G6ALow Signal Relay

World's Standard Model G6A!

- Resistant to electromagnetic interference, enables high-density mounting.
- Impulse withstand voltage of 1,500V meets FCC requirements.
- Gold-clad twin-contacts provide short contact bounce in addition to its high contact reliability.
- A variety of products that cover a wide range of use.

RoHS Compliant



■Model Number Legend



1. Relay Function

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

2. Contact Form

2: DPDT (2c)

3. Contact Type

7: Bifurcated crossbar Ag (Au-Alloy)

4. Protective Structure

4: Fully sealed

5. Terminal Shape

P: PCB Terminals

6. Classification

None : Standard

ST : Stand-off 0.64 mm

15 : High-sensitivity (150 mW)

40 : Low-sensitivity

(Single-side Stable: 400 mW Double-winding Latching: 360 mW)

7. Approved Standards

None : Standard US : UL/C-UL

■Application Examples

- Telecommunication equipment
- · Security equipment
- Test & measurement equipment

■Ordering Information

●UL/C-UL Certified Models

Relay Function	Classification	Contact form	Model	Rated coil voltage (VDC)	Minimum packing unit	
	Standard		G6A-274P-ST-US	3, 4.5, 5, 6, 9, 12, 24		
	Staridard		G0A-274F-31-03	48		
Single-side Stable	Low-sensitivity		G6A-274P-ST40-US	3, 5, 6, 9, 12, 24		
Туре	LOW-Serisitivity		G0A-2/4F-3140-03	48		
	High-sensitivity		G6A-274P-ST15-US G6AU-274P-ST-US	3, 5, 6, 9, 12, 24		
		DPDT (2c)		48	25 pcs/tube	
Single-winding	Standard	DPD1 (20)		3, 4.5, 5, 6, 9, 12, 24	25 pcs/tube	
Latching Type	Stariuaru			48		
	Standard		G6AK-274P-ST-US	3, 4.5, 5, 6, 9, 12, 24		
Double-winding	Stariuaru		G0AR-2/4F-51-05	48		
Latching Type	Lauraanaitivitus			3, 5, 6, 9, 12, 24		
	Low-sensitivity		G6AK-274P-ST40-US	48	1	

Note: When ordering, add the rated coil voltage to the model number.

Example: G6A-274P-ST-US DC3

Rated coil voltage

However, the notation of the coil voltage on the product case as well as on the packing will be marked as \square VDC.

■Ratings

●Coil: Single-side Stable (Standard Models)

Contact form	Rated voltage	Rated current (mA)	Coil resistance	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
		(IIIA)	(Ω)		% of rated voltage		
	3 VDC	66.7	45			200% (at 23°C)	
	4.5 VDC	44.6	101	70% max.	10% min.		Approx. 200
	5 VDC	40.0	125				
DDDT (0a)	6 VDC	33.3	180				
DPDT (2c)	9 VDC	22.2	405				
	12 VDC	16.7	720				
	24 VDC	8.3	2,880				
	48 VDC	4.9	9,750				Approx. 235

- Note 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.
 - 2. Operating characteristics are measured at a coil temperature of 23°C.
 - 3. The maximum voltage is the highest voltage that can be imposed on the relay coil.

●Coil: Single-side Stable (Low-sensitivity Models)

Contact form	Rated voltage	Rated current (mA)	t Coil resistance	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)	
		(IIIA)	(Ω)		% of rated voltage			
	3 VDC	133.3	22.5		10% min.	150% (at 23°C)	Approx. 400	
	5 VDC	80	62.5	70% max.				
	6 VDC	66.7	90					
DPDT (2c)	9 VDC	44.3	203					
	12 VDC	33.3	360					
	24 VDC	16.7	1,440					
	48 VDC	8.3	5,760					

- Note 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.
 - 2. Operating characteristics are measured at a coil temperature of 23°C.
 - 3. The maximum voltage is the highest voltage that can be imposed on the relay coil.

