

# POWER RELAY

## 1 POLE—1, 3, 5, 10 A (MEDIUM LOAD CONTROL)

### LZ SERIES

#### ■ FEATURES

- UL, CSA
- 4 kinds of contact ratings  
—Low level to 10 amps switching
- Standard and high sensitivity types available
- High surge strength version available
- UL class B (130°C) insulation type available (only plastic sealed type)
- Printed circuit terminals—fits grid with 0.1 inch
- Plastic sealed type backfilled with nitrogen available



#### ■ ORDERING INFORMATION

[Example] LZ - B 12 H M S E - K HV - UC  
(a) (b) (c) (d) (e) (f) (g) (h) (i) (j)

(a)	Series Name	LZ : LZ Series
(b)	Coil Heat Proof Class	Nil : Standard type B : UL class B insulation type (130°C)
(c)	Nominal Voltage	Refer to the COIL DATA CHART
(d)	Contact Rating	Nil : 3 A H : 5 A V : 10 A W : 1 A (bifurcated)
(e)	Contact Arrangement	Nil : 1 form C (SPDT) M : 1 form A (SPST-NO)
(f)	Coil Type	Nil : Standard type S : High sensitive type
(g)	Contact Material (Rating)	Nil : Gold overlay silver-palladium (only LZ-W) Nil : Gold overlay silver-nickel (3 A, 5 A) Nil : Silver alloy (10 A) (only LZ-V) E : Silver-nickel (3 A, 5 A)
(h)	Enclosure	Nil : Flux free type K : Plastic sealed type (recommended for new designs) C : Plastic sealed type (with tape)
(i)	Surge Strength	Nil : Standard type (4,000 V) HV : High dielectric strength type (6,000 V)
(j)	Standard	UC : UL, CSA approved type

## ■ SAFETY STANDARD AND FILE NUMBERS

UL508 (File No. E56140, E45026)

C22.2 No. 0, No. 14 (File No. LR35579)

Please note that UL/CSA ratings may differ from the standard ratings.

Please request when the approval markings are required on the cover and/or relay recognized by SEV is required.

Type	Nominal voltage	Contact rating
LZ- ( )W LZ- ( )WS	1.5 to 48 VDC 1.5 to 24 VDC	0.8 A 240 VAC resistive 1 A 30 VDC/120 VAC resistive
LZ- ( ) LZ- ( )S	1.5 to 48 VDC 1.5 to 24 VDC	1/10 HP 120 VAC/240 VAC 2.5 A 240 VAC resistive 3 A 30 VDC/120 VAC resistive Pilot duty D 150
LZ- ( )H LZ- ( )HS	1.5 to 48 VDC 1.5 to 24 VDC	1/8 HP 120 VAC/240 VAC 4 A 240 VAC resistive 5 A 30 VDC/120 VAC resistive Pilot duty C 150
LZ- ( )VM	1.5 to 48 VDC	1/4 HP 120 VAC/240 VAC 7 A 240 VAC resistive 10 A 24 VDC/120 VAC resistive Pilot duty C 150

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# LZ SERIES

## ■ SPECIFICATIONS

LZ-( )Type (Standard Type)

