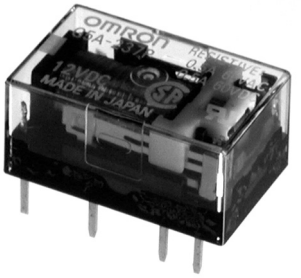
Low Signal Relay
G5A

- Subminiature 8.40 H x 9.90 W x 16 L mm (0.33 H x 0.38 W x 0.63 L in).
- Unique moving magnet armature reduces relay size, magnetic interference, and contact bounce time.
- Low nominal power consumption (200 mW).
- Bifurcated crossbar contact assures highly reliable switching of loads as low as 10 mVDC, 0.1 mA (reference value).
- Automatic flow or dip soldering possible.
- Available in standard, high-sensitivity, high-dielectric (FCC part 68), low thermoelectromotive force, and ultrasonic cleaning versions.
- Highly stable magnetic circuit for latching endurance and excellent resistance to vibration and shock.
- Single or double coil winding types available.



Ordering Information

To Order: Select the part number and add the desired coil voltage rating (e.g., G5AU-234P-*DC12*).

■ Non-Latching

Type	Contact form	Construction	Model
Standard	DPDT	Semi-sealed	**G5A-237P**
		Sealed	**G5A-234P**
High-sensitivity		Semi-sealed	**G5A-237PH**
		Sealed	**G5A-234PH**
FCC part 68		Semi-sealed	**G5A-237P-FC**
		Sealed	**G5A-234P-FC**

Note: High-sensitivity versions of the FC type are also available.

■ Latching

Type	Contact form	Construction	Model	
			Single-winding latching	Double-winding latching
Standard	DPDT	Semi-sealed	**G5AU-237P**	**G5AK-237P**
		Sealed	**G5AU-234P**	**G5AK-234P**
High-sensitivity		Semi-sealed	**G5AU-237PH**	**--**
		Sealed	**G5AU-234PH**	**--**
FCC part 68		Semi-sealed	**G5AU-237P-FC**	**G5AK-237P-FC**
		Sealed	**G5AU-234P-FC**	**G5AK-234P-FC**

Specifications

■ Contact Data

Load	Resistive load (p.f. = 1)	Inductive load (p.f. = 0.4) (L/R = 7 ms)
Rated load	0.50 A at 30 VAC, 1 A at 30 VDC	0.10 A at 30 VAC, 0.20 A at 30 VDC
Contact material	Ag (Au clad)	
Carry current	1 A	
Max. operating voltage	125 VAC, 125 VDC	
Max. operating current	1 A (AC) 1 A (DC)	0.50 A (AC) 0.50 A (DC)
Max. switching capacity	37.50 VA, 33 W	12.50 VA 11 W
Min. permissible load	10 μA, 10 mVDC	

■ Coil Data

Standard Non-latching and FCC Part 68 Type (G5A-237P, G5A-234P, G5A-237P-FC, G5A-234P-FC)

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω)	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption (mW)
			Armature OFF	Armature ON	% of rated value			
5	40	125	0.13	0.12	70% max	10% min.	150%	Approx. 200
6	33.30	180	0.17	0.16				
9	22.20	405	0.43	0.40				
12	16.70	720	0.71	0.68				
24	8.30	2,880	2.76	2.70				
48	5.80	8,230	7.44	7.25				Approx. 280

High-sensitivity Non-latching Type (G5A-237PH, G5A-234PH)

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω)	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption (mW)
			Armature OFF	Armature ON	% of rated value			
5	30	167	0.17	0.16	80% max.	10% min.	180%	Approx. 150
6	25	240	0.22	0.21				
9	16.70	540	0.58	0.54				
12	12.50	960	1	0.96				
24	6.50	3,700	3.90	3.80				

Single-winding Latching Type. Standard and FCC Part 68 Version (G5AU-237P, G5AU-234P, G5AU-237P-FC, G5AU-234P-FC)

