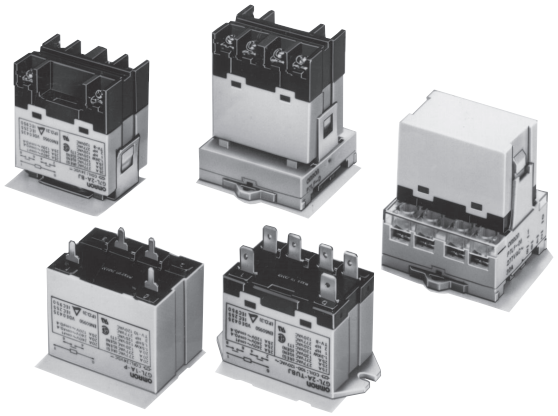
G7L
Power Relay

A High-capacity, High-dielectric-strength Relay Compatible with Momentary Voltage Drops

- No contact chattering for momentary voltage drops up to 50% of rated voltage.
- Wide-range AC-activated coil that handles 100 to 120 or 200 to 240 VAC at either 50 or 60 Hz.
- Miniature size for maximum switching power, particularly for inductive loads.
- Flame-resistance materials (UL94V-0-qualifying) used for all insulation material.
- Quick-connect, screw, and PCB terminals, and DIN track mounting available.
- Conforms to UL, CSA, TUV and meets IEC950.
- Safety design with contact gap of 3 mm.

RoHS Compliant



Note. Accessories: E-bracket, Adapter, Front-connecting socket and Cover sold separately.

■Model Number Legend

G7L-□□-□□□
1 2 3 4 5

1. Number of Poles
1: 1 pole
2: 2 poles

2. Contact Form
A: □PST-NO

3. Terminal Shape
T: Quick connect terminals (#250)
B: Screw terminals
P: PCB terminals

4. Mounting Construction
Blank: E-bracket
UB : Upper bracket

5. Special Functions
J : With test button

■Application Examples

- Compressors for air conditioners and heater switching controllers.
- Switching controllers for power tools or motors.
- Power controllers for water heaters.
- Power controllers for dryers.
- Lamp controls, motor drivers, and power supply switching in copy machines, facsimile machines, and other office equipment.
- Lighting controllers.
- Power controllers for packers or food processing equipment.
- Magnetron control in microwaves.
- Power controllers for Uninterruptible Power Supply (UPS)

■Model Configuration

Classification		Terminal / Contact form	Quick-connect terminals	Screw terminals	PCB terminals
E-bracket mounting (E-bracket is sold separately)	–	SPST-NO	G7L-1A-T	G7L-1A-B	–
		DPST-NO	G7L-2A-T	G7L-2A-B	–
	With test button	SPST-NO	G7L-1A-TJ	G7L-1A-BJ	–
		DPST-NO	G7L-2A-TJ	G7L-2A-BJ	–
Upper bracket mounting	–	SPST-NO	G7L-1A-TUB	G7L-1A-BUB	–
		DPST-NO	G7L-2A-TUB	G7L-2A-BUB	–
	With test button	SPST-NO	G7L-1A-TUBJ	G7L-1A-BUBJ	–
		DPST-NO	G7L-2A-TUBJ	G7L-2A-BUBJ	–
PCB mounting	–	SPST-NO	–	–	G7L-1A-P
		DPST-NO	–	–	G7L-2A-P

■List of E-bracket Mounting Models

Terminal	Contact form	Model	Mounting: Test button	E-brackets	DIN Track Mounting Adapter	Front-connecting Socket
Quick-connect terminals	SPST-NO	G7L-1A-T	–	O	O	O
		G7L-1A-TJ	With test button	O	O	O
	DPST-NO	G7L-2A-T	–	O	O	O
		G7L-2A-TJ	With test button	O	O	O
Screw terminals	SPST-NO	G7L-1A-B	–	O	O	–
		G7L-1A-BJ	With test button	O	O	–
	DPST-NO	G7L-2A-B	–	O	O	–
		G7L-2A-BJ	With test button	O	O	–

Note. Accessories: E-bracket (R99-07), Adapter (P7LF-D), Front-connecting socket (P7LF-06) and Cover (P7LF-C) sold separately.

