead wires | Solder, Quick connect (#110), PCB, lead wires | Solder, Quick connect (#110), PCB (even & uneven pitch), Molded lead wires |
| **Approved standards** | UL, CSA (refer to "Ratings" section of data sheet) | – | UL, CSA | UL, CSA |

*Values are for pin plunger type only

**IP68 Ratings are based on specific application environments and conditions, per IEC 529. Test conditions for Grade 8 pertaining to continuous immersion are subject to prior agreement between Omron and the user. Acceptance of the test requirements and the ratings may or may not occur, solely based on the specific conditions of each application. Consult Omron for consideration of specific usage conditions.

# Switches - Sealed Snap Action

| | NEW! |  |  |  |
|---|---|---|---|---|
| | **D2HW** | **D2JW** | **D2FW-G** | **D2X** |
| **Dimensions mm (in)** | 7 H x 5.3 D x 13.3/18.5 W (0.28 x 0.21 x 0.52/0.73) | 9.4 H x 5.3 D x 12.7 W (0.37 x 0.21 x 0.50) | 13.5 H x 8.0 D x 23.5 W (0.53 x 0.31 x 0.93) | 28.1 H x 8.4 D x 5.3 W (1.11 x 0.33 x 0.21) |
| **Features** | • Subminiature Snap Action Switch<br>• Small sealed switch with long stroke for reliable ON/OFF action<br>• Conforms to IP67 | • Small size<br>• Gold crossbar contact and coil-spring for long life<br>• IP67 rating for molded lead wire versions | • Subminiature Snap Action Switch<br>• Small sealed switch with lead wires<br>• Conforms to IP67 | • High contact force<br>• Wiping action for greater contact reliability |
| ***Contact Rating(s)*** | | | | |
| **Resistive load** | 2A @ 12VDC/ 1A @ 24VDC/ 0.5A @ 42VDC | 0.1A @ 30VDC | 0.5A @ 30VDC or 50mA @ 30VDC | 0.1A @ 30VDC |
| **Contact form** | SPDT, SPST-NC, SPST-NO | SPDT | SPDT, SPST-NC, SPST-NO | SPST-NC |
| **Operating force (OF)*** | 76g | 250g | 120g | 50g |
| **Mechanical service life** | 1,000,000 operations min. | 1,000,000 operations min. | 300,000 operations min. | 1,000,000 operations min. |
| **Electrical service life** | 100,000 operations min. | 500,000 operations min. | 100,000 operations min. | 50,000 operations min. |
| **Mounting pitch mm (in)** | 8 (0.32) posts, 13 (0.51 ) screw | 4.8 | 16 (0.63) | 12.2 |
| **Actuator types** | Pin plunger, hinge lever, long hinge lever, simulated roller lever, leaf lever, simulated leaf lever, long leaf lever | Pin plunger, short hinge lever, hinge lever, simulated roller lever, hinge roller lever | Leaf lever, Long leaf lever | Bi-directional paddle |
| **Terminal choices** | PCB (straight, angled), Solder, Lead wire (bottom, right side, left side) | Solder, molded lead wire | Lead wires | Crimp connector |
| **Approved standards** | – | UL, CSA, VDE | – | – |

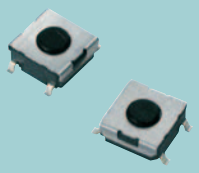
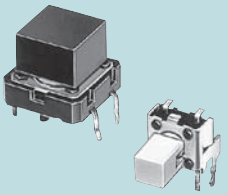
*Values are for pin plunger type only

# Switches - Snap Action



| | | NEW! | NEW! | |
|---|---|---|---|---|
| | **D3C** | **D3K** | **D3D** | **D2T** |
| **Dimensions mm (in)** | 6 H x 4.2 D x 8 W<br>(0.24 x 0.17 x 0.31) | 13.7 H x 5.6 D x 18.9 W<br>(0.54 x 0.22 x 0.74) | 30.7 H x 15 D x 36.4 W<br>(1.21 x 0.59 x 1.43) | 24.65 H x 11.5 D x 28.8 W<br>(0.97 x 0.45 x 1.13) |
| **Features** | • Low torque built-in slide mechanism for selecting shorting or non-shorting timing | • Very low operating force<br>• Detects cards & paper sheet | • Miniature door switch<br>• Low-noise<br>• Disconnectable crimp connector<br>• Gold crossbar contacts | • Compact door switch<br>• Incorporates two circuits for power loads & micro loads |
| ***Contact Rating(s)***<br>**Resistive load** | 0.1A @ 30VDC | 10mA @ 12VDC | 1A @ 125VAC or 0.5A @ 250VAC | 5A @ 250VAC<br>0.1A @ 25VAC |
| **Contact form** | SPDT | SPST-NO | SPDT, SPST-NC, SPST-NO | DPST-NO |
| **Operating force (OF)*** | 40g, 130g | 3g | 204g | 330g |
| **Mechanical service life** | 50,000 operations min. | 2,000,000 operations min. | 300,000 operations min. | 100,000 operations min. |
| **Electrical service life** | 50,000 operations min. | 2,000,000 operations min. | 100,000 operations min. | 100,000 operations min. |
| **Mounting pitch mm (in)** | 5.7 | 17.3 | Panel-mount | 26.4 |
| **Actuator types** | Rotary lever | Paddle lever | Pin plunger, lever | Pin plunger, hinge lever |
| **Terminal choices** | PCB | Connector | Connector | Solder |
| **Approved standards** | – | – | UL, CSA | UL, CSA, VDE, SEMKO |