●Coil: Single-side Stable (High-sensitivity Models)

Contact form	Rated voltage	ated voltage Rated current	Coil resistance	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption
		(mA)	(Ω)		% of rated voltage		(mW)
	3 VDC	50	60			200% (at 23°C)	
	4.5 VDC	33.3	135	80% max.	10% min.		Approx. 150
	5 VDC	30	167				
DDDT (0a)	6 VDC	25	240				
DPDT (2c)	9 VDC	16.7	540				
	12 VDC	12.5	960				
	24 VDC	6.3	3,840				
	48 VDC	3.2	15,000				

- Note 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.
 - 2. Operating characteristics are measured at a coil temperature of 23°C.
 - 3. The maximum voltage is the highest voltage that can be imposed on the relay coil.

●Coil: Single-winding Latching

Contact form	Data d valtage	Rated current	Coil resistance	Set voltage (V)	Reset voltage (V)	Max. voltage (V)	Power consumption
Contact form	Rated voltage	(mA)	(Ω)		% of rated voltage		
	3 VDC	33.7	89			200% (at 23°C)	Approx. 100
	5 VDC	20	250				
	6 VDC	16.7	360				
DPDT (2c)	9 VDC	11.1	810	70% max.	70% max.		
	12 VDC	8.3	1,440				
	24 VDC	4.2	5,760				
	48 VDC	2.5	19,000				Approx. 120

- Note 1. The rated current and coil resistance are measured at a coil temperature of $23^{\circ}C$ with a tolerance of $\pm 10^{\circ}$.
 - 2. Operating characteristics are measured at a coil temperature of 23°C.
 - 3. The maximum voltage is the highest voltage that can be imposed on the relay coil.



●Coil: Double-winding Latching (Standard Models)

Contact form	Rated voltage	Rated current	Coil resistance	Set voltage (V)	Reset voltage (V)	Max. voltage (V)	Power consumption
Contact form	hateu voitage	(mA)	(Ω)		% of rated voltage		
	3 VDC	66.7	45			200% (at 23°C)	Approx. 200
	4.5 VDC	40.2	112	- 70% max.	70% max.		
	5 VDC	36	139				
DPDT (2c)	6 VDC	30	200				Approx. 180
DFD1 (20)	9 VDC	20	450				Арргох. 160
	12 VDC	15	800				
	24 VDC	7.5	3,200				
	48 VDC	4.2	11,520				Approx. 200

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

- Operating characteristics are measured at a coil temperature of 23°C.
 The maximum voltage is the highest voltage that can be imposed on the relay coil.

●Coil: Double-winding Latching (Low-sensitivity Models)

Contact form	Rated voltage	Rated current	Coil resistance	Set voltage (V)	Reset voltage (V)	Max. voltage (V)	Power consumption
Contact form	hated voitage	(mA)	(Ω)		% of rated voltage		
	3 VDC	120	25				
	4.5 VDC	79.9	56.3	70% max.	70% max.	150% (at 23°C)	Approx. 360
	5 VDC	72.5	69				
DPDT (2c)	6 VDC	60	100				
DPD1 (20)	9 VDC	40	225				
	12 VDC	30	400				
	24 VDC	15	1,600				
	48 VDC	7.5	6,400				

- Note 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of $\pm 10\%$.

 - 2. Operating characteristics are measured at a coil temperature of 23°C.3. The maximum voltage is the highest voltage that can be imposed on the relay coil.

●Contacts

Load	Resistive load	Inductive load $\left(\cos\phi = 0.4; \atop L/R = 7 \text{ ms}\right)$	
Contact type	Bifurcated	d crossbar	
Contact material	Ag (Au-Alloy) contact		
Rated load	0.5 A at 125 VAC; 0.3 2 A at 30 VDC		
Rated carry current	3	A	
Max. switching voltage	250 VAC, 220 VDC		
Max. switching current	2 A	1 A	

