

PREPARED BY: <i>M. Gabe</i>	DATE: <i>Sep. 6. '96</i>	<h1 style="text-align: center;">SHARP</h1> <p style="text-align: center;">ELECTRONIC COMPONENTS GROUP SHARP CORPORATION</p> <h2 style="text-align: center;">SPECIFICATION</h2>	SPEC.No. <i>BC-969010</i>
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APPROVED BY: <i>M. Abe</i>	DATE: <i>Sep. 6. '96</i>		REPRESENTATIVE DIVISION Opto-Electronic Devices Division

DEVICE SPECIFICATION FOR

Light Emitting Diode

MODEL No.

LT1F67AF

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(Precautions)

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

☐ * OA equipment * Audio visual equipment * Home appliance
☐ * Telecommunication equipment (Terminal) * Measuring equipment
☐ * Tooling machines * Computers

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 ;

☐ * Transportation control and safety equipment (aircraft, train, automobile etc.)
☐ * Traffic signals * Gas leakage sensor breakers * Rescue and security equipment
☐ * Other safety equipment

- (3) Please do not use this product for equipment which require extremely high reliability and safety in function and precision, such as ;

☐ * Space equipment * Telecommunication equipment (for trunk lines)
☐ * Nuclear power control equipment * Medical equipment

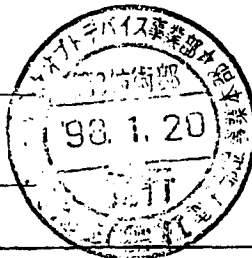
- (4) Please contact and consult with a Sharp sales representative if there are any questions regarding interpretation of the above three paragraphs.

3. Please contact and consult with a Sharp sales representative for any questions about this product.

CUSTOMER'S APPROVAL

DATE: _____

BY: _____



DATE: *Sep. 6. 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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LT1F67AF

This data sheet is to introduce the light emitting diode device
Model No. LT1F67AF, 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	—	0.4	mA/°C
Pulse	—	0.67	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		19.7	23	42.4	mcd
Peak emission wavelength	λ_p		—	570	—	nm
Spectrum radiation bandwidth	$\Delta\lambda$		—	30	—	nm
Reverse current	IR	VR=4V	—	—	10	μA
Terminal capacitance	Ct	V=0V, f=1MHz	—	35	—	pF

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

4. Luminous intensity rank

(Ta=25°C)

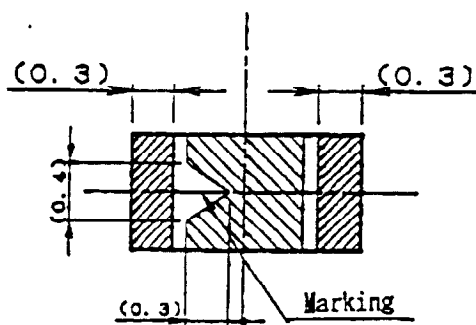
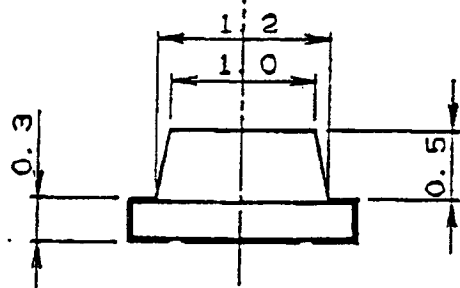
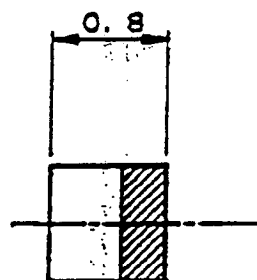
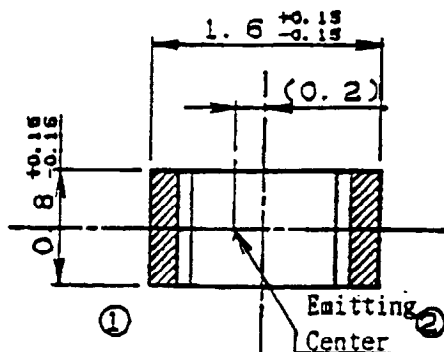
Rank: Luminous intensity rank	Unit	Condition
G 19.7 ~ 24.0	mcd	IF=20mA
H 22.1 ~ 26.9		
I 24.7 ~ 30.1		
J 27.7 ~ 33.7		
K 31.0 ~ 37.8		
L 34.7 ~ 42.4		

tolerance; $\pm 15\%$

(Note 3) Measured by SHARP EG&G MODEL560 (Radiometer/Photometersystem)

