

REFERENCE

PREPARED BY: <i>M. Yabe</i>	DATE: <i>Aug. 10, '95</i>	<h1>SHARP</h1>	SPEC. No. DG-958041
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APPROVED BY: <i>M. Abe</i>	DATE: <i>Aug. 10, '95</i>	ELECTRONIC COMPONENTS GROUP SHARP CORPORATION	REPRESENTATIVE DIVISION OPTO-ELECTRONIC DEVICES DIV.
		<h2>SPECIFICATION</h2>	

DEVICE SPECIFICATION FOR	
GaAsP/Gap Red	
Chip LED Device	
MODEL No.	LT1D67A

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 - Please obey the absolute aximum 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)
- This device is designed for use in the following applications;

• OA equipment	• Audio visual equipment	• Home appliance
• Telecommunication equipment (Terminal)	• Measuring equipment	
• Tooling machine	• Computer	

 among those applications, if there is applicable to the item(2), and(3). Please obey the corresponded notice.
 - 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.]		
 - 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.]	
 - 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,
- Contact and consult with a Sharp representative, in advance, if there any questions about this device.

CUSTOMER'S APPROVAL

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

DATE

BY

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

REFERENCE

MODEL No. **LT1D67A**

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LTID 67A

This data sheet is to introduce the light emitting diode device Model No. **LT1D67A**, delivered to

I. Structure and characteristics

- Structure : **GaAsP/GaP** red chip LED dev. ce
- Outline dimensions and pin connections See page 2
- Taping specification : See page 3 4 5 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	84	mW
Continuous forward current	I _F	30	mA
Peak forward current(Note 1)	I _{FM}	50	mA
Derating factor	DC	0.40	mW/A/°C
	Pulse	0.67	mA/°C
Reverse voltage	V _R	5	v
Operating temperature	T _{opr}	-30 ~ +85	°C
Storage temperature	T _{stg}	-40 ~ +100	°C

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

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

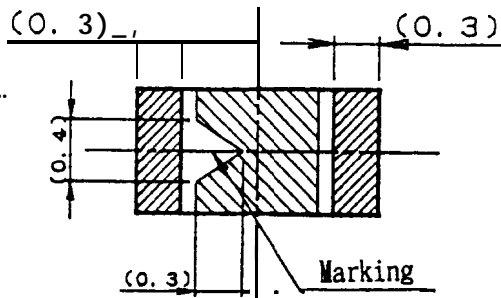
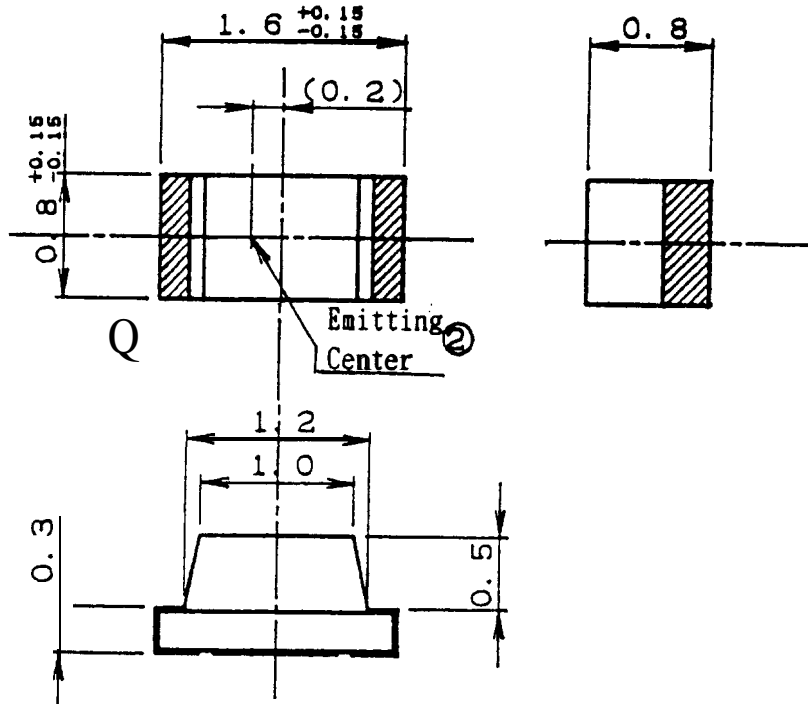
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward voltage	V _F	I _F = 20 mA	-	2.0	2.8	V
Luminous intensity (Note 2)	I _v		2.7	8.8	-	mcd
Peak emission wavelength	λ _p		-	635	-	nm
Spectrum radiation bandwidth	Δλ		-	35	-	nm
Reverse current	I _R	V _R = 4 v	-	-	10	μA
Terminal capacitance	C _t	V = 0V, f = 1MHz	-	20	-	pF



