COMPONENTS

Master Selection Guide

Relays Electromechanical | Relays Microelectronic | Switches | Connectors | Sensors | Fiber Optic

OMRON
ELECTRONIC COMPONENTS

Omron Electronic Components LLC

Stability and Experience

OMRON's Electronic and Mechanical Components Company boasts high levels of manufacturing expertise and capabilities for electronic components including relays, switches connectors, sensors, and fiber optics covering every process from product design through materials and dies to parts processing and assembly. We are ready to respond to diversified customer needs by creating cutting-edge products and ensuring high standards of quality, cost and delivery.

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 process 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.

Broad Product Offering

Relays:
- MOS FET
- Low Signal
- RF/HF
- RF MEMS
- Power PCB
- Automotive
- General-Purpose
- Solid State

Switches:
- Snap Action
- Tactile
- DIP
- Thumbwheel
- Rocker

Sensors:
- Flow
- Pressure
- Vibration
- Thermal IR

Connectors:
- FPC
- Industrial
- Industrial Ethernet
- PCB
- Board-to-FPC

Fiber Optic:
- Tx/Rx Module

Blood Pressure Module

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.

ISO9000 ISO14000

UL CE CSA RoHS COMPLIANT VDE TÜV

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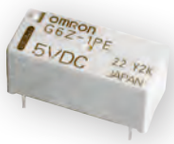

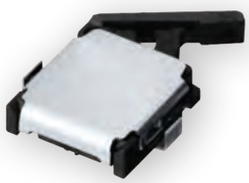

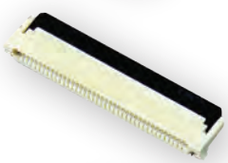

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OMRON ELECTRONIC COMPONENTS

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.
- **2008** – Omron celebrates 75 years of business with a commitment to "Building on tradition, focused on the future." Successful experimental production of electricity generators powered by minute environmental vibrations.
- **April 2009** – Omron Electronic and Mechanical Components Company established.Mass production of MEMS acoustic sensor chips begins.
- **May 2010** – New LCD backlight production base established in China.
  Release of XF3E multi-pole FPC connector.
- **June 2011** – Yoshihito Yamada named President & CEO, Hisao Sakuta named Chairman, Yoshio Tateisi named Honorary Chairman. Release of E3X-HD smart fiber amplifier.
- **January 2012** – India regional management center established in Guragaon, India.

Profile:

Omron Corporation is a $7.5 billion leading global supplier of electronics and control system components and services.

OMRON's Core

Competencies:

Materials
Precision Assembly
Stamping
Molding
Welding
Integration of Active Elements

Technologies:

Advanced Devices
Micromachining
MEMS, Lens and Mirror

Sensing
Flow, Pressure, Vibration, Tilt

Control
Switching, Magnetic Actuators

Electronic Components Business Markets Served:

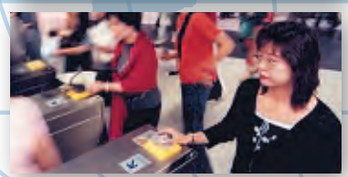
Communications • Transportation
Consumer Electronics • Industrial • HVAC
Appliances • Medical • Test & Measurement

Other Omron Businesses

Automotive Electronics Business

Industrial Automation Business

Social System Business

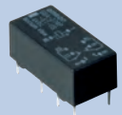


Healthcare Business

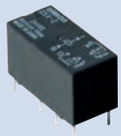
Design Synthesis: Our product designs are based on a combination of our core competencies and core technologies to effectively meet customer and market needs. By efficiently and creatively manipulating these competencies, we are able to develop and manufacture a broad offering of cost effective, high 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 - Low Signal

General Attributes	G6J-Y	G6K	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)	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.	2A max.	2A max.
Features	• Slimline, 2 Form C, 1 Amp relay • SMT & PCB versions • 2.5kV surge withstand • Available in SMT & PCB • Latching & non-latching versions • Ideal for Telecom, Test & Measurement, Medical, Security, Computer Peripheral, Office Automation	• Small real estate, 2 Form C, 1 Amp relay • 100mW power consumption • 2.5kV surge withstand • SMT & PCB versions • Latching & non-latching models • Ideal for Telecom, Test & Measurement, Medical, Security, Office Automation, Computer Peripheral	• Industry standard, 2 Form C, 2 Amp relay • 2.5 kV surge withstand • SMT gullwing, SMT inside-L, PCB models • Latching & non-latching versions • European version available (supplementary insulation at 250V at pollution degree 2 per EN60950/EN41003) • Ideal for Telecom, Thermostats, Medical, Test & Measurement, Security	• Industry standard, 2 Form C, 2 Amp relay • 200mW, 400mW versions • 2 Pole models • Latching & non-latching versions • 1.5kV surge withstand • Ideal for Telecom, Test & Measurement, Security • Surge withstand 1500V conforms to Part 68
Contact Information				
Contact form	2 Form C	2 Form C	2 Form C	2 Form C
Contact type(s)	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
Rated load (under resistive load)	0.3A @ 125VAC, 1A @ 30VDC	0.3A @ 125VAC, 1A @ 30VDC	0.5 @ 125VAC, 2A @ 30VDC	0.3A to 0.5A @ 125VAC, 1A to 2A @ 30VDC
Max. operating voltage	125VAC, 110VDC	125VAC, 60VDC	250VAC, 220VDC	250VAC, 220VDC
Max. switching capacity under resistive load	37.5VA, 30W (NO)	37.5VA, 30W	62.5VA, 60W	125VA, 60W
Min. electrical service life (operations at rated load)	100,000	100,000	100,000	500,000
Min. permissible load (for reference only)	10µA @ 10mVDC	10µA @ 10mVDC	10µA @ 10mVDC	10µA @ 10mVDC
Coil Information				
Coil voltage	3, 4.5, 5, 12, 24VDC	3, 4.5, 5, 6, 9, 12, 24VDC	3, 4.5, 5, 6, 9, 12, 24VDC	3, 5, 6, 9, 12, 24, 48VDC
Power consumption	140mW - non-latching (230mW for DC24) 100mW - latches	100mW (standard and latching)	140mW (standard) 140mW, 200mW (latching)	200mW (DPDT standard) 180mW (DPDT latching)
Characteristics				
Dielectric strength between coil & contacts (50/60 Hz for 1 minute)	1,500VAC	1,500VAC	2,000VAC	1,000VAC
Surge withstand	2.5kV (2 x 10µs)	2.5kV (2 x 10µs)	2.5kV (2 x 10µs)	1.5kV (10 x 160µs)
Terminal choices	SMT Gullwing, PCB	SMT Gullwing, SMT Inside-L, PCB	SMT Gullwing, SMT Inside-L, PCB	PCB
Packaging	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	Bellcore 2.5 kV / Telcordia GR-1089-CORE 2.5 kV (between coil and contacts)	UL, CSA, (FCC Part 68)

Relays - Low Signal

				
General Attributes	**G5V-1**	**G6L**	**G5V-2**	**G6E**
Dimensions mm (in)	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.	2A max.	3A max.
Features	• General use, 1 Form C, 1 Amp relay • 150mW power consumption • 1.5kV surge withstand • Ideal for Telecom, Security, Computer Peripheral	• Very low profile, 1 Form A, 1 Amp relay • 1.5kV surge withstand • SMT & PCB versions • Ideal for Security & General Use	• 2 Form C, 1-2 Amp relay • Ideal for general use • Industry standard footprint • 150mW, 360mW & 500mW coil power versions • 1.5 kV surge withstand	• General use, 1 Form C, 3 Amp relay • 2.5 kV surge withstand • 200mW, 400mW models • Latching and non-latching versions
Contact Information				
Contact form	1 Form C	1 Form A	2 Form C	1 Form C
Contact type(s)	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
Rated load (under resistive load)	0.5A @ 125VAC, 1A @ 24VDC	0.3A @ 125VAC, 1A @ 24VDC	0.5A @ 125VAC, 2A @ 30VDC	0.4A @ 125VAC, 2A @ 30VDC
Max. operating voltage	125VAC, 60VDC	125VAC, 60VDC	125VAC, 125VDC	250VAC, 220VDC
Max. switching capacity under resistive load	62.5VA, 30W	37.5VA, 24W	62.5VA, 60W	50VA, 60W
Min. electrical service life (operations at rated load)	100,000	100,000	300,000	100,000
Min. permissible load (for reference only)	1mA @ 5VDC	1mA @ 5VDC	10µA @ 10mVDC	10µA @ 10mVDC
Coil Information				
Coil voltage	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	150mW	180mW (standard)	500mW (standard) 360mW (high-sensitivity) 150mW (ultra-sensitive)	200mW (standard) 400mW (standard)
Characteristics				
Dielectric strength between coil & contacts (50/60 Hz for 1 minute)	1,000VAC	1,000VAC	1,000VAC	1,500VAC
Surge withstand	1.5kV (10 x 160µs)	1.5kV (10 x 160µs)	1.5kV (10 x 160µs)	2.5kV (2 x 10µs)
Terminal choices	PCB	PCB, SMT Gullwing	PCB	PCB
Packaging	—	Tape & reel available	—	—
Approved standards	UL, CSA	UL/CSA (FCC Part 68)	UL, CSA	UL/CSA (FCC Part 68) Bellcore 2.5kV / Telcordia GR-1089-CORE 2.5kV between coil and contacts

Relays - Power PCB



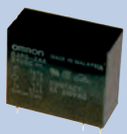

General Attributes	G5NB	G5NB-E	G5SB	G6D-ASI
Dimensions mm (in)	15.3 H x 20.5 L x 7.2 W (0.60 x 0.81 x 0.28) max.	15.3 H x 20.5 L x 7.2 W (0.60 x 0.81 x 0.28) max.	15.8 H x 20.3 L x 10.3 W (0.62 x 0.80 x 0.41) max.	12.5 H x 17.5 L x 6.5 W (0.49 x 0.69 x 0.26)
Switching	3A 10kV	5A (AC Loads) 3A (DC Loads)	5A(NO)/3A(NC)	5A
Features	• Compact 3A relay with PCB area of 148mm^2 • Meets EN tracking resistance CTI>250 • Sealed models available	• 5A switching capability AC loads) • Meets EN tracking resistance CTI>250 • Sealed models available	• High insulation between coil & contact • Impulse withstand of 8kV • Fully Sealed • Incorporates 5A NO contact	• Subminiature, slim lightweight design • Low power consumption • Fully Sealed • Rated for D150 Pilot Duty
Contact Information				
Contact form	1 Form A	1 Form A	1 Form C	1 Form A
Contact type(s)	Single button	Single button	Single button	Single button
Contact material	Ag-Alloy + Cu Alloy base	Ag-Alloy	Ag-Alloy	Ag-Alloy
Electrical service life (@ 1800 ops./hr.) (resistive load)	200,000: 3A @ 125VAC/30VDC	200,000: 3A @ 30VDC 100,000: 5A @ 250VAC	200,000 3A (NO)/3A (NC) at 125VAC 50,000 5A (NO) at 250VAC 10,000 5A (NO)/3A (NC) at 30VDC	300,000: 2A @ 30VDC/250VAC 70,000: 5A @ 30VDC/250VAC
Max. switching capacity under resistive load	375VA, 90W	1,250VA, 90W	1,250VA, 150W(NO) 750 VA, 90 W (NC)	1,250VA, 150W
Min. 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, 48VDC
Power consumption	200mW	200mW	400mW	200mW
Insulation class	—	—	—	—
Characteristics				
Operating temperature	-40 to +70°C	-40 to +70°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	4,000VAC (coil-contact) 750VAC (open contacts)	4,000VAC (coil-contact) 750VAC (open contacts)	4,000VAC (coil-contact) 1,000VAC (open contacts)	3,000VAC (coil-contact) 750VAC (open contacts)
Terminal choices	PCB	PCB	PCB	PCB
Protection level	Sealed, semi-sealed	Sealed, semi-sealed	Sealed	Sealed
Accessories	N/A	N/A	N/A	Back connecting socket
Approved standards	UL, CSA, VDE	UL, CSA, VDE	UL, CSA, VDE	UL, CSA, TUV

