

**FR-9550-30A-(C01~C14)-B**
**Features / Applications :**

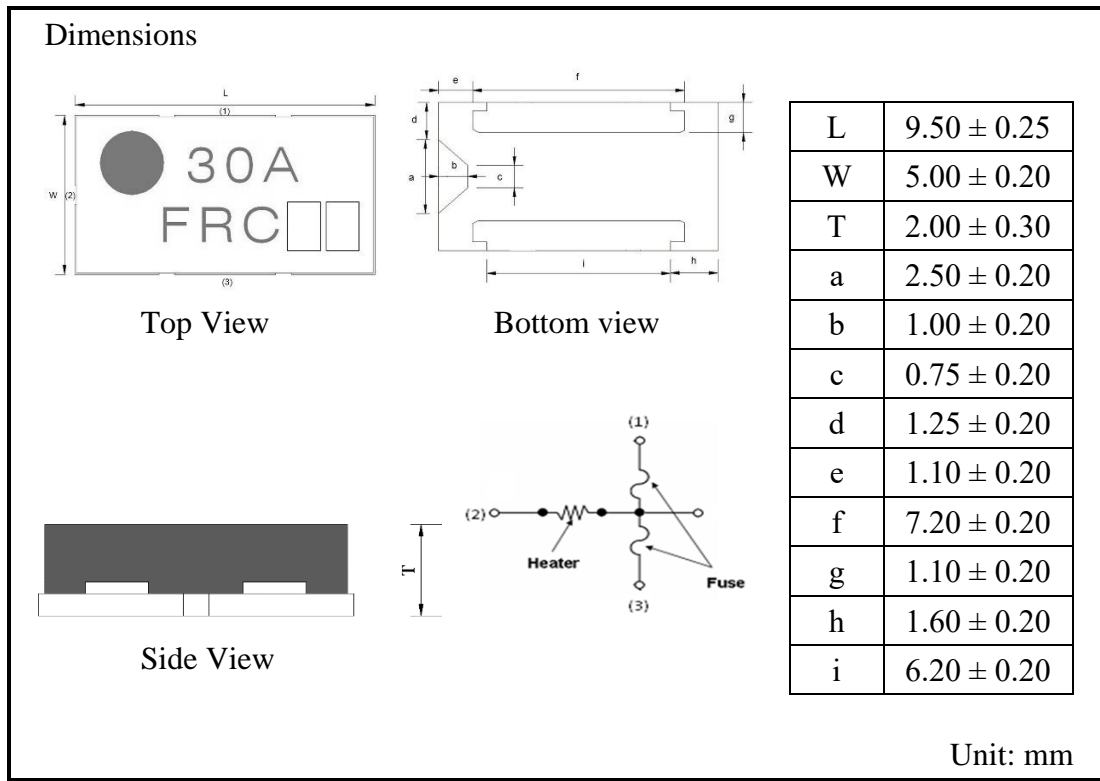
- OverCurrent Protection: Protect batteries from abnormal overcurrent behavior.
- OverVoltage Protection: Protect batteries from abnormal overvoltage behavior.
- Surface mountable fuse
- Halogen free
- Fast response time
- UL certificated: E314624 / TUV file number: TA50201483

**Electrical Specifications :**

Characteristics	Feature
Rated Voltage(*1)	62VDC
Rated Breaking Capacity	80A
Re-flow Temp.(MAX)	260°C
Fuse Resistance	0.5~2.0mΩ
Heater Resistance	C01: 0.8~1.2Ω
	C03: 3.2~5.2Ω
	C04: 6.3~9.3Ω
	C05: 10.0~15.0Ω
	C07: 18.8~31.2Ω
	C10: 40.0~60.0Ω
	C14(C12~C14): 72.4~120.6Ω
Operating Voltage	C01: 4.0~6.6V
	C03: 8.4~13.2V
	C04: 11.1~18.4V
	C05: 14.0~23.4V
	C07: 20.2~31.5V
	C10: 28.0~46.9V
	C14(C12~C14): 39.6~62.0V

Note:

Maximum voltage is not the operating voltage for the heater.

