

PREPARED BY: <i>M. Yabe</i>	DATE: <i>Jul. 8, 96</i>	<h1>SHARP</h1> <p>ELECTRONIC COMPONENTS GROUP SHARP CORPORATION</p> <h2>SPECIFICATION</h2>	SPEC No DG-967013
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			PAGE 8
			REPRESENTATIVE DIVISION: Opto-Electronic Devices Division

DEVICE SPECIFICATION FOR

Light Emitting Diode

MODEL No.

LT 1E40A

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2. When using this **product**, please **observe** the absolute maximum ratings and the **instructions** for use outlined in these **specification sheets**, as well as the precautions mentioned below. Sharp assumes no responsibility for any damage **resulting** from use of the product which does not comply with the absolute maximum ratings and the instructions included in these **specification** sheets, and the **precautions** mentioned **below**.

(Precautions)

 - (1) This products is designed for use in the following **application** areas;

<ul style="list-style-type: none"> * OA equipment * Audio visual equipment * Home appliance * Telecommunication equipment (Terminal) * Measuring equipment * Tooling machines * Computers 	
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If the use of the product in the above application areas is for **equipment** listed in **paragraphs** (2) or (3), **please** be sure to observe the precautions given in those **respective** paragraphs.
 - (2) Appropriate measures, such as **fail-safe** design and redundant design considering the safety design of the overall system and **equipment**, should be taken to ensure reliability and **safety** when this product is used for equipment which demands high reliability and safety in **function** and precision, such as ;

<ul style="list-style-type: none"> * Transportation control and safety equipment (aircraft, train, automobile etc.) * Traffic signals * Gas leakage sensor breakers Rescue and security equipment * Other safety equipment 	
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 - (3) Please do not use this product for equipment which require extremely high reliability and safety in fiction and **precision**, such as ;

<ul style="list-style-type: none"> * Space equipment * Telecommunication equipment (for trunk lines) ▶ * Nuclear power control equipment * Medical equipment 	
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 - (4) Please contact and **consult** with a Sharp sales representative if there are any questions regarding interpretation of the above three paragraphs.
3. Please contact and **consult** with a Sharp sales representative for any questions about this product.

CUSTOMERS APPROVAL

DATE: _____

BY: _____

DATE: *Jul .8, 1996*
PRESENTED BY: *M. Abe*

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

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LT1E40A

This data sheet is to introduce the light emitting diode device
Model No. LT1E40A, delivered to

1. Structure and characteristics

Structure: GaP yellow-green chip LED device

Outline dimensions and pin connections:

Taping specification:

Packing specification:

Soldering method:

See page 2

See page 3 4 5 6

See page 7

See page 8

2. Absolute maximum ratings

Parameter	Symbol	Value	Unit
Power dissipation	P	84	mW
Continuous forward current	IF	30	MA
Peak forward current (Note 1)	IFM	50	MA
Derating factor	DC	—	mA/°C
	Pulse	—	mA/°C
Reverse voltage	VR	5	v
Operating temperature	Topr	-30--85	°C
Storage temperature	Tstg	-40--100	°C

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

3. Electro optical characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward voltage	VF	IF=20mA	—	2.1	2.8	V
Luminous intensity (Note 2)	Iv		11.2	19	33.7	mc d
Peak emission wavelength	λ_p		—	570		nm
Spectrum radiation bandwidth	$\Delta \lambda$		—	30	—	nm
Reverse current	IR	VR=4V	—	—	10	μ A
Terminal capacitance	Ct	V=0V, f=1MHZ	—	35	—	p F

