

1.05T , 12AH3 , 5432 Fuse-Resistance protector (Halogen free)

1. Feature

- (1) OverCurrent Protection: Protect batteries from abnormal overcurrent behavior.
- (2) OverVoltage Protection: Protect batteries from abnormal overvoltage behavior.
- (3) Surface mountable fuse
- (4) Halogen free
- (5) Fast response time

2. Part Number

FC – 5432 – □□A – H□ – C

(1) (2) (3) (4) (5)

- Where
- (1) FC: Series number
 - (2) 5432: 5.4 mm * 3.2 mm size
 - (3) □□A: Rated current

(4) H□: Cells

H3: Three cells (High voltage)

(5) C: C version



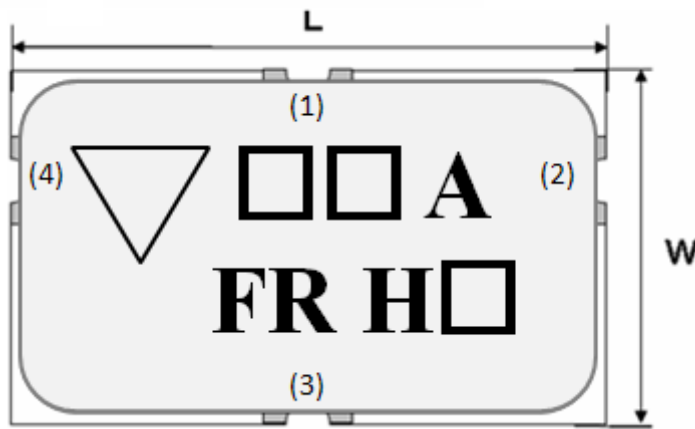
3. Specifications

Characteristics	Feature
Rated Voltage(*1)	35VDC
Rated Breaking Capacity	50A
Re-flow Temp.(MAX)	260°C
Fuse Resistance(Typical)	12A: 2.0~4.0 mΩ
Heater Resistance	H3: 7.0~11.0Ω
Operating Voltage	H3: 8.0~15.0V
Operating Electric Power(*2)	H3: 6.5~40.0W

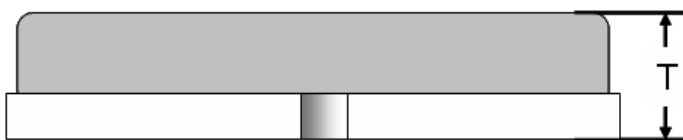
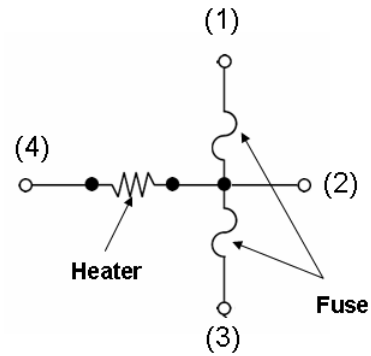
*1 Maximum voltage is not the operating voltage for the heater.

*2 Operating electric power is for reference.

