



## »» Features

- ☐ Heavy duty 55A 600VAC(for 515C), 70A 600VAC(for 515), 100A 600VAC(for 515H) power type.
- ☐ SPDM contact configuration with large contact gap 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).
- ☐ RoHS Compliant.



## »» Type List

Terminal style	Contact form	Designation (provided with)
		Flux tight
PCB terminal	1A (SPDM)	515C-1AH-F-C
		515-1AH-F-C
		515H-1AH-F-C

## »» Ordering Information

515 C - 1A H - F - C ☐

1 2 3 4 5 6 7

- |          |  |                             |   |
|----------|--|-----------------------------|---|
| 1. 515   | -- Basic series designation                | 5. F                        | -- Class F  |
| 2. Blank | -- Standard type                           | 6. C                        | -- Flux tight   |
| H        | -- High power type                         | 7. <input type="checkbox"/> | -- Coil voltage (please refer to the coil rating data for the availability) |
| C        | -- Characteristic flexible type            |                             |   |
| 3. 1A    | -- Form A, single-pole, double-make (SPDM) |                             |   |
| 4. H     | -- Contact material Ag alloy               |                             |   |

## »» Contact Rating

### ◆ Characteristic flexible type

Rated load (Resistive)	55A 240VAC, On 1s/ Off 9s, at 85°C, 1K ops.
	Making 20A, Carrying 55A, Breaking 20A / 600VAC, On 1s/ Off 9s, at 85°C, 30K ops.
Max. switching current	55A
Max. switching voltage	600VAC

### ◆ Standard type

Rated load (Resistive)	70A 240VAC, On 1s/ Off 9s, at 85°C, 1K ops.
	Making 20A, Carrying 70A, Breaking 20A / 600VAC, On 1s/ Off 9s, at 85°C, 30K ops.
Max. switching current	70A
Max. switching voltage	600VAC

◆ High power type

Rated load (Resistive)	90A 400VAC, On 1s/ Off 9s, at 85°C, 1K ops.
	80A 400VAC, On 1s/ Off 9s, at 85°C, 6K ops.
	Making 20A, Carrying 100A, Breaking 20A / 600VAC, On 1s/ Off 9s, at 85°C, 30K ops.
Max. switching current	100A
Max. switching voltage	600VAC

»» Coil Rating (DC)

◆ Standard type / Characteristic flexible type

Rated voltage (V)	Rated current ±10 % at 23°C (mA)	Coil resistance ±10 % at 23°C (Ω)	Pick up voltage (Max.) at 23°C <sup>(1)</sup>	Drop out voltage (Min.) at 23°C	Continuous voltage at 85°C <sup>(2)</sup>	Power consumption at rated / holding voltage
12	200	60	80 % of rated voltage	5 % of rated voltage	50~55 % of rated voltage	approx. 2.4W / 0.6W <sup>(2)</sup>
24	100	240				

◆ High power type

Rated voltage (V)	Rated current ±10 % at 23°C (mA)	Coil resistance ±10 % at 23°C (Ω)	Pick up voltage (Max.) at 23°C <sup>(1)</sup>	Drop out voltage (Min.) at 23°C	Continuous voltage at 85°C <sup>(2)</sup>	Power consumption at rated / holding voltage
12	316.7	37.9	80 % of rated voltage	5 % of rated voltage	50~55 % of rated voltage	approx. 3.8W / 0.95W <sup>(2)</sup>
24	158.3	151.6				

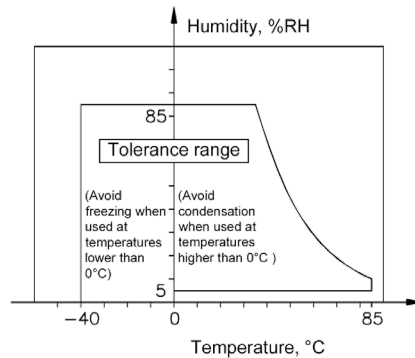
Notes : (1) To energize relay properly apply 100%~120% nominal coil voltage for 200ms.

