Features

- ☐ Heavy duty 54A 277VAC, 50A 400VAC power type.
- ☐ DPDM contact configuration with large contact gap 2.1mm / 3.0mm version.
- ☐ Conforms to European photovoltaic standard IEC 62109-1.
- ☐ Coil holding voltage can be reduced to 50~55% 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

Terminal style	Contact form	Contact gap	Designation (provided with)	
			Dust cover	Ftlux tight
PCB terminal	2A (DPDM)	2.1mm	510H-P-2A-F-D	510H-P-2A-F-C
			------	510C-P-2A-F-C
		3.0mm	510H-P-2A1-F-D	510H-P-2A1-F-C
			------	510C-P-2A1-F-C

Ordering Information

510	H	-	P	-	2A	☐	-	☐	-	C		☐
1	2		3		4	5		6		7		8

1. 510 -- Basic series designation

2. H -- High power type
   C -- Characteristic flexible type

3. P -- PCB terminal

4. 2A -- Form A, double-pole, double-make (DPDM)

5. Blank -- Contact gap ≥2.1mm
   1 -- Contact gap ≥3.0mm

6. Blank -- Standard type
   F -- Class F

7. C -- Flux tight
   D -- Dust cover

8. ☐ -- Coil voltage (please refer to the coil rating data for the availability)

Contact Rating

Type	510H	510C
Rated load (Resistive)	54A 240VAC, On 1s /Off 9s, at 85°C, 10K ops.	50A 240VAC, On 1s /Off 9s, at 85°C, 6K ops.
		Making 20A, Carrying 50A, Breaking 20A / 400VAC, On 1s /Off 9s, at 85°C, 30K ops.
Max. switching current	54A	50A
Max. switching voltage	277VAC	400VAC

Coil Rating (DC)

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)	Power consumption at rated / holding voltage
12	449	26.7	75 % of rated voltage	5 % of rated voltage	50~55 % of rated voltage	approx. 5.4W / 1.35W (2)
24	226	106				

Notes : (1) To energize relay properly apply 100%~120% nominal coil voltage for 200ms.
(2) Coil holding voltage is 50~55% of nominal voltage after applying nominal voltage for 200ms.

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)	30ms Max.	
Release time (1)	30ms Max.	
Vibration resistance	Operating extremes	10~50Hz , amplitude 1.5 mm
	Damage limits	10~50Hz , amplitude 1.5 mm
Shock resistance	Operating extremes	10G
	Damage limits	100G
Life expectancy	Mechanical	1,000,000 ops. (frequency 9,000 ops./hr)
Operating ambient temperature	-40~+85°C (no freezing)	
Weight	Approx.90 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 2000V, 50/60Hz 1 min.
	Between contact and coil	: AC 4000V, 50/60Hz 1 min.
	Between contact circuits	: AC 2000V, 50/60Hz 1 min.
Insulation of IEC 61810-1		
Clearance / creepage distances	Between coil to contact	: Double /Reinforce, ≥3.0mm / ≥5.0 mm (for 250VAC) ≥3.0mm / ≥8.0 mm (for 400VAC of 510C type)
	Between open contact	: Basic, ≥1.5 mm/ ≥2.5 mm ≥3.0 mm/ ≥4.0 mm (for 400VAC & 2A1 of 510C type only)
	Between contact circuits	: Double /Reinforce, ≥3.0mm / ≥5.0 mm (for 250VAC) ≥3.0mm / ≥8.0 mm (for 400VAC of 510C type)
Rated insulation voltage	250V (for 510H type), 250V/400V (for 510C type)	
Rated impulse withstand voltage	2500V	
Pollution degree	2	
Rated voltage	230 / 400V	
Overvoltage category	II	
Compliant with European photovoltaic standard		
Contact gap	2.1 mm Min. (IEC 62109-1 and VDE 0126)	
	3.0 mm Min. (IEC 62109-1 and VDE 0126)	

Notes : (1) Initial value.

Safety Approval

Certified	UL / CUL	TUV
File No.	E88991	R50199385

Safety Approval Rating

◆ 510H type

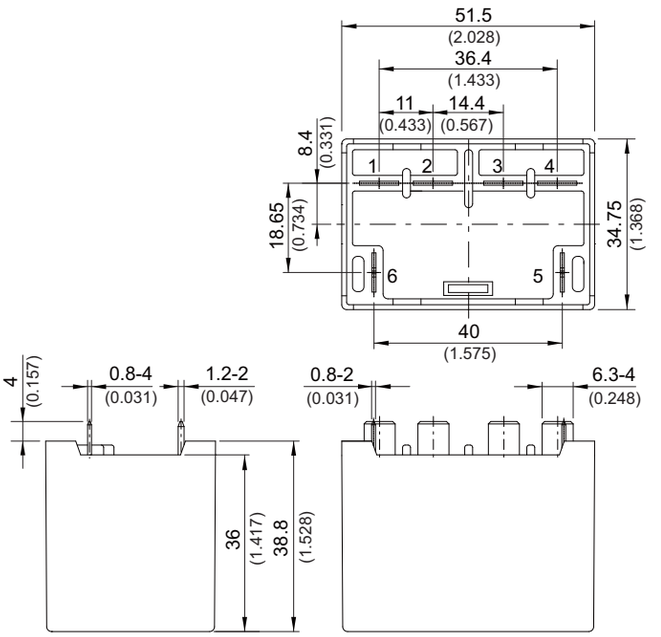
UL / CUL	TUV
54A 277VAC	54A 250VAC

◆ 510C type

UL / CUL	TUV
20A 277VAC, Resistive, Carrying current 50A 20A 400VAC, Resistive, Carrying current 50A (1)	Making 20A , Carrying 50A , Breaking 20A/400VAC (2)

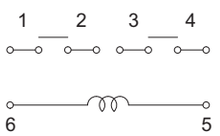
Notes : (1) For Non-Industrial application use only.
(2) With 50%~55% modulation of nominal coil voltage.

Outline Dimensions

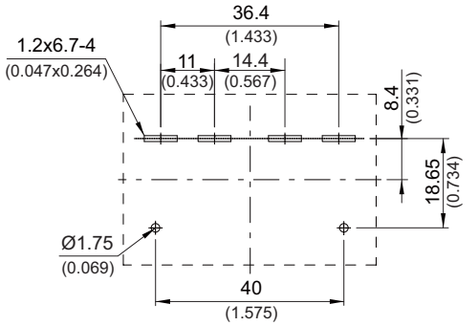


TOLERANCE:
LESS THAN: 1(0.039) ±0.1(0.004)
5(0.197) ±0.3(0.012)
20(0.787) ±0.5(0.020)
MORE THAN: 20(0.787) ±1(0.039)

Wiring Diagram (Bottom view)



PC Board Layout (Bottom view)



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Song Chuan:
510C-P-2A1-F-C-12VDC