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω)	Coil inductance (ref. value) (H)		Set pick-up voltage	Reset dropout voltage	Maximum voltage	Power consumption (mW)
			Armature OFF	Armature ON	% of rated value			
3	66.70	45	0.02	0.02	80% max.	80% min.	200%	Approx. 200
5	40	125	0.06	0.05				
6	33.30	180	0.08	0.07				
9	22.20	405	0.17	0.14				
12	16.70	720	0.29	0.24				
24	8.30	2,880	1.10	0.85				

Double-winding Latching Type. Standard and FCC Part 68 Version (G5AK-237P, G5AK-234P, G5AK-237P-FC, G5AK-234P-FC)

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω)	Coil inductance (ref. value) (H)		Set pick-up voltage	Reset dropout voltage	Maximum voltage	Power consumption (mW)
			Armature OFF	Armature ON	% of rated value			
3	66.70	45	0.02	0.02	80% max.	80% max.	200% max.	Approx. 200
5	40	125	0.06	0.05				
6	33.30	180	0.08	0.07				
9	22.20	405	0.17	0.14				
12	16.70	720	0.29	0.24				
24	8.30	2,880	1.10	0.85				

Single-winding Latching Type. High-sensitivity Version (G5AU-237PH, G5AU-234PH)

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω)	Coil inductance (ref. value) (H)		Set pick-up voltage	Reset dropout voltage	Maximum voltage	Power consumption (mW)
			Armature OFF	Armature ON	% of rated value			
5	20	250	--	--	80% max.	80% max.	200% max.	Approx. 200
6	16.70	360	--	--				
9	11.10	810	--	--				
12	8.40	1,440	--	--				
24	4.20	5,760	--	--				

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C (73°F) with a tolerance of ±10%.

2. The operating characteristics are measured at a coil temperature of 23°C (73°F).

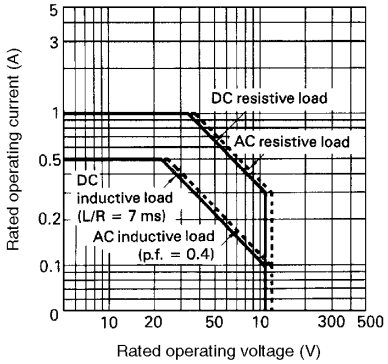
■ Characteristics

Type		Non-latching	Latching
Contact resistance		50 mΩ max.	
Operate (set) time		5 ms. max. (mean value approx 2.4 ms)	5 ms. max. (mean value opprox. 2.0 ms)
Release (reset) time		5 ms. max. (mean value approx. 1.1 ms)	5 ms. max. (mean value approx. 1.8 ms)
Bounce time	**Operate**	Approx. 0.5 ms	
	Release	Approx. 0.5 ms	
Operating frequency	**Mechanical**	36,000 operations/hour	
	Electrical	18,000 operations/hour (under rated load)	
Insulation resistance		1,000 mΩ min. (at 500 VDC)	1,000 mΩ min. (at 250 VDC)
Dielectric strength	**--**	1,000 VAC, 50/60 Hz for 1 minute between coil and contacts	
		1,000 VAC, 50/60 Hz for 1 minute between contacts of different poles	
	Standard	500 VAC, 50/60 Hz for 1 minute between contacts of same pole	
	FC	750 VAC, 50/60 Hz for 1 minute between contacts of same pole	
	Set and reset coils	--	250 VAC, 50/60 Hz for 1 minute
Vibration	**Mechanical durability**	10 to 55 Hz; 1.50 mm (0.06 in) double amplitude	
	Malfunction durability	Malfunction durability10 to 55 Hz; 1.50 mm (0.06 in) double amplitude	
Shock	**Mechanical durability**	Approx. 100 G	
	Malfunction durability	Approx. 30 G	
Ambient temperature		-40 to 70°C (-40 to 158°F)	
Humidity		45% to 85% RH	
Service life	**Mechanical**	50 million operations min. (at 18,000 operations/hour)	1 million operations min. (at 18,000 operations/hour)
	Electrical	See “Characteristic Data”	
Weight		Approx. 3 g (0.11 oz)	

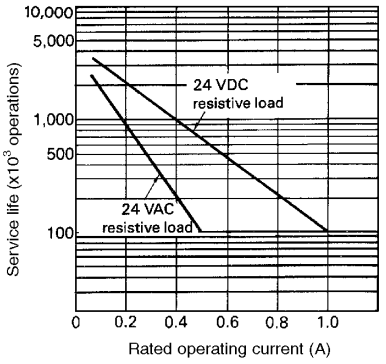
Note: Data shown are of initial value.

