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APPROVED BY: <i>M. Abe</i>	DATE: <i>Apr. 14, 1995</i>		FILE No.
		SPECIFICATION	ISSUE Mar. 29, 1995
			PAGE 8 Pages
			REPRESENTATIVE DIVISION OPTO-ELECTRONIC DEVICES DIV.

DEVICE SPECIFICATION FOR

GaP Yellow-green
Chip LED Device

MODEL No. LT1E97A

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2. Please obey the instructions mentioned below for actual use of this device. SHARP takes no responsibility for damage caused by improper use of the devices.

(1) This device is designed for general electronic equipment.
Main uses of this device are as follows;

[•OA equipment •AV equipment •Home appliance •Telecommunication
equipment (Terminal) •Measuring equipment •Tooling machine •Computer, etc.]

(2) Please take proper steps in order to maintain reliability and safety, in case this device is used for the uses mentioned below which require high reliability.

[•Unit concerning control and safety of a vehicle (air plane, train, automobile etc.)
•Gasleak detection breaker •Traffic signal •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.

[•Space equipment •Telecommunication equipment (Trunk)
•Nuclear control equipment •Medical equipment etc.]

Contact a SHARP representative of sales office in advance when you intend to use SHARP devices for any applications other than those applications for general electronic equipment recommend by SHARP at (1).

CUSTOMER'S APPROVAL

DATE _____

BY _____

DATE *Apr. 14, 1995*

PRESENTED BY *M. Abe*

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

SHARP EG&G MODEL 550



LT1E97A

This data sheet is to introduce the light emitting diode device Model No. LT1E97A, delivered to

1. Structure and characteristics
 Structure : GaP yellow-green chip LED device
 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

Z. 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	mA/°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 = 0.1 ms

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward voltage	V _F	I _F = 20 mA	-	2.1	2.8	V
Luminous intensity (Note 2)	I _v		9.0	23	-	mcd
Peak emission wavelength	λ _p		-	565	-	nm
Spectrum radiation bandwidth	Δλ		-	30	-	nm
Reverse current	I _R	V _R = 4 V	-	-	10	μA
Terminal capacitance C _t		V = 0V, f = 1MHz	-	35	-	pF

(Note 2) Tolerance: ±15%

4. Luminous intensity rank

(Ta = 25°C)

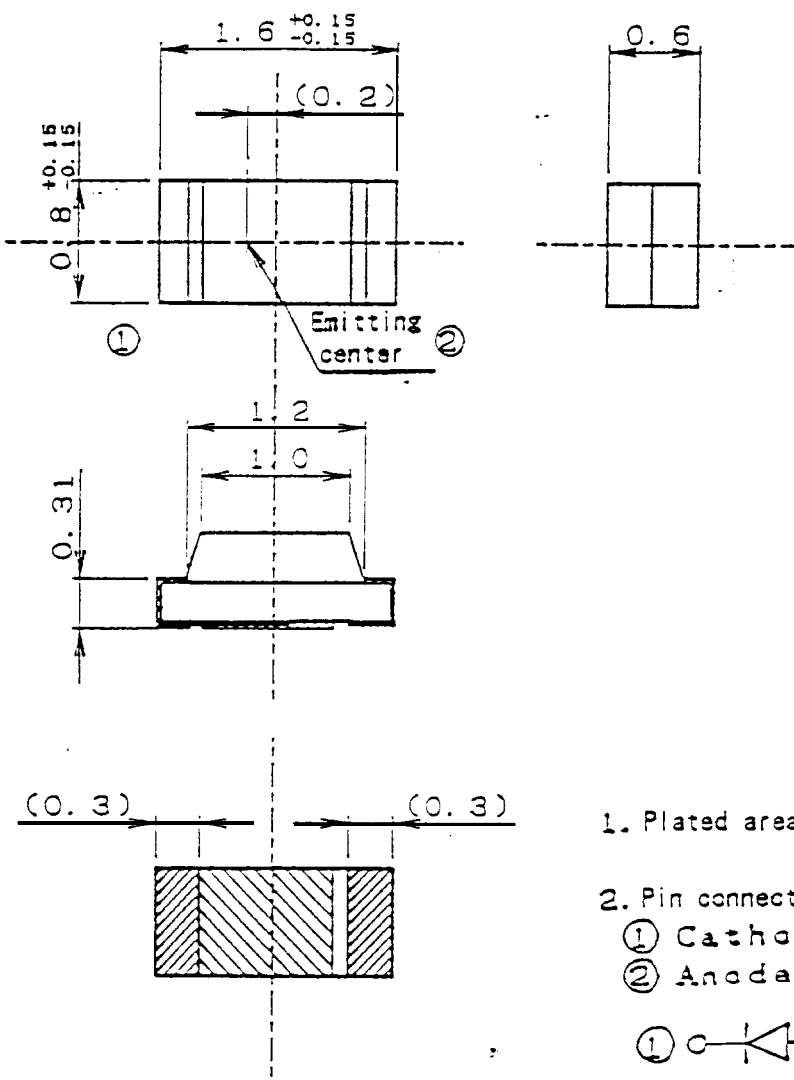
Rank	Luminous intensity	Unit	Condition
A	9.0 ~ 17.4	mcd	I _F = 20mA tolerance: ±15%
B	12.9 ~ 25.0		
C	18.5 ~ 36.0		
D	26.7 ~ 51.9		
E	38.4 ~ 74.6		

