Subminiature Power Relay	CQ

Features

- Low height and flat construction
- High rating: 16A/20A
- High sensitive: 200mW
- TV-5/TV-8 load capability
- UL insulation system: Class F
- Product in accordance to EN 60335-1 available
- Plastic sealed type

c UL us
(File No.:E122258)

1. COIL DATA (at 23°C)

1) 1 Form A

Nominal Voltage (VDC)	Pick-up Voltage (VDC)	Drop-out Voltage (VDC)	Max Allowable Voltage (VDC)	Coil Current (mA)(±10%)	Coil Resistance (Ω)	Coil Power (mW)
5	4.00	0.5	6.50	40.0	125 x (1±10%)	Approx. 200
6	4.80	0.6	7.80	33.3	180 x (1±10%)	
9	7.20	0.9	11.7	22.2	405 x (1±10%)	
12	9.60	1.2	15.6	16.7	720 x (1±10%)	
18	14.4	1.8	23.4	11.1	1620 x (1±10%)	
24	19.2	2.4	31.2	8.33	2880 x (1±10%)	
48	38.4	4.8	62.4	4.17	11520 x (1±10%)	

2) 1 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 (mW)
5	4.00	0.5	6.50	80.0	62.5 x (1±10%)	Approx. 400
6	4.80	0.6	7.80	66.7	90.0 x (1±10%)	
9	7.20	0.9	11.7	44.4	202.5 x (1±10%)	
12	9.60	1.2	15.6	33.3	360 x (1±10%)	
18	14.4	1.8	23.4	22.2	810 x (1±10%)	
24	19.2	2.4	31.2	16.7	1440 x (1±10%)	
48	38.4	4.8	62.4	8.33	5760 x (1±10%)	

Note:

1) The data shown above are initial values.

2) 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 A		1 Form C
Contact Resistance[1)]		100mΩ max. (at 1A 6VDC)		
Contact Material		$AgSnO_2$		
Contact Ratings (Resistive load)		Standard	High capacity	NO: 10A 125/250VAC NC: 6A 125/250VAC
		10A 125/250VAC 10A 30VDC TV-5	16A 125/250VAC 10A/16A 30VDC 20A 125/250VAC 8A 250VAC(COSΦ=0.4) TV-5 TV-8	
Max. Switching Voltage		277VAC / 30VDC		250VAC
Max. Switching Current		20A		NO: 10A / NC: 6A
Max. Switching Power		5000VA / 480W		NO: 2500VA NC: 1500VA
Life Expectancy	Electrical	50,000 operations		
	Mechanical	10,000,000 operations		

Note: 1) The data shown above are initial values.

2) For plastic sealed type, the venting-hole should be opened in electrical endurance test.

3. CHARACTERISTICS

Insulation Resistance		1000MΩ (at 500VDC)
Dielectric Strength	Open Contacts	1000VAC 1min
	Coil and Contacts	2500VAC 1min
Operate Time (at nominal voltage)		15ms max
Release Time (at nominal voltage)		5ms max
Temperature Range		-40℃ ~ 105℃
Shock Resistance	Functional	$98m/s^2$
	Destructive	$980m/s^2$
Vibration Resistance		10 ~ 55Hz, 1.5mm DA
Humidity		5 ~ 85% RH
Termination		PCB
Weight		Approx. 9g
Outline Dimension (L x W x H)		22.0 x 16.0 x 10.9mm

Note: 1) The data shown above are initial values.

2) Please find coil temperature curve in the characteristic curves below.

4. SAFETY APPROVAL RATINGS

UL/cUL	1 Form A	H type	10A 250VAC at 85℃
		E type	16A 125VAC at 85℃ 16A 30VDC at 85℃ 20A 250VAC at 85℃ 0.3A 110VAC at 85℃ 13A 125VAC at 105℃ 10A 250VAC at 105℃ TV-5 120VAC TV-8 120VAC Electronic Ballast 5A 120VAC at 85℃ 1/2HP 120VAC 1HP 250VAC
	1 Form C		NO: 10A 250VAC NC: 6A 250VAC

Notes:

1) All values unspecified are at room temperature.

2) Only typical loads are listed above. Other load specifications can be available upon request.

5. ORDERING INFORMATION

CQ ①	1 ②	-	H ③	12 ④	S ⑤

① Relay Model	CQ
② Contact Arrangement	11: 1 Form A (SPST-NO) 1: 1 Form C (SPDT)
③ Contact Current	H: 10A E: 16A (only for 1 Form A)
④ Coil Voltage	5=5VDC, 6=6VDC, 9=9VDC, 12=12VDC, 18=18VDC, 24=24VDC, 48=48VDC
⑤ Construction	S: Plastic sealed type

Notes:

1) We recommend flux proofed types for a clean environment (free from contaminations like H_2S, SO_2, NO_2, dust etc.).
We suggest choose plastic sealed types and validate it in real application for an unclean environment (with contaminations like H_2S, SO_2, NO_2, dust etc.).

