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REFERENCE

PREPARED BY: *M. Yabe* DATE: *Aug. 10, '95*

APPROVED BY: *M. Abe* DATE: *Aug. 10, '95*

**SHARP**  
ELECTRONIC COMPONENTS GROUP  
SHARP CORPORATION  
SPECIFICATION

SPEC. NO. DG-958041

ISSUE *Aug. 10, 1995*

PAGE 8 Pages

REPRESENTATIVE DIVISION  
OPTO-ELECTRONIC DEVICES DIV.

DEVICE SPECIFICATION FOR  
GaP Yellow-green  
Chip LED Device  
  
MODEL No. LT1E 67A

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2. Please obey the absolute maximum ratings and notes etc. in these specification sheets, and the notice mentioned below for actual use of this device. SHARP takes no responsibility for any damage caused by improper use of the device deviated from the absolute maximum ratings and notes etc. in these specification sheets, and the notice mentioned below for actual use of this device.

(Notice)

(1) This device is designed for use in the following applications;

- OA equipment     Audio visual equipment     Home appliance
- Telecommunication equipment (Terminal)     Yeascring equipment
- Tooling machine     Computer

among those applications, if there is applicable to the item(2), and(3). Please obey the corresponded notice.

(2) The appropriate measures, such as fail-safe design and redundant design considering safety design of overall system and equipment, should be taken to ensure the reliability and safety in the function and precision when this device is used for equipment. such as;

- Transportation control and safety equipment (aircraft, train, automobile etc.)
- Traffic signal     Gas leakage sensor breaker     Fire box and burglar alarm box
- Other safety equipment, etc.

(3) Please do not use for the uses mentioned below which require extremely high reliability and safety in function and precision

- Space equipment     Telecommunication equipment (Trunk)
- Nuclear power control equipment     Medical equipment etc.

(4) Contact and consult with a Sharp representative if there are any questions when intending to use this device for any applications listed above or applicable to the listed above.

3. Contact and consult with a Sharp representative, in advance, if there are any questions about this device.

CUSTOMER'S APPROVAL

DATE \_\_\_\_\_  
BY \_\_\_\_\_

DATE *Aug. 10, 1995*  
PRESENTED BY *M. Abe*

*M. Abe*  
Department General Manager of  
Engineering Dept., III  
Opto-Electronic Devices Div.  
EL ECOM Group  
SHARP CORPORATION

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**LT1E67A**

This data sheet is to introduce the light emitting diode device  
Model No. LT1E67A, delivered to

**I. Structure and characteristics**

- Structure : GaP yellow-green chip LED device
- Outline dimensions and pin connections : See page 2
- \* Taping specification : See page 343 6
- Packing specification : See page 7
- Soldering method : See page 8

**2. Absolute maximum ratings** (Ta = 25°C)

Parameter	Symbol	Value	Unit
Power dissipation	P	8.4	mW
Continuous forward current	I <sub>F</sub>	30	mA
Peak forward current(Note 1)	I <sub>FM</sub>	50	mA
Derating factor	DC	0.40	mA/°C
	Pulse	0.67	mA/°C
Reverse voltage	V <sub>R</sub>	5	V
Operating temperature	T <sub>opr</sub>	-30 ~ +85	°C
Storage temperature	T <sub>stg</sub>	-40 ~ +100	°C

(Note 1) Duty ratio = 1/10, Pulse width = 0.1ms

**3. Electro optical characteristics** (Ta = 25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 20 mA	-	2.1	2.8	V
Luminous intensity (Note 2)	I <sub>v</sub>		4.5	11	-	mcd
Peak emission wavelength	λ <sub>p</sub>				565	nm
Spectrum radiation bandwidth	Δλ				30	nm
Reverse current	I <sub>R</sub>	V <sub>R</sub> = 4 V	-	-	10	μA
Terminal capacitance	C <sub>t</sub>	V = 0V, f = 1MHz	-	35	-	pF

(Note 2) Tolerance: ±15%

**4. Luminous intensity rank**

Rank: Luminous intensity	Unit	Condition
A 4.5 ~ 8.7	mcd	I <sub>F</sub> = 20mA tolerance; ±15%
B 6.5 ~ 12.5		
C 9.4 ~ 18.1		
D 13.4 ~ 26.1		
E 19.4 ~ 37.7		