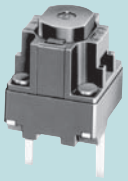
* Values are for pin plunger type only

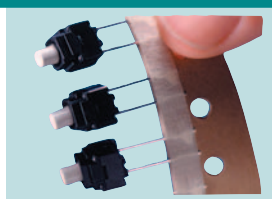
| | |  |  |
|---|---|---|---|
| | **B3F** | **B3FS** | **B32** |
| **Dimensions mm (in)** | Varies by type | Varies by type | Various |
| **Features** | • Tactile 6 mm/12 mm Square Switch<br>• Space saving switch with extended mechanical/electrical service life<br>• Taped radial packaging available* | • Tape & Reel Surface Mount Switches<br>• Tactile switch that incorporates a snap action contact mechanism which ensures sharp switching operations | • Key tops for projected-plunger B3F and B3W tactile switches<br>• Available in a wide range of colors and sizes |
| ***Contact Rating(s)*** **Resistive load** | 50mA @ 24 VDC | 50mA @ 24 VDC | |
| **Contact form** | SPST-NO | SPST-NO | |
| **Action** | Momentary | Momentary | |
| **Ground terminal** | Models available with or without ground terminal | None | |
| **Keycap (optional)** | Refer to "ACCESSORIES" section of data sheet for Keycap information | None | |
| **Operating force (OF)*** | Refer to "OPERATING CHARACTERISTICS" section of data sheet | 100gf (General purpose)<br>150gf (High force) | |
| **Service life (Mechanical / Electrical)** | B3F-1□□□ /3□□□<br>1,000,000 operations min.<br>(High force: 300,000 operations min.)<br>B3F-4 □□□<br>3,000,000 operations min.<br>(High force: 300,000 operations min.)<br>B3F-5 □□□ 10,000,000 operations min.<br>B3F-6 □□□ 1,000,000 operations min.<br>(High force: 300,000 operations min.) | 1,000,000 operations min. (General purpose)<br>300,000 operations min. (High force) | |
| **Actuator type** | Plunger | Plunger | |
| **Terminal choices** | PCB | Surface mount | |
| **Cleaning** | Not possible | Not possible | N/A |

IMPORTANT NOTE: None of the Tactile switch models listed within this catalog are water-washable.

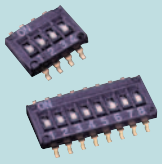
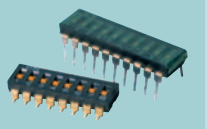
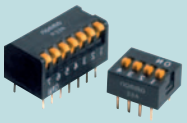
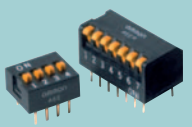
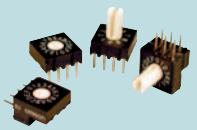
# Switches - Tactile



| |  | | | |
|---|---|---|---|---|
| | **B3M** | **B3W** | **B3S** | **B3SN** |
| **Dimensions mm (in)** | 7.3 H x 6.0 D x 6.0 W<br>(0.29 x 0.24 x 0.24) | Varies by type | 4.3 H x 6.0 D x 6.0 W<br>(0.17 x 0.24 x 0.24) | 3.1 H x 6.5 D x 7.0 W<br>(0.12 x 0.26 x 0.28) |
| **Features** | • High Profile Tactile Switch<br>• Stroke length of 0.85mm<br>• Light touch with a minimum overstroke of 0.25mm | • 6 mm/12 mm Square Tactile Switch<br>• Sealed Construction allows immersion cleaning with Alcohol based solution | • Surface Mount Tactile Switch<br>• Sealed Construction allows immersion cleaning with Alcohol based solution | • Surface Mount Tactile Switch<br>• Low profile sealed construction for dust or humid environments<br>• Available in bulk or tape packaging |
| **Service life (Mechanical / Electrical)** | 2,000,000 operations min. | B3W-1 □□□<br>Standard force:<br>1,000,000 operations min.<br>High-force:<br>300,000 operations min.<br>B3W-4 □□□<br>Standard force:<br>3,000,000 operations min.<br>High force:<br>1,000,000 operations min. | 500,000 operations min.<br>(General purpose)<br>300,000 operations min.<br>(High force) | 50,000 operations min. |
| ***Contact Rating(s)*** **Resistive load** | 50mA @ 12VDC | 50mA @ 24VDC | 50mA @ 24VDC | 1 to 30mA @ 5 to 24VDC |
| **Contact form** | SPST-NO | SPST-NO | SPST-NO | SPST-NO |
| **Action** | Momentary | Momentary | Momentary | Momentary |
| **Ground terminal** | None | Models available with or without ground terminal | Models available with or without ground terminal | Models available with or without ground terminal |
| **Keycap (Optional)** | Built in | Refer to “ACCESSORIES” section of data sheet for Keycap information | None | None |
| **Operating force (OF)*** | 70 ±20gf | Refer to “OPERATING” CHARACTERISTICS" section of datasheet | 160gf (General purpose)<br>230gf (High force) | 160 ±50g max. |
| **Actuator type** | Plunger | Plunger | Plunger | Plunger |
| **Terminal choices** | PCB | PCB | Surface mount | Surface mount |
| **Cleaning** | Not possible | Possible | Possible | Possible |