■Characteristics

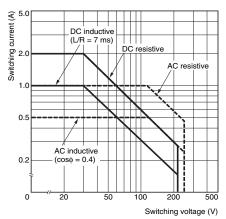
Item		Classification	Single-side Stable	Single-winding Latching	Double-winding Latching			
Contact r	esistano	ce *1	$50~\text{m}\Omega$ max.					
Operate	(set) tim	е	5 ms max.	max.				
Release	(reset) ti	me	3 ms max.	5 ms	max.			
Min. set/r	reset sig	nal width	-	10	ms			
Insulation	n resista	nce *2	1,00	$00~\text{M}\Omega$ min. (at 500 VDC); except for set-re	eset			
	Betwee	en coil and contacts		1,000 VAC, 50/60 Hz for 1 min				
Dielectric	Betwee	en contacts of the colarity		1,000 VAC, 50/60 Hz for 1 min				
strength		en contacts of nt polarity	1,000 VAC, 50/60 Hz for 1 min					
	Between set and reset coils		-	-	250 VAC, 50/60 Hz for 1 min			
Impulse v	withstan	d voltage	1,500 V (10 × 160 μs) (conforms to FCC Part 68)					
Vibration		Destruction	10 to 55 to 10 Hz, 2.5 mm single amplitude (5 mm double amplitude)					
resistanc	е	Malfunction	10 to 55 to 10 Hz, 1.65 mm single amplitude (3.3 mm double amplitude)					
Shock		Destruction	1,000 m/s ²					
resistanc	е	Malfunction	500 m/s ²	300 m/s²				
Durability	,	Mechanical	100,00	00,000 operations min. (at 36,000 operatio	ns/hr)			
Electrical		Electrical	500,000 operations min. (at 1,800 operations/hr)					
Failure rate (P level) *3		vel) *3	10 μA at 10 m VDC					
Ambient	Ambient operating temperature		-40°C to 70°C (with no icing or no condenstion)					
Ambient	Ambient operating humidity		5% to 85%					
Weight	Weight		Approx. 3.5 g					

Note: The data shown above are initial values.

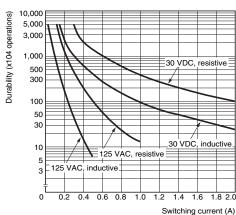
- *1. The contact resistance was measured with 10 mA at 1 VDC with a voltage drop method.
- *2. The insulation resistance was measured with a 500 VDC megohmmeter applied to the same parts as those used for checking the dielectric strength (except between the set and reset coil).
- *3. This value was measured at a switching frequency of 60 operations/min and the criterion of contact resistance is 50 Ω. This value may vary, depending on switching frequency, operating conditions, expected reliability level of the relay, etc. It is always recommended to double-check relay suitability under actual load conditions.

■Engineering Data

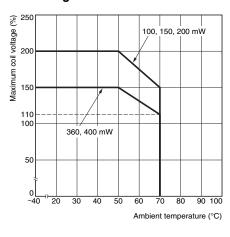
●Maximum Switching Power



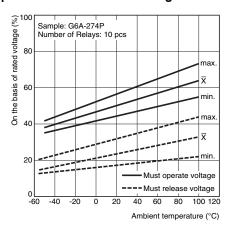
Durability



●Ambient Temperature vs. Maximum Coil Voltage

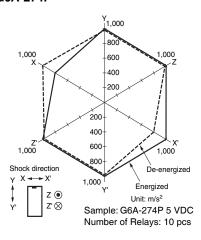


● Ambient Temperature vs. Must Operate or Must Release Voltage

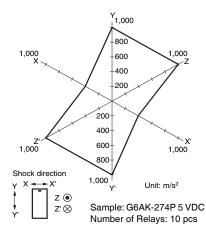


Note: "Maximum voltage" is the maximum voltage that can be applied to the Relay coil.

●Shock Malfunction G6A-274P

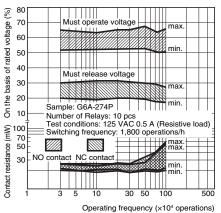


G6AK-274P

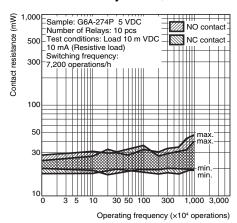


Test Conditions: Shock is applied in $\pm X$, $\pm Y$, and $\pm Z$ directions three times each with and without energizing the Relays to check the number of contact malfunctions.