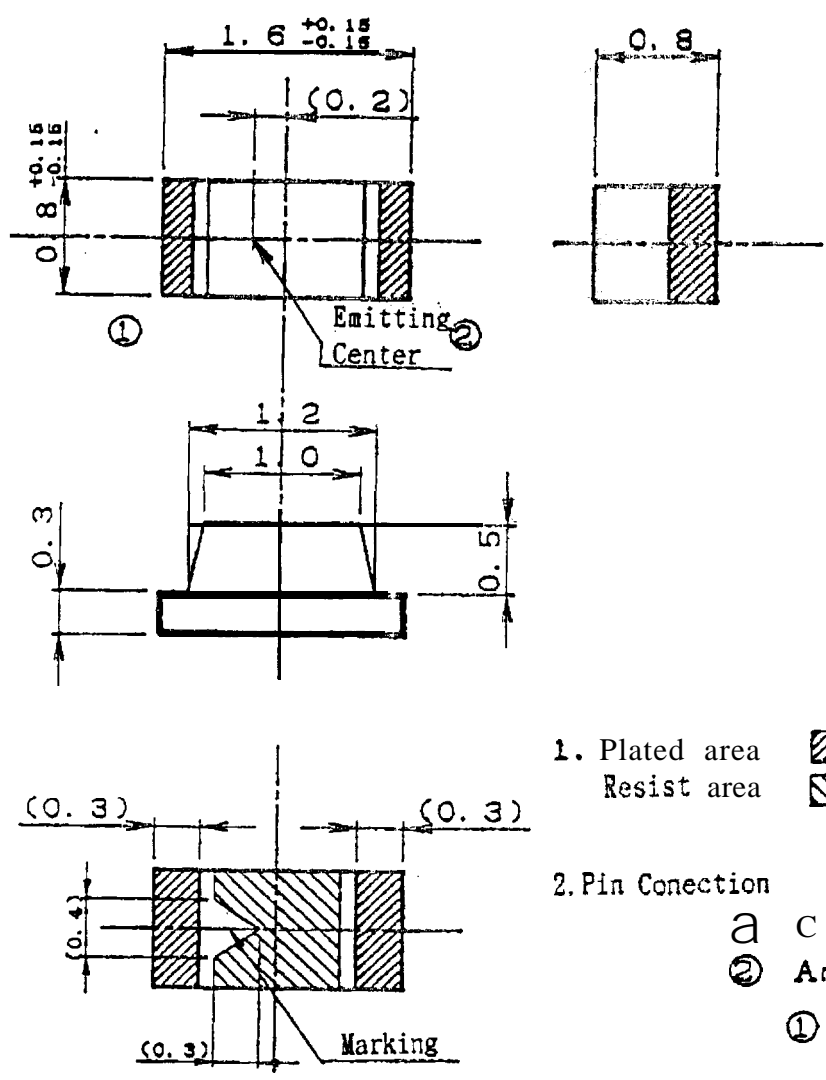
(Note 3) Measured by SHARP EG&G MODEL550 (Radiometer/Photometersystem)

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3. Unspecified tel. to be ±0.1

適用機種 APPLICABLE MODEL		尺度 SCALE		単位 UNIT					
LT1E67A		20/1		mm		改訂日 D/R		改訂記事 REVISE   担当 CHNG.	
板厚 THICKNESS	員数 PIECES	材質 MATERIAL		仕上 FINISH		名称 NAME		Outline dimensions and terminal connections	
				Auめっき					
日付 DATE	1995. 4. 25	シャープ株式会社電子部品事業本部				コード CODE			
設計 DESIGN	製図 DRAW	検図 CHECK	検図 CHECK	承認 APPROVE	OPTO-ELECTRONIC DEVICES DIV ELECOM GROUP				
図崎		図崎		藤田		図番 DRAWING No.		50604026B	
SHARP CORPORATION									