■Ordering Information

E-bracket/Adapter/Socket Mounting
Quick-connect Terminal

Number of poles	Model	Rated coil voltage	Minimum packing unit
1 pole	**G7L-1A-T**	AC: 12, 24, 100/120, 200/240	20 pcs./tray
		DC: 6, 12, 24, 48, 100	
2 poles	**G7L-2A-T**	AC: 12, 24, 50, 100/120, 200/240	
		DC: 6, 12, 24, 48, 100	

Upper Bracket Mounting
Quick-connect Terminal

Number of poles	Model	Rated coil voltage	Minimum packing unit
1 pole	**G7L-1A-TUB**	AC: 12, 24, 100/120, 200/240	20 pcs./tray
		DC: 6, 12, 24, 48, 100	
2 poles	**G7L-2A-TUB**	AC: 12, 24, 50, 100/120, 200/240	
		DC: 6, 12, 24, 48, 100	

E-bracket/Adapter Mounting
Screw Terminal

Number of poles	Model	Rated coil voltage	Minimum packing unit
1 pole	**G7L-1A-B**	AC: 12, 24, 100/120, 200/240	20 pcs./tray
		DC: 6, 12, 24, 48, 100	
2 poles	**G7L-2A-B**	AC: 12, 24, 100/120, 200/240	
		DC: 12, 24, 48, 100	

Upper Bracket Mounting
Screw Terminal

Number of poles	Model	Rated coil voltage	Minimum packing unit
1 pole	**G7L-1A-BUB**	AC: 24, 100/120, 200/240	20 pcs./tray
		DC: 6, 12, 24, 48, 100	
2 poles	**G7L-2A-BUB**	AC: 12, 24, 50, 100/120, 200/240	
		DC: 6, 12, 24, 48, 100	

PCB Mounting

Number of poles	Model	Rated coil voltage	Minimum packing unit
1 pole	**G7L-1A-P**	AC: 100/120, 200/240	20 pcs./tray
		DC: 12, 24, 48, 100	
2 poles	**G7L-2A-P**	AC: 24, 100/120, 200/240	
		DC: 6, 12, 24, 48, 100	

DIN Track Mounting Accessories

Applicable products	Name	Model	Minimum packing unit
Adaptor Surface Connection Socket	DIN Track	**PFP-100N**	10 pcs.
		PFP-50N	
		PFP-100N2	
	End plate	**PFP-M**	
	Spacer	**PFP-S**	

Note. Order the models above in increments of the minimum quantity packaged.

E-bracket/Adapter/Socket Mounting (with test button)
Quick-connect Terminal

Number of poles	Model	Rated coil voltage	Minimum packing unit
1 pole	**G7L-1A-TJ**	AC: 24, 100/120, 200/240	20 pcs./tray
		DC: 12, 24, 48, 100	
2 poles	**G7L-2A-TJ**	AC: 24, 100/120, 200/240	
		DC: 6, 12, 24, 48, 100	

Upper Bracket Mounting (with test button)
Quick-connect Terminal

Number of poles	Model	Rated coil voltage	Minimum packing unit
1 pole	**G7L-1A-TUBJ**	AC: 24, 100/120, 200/240	20 pcs./tray
		DC: 6, 12, 24, 48, 100	
2 poles	**G7L-2A-TUBJ**	AC: 12, 24, 50, 100/120, 200/240	
		DC: 6, 12, 24, 48, 100	

E-bracket/Adapter Mounting (with test button)
Screw Terminal

Number of poles	Model	Rated coil voltage	Minimum packing unit
1 pole	**G7L-1A-BJ**	AC: 12, 24, 100/120, 200/240	20 pcs./tray
		DC: 12, 24	
2 poles	**G7L-2A-BJ**	AC: 24, 100/120, 200/240	
		DC: 12, 24, 48, 100	

Upper Bracket Mounting (with test button)
Screw Terminal

Number of poles	Model	Rated coil voltage	Minimum packing unit
1 pole	**G7L-1A-BUBJ**	AC: 24, 100/120, 200/240	20 pcs./tray
		DC: 6, 12, 24, 48	
2 poles	**G7L-2A-BUBJ**	AC: 24, 100/120, 200/240	
		DC: 6, 12, 24, 48, 100	

Note 1. When ordering, add the rated coil voltage to the model number.
Example: G7L-1A-T AC12
└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. Refer to the precautions on **PCB Relays provided in General Information of the Relay Product Data Book**, and "w -□-3" for coil characteristics of AC operation.