Relays - Power PCB

				
General Attributes	**G6RN**	**G5LE/-E**	**G5Q**	**G6B**
Dimensions mm (in)	15 H x 28.5 L x 10 W (0.59 x 1.12 x 0.39)	19 H x 22.5 L x 16.5 W (0.75 x 0.89 x 0.65)	15.8 H x 20.3 L x 10.3 W (0.62 x 0.80 x 0.41) max.	9.91 H x 20.07 L x 9.91 W (0.39 x 0.79 x 0.39)
Switching	8A AC loads 5A DC loads	10A (16A for Semi-sealed "E" type)	10A (NO contacts)	8A/5A
Features	• 8 mm coil/contact creepage • Low profile • Sealed construction standard • Ideal for switching contactors, solenoids & motors • 4kV Dielectric Strength	• Sugar Cube Relay • High capacity "-E" handles resistive loads up to 16A (NO) and 12A (NC) • Large contact gap "-G" available • Standard models: Class B coil insulation. Class F models available	• Compact relay with Class F coil insulation • 8kV Surge Withstand Voltage • UL 1/4HP Rating @ 250VAC (NO), 30,000 cycles • Low nominal power • CTI > 250 models available	• Low profile 12.5mm or less • Small PCB area of 200mm2 • LED + Diode suppression models available • Single and dual coil latching types available • Low power concumption: 200mW
Contact Information **Contact form**	1 Form A, 1 Form C	1 Form A, 1 Form C	1 Form A, 1 Form C	1 Form A, 2 Form A, 2 Form B 1 Form A + 1 Form B
Contact type(s)	Single button	Single button	Single button	Single button
Contact material	Ag-Alloy	Ag-Alloy	Ag-Alloy	Ag-Alloy
Electrical service life (@ 1800 ops./hr.) (resistive load)	100,000: 8A @ 250VAC 5A @ 30VDC	G5LE: 100,000 at rated load UL Rating 13A, 120VAC, resistive, 100,000 cycles, @ 85C G5LE-E: 50,000 (NO) at rated load 30,000 (NC) at rated load (600 operations/hour) UL Rating 12A @ 250VAC (NO), general use, 100,000 cycles, @105C	200,000: 3A (NO)/3 A (NC) @ 125VAC 100,000: 3A (NO)/3 A (NC) @ 250VAC 5A (NO)/3 A (NC) @ 30VDC 50,000: 10A (NO) @125VAC (900 ops. per hour)	100,000: 5A @ 30 VDC/250VAC 8A @ 30 VDC/250VAC (high-capacity)
Max. switching capacity under resistive load	2,000VA,150W	G5LE: 1200VA, 240W G5LE-E: 4000VA (NO) G5LE-G: 350W	1,250VA,150W (NO) 375 VA, 90W (NC)	1,250VA, 150W 2,000VA, 240W (high-capacity type)
Min. permissible load (for reference only)	10mA @ 5 VDC	100mA @ 5VDC	10mA @ 5VDC	10mA @ 5VDC
Coil Information **Coil voltage**	5, 6, 12, 24, 48VDC	5, 6, 9, 12, 24, 48VDC	5, 12, 24VDC, 9VDE	5, 6, 12, 24VDC
Power consumption	220 mW, 250 mW (48 VDC)	G5LE/G5LE-E: 400mW (360mW models available) G5LE-G: 700mW	400mW Form C 200mW Form A	Standard non latching types 200mW (1 pole) 300mW (2 pole)
Insulation class	—	G5LE: Class B, G5LE-E/G: Class F	Class F	—
Characteristics **Operating temperature**	-40 to +85°C	-40 to +85°C	-40 to +105°C	-25 to +70°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) 1,000VAC (open contacts)	2,000VAC (coil-contact) 750VAC (open contacts)	4,000VAC (coil-contact) 1,000VAC (open contacts)	see data sheet for full details
Terminal choices	PCB	PCB	PCB	PCB
Protection level	Sealed	G5LE: sealed, flux tight G5LE-E/G: flux tight	Standard: Semi-sealed/vented, Option: sealed	Sealed (LED + Diode type flux tight)
Accessories	N/A	N/A	N/A	Back connecting PCB Sockets
Approved standards	UL, CSA, VDE	UL, CSA, VDE	UL, CSA, VDE	UL, CSA

Relays - Power PCB

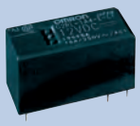
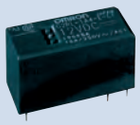


General Attributes	G6C	G5CA	G8PT	G2RG
Dimensions mm (in)	9.91 H x 20.07 L x 14.99 W (0.39 x 0.79 x 0.59)	11 H x 16 L x 22 W (10A) (0.43 x 0.63 x 0.87) 11 H x 22 L x 25 W (15A)	Multiple, refer to catalog. Basic: 20.1(H)x 32.1(L) x 27.7(W)	25.5 H x 29 L x 13 W (1.00 x 1.14 x 0.51)
Switching	1 Form A: 10A 1 Form A + 1 Form B: 8A	10A (15A high capacity)	1 Form A: 30A 1 Form C: 20A (NO)/10A (NC)	8A
Features	• Low power consumption for high power switching • Low profile 10A power relay • Single & dual coil latching types available • Sealed construction available • Back connecting sockets available • Low power consumption:200mW	• Low profile of 11mm • High capacity "-E" models have 15A resistive load rating • High sensitivity "-H" models 150mW Nominal Power • PCB or PCB + Q.C. terminal options • Sealed models available for PCB only (excluding high capacity)	• 30A switching capacity for 1 Form A models (AC loads) • Class F coil insulation • Operating temperature:-55C to 105C • UL Rating 1 Form A models 15FLA/75LRA, 120VAC, 85C, 130,000 cycles • PCB, PCB + Q.C., and Q.C. terminal options	• 1.5mm contact gap between terminals of same polarity • Dimensions & mounting holes are same as G2R relay series • Sealed construction, standard • Meets EN tracking resistance CTI > 250 • 10kV Surge Withstand
Contact Information				
Contact form	1 Form A + 1 Form B, 1 Form A	1 Form A	1 Form A, 1 Form C	2 Form A
Contact type(s)	Single button	Single button	Single button	Single button
Contact material	Ag-Alloy	Ag-Alloy	Ag-Alloy	Ag-Alloy
Electrical service life (@ 1800 ops./hr.) (resistive load)	100,000: 10A @ 30VDC/250VAC (1 Form A models) For 1 Form A + 1 Form B models see datasheet	100,000 (1,200 ops/hour): 10A @ 30VDC 15A @ 110VAC (high capacity) 10A @ 250VAC (fully sealed, std) 300,000: 10A @ 250VAC (semi-sealed)	100,000 (1 Form A): 30A @ 250VAC, 20A @ 28VDC 100,000 (1 Form C): 20A @ 250VAC, 20A @ 28VDC NO) 10A @ 250VAC, 10A @ 28VDC (NC) (360 ops/hour apply to all ratings)	10,000: 8A @ 250VAC
Max. switching capacity under resistive load	2,500VA, 300W 2,000VA, 240W (latching)	2,500VA, 300W	1 Form A: 7,500VA, 560W 1 Form C: 5000/2500VA, 560W/280W*	2,000 VA
Min. permissible load (for reference only)	10mA @ 5VDC	100mA @ 5VDC	500mA @ 5VDC	10mA @ 5VDC
Coil Information **Coil voltage**	3, 5, 6, 12, 24VDC	5, 12, 24VDC	5, 9, 12, 24, 48, 110VDC Other coil voltages available	12, 24VDC
Power consumption	200mW (monostable & single coil latching) 280mW (dual coil latching)	200mW (standard & high capacity) 150mW (high sensitivity)	900mW	800mW
Insulation class	—	—	Class F	—
Characteristics **Operating temperature**	-25 to +70°C	-25 to +70°C	-55 to +105°C	-40 to +70°C
Impulse withstand voltage (1..2 x 50µ sec. unless noted)	4.5kV	4.5kV	6kV	10kV
Dielectric strength (50/60 Hz for 1 minute)	Non latching types: 2,000VAC (coil-contact) 1,000VAC (contacts same polarity)	2,500VAC (coil-contact) 1,000VAC (open contacts)	2,500VAC, (coil-contact) 1,500VAC, (open contacts)	5,000VAC, (coil-contact) 3,000VAC, (contacts pole-pole) 1,000VAC (open contacts)
Terminal choices	PCB, self clinching	PCB, Optional: PCB+quick-connect contact terminals	PCB, PCB+quick-connect contact terminals Flange mount all quick connect	PCB
Protection level	Semi-sealed Fully sealed option	Semi-sealed Fully sealed option	Open frame, Vented/semi-sealed, Fully sealed	Fully Sealed
Accessories	Back connecting PCB sockets, socket clips	N/A	N/A	N/A
Approved standards	UL, CSA, VDE	UL, CSA, TUV	UL, CSA	UL, CSA, VDE (0700/0110)