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MODEL No. LT1E67A

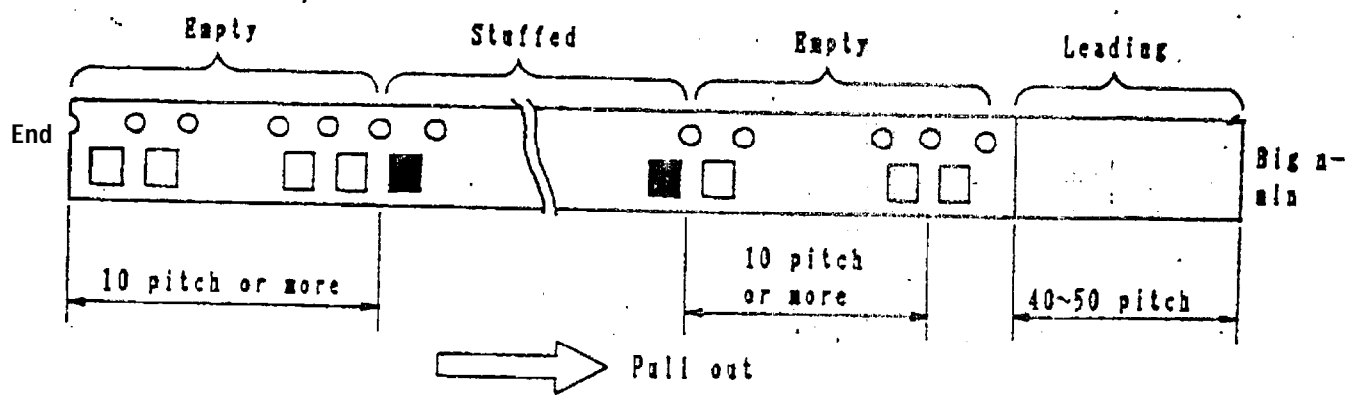
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Taping Specification

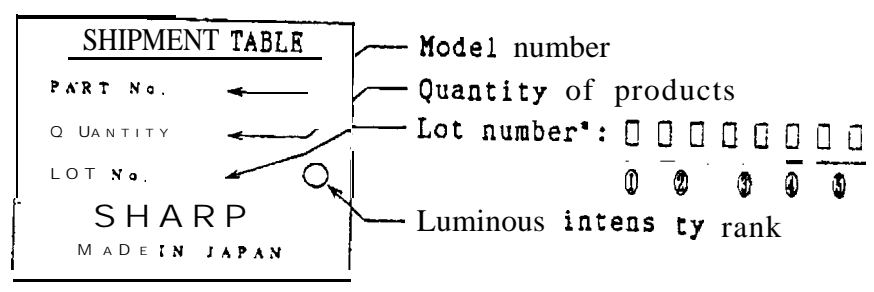
1. This data sheet is to introduce the taping specification of LRD device, model No. LT1E67A

2. Taping specification

2.1 Taping specification



2.2 Shipment table



\*:Lot indication

- ① Production plant code (to be indicated alphabetically)
- ② Production lot (single or double figures)
- ③ Year of production (the last two figures of the year)
- ④ Month of production  
(to be indicated alphabetically with January corresponding to A)
- ⑤ Date of production (01~31)

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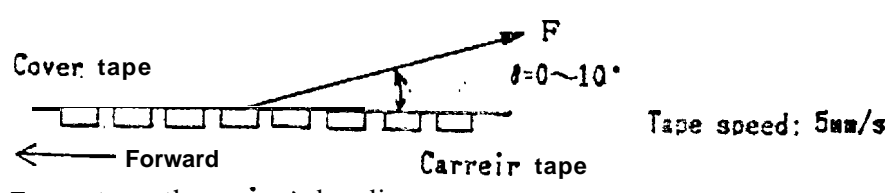
2.3 Related matters

2.3.1. Packing

There should not be missing above continuous three products.

2.3.2. Tape strength

I) Cover" tape strength against peeling:  $F = 0.1 \sim 0.8N$  ( $\theta = 10^\circ$  or less) .



2) Tape strength against bending

The radius of bending circle should be 30mm or more.

[f itis less than 30mm, the cover tape may peel.

2.3.3. Taking out of products

1) Products should be easily taken out.

2) Products should not be attached to the cover tape at peeling.

2.3.4., Jointing of tape

There should not be joint of cover tape or carrier tape.

