# **TYPES**

#### 1. Flux-resistant type

Contact arrangement		Flux-resistant type		Packing style				
	Coil voltage	Class B insulation	Class F insulation	Tube p	acking Cart		on packing	
		Part No.	Part No.	Inner carton	Case	Inner carton	Case	
1 Form C	5 V DC	ALZ11B05W	ALZ11F05W		800 pcs.	100 pcs.	500 pcs.	
	9 V DC	ALZ11B09W	ALZ11F09W					
	12 V DC	ALZ11B12W	ALZ11F12W					
	18 V DC	ALZ11B18W	ALZ11F18W					
	24 V DC	ALZ11B24W	ALZ11F24W					
	48 V DC	ALZ11B48W	ALZ11F48W	00				
1 Form A (New PC board terminal)	5 V DC	ALZ51B05W	ALZ51F05W	20 pcs.				
	9 V DC	ALZ51B09W	ALZ51F09W					
	12 V DC	ALZ51B12W	ALZ51F12W	1				
	18 V DC	ALZ51B18W	ALZ51F18W					
	24 V DC	ALZ51B24W	ALZ51F24W					
	48 V DC	ALZ51B48W	ALZ51F48W					

### 2. Sealed type

		Sealed type		Packing style				
Contact arrangement	Coil voltage	Class B insulation	Class F insulation	Tube packing		Carton packing		
		Part No.	Part No.	Inner carton	Case	Inner carton	Case	
	5 V DC	ALZ12B05W	ALZ12F05W		200	400	500	
	9 V DC	ALZ12B09W	ALZ12F09W					
1 Form C	12 V DC	ALZ12B12W	ALZ12F12W					
	18 V DC	ALZ12B18W	ALZ12F18W					
	24 V DC	ALZ12B24W	ALZ12F24W	] '				
	48 V DC	ALZ12B48W	ALZ12F48W	00.7				
	5 V DC	ALZ52B05W	ALZ52F05W	20 pcs. 800 pc		100 pcs.	500 pcs.	
1 Form A (New PC board terminal)	9 V DC	ALZ52B09W	ALZ52F09W					
	12 V DC	ALZ52B12W	ALZ52F12W	1				
	18 V DC	ALZ52B18W	ALZ52F18W					
	24 V DC	ALZ52B24W	ALZ52F24W					
	48 V DC	ALZ52B48W	ALZ52F48W					

Notes: 1. If you desire tube packaging, please order without adding the packaging symbol "W" to the end of the part number.

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

3. EN60335-1 GWT compliant types available. When ordering, please add suffix "T".

Ex. ALZ51B12T, ALZ51F12TW

# **RATING**

#### 1. Coil data

Nominal coil voltage	Pick-up voltage (at 20°C 68°F)	Drop-out voltage (at 20°C 68°F)	Nominal operating current [±10%] (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Nominal operating power (at 20°C 68°F)	Max. applied voltage (at 20°C 68°F)
5 V DC	5 V DC  9 V DC  12 V DC  18 V DC  24 V DC  48 V DC	nominal voltage nominal voltage	80 mA	63Ω		130%V of nominal voltage
9 V DC			44.4 mA	203Ω		
12 V DC			33.3 mA	360Ω	400 mW	
18 V DC			22.2 mA	810Ω	400 11100	
24 V DC			16.7 mA	1,440Ω		
48 V DC			8.3 mA	5,760Ω		

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#### 2. Specifications

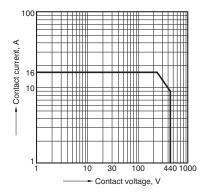
Characteristics	ltem		Specifications			
	Arrangement		1 Form C, 1 Form A			
Contact	Contact resistance (Initial)		Max. 100 m $\Omega$ (By voltage drop 6V DC 1A)			
	Contact material		AgSnO₂ type			
Rating	Nominal switching capacity (resistive load)		16A 250V AC			
	Max. switching power (r	esistive load)	4,000V A			
	Max. switching voltage		440V AC			
	Max. switching current		16A			
	Nominal operating power	er	400mW			
	Min. switching capacity*1		100mA 5V DC			
	Insulation resistance (Initial)		Min. 1,000MΩ (at 500V DC)			
	Dan alada	Between open contacts	1,000 Vrms for 1min. (Detection current: 10mA)			
	Breakdown voltage (Initial)	Between contact and coil	5,000 Vrms for 1min. (Detection current: 10mA)			
Electrical characteristics	Temperature rise (at 20°C 68°F)		Max. 55°C 131°F [with nominal coil voltage and at 16A contact carrying current (resistance method) at 20°C 68°F]			
	Surge breakdown voltage <sup>-2</sup> (Between contacts and coil)		10,000 V (Initial)			
	Operate time (at nominal voltage) (at 20°C 68°F)		Max. 15ms (excluding contact bounce time)			
	Release time (at nominal voltage) (at 20°C 68°F)		Max. 5ms (excluding contact bounce time, without diode)			
	Shock resistance	Functional	Min. 100 m/s² {10G} (Half-wave pulse of sine wave: 11ms; detection time: 10μs.)			
Mashaniaal		Destructive	Min. 1,000 m/s² {100G} (Half-wave pulse of sine wave: 6ms.)			
Mechanical characteristics	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 1.5mm (Detection time: 10μs.) (Only the N.C. side of 1 Form C is 0.8mm)			
		Destructive	10 to 55 Hz at double amplitude of 1.5mm			
Expected life	Mechanical (at 180 times/min.)		Min. 10 <sup>7</sup>			
	Electrical (at 20 times/min.)*3		N.O.: Min. 10 <sup>5</sup> , N.C.: Min. 5×10 <sup>4</sup>			
Conditions	Conditions for operation, transport and storage <sup>*4</sup> , *5		Ambient temperature: -40°C to +85°C -40°F to +185°F (Class B) Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)			
	Max. operating speed		20 times/min. (at nominal switching capacity)			
Unit weight			Approx. 12 g .42 oz			
	•		·			