| |  | | NEW! | |
|---|---|---|---|---|
| | **B3WN** | **B3J** | **B3D** | **B3DA** |
| **Dimensions mm (in)** | 13 H x 8.0 D x 8.0 W (0.51 x 0.31 x 0.31) | 10.3 H x 18.0 D x 12.0 W (0.41 x 0.71 x 0.47) | 4 mm or 5 mm domes | 4 mm or 5 mm domes |
| **Features** | • Radial Tape Sealed Tactile Switch<br>• Compact 8 x 8 mm square size with double sealing construction<br>• Assures water-tight/dust-tight protection | • Hinged Tactile Switch<br>• Available with 1, 2 or no LED's | • Adhesive-backed individual dome<br>• Superior dust-tight performance<br>• No soldering required | • Adhesive-backed individual array<br>• Superior dust-tight performance<br>• No soldering required |
| **Service life (Mechanical/Electrical)** | 100,000 operations min. | 3,000,000 operations min. | 500,000 (4 mm) / 1,000,000 (5 mm) | 500,000 (4 mm) / 1,000,000 (5 mm) |
| ***Contact Rating(s)*** **Resistive load** | 50mA @ 12VDC | 1 to 50mA @ 5 to 24VDC | 10mA @ 12VDC | _ |
| **Contact form** | SPST-NO | SPST-NO | N/A | N/A |
| **Action** | Momentary | Momentary | Momentary | Momentary |
| **Ground terminal** | None | None | None | None |
| **Keycap (Optional)** | None | None | None | None |
| **Operating force (OF)*** | 200 ±70gf | 130 ±50gf | 170g | 160g |
| **Actuator type** | Plunger | Hinge lever | Dome | Dome |
| **Terminal choices** | PCB | PCB | Surface mount | Surface mount |
| **Cleaning** | Possible | Not possible | Not possible | Not possible |

# Switches - DIP

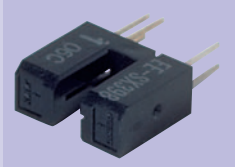
| |  |  |  |  | NEW!  |
|---|---|---|---|---|---|
| | **A6H** | **A6T/A6S** | **A6D/A6DR** | **A6E/A6ER** | **A6R/A6RV** |
| **Dimensions mm (in)** | Varies by type | Varies by type | Varies by type | Varies by type | Varies by type |
| **Features** | • Half-pitch Surface Mount DIP Switch<br>• Low profile of 1.55mm<br>• Seal tape models available | • Straight PCB/ Surface Mount DIP Switch<br>• Flat actuated types with or without seal tape, & tape seal versions in embossed tape packaging<br>• Raised actuator types also available | • Dustproof construction<br>• Top, raised & side actuators<br>• Smooth switching action | • Available in a variety of model types: A6E: Flat/Raised actuator A6ER: Side actuator | • Economical rotary DIP switch<br>• Top, side &d extended shaft models<br>• O-ring sealed construction to prevent ingress of dust and dirt |
| ***Contact Rating(s)***<br>**Resistive load** | 25mA @ 24VDC | 25mA @ 24VDC | 30mA @ 30VDC | 25mA @ 24VDC | 25mA @ 24VDC |
| **Switching positions** | – | – | – | – | 10-BCD<br>16-Hexidecimal |
| **Number of poles** | 4, 8 | A6T: 1, 2, 4, 6, 8, 10<br>A6S: 2, 3, 4, 5, 6, 7, 8, 9, 10<br>A6S (embossed tape): 4, 6, 8 | 4, 6, 8, 10 | 2, 3, 4, 5, 6, 7, 8, 9, 10 | – |
| **Operating force (OF)*** | 30gf | 30gf | 500gf | 30gf | 200g-cm max. |
| **Mechanical service life,** | 1,000 operations min. | 1,000 operations min. | 5,000 operations min. | 1,000 operations min. | 5,000 detent operations min. |
| **Electrical service life** | 1,000 operations min. | 1,000 operations min. | 2,000 operations min. | 1,000 operations min. | 5,000 detent operations min. |
| **Actuator types** | Top | Top, raised | Top, raised, side | Top, raised, side | Rotary |
| **Terminal choices** | Surface mount | PCB terminal; Surface mount | PCB terminal | PCB terminal | PCB terminal |
| **Washable** | Yes (seal tape only) | Yes (seal tape only) | Yes | No | No |

| | | |
|---|---|---|
| | **A6A** | **A6C** |
| **Dimensions mm (in)** | Varies by type | Varies by type |
| **Features** | • Subminiature Rotary DIP Switch<br>• Small housing for high-density mounting & sealed construction for immersion cleaning | • Subminiature Rotary DIP Switch Internal sealed construction eliminates the need for tape sealing, & automatic, high-density mounting is possible |
| ***Contact Rating(s)*** | | |
| **Resistive load** | 1~100mA @ 5~28VDC | 100mA @ 30VDC |
| **Switching positions** | 10-BCD<br>16-Hexadecimal | 10-BCD<br>16-Hexidecimal |
| **Number of poles** | – | – |
| **Operating force (OF)*** | 120 to 250g-cm | 15 to 100g-cm |
| **Mechanical service life** | 10,000 detent ops. min. | 10,000 operations min. |
| **Electrical service life** | 2,000 detent ops. min. | 2,000 operations min. |
| **Actuator types** | Rotary | Rotary |
| **Terminal choices** | PCB terminal | PCB terminal |
| **Washable** | Yes | Yes |