(Note 2) Tolerance: ±15%

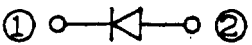
4. Luminous intensity rank (Ta = 25°C)

Rank	Luminous intensity	Unit	Condition
A	2.7 ~ 5.2	mcd	IF = 20mA tolerance; ± 15%
B	3.9 ~ 7.5		
C	5.6 ~ 10.8		
D	8.1 ~ 15.6		
E	11.6 ~ 22.5		






(Note 3) Measured by SHARP EG&G MODEL 550 (Radiometer/Photometer system)



1. Plated area 
Resist area 

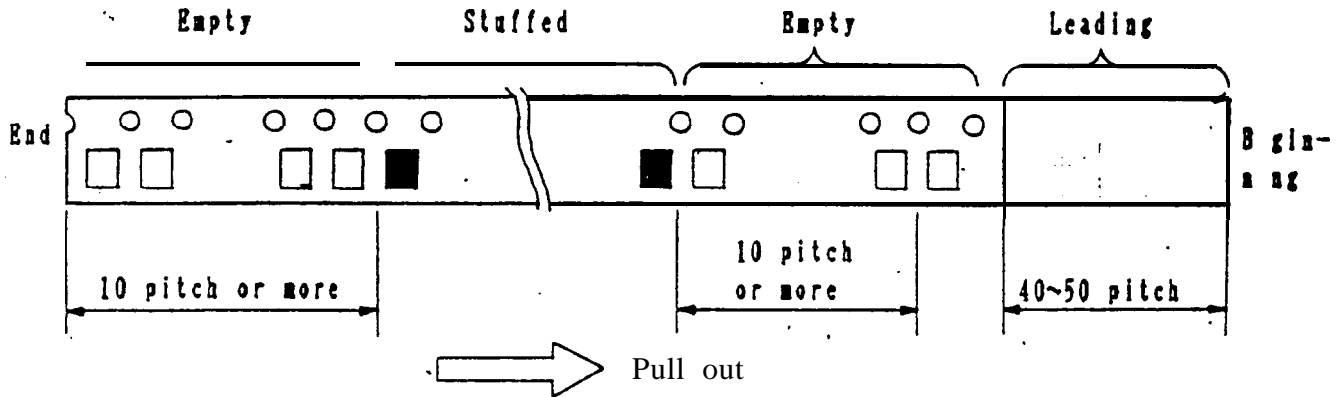
2. Pin Connection
 ① Cathode
 ② Anode


3. Unspecified tol. to be ± 0.1

適用機種 APPLICABLE MODEL		尺度 SCALE	単位 UNIT		
LT1D67A		20/1	mm	改訂日 DATE	改訂記事 REVISE 担当 CHNG
板厚 THICKNESS	数量 PIECES	材質 MATERIAL	仕上 FINISH	名称 NAME	Outline dimensions and terminal connections
			Auめっき	コード CODE	
日付 DATE	1995. 4. 25	シャープ株式会社 電子部品事業本部		図番 DRAWING No.	50604026B
設計 DESIGN	製図 DRAW	検図 CHECK	検図 CHECK	承認 APPROVE	
					
OPTO-ELECTRONIC DEVICES DIV ELECTRONIC GROUP				SHARP CORPORATION	

Taping Specification

1. This data sheet is to introduce the taping specification of LRD device, model No, LT1D67A
2. Taping specification
 - 2.1 Taping specification



2.2 Shipment table

SHIPMENT TABLE																	
PART No.	← Model number																
QUANTITY	← Quantity of products																
LOT No.	← Lot numbers: <table style="display: inline-table; border: none;"><tr><td style="border: 1px solid black; width: 15px; height: 15px;"></td><td style="border: 1px solid black; width: 15px; height: 15px;"></td><td style="border: 1px solid black; width: 15px; height: 15px;"></td><td style="border: 1px solid black; width: 15px; height: 15px;"></td><td style="border: 1px solid black; width: 15px; height: 15px;"></td><td style="border: 1px solid black; width: 15px; height: 15px;"></td><td style="border: 1px solid black; width: 15px; height: 15px;"></td><td style="border: 1px solid black; width: 15px; height: 15px;"></td></tr><tr><td style="text-align: center;">①</td><td style="text-align: center;">②</td><td style="text-align: center;">③</td><td style="text-align: center;">④</td><td style="text-align: center;">⑤</td><td></td><td></td><td></td></tr></table>									①	②	③	④	⑤			
①	②	③	④	⑤													
SHARP																	
MADE IN JAPAN																	

