

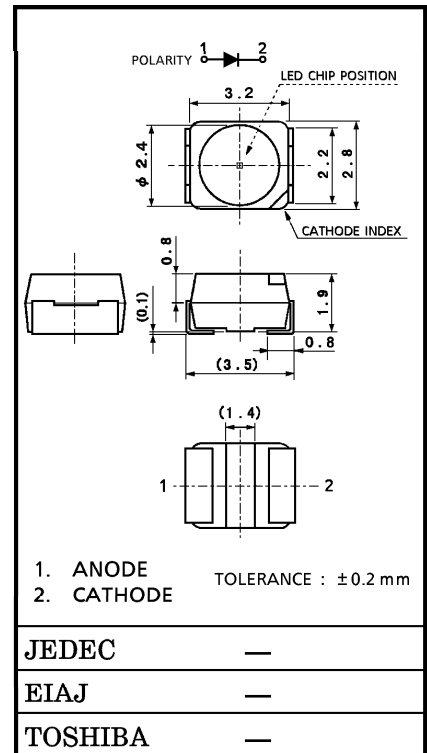
TOSHIBA LED LAMP

**TLSU1100 (T09), TLOU1100 (T09), TLYU1100 (T09)  
TLGU1100 (T09), TLPGU1100 (T09)**

PANEL CIRCUIT INDICATOR

Unit in mm

- Surface Mount Device
- 3.2 (L) × 2.8 (W) × 1.9 (H) mm Size
- Flat-top Type
- InGaAlP LED
- Line-up  
Colors : Red, Orange, Yellow, Green, Pure Green
- Available of Automounting Machine Use.
- Low Drive Current, High Intensity Light Emission
- Clear luminescence is obtained.
- High Operating Temperature :  $T_{opr} \cdot T_{stg} \quad -40 \sim 100^{\circ}\text{C}$
- Reflow soldering is possible
- Standard embossed tapping  
8 mm Pitch : T09 (1000 pcs / reel)
- Applications : Automotive use, Message Signboard, Backlight, etc.



Weight : 35 mg

LINE-UP

PRODUCT NAME	COLOR	MATERIAL
TLSU1100	Red	InGaAlP
TLOU1100	Orange	InGaAlP
TLYU1100	Yellow	InGaAlP
TLGU1100	Green	InGaAlP
TLPGU1100	Pure Green	InGaAlP

MAXIMUM RATINGS (Ta = 25°C)

PRODUCT NAME	FORWARD CURRENT $I_F$ (mA)	REVERSE VOLTAGE $V_R$ (V)	POWER DISSIPATION $P_D$ (mW)	OPERATING TEMPERATURE $T_{opr}$ (°C)	STORAGE TEMPERATURE $T_{stg}$ (°C)
TLSU1100	30	4	72	-40~100	-40~100
TLOU1100	30	4	72		
TLYU1100	30	4	75		
TLGU1100	30	4	84		
TLPGU1100	30	4	84		

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

PRODUCT NAME	FORWARD VOLTAGE V <sub>F</sub>				REVERSE CURRENT I <sub>R</sub>	
	MIN	TYP.	MAX	I <sub>F</sub>	MAX	V <sub>R</sub>
TLSU1100	—	2.0	2.4	20	50	4
TLOU1100	—	2.0	2.4	20	50	4
TLYU1100	—	2.1	2.5	20	50	4
TLGU1100	—	2.3	2.8	20	50	4
TLPGU1100	—	2.3	2.8	20	50	4
Unit	V			mA	μA	V

OPTICAL CHARACTERISTICS-1 (Ta = 25°C)