Item		10 A Type	5 A Type	3 A Type	1 A Type
		LZ-( )VM	LZ-( )H, LZ-( )HE	LZ( ), LZ-( )E	LZ-( )W
Contact	Arrangement	1 form A (SPST-NO) or 1 form C (SPDT)			
	Material	Silver alloy	Gold overlay silver alloy Silver alloy (LZ-HE, E)		Gold overlay silver-palladium
	Style	Single			Bifurcated
	Resistance (initial) (at 1 A 6 VDC)	Maximum 100 mΩ	Maximum 70 mΩ (LZ-H,LZ) Maximum 100 mΩ (LZ-HE, E)		Maximum 50 mΩ
	Rating (resistive)	10 A 120 VAC/24 VDC 1/4 H 120 VAC	5 A 120 VAC/24 VDC 1/8 H 120 VAC	3 A 120 VAC/30 VDC 1/10 H 120 VAC	1 A 120 VAC/30 VDC
	Maximum Carrying Current	10 A	5 A		1 A
	Maximum Switching Power	1,680 VA, 240 W	960 VA, 120 W	600 VA, 90 W	190 VA, 30 W
	Maximum Switching Voltage	250 VAC, 150 VDC			
	Maximum Switching Current	10 A	5 A	3 A	1 A
	Minimum Switching Load*1	100 mA 5 VDC	10 mA 5 VDC (LZ-H) 100 mA 5 VDC (LZ-HE)	10 mA 5 VDC (LZ-)	0.1 mA 100 VDC 100 mA 5 VDC (LZ-E)
Coil	Nominal Power (at 20°C)	0.45 to 0.60 W			
	Operate Power (at 20°C)	0.17 to 0.22 W			
	Operating Temperature	-30°C to +70°C (no frost) (refer to the CHARACTERISTIC DATA)			
Time Value	Operate (at nominal voltage)	Maximum 7 ms			
	Release (at nominal voltage)	Maximum 4 ms			
Insulation	Resistance (at 500 VDC)	Minimum 250 MΩ			
	Dielectric Strength	between open contacts	750 VAC 1 minute		
		between coil and contacts	2,000 VAC 1 minute		
Surge Strength	Standard type: 4,000 V (at 1.2×50 μs) High dielectric strength Type: 6,000 V (at 1.2×50 μs)				
Life	Mechanical	2 × 10 <sup>7</sup> operations minimum			
	Electrical	1 × 10 <sup>5</sup> operations minimum (contact rating)			
Other	Vibration Resistance	Misoperation	10 to 55 Hz (double amplitude of 3.3 mm)		
		Endurance	10 to 55 Hz (double amplitude of 3.3 mm)		
	Shock Resistance	Misoperation	100 m/s <sup>2</sup> (11 ±1 ms)		
		Endurance	1,000 m/s <sup>2</sup> ( 6 ±1 ms)		
Weight	Approximately 7.7 g				

\*1 Minimum switching loads mentioned above are reference values. Please perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

# LZ SERIES

## ■ SPECIFICATIONS

LZ-( ) S Type (High Sensitive Type)

Item		5 A Type	3 A Type	1 A Type	
		LZ-( )HS, LZ( )HSE	LZ-( )S, LZ-( )SE	LZ-( )WS	
Contact	Arrangement	1 form A (SPST-NO) or 1 form C (SPDT)			
	Material	Gold overlay silver alloy (single type)		Gold overlay silver-palladium (bifurcated type)	
	Resistance (initial) (at 1 A 6 VDC)	Maximum 70 mΩ (LZ-HS, S) Maximum 100 mΩ (LZ-HSE, SE)		Maximum 50 mΩ	
	Rating	Resistive	5 A 120 VAC/24 VDC	3 A 120 VAC/24 VDC	1 A 120 VAC/24 VDC
		Motor Load	1/8 H 120 VAC	1/10 H 120 VAC	
	Maximum Carrying Current	5 A		1 A	
	Maximum Switching Power	960 VA, 120 W	600 VA, 90 W	190 VA, 30 W	
	Maximum Switching Voltage	250 VAC, 150 VDC			
	Maximum Switching Current	5 A	3 A	1 A	
Minimum Switching Load*1	10 mA 5 VDC (LZ-HS, S) 100 mA 5 VDC (LZ-HSE, SE)		0.1 mA 100 mVDC		
Coil	Nominal Power (at 20°C)	0.33 W			
	Operate Power (at 20°C)	0.14 W			
	Operating Temperature	-30°C to +80°C (no frost) (refer to the CHARACTERISTIC DATA)			
Time Value	Operate (at nominal voltage)	Maximum 7 ms			
	Release (at nominal voltage)	Maximum 4 ms			
Insulation	Resistance	Minimum 250 MΩ			
	Dielectric Strength	between open contacts	750 VAC 1 minute		
		between coil and contacts	2,000 VAC 1 minute		
Surge Strength	Standard type : 4,000 V (at 1.2 × 50μs) High dielectric strength type: 6,000 V (at 1.2 × 50μs)				
Life	Mechanical	2 × 10 <sup>7</sup> operations minimum			
	Electrical	1 × 10 <sup>5</sup> operations minimum (rated load)			
Other	Vibration	Misoperation	10 to 55 Hz (double amplitude of 3.3 mm)		
		Endurance	10 to 55 Hz (double amplitude of 3.3 mm)		
	Shock	Misoperation	100 m/s <sup>2</sup> (11 ±1 ms)		
		Endurance	1,000 m/s <sup>2</sup> ( 6 ±1 ms)		
	Weight	Approximately 7.7 g			

