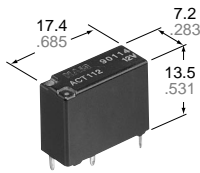


Twin type (8 terminals)



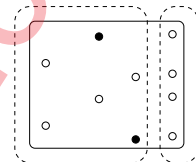
Slim 1c type

FEATURES

- **Ultra small size**
Twin type: 17.4(L)×14.0(W)×13.5(H)mm
.685(L)×.551(W)×.531(H)inch
Slim 1c type: 17.4(L)×7.2(W)×13.5(H)mm
.685(L)×.283(W)×.531(H)inch
- **Twin (1 Form C × 2)**
Forward/reverse motor control is possible with a single relay.

- **Simple footprint enables ease of PC board layout**

※ 10 terminals layout



Contact terminal Coil terminal

○ = 8 terminals

mm inch

SPECIFICATIONS

Contact			Characteristics				
Arrangement			1 Form C×2 (H bridge), 1 Form C		Max. operating speed (at nominal switching capacity)	6 cpm	
Contact material			Silver alloy		Initial insulation resistance*4		Min. 100 MΩ (at 500 V DC)
Initial contact resistance, max. (By voltage drop 6 V DC 1 A)			100mΩ		Initial breakdown voltage*5	Between open contacts	500 Vrms for 1 min.
Initial contact voltage drop, max.			0.2 V (at 10 A switching)			Between contacts and coil	500 Vrms for 1 min.
Rating	Nominal switching capacity		N.O.: 20 A 14 V DC N.C.: 10 A 14 V DC		Operate time*6 (at nominal voltage) (at 20°C 68° F)		Max. 10ms (Initial)
	Max. carrying current		35 A for 2 minutes, 25 A for 1 hour (14 V, at 20°C 68°F)		Release time (without diode)*6 (at nominal voltage) (at 20°C 68° F)		Max. 10ms (Initial)
Expected life (min. operation)	Mechanical (at 120 cpm)		Min. 10 ⁷		Shock resistance	Functional*7	Min. 100 m/s ² {10G}
	Electrical	Resistive load	Min. 10 ⁵ *1			Destructive*8	Min. 1,000 m/s ² {100G}
		Motor load	Min. 2×10 ⁵ *2		Vibration resistance	Functional*9	10 to 100 Hz, Min. 44.1m/s ² {4.5G}
		Min. 10 ⁵ *3		Destructive*10		10 to 500 Hz, Min. 44.1m/s ² {4.5G}	
Coil			Nominal operating power		800 mW		Conditions for operation, transport and storage*11 (Not freezing and condensing at low temperature)
Remarks			* Specifications will vary with foreign standards certification ratings.		Ambient temp	-40°C to +85°C -40°F to +185°F	
*1 At nominal switching capacity, operating frequency: 1s ON, 9s OFF			*2 N.O.: at 5 A (steady), 25 A (inrush)/N.C.: at 20 A (brake) 14 V DC, operating frequency: 0.5s ON, 9.5s OFF		Humidity	5 to 85% R.H.	
*3 At 25A 14 V DC (Motor lock), operating frequency: 0.5s ON, 9.5s OFF			*4 Measurement at same location as "Initial breakdown voltage" section			Unit weight	
*5 Detection current: 10mA			*6 Excluding contact bounce time		*10Time of vibration for each direction;		
*7 Half-wave pulse of sine wave: 11ms; detection: 10μs			*8 Half-wave pulse of sine wave: 6ms		X, Y, direction: 2 hours Z direction: 4 hours		
*9 Detection time: 10μs							
					*11 Refer to 5. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT (Page 61)		

TYPICAL APPLICATIONS

- Power windows
- Auto door lock
- Power sunroof
- Electrically powered mirrors

ORDERING INFORMATION

Ex.	A	CT	1	12
Product name	Contact arrangement		Coil voltage (V DC)	
CT	1: 1 Form C 2: 1 Form C × 2 (8 terminals type) 5: 1 Form C × 2 (10 terminals type)		12: 12	

Standard packing; 1 Form C: Carton(tube package) 30pcs. Case 1,500pcs.
1 Form C × 2: Carton(tube package) 30pcs. Case 900pcs.

