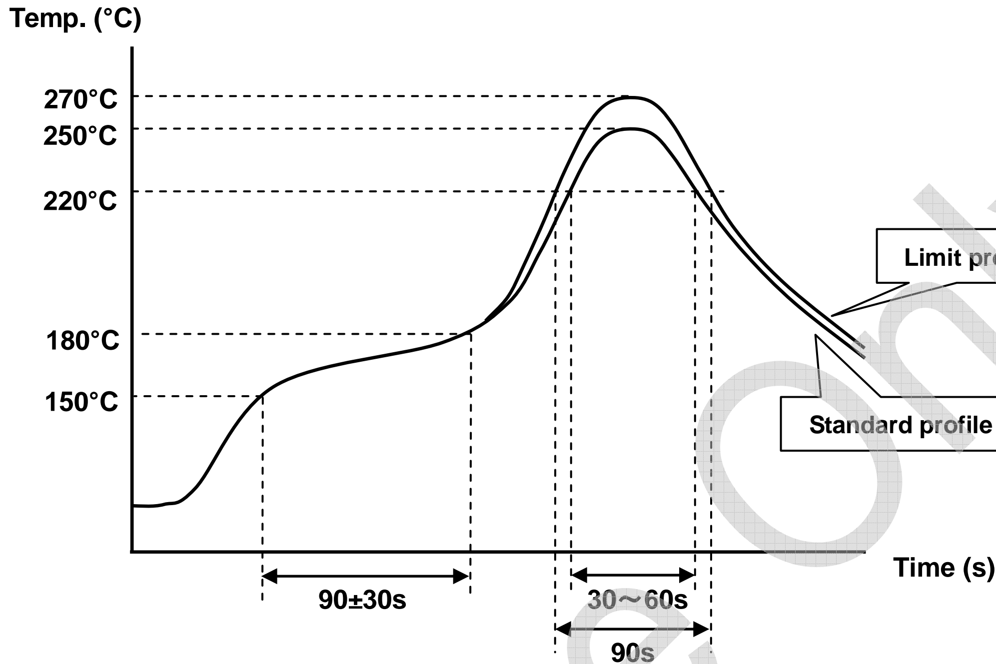
(3) Reflow soldering conditions

The following figure and table show our recommended reflow profile.



	Standard profile	Limit profile
Preheat	150~180°C, 90±30s	
Soldering time (≥220°C)	30~60s	90s
Peak temp.	250°C	270°C
Reflow cycle	Max. 2times	Max. 2times

I. Insufficient preheating may cause a crack on ceramic body.
The temperature difference between preheat and peak should be control within 100°C to prevent this.

II. The excessive soldering conditions may cause dissolution of metallization or deterioration of solder-wetting on the external electrode.

III. Rapid cooling by dipping in solvent or by other means is not recommended.

IV. Please evaluate it on your condition if you will do mounting using not applying condition to the above-mentioned.

(4) There is a fear of unexpected failures (tombstone, insufficient solder-wetting, etc.) in your mounting process, caused by the mounting conditions. Please evaluate if this product is correctly mounted under your mounting conditions.

(5) Conditions with Soldering Iron
When hand soldering by iron is applied, be sure to keep following conditions.

Item	Conditions
Preheating	at 150°C for 1 to 2 minute
Temperature of Iron-tip	280°C max.
Soldering Iron Wattage	30W max.
Diameter of Iron-tip	3mm dia. max.
Soldering Time	5sec. max.
Solder	H60A (Sn:Pb=60:40wt%) type , H63A (Sn:Pb=63:37wt%) type, Sn:Ag:Cu=96.5:3.0:0.5wt% or equivalent type.
Flux	Do not use strong acidic flux (with halide content exceeding 0.2wt%).
Caution	Do not allow the iron-tip to directly touch the ceramic body. Preheat the ceramic body and mounting board.

Reference Only

8. Do not give this product a strong press-force nor a mechanical shock.
   Because such mechanical forces may cause cracking or chipping of this ceramic product.

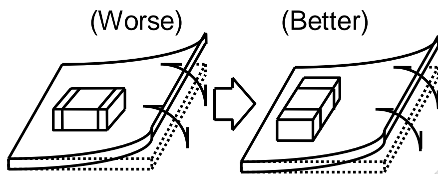
9. Rapid cooling or heating during soldering is not recommended.
   Such treatment may destroy the element.

10. When this product is operated, temperature of some area may be over 100 to 150°C. Be sure that surrounding parts and inserting material can withstand the temperature. If the surrounding part and material is kept under such condition, they may be deteriorated or may produce harmful gases (Cl_2, H_2S, NH_3, SO_X, NO_X etc.). And, such harmful gas may deteriorate the element.

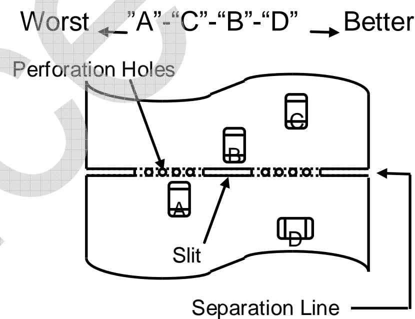
11. Do not assemble this product with air-sealing or resin casting. Such sealing may deteriorate the characteristic or destroy PTC element.

12. Location on Printed Circuit Board(PC Board)

<Component Direction>
Locate this product horizontal to the direction in which stress acts.



<Mounting Close to Board Separation Line>
Put this product on the PC Board near the Slit, not near the Perforation Holes.
Keep this product on the PC Board away from the Separation Line.



Reference Only