# Photomicrosensors



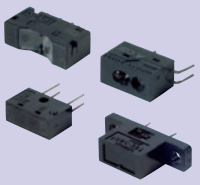
## Photo IC - Slotted



| | Non-Amplified | Non-Amplified |
|---|---|---|
| **Sub-category** | Slotted Photo IC with connector | Slotted Photo IC |
| **Models** | EE-SX4235A-P2 | EE-SX398, EE-SX3070, EE-SX3081, EE-SX3088, EE-SX498, EE-SX4070, EE-SX4081, EE-SX4088 |
| **Connection type** | Connector* | PCB mount |
| **Features** | • Unique snap-in mounting mechanism eliminates screws & nuts<br>• Compatible with 1.0, 1.2, & 1.6 mm PCBs | • Built-in Schmitt trigger circuit<br>• Directly compatible with TTL and CMOS |
| **Slot width mm (in)** | 5 (0.2) | 3 to 8 (0.12 to 0.315) |
| **Output logic** | Light-ON | Light-ON or Dark-ON |
| **Max. forward current mA** | – | 50mA |
| **Supply voltage (VDC)** | 7VDC | 4.5 to 16VDC |
| **Operating temperature** | –25° to +75°C | –40° to +75°C |
| **Output low voltage (V)** | 0.35V max. | 0.4V max. |
| **Output high voltage (V)** | (Vcc x 0.9) Vmin. | 15V min. |
| **Response frequency (Hz)** | 3,000Hz | 3,000Hz |
| **Output permissible dissipation (mW)** | 250mW | 250mW |
| **Forward voltage (V)** | – | 1.2V – typ. |
| **Hysteresis** | – | 15% |
| **Rising time (low to high)** | – | 3µS – typ. |
| **Falling time (high to low)** | – | 20µS – typ. |
| **Current consumption (mA)** | 30mA max. | 10mA max. |

*Applicable Mating Connector
AMP 175778-3
AMP 173977-3

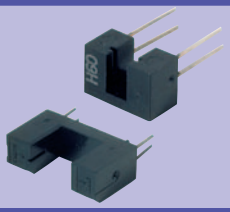
## Phototransistor - Reflective



| | Non-Amplified | Non-Amplified |
|---|---|---|
| **Sub-category** | Reflective PCB mount phototransistor | Reflective solder terminal phototransistor |
| **Model numbers** | EE-SY169, EE-SY169A, EE-SY169B, EE-SB5-B, EE-SF5-B | EE-SB5, EE-SF5 |
| **Connection type** | PCB mount | Solder terminals |
| **Features** | • Ideal for office automation and computer peripheral equipment<br>• Infrared LED & photo-transistor assure long life | • Sensor housing reduces external light's influence<br>• High resolution sensing |
| **Sensing distance mm (in)** | 5 (0.2) | 5 (0.2) |
| **Max. forward current (mA)** | 50mA (40 mA: EE-SY169, EE-SY169B) | 50mA |
| **Supply voltage (VDC)** | 5 to 30V | 5 to 30V |
| **Light current (mA)** | EE-SY169(A)(B): 160µA to 2,000µA; EE-SB5/EE-SF5-B: 200µA to 2,000µA | 200µA to 2,000µA |
| **Response frequency (Hz)** | 15kHz | 15kHz |
| **Ambient operating temperature (°C)** | 0° to +70°C | -25° to +85°C |

NOTE: The above specifications do not apply to all models listed.
For specific model information and additional product variations,
visit www.components.omron.com or contact your local Omron representative.

## Phototransistors - Slotted

| | | | | |
|---|---|---|---|---|
| | |  | | |
| | **Non-Amplified** | **Non-Amplified** | **Non-Amplified** | **Non-Amplified** |
| **Sub-category** | Slotted phototransistor with connector | Miniature PCB mount transmissive | Slotted surface mount phototransistor output | Slotted actuator adaptable phototransistor output |
| **Models** | EE-SX1235A-P2 | EE-SX198, EE-SX1018, EE-SX1035, EE-SX1041, EE-SX1042, EE-SX1046, EE-SX1055, EE-SX1070, EE-SX1071, EE-SX1081, EE-SX1088, EE-SX1096, EE-SX1103, EE-SX1105, EE-SX1106 | EE-SX1107, EE-SX1108, EE-SX1109, EE-SX1131 (dual channel) | EE-SA107-P2 |
| **Connection type** | Connector* | PCB mount | Surface mount | Connector* |
| **Features** | • Electrical connections using AMP connector<br>• Compact and high-resolution | • Infrared LED & phototransistor for long life<br>• Narrow aperture slit for high resolution sensing<br>• Compact size | • Ultra-compact<br>• High-resolution sensing with phototransistor output<br>• Ideal for restricted space applications | • High resolution sensing<br>• Non-contact, noiseless sensing |
| **Slot width mm (in)** | 5 (0.2) | 2 to 8 (0.08 to 0.32) | 1 to 3 (0.04 to 0.12) | 3.6 (0.14) |
| **Max. forward current (mA)** | 50mA | 50mA | 25mA | 50mA |
| **Max. collector dissipation (mW)** | 100mW | 100mW | 75mW | 100mW |
| **Operating temperature (°C)** | –25° to +95°C | –25° to +85°C | –30° to +85°C | –25° to +85°C |
| **Forward voltage (V)** | 1.2V typ. | 1.2 to 1.3V | 1.1V typ. | 1.2V typ. |
| **Light current (mA)** | 0.6mA to 14mA max. | 0.03 to 14mA max. | 0.05 to 0.50mA | 0.5 to 14mA |
| **Collector-emitter saturated voltage (V)** | 0.4V max. | 0.4V max. | 0.1V typ. | 0.4V max. |
| **Rising time (low to high)** | 8µS typ. | 4µS typ.<br>(10µS typ.: EE-SX1103, EE-SX1105, EE-SX1106) | 10µS typ. | 8µS typ. |
| **Falling time (high to low)** | 8µS typ. | 4 µS typ.<br>(10µS typ.: EE-SX1103, EE-SX1105, EE-SX1106) | 10µS typ. | 8µS typ. |
| | *Applicable Mating Connector<br>AMP 175778-3<br>AMP 173977-3 | | | *Applicable Mating Connector<br>AMP 175778-3<br>AMP 173977-3 |

