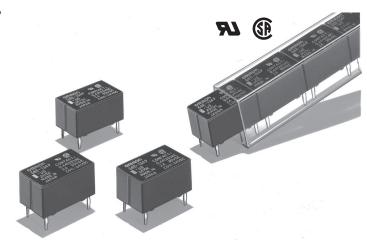
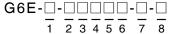
G6E Low Signal Relay

Subminiature, Sensitive SPDT Signal Switching Relay

- High sensitivity: 98-mW (Rated power consumption: 200mW) pickup coil power.
- Impulse withstand voltage of 1,500V (10×160 μs) meets
 FCC requirements.
- Stick packing employed in consideration of supporting automatic implementation.
- Plastic-sealed model that allows automatic soldering.
- New series of ultrasonically cleanable models is available.
- Standard model conforms to UL/CSA standards.



■Model Number Legend



1. Relay Function

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

2. Number of poles/ Contact Form

1: 1-pole/SPDT (1c)

3. Contact Type

3: Bifurcated crossbar Ag (Au-Alloy) contact

4. Enclosure Rating

4: Fully sealed

5. Terminals Shape

P: PCB terminals

6. Classification

None : Standard

L : Low sensitivity coil

(400 mW)

7. Approved Standards

US: UL, CSA (UL: FILE No.E41515 (CSA: FILE No.LR31928)

8. Special Function

None: Standard

U : For ultrasonically

cleanable

■Application Examples

- Telecommunication equipment
- Office automation machines
- Industrial equipment
- · Security equipment

■Ordering Information

Standard Models (UL, CSA certified)

Relay Function	Single-side stable			Single-winding latching		Double-winding latching						
Classification	Star	dard	Low-sensitivity		Standard		Standard		Low-sensitivity		Minimum packing	
Contact form	Model	Rated coil	Model	Rated coil	Model	Rated coil	Model	Rated coil	Model	Rated coil	unit	
Oomact form	Model	voltage	Wiodei	voltage	voltage	voltage		voltage	Wiodei	voltage		
		5 VDC	G6E -134PL-US	5 VDC	G6EU -134P-US	5 VDC	G6EK -134P-US	5 VDC	G6EK -134PL-US	5 VDC	- 25 pcs/tube	
	G6E	6 VDC		6 VDC		6 VDC		6 VDC		6 VDC		
SPDT (1c)		9 VDC		9 VDC		9 VDC		9 VDC		_		
3FDT (10)	-134P-US	12 VDC		12 VDC	1041 00	12 VDC		12 VDC		12 VDC		
		24 VDC		24 VDC		24 VDC		24 VDC		24 VDC		
		48 VDC	_	-	_	-	-	-	_	-		

Models for Ultrasonically Cleanable

		-							
Relay Function		Single-s	ide stable		Single-winding latching		Double-winding latching		
Classification	Standard		Low-sensitivity		Standard		Standard		Minimum packing
Contact form	Model	Rated coil voltage	Model	Rated coil voltage	Model	Rated coil voltage	Model	Rated coil voltage	unit
		5 VDC	- G6E -134PL-US-U	5 VDC	- G6EU 134P-US-U	5 VDC	- G6EK 134P-US-U	5 VDC	25 pcs/tube
	G6E	6 VDC		-		-		-	
SPDT (1c)		9 VDC		_		-		-	
SPDT (TC)	-134P-US-U	12 VDC		12 VDC		12 VDC		12 VDC	
		24 VDC		24 VDC		-		24 VDC	
		48 VDC	_	_	_	_		_	

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

Example: G6E-134P-US DC5

Rated coil voltage

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

■Ratings

●Coil: Single-side Stable

Classification	Rated voltage	Rated current (mA)	Coil resistance (Ω)	voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
	5 VDC	40.0	125	/	or raiou vona	90	
	6 VDC	33.3	180			190% (at 23°C)	
	9 VDC	22.2	405				Approx. 200
Standard	12 VDC	16.7	720	70% max.	10% min.		
	24 VDC	8.3	2,880				
	48 VDC	8.3	5,760			170% (at 23°C)	Approx. 400
	5 VDC	79.4	63			170% (at 23°C)	
	6 VDC	66.6	90		10% min.		
Low-sensitivity	9 VDC	44.3	203	70% max.			Approx. 400
	12 VDC	33.3	360				
	24 VDC	16.7	1,440				