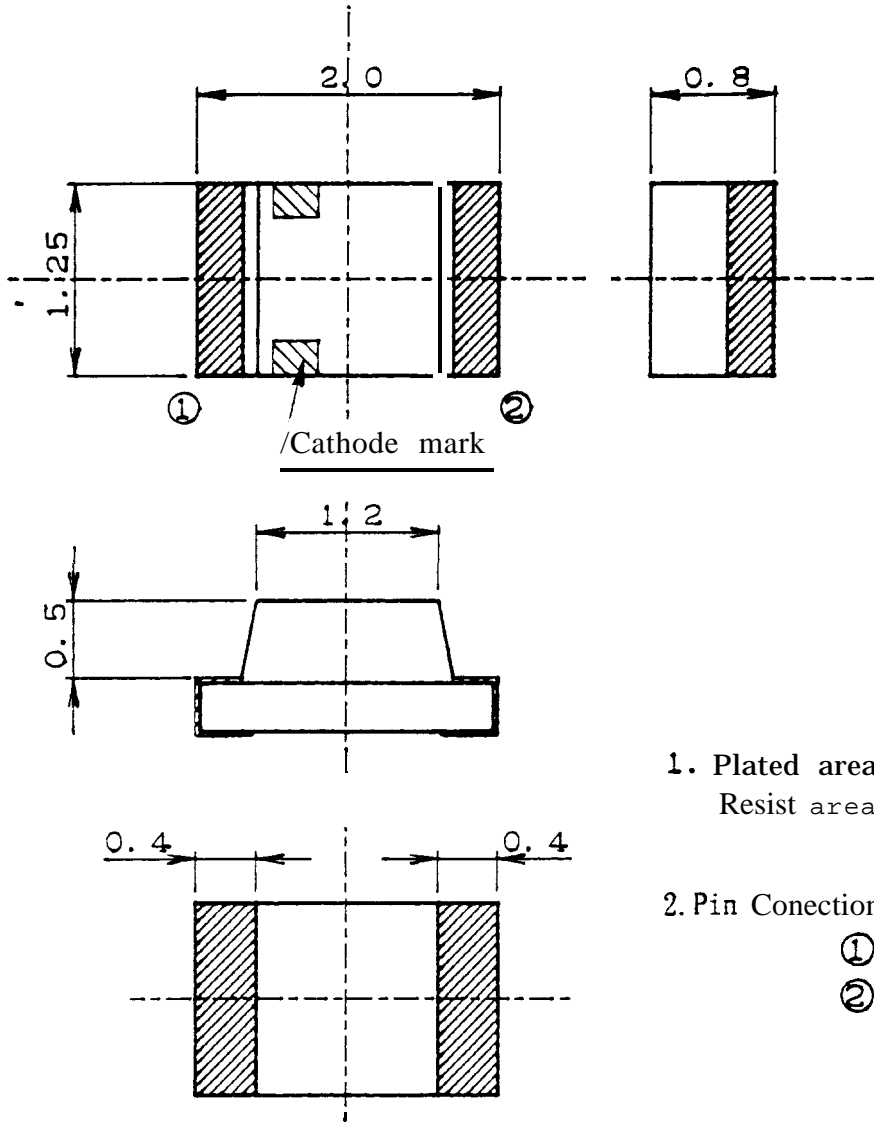
(Note 2) Tolerance: $\pm 15\%$



4. Luminous intensity rank


(Ta=25°C)

Rank: Luminous intensity rank	Unit	Condition
B 11.2 ~ 13.6	mc d	IF=20mA tolerance: $\pm 15\%$
C 12.5 ~ 15.2		
D 14.0 ~ 17.0		
E 15.7 ~ 19.1		
F 17.6 ~ 21.4		
G 19.7 ~ 24.0		
H 22.1 ~ 26.9		
I 24.7 ~ 30.1		
J 27.7 ~ 33.7		

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



1. Plated area 
 Resist area 

2. Pin Connection
 ① Cathode
 ② Anode


3. Unspecified tel. to be ± 0.1

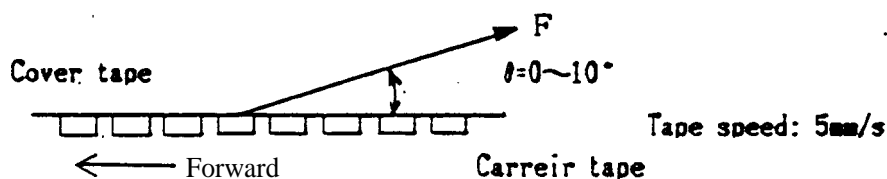
適用機種 APPLICABLE MODEL	LT1E40A	尺度 SCALE	20/1	単位 UNIT	mm	改訂日 DATE	改訂記事 REVISE	担当 CHNG.
板厚 THICKNESS	員数 PIECES	材質 MATERIAL	仕上 FINISH	名称 NAME	Outline dimensions and terminal connections			
			Auめっき					
日付 DATE	1995. 12. 6	シャープ株式会社電子部品事業本部			コード CODE			
設計 DESIGN	製図 DRAW	検図 CHECK	検図 CHECK	承認 APPROVE	OPTO-ELECTRONIC DEVICES DIV			
					ELECOM GROUP			
SHARP CORPORATION					図番 DRAWING No.	50712003		

