Miniature Intermediate Power Relay	EKML

Features

- switching capability
  1C: 16A, 2C: 10A, 3C: 12A, 4C: 12A
- 1.5kV dielectric strength
  (between coil and contacts)
- Various terminals available
- Socket available
- 1 ~ 4 poles configurations

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(File No.:E122258)

1. COIL DATA (at 20°C)

1) DC coil (1 Form C, 2 Form C)

Nominal Voltage (VDC)	Pick-up Voltage (VDC)	Drop-out Voltage (VDC)	Max Allowable Voltage (VDC)	Coil Current (mA)(±10%)	Coil Resistance (Ω)	Coil Power (W)
5	3.75	0.5	5.5	178.5	28 x (1±10%)	Approx. 0.9
6	4.50	0.6	6.6	150.0	40 x (1±10%)	
12	9.00	1.2	13.2	75.00	160 x (1±10%)	
24	18.0	2.4	26.4	37.50	640 x (1±10%)	
110/120	82.5	11	132	10	11000 x (1±15%)	

2) DC coil (3 Form C, 4 Form C)

Nominal Voltage (VDC)	Pick-up Voltage (VDC) Max.	Drop-out Voltage (VDC) Min.	Coil Current (mA)(±10%)	Coil Resistance (Ω)	Coil Power (W)
12	9.00	1.2	125	96 x (1±10%)	Approx. 1.5
24	18.0	2.4	62.5	384 x (1±10%)	
110	82.5	11	13.6	8066.7 x (1±10%)	
220	165	22	6.80	32266.7 x (1±10%)	

3) AC coil (1 Form C, 2 Form C)

Nominal Voltage (VAC)	Pick-up Voltage (VAC)	Drop-out Voltage (VAC)	Max Allowable Voltage (VAC)	Coil Resistance (Ω)	Coil Power (VA)
6	4.80	1.2	6.6	11.5 x (1±10%)	Approx. 1.2
12	9.60	2.4	13.2	46 x (1±10%)	
24	19.2	4.8	26.4	180 x (1±10%)	
110/120	96.0	22	132	4550 x (1±15%)	
220/240	176	44	264	14400 x (1±15%)	

4) AC coil (3 Form C)

Nominal Voltage (VAC)	Pick-up Voltage (VAC) Max.	Drop-out Voltage (VAC) Min.	Coil Current (mA)(±10%)	Coil Resistance (Ω)	Coil Power (VA)
12	9.6	3.6	208	20.2 x (1±10%)	Approx. 2.5
24	19.2	7.2	104	80.6 x (1±10%)	
110	88	33	22.7	1694 x (1±10%)	
220	176	66	11.3	6776 x (1±10%)	
380	304	114	6.50	20213 x (1±10%)	

5) AC coil (4 Form C)

Nominal Voltage (VAC)	Pick-up Voltage (VAC) Max.	Drop-out Voltage (VAC) Min.	Coil Current (mA)(±10%)	Coil Resistance (Ω)	Coil Power (VA)
12	9.6	3.6	250	16.8 x (1±10%)	Approx. 3
24	19.2	7.2	125	67.2 x (1±10%)	
110	88	33	27.2	1411.7 x (1±10%)	
220	176	66	13.6	5646.7 x (1±10%)	
380	304	114	7.8	16846.7 x (1±10%)	

Note: The maximum allowable voltage refers to the maximum voltage which relay coil could endure in a short period of time.

2. CONTACT DATA

Contact Arrangement		1 Form C	2 Form C	3 Form C, 4 Form C
Contact Resistance		100mΩ max. (at 1A 6VDC)		
Contact Material		$AgSnO_2$		
Load		Resistive load (COSΦ=1)		
Contact Ratings (Resistive load)		16A 250VAC 16A 30VDC	10A 250VAC 10A 30VDC	12A 240VAC 12A 28VDC
Minimum Load		100mA 5VDC		
Max. Switching Voltage		250VAC / 30VDC		240VAC / 28VDC
Max. Switching Current		20A	15A	12A
Max. Switching Power		4000VA / 480W	2500VA / 300W	2880VA / 336W
Life Expectancy	Electrical	100,000 operations (at 6 operations/minute)		
	Mechanical	10,000,000 operations (at 300 operations/minute)		