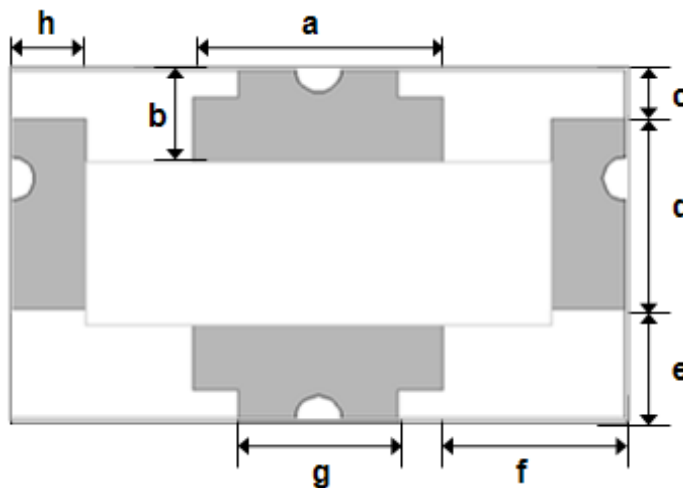
4. Outline Dimension



Top view



Side view

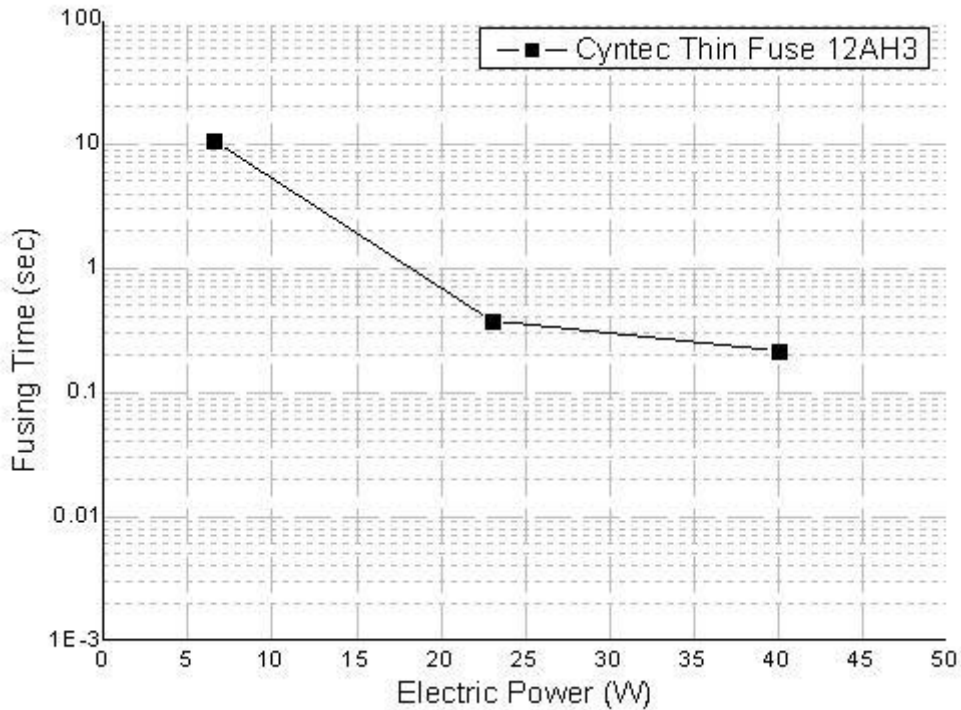


Bottom view

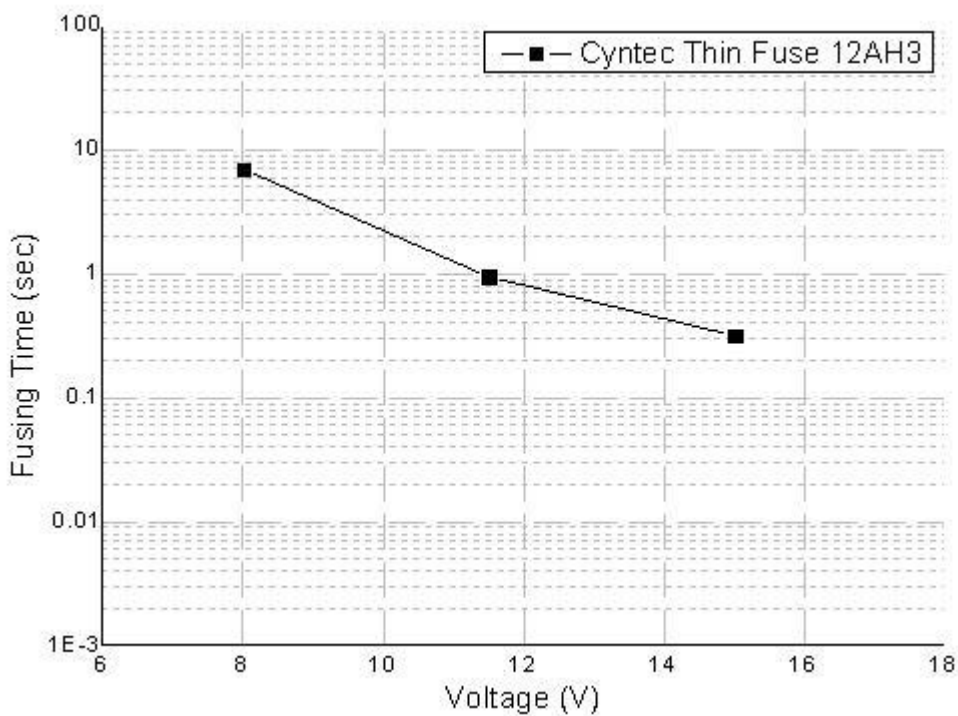
Code Letter	Dimensions(mm)
L	5.40±0.25
W	3.20±0.20
T	1.05±0.10
a	2.20±0.20
b	0.85±0.20
c	0.45±0.20
d	1.70±0.20
e	1.05±0.20
f	1.60±0.20
g	1.40±0.20
h	0.65±0.20