\*1 Minimum switching loads mentioned above are reference values. Please perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

# LZ SERIES

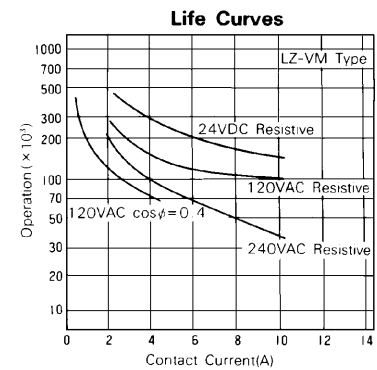
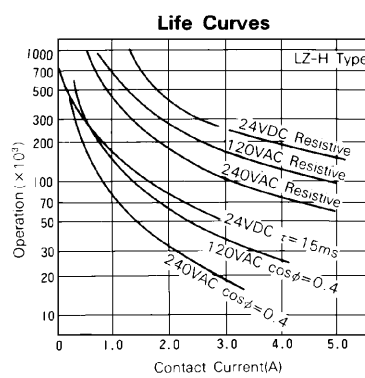
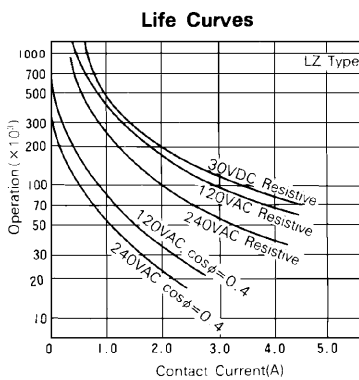
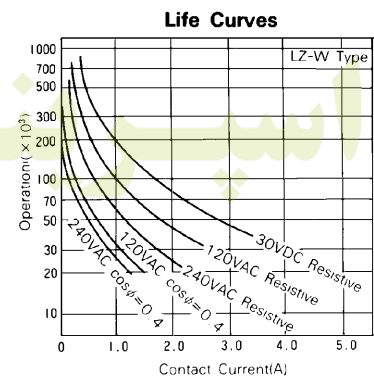