NOTE: The above specifications do not apply to all models listed.
For specific model information and additional product variations,
visit www.components.omron.com or contact your local Omron representative.

# Micro Sensors - MEMS

## Mass Air Flow 1~5L

| | D6F |
|---|---|
| Dimensions mm (in) | 15H x 20D x 66W<br>(0.60 x 0.79 x 2.60) |
| Features | Detects –<br>• Breath rate in respiratory equipment<br>• Natural gas flow rate<br>• Gas in fuel cells<br>• Flow in ventilation systems |
| Applicable gases | Air, Natural gas, LP gas, $O_2$, and $N_2O$ * |
| Supply voltage | 12 to 24VDC |
| Operating temp. range | -10° to +60°C |
| Ordering information | *Case* / *Gas* / *Flow range* / *Part number*<br>PPS / Air / 0~1L/min / D6F-101A-110<br>PPS / Air / 0~2L/min / D6F-102A-110<br>AL / LNG / 0~5L/min / D6F-05N2-000 |

*Contact Omron regarding other gases.

## Mass Air Flow 10~50L

| | D6F-10/20/50 |
|---|---|
| Dimensions mm (in) | 30H x 30D x 78L<br>(1.18 x 1.18 x 3.07) |
| Features | • Precision unidirectional mass airflow up to 50LPM<br>• Stable output<br>• Horizontal mounting with NBR 'O' ring<br>• Low power consumption |
| Applicable gases | Air, Natural gas, LP gas, $O_2$, & $N_2O$* |
| Supply voltage | 12 to 24VDC |
| Operating temp. range | -10° to +60°C |
| Ordering information | *Flow range* / *Part number*<br>0-10LPM / D6F10A600<br>0-20LPM / D6F20A600<br>0-50LPM / D6F50A600 |

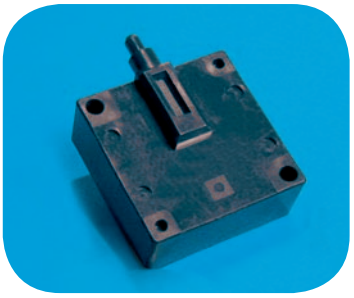
*Contact Omron regarding other gases.

## Air Velocity Sensor

| | D6F-W | D6F-V |
|---|---|---|
| Dimensions mm (in) | 9H x 20Dx 39L<br>(0.35 x 0.79 x 1.53 | 8H x 13D x 24L<br>(0.31 x 0.51 x 0.94) |
| Features | • Clogged filter detection<br>• Compact size<br>• Integral passive Dust Segregation System (DSS)<br>• Fast fit for easy installation | • Value engineered version of D6F-W<br>• Smaller package<br>• Lower Supply Voltage<br>• Built for OEM designs<br>• Internal passive Dust Segregation System (DSS) |
| Applicable gases | Air* | Air* |
| Supply voltage | 12 - 24VDC | 3.3VDC |
| Output voltage | 5VDC | 0 to 2VDC |
| Operating temp. range | -10° to +60°C | -10° to +60°C |
| Ordering information | *Flow range* / *Part number*<br>0~1 m/sec flow range / D6F-W01A<br>0~4 m/sec flow range / D6F-W04A | *Flow range* / *Part number*<br>0~3 m/sec flow range / D6F-V03A1 |

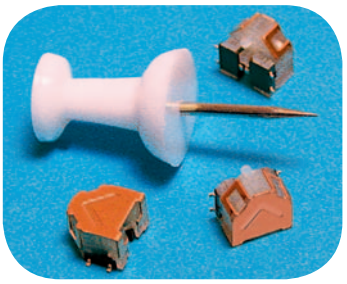
*Contact Omron regarding other gases.

