



»» Features

- ☐ High temperature resistance relay for charging application.
- ☐ RoHS Compliant.



»» Type List

◆ Standard type

Terminal style	Contact form	Insulation system	Designation (provided with)
			Flux tight
PCB terminal	1A (SPNO)	F	117L-1AH1-F-C
	1C (SPDT)		117L-1CH1-F-C

◆ High power type

Terminal style	Contact form	Insulation system	Designation (provided with)
			Flux tight
PCB terminal	1A (SPNO)	F	117-1AH1-F-C
	1C (SPDT)		117-1CH1-F-C

»» Ordering Information

	117	L	-	1A	H	1	-	F	-	C	<input type="checkbox"/>
	1	2		3	4	5		6		7	8
1.	117	-- Basic series designation						5.	1	-- 2.0mm contact gap	
									2	-- 2.4mm contact gap	
2.	Blank	-- High power type									
	L	-- Standard type						6.	F	-- Class F	
3.	1A	-- Single pole normally open						7.	C	-- Flux tight	
	1C	-- Single pole double throw									
								8.	<input type="checkbox"/>	-- Coil voltage (please refer to the coil rating data for the availability)	
4.	H	-- Contact material Ag alloy									

»» Contact Rating

◆ Standard type

Rated load (Resistive)	NO : 55A 240VAC, On 1s/ Off 9s, at 105°C, 100 ops.
	NO : 66A 240VAC, On 1s/ Off 9s, at 85°C, 100 ops.
	NO : Making 10A, Carrying 55A, Breaking 10A / 240VAC, On 1s/ Off 9s, at 105°C, 50K ops.
	NO : Making 10A, Carrying 66A, Breaking 10A / 240VAC, On 1s/ Off 9s, at 85°C, 50K ops.
	NC : Making 0A, Carrying 40A, Breaking 0A / 240VAC, On 1s/ Off 9s, at 105°C, 50K ops.
Max. switching current	66A
Max. voltage	600VAC

◆ High power type

Resistive load (Resistive)	NO : 80A 240VAC, On 1s/ Off 9s, at 85°C, 100 ops.
	NO : 66A 240VAC, On 1s/ Off 9s, at 105°C, 100 ops.
	NO : Making 10A, Carrying 80A, Breaking 10A / 240VAC, On 1s/ Off 9s, at 85°C, 50K ops.
	NO : Making 10A, Carrying 66A, Breaking 10A / 240VAC, On 1s/ Off 9s, at 105°C, 50K ops.
	NC : Making 0A, Carrying 65A, Breaking 0A / 240VAC, On 1s/ Off 9s, at 85°C, 50K ops.
Max. carrying current	80A
Max. voltage	600VAC

»» 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 105°C ⁽²⁾	Power consumption at rated / holding voltage
12	315.7	38	85 % of rated voltage	5 % of rated voltage	34~38 % of rated voltage	approx. 3.8W / 0.44W ⁽²⁾
24	157.8	152				

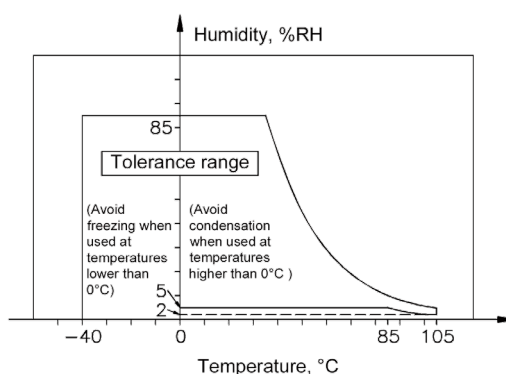
Notes : (1) To energize relay properly apply 100%~120% nominal coil voltage for 200ms.

(2) Coil holding voltage is 34~38% of nominal voltage after applying nominal voltage for 200ms.