3. Quantity per reel

Average: 4,000 pcs. per reel

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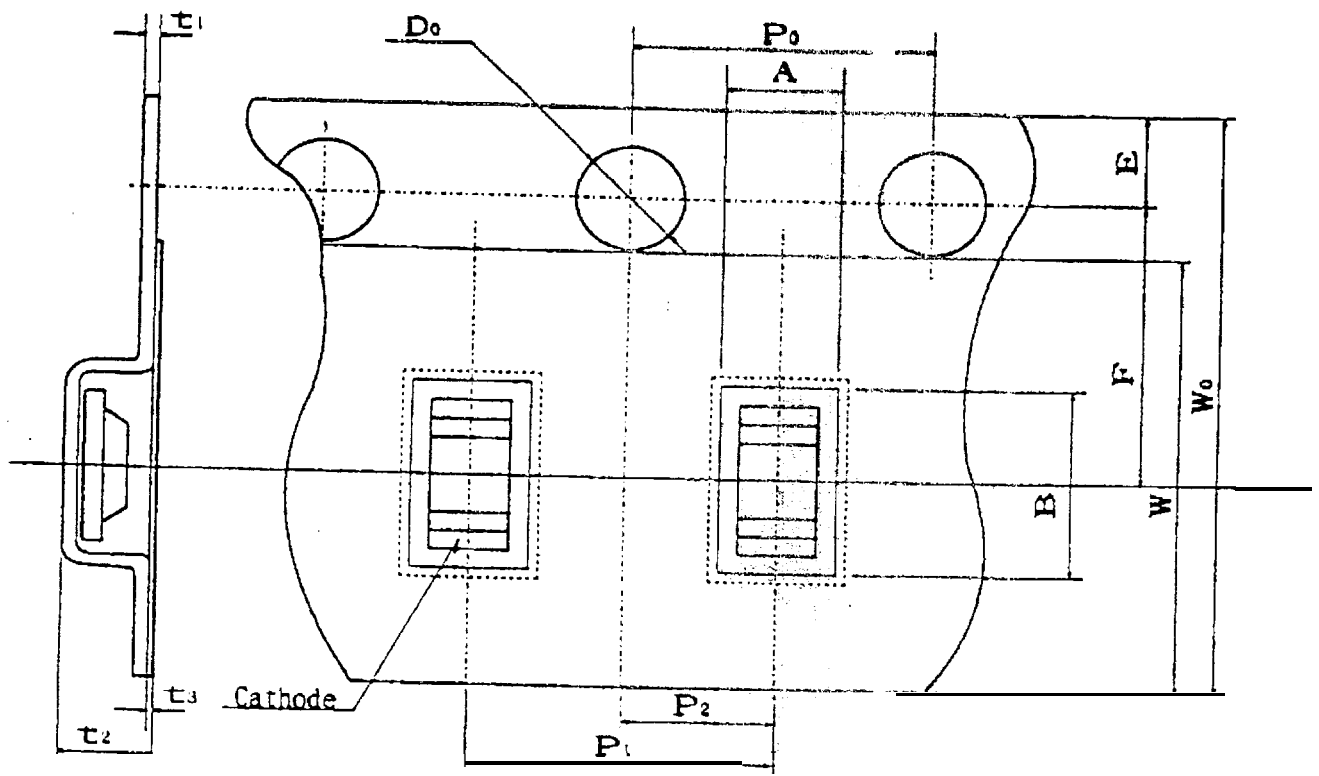
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4-1, Taping  
4-1-1. Shape and dimension of tape(TYP.) .



Parameter		Symbol	Dimension	Remarks
Concave square hole for part insertion	Vertical	A	1.0mm	Dimension excludes corner R at inside bottom
	Horizontal	B	1.9mm	
	Pitch	P <sub>1</sub>	4.0mm	
Round sprocket hole	Diameter	D <sub>0</sub>	1.5mm	Accumulated error ±0.5mm/10 pitch
	Pitch	P*	4.0mm	
	Position	E	1.75mm	
Center to center dimension	Vert.dir	P <sub>2</sub>	2.0mm	Center line of the concave square hole and round sprocket hole
	Hori.dir	F	3.5mm	
Cover tape	Width	W <sub>1</sub>	5.5mm	
	Thickness	t <sub>3</sub>	0.1mm	
Carrier tape	Width	W <sub>0</sub>	8.0mm	
	Thickness	t <sub>1</sub>	0.2mm	
Thickness of the entire unit		t <sub>2</sub>	1.2mm	With cover tape and carrier tape combined