E-bracket/Adaptor/Socket/Cover

Applicable Relay models	Name	Model	Minimum packing unit
G7L-1A-T G7L-1A-TJ G7L-1A-B G7L-1A-BJ G7L-2A-T G7L-2A-TJ G7L-2A-B G7L-2A-BJ	E-bracket	**R99-07**	10 pcs.
	Adapter	**P7LF-D**	1 pcs.
G7L-1A-T G7L-1A-TJ G7L-2A-T G7L-2A-TJ	Front-connecting Socket	**P7LF-06**	1 pcs.
G7L-1A-B G7L-1A-BJ G7L-1A-BUB G7L-1A-BUBJ G7L-2A-B G7L-2A-BJ G7L-2A-BUB G7L-2A-BUBJ	Cover	**P7LF-C**	1 pcs.

Note. Order the models above in increments of the minimum quantity packaged.

■Ratings

Coil

Item / Rated voltage	Rated current (mA)	Coil resistance (Ω)	Coil inductance (H) Armature ON	Coil inductance (H) Armature OFF	Must operate voltage	Must release voltage	Max. permissible voltage	Power consumption (VA-W)
					On the basis of rated voltage			
12 VAC	142				75% max.	15% min.	110%	Approx. 1.7 to 2.5
24 VAC	71							
50 VAC	34							
100 to 120 VAC	17.0 to 20.4				75 V max.	18 V min.	132 V	
200 to 240 VAC	8.5 to 10.2				150 V max.	36 V min.	264 V	
6 VDC	317	18.9	0.09	0.21	75% max.	15% min.	110%	Approx. 1.9
12 VDC	158	75	0.37	0.88				
24 VDC	79	303	1.42	3.54				
48 VDC	40	1220	6.1	15.3				
100 VDC	19	5260	21.3	60.0				

Note 1. The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of +15%/-20% for AC rated current and ±15% for DC coil resistance.
2. The inductances shown above are reference values.
3. Performance characteristic data are measured at a coil temperature of 23°C.
4. The maximum allowable coil voltage refers to the maximum value in a varying range of operating power voltage, measured at ambient temperature 23°C.
5. The "to" (for example "100 to 120") represents the range of rated voltages.

Contacts

Item / Contact Form / load	G7L-1A-T□ G7L-1A-B□ Resistive load	G7L-1A-T□ G7L-1A-B□ Inductive load (cosϕ = 0.4)	G7L-2A-T□ G7L-2A-B□ Resistive load	G7L-2A-T□ G7L-2A-B□ Inductive load (cosϕ = 0.4)	G7L-1A-P G7L-2A-P Resistive load	G7L-1A-P G7L-2A-P Inductive load (cosϕ = 0.4)
Contact type	Double break					
Contact material	Ag alloy					
Rated load	30 A at 220 VAC	25 A at 220 VAC	25 A at 220 VAC		20 A at 220 VAC	
Rated carry current	30 A		25 A		20 A	
Max. switching voltage	250 VAC					
Max. switching current	30 A		25 A		20 A	

Note. When using B-series (screw) products, since the screw diameter of the contact terminal is M4, be careful that the contact current should be 20 A or less according to JET standard (electrical appliance and material control law of Japan).