●Coil: Single-winding latching

Contact type	Rated voltage	Rated current (mA)	Coil resistance (Ω)	(V)	Must reset voltage (V)	Max. voltage (V) Power consump		'
			` ,		% of rated voltage	Set coil (mW)	Reset coil (mW)	
Bifurcated crossbar	5 VDC	40.0	125		70% max.	190% (at 23°C)	Approx. 200	Approx. 200
	6 VDC	33.3	180					
	9 VDC	22.2	405	70% max.				
	12 VDC	16.7	720					
	24 VDC	8.3	2,880					

●Coil: Double-winding latching

Classification Rated v	Rated voltage	Rated current (mA)		Coil resistance (Ω)		Must set voltage (V)	Must reset voltage (V)	Max. voltage (V)	Power consumption	
		Set coil	Reset coil	Set coil	Reset coil	% of rated voltage		ge	Set coil (mW)	Reset coil (mW)
	5 VDC	40.0	40.0	40.0 125 125						
	6 VDC	6 VDC 33.3 33.3	33.3	180	180	70% max.	70% max. 190 (at 23	1000/	Approx. 200	Approx. 200
Standard	9 VDC	22.2	22.2	405	405			(at 23°C)		
	12 VDC	16.7	16.7	720	720					
	24 VDC	8.3	8.3	2,880	2,880					
	5 VDC	79.4	79.4	63	63					Approx. 400
	6 VDC	66.6	66.6	90	90		70% max.	170% (at 23°C)		
Low-sensitivity	9 VDC	44.3	44.3	203	203	70% max.			Approx. 400	
	12 VDC	33.3	33.3	360	360					
	24 VDC	16.7	16.7	1,440	1,440					

- 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.
 4. Refer to the engineering data for relations between the ambient temperature and maximum coil voltage.

●Contacts

Load Item	Resistive load	Inductive load $(\cos\phi = 0.4; L/R = 7 ms)$			
Contact type	Bifurcated	d crossbar			
Contact material	Ag (Au	ı-Alloy)			
Rated load	0.4 A at 125 VAC; 2 A at 30 VDC	0.2 A at 125 VAC; 1 A at 30 VDC			
Rated carry current	3	A			
Max. switching voltage	250 VAC, 220 VDC				
Max. switching current	3 A				

■Characteristics (Including Models for Ultrasonically Cleanable)

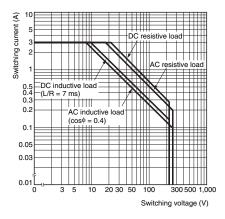
Item	Relay Function	Single-side Stable	Single-winding Latching	Double-winding Latching			
Contact resistance	*1	50 mΩ max.					
Operate (set) time		5 ms max.					
Release (reset) tim	ie	5 ms max.					
Min. set pulse widtl	h	_	– 15 ms				
Min. reset pulse wi	dth	_	15 ms				
Insulation resistance	ce *2		1,000 MΩ min. (at 500 VDC)				
Impulse withstand	Between coil and contacts	2,500	V (10×160 μs) (conforms to FCC p	art 68)			
voltage	Between contacts of same polarity	1,500	V (10×160 μs) (conforms to FCC p	art 68)			
Dielectric strength	Between coil and contacts		1,500 VAC, 50/60 Hz for 1 min				
Dielectric strength	Between contacts of same polarity	ntacts of same polarity 1,000 VAC, 50/60 Hz for 1 min					
Vibration	Destruction	10 to 55 to 10 Hz, 2.5 mm single amplitude (5 mm double amplitude)					
resistance	Malfunction	10 to 55 to 10 Hz, 1.65 mm single amplitude (3.3 mm double amplitude)					
Shock resistance	Destruction 1 000		1,000 m/s ²				
SHOCK resistance	Malfunction		10 to 55 to 10 Hz, 1.65 mm single amplitude (3.3 mm double amplitude)				
	Mechanical						
		100,000 operations min. (0	.4 A at 125 VAC resistive load; 0.2 A	A at 125 VAC inductive load)			
Durability		(at 1,800 operations/hr)					
Durability	Electrical	500,000 operations min. (2 A at 30 VDC resistive load; 1 A at 30 VDC inductive load)					
			(at 1,800 operations/hr)				
		200,000 operations min. (3 A at 30 VDC resistive load) (at 1,800 operations/hr)					
Failure rate (P leve	l) (reference value) *3	10 μA at 10 mVDC					
Ambient operating	temperature	-40°C to 70°C (with no icing or condenstion)					
Ambient operating	humidity	5% to 85%					
Weight		Approx. 2.7 g					