SHARP**2.3 Related matters****2.3.1. Packing.**

There **should not be** "issuing" 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 reattached to the cover tape at peeling.

2.3.4. Jointing of tape

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

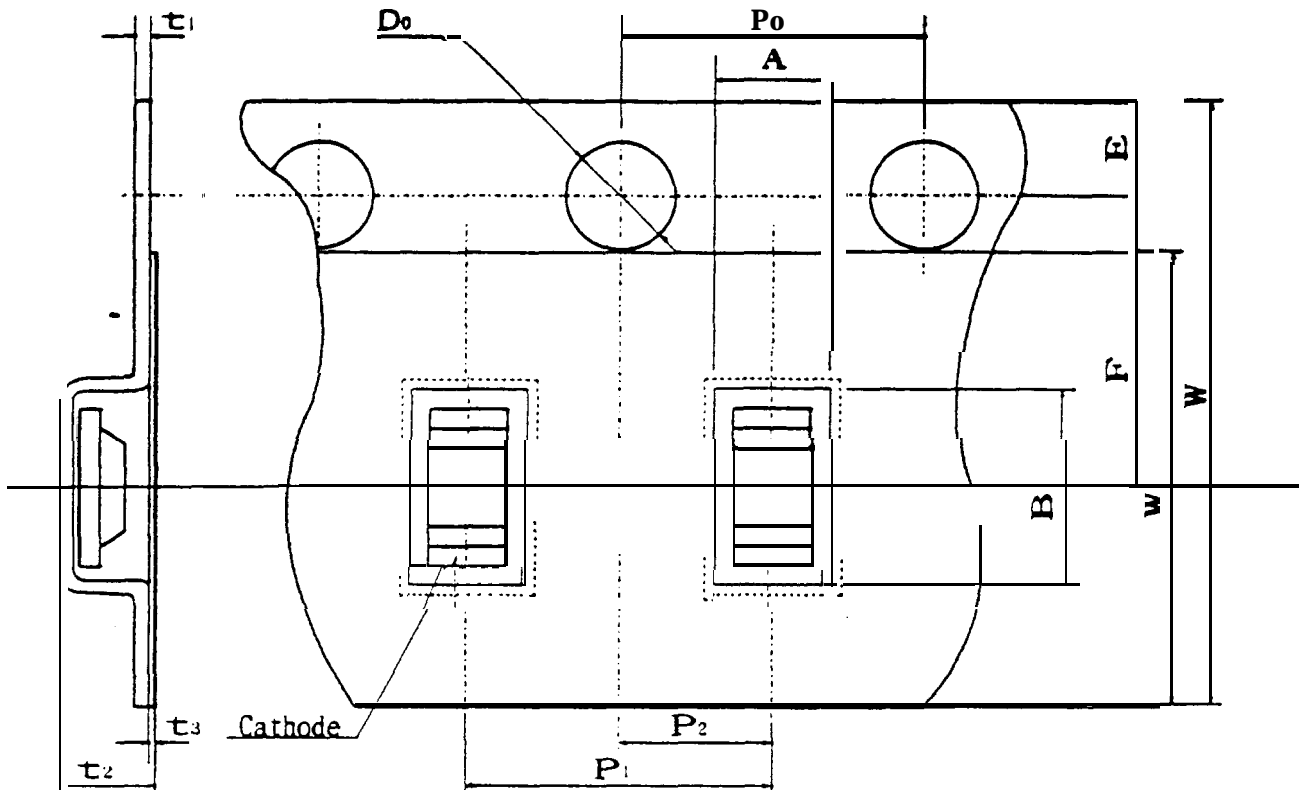
3. Quantity per reel

Average: 4,000 Pcs. per reel

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4-1. Taping