3. CHARACTERISTICS

Insulation Resistance		100MΩ (at 500VDC)
Dielectric Strength	Open Contacts	1000VAC 1min
	Coil and Contacts	1500VAC 1min
Operate Time (at nominal voltage)		1C, 2C: 25ms max. 3C, 4C: 15ms max.
Release Time (at nominal voltage)		1C, 2C: 25ms max. 3C, 4C: 10ms max.
Temperature Range		1C, 2C: -40℃ ~ 70℃ 3C, 4C: -40℃ ~ 85℃
Shock Resistance	Functional	10G
	Destructive	100G
Vibration Resistance		10 ~ 55Hz, 1.5mm DA
Humidity		1C, 2C: 20% ~ 85% 3C, 4C: 45% ~ 85%
Termination		PCB, Plug-in
Weight (Approx.)		1C, 2C: 35g, 3C: 50g, 4C: 65g
Outline Dimension (L x W x H)		1C, 2C: 28.0 x 21.5 x 35.0mm 3C: 27.2 x 31.0 x 35.0mm 4C: 27.0 x 40.7 x 35.0mm

Notes: The data shown above are initial values.

4. SAFETY APPROVAL

Safety Standard	Contact Form	Contact Rating
UL/cUL	1 Form C	16A 250VAC 16A 30VDC
	2 Form C	10A 250VAC 10A 30VDC 15A 125VAC
	3 Form C 4 Form C	12A 240VAC 12A 28VDC

5. ORDERING INFORMATION

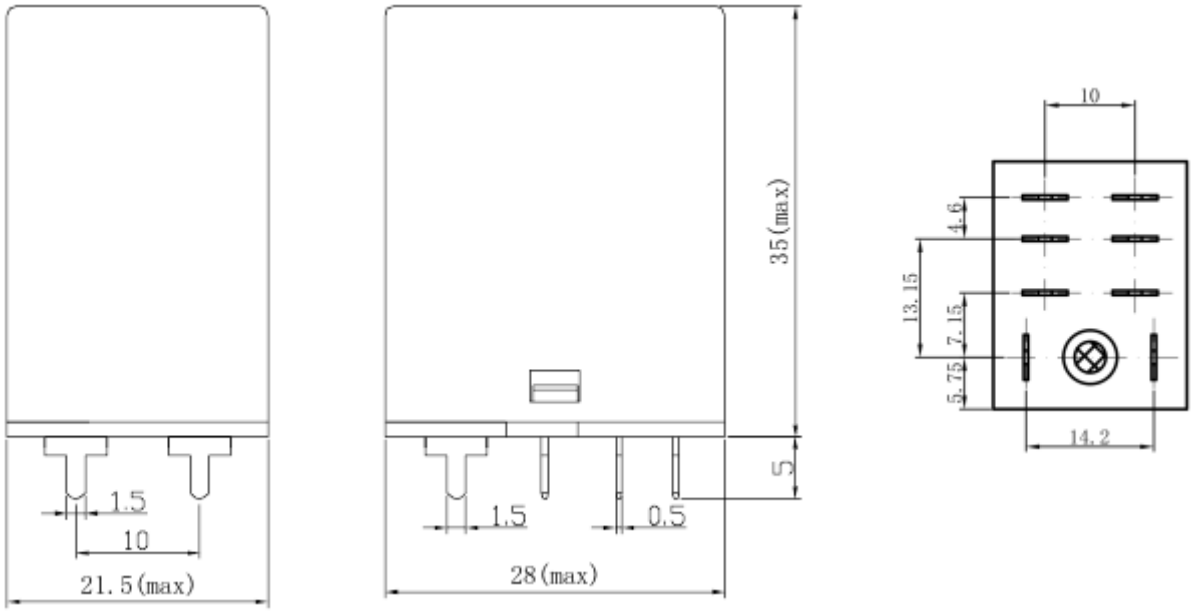
EKML ①	1 ②	-	D24 ③	P ④

① Relay Model	EKML
② Contact Arrangement	1 : 1 Form C (SPDT) 2 : 2 Form C (DPDT) 3 : 3 Form C (3PDT) 4 : 4 Form C (4PDP)
③ Coil Voltage	DC: D5=5VDC, D6=6VDC, D12=12VDC, D24=24VDC, D110=110VDC, D110/120=110/120VDC, D220=220VDC AC: A6=6VAC, A12=12VAC, A24=24VAC, A110=110VAC, A110/120=110/120VAC, A220/240=220/240VAC, A220=220VAC, A380=380VAC
④ Terminal Form	P: PC board S: Plug-in B: Flange mounting (Plug-in) PB: Flange mounting (PCB) SL: Light emitting diode with plug-in PL: Light emitting diode with pc board