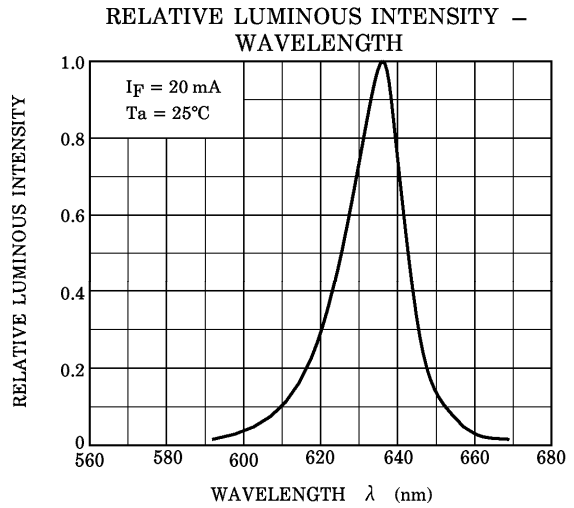
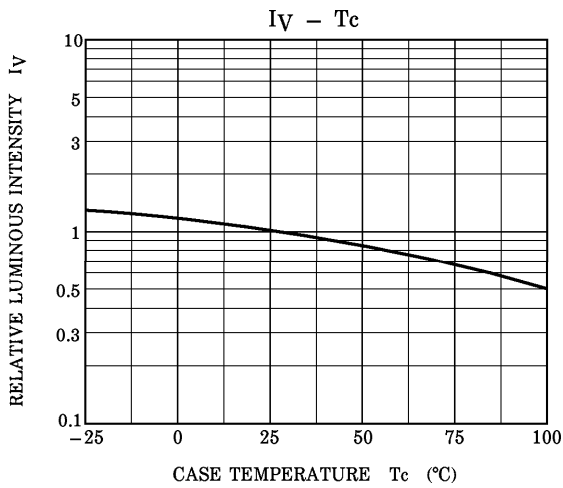
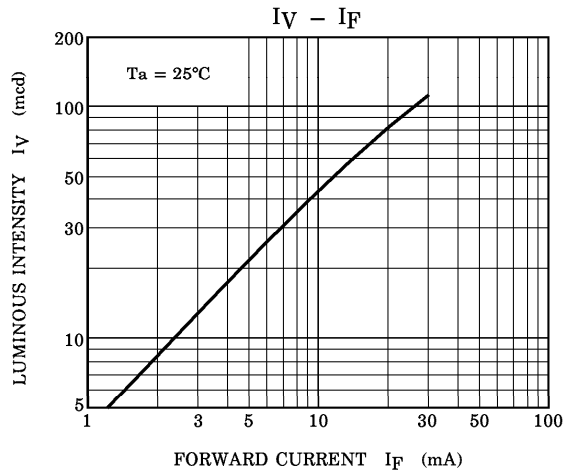
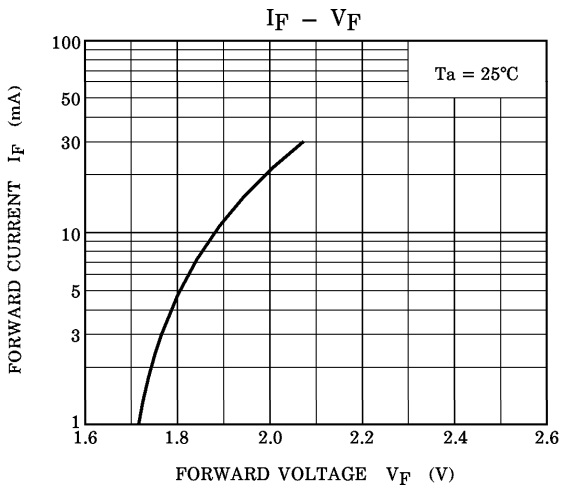
PRODUCT NAME	LUMINOUS INTENSITY I <sub>v</sub>			
	MIN	TYP.	MAX	I <sub>F</sub>
TLSU1100	27.2	80	—	20
TLOU1100	47.6	100	—	20
TLYU1100	15.3	50	—	20
TLGU1100	15.3	45	—	20
TLPGU1100	4.76	12	—	20
Unit	mcd			mA

OPTICAL CHARACTERISTICS-2 (Ta = 25°C)