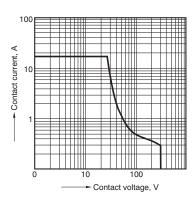
<sup>\*1</sup> This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

2. Max. switching power (DC resistive load)

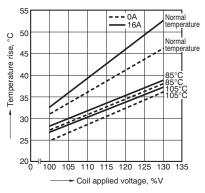
## REFERENCE DATA

1. Max. switching power (AC resistive load)





3. Coil temperature rise Sample: ALZ11F12, 5pcs. Measured portion: coil inside Contact current: 0 A, 16 A



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 <sup>\*2</sup> Wave is standard shock voltage of ±1.2 × 50μs according to JEC-212-1981
 \*3 In order to obtain the full rated life cycles, the relay should be properly vented by removing the vent nib. For details, please refer to NOTES.
 \*4 Class F type is ambient temperature 105°C +221°F.

<sup>\*5</sup> The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to "6. Usage, Storage and Transport

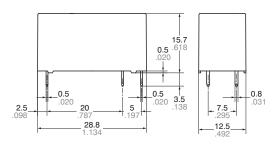
Conditions" in AMBIENT ENVIRONMENT (page 626).
Please note that some of the specifications listed above may not comply with overseas standards.

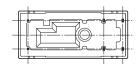
# **DIMENSIONS** (mm inch)

Download CAD Data from our Web site.

#### 1. 1 Form A type CAD Data





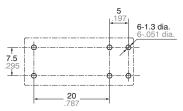


**Dimension:** Less than 1 mm.039inch:

±0.1±.004 Min. 1 mm.039inch less than 3 mm.118inch:  $\pm 0.2 \pm .008$ **±0.3**±.012 Min. 3 mm.118inch:

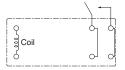
**Tolerance** 

## PC board pattern



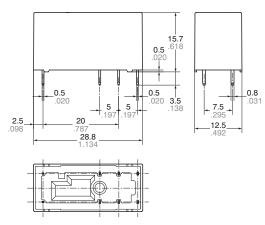
Tolerance:  $\pm 0.1 \pm .004$ 

#### Schematic (Bottom view)



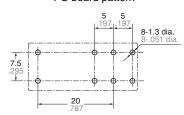
### 2. 1 Form C type CAD Data





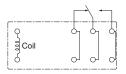
**Dimension: Tolerance** Less than 1 mm.039inch: ±0.1±.004 Min. 1 mm.039inch less than 3 mm.118inch: ±0.2±.008 Min. 3 mm.118inch: ±0.3±.012

## PC board pattern



Tolerance:  $\pm 0.1 \pm .004$ 

#### Schematic (Bottom view)



## **SAFETY STANDARDS**

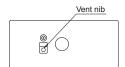
UL/C-UL (Recognized)			VDE (Certified)	TV rating (UL/CSA)	
File No.	Contact rating		Contact rating	File No.	Rating
E43149	16A 277V AC, 34.8LRA/7.2FLA/120V AC, 15LRA/3FLA/120V AC 10LRA/3FLA 240V AC, 20A 240V AC (N.O. only) 16A 30V DC, 25A 240V AC, 15A 240V AC Resistive load 105°C (N.O. only)	40000380	16A 250V AC (cosφ=1.0)	C-UL E43149	TV-5

CSA standard: Certified by C-UL

# **NOTES**

## Electrical life (Sealed type)

In order to obtain the full rated life cycles, the relay should be properly vented by removing the vent nib after the soldering/washing process.



For Cautions for Use, see Relay Technical Information.

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