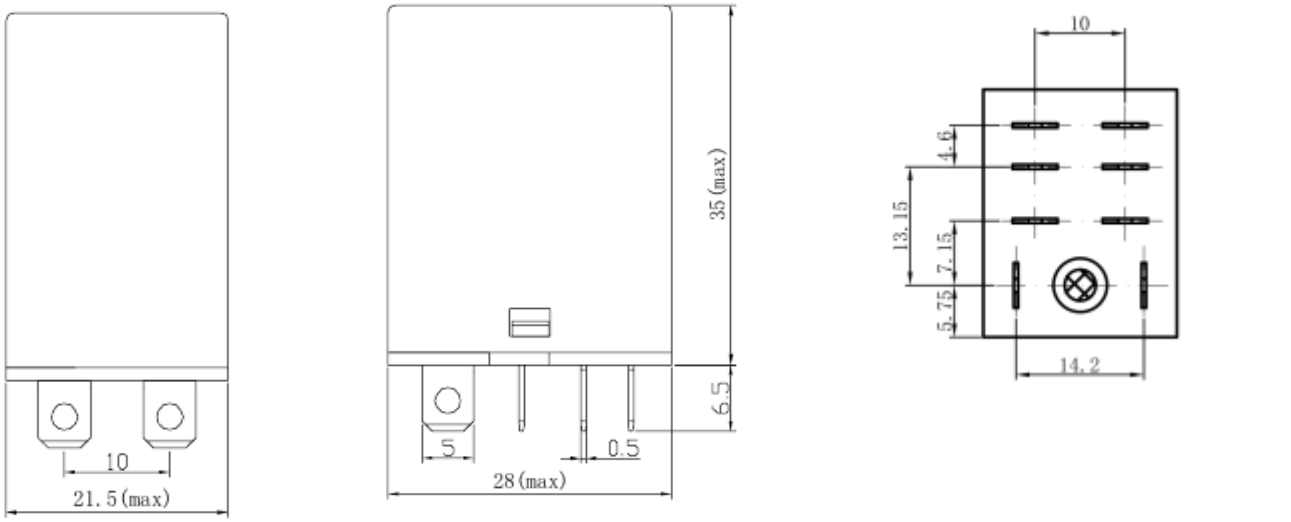
6. DIMENSIONS (Unit: mm)

Outline Dimensions

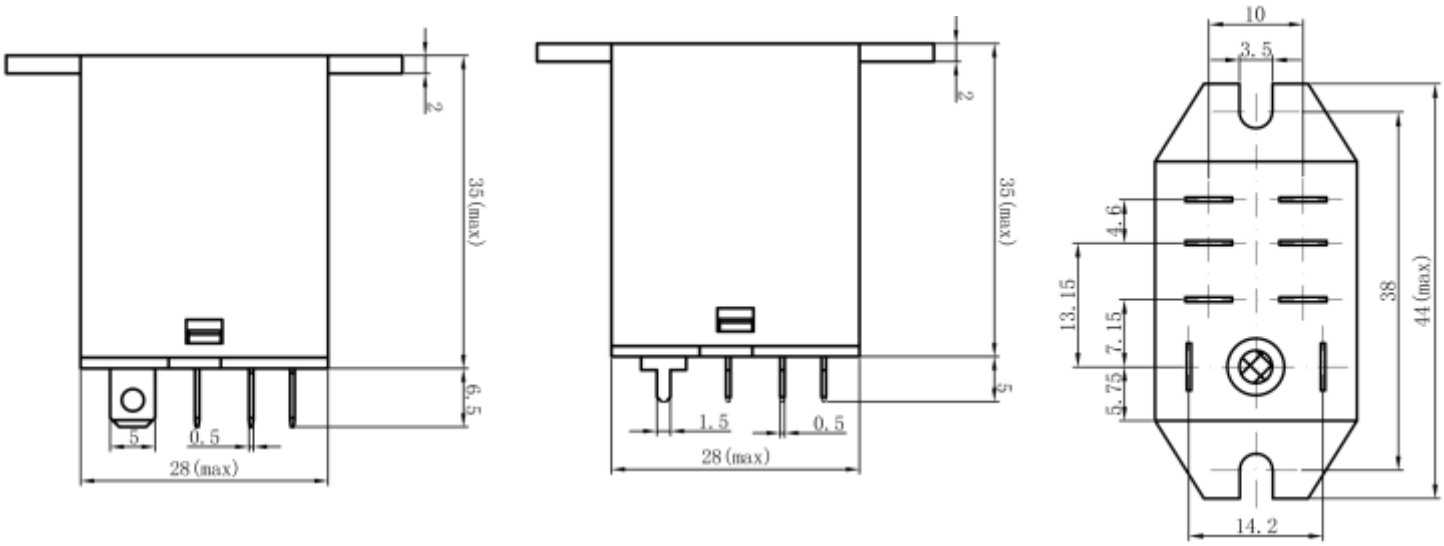
PC Board (1 Form C, 2 Form C)



