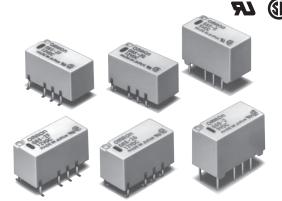
G6S

Surface-mounting Relay

Compact, Industry-Standard 2-pole relay, designed to switch 2A Signal Loads.

- Long terminals for ideal for soldering and mounting reliability. (Surface mounting terminal models)
- Space-saving inside-L terminal. (Surface mounting terminal models)
- Unique terminal structure, designed to withstand IRS soldering processes. (Surface mounting terminal models)
- High dielectric strength (2,000 VAC) and impulse withstand voltage between coil and contacts (2,500 V, $2\times10~\mu s$: Telcordia requirements).
- Ultra-miniature at 9.4 mm (H) × 7.5 mm (W) × 15 mm (L).
- Models available with BSI (EN62368-1) supplementary insulation certification. (-Y type)

RoHS Compliant



■Model Number Legend

1. Relay Function

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

K : Double-winding latching

2. Number of poles/ Contact form

2: 2-pole/DPDT (2c)

3. Terminal Shape

None: PCB terminals

F : Outside-L surface mounting terminalsG : Inside-L surface mounting terminals

4. Approved Standards

None: UL, CSA

Y: UL, CSA, BSI (EN62368-1)

■Application Examples

- Telecommunication equipment
- Measurement devices
- · Office automation machines
- Audio-visual products.
- Security equipment
- Building automation equipment
- Industrial equipment
- Amusement equipment
- · Home appliances

■Ordering Information

Surface mounting terminal standard models

Packing			Tube Packing			Tape Packing			
				Rated coil	Minimum		Rated coil	Minimum	Minimum ordering unit
Enclosure rating	Relay Function	Contact form	Model	voltage	packing unit	Model	voltage	packing unit	(tape packing)
				3 VDC			3 VDC		
			G6S-2F	4.5 VDC		G6S-2F-TR	4.5 VDC		
			G6S-2F	5 VDC		G6S-2F-1R G6S-2G-TR	5 VDC		
	Single-side		400 Z4	12 VDC		400 24 111	12 VDC		
	stable			24 VDC			24 VDC		
			000 05 1/	5 VDC		000 0E V TD	5 VDC		
			G6S-2F-Y G6S-2G-Y	12 VDC	G6S-2F-Y-TR G6S-2G-Y-TR	12 VDC			
			400 Z4 1	24 VDC		G6SU-2F-TR G6SU-2G-TR	24 VDC	400 pcs/reel	800 pcs/2 reels
			G6SU-2F G6SU-2G	3 VDC			3 VDC		
				4.5 VDC	50 pcs/tube		4.5 VDC		
Fully sealed				5 VDC			5 VDC		
	Single-winding			12 VDC			12 VDC		
	latching			24 VDC			24 VDC		
				5 VDC			5 VDC		
			G6SU-2F-Y G6SU-2G-Y	12 VDC		G6SU-2F-Y-TR G6SU-2G-Y-TR	12 VDC		
			G050-2G-1	24 VDC		G050-2G-1-111	24 VDC		
				3 VDC			3 VDC		
	Double-winding latching		G6SK-2F G6SK-2G	4.5 VDC			4.5 VDC		
				5 VDC		G6SK-2F-TR G6SK-2G-TR	5 VDC		
	atting		G0511-2G	12 VDC		G05K-2G-1H	12 VDC		
				24 VDC			24 VDC		

Note 1. When ordering, add the rated coil voltage to the model number.

Example: G6S-2F 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 □□ VDC.

Note 2. When ordering tape packing, add -TR" to the model number.

Be sure since -TR" is n ot part of the relay model number, it is not marked on the relay case.

Note 3. When ordering tape packing, minimum order unit is 2 reels (400 pcs \times 2 = 800 pcs).

Note 4.Surface mounting terminal (SMT) standard models are shipped in moisture-proof package.

