

PREPARED BY: <i>M. Abe</i>	DATE: <i>Sep. 6. '96</i>	SHARP ELECTRONIC COMPONENTS GROUP SHARP CORPORATION SPECIFICATION	SPEC.No. <i>bc-969010</i>
APPROVED BY: <i>M. Abe</i>	DATE: <i>Sep. 6. '96</i>		ISSUE <i>Sep/6/96</i>
			PAGE
			REPRESENTATIVE DIVISION Opto-Electronic Devices Division

DEVICE SPECIFICATION FOR
Light Emitting Diode
MODEL No.
LT1F67AF

- These specification sheets include materials protected under the copyright of Sharp Corporation ("Sharp"). Please do not reproduce or cause anyone to reproduce them without Sharp's consent.
- 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)

 - 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

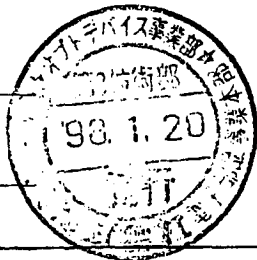
If the use of the product in the above application areas is for equipment listed in paragraphs (2) or (3), please be sure to observe the precautions given in those respective paragraphs.
 - Appropriate measures, such as fail-safe design and redundant design considering the safety design of the overall 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
 - 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
 - Please contact and consult with a Sharp sales representative if there are any questions regarding interpretation of the above three paragraphs.
- Please contact and consult with a Sharp sales representative for any questions about this product.

CUSTOMER'S APPROVAL

DATE: *Sep. 6. 1996*
PRESENTED BY: *M. Abe*

DATE: _____

BY: _____



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

SHARP CORPORATION

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	λp		—	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)

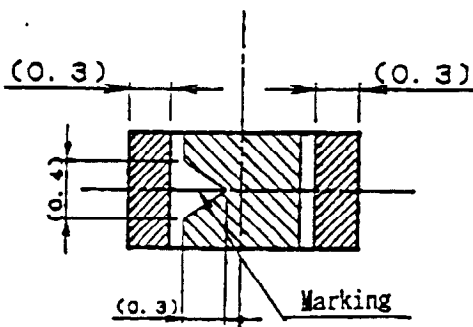
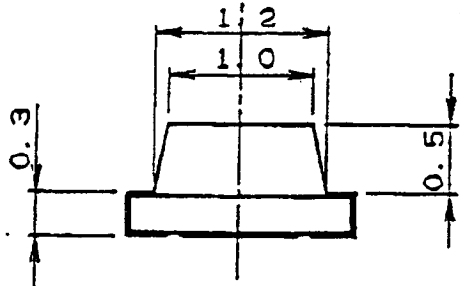
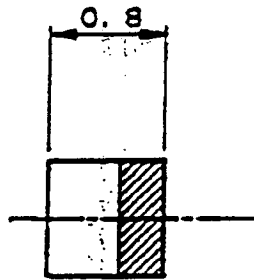
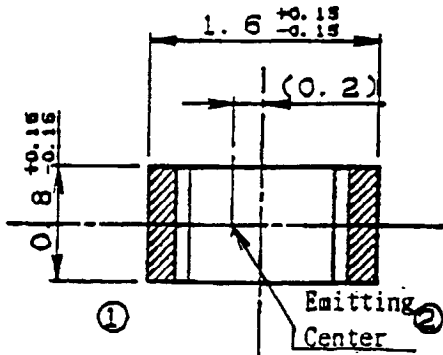
Rank: Luminous intensity rank	Unit	Condition
G 19.7 ~ 24.0	mcd	IF=20mA
H 22.1 ~ 26.9		
I 24.7 ~ 30.1		
J 27.7 ~ 33.7		
K 31.0 ~ 37.8		
L 34.7 ~ 42.4		

