

POWER RELAY

1 POLE - 1/3/5/10A Medium Load Control

LZ Series

■ FEATURES

- UL, CSA, SEV recognized
- Contact rating types - 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 - 0.1" grid pitch
- Plastic sealed type, RTIII
- RoHS compliant.

Please see page 9 for more information



■ PARTNUMBER INFORMATION

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

(a)	Relay type	LZ	: LZ Series
(b)	Coil wire class	Nil B	: Standard type : UL class B insulation type (130 °C)
(c)	Coil rated voltage	12	: 1.5...100VDC Coil rating table at page 3
(d)	Contact type	Nil H V W	: 3A : 5A : 10A (standard coil power only) : 1A (bifurcated contact)
(e)	Contact configuration	Nil M	: 1 form C (SPDT) : 1 form A (SPST-NO)
(f)	Coil type	Nil S	: Standard type (450-600mW) : High sensitive type (300mW)
(g)	Contact material	Nil Nil Nil E	: Gold overlay silver-palladium (1A) (only LZ-W) : Gold overlay silver-nickel (3A, 5A) : Silver alloy (10A) (only LZ-V) (contains cadmium) : Silver-nickel (3A, 5A)
(h)	Enclosure	Nil K C	: Flux proof type, RTII : Plastic sealed type (recommended for new designs) RTIII : Plastic sealed type (with tape) RTIII
(i)	Surge strength	Nil HV	: Standard type (4,000V) : High surge strength type (6,000V)
(j)	Approvals	UC	: UL, CSA approved type

LZ SERIES

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

■ SPECIFICATION

LZ-() (Standard type)

Item			10A Type	5A Type	3A Type	1A Type
			LZ - () V LZ - () VM	LZ - () H LZ - () HE	LZ - () LZ - () E	LZ - () W
Contact Data	Configuration		1 form A (SPST-NO), 1 form C (SPDT)			
	Construction		Single	Single (crossbar)		Bifurcated (crossbar)
	Material		Silver alloy (contains cadmium)	Gold overlay silver alloy Silver alloy (LZ-HE, E)		Gold overlay silver-palladium
	Resistance (initial) (at 6 VDC, 1A)		Max. 100 mOhm	Max. 70 mOhm (LZ-H, LZ) Max. 100 mOhm (LZ-HE, E)		Max. 50 mOhm
	Contact rating (resistive)		10A, 120VAC/ 24VDC 1/4HP, 120VAC	5A, 120VAC/ 24VDC 1/8 HP, 120VAC	3A, 120VAC/ 24VDC 1/10HP, 120VAC	1A, 120VAC / 30VDC
	Max. carrying current		10A	5A		1A
	Max. switching voltage		250VAC, 150 VDC			
	Max. switching power		1,680VA, 240W	960VA, 120W	600VA, 90W	190VA, 30W
	Max. switching current		10A	5A	3A	1A
	Min. switching load *		100mA 5VDC	10mA, 5VDC (LZ-H) 100mA, 5VDC (LZ-HE)	10mA, 5VDC(LZ-) 100mA, 5VDC (LZ-E)	0.1mA, 100mVDC
Life	Mechanical		Min. 20 x 10 ⁶ operations			
	Electrical		Min. 100 x 10 ³ operations (contact rating)			
Coil Data	Rated Power (at 20 °C)		450 - 600mW			
	Operate Power (at 20 °C)		170 - 220 mW (LZ- () V : 290 - 390 mW)			
	Operating temperature range		-30 °C to +70 °C (no frost)			
Timing Data	Operate (at nominal voltage)		Max. 7 ms (without bounce)			
	Release (at nominal voltage)		Max. 4 ms (no diode)			
Insulation	Resistance (initial)		Min. 250MOhm at 500VDC			
	Dielectric strength	Open contacts	750VAC, 1min			
		Contacts to coil	2,000VAC, 1min			
	Surge strength	Coil to contacts	4,000V / High surge: 6,000V, 1.2 x 50µs standard wave			
Other	Vibration resistance	Misoperation	10 to 55Hz double amplitude 3.3 mm			
		Endurance	10 to 55Hz double amplitude 3.3 mm			
	Shock	Misoperation	Min. 100m/s ² (11 ± 1ms)			
		Endurance	Min. 1,000m/s ² (6 ± 1ms)			
	Weight	Approximately 7.7g				

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

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■ SPECIFICATION

LZ-() S (High sensitive type)