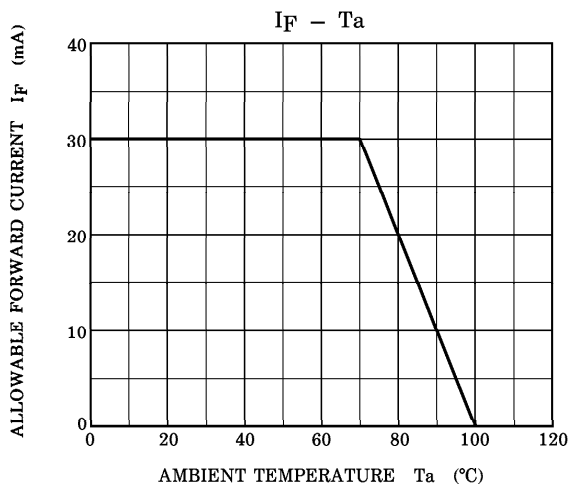
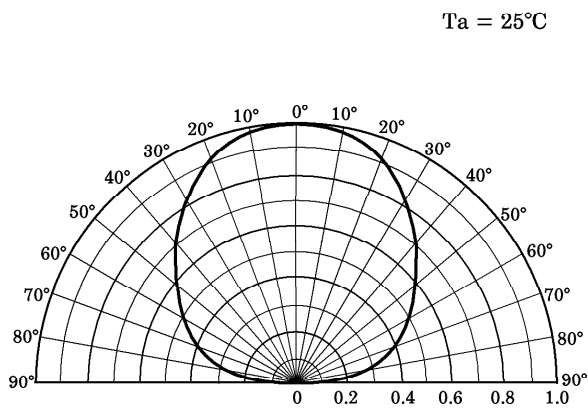
PRODUCT NAME	EMISSION SPECTRUM							I <sub>F</sub>
	Peak Emission Wavelength λ <sub>p</sub>			Δλ TYP.	Dominant Wavelength λ <sub>d</sub>			
	MIN	TYP.	MAX		MIN	TYP.	MAX	
TLSU1100	—	636	—	17	—	623	—	20
TLOU1100	—	612	—	15	—	605	—	20
TLYU1100	—	590	—	13	—	587	—	20
TLGU1100	—	574	—	11	—	571	—	20
TLPGU1100	—	562	—	11	—	558	—	20
UNIT	nm			nm	nm			mA

(Note) : This visible LED lamp also emits some IR light.  
 If a photodetector is located near the LED lamp, please ensure that it will not be affected by this IR light.

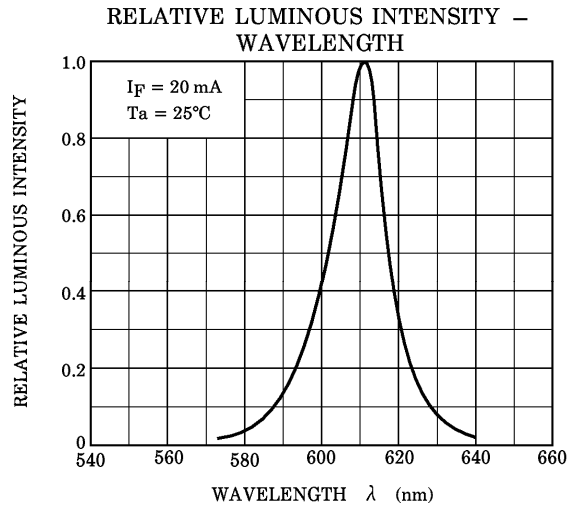
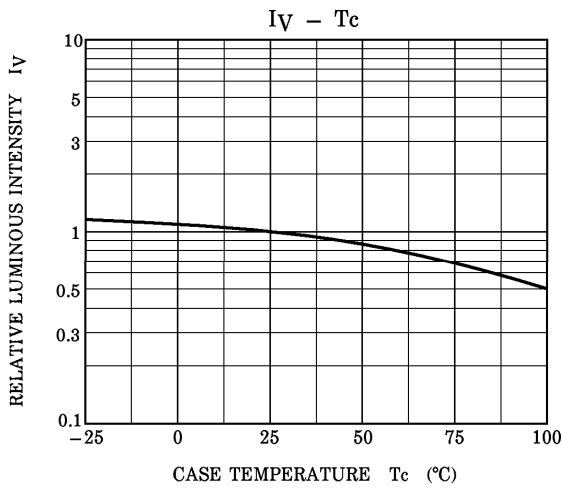
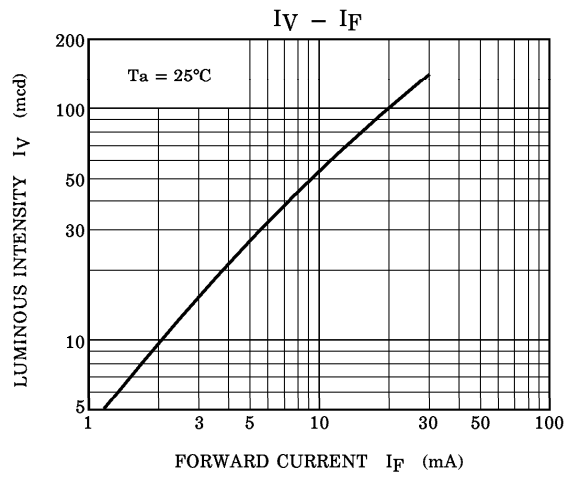
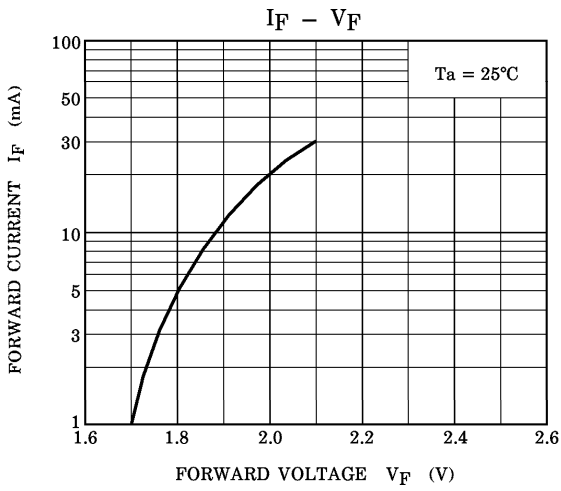
**TLSU1100**