tolerance; $\pm 15\%$

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

SHARP

PAGE 2/5



1. Plated area
 Resist area

2. Pin Connection
 ① Cathode
 ② Anode

3. Unspecified tol. to be ± 0.1

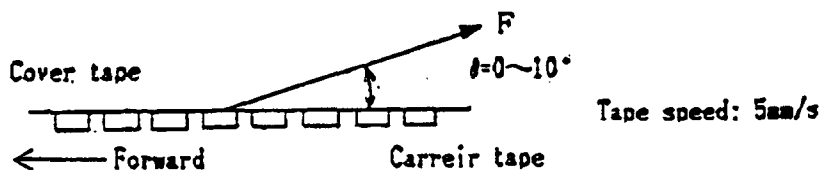
適用機種 APPLICABLE MODEL		尺度 SCALE		単位 UNIT				
LT1F67AF		20/1		mm		改訂日 DATE	改訂記事 REVISE	担当 CHNG.
板厚 THICKNESS	数量 PIECES	材質 MATERIAL	仕上 FINISH			名称 NAME	Outline dimensions and terminal connections	
			Auめつき			コード CODE		
日付 DATE	1995. 4. 25	シャープ株式会社電子部品事業本部				コード CODE		
設計 DESIGN	製図 DRAW	検図 CHECK	検図 CHECK	承認 APPROVE	オプトデバイス(事)第3技術部			
				OPTO-ELECTRONIC DEVICES DIV				
				SHARP CORPORATION		図番 DRAWING No.	50604026B	

SHARP**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: $F = 0.1-0.8N$ ($\theta = 10^\circ$ 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.

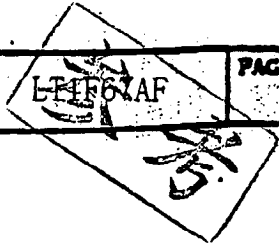
2) Products should not be attached to the cover tape at peeling.