*: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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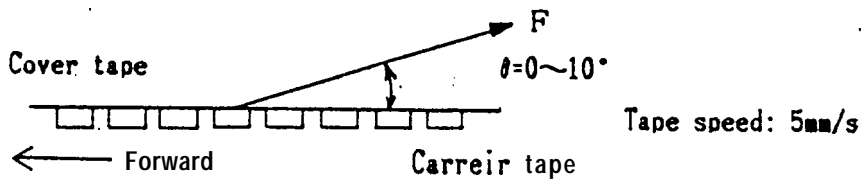
2.3 Related matters

2.3.1. Packing

There should not be missing above continuous three products.

2.3.2. Tape strength

1) 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.

If it is 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.

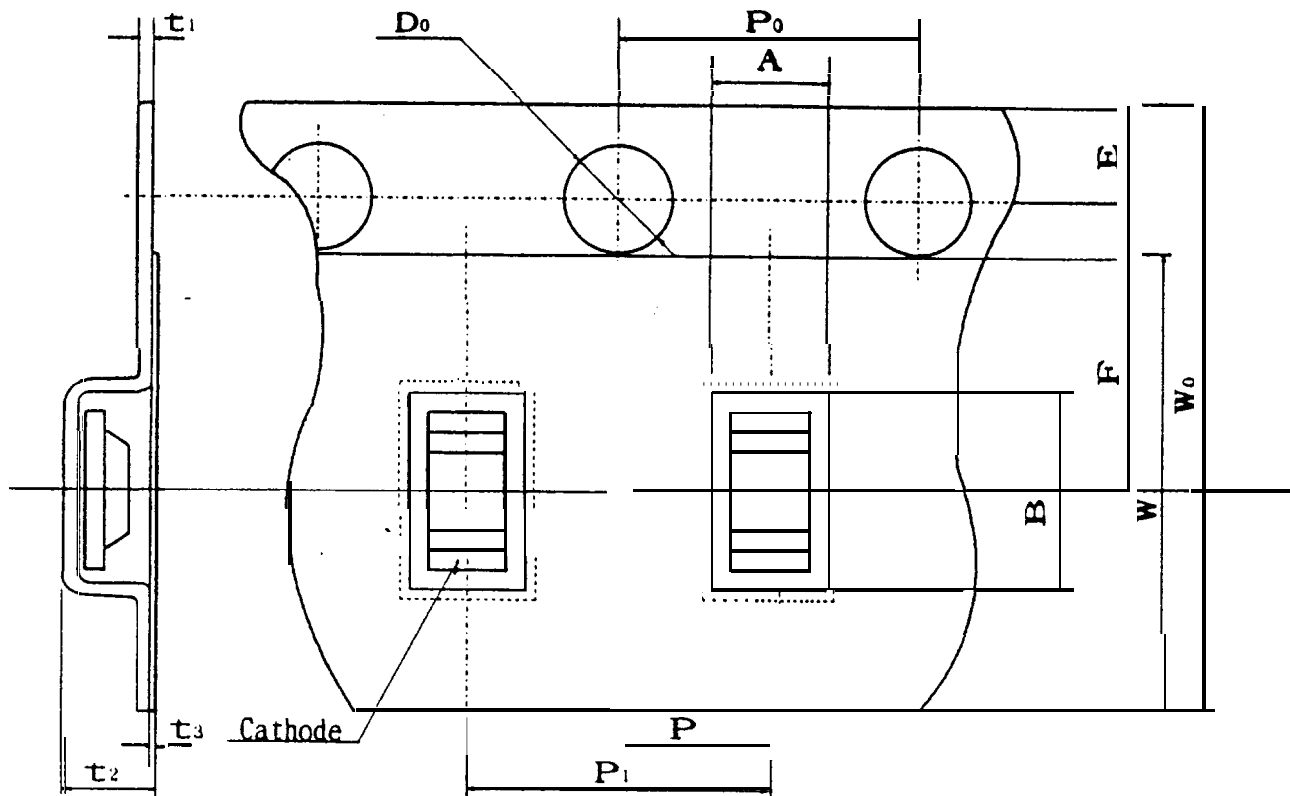
3. Quantity per reel

Average: 4,000 pcs. per reel "