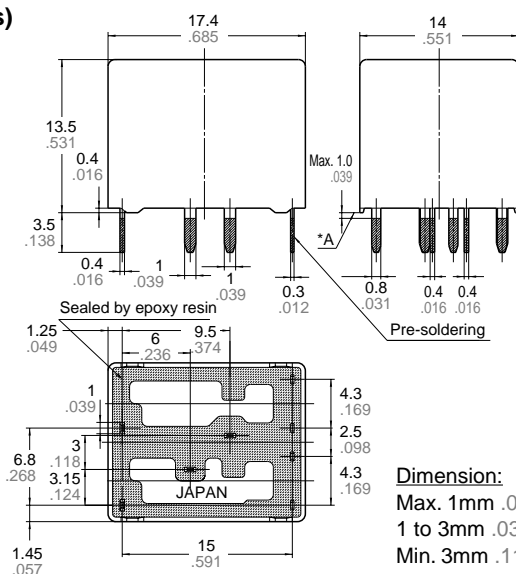
TYPES AND COIL DATA (at 20°C 68°F)

Contact arrangement	Part No.	Nominal voltage, V DC	Pick-up voltage, V DC (max.)	Drop-out voltage, V DC (min.)	Coil resistance, Ω (±10%)	Nominal operating current, mA (±10%)	Nominal operating power, mW	Usable voltage range, V DC
1c	ACT112	12	(Initial) 7.2	(Initial) 1.0	180	53.3	800	10 to 16
1c × 2 (8 terminals type)	ACT212	12	(Initial) 7.2	(Initial) 1.0	180	53.3	800	10 to 16
1c × 2 (10 terminals type)	ACT512	12	(Initial) 7.2	(Initial) 1.0	180	53.3	800	10 to 16

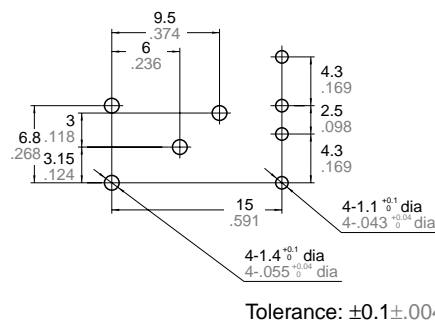
DIMENSIONS

mm inch

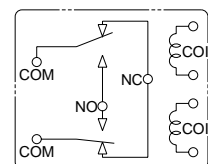
1. Twin type (8 terminals)



PC board pattern (Bottom view)

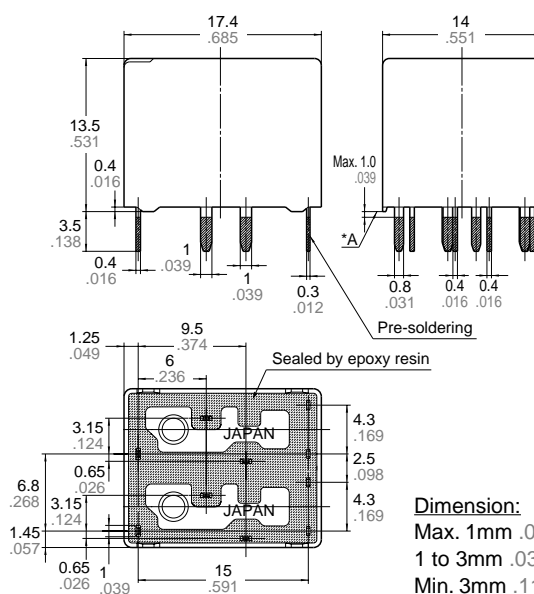


Schematic (Bottom view)

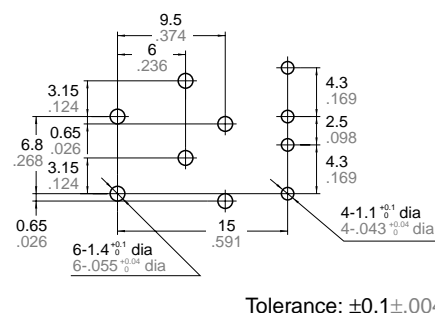


* Dimensions (thickness and width) of terminal specified in this catalog is measured before pre-soldering. Intervals between terminals is measured at A surface level.

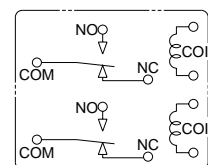
2. Twin type (10 terminals)



PC board pattern (Bottom view)



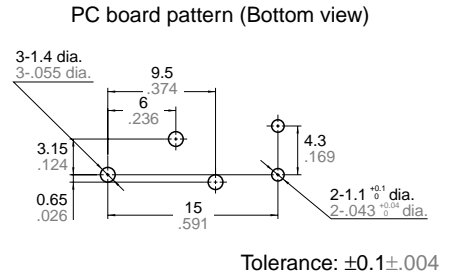
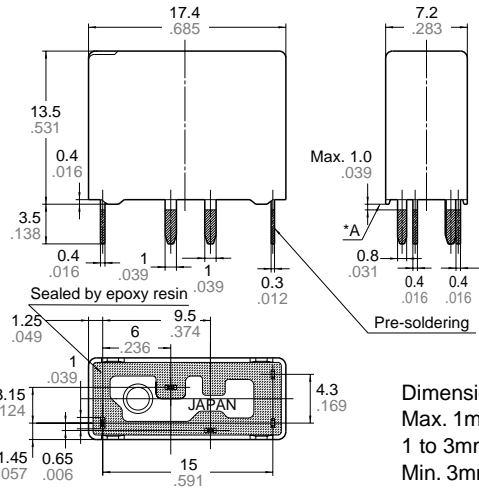
Schematic (Bottom view)



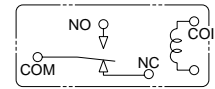
* Dimensions (thickness and width) of terminal specified in this catalog is measured before pre-soldering. Intervals between terminals is measured at A surface level.

