Features

- ☐ 12A/14A/16A miniature PCB Power Relay.
- ☐ Contact gap can be greater than 1.85 & 2.1 mm.
- ☐ Conforms to European photovoltaic standard IEC 62109-1.
- ☐ Coil holding voltage can be reduced to 45~60%(for 210), 45~55%(for 210H) V of the nominal coil voltage for saving energy.
- ☐ High performance PCB power relay for photovoltaic power generation systems (solar inverter).
- ☐ Complies with RoHS-Directive 2011/65/EU.

Type List

◆ Standard type

Terminal style	Contact form	Insulation system	Designation (provided with)
			Flux tight
PCB terminal	2A (DPNO)	F	210-2AH-F-C
			210-2AH1-F-C

◆ High power type

PCB terminal	2A (DPNO)	F	210H-2AH-F-C
			210H-2AH1-F-C

Ordering Information

210 ☐ - 2A H ☐ - ☐ - C ☐

1 2 3 4 5 6 7 8

1. 210 -- Basic series designation
2. Blank -- Standard type
   H -- High power type
3. 2A -- Double pole normally open
4. H -- Contact material Ag alloy
5. Blank -- Contact gap ≥1.85mm
   1 -- Contact gap ≥2.1mm
6. Blank -- Standard type
   F -- Class F
7. C -- Flux tight
8. ☐ -- Coil voltage (please refer to the coil rating data for the availability)

Contact Rating

◆ Standard type

Resistive load	12A 250VAC, On 1s /Off 9s, at 85°C, 30K ops.

◆ High power type

Resistive load	14A 250VAC, On 1s /Off 9s, at 85°C, 30K ops.
	16A 250VAC, On 1s /Off 9s, at 75°C, 30K ops.

Coil Rating (DC)

◆ For contact gap ≥1.85 mm

Rated voltage (V)	Rated current ±10 % at 23°C (mA)	Coil resistance ±10 % at 23°C (Ω)	Pick up voltage (Max.) at 23°C (1)	Drop out voltage (Min.) at 23°C	Continuous voltage at 85°C (2) (3)	Power consumption at rated / holding voltage
12	118	102	75 % of rated voltage	5 % of rated voltage	(210) 45~60%, (210H) 45~55% of rated voltage	approx. 1.4W / 0.29W (2)
24	58	411				

Notes : (1) To energize relay properly apply 100%~120% nominal coil voltage for 200ms.
(2) Coil holding voltage is 45~60%(for 210), 45~55 %(for 210H) of nominal voltage after applying nominal voltage for 200ms.
(3) At 85°C for contact rating 12A, 14A; at 75°C for contact rating 16A.

◆ For contact gap ≥2.1 mm

Rated voltage (V)	Rated current ±10 % at 23°C (mA)	Coil resistance ±10 % at 23°C (Ω)	Pick up voltage (Max.) at 23°C (1)	Drop out voltage (Min.) at 23°C	Continuous voltage at 85°C (2) (3)	Power consumption at rated / holding voltage
12	118	102	80 % of rated voltage	5 % of rated voltage	(210) 45~60%, (210H) 45~55% of rated voltage	approx. 1.4W / 0.29W (2)
24	58	411				

Notes : (1) To energize relay properly apply 100%~120% nominal coil voltage for 200ms.
(2) Coil holding voltage is 45~60%(for 210), 45~55 %(for 210H) of nominal voltage after applying nominal voltage for 200ms.
(3) At 85°C for contact rating 12A, 14A; at 75°C for contact rating 16A.

Specification

Contact material	Ag alloy	
Contact resistance (1)	100mΩ Max. (at 1A/6VDC by 4-wire resistance measurement) 6 mΩ Max. (By voltage drop 10A)	
Operate time (1)	20ms Max.	
Release time (1)	15ms Max.	
Vibration resistance	Operating extremes	10~55Hz , amplitude 1.5 mm
	Damage limits	10~55Hz , amplitude 1.5 mm
Shock resistance	Operating extremes	10G
	Damage limits	100G
Life expectancy	Mechanical	100,000 ops. (frequency 9,000 ops./hr)
Operating ambient temperature	-40~+85°C (no freezing) for contact rating 12A,14A -40~+75°C (no freezing) for contact rating 16A	
Weight	Approx.17 g	

Notes : (1) Initial value. Operate and release time excluding contact bounce.
(2) Unless otherwise specified, all tests are under room temperature and humidity.
(3) Consider the heat of PCB is necessary, please check the actual condition of PCB.
(4) Applying no diode to this relay. The life expectancy will be lower when a diode is used. To use a varistor (ZNR) could absorb the coil surge of relay that is recommended.
(5) Do not use the relay exceeding the coil rating, contact rating and life expectancy, or this may cause the risk of overheating.
(6) To assure optimum performance, avoid the relay from dropping, hitting, or other unnecessary shocks.
(7) Do not switch the contacts without any load as the contact resistance may become increased rapidly.
(8) Please contact Song Chuan for the detailed information.

Insulation Data

Insulation resistance (1)	1000MΩ Min. (DC 500V)	
Dielectric strength (1)	Between open contact	: AC 1500V, 50/60Hz 1 min.
	Between contact and coil	: AC 5000V, 50/60Hz 1 min.
	Between contact circuits	: AC 2500V, 50/60Hz 1 min.
Insulation of IEC 61810-1		
Clearance / creepage distances	Between coil to contact	: Double, Reinforce ≥3 mm / ≥5 mm
	Between open contact	: Basic, ≥1.5mm / ≥2.5mm
	Between contact circuits	: Double, Reinforce ≥3 mm / ≥5 mm
Rated insulation voltage	250V	
Rated impulse withstand voltage	2500V	
Pollution degree	2	
Rated voltage	230 / 400V	
Overvoltage category	II	
Compliant with European photovoltaic standard		
Contact gap	1.85mm Min. (IEC 62109-1 and VDE 0126)	
	2.1mm Min. (IEC 62109-1 and VDE 0126)	

Notes : (1) Initial value.