■Characteristics

Contact resistance *1		50 mΩ max.
Operate time *2		30 ms max.
Release time *3		30 ms max.
Max. operating frequency	Mechanical	1,800 operations/hr
	Rated load	1,800 operations/hr
Insulation resistance *3		1,000 MΩ min
Dielectric strength	Between coil and contacts	4,000 VAC min., 50/60 Hz for 1 min
	Between contacts of same polarity	2,000 VAC, 50/60 Hz for 1 min
	Between contacts of different polarity (DPST-NO model)	2,000 VAC, 50/60 Hz for 1 min
Impulse withstand voltage		10,000 V between coil and contact *4
Vibration resistance	Destruction	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)
	Malfunction	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)
Shock resistance	Destruction	1,000 m/s²
	Malfunction	100 m/s²
Endurance	Mechanical	1,000,000 operations min. (at 1,800 operations/hr)
	Electrical *5	100,000 operations min. (at 1,800 operations/hr under rated load)
Failure rate (P level) (reference value *6)		100 mA at 5 VDC
Weight		Approx. 90 g: Quick-connect terminal models Approx. 100 g: PCB terminal models Approx. 120 g: Screw terminal models

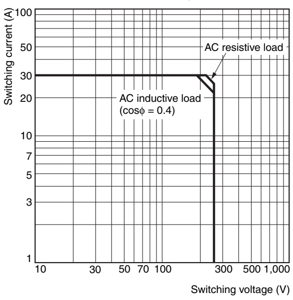
Note. The values given above are initial values.
*1. Measurement conditions: 5 VDC, 1 A, voltage drop method.
*2. Measurement conditions: Rated operating voltage applied, not including contact bounce. Ambient temperature: 23°C
*3. Measurement conditions: The insulation resistance was measured with a 500-VDC megohmmeter at the same locations as the dielectric strength was measured.
*4. JEC-212 (1981) Standard Impulse Wave Type (1.2x50μs).
*5. Ambient temperature: 23°C
*6. This value was measured at a switching frequency of 60 operations/min.

Ambient operating temperature	-25°C to 60°C (with no icing or condensation)
Ambient operating humidity	5% to 85%

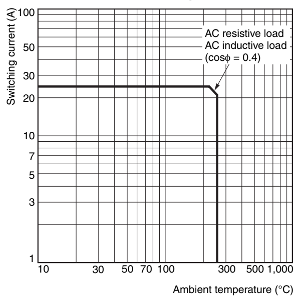
G
7
L

■Engineering Data

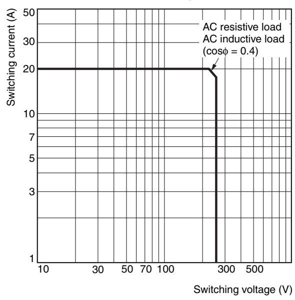
G7L-1A-T (TJ) (TUB) (TUBJ) G7L-1A-B (BJ) (BUB) (BUBJ) Maximum Switching Power



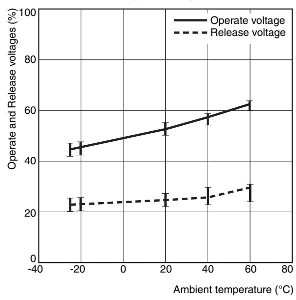
G7L-2A-T (TJ) (TUB) (TUBJ) G7L-2A-B (BJ) (BUB) (BUBJ) Maximum Switching Power



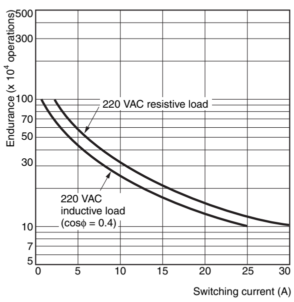
G7L-1A-P G7L-2A-P Maximum Switching Power



Ambient Temperature vs. Operate and Release Voltage G7L-1A VAC (60 Hz)



Endurance



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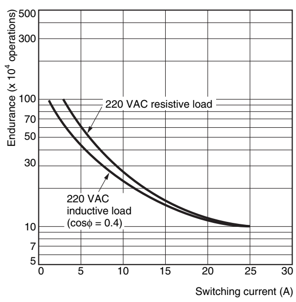

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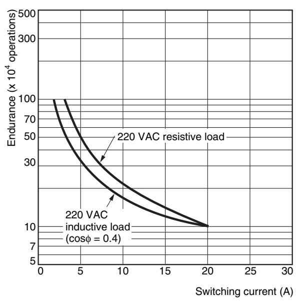

G7L-1A VDC