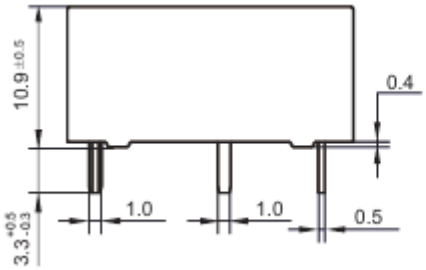
2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.

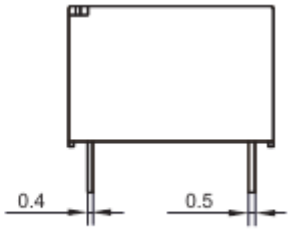
3) When the ambient temperature reaches 105℃ degree or more, please select flux proofed and high capacity type. Besides, please indicate the exact ambient temperature when ordering.

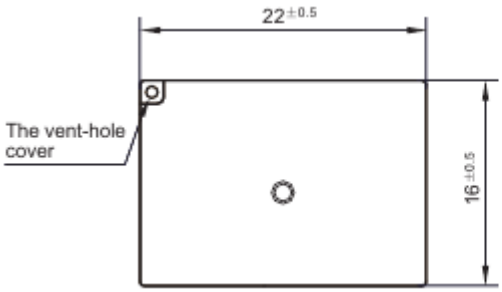
6. DIMENSIONS (Unit: mm)

1) 1 Form A

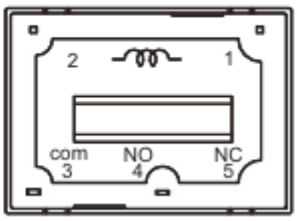
Outline Dimensions





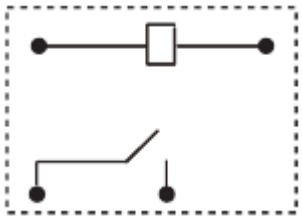


(Top View)

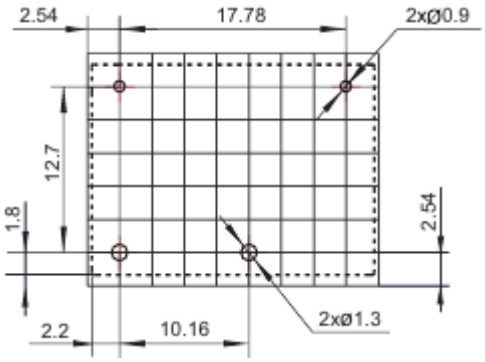


(Bottom View)

Wiring Diagram (Bottom View)

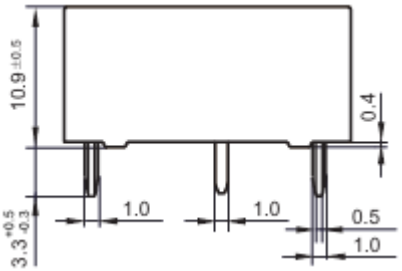


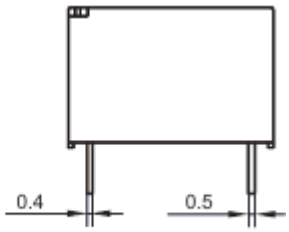
PCB Layout (Bottom view)

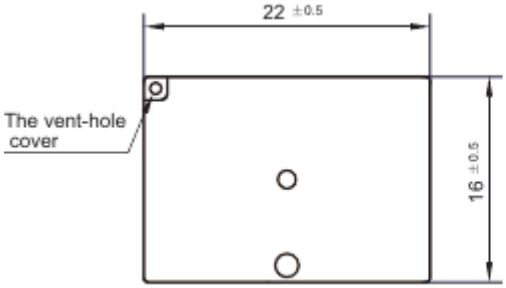


2) 1 Form C

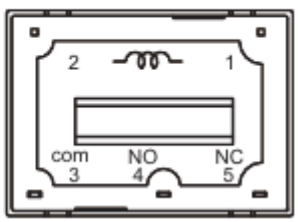
Outline Dimensions





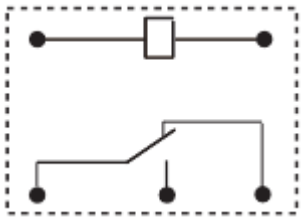


(Top View)

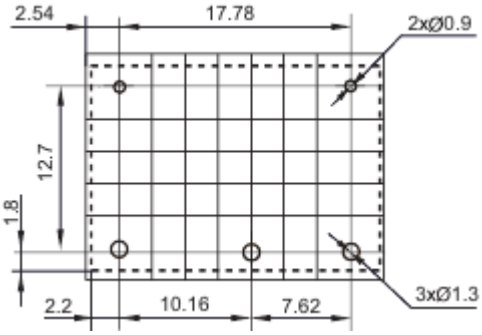


(Bottom View)

Wiring Diagram (Bottom View)



PCB Layout (Bottom view)