•PCB Terminal Standard Models

Enclosure	Enclosure Relay Function		Single-side stable		ding latching	Double-winding latching		Minimum
rating	Contact form	Model	Rated coil voltage	Model	Rated coil voltage	Model	Rated coil voltage	packing unit
			3 VDC		3 VDC	G6SK-2 	3 VDC	- 50 pcs/tube
		G6S-2	4.5 VDC	G6SU-2	4.5 VDC		4.5 VDC	
	DPDT (2c)		5 VDC		5 VDC		5 VDC	
Fully sealed			12 VDC		12 VDC		12 VDC	
i ully sealed			24 VDC		24 VDC		24 VDC	
			5 VDC		5 VDC			
		G6S-2-Y	12 VDC	G6SU-2-Y	12 VDC		-	
			24 VDC		24 VDC			

Note 1. When ordering, add the rated coil voltage to the model number.

Example: G6S-2 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.

Note 2.PCB terminal standard types do not require moisture proof packaging and therefore shipped in non-moisture-proof package.

■Ratings

●Single-side Stable Model

Model	Rated	Item voltage	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
		3	46.7	64.3	75% max.			
000.0		4.5	31	145			200%	Approx. 140
G6S-2 G6S-2F G6S-2G	DC	5	28.1	178		10% min.	(at 23°C)	дрргох. 140
		12	11.7	1,028				
		24	8.3	2,880			170% (at 23°C)	Approx. 200
G6S-2-Y		5	40	125			1700/	Approx 200
G6S-2F-Y	DC	12	16.7	720	75% max.	10% min.	170% (at 23°C)	Approx. 200
G6S-2G-Y		24	9.6	2,504				Approx. 230

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.

Single-winding Latching Model

Model	Rated	Item voltage	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
		3	33.3	90			180% (at 23°C)	
G6SU-2		4.5	22.2	203	75% max. 75% m			Approx. 100
G6SU-2F	DC	5	20	250		75% max.		дрргох. 100
G6SU-2G		12	8.3	1,440				
		24	6.3	3,840				Approx. 150
G6SU-2-Y G6SU-2F-Y DC		5	28.1	178			0000/	
	DC	12	11.7	1,028	75% max.	75% max.	200% (at 23°C)	Approx. 140
G6SU-2G-Y		24	5.8	4,114				

- 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.

Double-winding Latching Model

Model	Rated	Item voltage	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
	DC	3	66.6	45	75% max.		170% (at 23°C) 140% (at 23°C)	Approx. 200
G6SK-2		4.5	44.4	101				
G6SK-2F		5	40	125		75% max.		
G6SK-2G		12	16.7	720		7070 max.		
		24	12.5	1,920				Approx. 300

- 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.

●Contacts

Item Load	Resistive load
nem Load	1 tesistive load
Contact type	Bifurcated crossbar
Contact material	Ag (Au-Alloy)
Rated load	0.5 A at 125 VAC; 2 A at 30 VDC
Rated carry current	2 A
Max. switching voltage	250 VAC, 220 VDC
Max. switching current	2 A