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

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- 1. Plated area
- 2. Pin connection
 ① Cathoda
 ② Anoda

3. Unspecified tol. to be ± 0.1

Plating thickness to be $60\mu\text{m}$
 Plating flash to be 0.2mm or smaller from the product side face

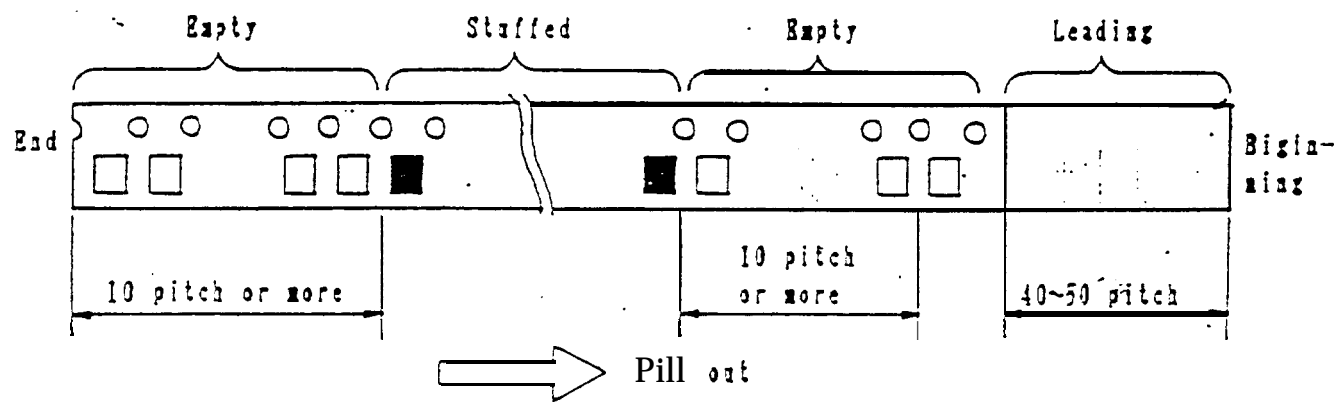
適用機種 APPLICABLE MODEL		尺度 SCALE	単位 UNIT		
LT1E97A		20/1	mm	改訂日 DATE	改訂内容 REVISE 担当 CHNG.
板厚 THICKNESS	数量 PIECES	材質 MATERIAL	仕上 FINISH	名称 NAME	外形及び接続図
—	—	—	Auめっき	—	
日付 DATE	1995. 2. 14	シャープ株式会社電子部品事業本部		コード CODE	50701010
設計 図	校閲 図	承認	OPTO-ELECTRONIC DEVICES DIV.	図番 DRAWING No.	
設計 図	校閲 図	承認	SHARP CORPORATION		

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Taping Specification

1. This data sheet is to introduce the taping specification of LED device, model No. LT1E97A
2. Taping specification
 - 2.1 Taping specification



2.2 Shipment table

<u>SHIPMENT TABLE</u>
PART NO.
QUANTITY.
LOT NO.
SHARP MADE IN JAPAN



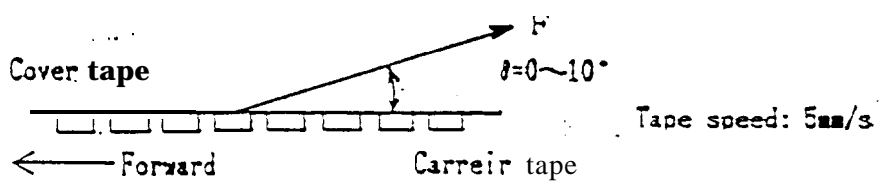
2.3 Related matters

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.