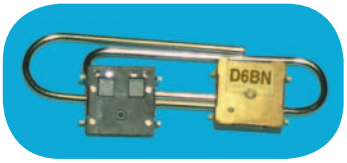
## Pressure / Blood Pressure



| | D8M-R | Blood Pressure 2SMCP-10 |
|---|---|---|
| Dimensions mm (in) | 30 H x 25.8 D x 30 W (1.18 x 1.02 x 1.18) | 6.2 x 4.8 x 8.3 (0.27 x 0.21 x 0.37) |
| Features | • Solid state MEMS pressure sensor with frequency output | • For applications using a minimum of 100,000 pieces per year only<br>• For pulse rate detection<br>• Electrostatic capacity style suitable for microcomputer input |
| Applicable gases | Air, please inquire about other gases. | Air |
| Pressure range | 0 - 0.78" of $H_2O$ | 0-280mm Hg (600mm Hg max.) |
| Output | 80 – 300kHz (1kHz/9.81 Pa) | - |
| Supply voltage | 4.2 – 5.5VDC | 5VDC |
| Current consumption | 10 mA max. | – |
| Operating temp. range | -20° to +70°C | 0° to +50°C |

## Tilt





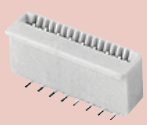
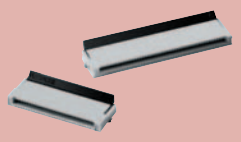

| | D6B | D6BN |
|---|---|---|
| Dimensions mm (in) | 5.50 H x 3.75 D x 5.50 W (0.22 x 0.15 x 0.22) | 2 H x 7 D x 7 W (0.08 X 0.28 x 0.28) |
| Features | • Utilizes Hall Effect technology<br>• For space-constrained applications<br>• Surface mount<br>• No EMC bounce | • Utilizes Hall Effect technology<br>• Low profile less than 1mm<br>• Surface mount<br>• No EMC bounce |
| Operating angle | 45~75° (output from high to low) | 40~80° (left & right) |
| Return angle | 50~20° (output from low to high) | 50~10° (left & right) |
| Operating voltage (Vdd) | 2.7~3.3VDC | 2.4 ~ 3.6VDC |
| *Output voltage* | | |
| Low | 0.5VDC max. | 0.4VDC max. |
| High | Vdd – 0.5VDC min. | Vdd – 0.4VDC max. |
| Current consumption | 20μA max.; 10μA typ (Vcc = 3VDC) | 1mA max., 1μ standby |
| Operating temp. range | -10° to +60°C | -10° to +60°C |
| Ordering information | D6B-2 | D6BN-1 |

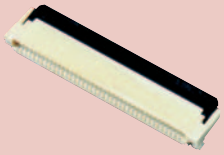
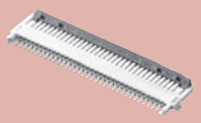
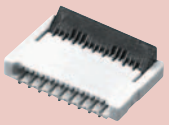
## Shock/ Vibration/Tilt

| | D7E |
|---|---|
| Dimensions mm (in) | 23.1 H x 23.6 D x 36.4 W (0.91 x 0.93 x 1.43) |
| Features | • Compact tilt sensor<br>• Responds to gradual tilting of 1degree/sec<br>• Self-resetting<br>• Quick-connect terminals<br>• PCB version available (D7A) |
| Operating angle | 50~80° |
| Return angle (reset) | 25° or more |
| Contact capacity | 0.1mA @ 5VDC to 100mA at 30VDC resistive load |
| Contact form | SPST-NC |
| Operating temp. range | -25° to +60°C |
| Service life | 5000 operations min. |

# Connectors - FPC (Flexible Printed Circuit)



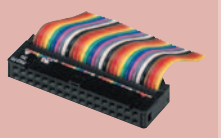
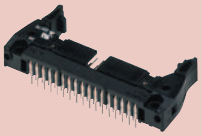
| |  |  | | |
|---|---|---|---|---|
| | **XF2G** | **XF2U** | **XF2J** | **XF2L** |
| **Pitch mm** | 0.3mm | 0.5mm | 0.5mm | 0.5mm |
| **Insertion type** | non-ZIF | ZIF | ZIF | ZIF |
| **Cable lock type** | Rear rotary lock | Rear rotary lock | Slide Lock | Slide Lock |
| **PCB mounting** | SMT | SMT | SMT | SMT |
| **Cable insertion** | Horizontal | Horizontal | Vertical | Horizontal |
| **Contact type(s)** | Top | Double sided | Vertical | Top & Bottom |
| **Dimensions mm (in)** | 9.1W x 3.8D x 0.9H<br>(0.4 x 0.15 x 0.04)<br>for 29 circuits | 12.6W x 3.5D x 0.9H<br>(0.5 x 0.14 x 0.04)<br>for 24 circuits | 19.5 W x 3.4 D x 4.15 H<br>(0.77 x 0.13 x 0.16)<br>for 30 circuits | 18.9 W x 3.5 D x 1.2 H<br>(0.74 x 0.14 x 0.05)<br>for 30 circuits |
| **Available circuits** | 17, 21, 25, 29, 35, 39, & 51 | 4, 11, 14, 20, 24, 27, 30, 32, & 40 | 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30 | 4, 5, 6, 7, 8, 10, 12, 13, 15, 18, 19, 20, 21, 22, 24, 26, 30 |
| **Packaging** | Tape & reel | Tape & reel | Tape & reel | Tape & reel |
| **Features** | • Low 4.15mm on-board profile<br>• Applicable FPC thickness of t=0.3mm<br>• Top-entry<br>• Upper contacts<br>• Wide molding wall on bottom allows greater board design freedom | • Low on-board profile of 0.9mm<br>• Ultra-slim with 3.5mm depth<br>• Wide molding wall on bottom allows greater board design freedom | • Low profile, top entry<br>• 0.3mm FPC thickness | • Low profile, small size<br>• 0.3mm FPC thickness |
| ***Specifications***<br>**Rated current** | 0.2A | 0.5A | 0.5A | 0.5A |
| **Rated voltage** | 50VDC | 50VDC | 50VDC | 50VDC |
| **Contact resistance (@ 20mV, 100mA )** | 80mΩ max. | 60mΩ max. | 30mΩ max. | 30mΩ max. |
| **Insulation resistance (min.)** | 100MΩ @ 250VAC | 100MΩ @ 250VAC | 100MΩ @ 250VDC | 100MΩ @ 250VDC |
| **Withstand voltage** | 250VAC 1 min.<br>(leakage current: 1mA max.) | 250VAC 1 min.<br>(leakage current: 1mA max.) | 250VAC 1min.<br>(leakage current: 1mA max.) | 250VAC 1min.<br>(leakage current: 1mA max.) |
| **Circuit insertion or service life** | 10 times | 20 times | 20 times | 20 times |
| **Ambient operating temperature** | –30°C to + 85°C | -30°C to + 85°C | –30°C to + 85°C | –30°C to + 85°C |