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4-1. Taping

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

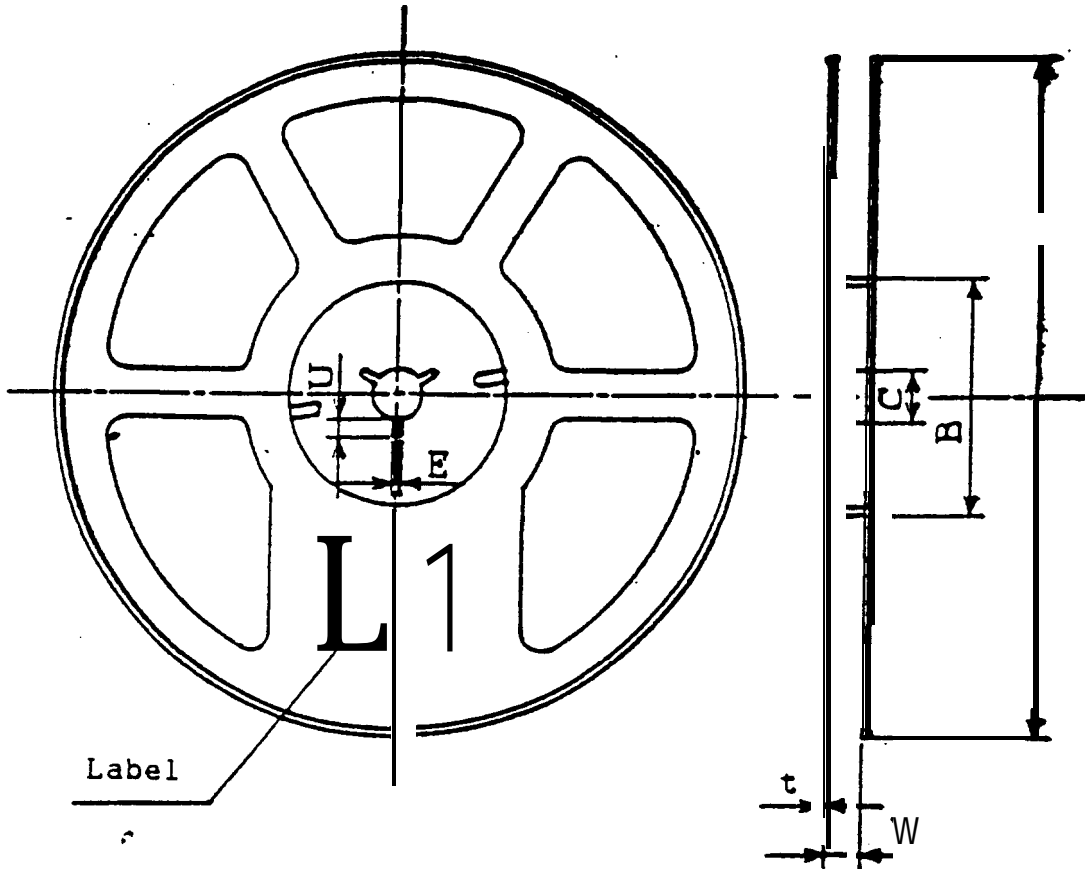


Parameter		Symbol	Dimension	Remarks
Concave square hole for part insertion	Vertical	A	1.0mm	Dimension excludes corner R at inside bottom
	Horizontal	B	1.9mm	
	Pitch	P ₁	4.0mm	
Round sprocket hole	Diameter	D ₀	1.5mm	
	Pitch	P ₀	4.0mm	Accumulated error ±0.5mm/10 pitch
	Position	E	1.75mm	Distance between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