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

Relays - Power PCB and General Purpose

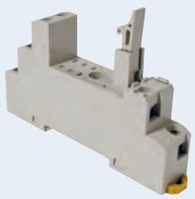
	Power PCB			General Purpose
				
General Attributes	**G2R**	**G2RL**	**G5RL**	**G7L**
Dimensions mm (in)	25.5 H x 29 L x 13 W (1 x 1.14 x 0.51) max.	15.5 H x 28.8 L x 12.5 W (0.61 x 1.13 x 0.49)	15.5 H x 28.8 L x 12.5 W (0.61 x 1.13 x 0.49)	49.02 H x 68.58 L x 34.54 W (1.93 x 2.70 x 1.36)
Switching	3A/5A/10A/16A options	8A/10A/12A/16A options	see datasheet	30A max.
Features	• 8mm creepage/clearance • Latching models available • 10kV Surge Withstand • "H" 360mW models 1 or 2 pole plus flux tight or sealed • "T" quick connect models ideal for thin space panel mounting • Class B models available	• 10mm creepage clearance • Low profile 15.7mm • Class F coil insulation • 10kV Surge Withstand • SPDT "H" 250mW models available • CTI > 250 • High Sensitivity (250mW) and high capacity (16A) Version	• Low profile of 15.7mm • AC coil models "-E" • High inrush models "-HR" handling up to 100A peak inrush current • Low noise models "-LN" for sound sensitive environments • 8mm creepage clearance	• Reliable high power relay • 3 mm contact gap • Conforms to IEC 950/UL 1950 • Class B insulation standard • Most cost effective solution in its class. • Ideal for pump, motor loads
Contact Information **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 ("HR" and AC coil type) 1 Form A ("HR" and "LN" type)	1 Form A-(Double Make) 2 Form A-(Double Make)
Contact type(s)	Single button, bifurcated button	Single button	Single button	Single button
Contact material	Ag alloy	Ag alloy	Ag alloy	Ag Alloy
Electrical service life (@ 1800 ops./hr.) (resistive load)	100,000: (high-capacity type) 16A @ 30VDC/250VAC Consult catalog for other ratings	100,000 (360 ops/hour): High capacity 16A 250VAC 1 Pole: 12A 250VAC 2 Pole: 8A 250VAC	AC coil and "HR" models: 50,000 at 16A 250VAC/24VDC (NO) 50,000 at 5A 250VAC/24VDC (NC) "LN" models: standard/high capacity 100,000 12A 250VAC (standard) 50,000 16A 250VAC (high capacity)	100,000 min. (at rated loads) (see data sheet for more information)
Max. switching capacity under resistive load	4,000VA, 480W (high-capacity 1 pole) Consult catalog for other ratings	4,000VA, 384W (high-capacity 1 pole) Consult catalog for other ratings	4,000VA, 384W (NO) 1,250VA, 120W (NC)	Screw/Q.C. 6,600VA (1 pole) 5,500VA (2 pole)
Min. permissible load (for reference only)	1 pole: 100mA @ 5VDC; 2 pole: 10mA @ 5VDC	40mA, 24VDC	AC coil: 40mA @ 24VDC "HR" and "LN": 100mA @ 5VDC	100mA @ 5VDC
Coil Information **Coil voltage**	AC coil: 6, 12, 24, 120, 240 VAC DC coil: 3, 5, 6, 12, 24, 48 VDC See datasheet for more details	5, 12, 24, 48VDC "H" Type: 5, 9, 12, 24 VDC	AC coil: 24, 115/120, 230/240 VAC "HR" type: 5, 12, 24, 48 VDC "LN" type: 5, 12, 24 VDC	12, 24, 48, 100VDC; 12, 24, 100/120, 200/240VAC
Power consumption	0.9VA, 530mW (standard) 360mW (high sensitivity) 850mW (latching set), 600mW (latching reset)	400mW (430mW for 48VDC) "H" Type: 250mW	AC coil: 0.75VA "HR" type: 400mW "LN" type: 530mW	1.7 to 2.5VA, 1.9W
Insulation class	Class B available	Class F	—	Class B
Characteristics **Operating temperature**	-40 to +70°C (+85°C option)	-40 to +85°C	-40 to +70°C (AC coil) -40 to +85°C (DC coil)	-25C to +60C
Impulse withstand voltage (1..2 x 50µ sec. unless noted)	10kV	10kV	10kV	10kV (coil-contacts)
Dielectric strength (50/60 Hz for 1 minute)	5,000VAC (coil-contact) 1,000 VAC (open contacts)	5,000VAC (coil-contact) 1,000 VAC (open contacts)	6,000VAC (coil-contact) 1,000VAC (open contacts)	4,000VAC (coil-contacts) 2,000VAC (different polarity) 2,000VAC (open contacts)
Terminal choices	PCB quick connect (flange mount)	PCB	PCB	Quick-connect, screw, PCB
Protection level	Sealed, semi-sealed	Fully sealed (except "H" type)	Semi-sealed	Unsealed Semi-sealed (PCB type only)
Accessories	N/A	N/A	N/A	R99-07G5D E bracket; P7LF-D adapter; P7LF-06 front connecting socket
Approved standards	UL, CSA, SEV SEMKO, VDE, TUV	UL, CSA, VDE	UL, CSA, VDE	UL, CSA, TUV

Relays - DC Power

Interrupt High-capacity DC Loads while Enabling Compact, Low-noise, Safe Applications

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 ypical)	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	No	Yes
Approvals	UL, CSA, UL508	UL, CSA, UL508	—	UL, CSA, UL508

Sockets



Relay Type	Track Mount Sockets	Back Connecting Sockets	
		Solder terminals	PCB terminals
G2R-1-S	P2RF-05 P2RF-05-E P2RF-05-S	P2R-05A	P2R-05P P2R-057P
G2R-2-S	P2RF-08 P2RF-08-E P2RF-08-S	P2R-08A	P2R-08P P2R-087P
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

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
G7L-1A-T	R99-07G5D E bracket	P7LF-D	P7LF-06
G7L-1A-TJ			P7LF-06
G7L-1A-B			P7LF-C
G7L-1A-BJ			P7LF-C
G7L-2A-T			P7LF-06
G7L-2A-TJ			P7LF-06
G7L-2A-B			P7LF-C
G7L-2A-BJ			P7LF-C

Terminal Cover	Socket Bridge
P&LE-C	PYD

Accessories

Description	Model Contact form SPST-NO		DPST-NO		Model
E-brackets	G7L-1A-T	G7L-1A-TJ	G7L-2A-T	G7L-2A-TJ	R99-07G5D
Track mounting adaptor					P7LF-D
Front connecting socket					P7LF-06

NOTE: A socket terminal cover is supplied with the P7LF-06 socket and does not attach directly to the G7L relays. It cannot be purchased separately.

Screw Terminals

Description	Model Contact form SPST-NO		DPST-NO		Model
E-brackets	G7L-1A-B	G7L-1A-BJ	G7L-2A-B	G7L-2A-BJ	R99-07G5D
Track mounting adaptor					P7LF-D
Terminal Cover					P7LF-C

NOTE: The P7LF-C terminal cover attaches directly to the G7L-B style relays. It is sold seperately.

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 • Ideal for Instrumentation, Broadband Systems, Measurement Devices, Data Loggers, Consumer Electronics, Medical Equipment	• Broad product offering • Form A & Form B configurations • 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 • 10kV surge withstand models available • 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) • 10kV surge withstand • Ideal for Instrumentation, Electronic Automatic Exchange Systems, Industrial Automation Systems, Measurement Devices, Security Systems, Medical Equipment	• Current limiting of 150 to 300mA • Ideal for Electronic Automatic Exchange Systems, Multi-function Telephones, Cordless Telephones, Measurement Devices, Instrumentation
Lead 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 **Continuous load current**	0-50mA & 0-200mA	0-90mA, 0-100mA, 0-110mA, 0-120mA, 0-150mA	0-120mA	up to 500mA	0-120mA
ON resistance (typical)	5 & 40	15, 27, 30, 35, 40	17 & 18	up to 30	22
Output capacitance	15.90 & 100	30, 35, 40, 65, 70, 85	40 & 70	40 to 1000	35
Available switching configurations	1 Form A, 2 Form A	1 Form A, 1 Form B, 1 Form A + 1 Form B 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.) 2,500Vrms (min.)	1,500Vrms (min.) 2,500Vrms (min.) 5,000Vrms (min.)	1,500Vrms (min.) 2,500Vrms (min.) 5,000Vrms (min.)	1,500Vrms (min.) 2,500Vrms (min.)
Available packaging & terminal choices	SOP 4 PIN, 6 PIN, 8 PIN	PCB, SMT, SOP 4 PIN, 6 PIN, 8 PIN	PCB, SMT, SOP 4 PIN, 6 PIN, 8 PIN	PCB & SMT 6 PIN	PCB, SMT & SOP 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

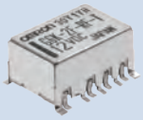
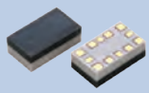
Relays - MOS FET

General Attributes	G3VM GR	G3VM LR	G3VM-60	G3VM-80
				
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
Features	• C x R characteristics as low as 5pF* • Low leakage current • Very high operating speed • Ideal for IC and Memory Test Equipment, SoC Testers, Measurement Devices, Instrumentation, Medical Equipment, Broadband Systems, Data Loggers, Security Systems	• C x R characteristics as low as 2.4pF* • Low leakage current • Very high operating speed • Ideal for IC and Memory Test Equipment, SoC Testers, Measurement Devices, Instrumentation, Medical Equipment, Broadband Systems, Data Loggers, Security Systems	• High current switching capability • Low ON-resistance • Low leakage current • Cost effective solutions • Ideal for Measurement Devices, Instrumentation, Security Systems, Medical Equipment, Alarm Controls, Consumer Electronics	• High current switching capability • Low leakage current • Ideal for Broadband Systems, Measurement Devices, Instrumentation, Medical Equipment, Data Loggers, Consumer Electronics
Lead voltage	0-20V (AC or DC) 0 - 80V 0-40V (AC or DC)	0-20V (AC or DC) 0 - 60V 0-40V (AC or DC) 0 - 80V 0 - 100V	0-60V (AC or DC)	0-80V (AC or DC)
Maximum Ratings and Electrical Characteristics **Continuous load current**	0-120mA 0 - 40V 0-160mA 0 - 80V 0-300mA 0 - 200V 0 - 250V	0-120mA 0-160mA 0-300mA 0-450mA	0-400mA 0-500mA 0-1,000mA 0-2,000mA 0-2,500mA	0-350mA 0-1,250mA
ON resistanc (typical)	1 to 25	0.8 to 25	0.12 (max.) 7 (max.) 1 (typ.)	0.11 & 1.0
Output capacitance	0.6pF to 6.5pF	0.6pF to 40pF	130pF	30pF @ 350mA 460pF @ 1250mA
Available switching configurations	1 Form A	1 Form A	1 Form A	1 Form A
Leakage current	1.0nA (max.)	1.0nA (max.)	1.0nA (max.) & 1.0µA (max.)	0.2nA (typ.) & 1.2nA (typ.)
turn-ON time (typical)	0.3ms	0.3ms	0.8ms 1.0ms 1.4ms	0.3ms 2.0ms
turn-OFF time (typical)	0.3ms	0.3ms	0.1ms 0.2ms 0.6ms	0.3ms 0.7ms
Dielectric strength (AC for 1 minute between input and output)	1,500Vrms (min.)	1,500Vrms (min.)	1,500Vrms (min.) 2,500Vrms (min.)	1,500Vrms (min.)
Available packaging & terminal choices	SOP 4 PIN	SOP 4 PIN	SOP, PCB, SMT 4 PIN, 6 PIN	SOP 4 PIN, 6 PIN
Accessories	Tape & reel	Tape & reel	Tape & reel	Tape & reel
Approved standards	UL 1577	UL 1577	UL 1577	UL 1577

Relays - MOS FET

	Coming Soon 		High Current and Low On-Resistance 
General Attributes	**G3VM-PR**	**G3VM-600, 601BY/EY**	**G3VM- □□HR/BR/ER**
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
Features	• Smallest Mos Fet relay on the Market • Low leakage current * CxR characteristics as low as 2.4pF * Similar characteristics to SSOP Mos Fet relays * Very high operating speed * Ideal for IC and Memory Testers, SoC Testers, Measurement and instrumentation, Medical, Security and Handheld application	• Analog-switching MOS FET Relay with a Dielectric Strength of 5 kVAC between I/O Using Optical Isolation • Switches minute analog signals. * Switching AC and DC. * Peak load voltage of 600 V. * Dielectric strength of 5 kVAC between I/O. * Ideal for Electronic automatic exchange systems, FA systems, measurement devices and security systems	• Compact, general purpose analog switching Mos Fet relays • Dielectric strength of 2,500Vrms between I/O * Ideal for communication equipment, Test and Measurement, security applications, Factory Automation equipment and power circuits
Lead voltage	0 - 100V	0-600V (AC or DC)	0-20V (AC or DC) 0-40V (AC or DC) 0-60V (AC or DC) 0-100V (AC or DC)
Maximum Ratings and Electrical Characteristics **Continuous load current**	0 - 900mA (refer to data sheet for specific model parameters	0-100mA	0-1A 0-2A (4A max), 0-2.5A 0-3A (6A max), 0-3.5A (7A max) 0-4A (8A max)
ON resistanc (typical)	0.45 - 70	12, 23, 25 & 30	20, 30, 40, 50, 80, 100, 250
Output capacitance	0.45 - 40	—	—
Available switching configurations	1 Form A	1 Form A, 2 Form A	1 Form A, 2 Form A
Leakage current	.01 - .5	1.0 uA (max)	1.0 uA (max)
turn-ON time (typical)	.026 - .3	.2 ms	1 ms
turn-OFF time (typical)	.045 - ..2	.2 ms	.3 ms
Dielectric strength (AC for 1 minute between input and output)	500 Vrms (min)	500 Vrms (min)	2500Vrms (min)
Available packaging & terminal choices	SOP 4 PIN	PCB, SMT 6 Pin	Dip 4 Pin, Dip 6 Pin
Accessories	Tape & reel	Tape & reel	Tape & reel
Approved standards	UL 1577	UL 1577	UL 1577