\* Material: Carrier tape...PET, Cover tape...Polyester

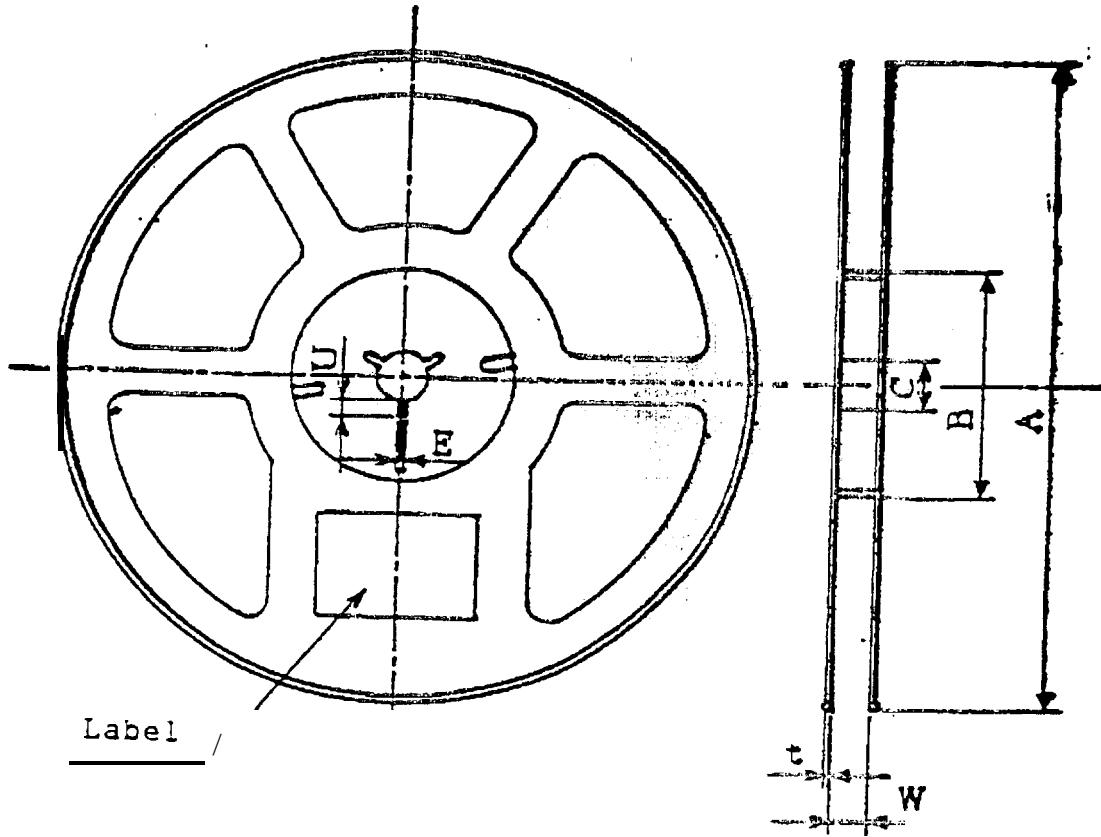
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4-1-2. Shape and dimension of reel (TYP.)



Label

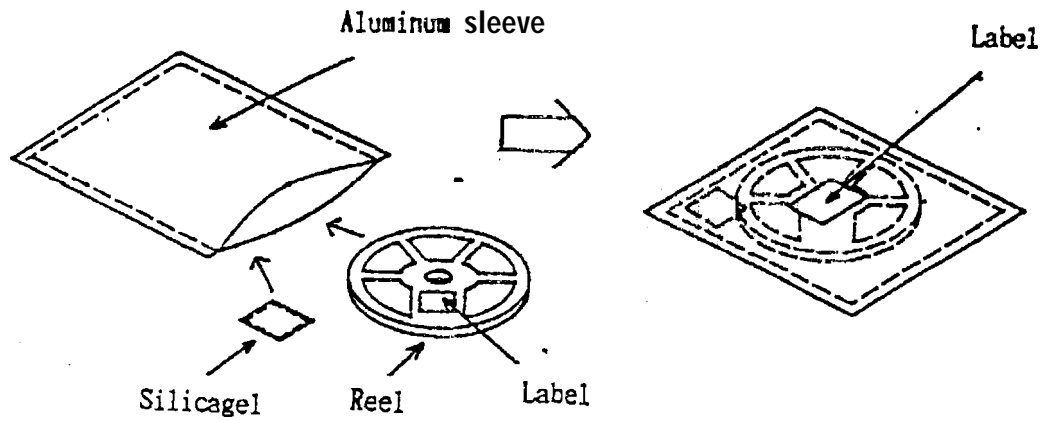
Parameter		Symbol	Dimension	Remarks
Flange	Diameter	A	φ178mm	
	Thickness	t	1.5mm	
	Inner space direction	W	10mm	Dimension of shaft core
Hub	External diameter	B	φ60mm	
	Spindle hole diameter	C	φ13mm	
	Key slit	Width	E	2.0mm
Depth		U	4.5mm	
Notation for partname etc.		Labeling on one side of flange. (Part name, quantity, lot No.)		