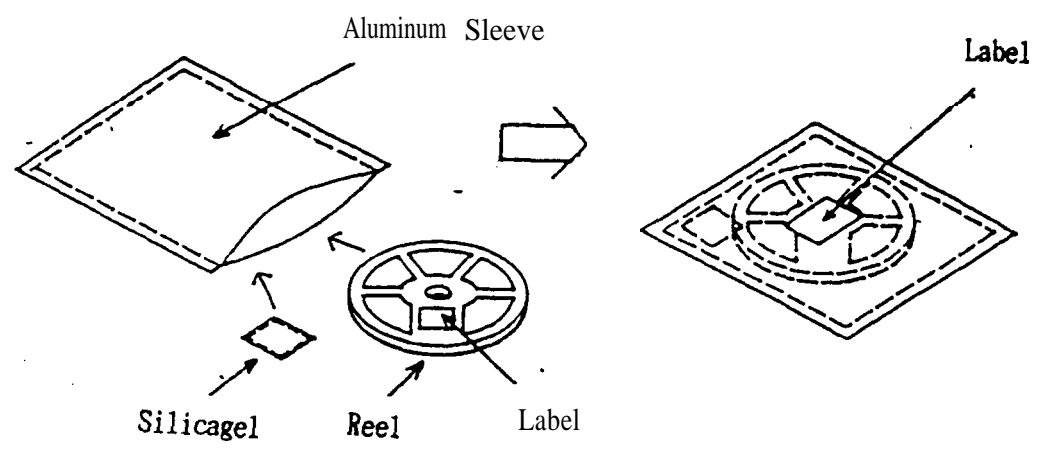
Parameter		Symbol	Dimension	Remarks
Flange	Diameter	A	$\phi 178\text{mm}$	
	Thickness	t	1.5mm	
	Inner space direction	W	10mm	Dimension of shaft core
Hub	External diameter	B	$\phi 60\text{mm}$	
	Spindle hole diameter	C	$\phi 13\text{mm}$	
	Key slit	Width	E	2.0mm
Depth		U	4.5mm	
Notation for part name 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 < p a c i f i c a t i o n

In order to avoid the absorption of humidity in transport and 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 a soldering after a following baking treatment if unused term should be over the conditions 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

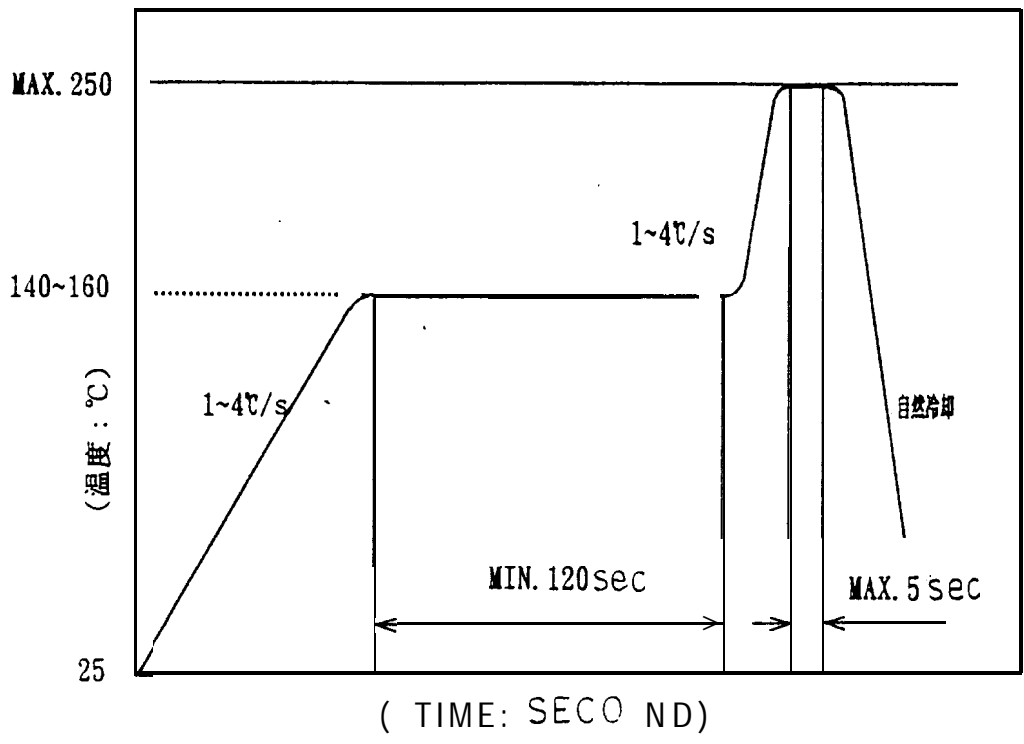
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Mounting precautions

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 00°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.)