Relays - HF/RF and MEMS

	HF/RF			MEMS
				
General Attributes	**G6Z**	**G6K(U)-2F-RF(-S,-T)**	**G6K(U)-2F-RF-T**	**2SMES-01**
Dimensions mm (in)	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)	5.4 H x 10.3 L x 6.9 W (0.21 x 0.41 x 0.27)	1.8 H x 5.2 L x 3.0 W (0.07 x 0.20 x 0.12)
Switching	0.5A max.	1A	1A	No hot switching (>0.5mA@0.5VDC)
Features	• 2.6GHz+ HF relay • 1 Form C • Micro strip line technology • 75 & 50 impedance models • Latching & non-latching models • Reverse terminal configurations • Y & E terminal configurations • SMT and PCB versions • Ideal for Base Station LNA & TMA switching, ATE CATV, Digital TV tuners, Test & Measurement, Broadcast, FWA	• 1GHzHF relay • 2 Form C • 100mW coil power • Smallest 2 Form C on the market • Ideal for Test & Measurement, ATE, CATV, Digital TV tuners • "-S" terminal arrangement facilitates end-to-end PCB layout.	• 3GHz+HF relay • 2 Form C • 100mW coil power • Smallest 2 Form C on the market • Ideal for Test & Measurement, ATE, CATV, Digital TV tuners • "-S" terminal arrangement facilitates end-to-end PCB layout. • Footprint compatible w/existing 1 GHz model	• Superior high-frequency characteristics at 10 GHz typical / 8 GHz rated (50Ω) • Isolation of 30 dB • Insertion loss of 1dB • Return loss of 10 dB • Ultra-miniature 5.2×3.0×1.8 mm (L×W×H). • Contact Reliability 100million operations (0.5mA at 0.5VDC Resistive load) • Rated power consumption of 10μW • Ideal for ATE, RF measurement and RF components
HF Characteristics **Isolation**	60 - 65dB (900MHz) 30 - 45dB (2.6GHz)	Between contacts of the same polarity 20dB min.	Between contacts of different polarity 18dB min.	30dB (10GHz typical, 8GHz rated)
Insertion loss	0.1 - 0.2dB (900MHz) 0.3 - 0.5dB (2.6GHz)	0.2dB max.	0.62dB max.	1dB (10GHz typical, 8GHz rated) 3dB (12GHz rated)
VSWR	1.1 - 1.2 (900MHz) 1.3 - 1.5 (2.6GHz)	1.2 max.	1.4 max.	1.2 at rated load
Contact Information **Contact form**	1 Form C	2 Form C	2 Form C	SPDT (transfer contacts)
Contact type(s)	Twin crossbar	Bifurcated crossbar	Bifurcated crossbar	Single-side stable
Contact material	Au clad Cu alloy	Au alloy on Ag base	Au alloy on Ag base	Proprietary
Rated load (under resistive load)	10mA @ 30VAC; 10mA @ 30VDC; 900MHz, 10W	0.3A @ 125VAC; 1A @ 30VDC	0.3A @ 125VAC; 1A @ 30VDC	100mA @ 10VDC (carry) RF: 30dB
Max. operating voltage	30VDC, 30VAC	60VDC, 125VAC	60VDC, 125VAC	0.5VDC (switching)
Max. switching capacity under resistive load	10VA, 10W	37.5VA, 30W	37.5VA, 30W	0.25mW
Min. electrical service life (operations at rated load)	300,000	100,000	100,000	100M
Coil Information **Coil voltage**	3, 4.5, 5, 9, 12, 24VDC	3, 4.5, 5, 12, 24VDC	3, 4.5, 5, 12, 24VDC	No Coil, MEMS Electrostatic Drive 34VDC +/-5%
Power consumption	200mW (standard) 200mW (single latching) 360mW (dual latching)	100mW	100mW	10μW
Characteristics **Dielectric strength between coil & contacts (50/60 Hz for 1 minute)**	1,000VAC	750VAC	750VAC	No Dielectric rating ESD 100V (Human Body Model)
Terminal choices	PCB, SMT Gullwing	SMT Gullwing	SMT Gullwing	LGA12
Packaging / Options	Tape & reel available	300 Units/Tray 300 or 900 Units/Tape & reel	300 Units/Tray 300 or 900 Units/Tape & reel	50 pc IC pack & 200 pc JEDEC tray

Technical Considerations

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

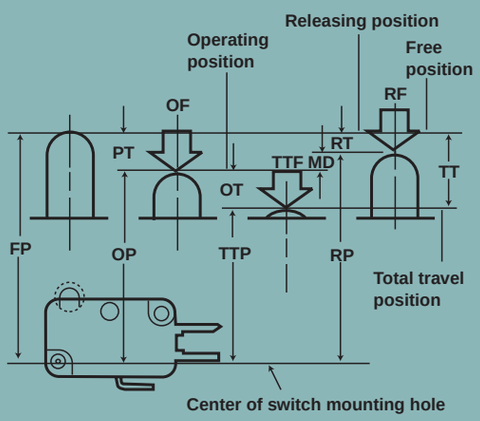
Termination styles:

- PCB
- Solder
- Quick Connect
- Screw
- Wire Leads
- Connector

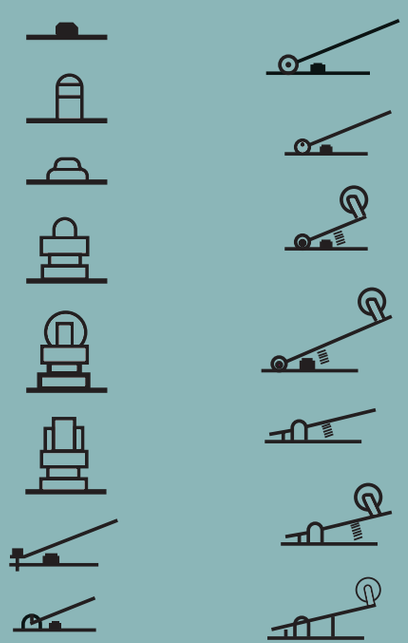
Additional Features:

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

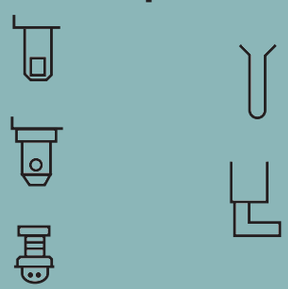
Contact Omron Components and have it your way. Configure a switch that meets your application needs.



Plunger & Lever Options



Terminal Options



Switches - Snap Action

				
	D2X	**D3V**	**V**	**VX**
Dimensions mm (in)	28.1 H x 8.4 D x 5.3 W (1.11 x 0.33 x 0.21)	15.9 H x 10.3 D x 27.8 W (0.63 x 0.41 x 1.09)	15.9 H x 10.3 D x 27.8 W (0.63 x 0.41 x 1.09)	18.8 H x 10.3 D x 27.8 W (0.74 x 0.41 x 1.09)
Features	• High contact force • Wiping action for greater contact reliability	• Miniature Snap Action Switch • Environmentally friendly: free of beryllium copper & lead • Maximum operating temperature of 105°C (standard versions) • Internally or externally fitted levers	• Miniature Snap Action Switch • Industry standard design with 15 A (V-15G) or 10 A (V-10G) rating • Cadmium-free contacts • Internal lever options	• Miniature Snap Action • Low operating force • High contact reliability • 0.1 A to 5 A
Contact Rating(s) Resistive load	0.1A @ 30VDC	21/16/11/6A @ 125/250VAC 0.1A @ 125VAC	15A @ 250VAC (V-15G) 10A @ 250VAC (V-10G)	5A @ 250VAC 0.1A @ 125VAC
Contact form	SPST-NC	SPDT, SPST-NC, SPST-NO	SPDT, SPST-NC, SPST-NO	SPDT, SPST-NO, SPST-NC
Operating force (OF)*	50g	50g, 100g, or 200g	100g, 200g, or 400g (V-15G) 100g or 200g (V-10G)	25g, 50g
Mechanical service life	1,000,000 operations min.	10,000,000 operations min.	50,000,000 operations min.	50,000,000 (5A) 10,000,000 (0.A)
Electrical service life	50,000 operations min.	100,000 operations min. (D3V-16) 200,000 operations min. (D3V-11) 500,000 operations min. (D3V-6 / D3V-01)	100,000 operations min. (V-15G) 300,000 operations min. (V-10G)	500,000 (5A) 1,000,000 (0.1A)
Mounting pitch mm (in)	12.2	–	10.3 x 22.2 (0.41 x 0.87)	22.2
Actuator types	Bi-directional paddle	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	Crimp connector	Solder/Quick connect (#187) Quick connect (#187) Quick connect (#250)	Solder/Quick connect (#187) 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

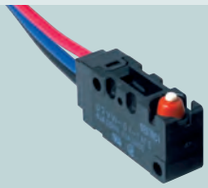
				
	SS-P/SS	**SSG**	**D3M**	**D2F**
Dimensions mm (in)	10.2 H x 6.4 D x 19.8 W (0.40 x 0.25 x 0.78)	10.2 H x 6.4 D x 19.8 W (0.40 x 0.25 x 0.78)	10 H x 7 D x 31.6 W (0.39 x 0.28 x 1.24)	6.5 H x 5.8 D x 12.8 W (0.26 x 0.23 x 0.50)
Features	• Subminiature Snap Action Switch • SS-01: Switches microcurrent/ microvoltage load with crossbar contacts • SS-3: Single-leaf moveable spring • SS-5: Split double spring mechanism for a long life of up to 30 million operations • SS-10: Split double spring mechanism for a long life of up to 10 million operations • Internal lever options	• Subminiature Snap Action Switch • SS-01: Switches microcurrent/ microvoltage load with crossbar contacts • SS-5: Split double spring mechanism for a long life of up to 30 million operations • Wide operating temp. range of -25 to + 125°C • Internal lever options • Global switch conforming to EN, UL & CSA	• External actuators • Easy wiring through connector terminals	• Subminiature Snap Action Switch • Switches microvoltage/ microcurrent loads • Long lifespan assured by high-precision dual spring reverse-action mechanism
Contact Rating(s) Resistive load	0.1A @ 125VAC (SS-01) 3A @ 125VAC (SS-3) 5A @ 125VAC (SS-5) 10.1A @ 125/250VAC (SS-10)	3A @ 250VAC 0.1A @ 250VAC	0.1A @ 30VDC	0.1A @ 30VDC (D2F-01) 3A @ 125VAC (D2F) 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) 150g (SS-3) 50g or 150g (SS-5) 150g (SS-10)	25g, 51g, 153g	153g	75g (D2F-01) 150g (D2F) 75g (D2F-F)
Mechanical service life	30,000,000 ops. min. (SS-01, SS-5)* 1,000,000 ops. min. (SS-01P, SS-3) 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)** 70,000 operations min. (SS-3) 50,000 operations min. (SS-10)**	200,000 operations min.	200,000 operations min.	30,000 operations min. (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