**Outline Drawing :**

**Type Designation :**

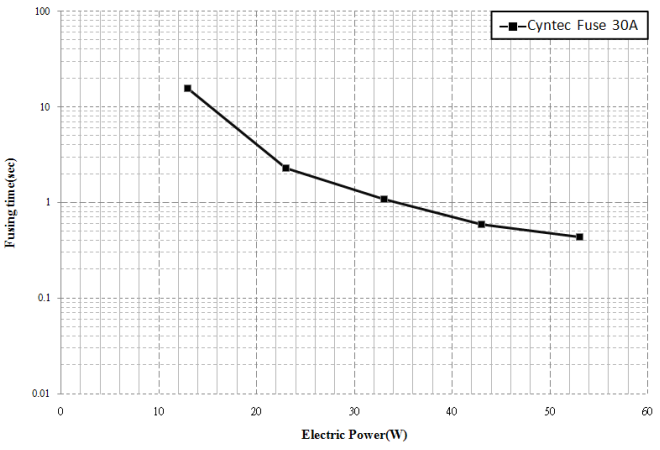
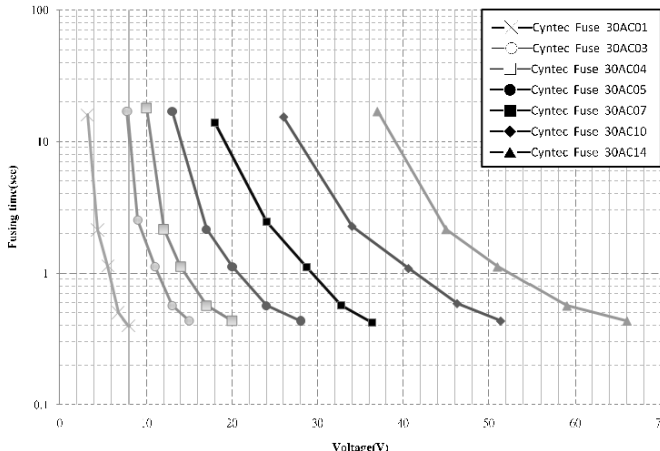
FR - 9550 - 30A - C□□ - B  
 (1) (2) (3) (4) (5)

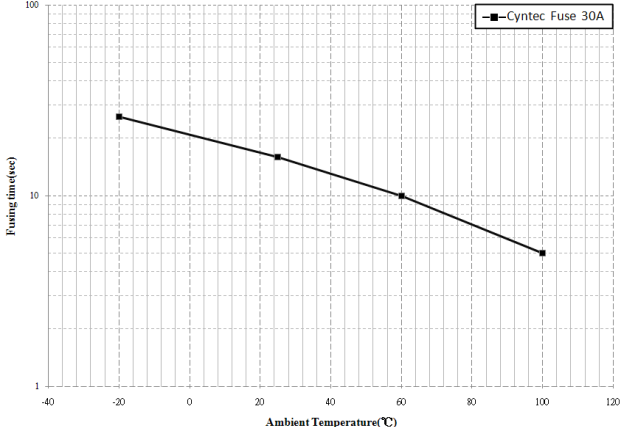
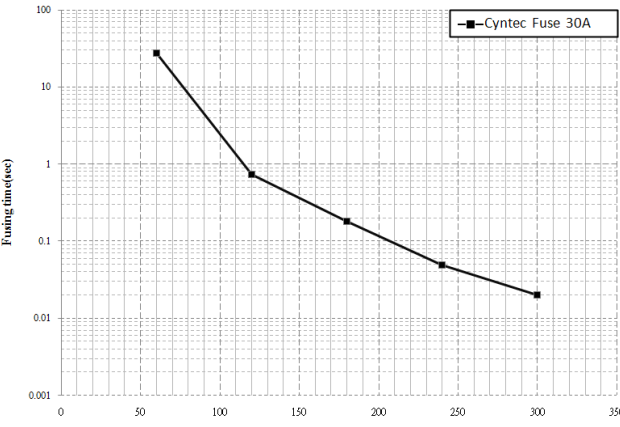
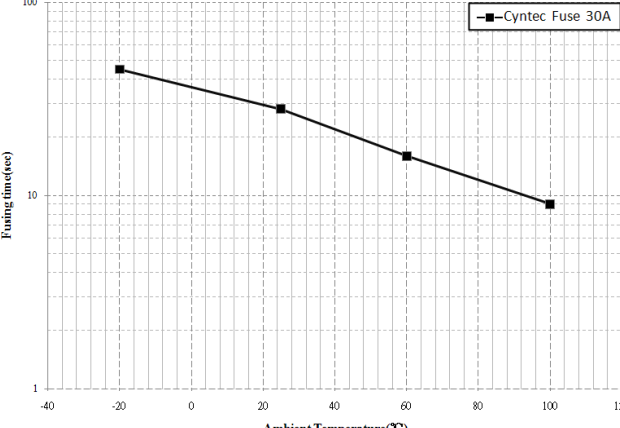
**Note:**