■Characteristics

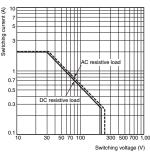
Item	Relay Function	Single-side Stable G6S-2, G6S-2F, G6S-2G	Single-winding Latching G6SU-2, G6SU-2F, G6SU-2G	Double-winding Latching G6SK-2, G6SK-2F, G6SK-2G	Single-side Stable G6S-2F-Y, G6S-2G-Y, G6S-2-Y	Single-winding Latching G6SU-2-Y, G6SU-2F-Y, G6SU-2G-Y			
	sistance *1	75 m Ω max.							
Operate (s	,	4 ms max.							
Release (r	,			4 ms max.					
	set pulse width	-		ms	_	10 ms			
Insulation	resistance *2		1,0	000 M Ω min. (at 500 VD	C)				
	Between coil and contacts	2,000 VAC, 50	/60 Hz for 1 min	1,000 VAC, 50/60 Hz for 1 min	,	60 Hz for 1 min			
Dielectric	Between contacts of different polarity		1,5	00 VAC, 50/60 Hz for 1	min				
strength	Between contacts of the same polarity		1,0	00 VAC, 50/60 Hz for 1 i	min				
	Between set and reset coil	-		500 VAC, 50/60 Hz for 1 min	-				
Insulation distance	Between coil and contacts	Cleara	ince: 1 mm, Creepage:	1.5 mm	Clearance: 2 mm, Creepage: 2 mm				
Impulse	Between coil and contacts	2,500 V (2 × 10 μs);	1,500 V (10 × 160 μs)	1,500 V (10 × 160 μs)	2,500 V (2 × 10 μs); 1,500 V (10 × 160 μs)				
withstand voltage	Between contacts of different polarity	2,500 V (2 × 10 μs); 1,500 V (10 × 160 μs)							
vollage	Between contacts of the same polarity	1,500 V (10 × 160 μs)							
Vibration	Destruction		,	mm single amplitude (5	' '				
resistance	Malfunction		10 to 55 to 10 Hz, 1.65	mm single amplitude (3.3	3 mm double amplitude	e)			
Shock	Destruction			1,000 m/s ²					
resistance	Malfunction	750 m/s ²							
	Mechanical	100,000,000 operations min. (at 36,000 operations/hr)							
Durability	Electrical	100,000 operations min. for AC (at 1,800 operations/h with rated load) 100,000 operations min. for DC (at 1,200 operations/h with rated load)							
Failure rate	e (P level) (reference value) *3			10 μA at 10 m VDC					
Ambient o	perating temperature	-40°C to 85°C (with no icing or condensation), and -40°C to 70°C (with no icing or condensation) only for double-winding latching 24 VDC and -Y type 24 VDC							
Ambient o	perating humidity	5% to 85%							
Weight				Approx. 2 g					

Note: The above values are initial values.

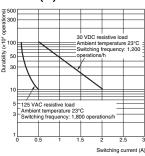
- The contact resistance was measured with 10 mA at 1 VDC with a voltage drop method.
- *2. The insulation resistance was measured with a 500 VDC megohmmeter applied to the same parts as those used for checking the dielectric strength (except
- between the set and reset coil). This value was measured at a switching frequency of 120 operations/min and the criterion of contact resistance is 50Ω . 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

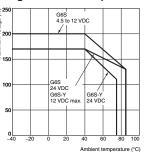
Maximum Switching Capacity



Durability G6S-2F(G)

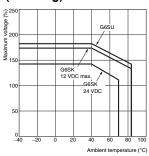


●Ambient Temperature vs. Maximum Voltage (Single-side Stable)



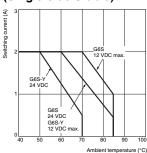
vs. Maximum Voltage (Latching)

● Ambient Temperature

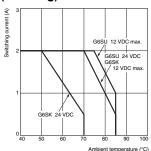


Note: "Maximum voltage" is the maximum voltage that can be applied to the Relay coil.

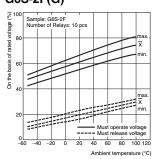
Ambient Temperature vs. Switching Current (Single-side Stable)



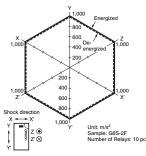
Ambient Temperature vs. Switching Current (Latching)



Ambient Temperature vs. Must Operate or Must Release Voltage G6S-2F(G)

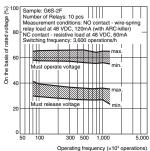


Shock Malfunction G6S-2F(G)

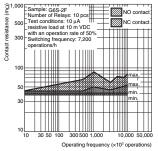


Conditions: Shock is applied in ±X, ±Y, and ±Z directions three times each with and without energizing the Relays to check the number of contact malfunctions.

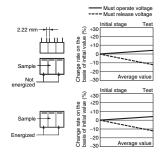
●Electrical Endurance (with Must Operate and Must Release Voltage) *1 G6S-2F(G)



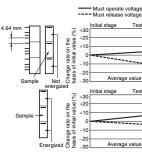
●Contact Reliability Test (Contact Resistance) *1, *2 G6S-2F(G)



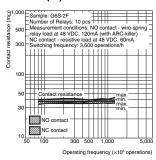
●Mutual Magnetic Interference G6S-2F(G)



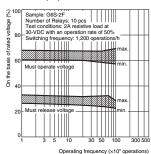
●Mutual Magnetic Interference G6S-2F(G)