**at rated load

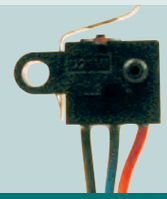
Switches - Sealed Snap Action

				
	D2QW	**D2VW**	**D2SW**	**D2SW-P**
Dimensions mm (in)	9.3H x 13.3D x 8.2W	15.9 H x 10.3 D x 33 W (0.63 x 0.41 x 1.29)	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	• Sliding contacts are able to wipe clean contact contamination. • Offers almost silent operation. • Long stroke slide contact for reliable ON/OFF action. • Compact and rugged design is sealed to IP67 standards.	• Miniature Snap Action Switch • Sealed water-tight switch conforms to IP67 & IP68	• Subminiature snap action switch • Small sealed switch conforms to IP67 & IP68	• Sealed basic switch (IP67) • Single leaf movable spring construction • Microload versions available
Contact Rating(s) Resistive load	1mA at 5 VDC to 0.1 A @ 30 VDC	0.1A @ 125VAC or 5A @125/250VAC	0.1A @ 125VAC or 3A @125VAC	2A @250VAC or 0.1A @125VAC
Contact form	SPST-NO	SPDT (SPST-NC, SPST-NO per request)	SPDT (SPST-NC, SPST-NO per request)	SPDT, SPST-NO, SPST-NC
Operating force (OF)*	1.5 N	200g	180g	183g
Mechanical service life	500,000 operations min. (30 operations/min)	10,000,000 operations min.	5,000,000 operations min.	1,000,000 operations min.
Electrical service life	200,000 operations min. (at 30 VDC 0.1 A)	1,000,000 operations min. (0.1A, 125VAC) 100,000 operations min. (3A, 125/250VAC)	200,000 operations min. (0.1 or 3A, 125VAC) 100,000 operations min. (2A, 250VAC)	50,000 (2 A) or 200,000 (0.1A) operations min.
Mounting pitch mm (in)	8.3	10.3 x 22.2 (0.41 x 0.87)	9.5 (0.37)	9.5mm
Actuator types	Pin plunger and Simulated roller leaf lever	Pin plunger, short hinge lever, hinge lever, long hinge lever, simulated roller lever, short hinge roller lever, hinge 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	Solder/Quick connect (#187 tab terminals) lead wires	Solder, Quick connect (#110), PCB, lead wires	Solder, Quick connect (#110), PCB (even & uneven pitch), Molded lead wires
Approved standards	None	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
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)
Features	• Subminiature Snap Action Switch • Small sealed switch with long stroke for reliable ON/OFF action • Conforms to IP67	• Small size • Gold crossbar contact and coilspring for long life • IP67 rating for molded lead wire versions	• Subminiature Snap Action Switch • Small sealed switch with lead wires • Conforms to IP67
Contact Rating(s) Resistive load	2A @ 12VDC/ 1A @ 24VDC/ 0.5A @ 42VDC	0.1A @ 30VDC	0.5A @ 30VDC or 50mA @ 30VDC
Contact form	SPDT, SPST-NC, SPST-NO	SPDT	SPDT, SPST-NC, SPST-NO
Operating force (OF)*	76g	250g	120g
Mechanical service life	1,000,000 operations min.	1,000,000 operations min.	300,000 operations min.
Electrical service life	100,000 operations min.	100,000 operations min.	100,000 operations min.
Mounting pitch mm (in)	8 (0.32) posts, 13 (0.51) screw	4.8	16 (0.63)
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
Terminal choices	PCB (straight, angled), Solder, Lead wire (bottom, right side, left side)	Solder, molded lead wire	Lead wires
Approved standards	UL, CSA	UL, CSA, VDE	–

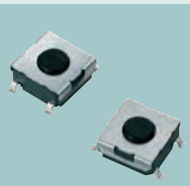
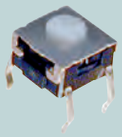
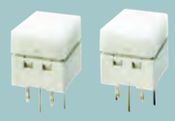
*** Values are for pin plunger type only**

Switches - Snap Action

		NEW! 		
	D3C	**D3D**	**D2T**	**Z**
Dimensions mm (in)	6 H x 4.2 D x 8 W (0.24 x 0.17 x 0.31)	30.7 H x 15 D x 36.4 W (1.21 x 0.59 x 1.43)	24.65 H x 11.5 D x 28.8 W (0.97 x 0.45 x 1.13)	24.2 H x 17.45 D x 49.2 W (0.95 x 0.69 x 1.93)
Features	• Low torque built-in slide mechanism for selecting shorting or non-shorting timing	• Miniature door switch • Low-noise • Disconnectable crimp connector • Gold crossbar contacts	• Compact door switch • Incorporates two circuits for power loads & micro loads	• General Purpose Snap Action Switch • High precision 15 A switch available in a variety of styles
Contact Rating(s) Resistive load	0.1A @ 30VDC	1A @ 125VAC or 0.5A @ 250VAC	5A @ 250VAC 0.1A @ 125VAC	0.1A @ 125VAC 15A @ 250VAC*
Contact form	SPDT	SPDT, SPST-NC, SPST-NO	DPST-NO	SPDT
Operating force (OF)*	40g, 130g	204g	330g	250g to 350g
Mechanical service life	50,000 operations min.	300,000 operations min.	100,000 operations min.	Refer to "SPECIFICATIONS" section of data sheet for detailed service life information
Electrical service life	50,000 operations min.	100,000 operations min.	100,000 operations min.	Refer to "SPECIFICATIONS" section of data sheet for detailed service life information
Mounting pitch mm (in)	5.7	Panel-mount	26.4	25.4 (1.0)
Actuator types	Rotary lever	Pin plunger, lever	Pin plunger, hinge lever	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
Terminal choices	PCB	Connector	Solder	Solder, Screw
Approved standards	–	UL, CSA	UL, CSA, VDE, SEMKO	UL, CSA, SEV

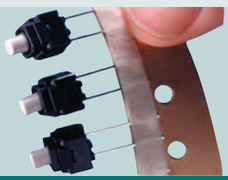
*** Values are for pin plunger type only**

Switches - Tactile

				
	B3F	**B3FS**	**B3W**	**B3W-9**
Dimensions mm (in)	Varies by type	Varies by type	Varies by type	11 H x 10 W x 10 D (0.43 x 0.39 x 0.39)
Features	• Tactile 6 mm/12 mm Square Switch • Space saving switch with extended mechanical/electrical service life • Taped radial packaging available*	• Tape & Reel Surface Mount Switches • Tactile switch that incorporates a snap action contact mechanism which ensures sharp switching operations	• 6 mm/12 mm Square Tactile Switch • Sealed Construction allows immersion cleaning with Alcohol based solution	• Bright, Uniform illumination in SPST-NO (momentary) configuration • Keycap option includes LED color match, transparent or opaque white • Monocolor illumination, with 1 or 2 LED's • Tricolor operation possible - - Red + Green LED's produce Orange when used with white cap • Dust tight internal switch mechanism
Service life (Mechanical/Electrical)	B3F-1 □□□/3 □□□ 1,000,000 operations min. (High force: 300,000 opertions min.) B3F-4 □□□ 3,000,000 operations min. (High force: 300,000 operations min.) B3F-5 □□□ 10,000,000 operations min.) B3F-6 □□□ 1,000,000 operations min. (High force: 300,000 operations min.)	1,000,000 operations min. (General purpose) 300,000 operations min. (High force)	B3W-1 □□□ Standard force: 1,000,000 operations min. High-force: 300,000 operations min. B3W-4 □□□ Standard force: 3,000,000 operations min. High force: 1,000,000 operations min.	1,000,000 operations min. (Standard force) 300,000 operations min. (High force)
Contact Rating(s) **Resistive load**	50mA @ 24 VDC	50mA @ 24 VDC	50mA @ 24VDC	1 to 50 mA @ 5 to 24 VDC
Contact form	SPST-NO	SPST-NO	SPST-NO	SPST-NO
Action	Momentary	Momentary	Momentary	Momentary
Ground terminal	Models available with or without ground terminal	None	Models available with or without ground terminal	None
Keycap (optional)	Refer to "ACCESSORIES" section of data sheet for Keycap information	None	Refer to "ACCESSORIES" section of data sheet for Keycap information	Transparent, Translucent White or Color Matched
Operating force (OF)	Refer to "OPERATING CHARACTERISTICS" section of data sheet	100gf (General purpose) 150gf (High force)	Refer to "OPERATING" CHARACTERISTICS" section of datasheet	160 gf max. (Standard force) 230 gf max. (High force)
Actuator type	Plunger	Plunger	Plunger	Integral keycap ith unique diffusion panel
Terminal choices	PCB	Surface mount	PCB	PCB
Cleaning	Not possible	Not possible	Possible	Not Possible

NOTE: (1) None of the Tactile switch models listed within this catalog are water-washable.
(2) B32 Keytops are available for projected plunger versions of the B3F, B3FS and B3W.
See datasheet, available at http://www.components.omron.com

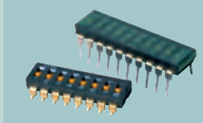
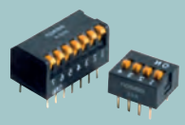
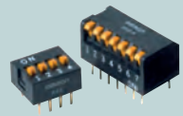
Switches - Tactile

				
	B3WN	**B3S**	**B3SL**	**B3SN**
Dimensions mm (in)	13 H x 8.0 D x 8.0 W (0.51 x 0.31 x 0.31)	4.3 H x 6.0 D x 6.0 W (0.17 x 0.24 x 0.24)	3.4 H or 5.1H x 6.2 W x 6.5 D (0.13 or 0.20 x 024 x 0.26)	3.1 H x 6.5 D x 7.0 W (0.12 x 0.26 x 0.28)
Features	• Radial Tape Sealed Tactile Switch • Compact 8 x 8 mm square size with double sealing construction • Assures water-tight/dust-tight protection	• Surface Mount Tactile Switch • Sealed Construction allows immersion cleaning with Alcohol based solution	• 90°C Maximum operating Temperature • Sealed construction conforming to IP64 (IEC 60529) • Crisp click feeling and middle stroke with rubber plunger. • Two heights available, 3.4 mm and 5.1 mm • Tape packing is available	• Surface Mount Tactile Switch • Low profile sealed construction for dust or humid environments • Available in bulk or tape packaging
Service life (Mechanical/Electrical)	100,000 operations min.	500,000 operations min. (General purpose) 300,000 operations min. (High force)	100,000 operations min.	50,000 operations min.
Contact Rating(s) Resistive load	50mA @ 12VDC	50mA @ 24VDC	1 to 50 mA @ 5 to 12 VDC	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	None	Models available with or without ground terminal
Keycap (Optional)	None	None	None	None
Operating force (OF)	200 ±70gf	160gf (General purpose) 230gf (High force)	200 ± 50 gf	160 ±50g max.
Actuator type	Plunger	Plunger	Plunger	Plunger
Terminal choices	PCB	Surface mount	Surface Mount	Surface mount
Cleaning	Possible	Possible	Not Possible	Possible