Note: The values here are initial values.

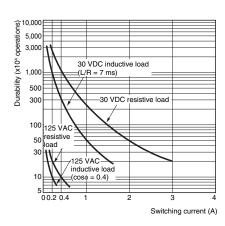
- 1. The contact resistance was measured with 1 A at 5 VDC using a voltage-drop method.
- 2. The insulation resistance was measured with a 500 VDC Megger Tester applied to the same parts as those used for checking the dielectric strength.
- 3. This value was measured at a switching frequency of 120 operations/min and the criterion of contact resistance is 50 Ω. This value may vary depending on the switching frequency and operating environment. Always double-check relay suitability under actual operating conditions.

■Engineering Data

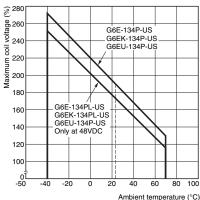
Maximum Switching Power



Durability



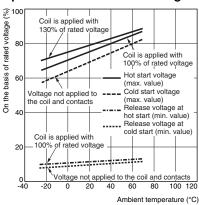
● Ambient Temperature vs. Maximum Coil Voltage



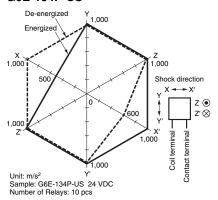
Note: The maximum coil voltage refers to the maximum value in a varying range of

operating power voltage, not a continuous voltage.

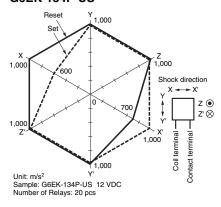
● Ambient Temperature vs. Must Operate or Must Release Voltage



●Shock Malfunction G6E-134P-US

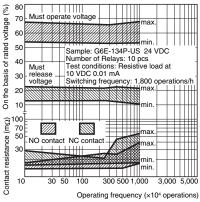


G6EK-134P-US



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

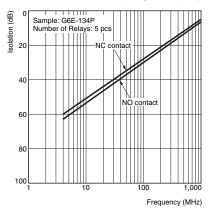
●Contact Reliability Test *1, *2 G6E-134P-US



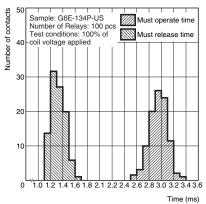
●High-frequency Characteristics (Isolation) *1, *3

G6E-134P-US

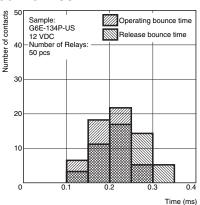
(Average value (initial))



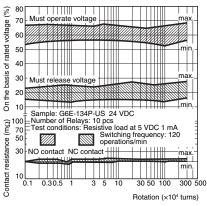
●Must Operate and Must Release Time Distribution *1 G6E-134P-US



●Distribution of Bounce Time *1 G6E-134P-US



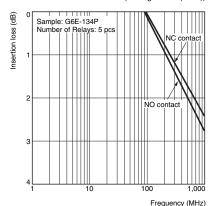
●Contact Reliability Test (70°C) *1, *2 G6E-134P-US



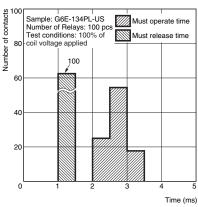
●High-frequency Characteristics (Insertion Loss) *1, *3