5. Electric performance

(1) Fusing Time vs Electric Power

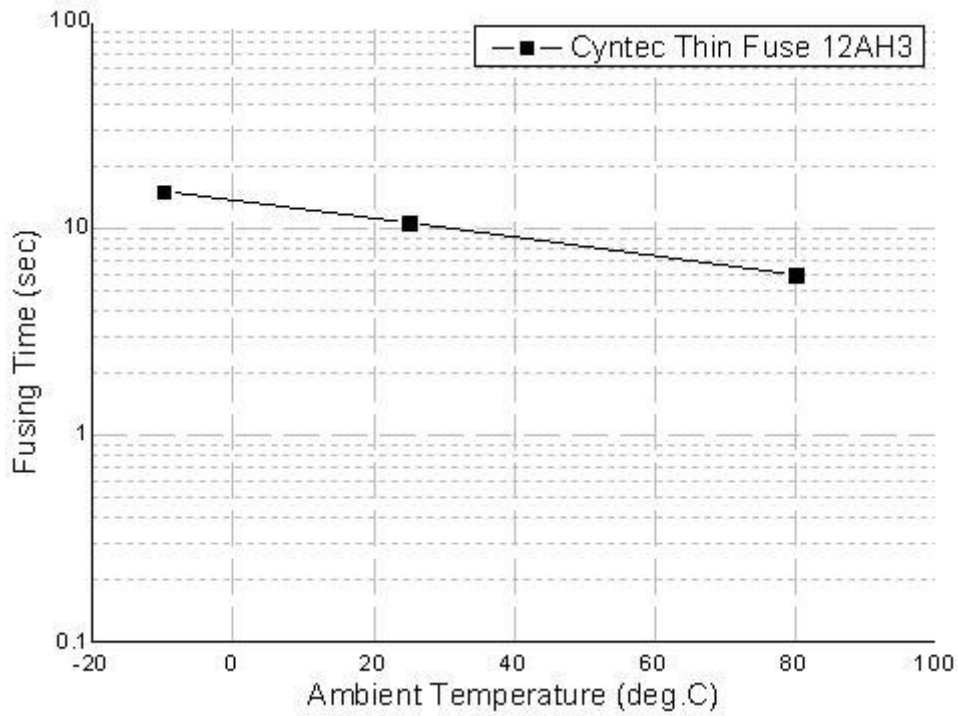


(2) Fusing Time vs Voltage



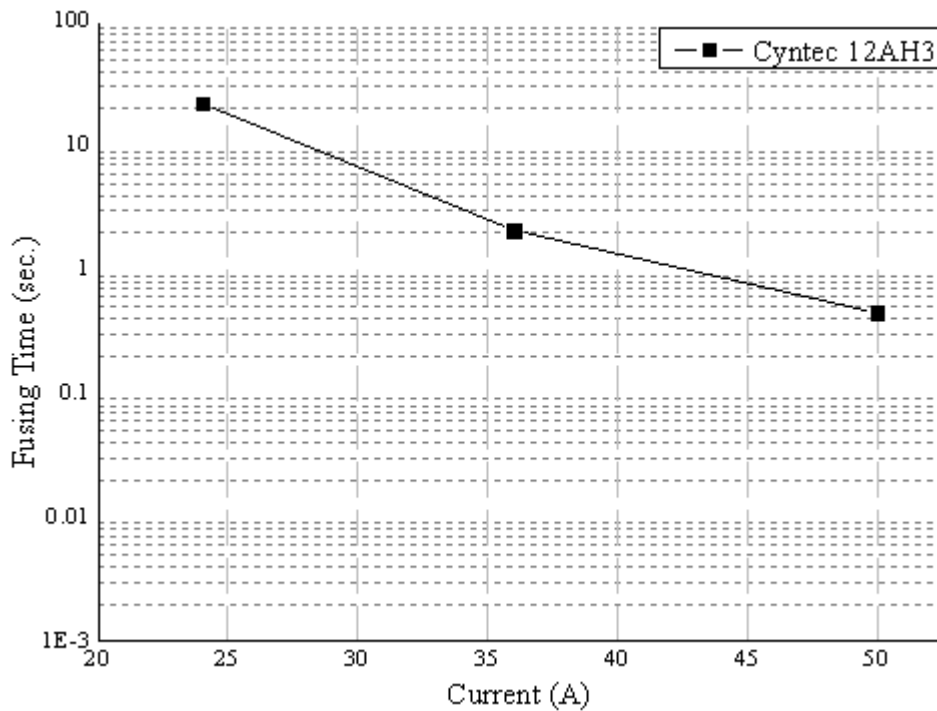
※12AH3 Heater resistance is about 8.78Ω

(3) Fusing Time by Heater(Electric Power) vs Ambient Temperature



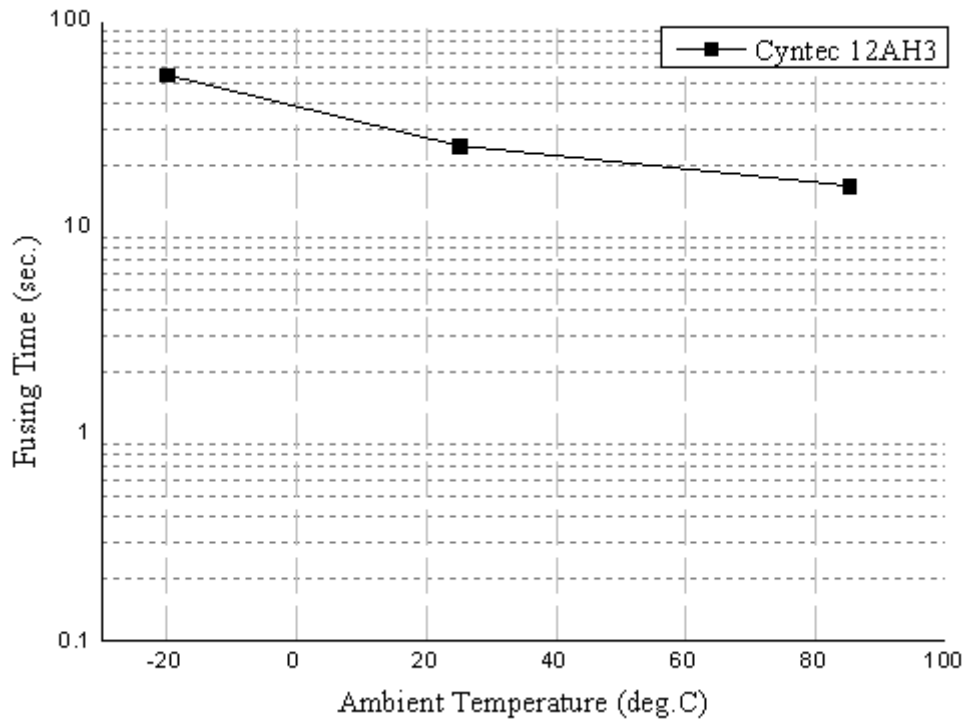
※Testing Power: 6.5W

(4) Fusing Time vs Current



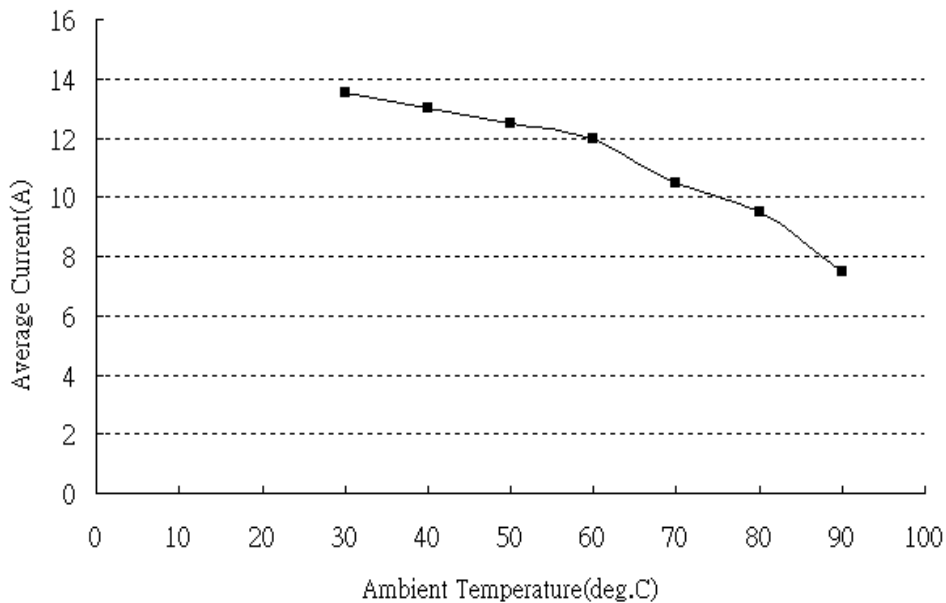
※12A Fuse resistance is about 2.9mΩ

(5) Fusing Time by Current vs Ambient Temperature