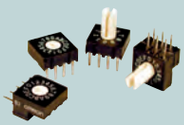
Switches - Tactile

			
	B3M	**B3J**	**B3AL**
Dimensions mm (in)	7.3 H x 6.0 D x 6.0 W (0.29 x 0.24 x 0.24)	10.3 H x 18.0 D x 12.0 W (0.41 x 0.71 x 0.47)	5H X 6.9D x 6W
Features	• High Profile Tactile Switch • Stroke length of 0.85mm • Light touch with a minimum overstroke of 0.25mm	• Hinged Tactile Switch • Available with 1, 2 or no LED's	High operating force version available (OF = 3.5 N (356 gf)). • Long stroke achieved by using a rubber plunger.
Service life (Mechanical/Electrical)	2,000,000 operations min.	3,000,000 operations min.	1,000,000 operations min.
Contact Rating(s) Resistive load	50mA @ 12VDC	1 to 50mA @ 5 to 24VDC	1 to 50 mA at 5 to 16 VDC (resistive load)
Contact form	SPST-NO	SPST-NO	SPST-NO
Action	Momentary	Momentary	Momentary
Ground terminal	None	None	None
Keycap (Optional)	Built in	None	Built in
Operating force (OF)	70 ±20gf	130 ±50gf	200gf to 357gf
Actuator type	Plunger	Hinge lever	Top actuated, flat
Terminal choices	PCB	PCB	Surface Mount
Cleaning	Not possible	Not possible	Not possible

Switches - DIP

					
	A6H	**A6T/A6S-H**	**A6TR/A6SR**	**A6D/A6DR**	**A6E/A6ER**
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 • Low profile of 1.55mm • Seal tape models available	• Straight PCB/ Surface Mount DIP Switch • Flat actuated types with or without seal tape, & tape seal versions in embossed tape packaging • Raised actuator types also available	• Piano DIP versions of the popular A6T and A6S-H • Low profile, end stackable design • Gold-plated twin contacts and slide-type self cleaning contact mechanism • Surface Mount or Through-hole PCB terminals	• Dustproof construction • Top, raised & side actuators • Smooth switching action	• Available in a variety of model types: A6E: Flat/ Raised actuator A6ER: Side actuator
Contact Rating(s) Resistive load	25mA @ 24VDC	25mA @ 24VDC	25 mA @ 25 VDC	30mA @ 30VDC	25mA @ 24VDC
Switching positions	—	—	—	—	—
Number of poles	4, 8	A6T: 1, 2, 4, 6, 8, 10 A6S: 2, 3, 4, 5, 6, 7, 8, 9, 10 A6S (embossed tape): 4, 6, 8	2, 4, 6, 8, 10	4, 6, 8, 10	2, 3, 4, 5, 6, 7, 8, 9, 10
Operating force (OF)*	30gf	30gf	30.5 to 795 gf	500gf	30gf
Mechanical service life,	1,000 operations min.	1,000 operations min.	1,000 operations min.	5,000 operations min.	1,000 operations min.
Electrical service life	1,000 operations min.	1,000 operations min.	1,000 operations min.	2,000 operations min.	1,000 operations min.
Actuator types	Top	Top, raised	Side (piano style) – short or long lever	Top, raised, side	Top, raised, side
Terminal choices	Surface mount	PCB terminal; Surface mount	PCB - Through-hole or Surface mount	PCB terminal	PCB terminal
Washable	Yes (seal tape only)	Yes (seal tape only)	No	Yes	No

Switches - DIP

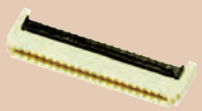
				
	A6R/A6RV	**A6RS**	**A6A**	**A6C**
Dimensions mm (in)	Varies by type	Varies by type	Varies by type	Varies by type
Features	• Economical rotary DIP switch • Top, side &d extended shaft models • O-ring sealed construction to prevent ingress of dust and dirt	• Temperature-resistant resin allows peak reflow of 260°C • Flat and extended-shaft models • Two different terminal arrangements for maximum design flexibility • -25 C to 80 °C operating temperature	• Subminiature Rotary DIP Switch • 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	25mA @ 24VDC	25 mA @ 24 VDC	1~100mA @ 5~28VDC	100mA @ 30VDC
Switching positions	10-BCD 16-Hexidecimal	10-BCD 16-Hexidecimal	10-BCD 16-Hexadecimal	10-BCD 16-Hexidecimal
Number of poles	—	—	—	—
Operating force (OF)*	200g-cm max.	1.96 x 10^{-2} N-m max. operating torque	120 to 250g-cm	15 to 100g-cm
Mechanical service life	5,000 detent operations min.	—	10,000 detent operations min.	10,000 operations min.
Electrical service life	5,000 detent operations min.	5,000 detent operations min.	2,000 detent operations min.	2,000 operations min.
Actuator types	Rotary	Rotary	Rotary	Rotary
Terminal choices	PCB terminal	Surface mount	PCB terminal	PCB terminal
Washable	No	No	Yes	Yes

Connectors - Industrial

	Sensor I/O Connectors			Ethernet Connector
	NEW			NEW
				
General Attributes	**XS5**	**XS2**	**XS3**	**XS5-T / XS6**
Connector Type	M12 Smartclick (Bayonet Locking Mechanism)	M12 Screw type	M8 Screw type	M12 / RJ45 Ethernet Connector
Available Models	• Socket with one cable end • Plug with one cable end • Socket & Plug on both cable ends • Panel Mount • Field assembly	• Socket with one cable end • Plug with one cable end • Socket & Plug on both cable ends • Panel Mount • Field assembly	• Socket with one cable end • Plug with one cable end • Socket & Plug on both cable ends • Panel Mount	• M12 on both cable ends • M12 and RJ45 on both cable ends • M12 Panel Mount • RJ45 on both cable ends • RJ45 Field assembly
Cable Length	0.3 to 20m (depending on specific p/n)	0.3 to 10m (depending on specific p/n)	0.3 to 10m (depending on specific p/n)	0.3 to 15m (depending on pecific p/n)
Rated Current	4.0 Amps	4.0 Amps	3.0 Amp	3.0 Amp for M12 2.5 Amp for RJ45
Rated Voltage	250VDC	125VDC, 250VAC	125VDC	30 VDC
Contact Resistance	40mΩ max.	40mΩ max.	40mΩ max.	20mΩ max.
Dielectric Strength	1,500VAC for 1 minute	1,500VAC for 1 minute	1,000VAC for 1 minute	1,000VAC for 1 minute
Ambient Temperature Range	-25 to 70ºC (with no icing)	-25 to 70ºC (with no icing)	-25 to 70ºC (with no icing)	-25 to 70ºC (with no icing)
Degree of Protection	IP67 (IEC60529)	IIP67 (IEC60529) IP69K version is available	IP67 (IEC60529) IP69K version is available	IP67 for M12 IP20 for RJ45
Available circuits	4, 5	3, 4, 5	3, 4	4
Features	• Waterproof • Smartclick: Twist-Click connection with approximately 1/8th of a turn. • Au audible "Click" and tactile response • Interchangeble with standard screw type M12 connector	• Waterproof • Screw type • Wide range of product variation	• Waterproof • Screw type	• Support for Ethernet/IP, EtherCAT and other popular Networks based on Ethernet • M12 Smartclick mate with any threaded M12 socket • Tough RJ45 connector • Uses AWG22 Cat5e cable

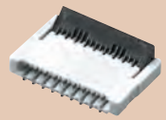
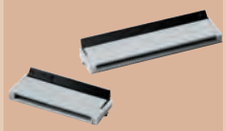
Connectors - FPC (Flexible Printed Circuit)

FPC Connectors

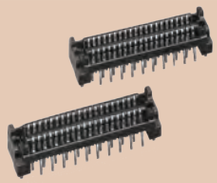
	NEW 	NEW 	NEW 	NEW 	
	XF3C	**XF3A**	**XF3B**	**XF3E**	**XF3H**
Pitch mm	0.25mm	0.3mm	0.3mm	0.3mm	0.3mm
Insertion type	ZIF	ZIF	ZIF	ZIF	ZIF
Cable lock type	Rotary Backlock	Rotary Backlock	Rotary Backlock	Rotary Backlock	Rotary Frontlock
Plating on contacts	Gold plating	Gold plating	Gold plating	Gold plating	Gold plating
PCB mounting	SMT	SMT	SMT	SMT	SMT
Cable insertion	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Contact type(s)	Dual Contact	UpperContact	Dual Contact	Dual Contact	Lower Contact
Dimensions mm (in)	10.5W x 3.8D x 0.85H (0.41 x 0.15 X 0.033) for 35 circuits	5.0W X3.8D X 0.60H (0.20 X 0.15 X 0.024) for 12 circuits	12.4W x 4.0D x 0.9H (0.48 X 0.15 X 0.035) for 35 circuits	28.9W X4.3D X 1.1H (1.14 X 0.169 X 0.043) for 90 circuits	12.0W x 3.5D x 0.9H (0.47 X 0.14 X 0.035) for 35 circuits
Available circuits	17,19,23,25,35,45,51	8,12,17,23,25,51	8,19,25,35,51,67	90	13,25,31,35,39,45, 51,57,61
Packaging	Tape & reel	Tape & reel	Tape & reel	Tape & reel	Tape & reel
Applicable FPC Thickness	0.12± 0.03mm	0.12± 0.03mm	0.2± 0.05mm	0.2± 0.05mm	0.2± 0.05mm
Features	• Ultra Fine Pitch 0.25mm • Realized Dual contact with 0.85mm height	• Fine pitch : 0.3mm • Ultra low profile : 0.6mm	• Small and low profile increases design flexibility • Realized Dual contact with 0.9mm height	• Large number of pin counts :90 pins	• Ultra slim body : 3.5mm depth
Specifications					
Rated current	0.2A	0.2A	0.2A	0.2A	0.2A
Rated voltage	50V	50V	50V	50V	50V
Contact resistance (@ 20mV, 100mA)	80mΩ max.	80mΩ max.	80mΩ max.	80mΩ max.	80mΩ max.
Insulation resistance (min.)	100MΩ @ 250VDC	100MΩ @ 250VDC	100MΩ @ 250VDC	100MΩ @ 250VDC	100MΩ @ 250VDC
Withstand voltage (leakage current: 1mA max.)	250VAC 1min.	250VAC 1min.	250VAC 1min.	250VAC 1min.	250VAC 1min.
Circuit insertion or service life	20 times	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	-30°C to +85°C

Connectors - FPC (Flexible Printed Circuit)