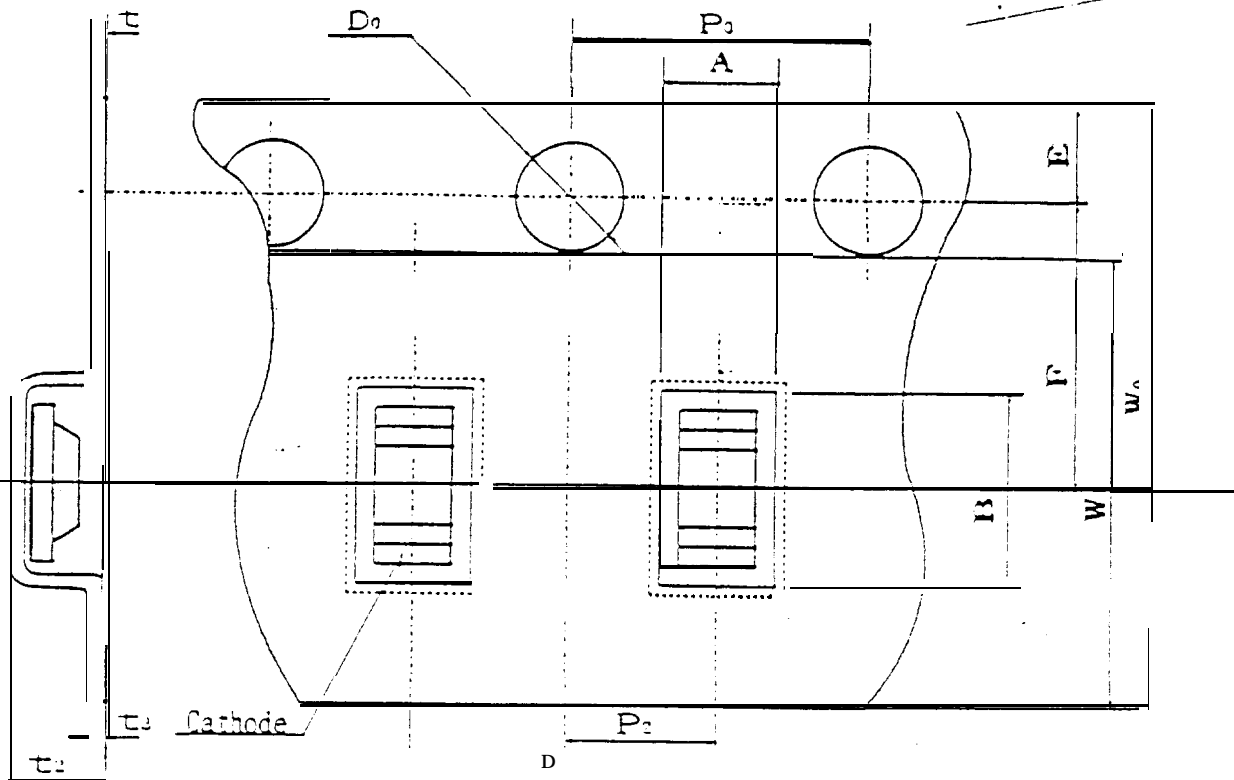
2) Products should not be attached to the cover tape at peeling.