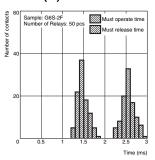
●Electrical Endurance (Contact Resistance) *1 G6S-2F(G)



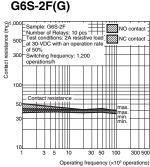
●Electrical Endurance (with Must Operate and Must Release Voltage) *1 G6S-2F(G)



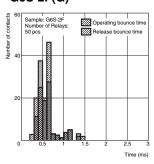
●Must Operate and Must Release Time Distribution *1 G6S-2F(G)



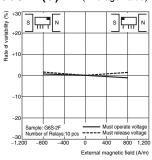
●Electrical Endurance (Contact Resistance) *1 G6S-2F(G)



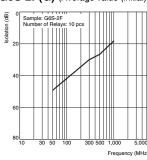
●Distribution of Bounce Time *1 G6S-2F(G)



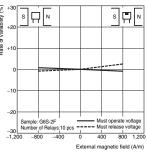
●External Magnetic Interference G6S-2F(G) (Average value)



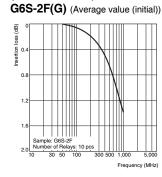
High-frequencyCharacteristics(Isolation) *1, *2G6S-2F(G) (Average value (initial))



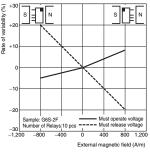
(Average value)



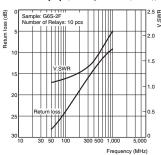
●High-frequency
Characteristics
(Insertion Loss) *1, *3



(Average value)



●High-frequency
Characteristics
(Return Loss, V.SWR) *1, *3
G6S-2F(G) (Average value (initial))

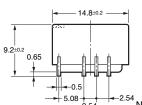


- 1. The tests were conducted at an ambient temperature of 23°C.
- *2. The contact resistance data are periodically measured reference values and are not values from each monitoring operation. Contact resistance values will vary according to the switching frequency and operating environment, so be sure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

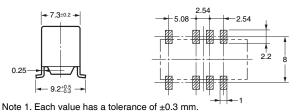
Single-side Stable G6S-2F G6S-2F-Y





- 7.3±0.2 →

Mounting Dimensions (Top View) Tolerance: ±0.1 mm



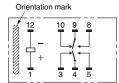
Mounting Dimensions (Top View)

Tolerance: ±0.1 mm

(Bottom View)

Terminal Arrangement/ **Internal Connections**

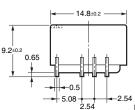
(Top View)



Note: Check carefully the coil polarity of the Relay.

G6S-2G G6S-2G-Y



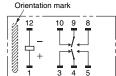


4.9+0.3

-5.08

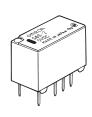
Eight, 1-dia. holes

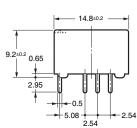
Terminal Arrangement/ **Internal Connections** (Top View)

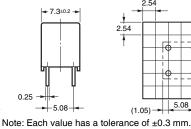


Note: Check carefully the coil polarity of the Relay.

G6S-2 G6S-2-Y





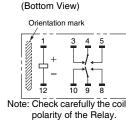


Note 1. Each value has a tolerance of ±0.3 mm. Note 2. The coplanarity of the terminals is 0.1 mm max. **PCB Mounting Holes**

(1.05)

Note 2.The coplanarity of the terminals is 0.1 mm max.

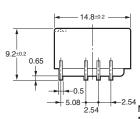
Terminal Arrangement/ Internal Connections



Single-winding Latching



G6SU-2F





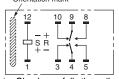
Tolerance: ±0.1 mm

Note 1. Each value has a tolerance of ±0.3 mm. Note 2.The coplanarity of the terminals is 0.1 mm max.