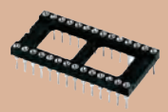
FPC Connectors

			FEATURED PRODUCT 		
XF2B	**XF2U**	**XF2W**	**XF2M**	**XF2L**	**XF2J**
0.3mm	0.5mm	0.5mm	0.5mm	0.5mm	0.5mm
ZIF	ZIF	ZIF	ZIF	ZIF	ZIF
Rotary Backlock	Rotary Backlock	Rotary Backlock	Rotary Backlock	Slide Lock	Slide Lock
Gold plating	Gold plating	Gold plating	Gold plating	Gold plating	Gold plating
SMT	SMT	SMT	SMT	SMT	SMT
Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Vertical
Dual Contact	Dual Contact	Dual Contact	Dual Contact	Upper / Lower Contact	Single-sided contact
12.4W x 5.5D x 1.2H (0.48 x 0.22 X 0.035) for 35 circuits	14.0W x 3.5D x 0.9H (0.55 x 0.14 x 0.035) for 24 circuits	14.0W x 3.5D x 1.1H (0.55 x 0.14 x 0.043) for 24 circuits	16.1W x 5.9D x 2.0H (0.63 x 0.23 x 0.079) for 24 circuits	19.9W x 3.45D x 1.2H (0.78 x 0.14 x 0.047) for 30 circuits	19.5W x 3.4D x 4.15H (0.77 x 0.13 x 0.16) for 30 circuits
17,21,23,25,27,31,33,35,39,41,45,51,61	4,6,8,11,14,18,20,24,27,30,32,40	5,6,7,8,9,16,18,20,24,45,50,55,60,64	10,12,14,18,20,22,24,26,30,32,33,34,35,36,38,40,42,45,50,55,60	4,5,6,7,8,9,10,12,13,15,18,19,20,21,22,24,26,30	6,8,10,12,14,16,18,20,22,24,26,28,30,40
Tape & reel	Tape & reel	Tape & reel	Tape & reel	Tape & reel	Tape & reel
0.2± 0.05mm	0.2± 0.05mm	0.3± 0.05mm	0.3± 0.05mm	0.3± 0.05mm	0.3± 0.05mm
• Small and low profile increases design flexibility • Realized Dual contact with 0.9mm height	• Ultra slim body with low profile : 0.9mm height	• Easy-operation with long slider also available • Ultra slim body with low profile : 1.1mm height	*Rotary Backlock achieves high reliability * Wide range of circuits available	• Low profile, Small size	• Low profile, Top-entry • Reverse terminal arrangement also available
0.2A	0.5A	0.5A	0.5A	0.5A	0.5A
50VDC	50V	50V	50VDC	50VDC	50V
50mΩ max.	60mΩ max.	60mΩ max.	50mΩ max.	30mΩ max.	30mΩ max.
100MΩ @ 250VDC	100MΩ @ 250VDC	100MΩ @ 250VDC	100MΩ @ 250VDC	100MΩ @ 250VDC	100MΩ @ 250VDC
250VAC 1min.	250VAC, 1min.	250VAC, 1min.	250VAC, 1min.	250VAC, 1min.	250VAC, 1min.
20 times	20 times	20 times	20 times	20 times	30 times
-30°C to +85°C	-30°C to +85°C	-30°C to +85°C	-30°C to +85°C	–30°C to + 85°C	-30°C to +85°C

Connectors - PCB

	Flat Cable	Discrete Wire	Board to Board		
					
	XG4	**XG5M/N**	**XC5**	**XH3**	**XH4**
Description	MIL connector	IDC/Crimp Connector	DIN Connector	Half-Pitch Connector	Half-Pitch Low Profile Connector
Pitch mm	2.54	2.54	2.54	1.27	1.27
Available models	Socket, plug	Socket	Socket, Plug	Socket, Plug	—
Plating on contacts	Gold plating	Gold plating	Gold plating	Gold/Palladium plating	Gold plating
PCB mounting	Thru-hole	Thru-hole	Thru-hole	Thru-hole	Thru-hole, SMT
Connect type	IDC	IDC	—	—	—
Cable type	Flat ribbon cable	Discrete-Wire	—	—	—
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	20,32,44,50,64,100	20,30,40,50,60,68, 80,100,120	40,50,60,80&100
Packaging	Tray, Bag	Tray	Tray	Tray	Tray
Features	• XG4M-U: Unique locking mechanism which saves space and enhance productivity	• XG5M: Wiring performed with simple IDC tool • XG5N: New crimping connector	• DIN Twin Contact Connectors • Wide product range, Double-Row: B-type & Q-type, Triple Row: C-type & R-type	• Adjustable Stacking height of 12mm to 20mm • Screw mount eliminated to save space	• Adjustable Stacking height of 5mm to 11mm (for Low Profile) • Integrated male (plug) and female (socket) connector)
Specifications					
Rated current	1-3A depends on model	3A	2A	0.5A	0.5A
Rated voltage	250-300VAC depends on model	300VAC	300VAC	125VAC	125VAC
Contact resistance (@20mV, 100mA)	20mΩ max.	20mΩ max.	20mΩ max.	30mΩ max.	30mΩ max.
Insulation resistance (min)	100MΩ @ 500VDC	1000 MΩ @ 500VDC	10^6 MΩ @ 100VDC	1000 MΩ @ 500VDC	1000 MΩ @ 500VDC
Withstand voltage (leakage current: 1mA max.)	500VAC 1 min.	650VAC 1min.	1,000VAC 1min.	650VAC 1min.	650VAC 1min.
Circuit insertion or service life	50 times	50 times	200 times	400 times	50 times
Ambient operating temperature	-55°C to +105°C	-55°C to +105°C	-55°C to +125°C	-55°C to +105°C	-55°C to +105°C

Connectors - I/O and Others

	D-Sub	DVI	USB	E-CON	IC Socket
					
	XM2/3	**XM4M**	**XM7**	**XN2**	**XR2**
Description	Shielded-type	Digital, Digital/Analog	A type, B type	Easy-wire connector	IC Sockets
Pitch mm	2.74mm, 2.76mm	—	2.0mm, 2.5mm	2.0mm	2.54mm
Available models	Socket, Plug	Socket	Socket	Cable Socket/Plug, PCB socket	IC Sockets
Plating on contacts	Gold plating	Gold plating	Gold plating	Gold plating	Gold plating/Gold flash plating
PCB mounting	Thru-hole	Thru-hole	Thru-hole	Thru-hole	Thru-hole
Connect type	—	—	—	Spring clamps	—
Cable type	—	—	—	Discrete-Wire	—
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	9,15,25,37	24, 29	—	3, 4, 5, 6, 8	8,14,16,18,20,22,24,28,32,40,42,48,50, 64
Packaging	Tray	Tray	Tray	Tray	Tray / Tube
Features	• Sheiled agaist EMI • Noise can be suppressed effectively by using XM2S hood cover	• Uses for both digital video (TMDS) and conventional analog (RGB) signals • Shielded against EMI for high speed transfer	• Allow connecting or disconnecting of active lines with power supplied to devices • Superior bend resistance during connector insertion and removal	• Easy connection • Easy repair • Accepts any size wire from AWG28 to AWG22 • Ideal for connecting sensors	• Ideal for high-speed data processing • A wide product range
Specifications					
Rated current	3-5A depends on the model	1.5A	1A	0.5-3A depend on wire gage	1A
Rated voltage	300VAC	40VDC	30VAC	32VDC	300VAC
Contact resistance (@20mV, 100mA)	15mΩ max.	30mΩ max.	30mΩ max.	30mΩ max.	20mΩ max.
Insulation resistance (min)	1000 MΩ @ 500VDC	1000 MΩ @ 500VDC	1000 MΩ @ 500VDC	1000 MΩ @ 500VDC	1000 MΩ @ 500VDC
Withstand voltage (leakage current: 1mA max.)	1,000VAC for 1 minute	500VAC for 1 minute	750VAC for 1 minute	1,000VAC for 1 minute	1,000VAC, 1min.
Circuit insertion or service life	200 times	100 times	1500 times	50 times	100 times for 0.75um-gold plating, 50 times for 0.25um-gold plating. 20 times for gold flash plating
Ambient operating temperature	-55 to 105ºC	-30 to 85ºC	-40 to 60ºC	-30 to 75ºC	-55°C to +125°C

Sensors - MEMS In-Line Mass Flow

Air/Gas Applications Include: Medical Devices • Fuel Cells • Lab Equipment • Welding Equipment

		Ultra-Compact Size	Aluminum Alloy Body	
				
Part Number	**D6F-01A/02A**	**D6F-03A**	**D6F-01N/02L/05N**	**D6F-10/20/50**
Dimensions mm (in)	15 H x 20 D x 66 L (0.60 x 0.79 x 2.60)	16.8 H x 8 D x 36.6 L (0.66 x 0.32 x 1.44)	22 H x 22 D x 62 L (0.87 x 0.87 x 2.4)	30 H x 30 D x 78 L (1.18 x 1.18 x 3.07)
Features	• Excellent low flow resolution down to 0.1% full scale range • Precision unidirectional mass airflow up to 2 LPM • Stable output • Low power consumption • High accuracy and repeatability	• Precision unidirectional mass air-flow up to 3 LPM • Fast Response, (<5 msec typical, for reference only) • Low power consumption • High accuracy and repeatability • Perfect for tight space requirements such as pick & place equipment	• Precision unidirectional mass airflow up to 5 LPM • Stable output • Low power consumption • High accuracy and repeatability • Aluminum Alloy Body	• Precision unidirectional mass flow up to 50LPM • Stable output • Alternate manifold mount with NBR 'O'ring (A5 version) • Low power consumption • High accuracy and repeatability
Applicable gases	Air*	Air*	Natural gas, Propane gas*	Air*
Supply voltage	10.8 to 26.4VDC	10.8 to 26.4VDC	10.8 to 26.4DC	10.8 to 26.4VDC
Output voltage	1 to 5VDC	1 to 5VDC	1 to 5VDC	1 to 5VDC
Operating temp.range	-10°C to +60°C	0°C to +50°C	-10°C to +60°C	-10°C to +60°C
Ordering information				
Part number **Cal. Gas** **Flow range** **Port size**	**D6F-01A-110** Air 0-1LPM Barbed fitting, 5/16" ID Tube	**D6F-03A3-000** Air 0-3LPM M5 threads	**D6F-01N2-000** Natural gas 0-1LPM 1/4" BSPT	**D6F-10A6-000** Air 0-10LPM 1/4" BSPT
Part number **Cal. Gas** **Flow range** **Port size**	**D6F-02A1-110** Air 0-2LPM Barbed fitting, 5/16" ID Tube		**D6F-02L2-000** Propane 0-2LPM 1/4" BSPT	**D6F-20A6-000** Air 0-20LPM 1/4" BSPT
Part number **Cal. Gas** **Flow range** **Port size**			**D6F-05N2-000** Natural Gas 0-5LPM 1/4" BSPT	**D6F-50A6-000** Air 0-50LPM 1/4" BSPT
Part number **Cal. Gas** **Flow range** **Port size**				**D6F-10A61-000** Air 0-10LPM 1/8-27 NPT
Part number **Cal. Gas** **Flow range** **Port size**				**D6F-20A61-000** Air 0-20LPM 1/8-27 NPT
Part number **Cal. Gas** **Flow range** **Port size**				**D6F-50A61-000** Air 0-50LPM 1/8-27 NPT
Part number **Cal. Gas** **Flow range** **Port size**				**D6F-50A62-000** Air 0-50LPM 1/2 NPT (L=92mm)

***Contact Omron for other calibration gases. Omron mass flow sensors are compatible with a wide variety of noncorrosive gases including nitrogen, oxygen, carbon dioxide, argon, heliox, nitrogen oxides.**

For Additional Information Call 847.882.2288 • email:components@omron.com
visit www.components.omron.com

Sensors - MEMS Mass Flow & Velocity

With Integrated Dust Segregation System

MEMS Mass Flow Sensors

MEMS Air Velocity Sensors

Part Number	D6F-P	D6F-W	D6F-V
Dimensions mm (in)	27.2H x 17.2D x 35W (1.07 x 0.68 x 1.38) (D6F-P□A1/A2)	9H x 20Dx 39L (0.35 x 0.79 x 1.53)	14H x 8D x 24L (0.55 x 0.32 x 0.94)
Features	• Improved performance & low flow resolution compared to differential pressure sensors • Precision mass airflow up to 1 LPM inline • Use in Bypass Configuration for higher flow rates** • Bidirectional models available • PCB Terminals or Connector Type • Internal passive Dust Segregation System (DSS) • Cost competitive	• Compact size • Integral passive Dust Segregation System (DSS) • Fast fit for easy installation • High accuracy • Amplified & temperature compensated output signal	• Value engineered version of D6F-W • Smaller package • Lower Supply Voltage • Built for OEM designs • Internal passive Dust Segregation System (DSS)
Specifications **Applicable gases**	Air*	Air*	Air*
Supply voltage	4.75 to 9.45VDC	10.8 to 26.4VDC	3.15 to 9.45VDC
Output voltage	0.5 to 2.5VDC	1-5VDC	0.5 to 2VDC
Operating temp.range	-10°C to +60°C (1LPM version) -33°C to +75°C (0.1LPM version)	-10°C to +60°C	-10°C to +60°C
Calibration Gas (See note 1)	Air	Air	Air
Port Style	Barbed (D6F-□A1/A2) Manifold (D6F-□A1M2)		
Mounting Termination	Flange Mount w/PCB-Terminals (D6F-P A1) Flange Mount w/Plug-in Connector (D6F-P A2) Manifold Mount w/Plug-in Connector (D6F-P AM2)		
Flow range	**0-0.1 LPM (D6F-P0001A□)** **0-1 LPM (D6F-P0010A□)**	D6F-W01A1 0-1 m/sec D6F-W04A1 0-4 m/sec D6F-W10A1 0-10 m/sec	D6F-V03A1 0-3 m/sec

****The Advantages Of A Bypass Set-up**

The D6F-P mass flow sensor when applied in a bypass set-up can measure flow rates way beyond its 1LPM in-line rating. The pressure differential required to pull airflow through the sensor can be accomplished by installing a flow restrictor between the two ports as shown below.