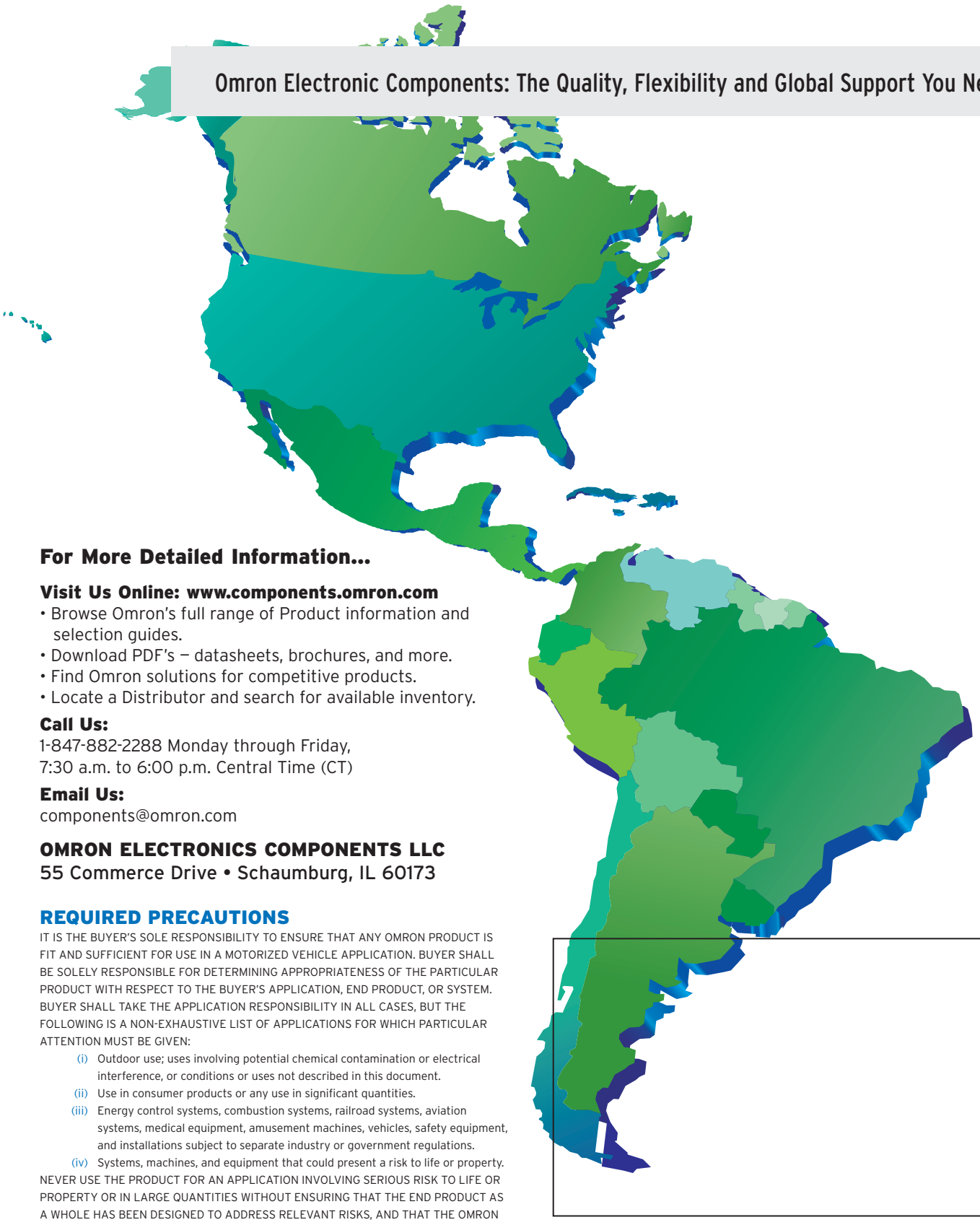
| | XF2M | XF2R | XF2B |
|---|---|---|---|
| **Pitch mm** | 0.5mm | 0.5mm | 0.3mm |
| **Insertion type** | ZIF | ZIF | ZIF |
| **Cable lock type** | Rear rotary lock | Rear rotary lock | Rear rotary lock |
| **PCB mounting** | SMT | SMT | SMT |
| **Cable insertion** | Horizontal | Horizontal | Horizontal |
| **Contact type(s)** | Double Sided | Double Sided | Double Sided |
| **Dimensions mm (in)** | 18.5 W x 4.9 D x 2.0 H<br>(0.73 x 0.19 x 0.08)<br>for 30 circuits | 19 W x 4.95 D x 0.9 H<br>(0.75 x 0.18 x 0.04)<br>for 34 circuits | 8.8 W x 5.2 D x 1.2 H<br>(0.35 x 0.2 x 0.05)<br>for 23 circuits |
| **Available circuits** | 10, 12, 14,18, 20, 22, 24, 26, 30, 32, 33, 34, 35, 36, 38, 40, 42, 45, 50 | 6, 9, 18, 24, 34, 40 | 17, 21, 23, 25, 27, 31, 33, 35, 39, 41, 45, & 51 |
| **Packaging** | Tape & reel | Tape & reel | Tape & reel |
| **Features** | • Low profile (2mm H)<br>• Short body<br>• 0.3mm FPC thickness | • Low profile (0.9mm H)<br>• 0.12mm FPC thickness | • Low profile (1 .2mm H)<br>• Ultra-fine pitch<br>• 0.2mm FPC thickness |
| ***Specifications*** | | | |
| **Rated current** | 0.2A | 0.3A | 0.2A |
| **Rated voltage** | 50VDC | 50VDC | 50VDC |
| **Contact resistance (@ 20mV, 100mA )** | 50mΩ max. | 40mΩ max. | 50mΩ max. |
| **Insulation resistance (min.)** | 100MΩ @ 250VDC | 100MΩ @ 250VDC | 100MΩ @ 250VDC |
| **Withstand voltage** | 250VAC 1min.<br>(leakage current: 1mA max.) | 250 AC 1min.<br>(leakage current: 1mA max.) | 250VAC 1min.<br>(leakage current: 1mA max.) |
| **Circuit insertion or service life** | 20 times | 20 times | 20 times |
| **Ambient operating temperature** | -30°C to +85°C | -30°C to +85°C | -30°C to +85°C |