- (1) FR : Series number
- (2) 9550 : 9.5 mm \* 5.0 mm size
- (3) 30A : Rated current
- (4) C□□ : Cells
  - C01 : One cell
  - C03 : Three cells
  - C04 : Four cells
  - C05 : Five cells
  - C07 : Seven cells
  - C10 : Ten cells
  - C14 : Twelve-fourteen cells
- (5) B : B version

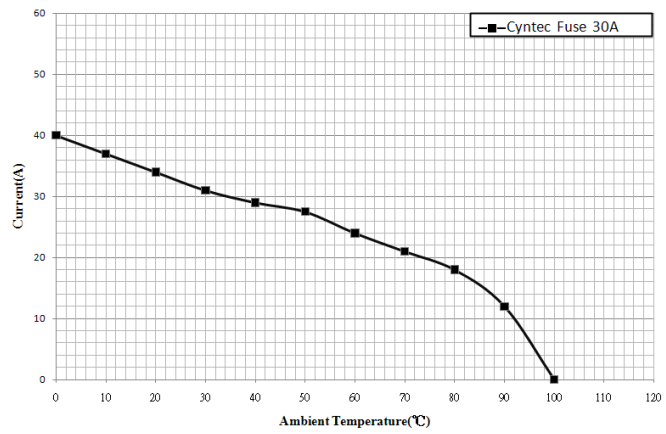
**Characteristics :**

## Electric performance

Item	Specification and Requirement
Fusing Time vs Electric Power	
Fusing Time vs Voltage	 <p>                 ※ 30AC01 Heater resistance is about 1.0Ω                  ※ 30AC03 Heater resistance is about 4.0Ω                  ※ 30AC04 Heater resistance is about 7.8Ω                  ※ 30AC05 Heater resistance is about 12.5Ω                  ※ 30AC07 Heater resistance is about 25.0Ω                  ※ 30AC10 Heater resistance is about 50.0Ω                  ※ 30AC14 Heater resistance is about 96.5Ω             </p>

<p>Fusing Time by Heater vs Ambient Temperature</p>	 <p>※ Testing Power: 13W</p>
<p>Fusing Time vs Current</p>	 <p>※ Fuse resistance is about 1.2mΩ</p>
<p>Fusing Time by Current vs Ambient Temperature</p>	 <p>※ Fuse resistance is about 1.2mΩ (Fusing Current = 60A)</p>

Current Carrying Capacity



※ Measure the current to reach the surface temperature which is 100°C with different ambient temperature.