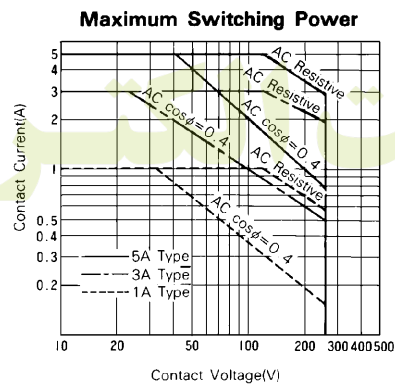
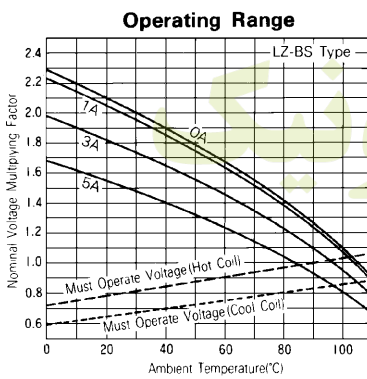
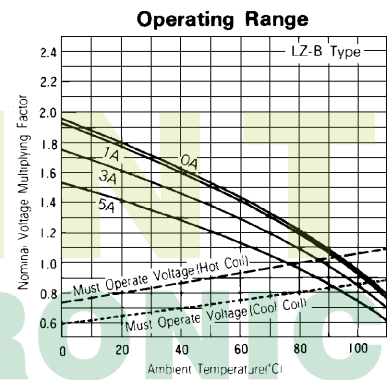
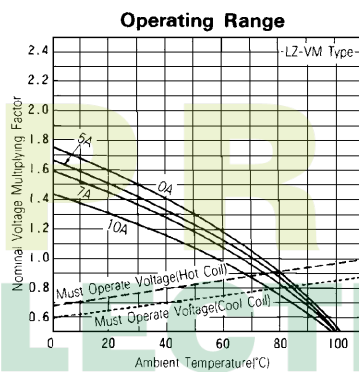
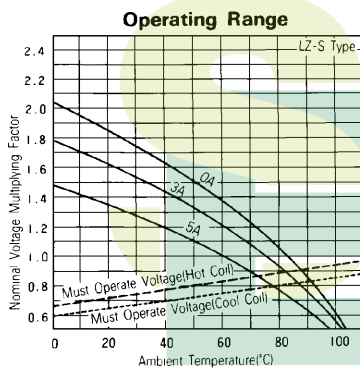
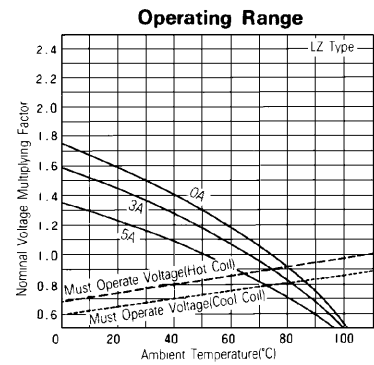
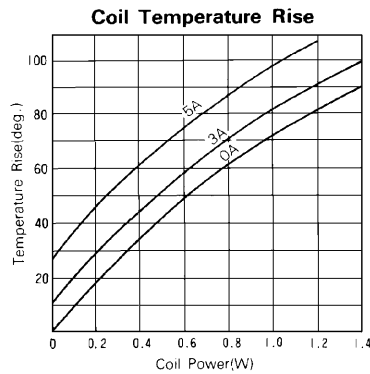
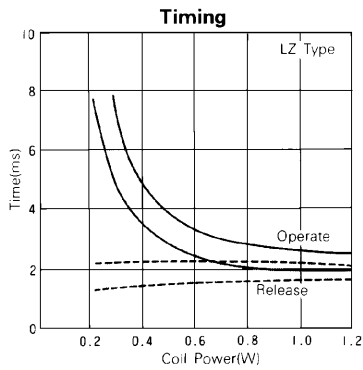
## COIL DATA CHART