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

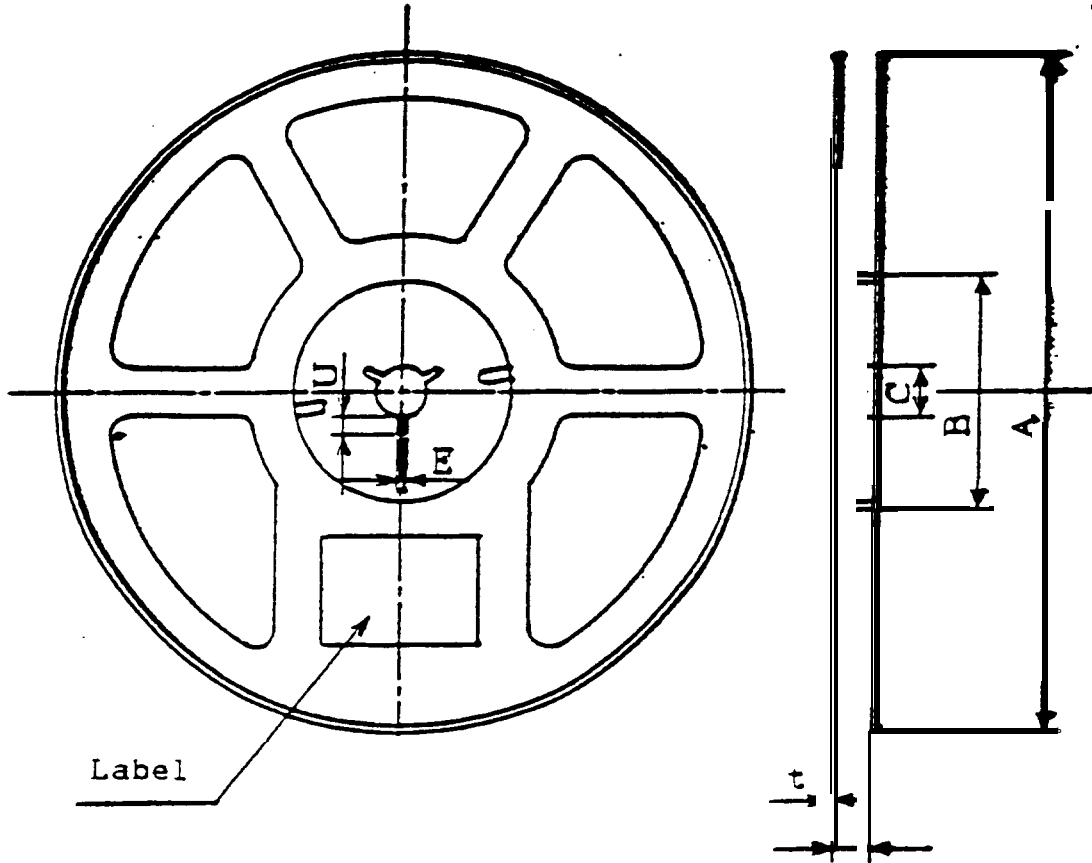


Parameter	Symbol	Dimension	Remarks
Concave square hole for part insertion	Vertical	A	1.55mm
	Horizontal	B	2.3mm
	Pitch	P ₁	4.0mm
Round sprocket hole	Diameter	D ₀	1.5mm
	Pitch	P ₀	4.0mm
	Position	E	1.75mm
Center to center dimension	Vert.dire	P ₂	2.0mm
	Hori.dire	F	3.5mm
Cover tape	Width	W ₁	5.5mm
	Thickness	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.)