2.3.4. Jointing of tape

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

3. Quantity per reel

Average: 5,000 pcs. per reel



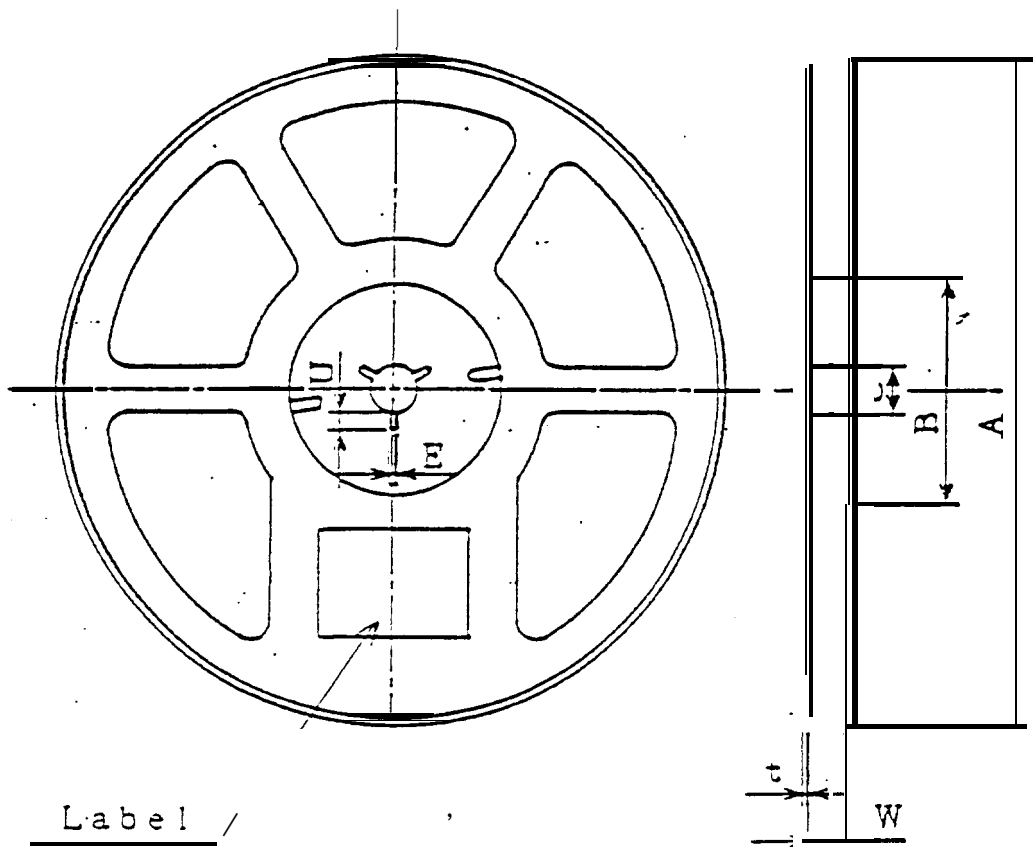
Item	Symbol	Dimension	Remarks
Concave square hole for part insertion	Vertical	A	(1.0) Dimension excludes corner R at inside bottom
	Horizontal	B	(1.9) Dimension excludes corner R at inside bottom
	Pitch	P ₁	4.0 ± 0.1
Round sprocket hole	Diameter	D ₀	1.5 ± 0.1
	Pitch	P ₀	4.0 ± 0.1 Accumulated error ±0.5/10 pitch
	Position	E	1.75 ± 0.1 Distance between tape edge and hole center
Center-to-cent. dimension	Vert. dire.	P ₂	2.0 ± 0.1 Centerline of the concave square hole and
	Hori. dire.	F	3.5 ± 0.1 round sprocket hole
Cover tape	Width	W ₁	5.5 ± 0.2
	Thickness	t ₃	0.1 MAX.
Carrier tape	Width	W ₂	8.0 ± 0.3
	Thickness	t ₁	(0.2)
Thickness of the entire unit	t ₂	1.4 MAX.	With cover tape and carrier tape combined

尺度 SCALE	材質 MATERIAL	仕上 FINISH	名称 NAME	テープキャリア形状及び寸法
単位 UNIT	キリテープ:PS		図番	50609022
1 = 1/1 mm	カバーテープ:PET		DRAWING No.	

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Item	Symbol	Dimension	angle	Remarks
Flange	Diameter	A	$\phi 178 \pm 2.0$	
	Thickness	t	1.5 ± 1.0	
	Inner space direction	W	10.0 ± 1.5	Dimension of shaft core
Hub	External diameter	B	$(\phi 60)$	
	Spindol hole diameter	C	$\phi 13 \pm 0.5$	
	Key slit	Width	E	$2.0 * 0.5$
Depth		u	4.5 ± 0.7	
Notation for part name etc.		Labeling on one side of flange(part name, quantity, lot No.)		