# Connectors FFC (Flat Flexible Cable)



| | NEW! | NEW!  | NEW!  | NEW! | NEW! |
|---|---|---|---|---|---|
| | **XG4U** | **XG4M** | **XG4A** | **XG4E** | **XG4C** |
| **Description** | Strain relief | MIL-type socket | MIL-type socket | IDC plug | Box type plug |
| **Pitch mm** | 2.54 | 2.54 | 2.54 | 2.54 | 2.54 |
| **Socket / Plug** | Socket | Socket | Plug | Plug | Plug |
| **Plating on contacts** | Au plating | Au plating | Au plating | Au plating | Au plating |
| **PCB mounting** | Thru-hole | Thru-hole | Thru-hole | Thru-hole | Thru-hole |
| **Cable insertion** | Vertical or horizontal | Vertical or horizontal | Vertical or horizontal | Vertical or horizontal | Vertical or horizontal |
| **Contact type(s)** | IDC flat ribbon cable | IDC flat ribbon cable | IDC flat ribbon cable | IDC flat ribbon cable | IDC flat ribbon cable |
| **Dimensions mm (in)** | Please consult product specifications for more information | Please consult product specifications for more information | Please consult product specifications for more information | Please consult product specifications for more information | Please consult product specifications for more information |
| **Available circuits** | 10, 14, 16, 20, 26, 30, 34, 40, 50, 60, 64 | 10, 14, 16, 20, 26, 30, 34, 40, 50, 60, 64 | 10, 14, 16, 20, 26, 30, 34, 40, 50, 60, 64 | 10, 14, 16, 20, 26, 30, 34, 40, 50, 60, 64 | 10, 14, 16, 20, 26, 30, 34, 40, 50, 60, 64 |
| **Packaging** | Bag | Bag | Bag | Bag | Bag |
| **Features** | • Can connect & disconnect with one hand<br>• Save board space<br>• Reduced mounting height<br>• High-reliability, low cost | • Can connect & disconnect with one hand<br>• Save board space<br>• Reduced mounting height<br>• High-reliability, low cost | • Can connect & disconnect with one hand<br>• Save board space<br>• Reduced mounting height<br>• High-reliability, low cost<br>• Available in short lock, long lock and dual port models | • Solderless plug<br>• Can connect & disconnect with one hand<br>• Save board space<br>• Reduced mounting height<br>• High-reliability, low cost | • Available in straight DIP & right-angle DIP terminals<br>• Can connect & disconnect with one hand<br>• Save board space<br>• Reduced mounting height<br>• High-reliability, low cost |
| ***Specifications*** | | | | | |
| **Rated current** | 1A | 1A | 1A | 1A | 1A |
| **Rated voltage** | 250VAC | 250VAC | 250VAC | 250VAC | 250VAC |
| **Contact resistance** | 20mΩ max. | 20mΩ max. | 20mΩ max. | 20mΩ max. | 20mΩ max. |
| **Insulation resistance** | 100MΩ @ 500VDC | 100MΩ @ 500VDC | 100MΩ @ 500VDC | 100MΩ @ 500VDC | 100MΩ @ 500VDC |
| **Withstand voltage (leakage current: 1mA max.)** | 500VAC for 1 minute | 500VAC for 1 minute | 500VAC for 1 minute | 500VAC for 1 minute | 500VAC for 1 minute |
| **Circuit insertion or service life** | 50 times | 50 times | 50 times | 50 times | 50 times |
| **Ambient operating temperature** | -55°C to +105°C | -55°C to +105°C | -55°C to +105°C | -55°C to +105°C | -55°C to +105°C |

## Omron Electronic Components: The Quality, Flexibility and Global Support You Need



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ELECTRONIC COMPONENTS

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