Item	5A Type		3A Type		1A Type				
	LZ-()HS, LZ-()HSE		LZ-()S, LZ-()SE		LZ-()WS				
Contact Data	Configuration		1 form A (SPST-NO), 1 form C (SPDT)						
	Construction		Single (crossbar)			Bifurcated (crossbar)			
	Material		Gold overlay silver nickel		Silver nickel (LZ-HSE, SE)		Gold overlay silver-palladium		
	Resistance (initial) (at 6VDC, 1A)		Max. 70mOhm (LZ-HS, S) Max. 100mOhm (LZ-HSE, SE)			Max. 50mOhm			
	Contact rating	Resistive		5A, 120VAC / 24VDC		3A, 120VAC / 30VDC		1A, 120VAC / 30VDC	
		Motor load		1/8 HP, 120VAC		1/10 HP, 120VAC		-	
	Max. carrying current		5A				1A		
	Max. switching voltage		250VAC, 150 VDC						
	Max. switching power		960VA, 120W		600VA, 90W		190VA, 30W		
	Max. switching current		5A		3A		1A		
Min. switching load *		10 mA, 5VDC (LZ-HS, S) 100 mA, 5VDC (LZ-HSE, SE)			0.1 mA, 100mVDC				
Life	Mechanical		Min. 20 x 10 ⁶ operations						
	Electrical		Min. 100 x 10 ³ operations						
Coil Data	Rated power (at 20 °C)		330 mW						
	Operate power (at 20 °C)		140 mW						
	Operating temperature range		-30 °C to +80 °C (no frost)						
Timing Data	Operate (at nominal voltage)		Max. 7 ms						
	Release (at nominal voltage)		Max. 4 ms						
Insulation	Resistance (initial)		Min. 250MOhm at 500VDC						
	Dielectric strength	Open contacts		750VAC, 1min					
		Contacts to coil		2,000VAC, 1min					
Surge strength		Coil to contacts		4,000V / -HV type: 6,000V, 1.2 x 50µs standard wave					
Other	Vibration resistance	Misoperation		10 to 55Hz double amplitude 3.3 mm					
		Endurance		10 to 55Hz double amplitude 3.3 mm					
	Shock	Misoperation		Min. 100m/s ² (11 ± 1ms)					
		Endurance		Min. 1,000m/s ² (6 ± 1ms)					
	Weight		Approximately 7.7 g						

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

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■ COIL RATING

Standard type (450 mW)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *		Must Release-Voltage (VDC) *	Rated Power (mW)
			LZ-(B) () VM LZ-(B) () (M) (E) LZ-(B) () W (M)	LZ-(B) () V		
1.5	1.5	5	0.97	1.2	0.08	450
3	3	20	1.95	2.4	0.15	
5	5	56	3.25	4	0.25	
6	6	80	3.9	4.8	0.3	
9	9	180	5.85	7.2	0.45	
12	12	320	7.8	9.6	0.6	
18	18	720	11.7	14.4	0.9	
24	24	1,280	15.6	19.2	1.2	
48	48	3,800	28.8	38.4	2.4	600
100	100	22,200	65	80	5	450

High sensitive type (330 mW)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *1	Must Release-Voltage (VDC) *1	Rated Power (mW)
1.5	1.5	6.8	0.97	0.08	330
3	3	27	1.95	0.15	
5	5	80	3.25	0.25	
6	6	110	3.9	0.3	
9	9	250	5.85	0.45	
12	12	440	7.8	0.6	
18	18	990	11.7	0.9	
24	24	1,780	15.6	1.2	

Note: All values in the table are valid for 20°C and zero contact current.

* Specified operate values are valid for pulse wave voltage.