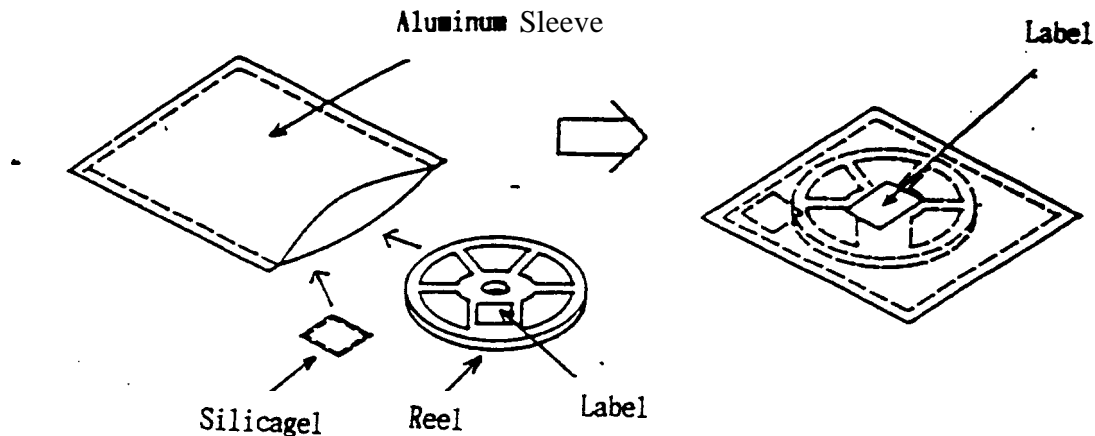
Parameter		Symbol	Dimension	Remarks
Flange	Diameter	A	φ178mm	
	Thickness	t	1.5mm	
	Inner space direction	w	1.0mm	Dimension of shaft core
Hub	External diameter	B	φ60mm	
	Spindle hole diameter	C	φ13mm	
	Key slit	Width	E	2.0mm
Depth		U	4.5mm	
Notation for part name ccc.		Labeling on one side of flange. (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 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)

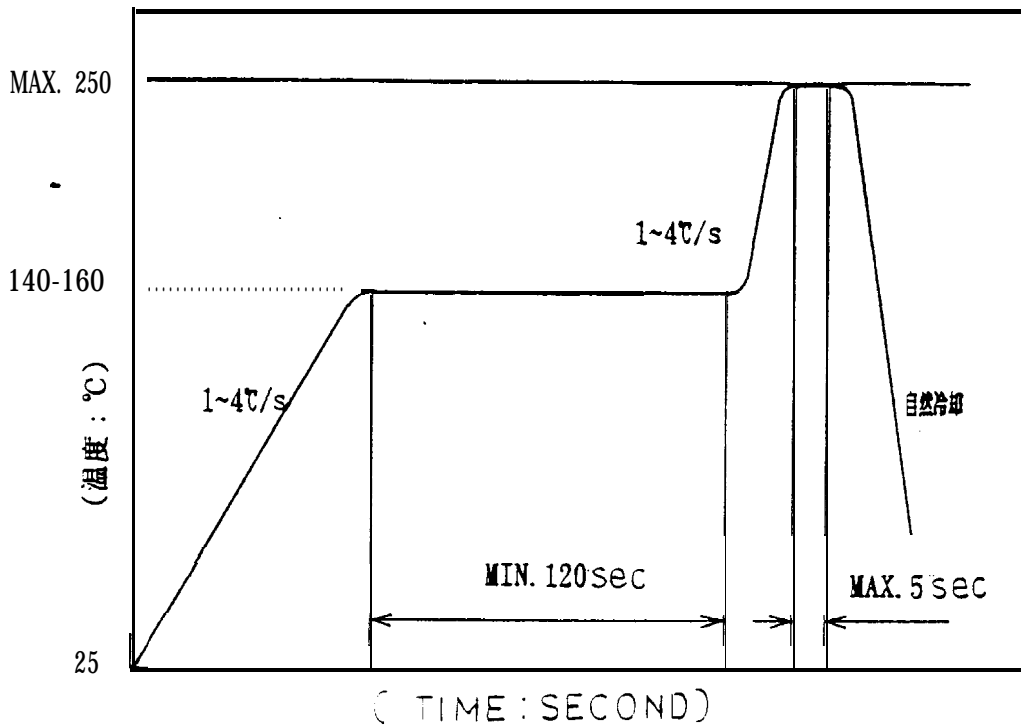
Temperature 110°C Time 3 to 4 Hours

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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 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.)