※ Fuse resistance is about 1.2mΩ

**Reliability**

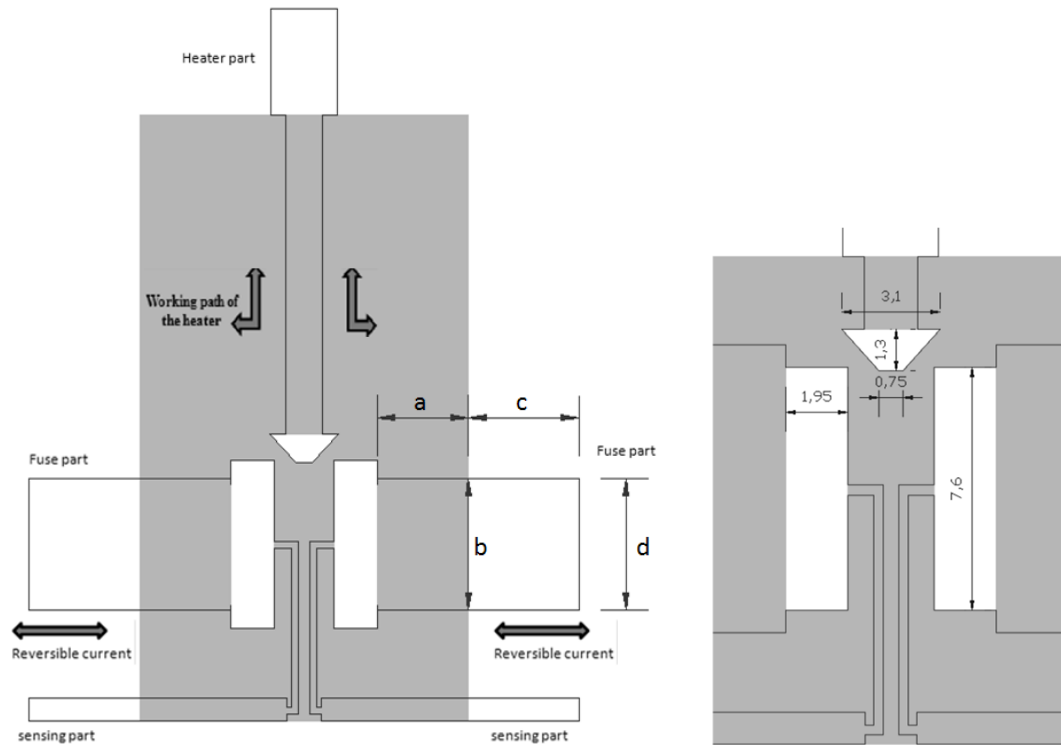
Test Item	Condition of Test	Requirements
Carrying capacity (UL248-14)	100% of rated current, 4hr	Without melting
Temperature Rise (UL248-14)	100% of rated current shall be carried. And then it shall be made to measurement of surface temperature	$\Delta T < 75^{\circ}\text{C}$
Fusing time (UL248-14)	200% rated current; 13~53W shall be applied to heater. Operating voltage shall be applied to heater.	Clearing time < 1 min
Interrupting Ability	After the fuse is interrupted, rated voltage applied for 30sec again.	No mechanical damages
Residual Resistance (UL248-14)	Measure DC resistance after fusing.	> 10k $\Omega$
Solderability (JEDEC J-STD-020D)	Temperature of Solder: $245 \pm 5^{\circ}\text{C}$ Immersion Duration: $3 \pm 0.5$ second Refer to JIS C 5201-1 4.17	Uniform coating of solder cover minimum of 95% surface being immersed
High Temperature Exposure (JESD22-A103C)	Kept at $100^{\circ}\text{C}$ for 1,000 hours.	$\Delta R: \pm 10\%$ Without distinct damage in appearance
Thermal Shock (JESD22-A104C)	$-55^{\circ}\text{C}/25^{\circ}\text{C}/125^{\circ}\text{C}/25^{\circ}\text{C}$ , 100 cycles.	$\Delta R < 10\%$ Without distinct damage in appearance
Current Rush Withstand	300A-1ms-On, 9999ms-Off, 30000cycle.	No fusing
Current Rush Withstand	100A-5ms-On, 995ms-Off, 100000cycle.	No fusing

**Recommended Solder Pad Dimensions:**

The thickness of tin plated copper layers is 2oz.

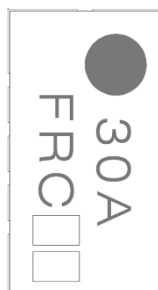
Recommended thickness of solder printing board is 0.12mm at least.