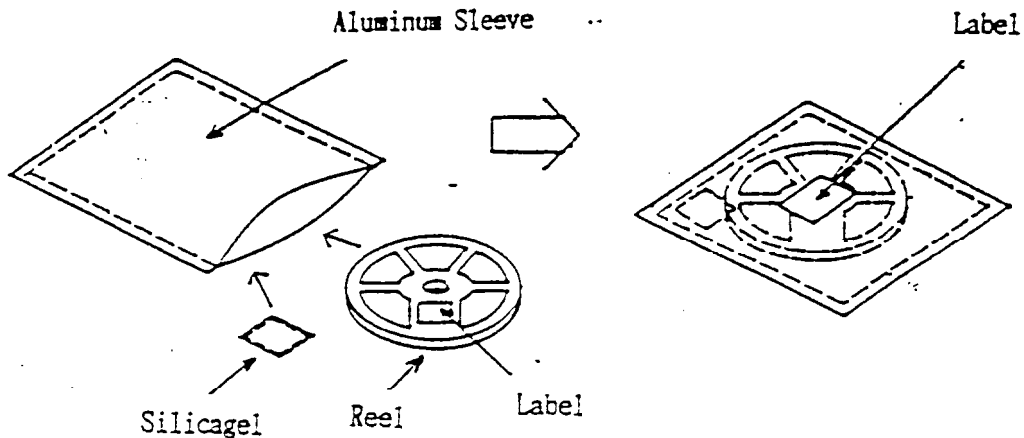
尺·度 SCALE	材質 MATERIAL	仕上 FINISH	名称 NAME	Reel structure and dimension
单位 UNIT	Reel:PS.		图番	50502639
l = 1/1 mm			DRAWING No.	

REF ID: A67140E



Packing Specification

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 renditions:

Temperate 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

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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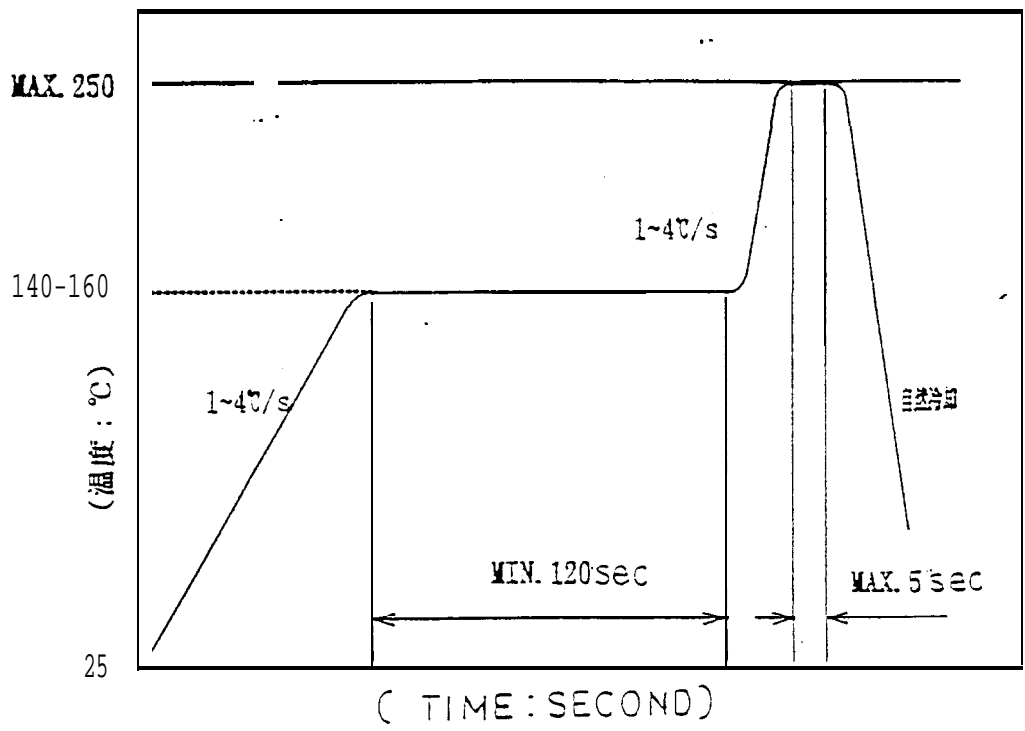


Mounting precautions

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 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.)