	MODEL				Nominal voltage	Coil resistance ( $\pm 10\%$ )	Must operate voltage	Must release voltage	Nominal power
	Single			Bifurcated					
	10 A Type	5 A Type	3 A Type	1 A Type					
Standard Type	LZ-(B) 1.5 VM	LZ-(B) 1.5 H (M) (E)	LZ-(B) 1.5 (M) (E)	LZ-(B) 1.5 W (M)	1.5 VDC	5 $\Omega$	0.97 VDC	0.08 VDC	450 mW
	LZ-(B) 3 VM	LZ-(B) 3 H (M) (E)	LZ-(B) 3 (M) (E)	LZ-(B) 3 W (M)	3 VDC	20 $\Omega$	1.95 VDC	0.15 VDC	450 mW
	LZ-(B) 5 VM	LZ-(B) 5 H (M) (E)	LZ-(B) 5 (M) (E)	LZ-(B) 5 W (M)	5 VDC	56 $\Omega$	3.25 VDC	0.25 VDC	450 mW
	LZ-(B) 6 VM	LZ-(B) 6 H (M) (E)	LZ-(B) 6 (M) (E)	LZ-(B) 6 W (M)	6 VDC	80 $\Omega$	3.9 VDC	0.3 VDC	450 mW
	LZ-(B) 9 VM	LZ-(B) 9 H (M) (E)	LZ-(B) 9 (M) (E)	LZ-(B) 9 W (M)	9 VDC	180 $\Omega$	5.85 VDC	0.45 VDC	450 mW
	LZ-(B) 12 VM	LZ-(B) 12 H (M) (E)	LZ-(B) 12 (M) (E)	LZ-(B) 12 W (M)	12 VDC	320 $\Omega$	7.8 VDC	0.6 VDC	450 mW
	LZ-(B) 18 VM	LZ-(B) 18 H (M) (E)	LZ-(B) 18 (M) (E)	LZ-(B) 18 W (M)	18 VDC	720 $\Omega$	11.7 VDC	0.9 VDC	450 mW
	LZ-(B) 24 VM	LZ-(B) 24 H (M) (E)	LZ-(B) 24 (M) (E)	LZ-(B) 24 W (M)	24 VDC	1,280 $\Omega$	15.6 VDC	1.2 VDC	450 mW
	LZ-(B) 48 VM	LZ-(B) 48 H (M) (E)	LZ-(B) 48 (M) (E)	LZ-(B) 48 W (M)	48 VDC	3,800 $\Omega$	28.8 VDC	2.4 VDC	600 mW
	LZ-(B) 100 VM	LZ-(B) 100 H (M) (E)	LZ-(B) 100 (M) (E)	LZ-(B) 100 W (M)	100 VDC	22,200 $\Omega$	65.0 VDC	5.0 VDC	450 mW
High Sensitive Type	LZ-(B)1.5 H (M)S (E)	LZ-(B)1.5 (M)S (E)	LZ-(B) 1.5 W (M) S	1.5 VDC	6.8 $\Omega$	0.97 VDC	0.08 VDC	330 mW	
	LZ-(B) 3 H (M)S (E)	LZ-(B) 3 (M)S (E)	LZ-(B) 3 W (M) S	3 VDC	27 $\Omega$	1.95 VDC	0.15 VDC	330 mW	
	LZ-(B) 5 H (M)S (E)	LZ-(B) 5 (M)S (E)	LZ-(B) 5 W (M) S	5 VDC	80 $\Omega$	3.25 VDC	0.25 VDC	330 mW	
	LZ-(B) 6 H (M)S (E)	LZ-(B) 6 (M)S (E)	LZ-(B) 6 W (M) S	6 VDC	110 $\Omega$	3.9 VDC	0.3 VDC	330 mW	
	LZ-(B) 9 H (M)S (E)	LZ-(B) 9 (M)S (E)	LZ-(B) 9 W (M) S	9 VDC	250 $\Omega$	5.85 VDC	0.45 VDC	330 mW	
	LZ-(B) 12 H (M)S (E)	LZ-(B) 12 (M)S (E)	LZ-(B) 12 W (M) S	12 VDC	440 $\Omega$	7.8 VDC	0.6 VDC	330 mW	
	LZ-(B) 18 H (M)S (E)	LZ-(B) 18 (M)S (E)	LZ-(B) 18 W (M) S	18 VDC	990 $\Omega$	11.7 VDC	0.9 VDC	330 mW	
	LZ-(B) 24 H (M)S (E)	LZ-(B) 24 (M)S (E)	LZ-(B) 24 W (M) S	24 VDC	1,780 $\Omega$	15.6 VDC	1.2 VDC	330 mW	