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PAGE

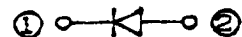
2/8
5

1. Plated area
Resist area



2. Pin Connection

① Cathode
② Anode

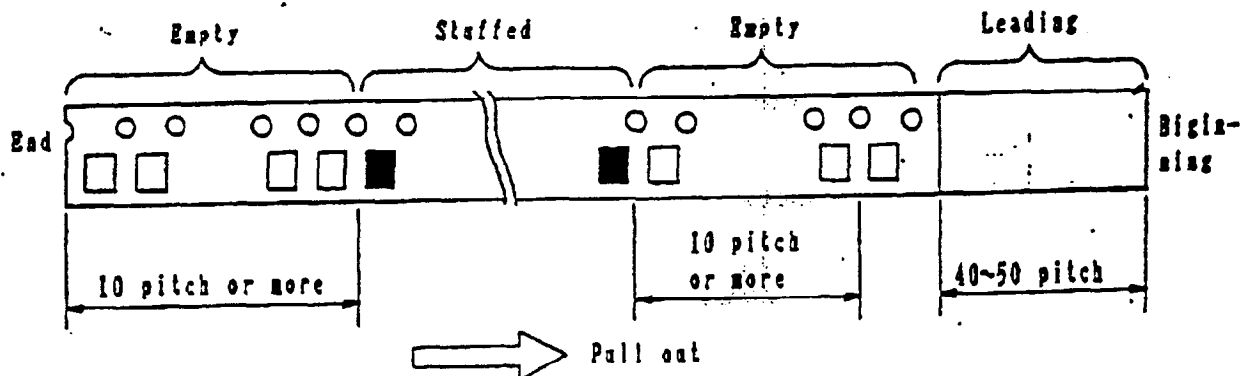


3. Unspecified tol. to be ± 0.1

適用機種 APPLICABLE MODEL		尺度 SCALE		単位 UNIT									
LT1F67AF		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めつき									
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		50604026B					
設計 DESIGN	製図 DRAW	校閲 CHECK	校閲 CHECK	承認 APPROVE	オプトデバイス(事)第3技術部								
OPTO-ELECTRONIC DEVICES DIV						図番 DRAWING No.							
SHARP CORPORATION													

SHARPTaping Specification

1. This data sheet is to introduce the taping specification of LED device, model No. LT1F67AF
2. Taping specification
 - 2.1 Taping specification



2.2 Shipment table

SHIPMENT TABLE	
PART No.	Model number
QUANTITY	Quantity of products
LOT No.	Lot number*: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
	Luminous intensity rank

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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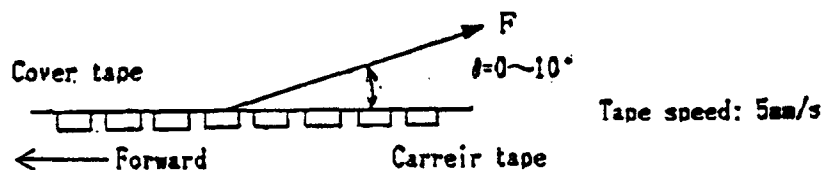
2.3 Related matters

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.