Plug-in (1 Form C, 2 Form C)

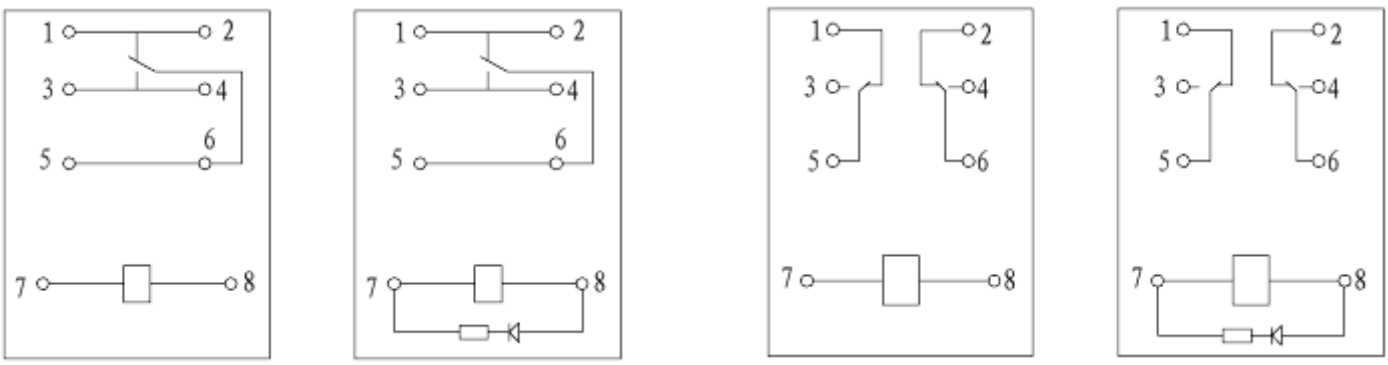


Flange mounting (1 Form C, 2 Form C)



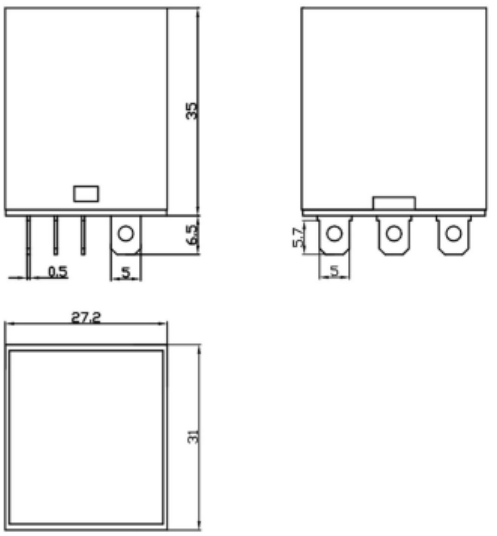
Wiring Diagram (Bottom View)