\* Material: Reel ... Polystyrene

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P a c k i n g S p e c i f i c a t i o n

In order to avoid the absorption of humidity in transport end storage, the devices are packed in aluminum sleeve,



1. Storage Conditions

The storage should be done under following conditions:

Temperature 5 to 30°C

Humidity less than 60%RH

2. Treatment after Opening

1) Please make a soldering within 2 days after opening under following conditions: -

Temperature 5 to 30°C

Humidity less than 60%RH

2) In case the devices are not used for a long time after opening, the storage in dry box is recommendable. Or it is better to repack the devices with a desiccative by the sealer and put them in the same storage conditions as 6-1. Then they should be used within 2 weeks.

3) Please make soldering after a following baking treatment if unused term should be over the renditions of 2).

Recommendable Conditions:

① in taping

Temperature 60°C Time 90 to 100 Hours

② in individual (on PWB or metallic tray)

Temperature 110°C Time 3 to 4 Hours



(10%)

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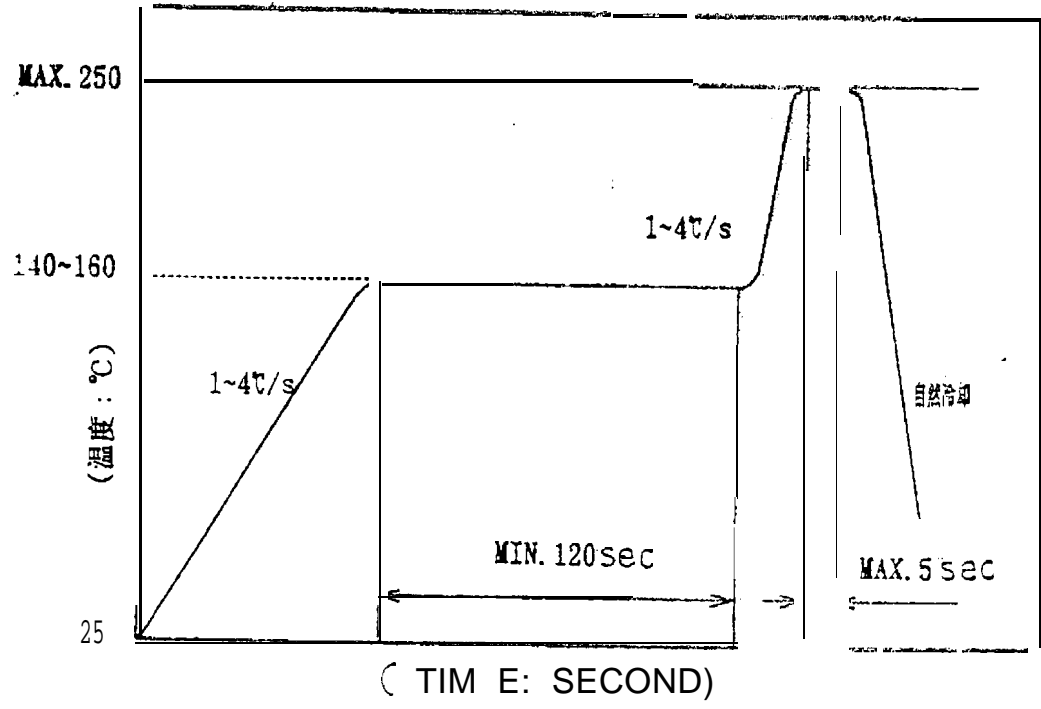
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Mounting precautions

1. Soldering

1-1 Reflow soldering

To be done under the following condition.



Recommendable Thermal Model

1-2 Reflow soldering precautions

Second time soldering should be done within 8 hours after the first one is finished.  
(Storage condition: at 30°C, RH<60%)

2. Soldering iron method

At 300°C within seconds

When using a soldering iron, care must be taken not to damage the package  
(Pay attention not to allow any undue stress or heat on package)