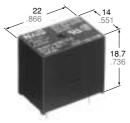




# COMPACT ECONOMICAL **POWER RELAYS**

# JE-X RELAYS



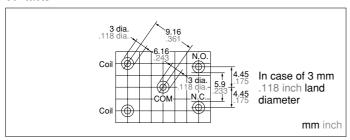
mm inch

## **FEATURES**

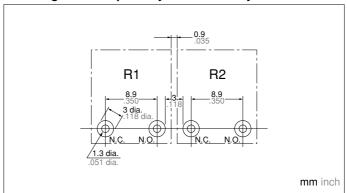
- · Compact size Height Max. 18.7 mm .736 inch lower than JY relay (22.5 mm) (.886 inch)
- High contact capacity 5A 125 V AC
- · Safety-oriented between coil and contact terminals
- · All plastic materials: UL flame retardance 94V-0
- VDE, TÜV also approved

### TERMINAL LAYOUT

Distance of 9.16 mm .360 inch between common and coil terminals and 8.9 mm .350 inch between contacts give room to the land diameter width when the relay is mounted on PC board, and allow design of patterns with insulation distances of 6 mm .236 inch between common and coil and 5.9 mm .232 inch between contacts.



#### • 3 mm .118 inch or more insulation distance for close mounting can be kept easily with JE-X relays.



#### **SPECIFICATIONS**

#### Contact

Arrangement		1 Form A	1 Form C	
	t resistance, max. drop 6 V DC 1A)	100 mΩ		
Contact mat	erial	Silver alloy		
Rating (resistive load)	Nominal switching capacity	5 A 30 V DC, 5 A 125 V AC, 3A 250 V AC		
	Max. switching power	750 VA, 150 W		
	Max. switching voltage	250 V AC, 30 V DC		
	Max. switching current	5 A		
Expected	Mechanical (at 180 cpm)	5×10 <sup>6</sup>		
life (min. operations)	Electrical (at 20 cpm) (at rated load)	10⁵		
Coil				
Minimum operating power		196 mW		
Nominal operating power		400 mW		

#### Remarks

- Specifications will vary with foreign standards certification ratings.

  Measurement at same location as "Initial breakdown voltage" section
- \*2 Detection current: 10 mA
- $^{*3}$  Wave is standard shock voltage of  $\pm 1.2 \times 50 \mu s$  according to JEC-212-1981
- \*4 Excluding contact bounce time
- \*5 Half-wave pulse of sine wave: 6ms; detection time: 10μs
- \*6 Half-wave pulse of sine wave: 6ms
- $^{\star 7}$  Detection time:  $10 \mu s$
- \*8 Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT.

#### Characteristics

· · · · · · · · · · · · · · · · · · ·						
Max. operating speed				20 cpm (at 70°C)		
Initial insulation resistance*1				Min. 100 MΩ (at 500 V DC)		
Initial	Between open contacts			750 Vrms		
breakdown voltage*2	Between contacts and coil			1,500 Vrms		
Surge voltage between coil and contact*3			Min. 5,000 V			
Operate time*4 (at nominal voltage)			Approx. 10 ms			
Release time (without diode)*4 (at nominal voltage)			Approx. 2 ms			
Temperature rise (at 70°C)			Max. 45°C with nominal coil voltage and at nominal switching capacity			
Shock resistance –		Functional*5		Min. 98 m/s <sup>2</sup> {10 G}		
		Destructive*6		Min. 980 m/s <sup>2</sup> {100 G}		
Vibration resistance		Functional*7		98 m/s <sup>2</sup> {10 G}, 10 to 55 Hz at double amplitude of 1.6 mm		
		Destructive		117.6 m/s <sup>2</sup> {12 G}, 10 to 55 H; at double amplitude of 2.0 mr		
Conditions for operation, transport and storage*8 (Not freezing and condens- ing at low temperature)		Ambient temp.	–40°C to +70°C –40°F to +158°F			
		Humidity	5 to 85% R.H.			
Unit weight		Approx. 9.2g .32 oz				

# TYPICAL APPLICATIONS

- Home appliances
   Oven, range, dryer, heater,
   Air conditioner etc.
- Automotive
- · Garage door opener
- Personal computer
- Programmable controller

# **ORDERING INFORMATION**

Ex. JE	1 X N	N — DC	12V —	H
Contact arrangement	Pick-up voltage		Coil voltage	Protective construction
1a: 1 Form A 1:1 Form C	N:70% of non	ninal voltage	DC 5, 6, 9, 12, 24, 48 V	H: Flux-resistant type

(Note) Standard packing: Carton 100 pcs. Case 500 pcs. UL/CSA, VDE approved type is standard.