■ Characteristic Data

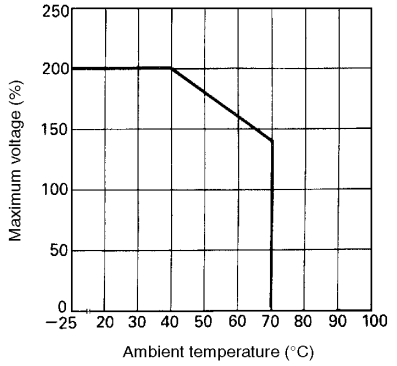
Maximum Switching Capacity



Electrical Service Life



Ambient Temperature vs. Maximum Voltage (reference only)

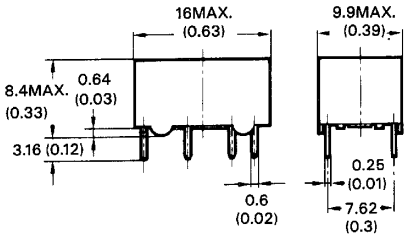


Dimensions

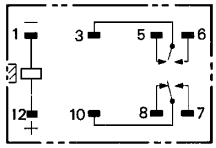
Unit: mm (inch)

■ Non-latching

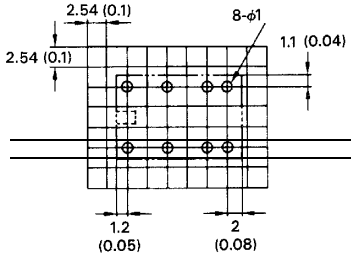
G5A-237P, G5A-237PH, G5A-237P-FC



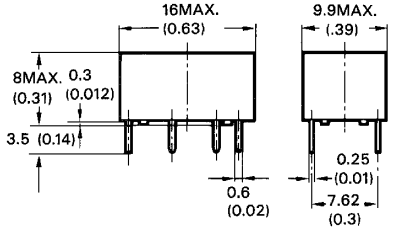
Internal connections
(Bottom view)



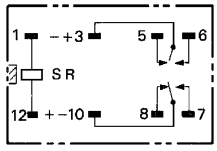
Footprint
(Bottom view)



G5A-234P, G5A-234PH, G5A-234P-FC



Internal connections
(Bottom view)



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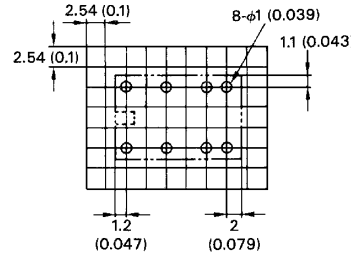
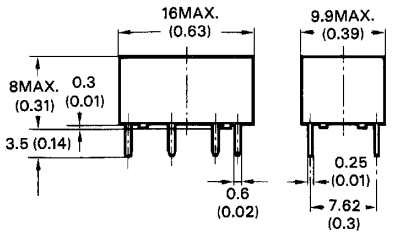


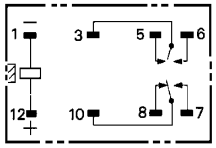
Note: 1. ▨ and ⬚ indicate mounting orientation marks.

■ Latching

G5AU-237P, G5AU-237PH, G5AU-237P-FC



Internal connections
(Bottom view)



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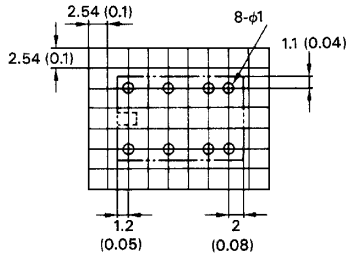
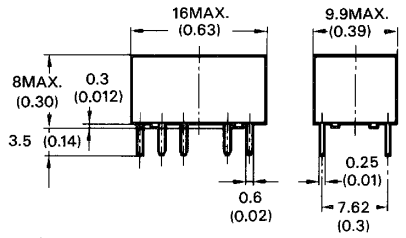
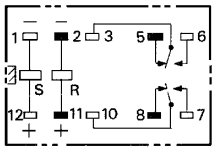
(Bottom view)



