

## ■ Ratings

### Coil

Item	Rated current (mA)	Coil resistance (Ω)	Coil inductance (H)		Must operate voltage	Must release voltage	Max. permissible voltage	Power consumption (VA-W)
			Armature ON	Armature OFF				
Rated voltage			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							
200 to 240 VAC	8.5 to 10.2							
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□		G7L-2A-T□ G7L-2A-B□		G7L-1A-P G7L-2A-P	
		Resistive load	Inductive load (cosφ = 0.4)	Resistive load	Inductive load (cosφ = 0.4)	Resistive load	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

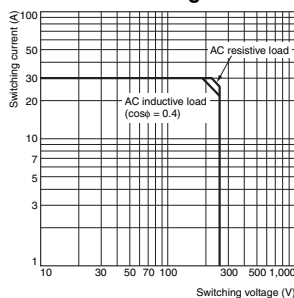
Contact resistance *1	50 mΩ max.	
Operate time *2	30 ms max.	
Release time *3	30 ms max.	
Max. operating frequency	Mechanical	1,800 operations/hr
	Rated load	1,800 operations/hr
Insulation resistance *3	1,000 MΩ min	
Dielectric strength	Between coil and contacts	4,000 VAC min., 50/60 Hz for 1 min
	Between contacts of same polarity 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/s <sup>2</sup>
	Malfunction	100 m/s <sup>2</sup>
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.

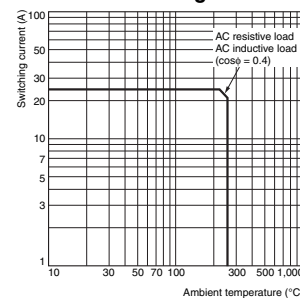
Ambient operating temperature	-25°C to 60°C (with no icing or condensation)
Ambient operating humidity	5% to 85%

## ■ Engineering Data

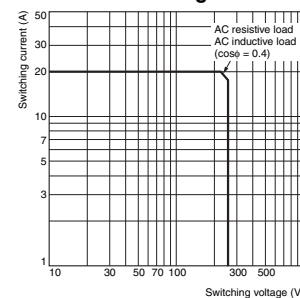
**G7L-1A-T (TJ) (TUB) (TUBJ)  
G7L-1A-B (BJ) (BUB) (BUBJ)  
Maximum Switching Power**



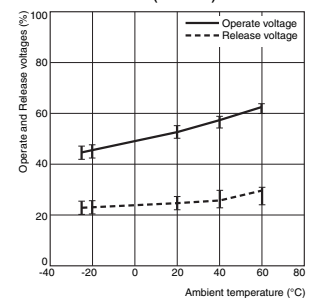
**G7L-2A-T (TJ) (TUB) (TUBJ)  
G7L-2A-B (BJ) (BUB) (BUBJ)  
Maximum Switching Power**



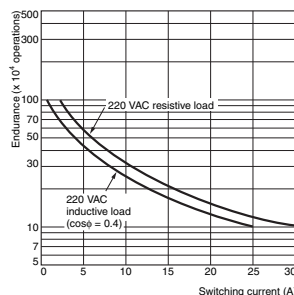
**G7L-1A-P  
G7L-2A-P  
Maximum Switching Power**



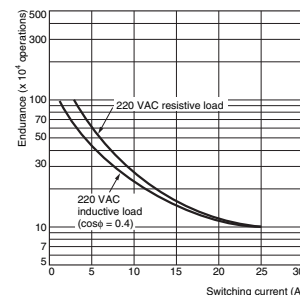
**Ambient Temperature vs. Operate and Release Voltage  
G7L-1A VAC (60 Hz)**



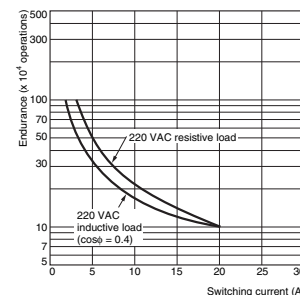
### Endurance



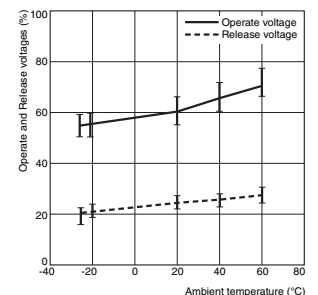
### Endurance



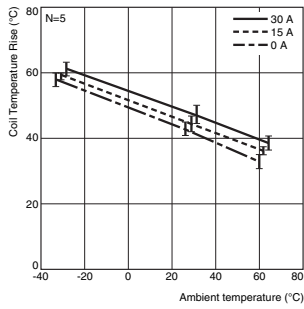
### Endurance



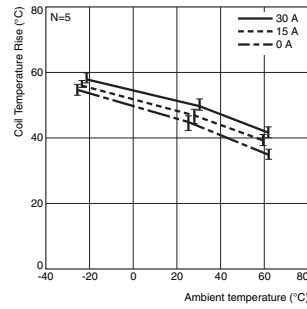
### G7L-1A VDC



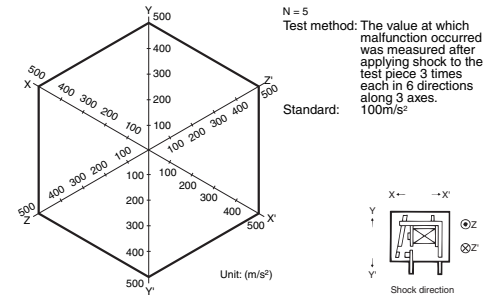
## Ambient Temperature vs. Coil Temperature Rise G7L-1A 120 VAC (50 Hz)