Mounting Dimensions (Top View)

Terminal Arrangement/ Internal Connections

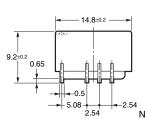
(Top View) Orientation mark

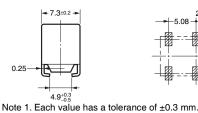


Note: Check carefully the coil polarity of the Relay

G6SU-2G G6SU-2G-Y





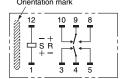


Mounting Dimensions (Top View)

Tolerance: ±0.1 mm

Terminal Arrangement/ Internal Connections (Top View)

Orientation mark



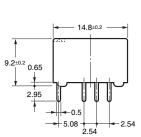
Note: Check carefully the coil polarity of the Relay.

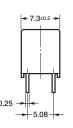
Terminal Arrangement/

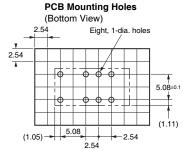
Internal Connections

G6SU-2 G6SU-2-Y









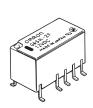
(Bottom View) Ø

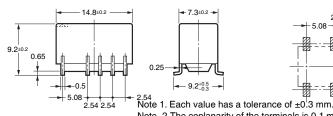
10 Note: Check carefully the coil polarity of the Relay.

9

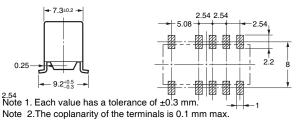
Note: Each value has a tolerance of ±0.3 mm.

Note 2.The coplanarity of the terminals is 0.1 mm max.





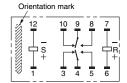
Mounting Dimensions (Top View) Tolerance: ±0.1 mm



Mounting Dimensions (Top View)

Tolerance: ±0.1 mm

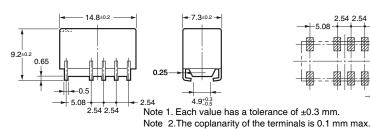
Terminal Arrangement/ Internal Connections (Top View)



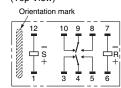
Note: Check carefully the coil polarity of the Relay.

G6SK-2G



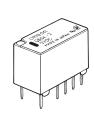


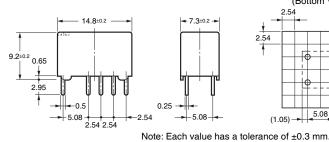
Terminal Arrangement/ Internal Connections (Top View)

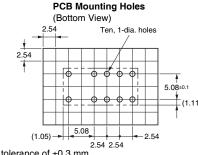


Note: Check carefully the coil polarity of the Relay.

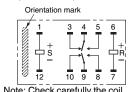
G6SK-2







Terminal Arrangement/ **Internal Connections** (Bottom View)



Note: Check carefully the coil polarity of the Relay.

G 6 S

■Tube Packing and Tape Packing

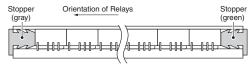
Surface mounting terminal (SMT) standard models are shipped in moisture-proof package, and PCB terminal standard types do not require moisture proof packaging and therefore shipped in non-moisture-proof package.

Please refer to "Correct Use" for handling after opening moisture-proof packaging for Surface mounting terminal (SMT) models.

(1) Tube Packing

• Relays in tube packing are arranged so that the orientation mark of each Relay in on the left side.

Be sure not to make mistakes in Relay orientation when mounting the Relay to the PCB.



Tube length: 772 mm (stopper not included)

No. of Relays per tube: 50 pcs

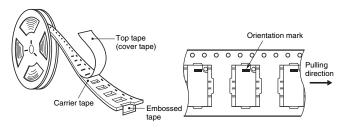
(2) Tape Packing (Surface Mounting Terminal Models)

 When ordering Relays in tape packing, add the prefix "-TR" to the model number, otherwise the Relays in tube packing will be provided.