※12A Fuse resistance is about 2.9mΩ (Fusing Current = 24A)

(6) Current Carrying Capacity



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

※Fuse resistance is about 2.92mΩ

(7) Current Rush Withstand

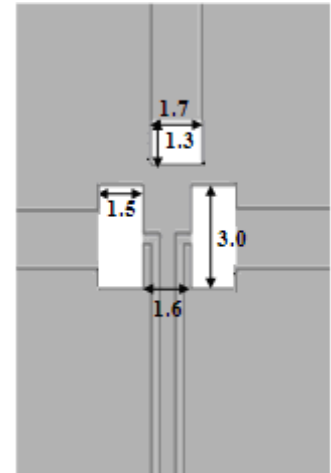
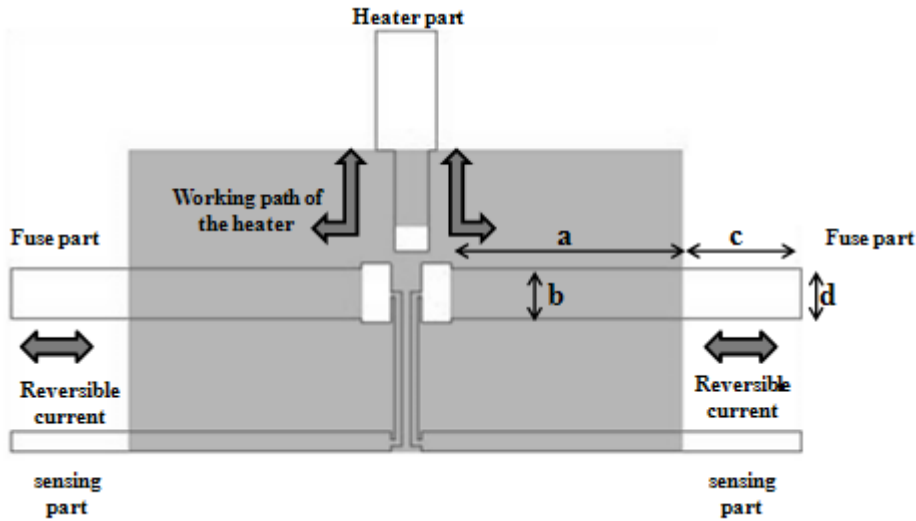
Part number	FC-5432-12A-H3-C
Current rush withstand	100A-10ms

※The test condition is “10ms on, 9990ms off, 500cycles”

6. 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, measure of surface temperature	$\Delta T < 75^{\circ}\text{C}$
Fusing time (UL248-14)	200% rated current	Clearing time < 1 min
	6.5~40W 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	$> 10\text{k}\Omega$
Solderability (JEDEC J-STD-020D)	Temperature of Solder: $245 \pm 5^{\circ}\text{C}$ Immersion Duration: 3 ± 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 105°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	100A-10ms-On, 9990ms-Off, 500cycle	No fusing