1 Form C **2 Form C**

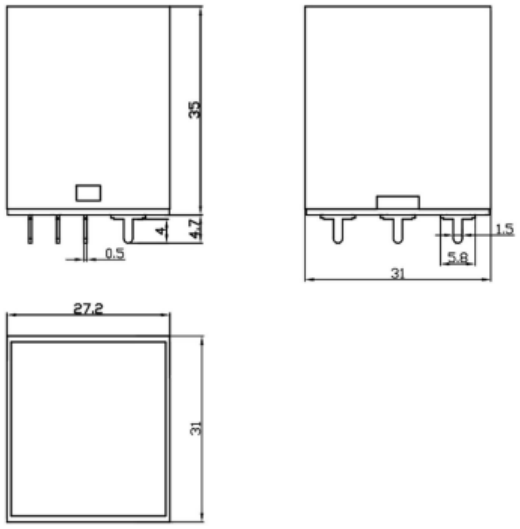


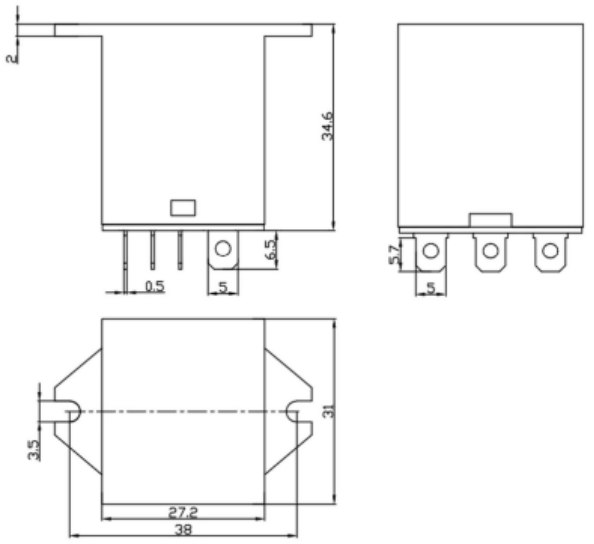
(With LED) (With LED)

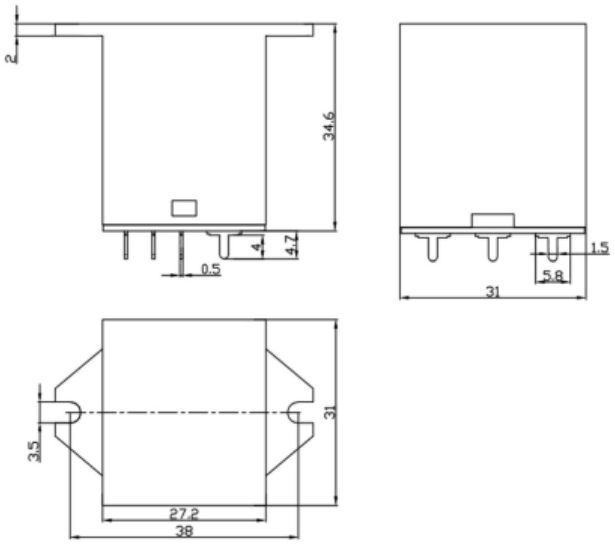
Plug-in (3 Form C)

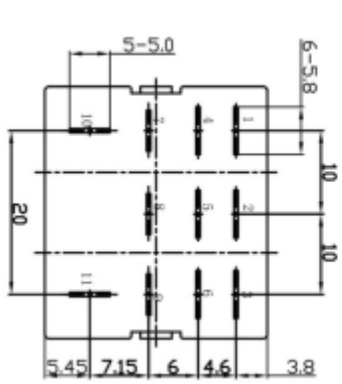


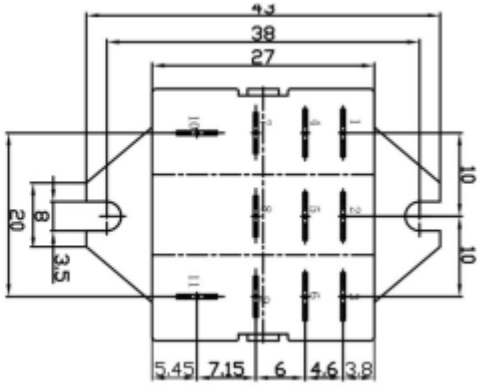
PC Board (3 Form C)