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■ SAFETY STANDARDS

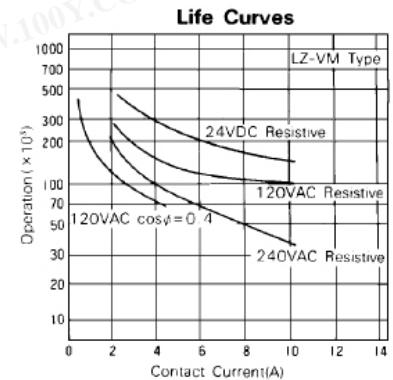
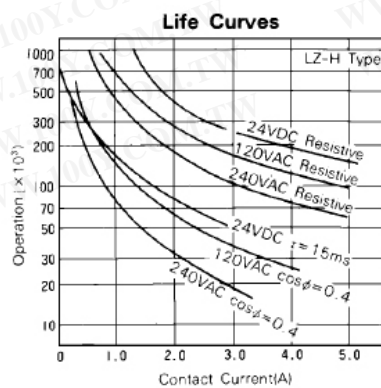
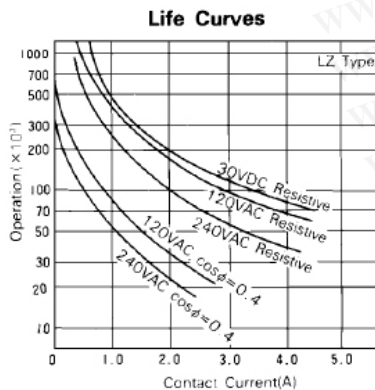
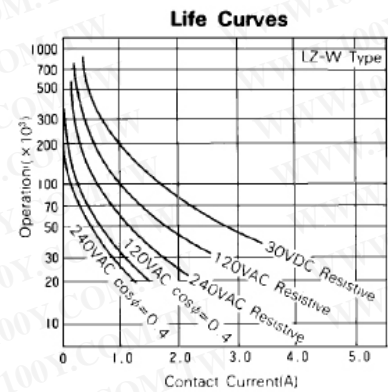
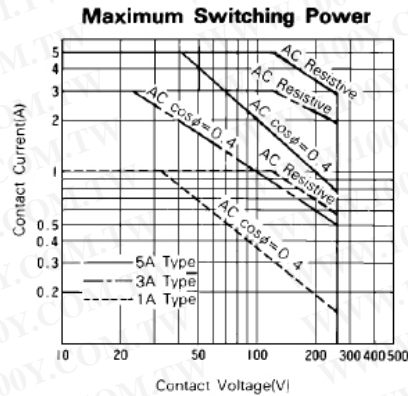
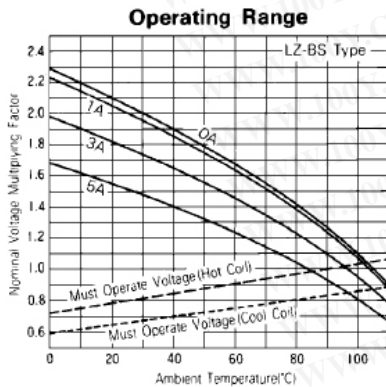
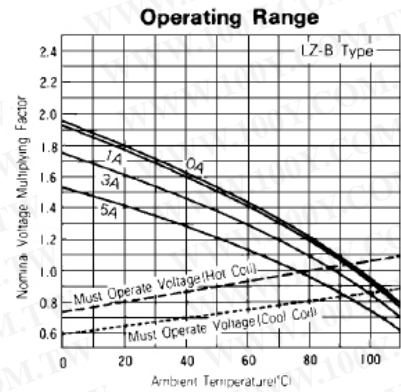
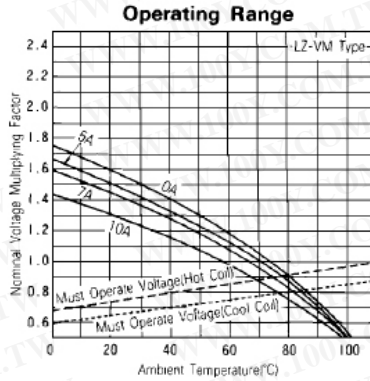
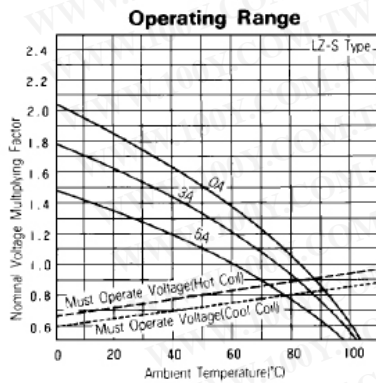
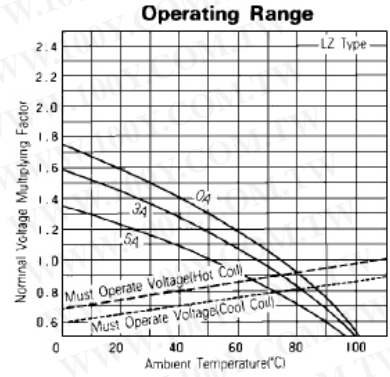
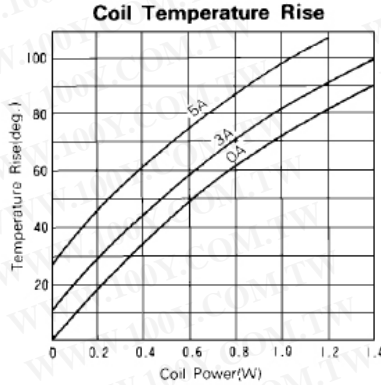
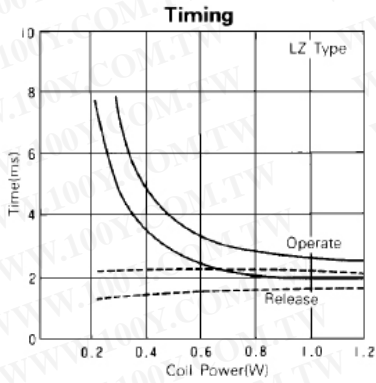
Type	Compliance	Contact rating
UL	UL 508 E 56149, E 45026	Flammability: UL 94-V0 (plastics) [LZ-()W, LZ-()WS] 0.8A, 240VDC (resistive)
CSA	C22.2 No. 14 LR 35579	1A, 120VAC / 30VDC (resistive) [LZ-(), LZ-()S] 2.5A, 240 VDC (resistive) 3A, 120 VAC / 30VDC (resistive) 1/10 HP, 120VAC/2400VAC Pilot duty: D150 [LZ-(), LZ-()S] 2.5A, 240 VAC (resistive) 3A, 120 VAC / 30VDC (resistive) 1/10 HP, 120VAC/2400VAC Pilot duty: D150 [LZ-()V] 7A, 240 VDC (resistive) 10A, 120 VAC / 30VDC (resistive) 1/4 HP, 120VAC/2400VAC