2.3.4. Jointing of tape

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

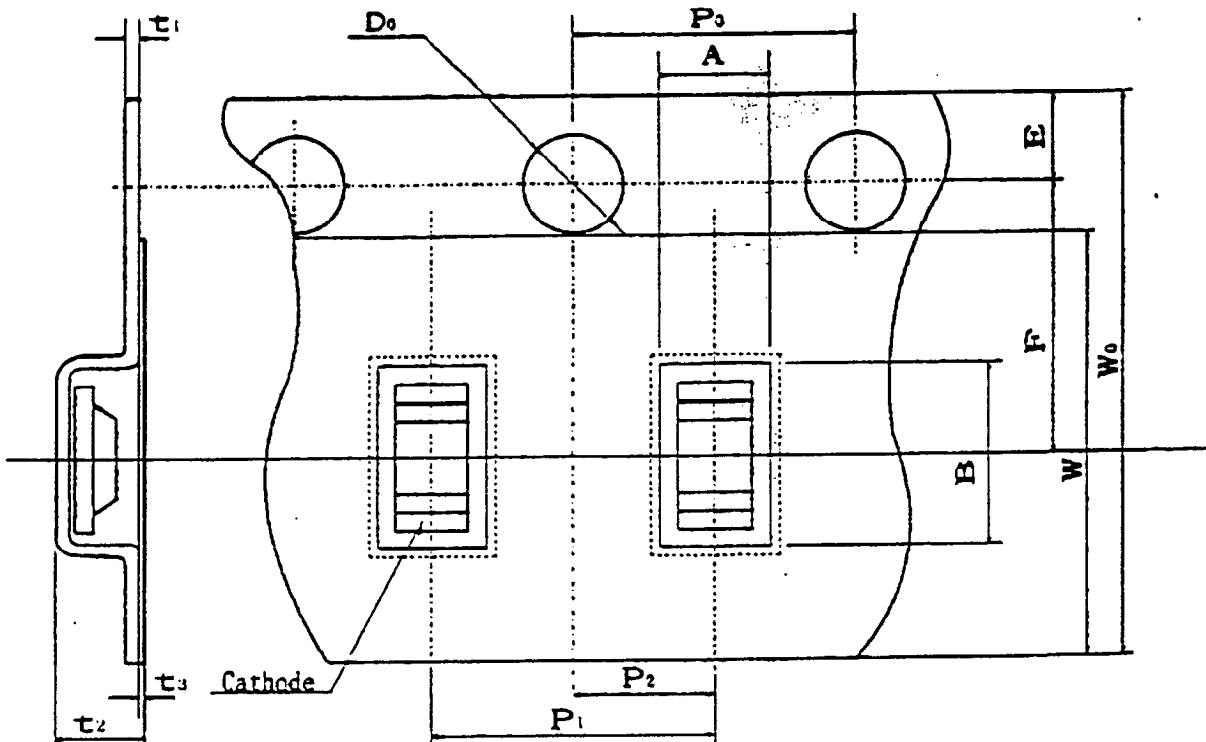
3. Quantity per reel

Average: 4,000 pcs. per reel



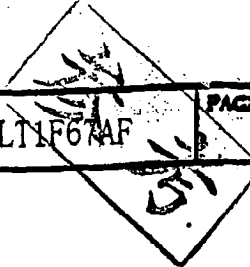
SHARP

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



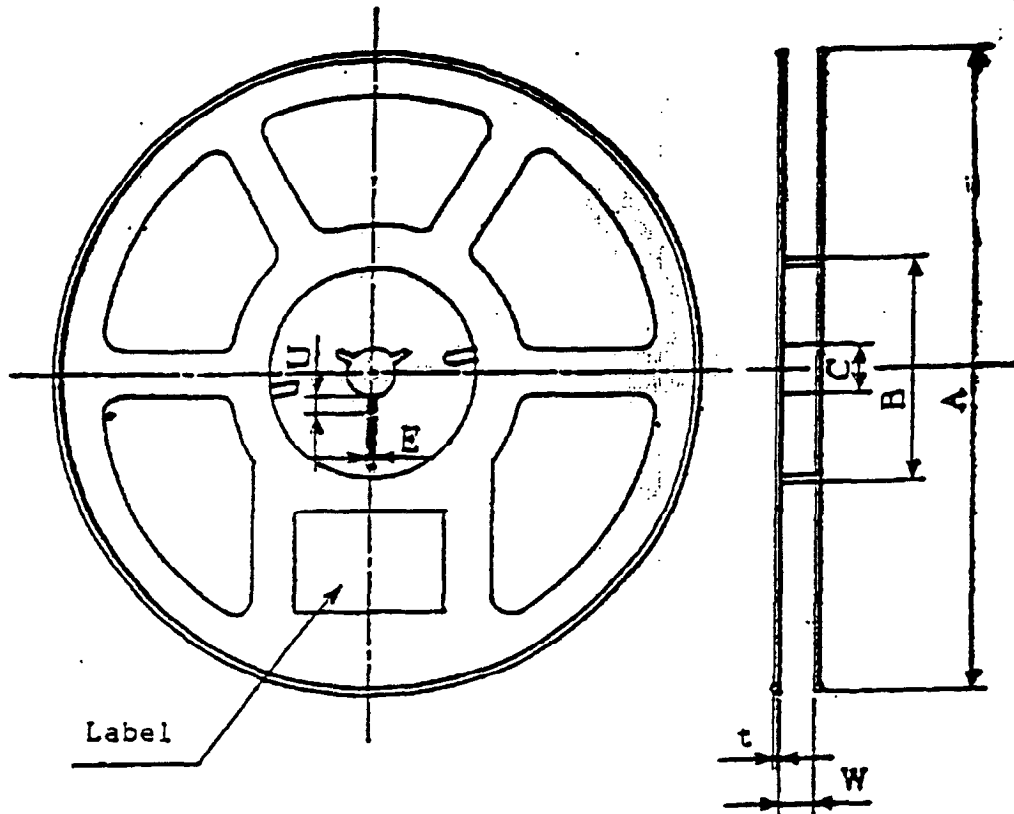
Parameter	Symbol	Dimension	Remarks	
Concave square hole for part insertion	Vertical	A	1.0mm	Dimension excludes corner R at inside bottom
	Horizontal	B	1.9mm	
	Pitch	P_1	4.0mm	
Round sprocket hole	Diameter	D_0	1.5mm	
	Pitch	P_0	4.0mm	Accumulated error $\pm 0.5\text{mm}/10$ pitch
	Position	E	1.75mm	Distance between tape edge and hole center
Center to center dimension	Vert.dir	P_2	2.0mm	Center line of the concave square hole and round sprocket hole
	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



