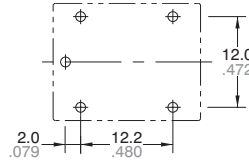


⚠ Product is discontinued.

FEATURES

1. Universal terminal footprint

Same terminal pitch as our JS relay



2. Space-saving and Compact cube type

19.5 (L) × 15.5 (W) × 15.2 (H) mm
.768 (L) × .610 (W) × .598 (H) inch

Comparison with our JS relay:

- PCB mount area: 86%

3. Excellent heat resistance and tracking performance

- 85°C 185°F ambient operating temperature (UL Class B)
- Compatibility available for UL Class F
- Uses PTI250 material
- EN60335-1 GWT compliant (Tested by VDE)

4. Supports all safety standards

- UL, C-UL and VDE certified

TYPICAL APPLICATIONS

1. Household appliances

Refrigerator, Heater, Washing machine, Dishwasher, Rice cooker, etc.

2. Office automation equipment, Home appliances, etc.

3. Game machines, etc.

SPECIFICATIONS

Contact

Arrangement	1 Form A, 1 Form C	
Initial contact resistance, max. (By voltage drop 6 V DC 1 A)	100 mΩ	
Contact material	AgNi/AgSnO ₂ type	
Rating	Nominal switching capacity (resistive load)	10 A 277 V AC (N.O.) 6 A 277 V AC (N.C.)
	Max. switching power (resistive load)	2,770 VA
	Max. switching voltage	277 V AC
	Max. switching current	10 A (AC)
	Min. switching capacity ^{#1} (Reference value)	100 mA, 5 V DC
Expected life (min. ope.)	Mechanical (at 180 cpm)	10 ⁷
	Electrical at 20°C 68°F (resistive load)	10 A 250 V AC: 5 × 10 ⁴ (N.O.) 6 A 250 V AC: 10 ⁵ (N.O.) 6 A 250 V AC: 5 × 10 ⁴ (N.C.)

Coil

Nominal operating power	360 mW
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#1 This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

Remarks

- *1 Detection current: 10mA
- *2 Excluding contact bounce time
- *3 Half-wave pulse of sine wave: 11ms; detection time: 10μs
- *4 Half-wave pulse of sine wave: 6ms
- *5 Detection time: 10μs
- *6 The upper operation ambient temperature limit is the maximum temperature that can satisfy the coil temperature rise value.
- *7 Pick-up and drop-out voltages increase approximately 0.4% for each 1°C 33.8°F where the standard temperature is 20°C 68°F. Therefore, when using the relay where the ambient temperature is high, please take into consideration the rise in pick-up voltage due to ambient temperature and determine a coil nominal voltage that is within the maximum allowable voltage range.

Characteristics

Max. operating speed	20 cpm	
Initial insulation resistance	Min. 100 MΩ (at 500 V DC)	
Initial breakdown voltage*1	Between open contacts	750 Vrms for 1 min.
	Between contacts and coil	1,500 Vrms for 1 min.
Operate time*2 (at nominal voltage)	Max. 10 ms	
Release time(without diode)*2 (at nominal voltage)	Max. 10 ms	
Temperature rise (at nominal voltage)	Max. 45°C, resistive, nominal voltage applied to coil. Contact carrying current: 10A, at 85°C 185°F	
Shock resistance	Functional*3	98 m/s ² {10 G}
	Destructive*4	980 m/s ² {100 G}
Vibration resistance	Functional*5	10 to 55 Hz at double amplitude of 1.6 mm
	Destructive	10 to 55 Hz at double amplitude of 2 mm
Conditions for operation, transport and storage*6 (Not freezing and condensing at low temperature)	Ambient temp.*7	-40°C to +85°C -40°F to +185°F
	Humidity	5 to 85% R.H.
Unit weight	Approx. 10 g .35 oz	

ORDERING INFORMATION

Ex. A LS 1 B 1 2 T W

Product name	Contact arrangement and Protective construction	Coil insulation class	Coil nominal voltage (DC)	Flame resistance and tracking resistance	Packing style
LS	1: 1 Form C, Flux-resistant type 2: 1 Form C, Sealed type 3: 1 Form A, Flux-resistant type 4: 1 Form A, Sealed type	B: Class B insulation F: Class F insulation	05: 5 V 06: 6 V 09: 9 V 12: 12 V 18: 18 V 24: 24 V 48: 48 V	T: EN60335-1 (Conform)	W: Carton packing

Note: UL, C-UL, VDE approved type is standard.