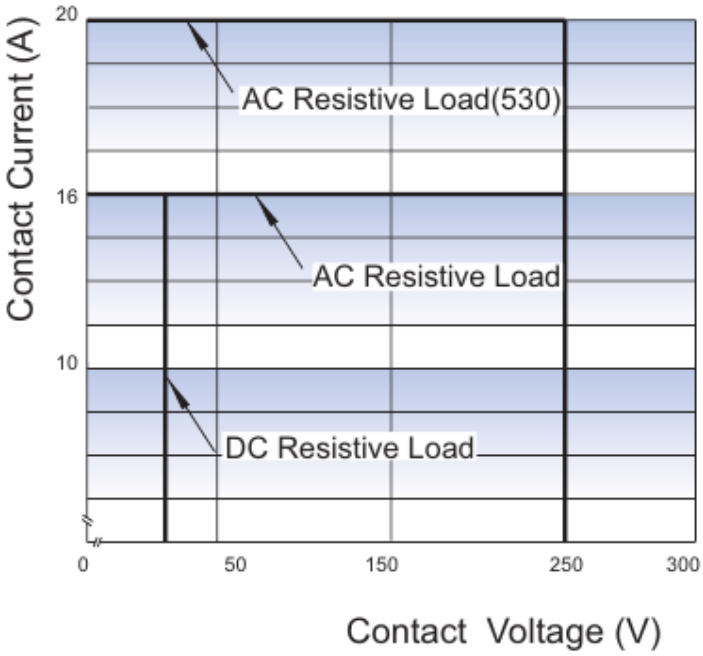


Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.

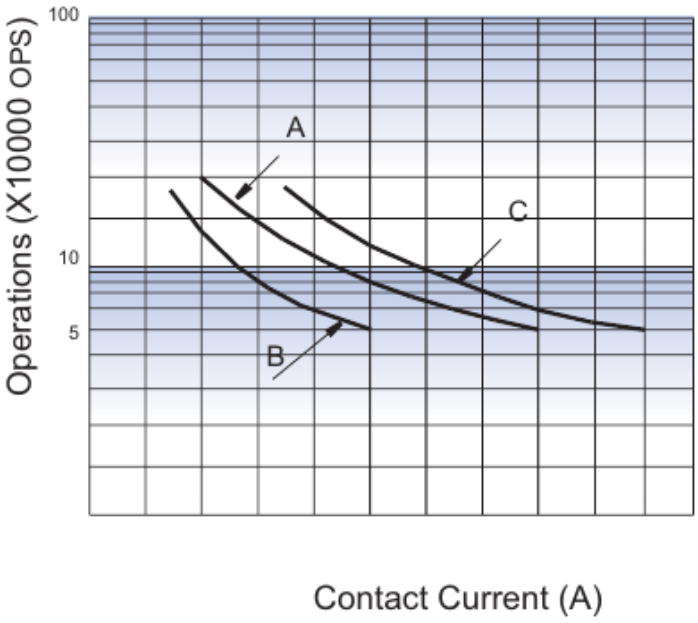
2) The tolerance without indicating for PCB layout is always ±0.1mm.

7. CHARACTERISTIC CURVES

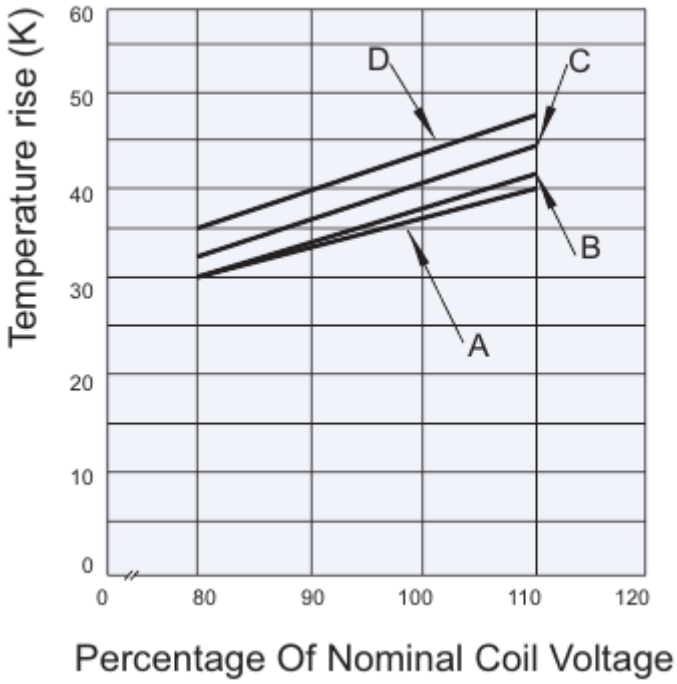
Maximum Switching Power



Endurance Curve



Coil Temperature Rise



Notes:

1) Curve A: E type (16A 250VAC)

2) Curve B: H type (10A 250VAC)

3) Curve C: E type (20A 250VAC)

Notes: Test conditions

Curve A: 1 Form A, E type (16A, 85℃) Curve B: 1 Form A, H type (10A, 85℃)

Curve C: 1 Form A, E type (20A, 85℃) Curve D: 1 Form C, H type (10A, 85℃)