G5AK-237P, G5AK-237PH, G5AK-237P-FC



Internal connections
(Bottom view)



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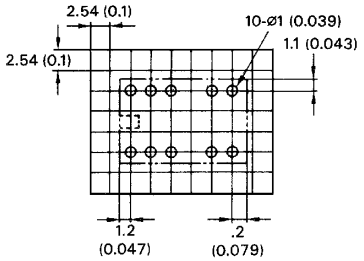
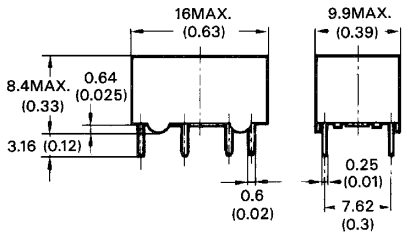
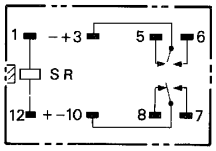


G5AU-234P, G5AU-234PH, G5AU-234P-FC



Internal connections
(Bottom view)



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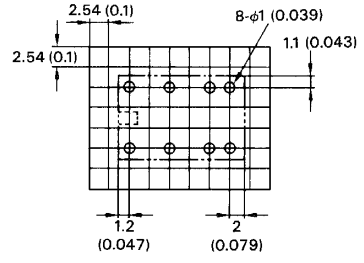
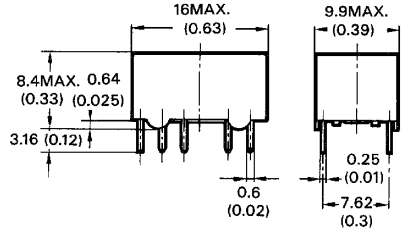
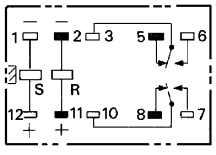
(Bottom view)



G5AK-234P, G5AK-234PH, G5AK-234P-FC



Internal connections
(Bottom view)



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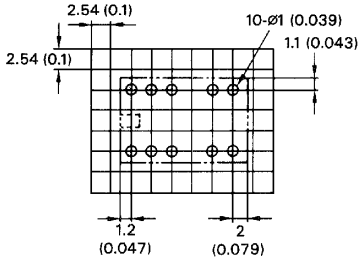
(Bottom view)



Note: 1. ▨ and [ ] indicate mounting orientation marks.

■ Approvals

UL (File No. E41515)/CSA (File No. LR24825)

Type	Contact form	Coil ratings	Contact ratings
G5A-234P G5A-234PH G5A-234P-FC G5A-237P	DPDT	1.5 to 48 VDC	0.5 A, 60 VAC 1 A, 30 VDC
G5A-237PH G5A-237P-FC G5AU-237P G5AU-237PH G5AU-237P-FC G5AK-237P G5AK-237P-FC G5AU-234P G5AU-234PH G5AU-234P-FC G5AK-234P G5AK-234P-FC			0.5 A, 60 VAC 0.5 A, 60 VDC 1 A, 30 VDC

Note: 1. The rated values approved by each of the safety standards (e.g., UL and CSA) may be different from the performance characteristics individually defined in this catalog.

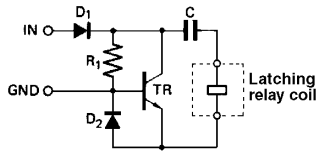
2. In the interest of product improvement, specifications are subject to change.

Hints on Correct Use

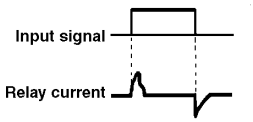
Single-winding type (G5AU)
Example of low-power drive circuit

1. The figure below shows a drive circuit (JAPAN PAT. NO. 1239293) in which the latching relay can function like a general-purpose relay from a normal input pulse for switching.

2. Use a charging current of capacitor C to operate the latching relay, which flows suddenly through diode D1, capacitor C, latching relay, and diode D2, and the relay contacts will be put in the locked state.



3. Use a discharging current of capacitor C to release the latching relay, which flows through transistor TR, capacitor C, and the latching relay.