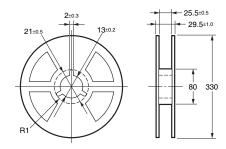
Relays per Reel: 400 pcs

Minimum packing unit: 2 reels (800 pcs)

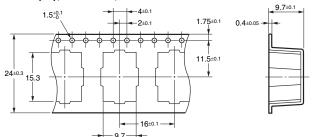
1. Direction of Relay Insertion



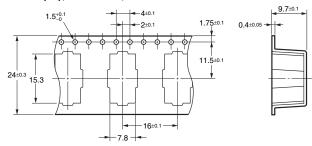
2. Reel Dimensions



3. Carrie Tape Dimensions G6S-2F(-Y), G6SU-2F, G6SK-2F



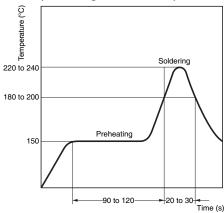
G6S-2G(-Y), G6SU-2G, G6SK-2G



6

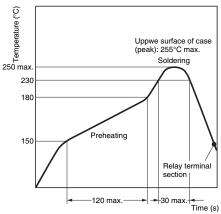
■Recommended Soldering Method

(1) IRS Method (Mounting Solder: Lead)



(The temperature profile indicates the temperature on the circuit board surface.)

(2) IRS Method (Mounting Solder: Lead-free)

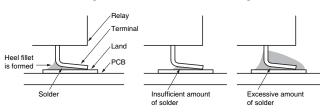


(The temperature profile indicates the temperature on the PCB.)

- \bullet The thickness of cream solder to be applied should be within a range between 150 and 200 μm on OMRON's recommended PCB pattern.
- In order to perform correct soldering, it is recommended that the correct soldering conditions be maintained as shown below on the left side.

Correct Soldering

Incorrect Soldering



Visually check that the Relay is properly soldered.

■Approved Standards

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

Contact form	Coil ratings	Contact ratings	Number of test operations
DPDT (2c)	3 to 24 VDC	3 A, 30 VDC at 40°C 0.3 A, 110 VDC at 40°C 0.5 A, 125 VAC at 40°C	6,000

BSI (EN62368-1) (File No.VC657351)

(-Y type)

Contact form	Isolation category	Voltage
DPDT (2c)	Supplementary Insulation	250 VAC

■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

- Use the Relay as soon as possible after opening the moistureproof package. (As a guideline, use the Relay within one week at 30°C or less and 60% RH or less.) If the Relay is left for a long time after opening the moisture-proof package, the appearance may suffer and seal failure may occur after the solder mounting process. To store the Relay after opening the moisture-proof package, place it into the original package and sealed the package with adhesive tape.
- 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.
- Claw Securing Force During Automatic Mounting

• During automatic insertion of Relays, be sure to set the securing force of each claw to the following so that the Relay's characteristics will be maintained.



Dimension A: 1.96 N max.
Dimension B: 4.90 N max.
Dimension C: 1.96 N max.

Contact: www.omron.com/ecb

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

OMRON Corporation

Electronic and Mechanical Components Company

Cat. No. K093-E1-13 0118(0207)(O)

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.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for omron manufacturer:

Other Similar products are found below:

G9ED-1-B-AQ-DC24 E3X-SD11 2M S8VM-10024C R88A-CCW002P2 S82Y-VM30D H3AM-NS-A AC100-240 44532-2050 G3NA-440B-2 DC5-24 XF2J-0824-11A-R100 G3NA-425B-2 DC5-24 XF2J-0824-12A G8VA-1A4T-R01-DC12 G8HE-1A7T-R-DC12 XF2W-2415-1A XF2U-3015-3A G8V-RH-1A7T-R-DC12 LY1D-2-5S-AC120 CS1G-CPU43-E M22CAT1 61F-GP-NT AC110 M7E-01DGN2-B M7E-02DGN2 M7E-08DRN2 M7E-20DRN1 M7E-HRN2 M8PHWS D2HW-C233MR F03-02 SUS316 F150LTC20 F3SJ-A0245P30 F3STGRNSMC21M1J8 F3UVHM MG2-US-AC24 MK2EP-UA-AC6V MK2PNIAC240 MK310E-DC24 MKS2XTIN-11 DC110 MM4KPAC120NC MM4XPAC120 G2Q-184P-V-DC5 G2R-1114P-V-US-DC5 G2R13SNDDC24 G2RL-2A4-CF-DC48 G2U-114P-US-DC12 G2V-234P-US-DC48 G3CA-8H-AC100/110/120 G3PA-210B-US-DC24 G3PE525B3NDC1224 G3SD-Z01P-PD-US DC24 G3TA-ODX02S DC24