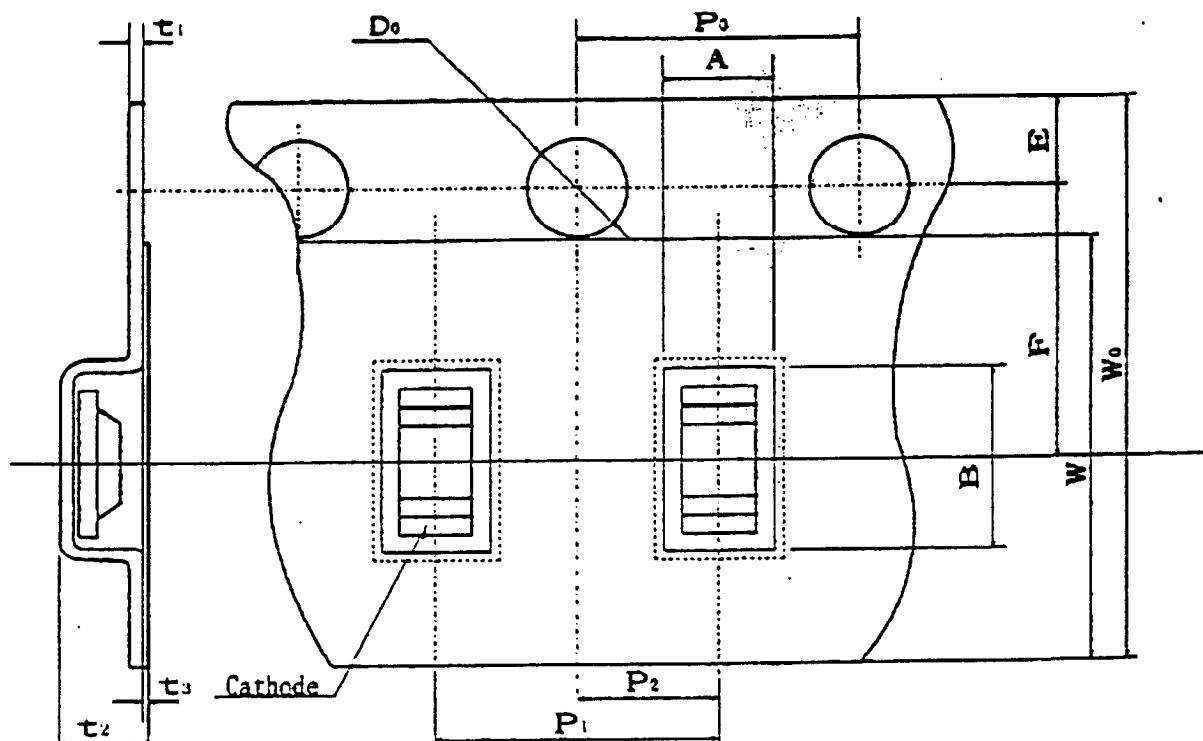
3. Quantity per reel

Average: 4,000 pcs. per reel

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4-1. Taping

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

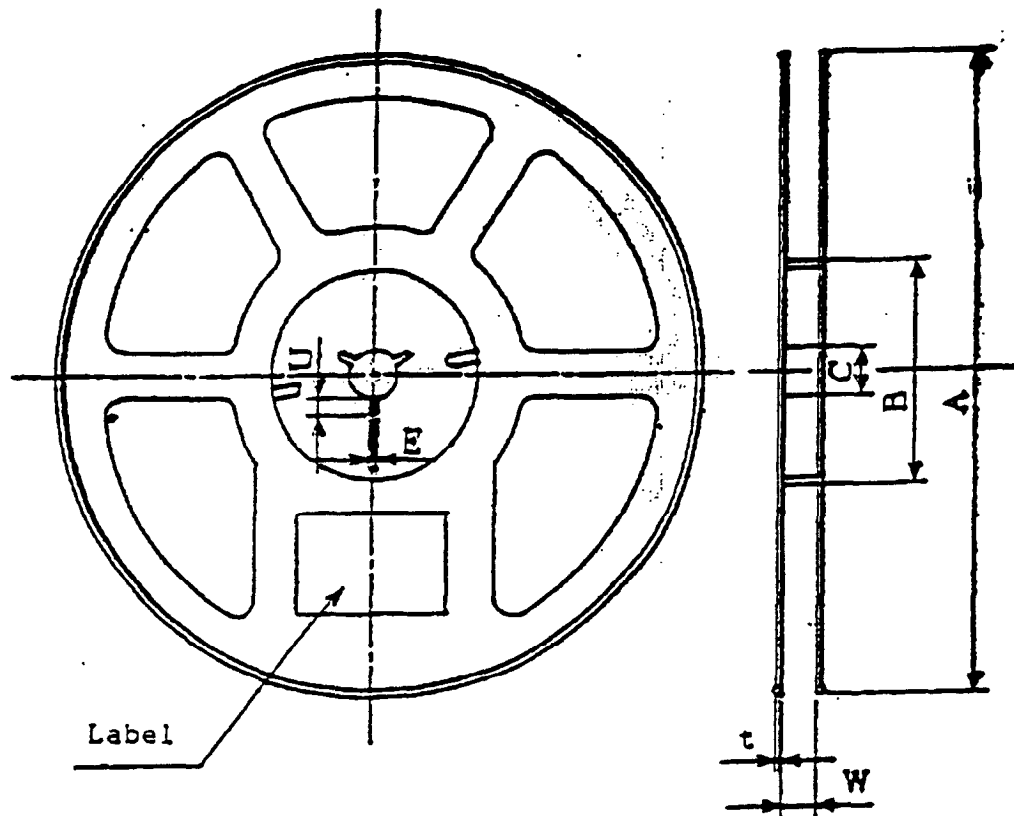


Parameter	Symbol	Dimension	Remarks
Concave square hole for part insertion	Vertical	A	1.0mm
	Horizontal	B	1.9mm
	Pitch	P_1	4.0mm
Round sprocket hole	Diameter	D_0	1.5mm
	Pitch	P_0	4.0mm
	Position	E	1.75mm
Center to center dimension	Vert.dir	P_2	2.0mm
	Hori.dir	F	3.5mm
Cover tape	Width	W_1	5.5mm
	Thickness	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.)