#### **TYPES**

		Pick-up 70% V type	
Contact arrangement	Coil voltage	. ,	
	Jon Tonago	Flux-resistant type	
	5 V DC	JE1aXN-DC5V-H	
	6 V DC	JE1aXN-DC6V-H	
1 Form A	9 V DC	JE1aXN-DC9V-H	
I FOIIII A	12 V DC	JE1aXN-DC12V-H	
	24 V DC	JE1aXN-DC24V-H	
	48 V DC	JE1aXN-DC48V-H	
	5 V DC	JE1XN-DC5V-H	
	6 V DC	JE1XN-DC6V-H	
1 Form C	9 V DC	JE1XN-DC9V-H	
I FOIIII C	12 V DC	JE1XN-DC12V-H	
	24 V DC	JE1XN-DC24V-H	
	48 V DC	JE1XN-DC48V-H	

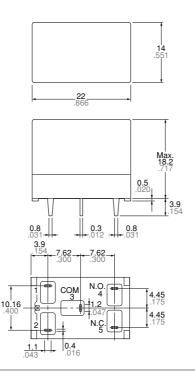
# COIL DATA (at 20°C 68°F)

Nominal voltage, V DC	Pick-up voltage, V DC (max.)	Drop-out voltage, V DC (min.)	Nominal operating currrent, mA (±10%)	Coil resistance, $\Omega(\pm 10\%)$	Nominal operating power, mW	Maximum allowable voltage, V DC (at 70°C)
5	3.5	0.5	80	62.5	400	6.5
6	4.2	0.6	67	90	400	7.8
9	6.3	0.9	44	202	400	11.7
12	8.4	1.2	33	360	400	15.6
24	16.8	2.4	17	1,440	400	31.2
48	33.6	4.8	8.3	5,760	400	62.4

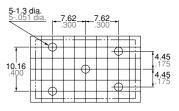
#### **DIMENSIONS**





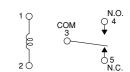


#### PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

#### Schematic (Bottom view)



Note: The above shows 1 Form C type, and No. 5 terminal is eliminated on the 1 Form A type.

 Dimension:
 General tolerance

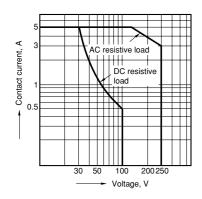
 Max. 1mm .039 inch:
 ±0.2 ±.008

 1 to 5mm .039 to .197 inch:
 ±0.3 ±.012

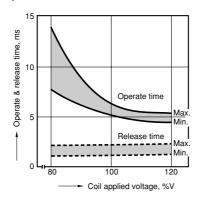
 Min. 5mm .197 inch:
 ±0.4 ±.016

#### **REFERENCE DATA**

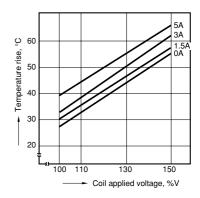
1. Max. switching power



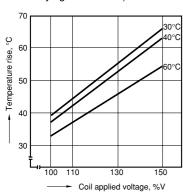
2. Operate and release time



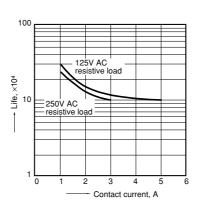
3. Coil temperature rise (at 30°C 86°F)



4. Coil temperature rise (Contact carrying current: 5 A)



5. Life curve



#### NOTE

Soldering should be carried out within 3 s at 350°C 662°F or within 5 s at 250°C 482°F.

# For Cautions for Use, see Relay Technical Information.