Note: 1. When applying the relay for practical use, make sure of the set or reset state of the relay; then determine the circuit constraints.

2. Because OMRON possesses the patent of this drive circuit, contact OMRON when adopting it.

Certain Terms and Conditions of Sale

1. Offer; Acceptance. These terms and conditions (these "Terms") are deemed part of all catalogs, manuals or other documents, whether electronic or in writing, relating to the sale of goods or services (collectively, the "Goods") by Omron Electronic Components LLC and its subsidiary companies ("Seller"). Seller hereby objects to any terms or conditions proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms. Please contact your Omron representative to confirm any additional terms for sales from your Omron company.
2. Prices. All prices stated are current, subject to change without notice by Seller. Buyer agrees to pay the price in effect at time of shipment.
3. Discounts. Cash discounts, if any, will apply only on the net amount of invoices sent to Buyer after deducting transportation charges, taxes and duties, and will be allowed only if (i) the invoice is paid according to Seller's payment terms and (ii) Buyer has no past due amounts owing to Seller.
4. Orders. Seller will accept no order less than $200 net billing.
5. Governmental Approvals. Buyer shall be responsible for, and shall bear all costs involved in, obtaining any government approvals required for the importation or sale of the Goods.
6. Taxes. All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Seller or required to be collected directly or indirectly by Seller for the manufacture, production, sale, delivery, importation, consumption or use of the Goods sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Seller.
7. Financial. If the financial position of Buyer at any time becomes unsatisfactory to Seller, Seller reserves the right to stop shipments or require satisfactory security or payment in advance. If Buyer fails to make payment or otherwise comply with these Terms or any related agreement, Seller may (without liability and in addition to other remedies) cancel any unshipped portion of Goods sold hereunder and stop any Goods in transit until Buyer pays all amounts, including amounts payable hereunder, whether or not then due, which are owing to it by Buyer. Buyer shall in any event remain liable for all unpaid accounts.
8. Cancellation; Etc. Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Seller fully against all costs or expenses arising in connection therewith.
9. Force Majeure. Seller shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
10. Shipping; Delivery. Unless otherwise expressly agreed in writing by Seller:
    a. Shipments shall be by a carrier selected by Seller;
    b. Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer;
    c. All sales and shipments of Goods shall be FOB shipping point (unless otherwise stated in writing by Seller), at which point title to and all risk of loss of the Goods shall pass from Seller to Buyer, provided that Seller shall retain a security interest in the Goods until the full purchase price is paid by Buyer;
    d. Delivery and shipping dates are estimates only.
    e. Seller will package Goods as it deems proper for protection against normal handling and extra charges apply to special conditions.
11. Claims. Any claim by Buyer against Seller for shortage or damage to the Goods occurring before delivery to the carrier must be presented in writing to Seller within 30 days of receipt of shipment and include the original transportation bill signed by the carrier noting that the carrier received the Goods from Seller in the condition claimed.
12. Warranties. (a) Exclusive Warranty. Seller's exclusive warranty is that the Goods will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Seller (or such other period expressed in writing by Seller). Seller disclaims all other warranties, express or implied. (b) Limitations. SELLER MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE GOODS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE GOODS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. Seller further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Goods or otherwise of any intellectual property right. (c) Buyer Remedy. Seller's sole obligation hereunder shall be to replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Good or, at Seller's election, to repay or credit Buyer an amount equal to the purchase price of the Good; provided that in no event shall Seller be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Goods unless Seller's analysis confirms that the Goods were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any goods by Buyer must be approved in writing by Seller before shipment. Seller shall not be liable for the suitability or unsuitability or the results from the use of Goods in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.
13. Damage Limits; Etc. SELLER SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE GOODS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY. Further, in no event shall liability of Seller exceed the individual price of the Good on which liability is asserted.
14. Indemnities. Buyer shall indemnify and hold harmless Seller, its affiliates and its employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not Seller is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Goods. Without limiting the foregoing, Buyer (at its own expense) shall indemnify and hold harmless Seller and defend or settle any action brought against Seller to the extent that it is based on a claim that any Good made to Buyer specifications infringed intellectual property rights of another party.
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ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
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