3. Slim 1c type

mm inch



Schematic (Bottom view)

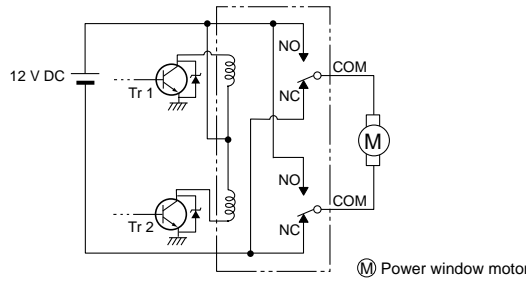


Dimension:
 Max. 1mm .039 inch:
 1 to 3mm .039 to .118 inch:
 Min. 3mm .118 inch:
 Tolerance
 $\pm 0.1 \pm .004$
 $\pm 0.2 \pm .008$
 $\pm 0.3 \pm .012$

* Dimensions (thickness and width) of terminal specified in this catalog is measured before pre-soldering. Intervals between terminals is measured at A surface level.

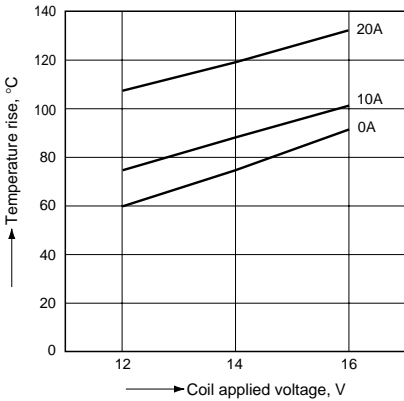
EXAMPLE OF CIRCUIT

Forward/reverse control circuits of DC motor for power windows

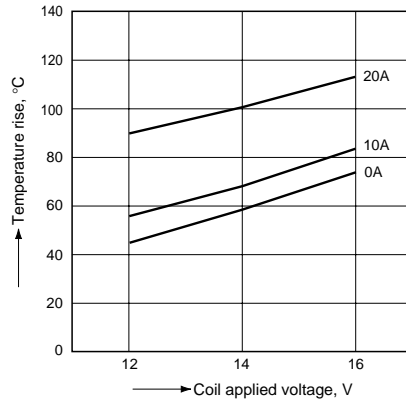


REFERENCE DATA

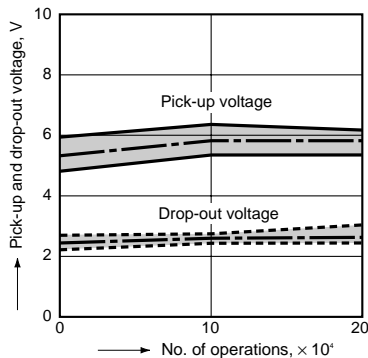
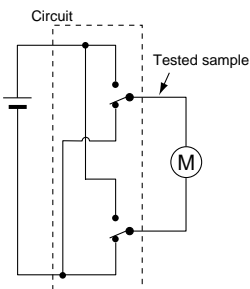
1-(1). Coil temperature rise (at 20°C 68°F)
 Sample: ACT212, 3pcs
 Contact carrying current: 0A, 10A, 20A



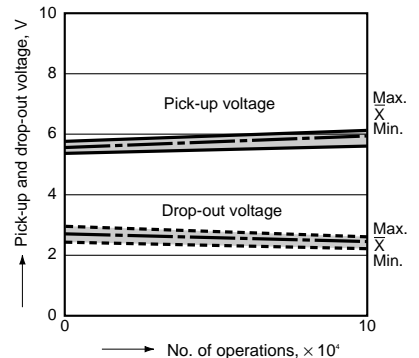
1-(2). Coil temperature rise (at 85°C 185°F)
 Sample: ACT212, 3pcs
 Contact carrying current: 0A, 10A, 20A



2-(1). Electrical life test (Motor load)
 Tested sample: ACT212, 3pcs.
 Load: 5A steady, Inrush 25A, 14V DC
 Operating frequency: ON 0.5s, OFF 9.5s



2-(2). Electrical life test (Motor lock)
 Tested sample: ACT212, 3pcs.
 Load: 25A, 14V DC
 Operating frequency: ON 0.5s, OFF 9.5s



For Cautions for use, see Relay Technical Information.