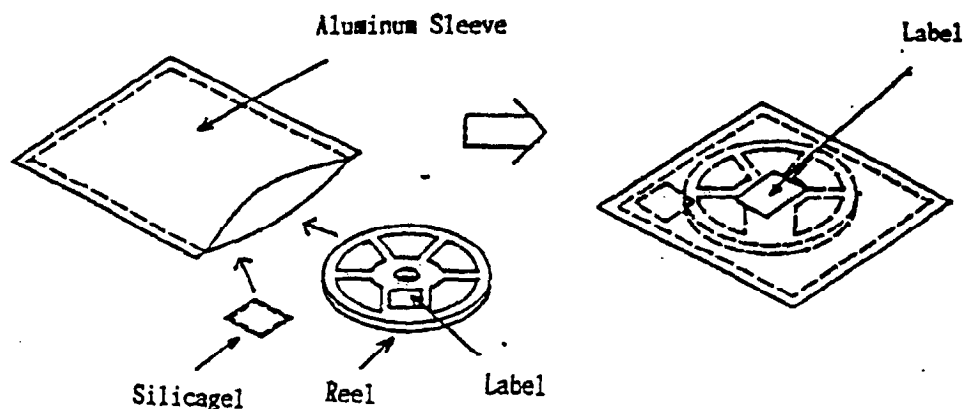


Parameter			Symbol	Dimension	Remarks
Flange	Diameter		A	φ178mm	
	Thickness		t	1.5mm	
	Inner space direction		W	10mm	Dimension of shaft core
Hub	External diameter		B	φ60mm	
	Spindle hole diameter		C	φ13mm	
	Key slit	Width	E	2.0mm	
		Depth	U	4.5mm	
Notation for part name etc.			Labeling on one side of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

Material: Reel...Polystyrene

SHARP**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 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

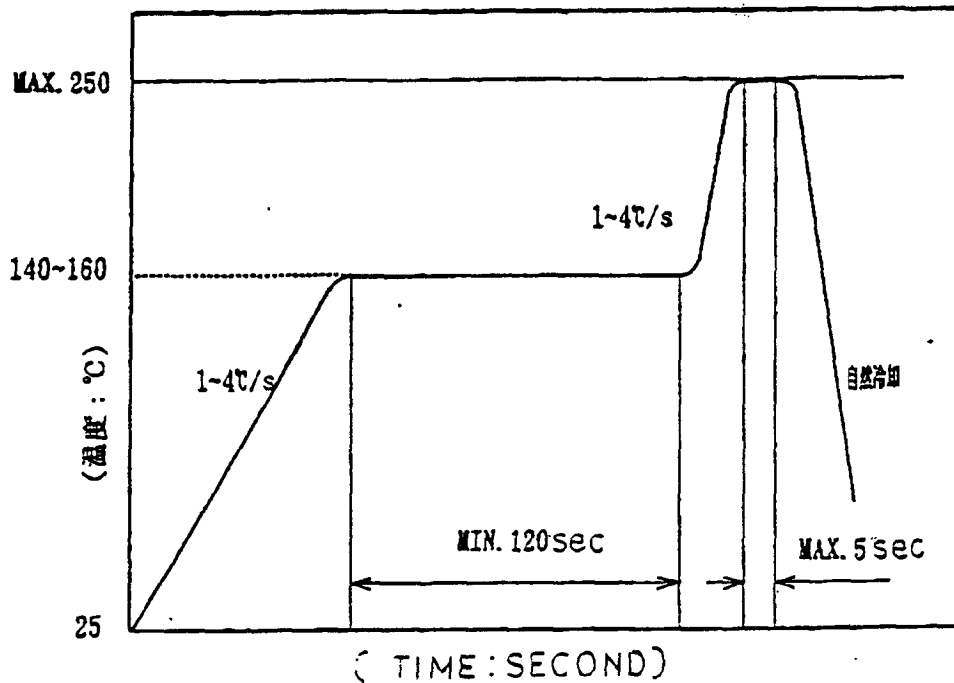
Temperature 60°C Time 90 to 100 Hours

② in individual (on PWB or metallic tray)

Temperature 110°C Time 3 to 4 Hours

SHARP**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 3 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.)

LT1F67AF