Used wire : AWG 10



Type	a	b	c	d
30A	4.13	6.0	5	6.0

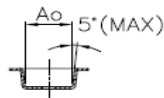
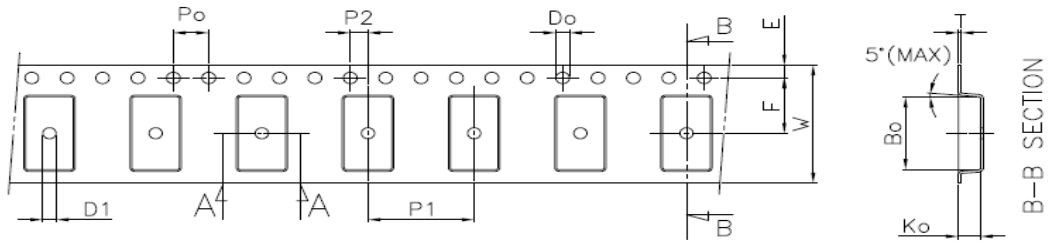
Unit: mm



Chip setting

**Packaging :**

Tape packaging dimensions



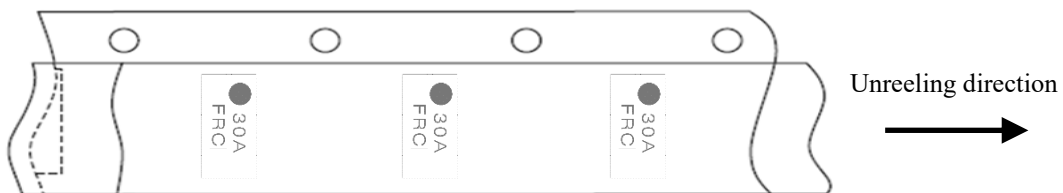
A-A SECTION

UNIT:mm

Symbol	Ao	B0	Ko	Po	P1	P2	T
Spec	5.40±0.10	9.90±0.10	2.48±0.10	4.00±0.10	12.0±0.10	2.00±0.10	0.30±0.05
Symbol	E	F	Do	D1	W	10Po	
Spec	1.75±0.10	7.50±0.10	1.50 <sup>+0.10</sup> <sub>0</sub>	1.50(MIN)	16.0±0.30	40.0±0.20	

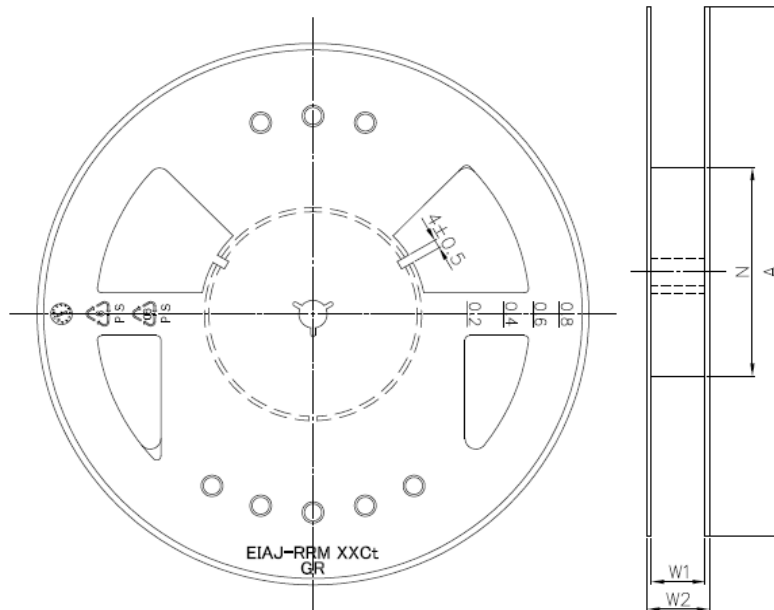
**Direction**

The direction shall be seen from the top cover tape side.