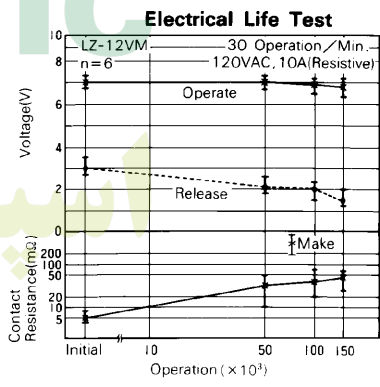
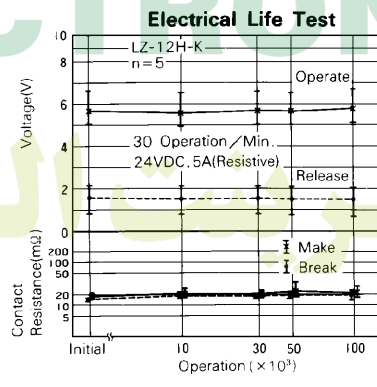
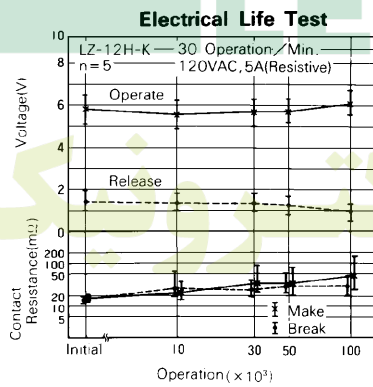
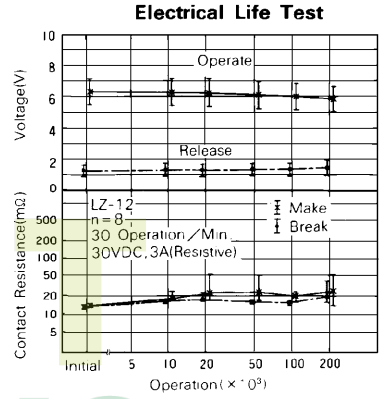
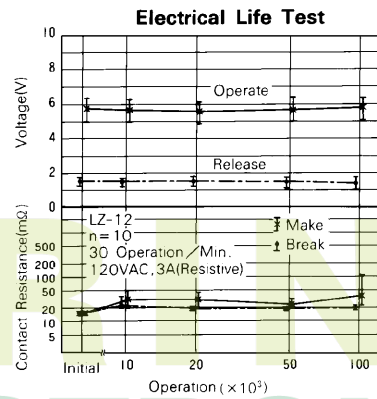
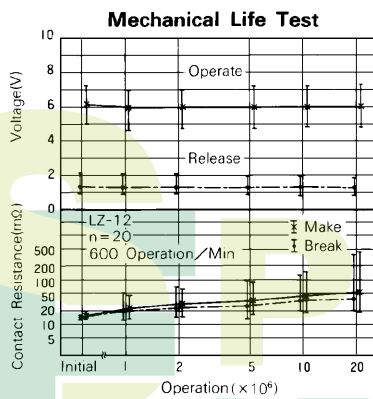
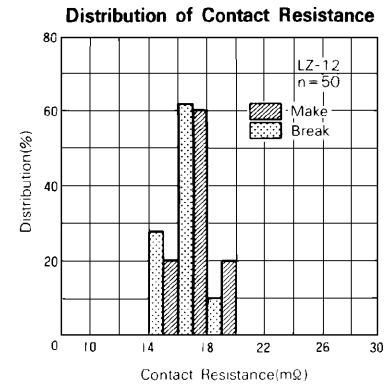
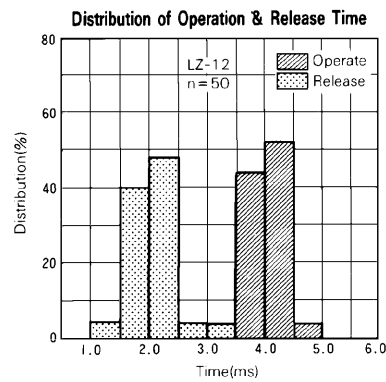
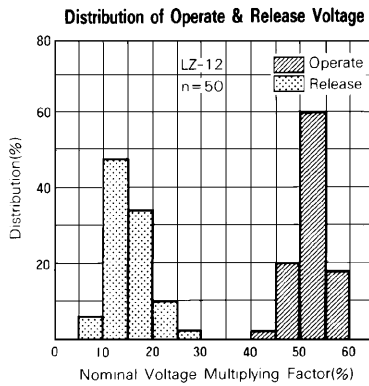
Note : All values in the table are measured at 20°C.