»» Specification

Contact material	Ag alloy	
Contact resistance ⁽¹⁾	100mΩ Max. (1A/6VDC by 4-wire resistance measurement) 10 mΩ Max. (By voltage drop 20A)	
Operate time ⁽¹⁾	30ms Max.	
Release time ⁽¹⁾	20ms Max.	
Vibration resistance	Operating extremes	10~500Hz, 5.0G
	Damage limits	10~500Hz, 5.0G
Shock resistance	Operating extremes	10G
	Damage limits	100G
Life expectancy	Mechanical	300,000 ops. (frequency 9,000 ops./hr)
Operating ambient temperature	-40~ +105°C (no freezing) for 117L at 55A -40~ +85°C (no freezing) for 117L at 66A -40~ +105°C (no freezing) for 117 at 66A -40~ +85°C (no freezing) for 117 at 80A	
Weight	Approx. 40 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.
- (6) Usage, transport and storage conditions
- 1. Temperature: -40~+105°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 ⁽¹⁾	1000MΩ Min. (DC 500V)
Dielectric strength ⁽¹⁾	Between coil and contact : AC 4000V, 50/60Hz 1 min.
	Between open contacts : AC 1500V, 50/60Hz 1 min.
Insulation of IEC 61810-1	
Clearance / creepage distances	Between coil and contact : Basic, ≥ 5.0 mm / ≥ 5.0 mm
	Between open contacts : Functional, ≥ 2.0mm / ≥ 4.8mm (for 1AH1 type)
	: Functional, ≥ 2.4mm / ≥ 4.8mm (for 1AH2 type)
Rated voltage	600V
Rated impulse withstand voltage	4000V
Pollution degree	2
Overvoltage category	II

Note : (1) Initial value.

»» Safety Approval

Certified	UL / CUL	TUV
File No.	E88991	R50436420

»» Safety Approval Rating

◆ Standard type

UL / CUL	VDE
NO: 20A 600VAC, Resistive, Carrying current 66A ⁽¹⁾ NC: 10A 600VAC, Resistive, Carrying current 66A	NO: Making 20A, Carrying 55A, Breaking 20A / 600VAC : T105 ⁽¹⁾ NO: Making 20A, Carrying 66A, Breaking 20A / 600VAC : T85 ⁽¹⁾ NC: Making 10A, Carrying 55A, Breaking 10A / 600VAC : T105 NC: Making 10A, Carrying 66A, Breaking 10A / 600VAC : T85

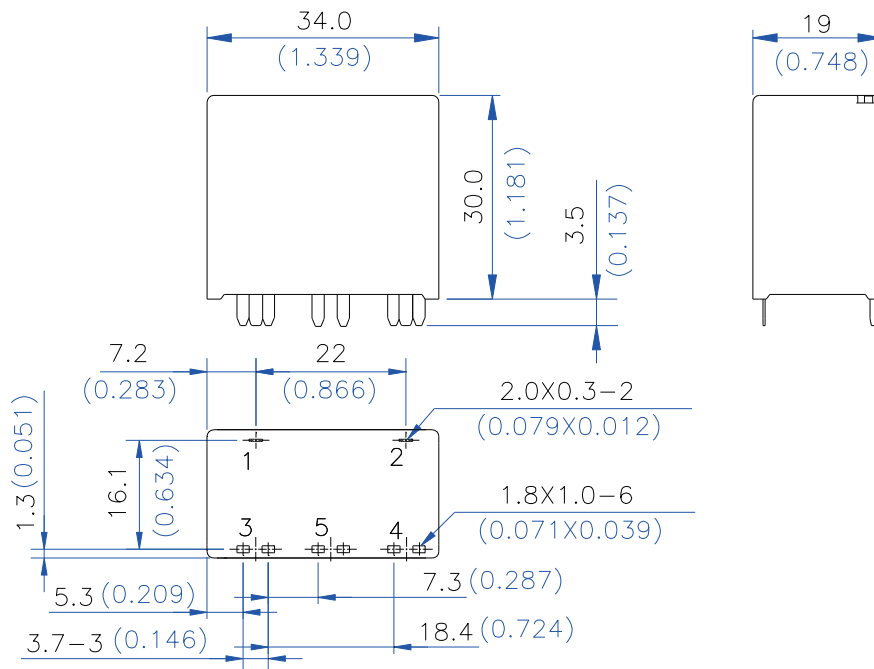
◆ High power type

UL / CUL	VDE
NO: 20A 600VAC, Resistive, Carrying current 80A ⁽¹⁾ NC: 10A 600VAC, Resistive, Carrying current 80A	NO: Making 20A, Carrying 66A, Breaking 20A / 600VAC : T105 ⁽¹⁾ NO: Making 20A, Carrying 80A, Breaking 20A / 600VAC : T85 ⁽¹⁾ NC: Making 10A, Carrying 66A, Breaking 10A / 600VAC : T105 NC: Making 10A, Carrying 80A, Breaking 10A / 600VAC : T85