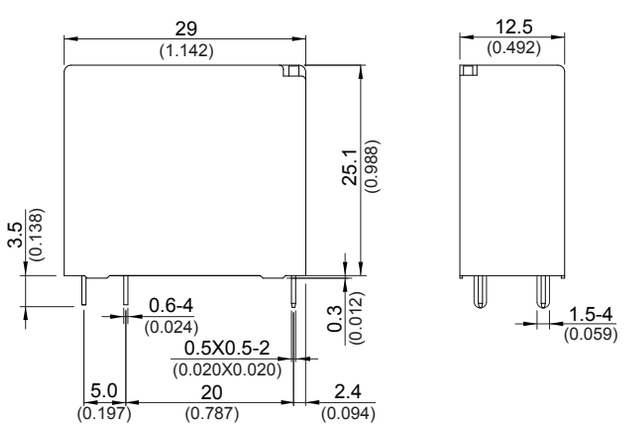
Safety Approval

Certified	UL / CUL	VDE
File No.	E88991	40007827

Safety Approval Rating

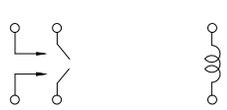
UL / CUL		VDE	
210	210H	210	210H
NO : 12A 277VAC	NO : 16A 277VAC NO : 14A 277VAC	NO : 12A 250VAC T85	NO : 16A 250VAC T75 NO : 14A 250VAC T85

Outline Dimensions

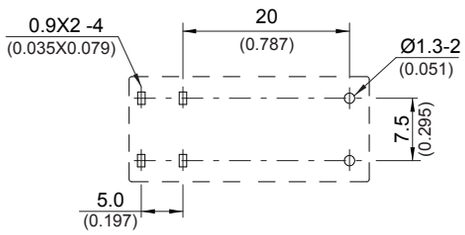


TOLERANCE:
LESS THAN: 1(0.039) ±0.1(0.004)
5(0.197) ±0.3(0.012)
20(0.787) ±0.5(0.020)
MORE THAN: 20(0.787) ±1(0.039)

Wiring Diagram (Bottom view)

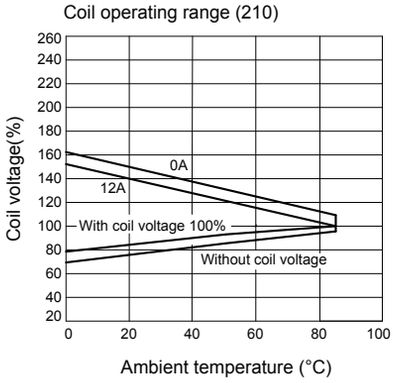


PC Board Layout (Bottom view)

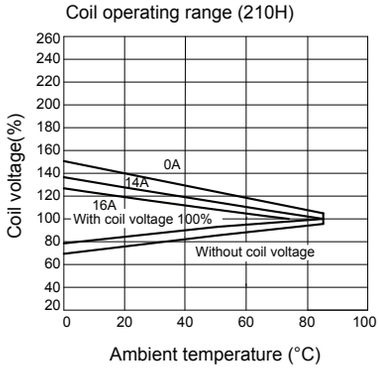


Engineering Data

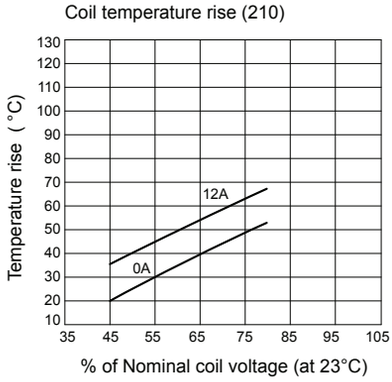
Coil operating range (210)



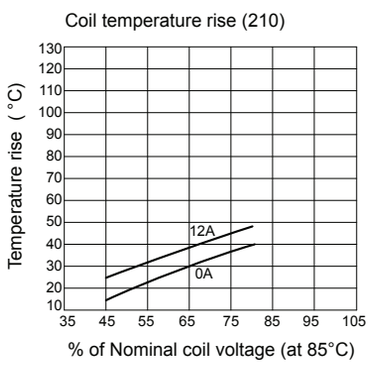
Coil operating range (210H)



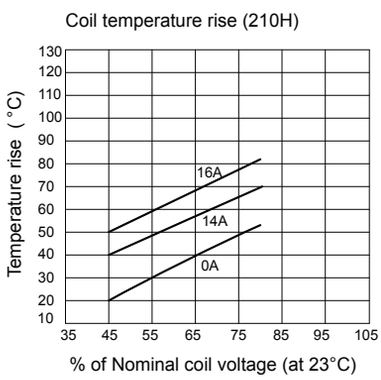
Coil temperature rise (210)



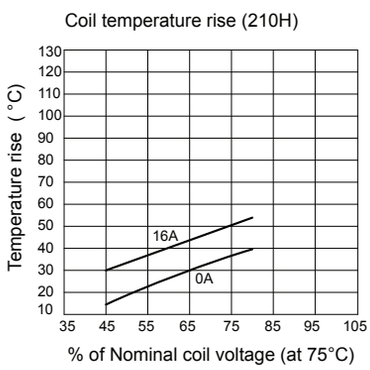
Coil temperature rise (210)



Coil temperature rise (210H)



Coil temperature rise (210H)



Coil temperature rise (210H)