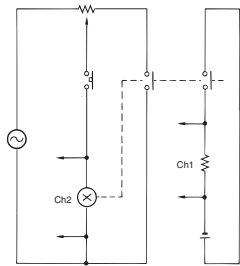
## G7L-1A VDC



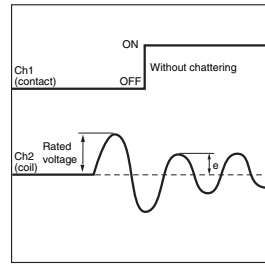
## Shock Malfunction G7L-2A-T (TUB) 100 to 120 VAC



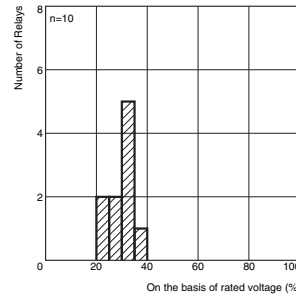
## Momentary Voltage Drop Test G7L-2A-T (TUB) 100 to 120 VAC Test Circuit



## Wave resulted from test

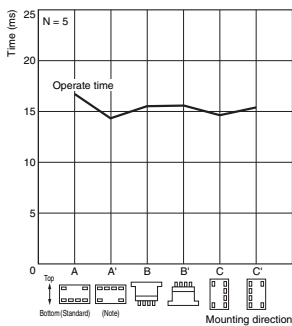


## Voltage distribution of wave e which chattering does not occur.

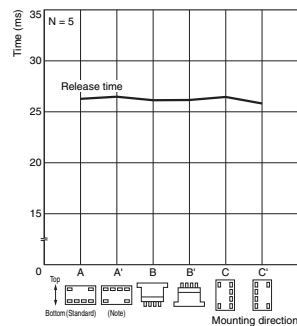


## Characteristic variation resulted from different mounting directions G7L-2A-T (TUB) 100 to 120 VAC

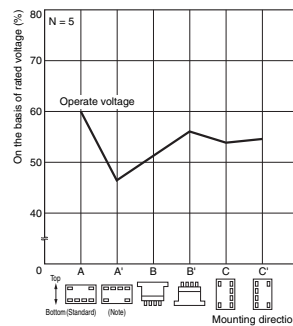
### Operate time



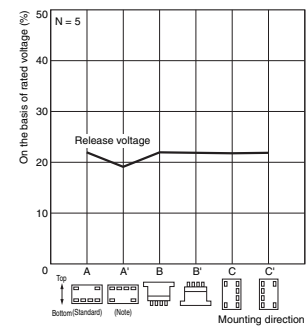
### Release time



### Operate voltage

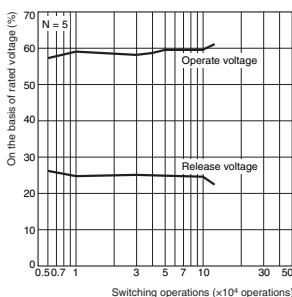


### Release voltage

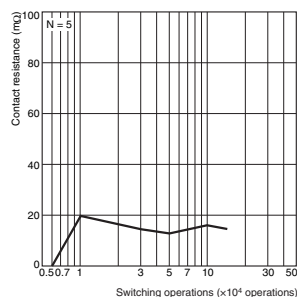


(Note.)The mounting direction A' deteriorates switching performance.

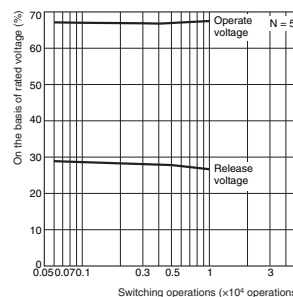
## Actual Load Endurance Test G7L-2A 100 to 200 VAC Operate and Release voltages N = 5



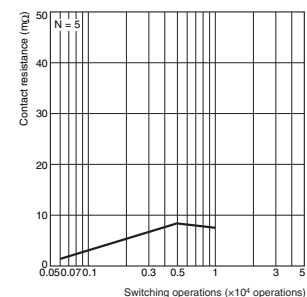
### Contact resistance



## Operate and Release voltages N = 5

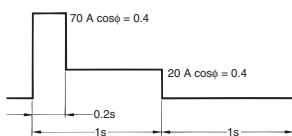


### Contact resistance



## Load conditions

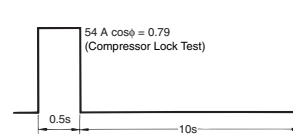
- 1 φ 220 VAC



- Applied coil voltage: 100% of rated voltage

## Load conditions

- 1 φ 220 VAC



- Applied coil voltage: 100% of rated voltage