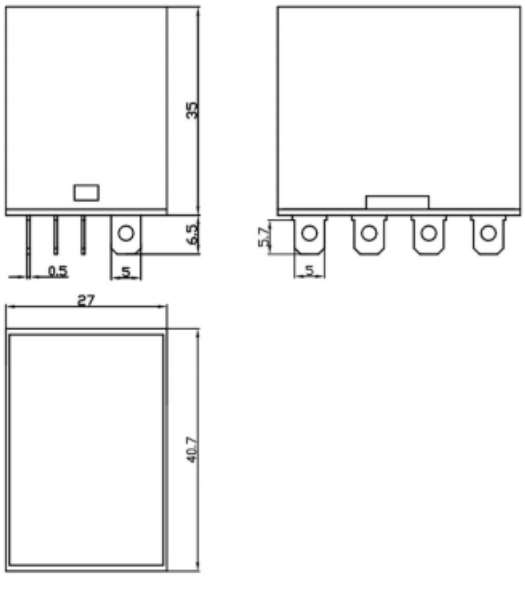




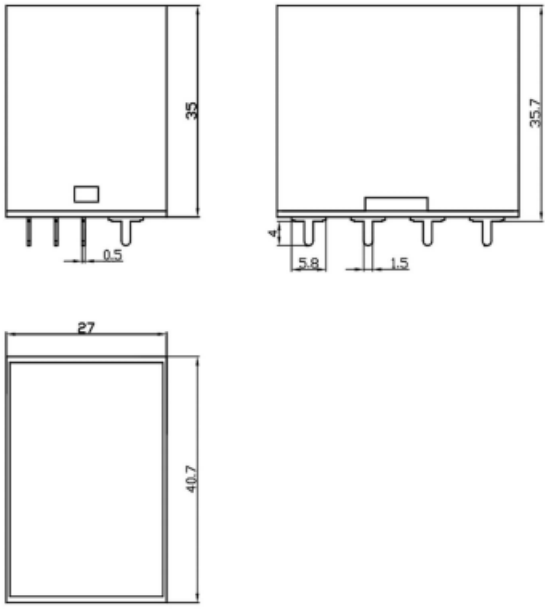


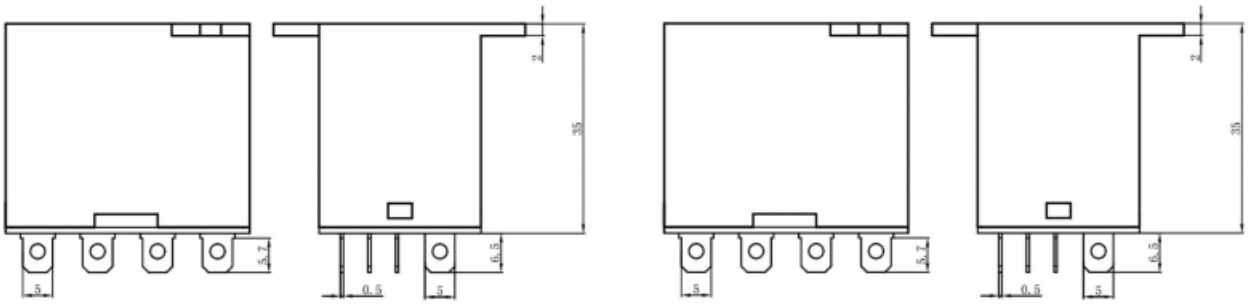


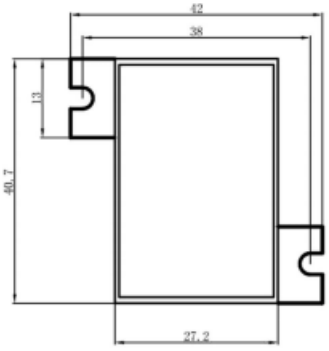
Plug-in (4 Form C)

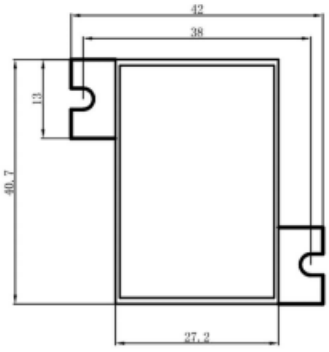


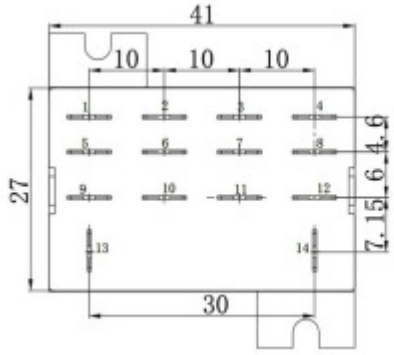
PC Board (4 Form C)