Also complies with SEV.

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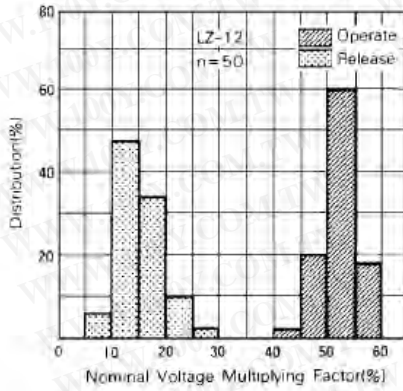
CHARACTERISTIC DATA



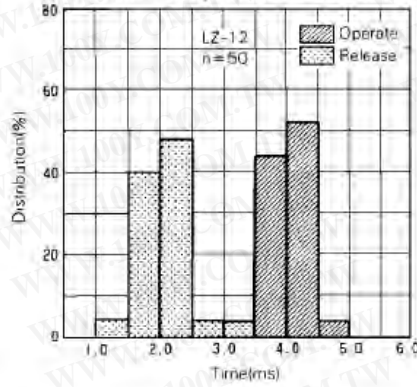
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REFERENCE DATA

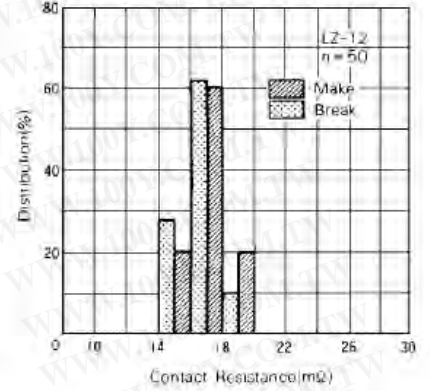
Distribution of Operate & Release Voltage



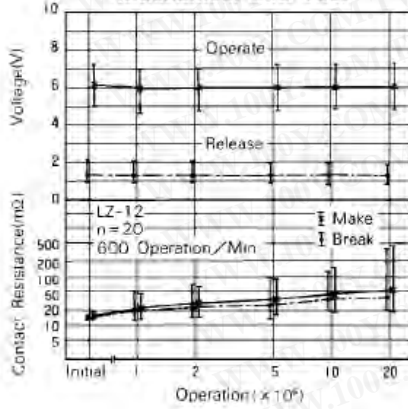
Distribution of Operation & Release Time