(2) Coil holding voltage is 50~55% of nominal voltage after applying nominal voltage for 200ms.

»» Specification

Contact material	Ag alloy	
Contact gap	3.0mm Min.	
Contact resistance <sup>(1)</sup>	100mΩ Max. (at 1A/6VDC by 4-wire resistance measurement) 10 mΩ Max. (By voltage drop 20A)	
Operate time <sup>(1)</sup>	30ms Max.	
Release time <sup>(1)</sup>	10ms 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. 100 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) Please pay attention to the phenomenon of freezing in the low temperature environment below 0°C. Please evaluate the actual use of the environment.
- (8) Usage, transport and storage conditions
- 1. Temperature: -40 ~ +85°C
  - 2. Humidity: 5 to 85% R.H
  - 3. Pressure: 86 to 106 kPa
  - Furthermore, the humidity range varies with the temperature. So, use relays within the range indicated in the graph below



- (9) Please contact Song Chuan for the detailed information.

## »» Insulation Data

Insulation resistance <sup>(1)</sup>	1000MΩ Min. (DC 500V)
Dielectric strength <sup>(1)</sup>	Between coil and contac : AC 4000V, 50/60Hz 1 min.
	Between open contacts : AC 2000V, 50/60Hz 1 min.
Insulation of IEC 61810-1 / IEC 61810-1	
Clearance / creepage distances	Between coil and contact : Double /Reinforce , ≥ 5.0mm / ≥ 6.0mm (for 250VAC) ≥ 6.0mm / ≥ 8.0mm (for 400VAC) : Basic , ≥ 3.0mm / ≥ 6.0mm (for 600VAC)
	Between open contacts : Double /Reinforc, ≥ 3.0mm / ≥ 5.0mm
Rated insulation voltage	600V
Rated impulse withstand voltage	4000V
Pollution degree	2
Overvoltage category	II
Compliant with European photovoltaic standard	
Contact gap	3.0mm (IEC 62109-1 and VDE 0126)

Notes : (1) Initial value.

## »» Safety Approval

Certified	UL / CUL	TUV
File No.	E88991	R50367170

## »» Safety Approval Rating

### ◆ 515C type

UL / CUL	TUV
55A 277VAC <sup>(1)</sup> 20A 600VAC, Resistive, Carrying current 55A <sup>(1)</sup>	55A 250VAC <sup>(1)</sup> Making 20A , Carrying 55A , Breaking 20A / 600VAC <sup>(1)</sup>

### ◆ 515 type

UL / CUL	TUV
70A 277VAC <sup>(1)</sup> 20A 600VAC, Resistive, Carrying current 70A <sup>(1)</sup>	70A 250VAC <sup>(1)</sup> Making 20A , Carrying 70A , Breaking 20A / 600VAC <sup>(1)</sup>