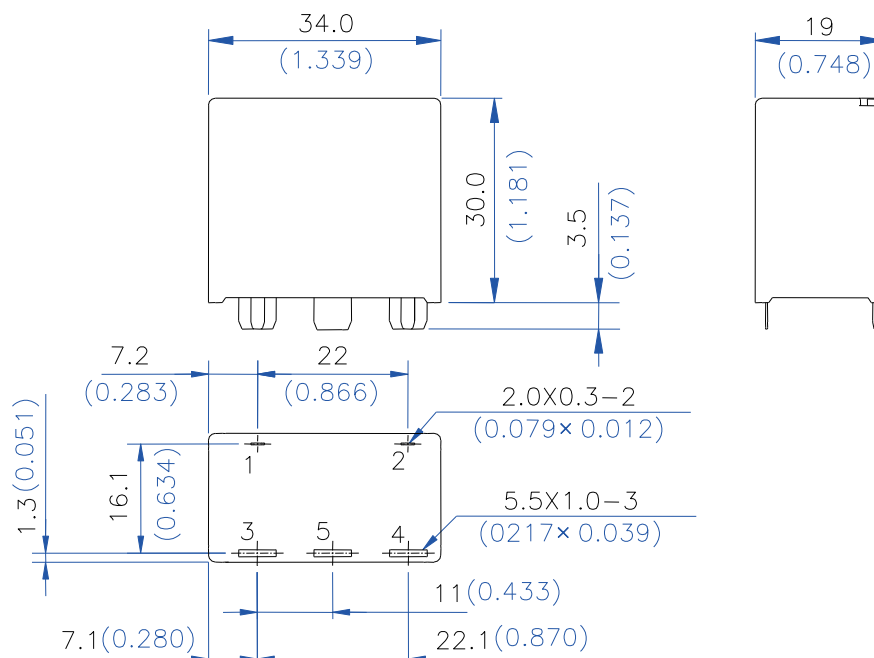
Notes : (1) With 34%~38% modulation of nominal coil voltage.

» Outline Dimensions

◆ 117L



◆ 117

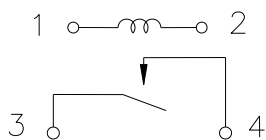


TOLERANCE:
 LESS THAN: 1(0.039) ±0.1(0.004)
 5(0.197) ±0.3(0.012)
 20(0.787) ±0.5(0.020)
 MORE THAN: 20(0.787) ±1(0.039)

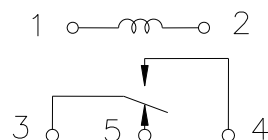
Note : (1) The terminal dimension of the outline drawing is the size before soldering.
 (It will become larger after soldering)

»» Wiring Diagram (Bottom view)

1A

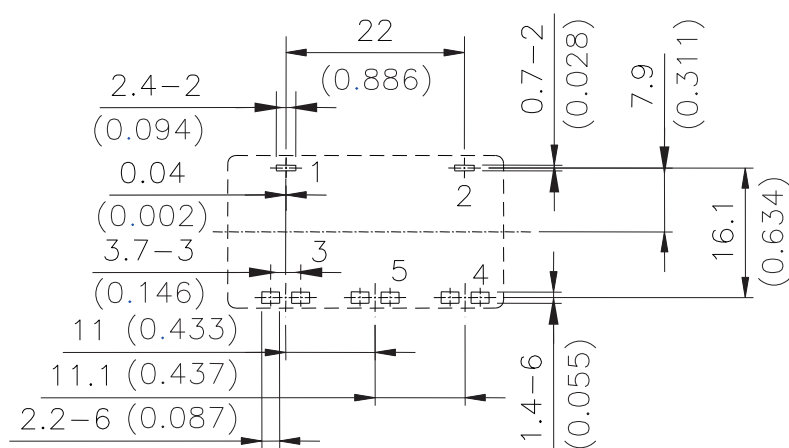


1C

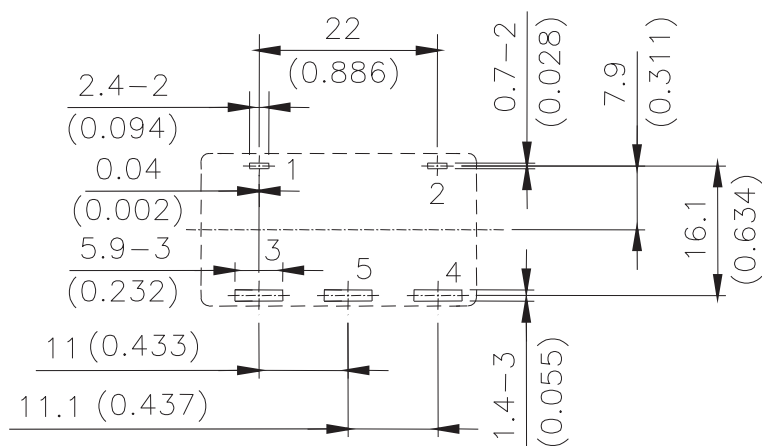


»» PC Board Layout (Bottom view)

◆117L



◆117



TOLERANCE: $\pm 0.1(0.004)$