●Electrical Durability Test *1

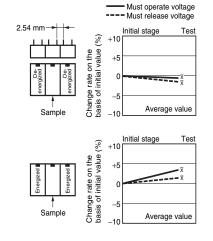


●Contact Reliability Test *1, *2

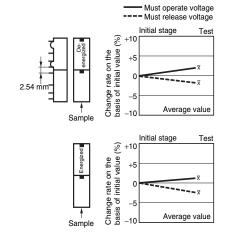


- *1. The tests were conducted at an ambient temperature of 23°C.
- *2. The contact resistance data are periodically measured reference values and are not values from each monitoring operation. Contact resistance values will vary according to the switching frequency and operating environment, so be sure to check operation under the actual operating conditions before use.

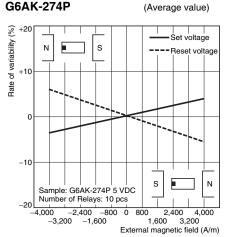
●Mutual Magnetic Interference G6A-274P



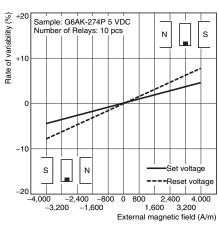
G6A-274P



●External Magnetic Interference

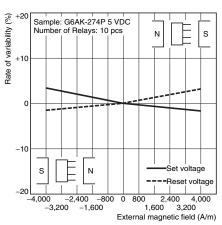






G6AK-274P

(Average value)

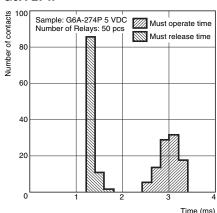


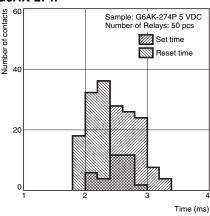
(Average value)

●Time distribution of Operating and Release/Set and Reset *1

G6A-274P



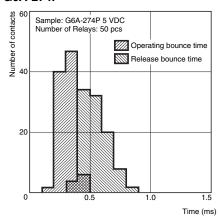


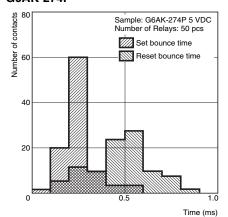


●Bounce Time distribution of Operating and Release/Set and Reset *1

G6A-274P

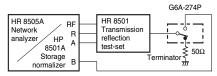
G6AK-274P





High-frequency Characteristics

Measurement Conditions



Terminals which were not being measured were terminated with 50 Ω .

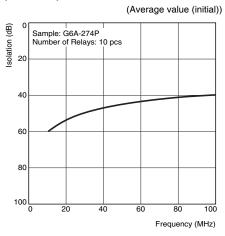
Measuring impedance: 50 Ω

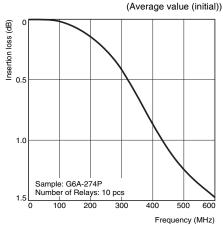
Note: The high-frequency characteristics data were measured using a dedicated circuit board and actual values will vary depending on the usage conditions. Check the characteristics of the actual equipment being used.

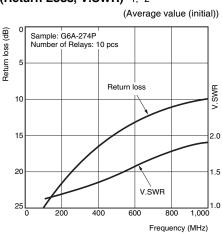
●High-frequency Characteristics (Isolation) *1, *2

●High-frequency Characteristics (Insertion Loss) *1, *2

●High-frequency Characteristics (Return Loss, V.SWR) *1, *2





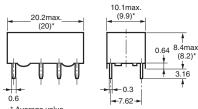


- 1. The tests were conducted at an ambient temperature of 23°C.
- *2. High-frequency characteristics depend on the PCB to which the Relay is mounted. Always check these characteristics, including durability, in the actual machine before use.

■Dimensions

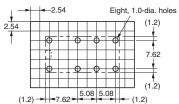
Single-side stable G6A-274P-ST-US G6A-274P-ST40-US G6A-274P-ST15-US





* Average value Note: Each value has a tolerance of ±0.3 mm.

PCB Mounting Holes (BOTTOM VIEW) Tolerance: ±0.1



Note: Orientation marks are indicated as follows: []

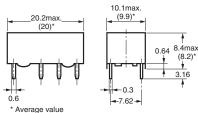
Terminal Arrangement/ Internal Connections (BOTTOM VIEW)



Note: Check carefully the coil polarity of the Relay.