## Reel dimensions

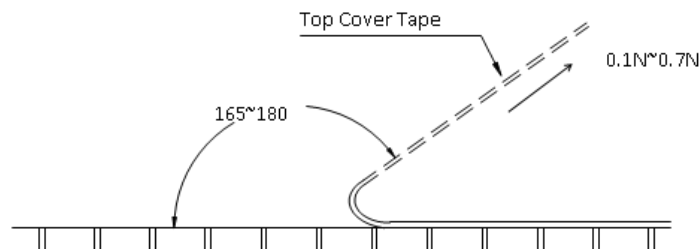


TAPE WIDTH	A	N	E	W1	W2
16 mm	$330 \pm 2.0$	$100 \pm 2.0$	$13.0 \pm 0.2$	$17.40 \pm 1.0$	$21.40 \pm 1.0$

Number of Taping: 1,000 pieces/reel

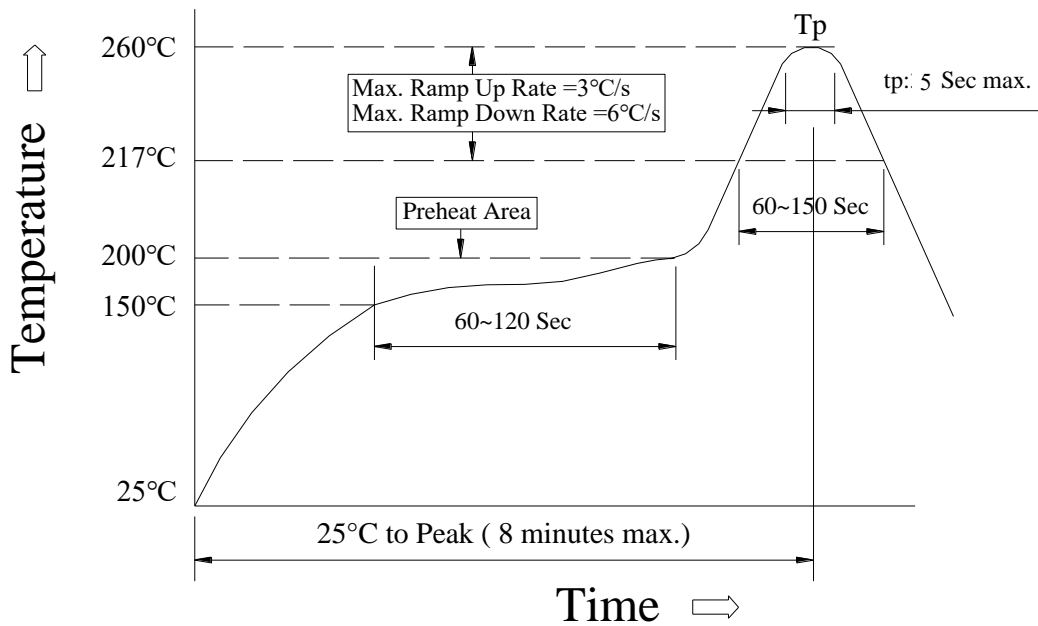
**Peel strength of top cover tape :**

The peel speed shall be about 300mm/min.


**Label Marking:**

The following items shall be marked on the reel:

1. Type designation
2. Quantity
3. Manufacturing date code
4. Manufacturer's name
5. The country of origin

**Sn plating Reflow Profile :**

**Reflow Soldering Method:**

Reflow Soldering	Tp: 255~260°C	Max. 5 seconds
	217°C	60~150 seconds
Pre-Heat	150~200°C	60~120 seconds
Time 25°C to peak temperature	8 minutes max.	

Note: Meet JEDEC J-STD-020D

**Characteristics :**

Functional temperature range: -25~85°C

Operating temperature range: -10~65°C (Fusing time <1min)

Test temperature range: 25 ± 5°C

Ambient condition

Relative humidity: 45~85%

Air Pressure: 86~106kPa

**Other Information :**

Soldering iron method

Bit temperature:  $300 \pm 5^{\circ}\text{C}$

Application of soldering iron: 3 seconds MAX

Apply the soldering iron to the electrode.

The specimen shall be stored at standard atmospheric condition for 24h, after which the measurements shall be made. Do not suggest products for re-work.

Product storage conditions

This product should be dark and at ambient temperature is less than  $40^{\circ}\text{C}$  or relative humidity less than 60% RH place, in the above storage conditions the storage period of 6 months.

Precautions on use

Avoid contact with the resin film with this product, its resin may seep into the product, so the product does not apply to the resin material relevance, its properties can't be fully guaranteed.