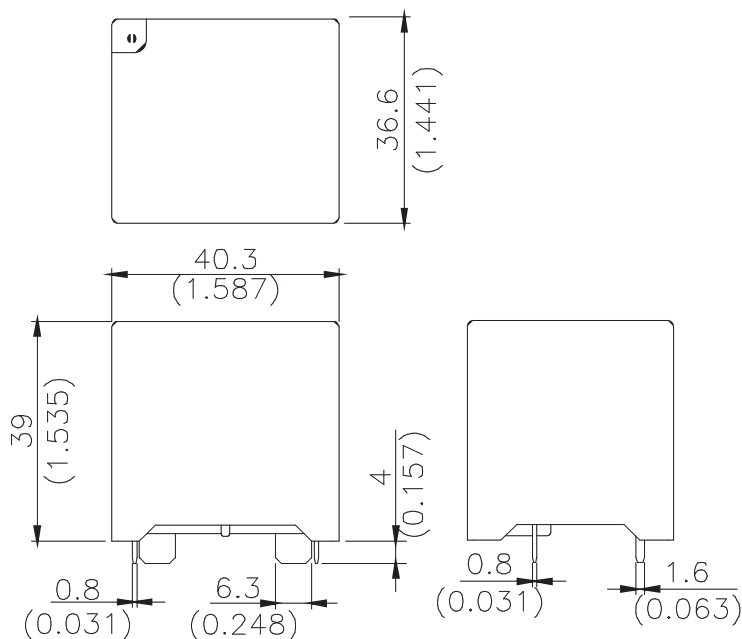
### ◆ 515H type

UL / CUL	TUV
80A 400VAC <sup>(1)</sup> 20A 600VAC, Resistive, Carrying current 100A <sup>(1)</sup>	90A 400VAC <sup>(1)</sup> 80A 400VAC <sup>(1)</sup> Making 20A , Carrying 90A , Breaking 20A / 600VAC <sup>(1)</sup>

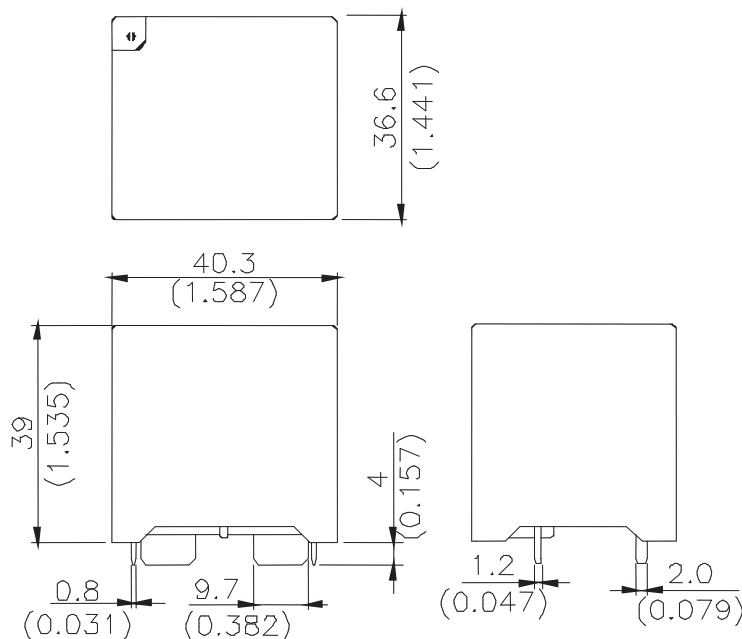
Notes : (1) With 50%~55% modulation of nominal coil voltage.

## »» Outline Dimensions

### ◆ 515C

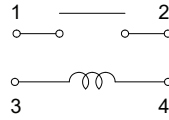


### ◆ 515 / 515H



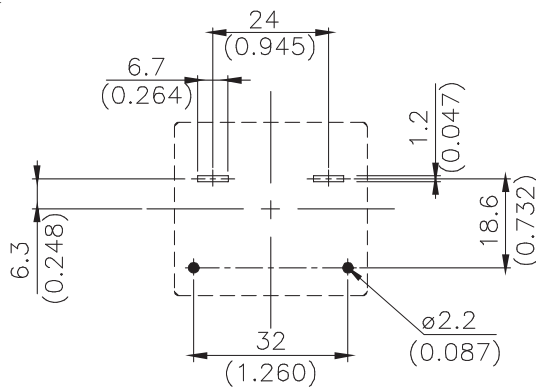
TOLERANCE:  
 LESS THAN: 1(0.039) ±0.1(0.004)  
 5(0.197) ±0.3(0.012)  
 20(0.787) ±0.5(0.020)  
 MORE THAN: 20(0.787) ±1(0.039)

## »» Wiring Diagram (Bottom view)



## »» PC Board Layout (Bottom view)

### ◆ 515C



### ◆ 515 / 515H