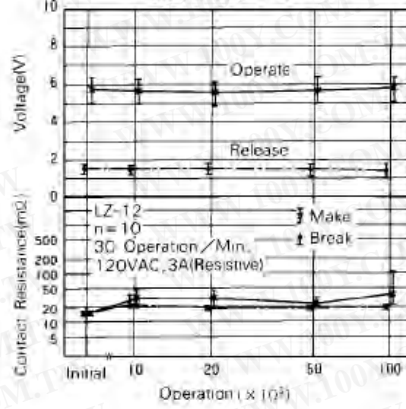
Distribution of Contact Resistance



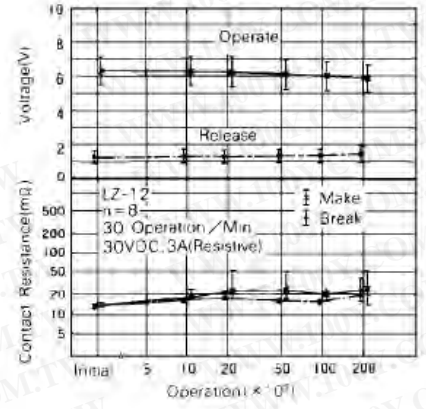
Mechanical Life Test



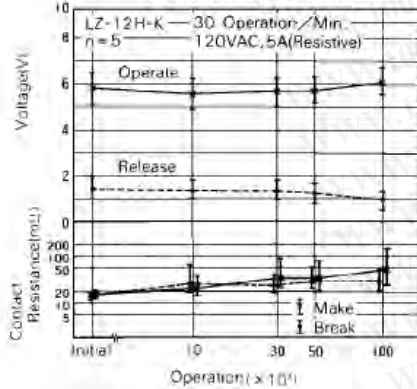
Electrical Life Test



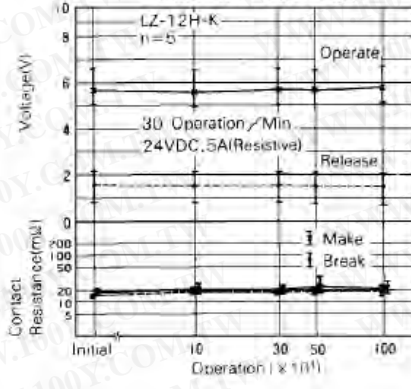
Electrical Life Test



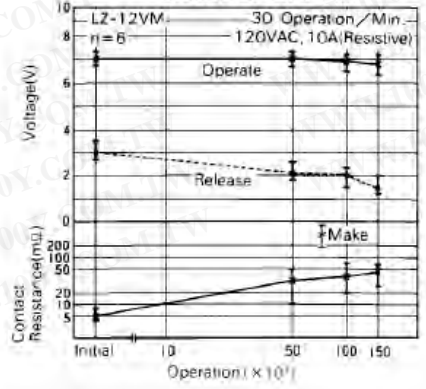
Electrical Life Test



Electrical Life Test



Electrical Life Test



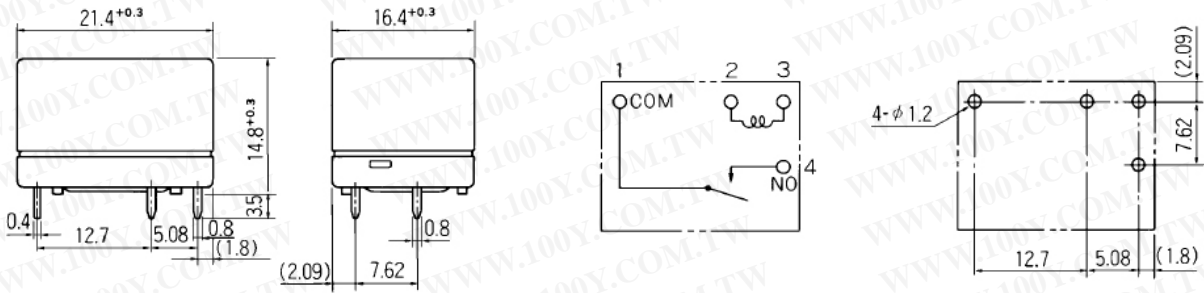
■ DIMENSIONS

- Dimensions

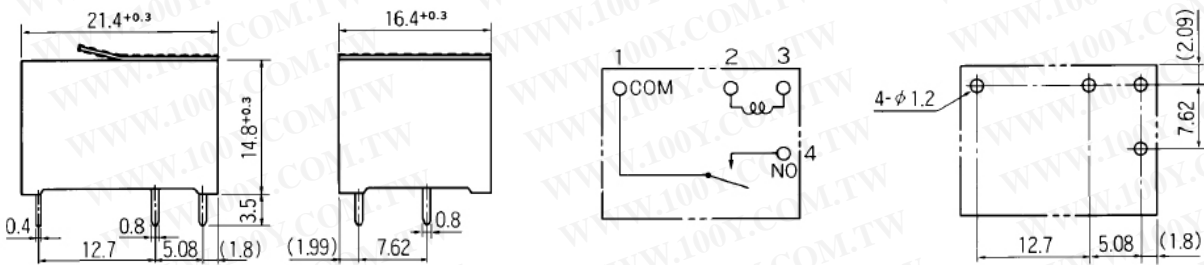
- Schematics (BOTTOM VIEW)