TYPES

Contact arrangement	Nominal voltage, V DC	Part No.	
		Sealed type	Flux-resistant type
1 Form A	5	ALS4○05TW	ALS3○05TW
	6	ALS4○06TW	ALS3○06TW
	9	ALS4○09TW	ALS3○09TW
	12	ALS4○12TW	ALS3○12TW
	18	ALS4○18TW	ALS3○18TW
	24	ALS4○24TW	ALS3○24TW
1 Form C	5	ALS2○05TW	ALS1○05TW
	6	ALS2○06TW	ALS1○06TW
	9	ALS2○09TW	ALS1○09TW
	12	ALS2○12TW	ALS1○12TW
	18	ALS2○18TW	ALS1○18TW
	24	ALS2○24TW	ALS1○24TW
	48	ALS2○48TW	ALS1○48TW

Packing quantity: inner 100 pieces, outer 500 pieces

Notes: 1. ○: Input the following letter. Class B insulation: B, Class F insulation: F

2. Carton packing symbol "W" is not marked on the relay.

3. Please consult with our sales office on a tube packing type.

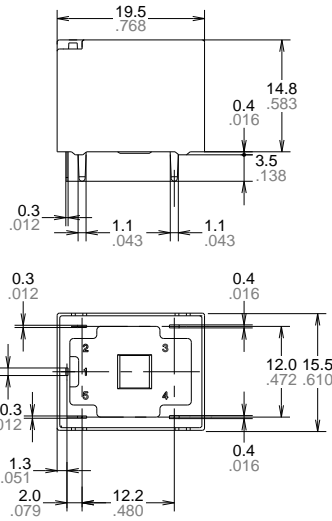
COIL DATA

Nominal voltage, V DC	Pick-up voltage, V DC (max.) (at 20°C 68°F)	Drop-out voltage, V DC (min.) (at 20°C 68°F)	Nominal operating current, mA (±10%) (at 20°C 68°F)	Coil resistance, Ω (±10%) (at 20°C 68°F)	Nominal operating power, mW (at 20°C 68°F)	Maximum allowable voltage (at 85°C 185°F)
5	3.75	0.5	72	69.4	360	130%V of nominal voltage*1
6	4.5	0.6	60	100	360	
9	6.75	0.9	40	225	360	
12	9	1.2	30	400	360	
18	13.5	1.8	20	900	360	
24	18	2.4	15	1,600	360	
48	36	4.8	7.5	6,400	360	

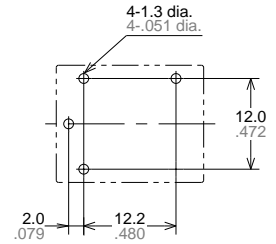
*1 Pick-up and drop-out voltages increase approximately 0.4% for each 1°C 33.8°F where the standard temperature is 20°C 68°F. Therefore, when using the relay where the ambient temperature is high, please take into consideration the rise in pick-up voltage due to ambient temperature and determine a coil nominal voltage that is within the maximum allowable voltage range.

DIMENSIONS(mm inch) Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from [your local Panasonic Electric Works representative](#).

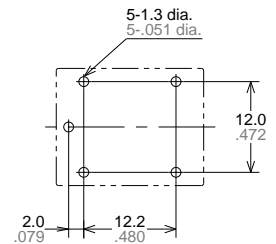
CAD Data



PC board pattern (Bottom view)
1 Form A



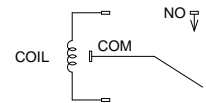
1 Form C



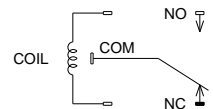
Tolerance: $\pm 0.1 \pm .004$

Schematic (Bottom view)

1 Form A

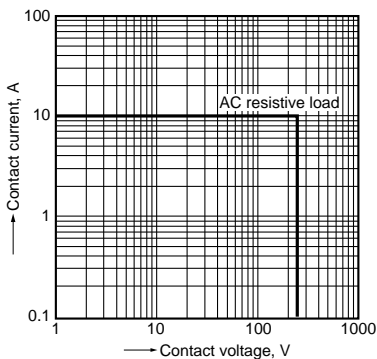


1 Form C



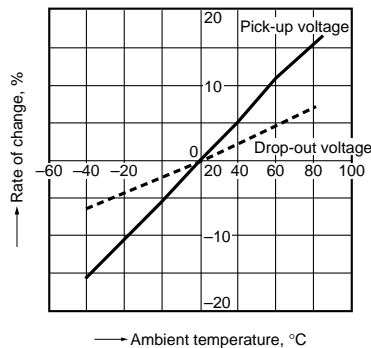
REFERENCE DATA

1. Maximum switching capacity



2. Ambient temperature characteristics

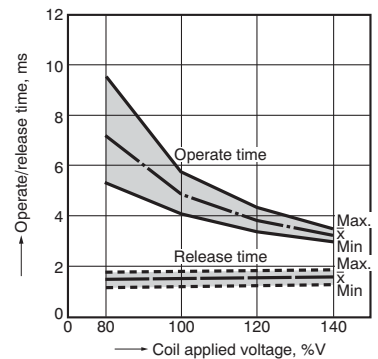
Sample: 6 pcs., ALS2B12TW



* Rate of change: for nominal voltage

3. Operate/release time

Sample: 25 pcs., ALS2B12TW



For Cautions for Use, see [Relay Technical Information](#).