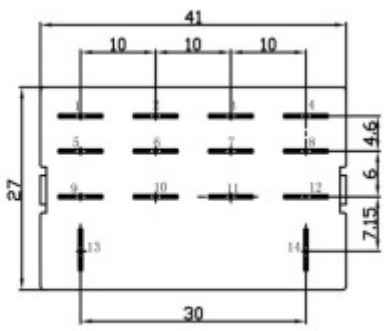






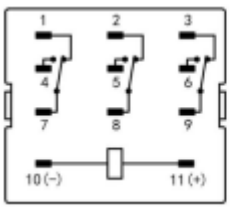


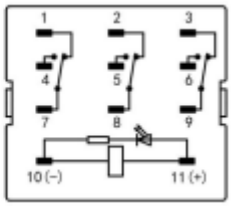




Wiring Diagram (Bottom View)

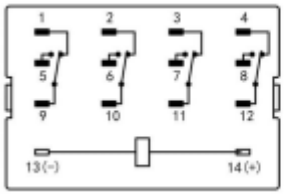
3 Form C

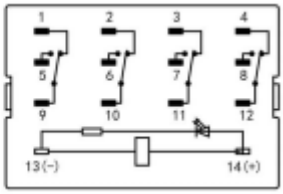




(With LED)

4 Form C





(With LED)

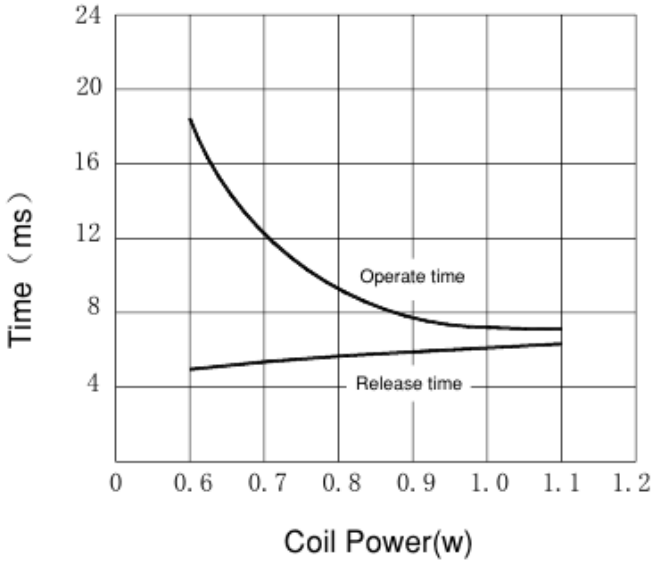
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.

2) The tolerance without indicating for PCB layout is always ±0.1mm.

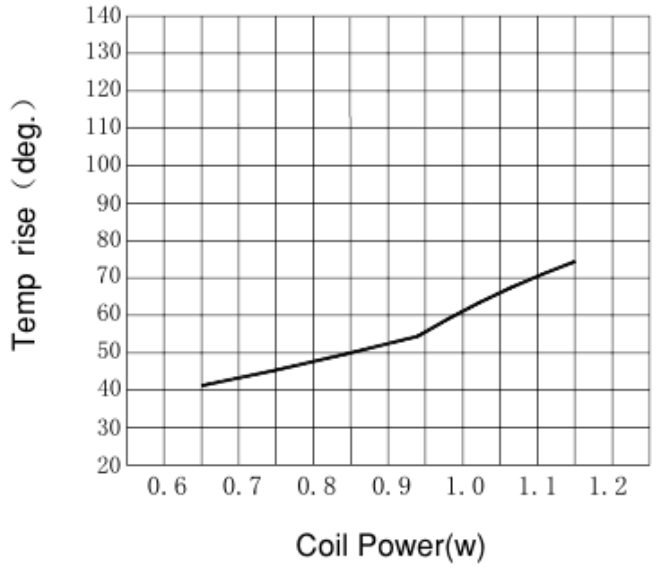
3) The additional tin top is max. 1mm.