- PC board mounting hole layout (BOTTOM VIEW)

LZ-M type (Flux proof type)

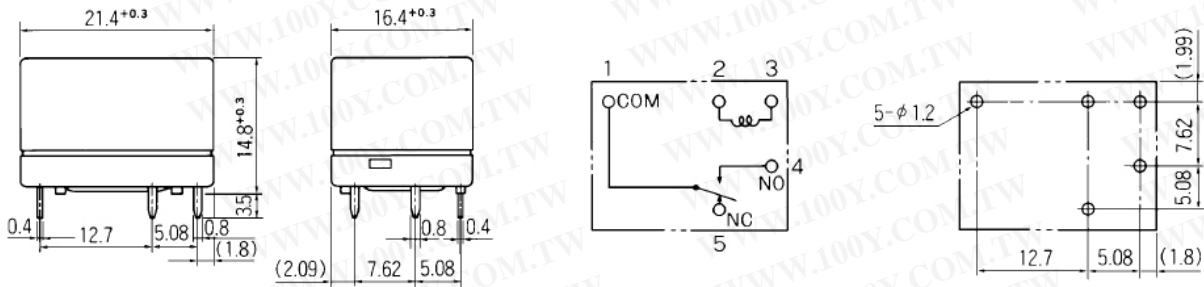


LZ-M-K, LZ-M-C type (Plastic sealed type or sealed with tape)

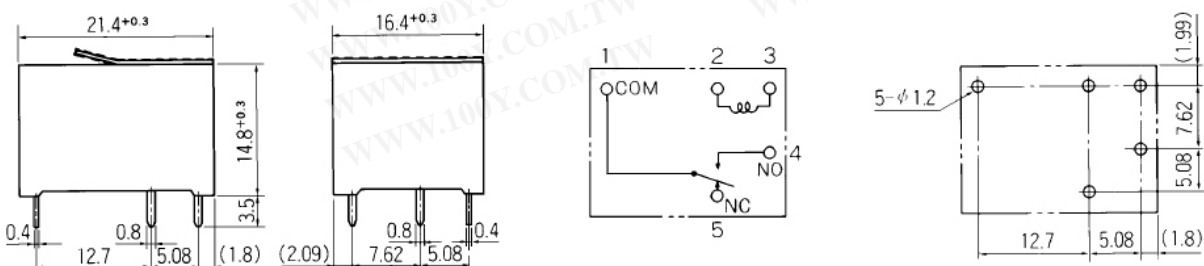


Dotted line: Seal tape [LZ-M-C Type]

LZ type (Flux proof type)



LZ-K, LZ-C type (Plastic sealed type or sealed with tape)



Dotted line: Seal tape [LZ-C Type]

Unit: mm

RoHS Compliance and Lead Free Information

1. General Information

- All signal and power relays produced by Fujitsu Components are compliant with RoHS directive 2002/95/EC including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives on October 21st, 2005. (Amendment to Directive 2002/95/EC)
- All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: <http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf>
- Lead free solder plating on relay terminals is Sn-3.0Ag-0.5Cu, unless otherwise specified. This material has been verified to be compatible with PbSn assembly process.

2. Recommended Lead Free Solder Profile

- Recommended solder Sn-3.0Ag-0.5Cu.

Flow Solder condition:

Pre-heating: maximum 120°C
Soldering: dip within 5 sec. at
260°C solder bath

Solder by Soldering Iron:

Soldering Iron
Temperature: maximum 360°C
Duration: maximum 3 sec.

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We highly recommend that you confirm your actual solder conditions

3. Moisture Sensitivity

- Moisture Sensitivity Level standard is not applicable to electromechanical relays, unless otherwise indicated.

4. Tin Whiskers

- Dipped SnAgCu solder is known as presenting a low risk to tin whisker development. No considerable length whisker was found by our in house test.

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