D6F-PH coming soon, tolerant of tube length variations in bypass applications.

Air Velocity Sensors Applications Include:

HVAC velocity measurement including exhaust fans; Clogged filter detection for A/V equipment, computers and vehicle cabin filters; Clean room and laboratory hood air velocity/direction monitoring.

The Dust Segregation System (DSS)

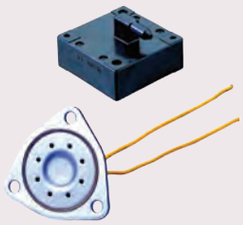
The D6F-P, D6F-W and D6F-V families incorporate a DSS in their internal flow path design. It creates centrifugal forces pulling particulate matter thru a separate flow path away from the sensing element. By keeping the element clean a longer more dependable life is realized for the sensor.

***Contact Omron for other calibration gases. Omron mass flow sensors are compatible with a wide variety of noncorrosive gases including nitrogen, oxygen, carbon dioxide, argon, heliox, nitrogen oxides.**

For Additional Information Call 847.882.2288 • email:components@omron.com
visit www.components.omron.com

Sensors - Pressure/Vibration/Tilt

Pressure Sensors



	2SMPP	D8M
Dimensions mm (in)	8.2H x 6.1L x 4.7W (0.32 x 0.24 x 0.19)	30H x 26D x 30W (D8M-R1) (1.18 x 1.02 x 1.19)
Features	• Piezo Resistive MEMS Gauge Sensor	• Frequency output (D8M-R1) • Pulse count output (D8M-D82)
Specifications		
Applicable Gases	Air	Air (others available)
Presure Range	0-37 kPa (negative pressure version coming soon)	0-196.13 Pa (D8M-R1) 0-4.9kPa (D8M-D82)
Output	-2.5 to 31 mV	1 kHz/9.81 Pa w/80-300 kHz (D8M-R1) 1 pulse / 9.81 Pa (D8M-D82)
Supply Requirements	100µADC	4.2 - 5.5 VDC (D8M-R1) 2.2 - 3.4 VDC (D8M-D82)
Current Consumption	130µADC max.	100 m @ 3V (D8M-D82)
Operating Temp. Range	0°C to +50°C	-10°C to +60°C (D8M-D82)

Vibration/Tilt Sensors

	D7E
Dimensions mm (in)	23.1 H x 23.6 D x 36.4 W (0.91 x 0.93 x 1.43)
Features	• Pure Mechanical Detector • Self Resetting • Quick Connect Terminals • Great option for space heaters or other tilt-sensitive equipment
Contact capacity	0.1mA at 5VDC to 100mA at 30VDC
Contact form	SPST-NC
Operating temp. range	-25° to +60°C
Service life	5000 operations min.
Ordering information	
Part number Vibration	**D7E-1** 130 to 200 gal Seismic Intensity
Part number Vibration	**D7E-2** 100 to 170 gal Seismic Intensity
Part number Tilt	**D7E-3** Operating Angle 50 to 80° Return Angle 25° or greater

Non-Invasive Blood Pressure (NIBP)

Module P/N M3600

Omron's Self contained professional Non-invasive Blood Pressure (NiBP) module combines the hardware and software necessary to perform complete blood pressure measurements utilizing a non-invasive oscillo-metric method. The module includes our proprietary Smart Inflation™ and Dynamic Linear Deflation for added comfort and speed.

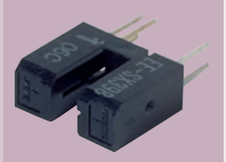
Features:

- Adult/Pediatric/Neonatal
- Pulse Rates: 40 to 240bpm
- Pulse Rate Accuracy: ±2bpm or 2% reading
- Blood Pressure complies with ANSI/AAMI SP10:2002
- Power Supply: 12VDC @ 680mA, 2.0A inrush current
- Dimensions (in): 2.36 x 1.57 x 3.78
- Weight: 0.44 lbs.

Semi-professional M1200 series coming soon!

Sensors - Photomicrosensors

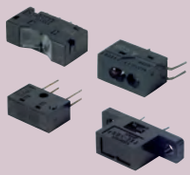
Photo IC - Slotted



	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 • Compatible with 1.0, 1.2, & 1.6 mm PCBs	• Built-in Schmitt trigger circuit • 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

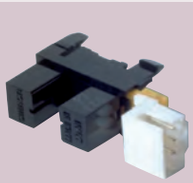
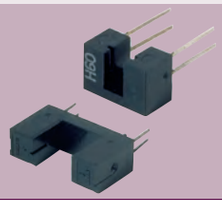
Phototransistor - Reflective



	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 • Infrared LED & photo-transistor assure long life	• Sensor housing reduces external light's influence • 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.

Sensors - Photomicrosensors

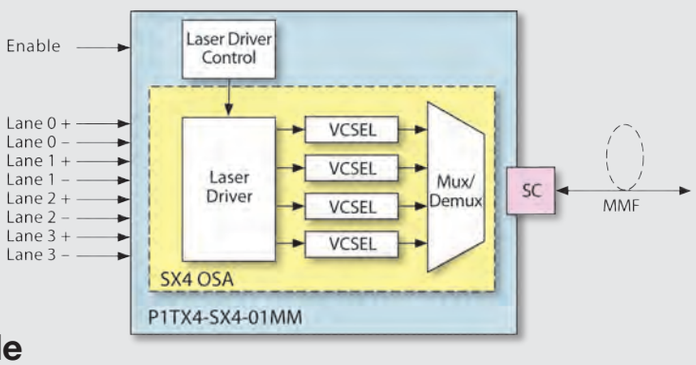
	Phototransistors - Slotted			Photo IC - Slotted
				
	Non-Amplified	**Non-Amplified**	**Non-Amplified**	**Non-Amplified**
Sub-category	Slotted phototransistor with connector	Miniature PCB mount transmissive	Slotted surface mount phototransistor output	Slotted actuator adaptable photo IC output
Models	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-SA407-P2
Connection type	Connector*	PCB mount	Surface mount	Connector*
Features	• Electrical connections using AMP connector • Compact and high-resolution	• Infrared LED & phototransistor for long life • Narrow aperture slit for high resolution sensing • Compact size	• Ultra-compact • High-resolution sensing with phototransistor output • Ideal for restricted space applications	• Snap in mounting • Actuator can be attached
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	—
Max. collector dissipation (mW)	100mW	100mW	75mW	250mW
Operating temperature (°C)	–25° to +95°C	–25° to +85°C	–30° to +85°C	–20° to +75°C
Forward voltage (V)	1.2V typ.	1.2 to 1.3V	1.1V typ.	7V (supply voltage)
Light current (mA)	0.6mA to 14mA max.	0.03 to 14mA max.	0.05 to 0.50mA	16mA (output current)
Collector-emitter saturated voltage (V)	0.4V max.	0.4V max.	0.1V typ.	—
Rising time (low to high)	8µS typ.	4µS typ. (10µS typ.: EE-SX1103, EE-SX1105, EE-SX1106)	10µS typ.	—
Falling time (high to low)	8µS typ.	4 µS typ. (10µS typ.: EE-SX1103, EE-SX1105, EE-SX1106)	10µS typ.	—
	*Applicable Mating Connector AMP 175778-3 AMP 173977-3			*Applicable Mating Connector AMP 175778-3 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.

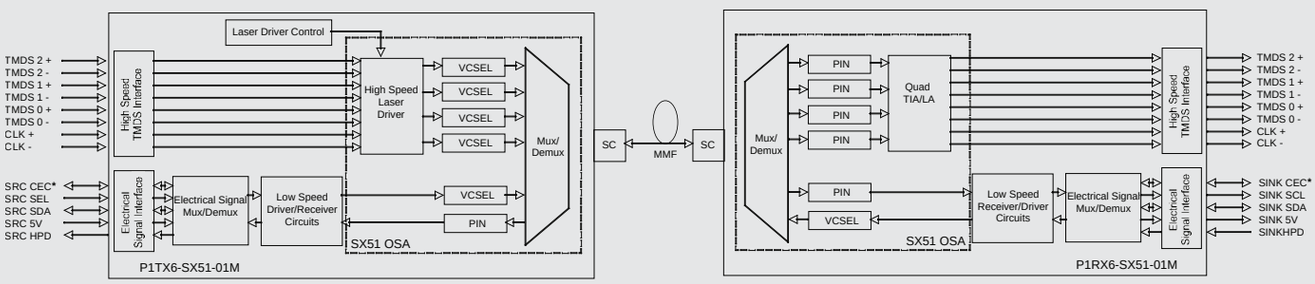
Fiber Optic - TOSA/ROSA

	SX4 Mini Module	SX51 Module
Features	• Four isolated channels on one multi-mode fiber • Designed to allow transmission over 300m of 50µ multi-mode fiber at 3.5Gbps • Integrated driver & TIA/LA • Ideal for DVI applications	• Enables an HDMI signal to be sent uncompressed over a single multimode fiber. • The P1TX/RX6-SX51-01M will maintain full HDCP/EDID compliance over a single fiber.
Number of Channels	4	6
Directivity	Unidirectional	Bidirectional
Fiber Type	One Multimode Fiber	One Multimode Fiber
Data Rate per Channel (High Speed Channels) **"V" version** **"D" version**	 1.65 Gb/s 3.50 Gb/s	 1.65 Gb/s 3.50 Gb/s
Aggregate Data Rate **"V" version** **"D" version**	 6.6 Gb/s 14.0 Gb/s	 6.6 Gb/s 14.0 Gb/s
Data Input	PECL, CML, and LVDS	TMDS, HDMI
Data Output	CML	TMDS, HDMI
Optical Connector Type	SC	SC
Electrical Connector Type	FPC (ZIF)	Plug Down (PCB mount)

Block Diagram of SX4 MM



Block Diagram of SX51M Module



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