7. CHARACTERISTIC CURVES

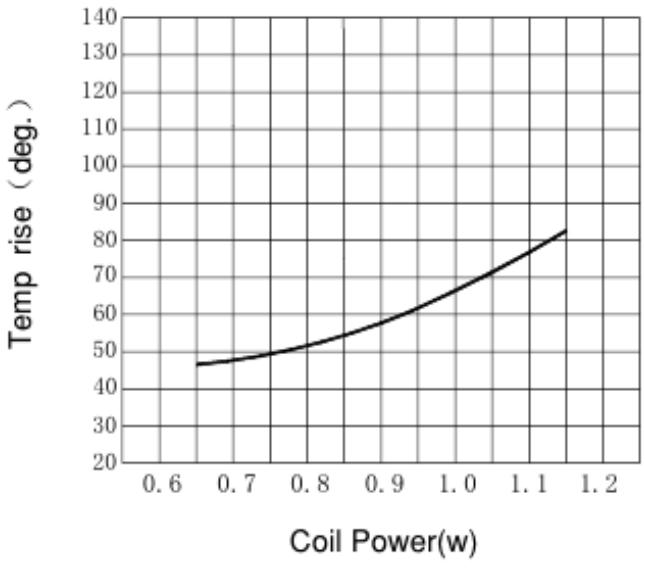
Timing (1 Form C, 2 Form C)



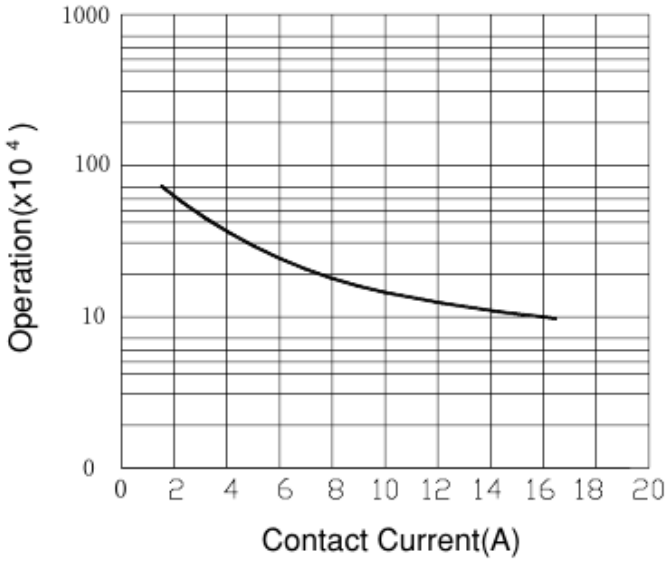
Coil Temperature Rise (1 Form C)



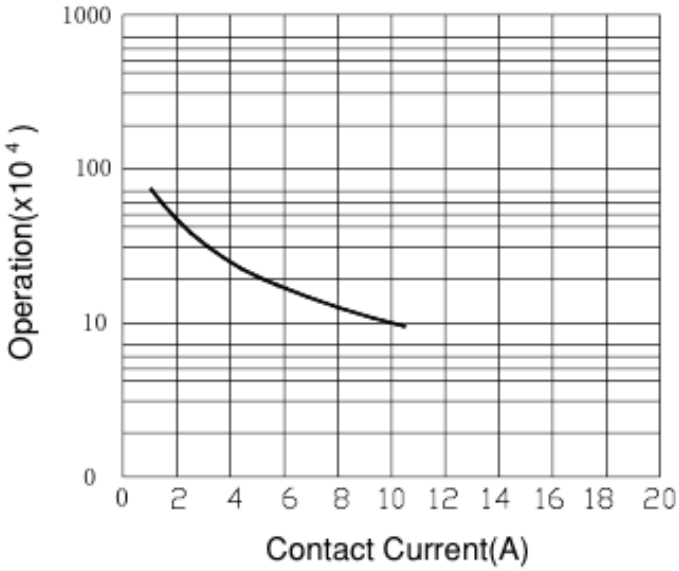
Coil Temperature Rise (2 Form C)



Life Curves (1 Form C)



Life Curves (2 Form C)



Maximum Switching Power (3 Form C, 4 Form C)