7. Recommended Solder Pad Dimensions



Unit : mm

Type	a	b	c	d
12A	11.7	2.5	6	2.5



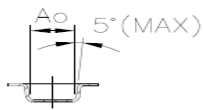
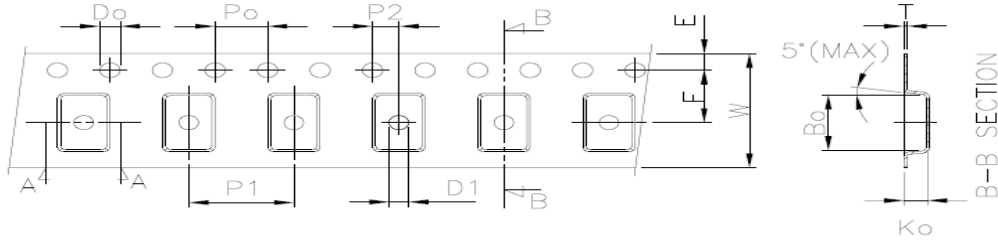
Chip setting

The printed circuit board thickness is 1.2mm.
 The thickness of tin plated copper layers is 2oz.

8. Packaging

8-1 Dimensions

8-1-1 Tape packaging dimensions

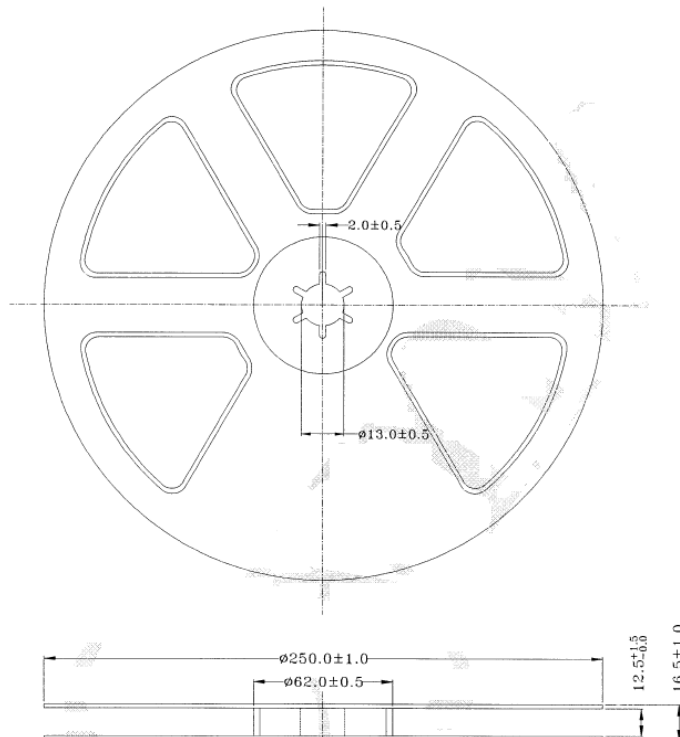


A-A SECTION

UNIT:mm

symbol	A_o	B_o	K_o	P_o	P_1	P_2	T
spec	3.55 ± 0.10	5.75 ± 0.10	1.75 ± 0.10	4.00 ± 0.10	8.00 ± 0.10	2.00 ± 0.05	0.25 ± 0.05
symbol	E	F	D_o	D_1	W	$10P_o$	
spec	1.75 ± 0.10	5.50 ± 0.05	1.55 ± 0.05	1.50 ± 0.10	12.0 ± 0.30	40.0 ± 0.20	