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## CHARACTERISTIC DATA



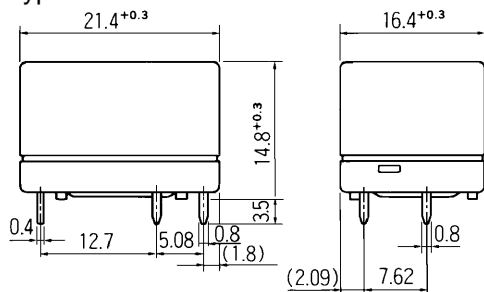
## REFERENCE DATA



## DIMENSIONS

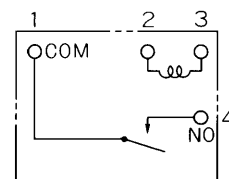
### Dimensions

LZ-M type



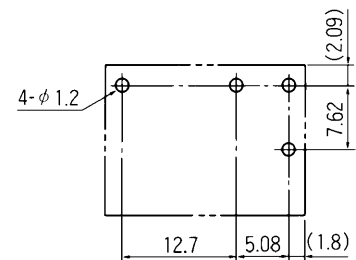
### Schematics

(BOTTOM VIEW)



### PC board mounting

hole layout  
(BOTTOM VIEW)



# LZ SERIES

## ■ DIMENSIONS

### ● Dimensions

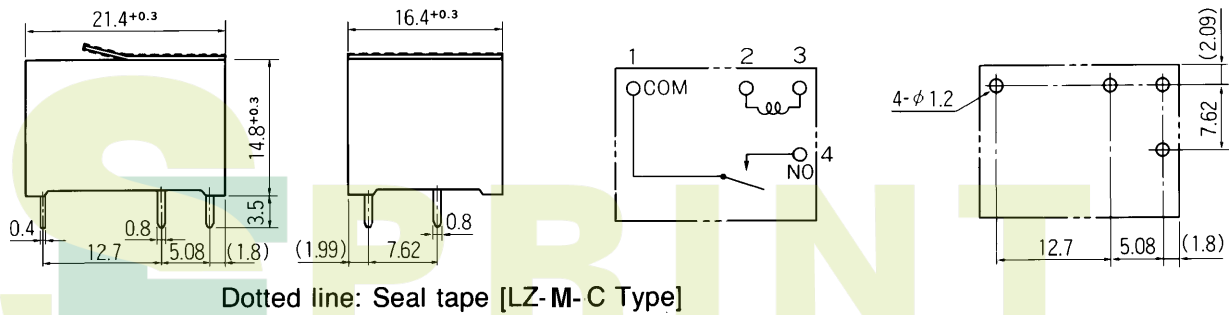
### ● Schematics

(BOTTOM VIEW)

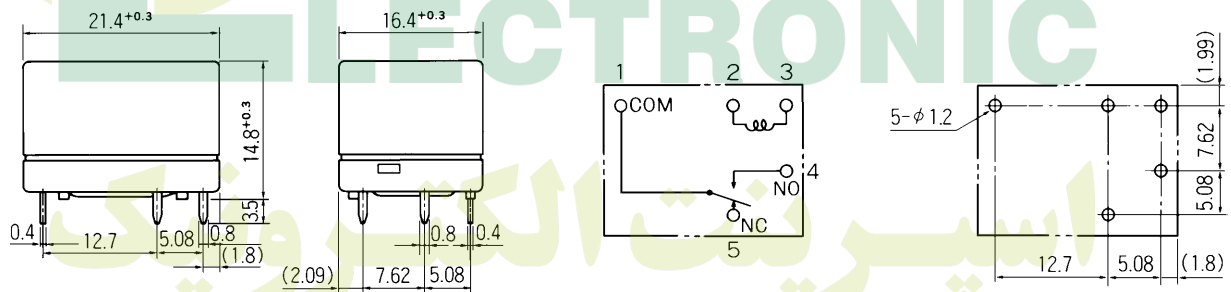
### ● PC board mounting

hole layout  
(BOTTOM VIEW)

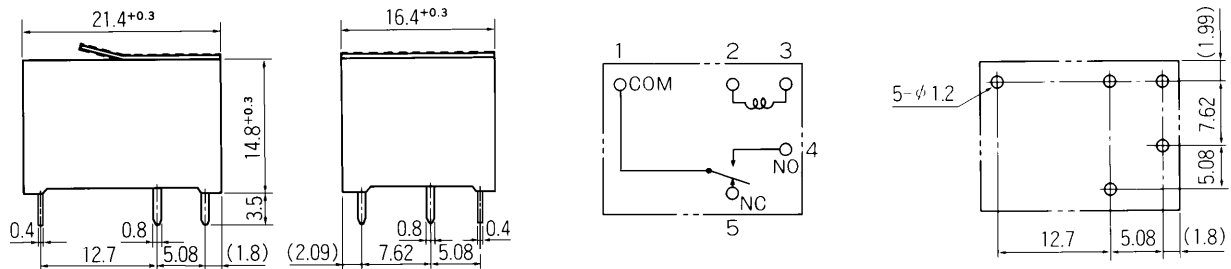
LZ-M-K, LZ-M-C type (Plastic sealed type)



LZ type



LZ-K, LZ-C type (Plastic sealed type)



Dotted line: Seal tape [LZ-C Type]

Unit: mm

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