SHARP

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



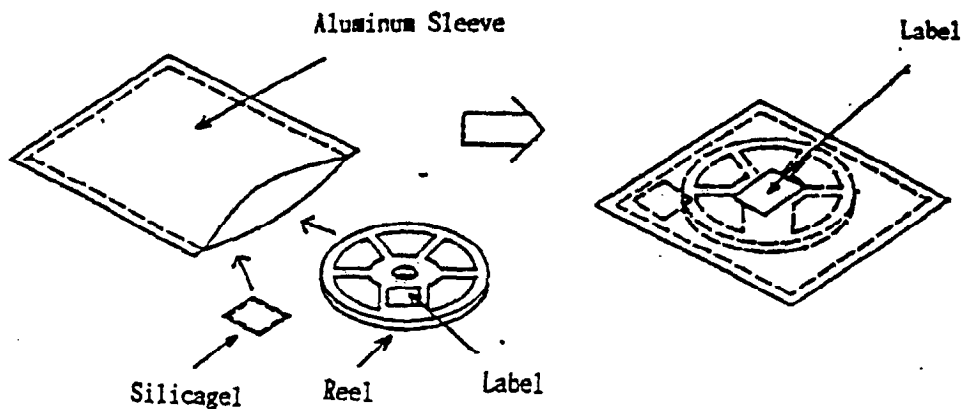
Parameter		Symbol	Dimension	Remarks	
Flange	Diameter	A	φ178mm		
	Thickness	t	1.5mm		
	Inner space direction	W	10mm	Dimension of shaft core	
Hub	External diameter	B	φ60mm		
	Spindle hole diameter	C	φ13mm		
	Key slit	Width	E	2.0mm	
		Depth	U	4.5mm	
Notation for part name etc.		Labeling on one side of flange. (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

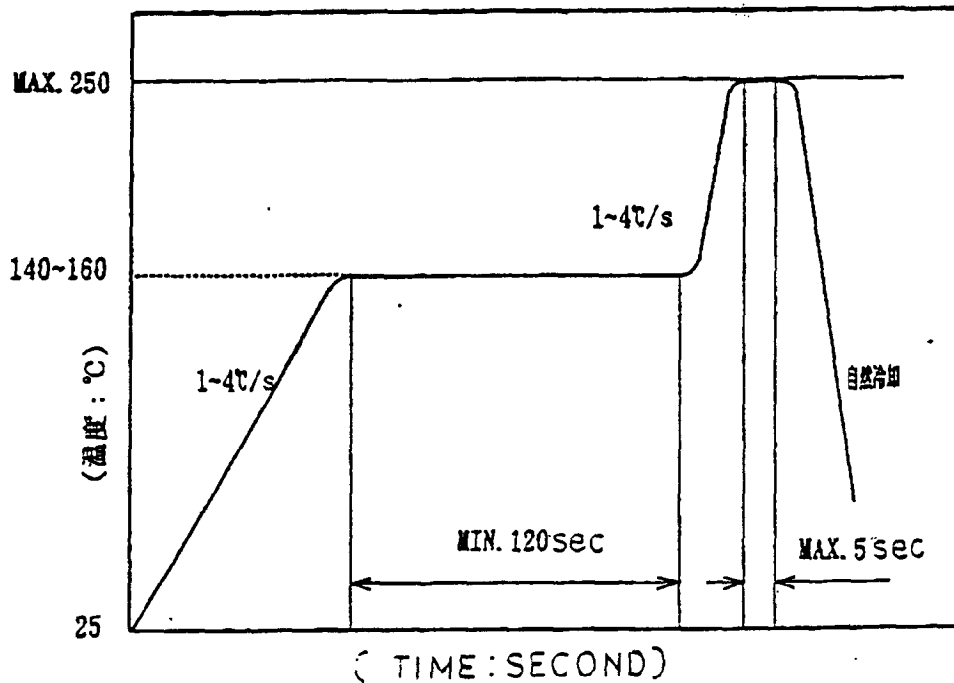
Temperature 60°C Time 90 to 100 Hours

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