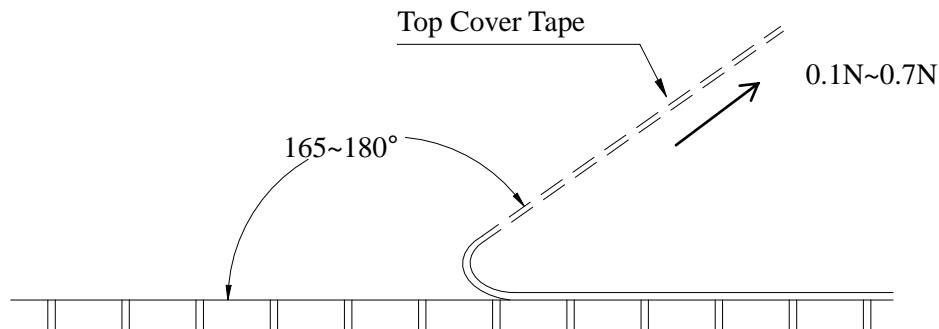
8-1-2 Reel dimensions



8-2 Peel strength of top cover tape

The peel speed shall be about 300mm/min.

The peel force of top cover tape shall between 0.1 to 0.7N



8-3 Number of Taping

2,000 pieces/reel

8-4 Label Marking

The following items shall be marked on the reel:

8-4-1 Type designation

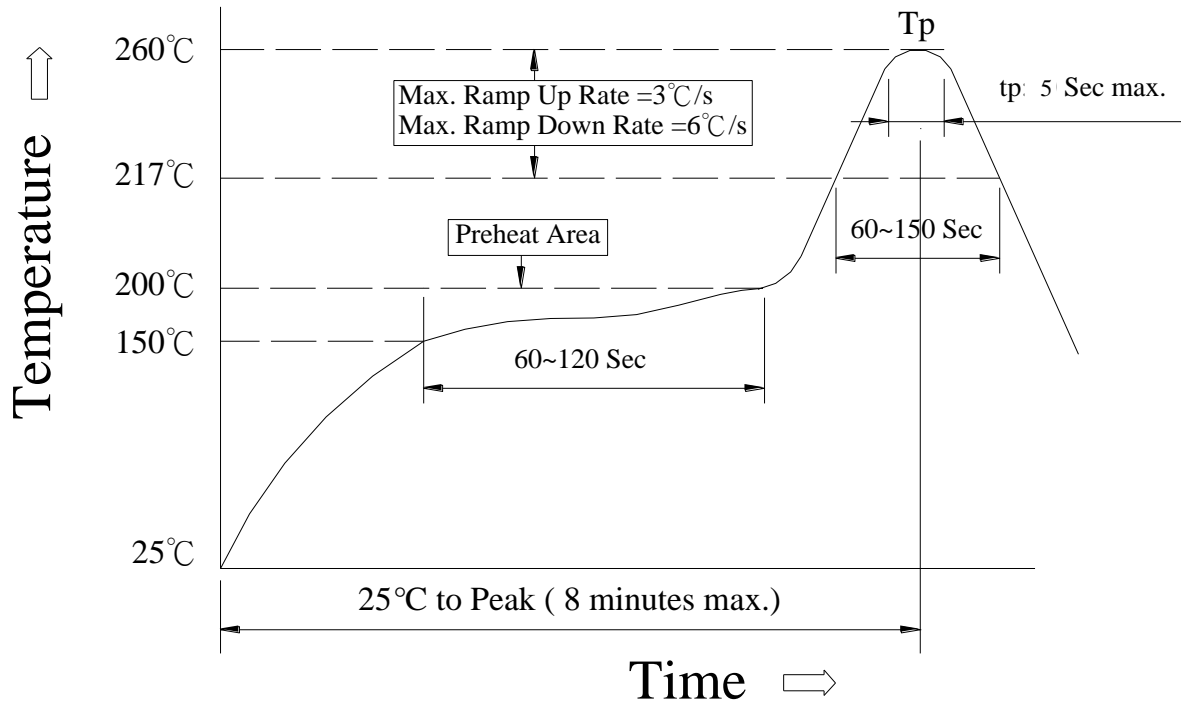
8-4-2 Quantity

8-4-3 Manufacturing date code

8-4-4 Manufacturer's name

8-4-5 The country of origin

9. Sn plating Reflow Profile



Reflow Soldering Method :

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

Meet JEDEC J-STD-020D

10. 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

11. Soldering iron Method

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 the fuse for re-work.

12. Product storage conditions

This product shall be stored at dark place with ambient temperature less than 40°C or relative humidity less than 60% RH.

The preservation period when it is kept on the above condition is 3 month.

13. 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.