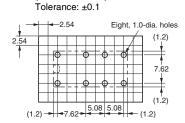
Single-winding latching G6AU-274P-ST-US





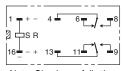
Note: Each value has a tolerance of ±0.3 mm.

PCB Mounting Holes (BOTTOM VIEW)



Note: Orientation marks are indicated as follows: 🗒 🏻

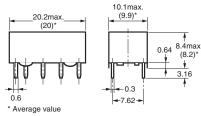
Terminal Arrangement/ Internal Connections (BOTTOM VIEW)



Note: Check carefully the coil polarity of the Relay.

Double-winding latching G6AK-274P-ST-US G6AK-274P-ST40-US

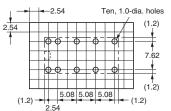




Note: Each value has a tolerance of ±0.3 mm.

PCB Mounting Holes (BOTTOM VIEW)

Tolerance: ±0.1



Note: Orientation marks are indicated as follows: 🗍 🛛

Terminal Arrangement/ Internal Connections (BOTTOM VIEW)



Note: Check carefully the coil polarity of the Relay.

■Approved Standards

To order the model that is certified for the UL/C-UL standards, add "-US" to the end of the model number.

UL/C-UL Recognized. (File No.E41515)

Classification	Contact form	Coil ratings	Model	Contact ratings	Number of test operations
Single-side stable			G6A-274P-ST-US		
Latching	DPDT (2c)	3 to 48 VDC	G6AK-274P-ST-US G6AU-274P-ST-US	0.6 A, 125 VAC at 40°C 2 A, 30 VAC at 40°C	6,000
Low-sensitivity			G6A(K)-274P-ST40-US	0.6 A, 110 VAC at 40°C	
High-sensitivity			G6A-274P-ST15-US		

■Precautions

●Please refer to "PCB Relays Common Precautions" for correct use.

Correct Use

●Long-term Continuously ON Contacts

Using the Relay in a circuit where the Relay will be ON continuously for long periods (without switching) can lead to unstable contacts because the heat generated by the coil itself will affect the insulation, causing a film to develop on the contact surfaces. We recommend using a latching relay (magnetic-holding relay) in this kind of circuit. If a single-side stable model must be used in this kind of circuit, we recommend using a fail-safe circuit design that provides protection against contact failure or coil burnout.

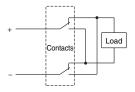
●Relay Handling

When washing the product after soldering the Relay to a PCB, use a water-based solvent or alcohol-based solvent, and keep the solvent temperature to less than 40°C. Do not put the Relay in a cold cleaning bath immediately after soldering.

●Double-switching load in two poles

Double-switching in two poles as shown in the figure below, one pole and two pole interval may become MBB (Make Before Break) mechanically according to the timing of the point of contact switching (By the short-circuit mode), and the malfunction might be caused.

In such a circuit, direct electric switching should be avoided, and concern for contact to be carried after the contact of Relay absolutely switches in condition of no load.



Contact: www.omron.com/ecb

Note: Do not use this document to operate the Unit.

Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
 Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

Mouser Electronics

Authorized Distributor

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G6AK-274P-ST-US-DC5 G6A-274P-ST-US-DC12 G6A-274P-ST-US-DC5 G6A-274P-ST-US-DC5 G6A-274P-ST-US-DC6 G6A-274P-ST15-US-DC9 G6A-274P-ST15-US-DC5 G6A-274P-ST15-US-DC6 G6A-274P-ST15-US-DC9 G6A-274P-ST15-US-DC12 G6A-274P-ST15-US-DC24 G6A-274P-ST15-US-DC48 G6A-274P-ST-US-DC3 G6A-274P-ST-US-DC6 G6AU-274P-ST-US-DC9 G6AU-274P-ST-US-DC9 G6AU-274P-ST-US-DC9 G6AU-274P-ST-US-DC9 G6AU-274P-ST-US-DC9 G6AU-274P-ST-US-DC9 G6AU-274P-ST-US-DC9 G6AK-274P-ST-US-DC9 G6A-274P-ST-US-DC9 G6A-2

ПОСТАВКА ЭЛЕКТРОННЫХ КОМПОНЕНТОВ

многоканальный

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001 Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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http://moschip.ru/get-element

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В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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