G6E-134P-US

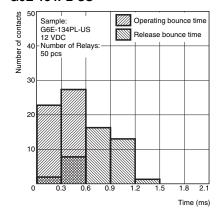
(Average value (initial))



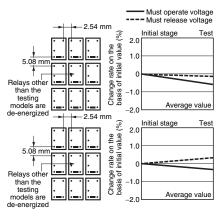
G6E-134PL-US



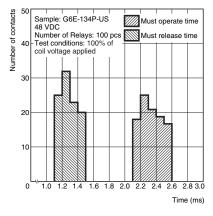
G6E-134PL-US



●Mutual Magnetic Interference G6E-134P-US



G6E-134P-US 48 VDC

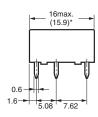


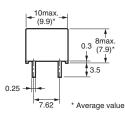
- *1. The tests were conducted at an ambient temperature of 23°C.
- 2. The contact resistance data are periodically measured reference values and are not values from each monitoring operation. Contact resistance values will vary according to the switching frequency and operating environment, so be sure to check operation under the actual operating conditions before use.
- *3. 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 G6E-134P-US **G6E-134PL-US** G6E-134P-US-U G6E-134PL-US-U







PCB Mounting Holes (Bottom View) Tolerance: ±0.1

Five, 1.0 dia. holes (1.19) 7.62



coil polarity.

Terminal Arrangement/

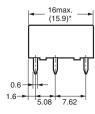
Internal Connections

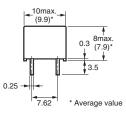
(Bottom View)

(1.65) → 5.08 7.62 → Note: Orientation marks are indicated as follows: 🗒 🏻

Single-winding latching **G6EU-134P-US** G6EU-134P-US-U



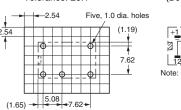




PCB Mounting Holes

6_6

(Bottom View) Tolerance: ±0.1



Terminal Arrangement/ Internal Connections (Bottom View)



Terminal Arrangement/

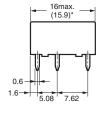
Internal Connections

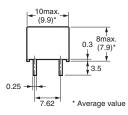
(Bottom View)

Note: Orientation marks are indicated as follows: 🗒 🛮

Double-winding latching G6EK-134P-US G6EK-134PL-US G6EK-134P-US-U



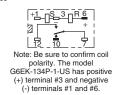




PCB Mounting Holes (Bottom View) Tolerance: ±0.1

(1.65) 5.08 7.62

Six, 1.0 dia. holes (1.19) 7.62



Note: Orientation marks are indicated as follows: \square

■ Approved Standards

• The approval rating values for overseas standards are different from the performance values determined individually. Confirm the values before use.

UL recognized: (File No. E41515) CSA certified: (File No. LR31928)

Model	Contact form	Coil ratings	Contact ratings	Number of test operations	
G6E()-134P()US	SPDT	5 to 48	0.2 A, 250 VAC 0.6 A, 125 VAC	6,000	
	(1c)	VDC	2 A, 30 VDC		
			0.6 A, 125 VDC		

■Precautions

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

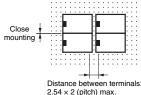
Correct Use

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.

Mounting

- Do not reverse the polarity of the coil (+, -).
- Provide sufficient space between Relays when mounting two or more on the same PCB, as shown in the following diagram.



Wiring

 Refer to the following diagram when wiring to switch a DC load. The difference in polarity applied to the contacts will affect the endurance of the Relay due to the amount of contact movement. To extend the endurance characteristics beyond the performance ratings, wire the common (pin 7) terminal to the positive (+) side.



Ultrasonic Cleaning

 Do not use ultrasonic cleaning on standard relay models. Doing so may result in resonance, coil burnout, and contact adhesion within the Relay.
 Use a model designed for ultrasonic cleaning if ultrasonic cleaning is required.

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.

Please check each region's Terms & Conditions by region website.

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In the interest of product improvement, specifications are subject to change without notice

Cat. No. K024-E1-12 1122 (0207)