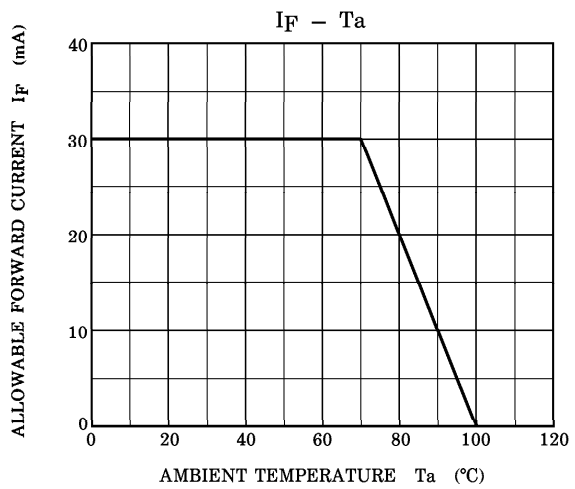
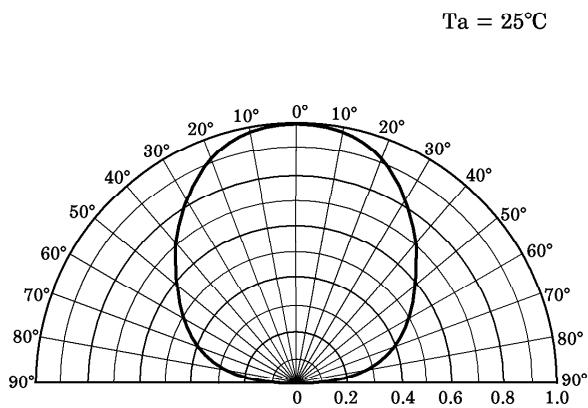
**RADIATION PATTERN**



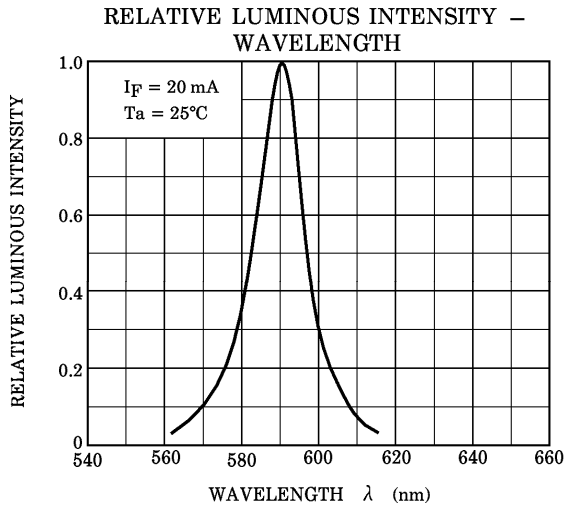
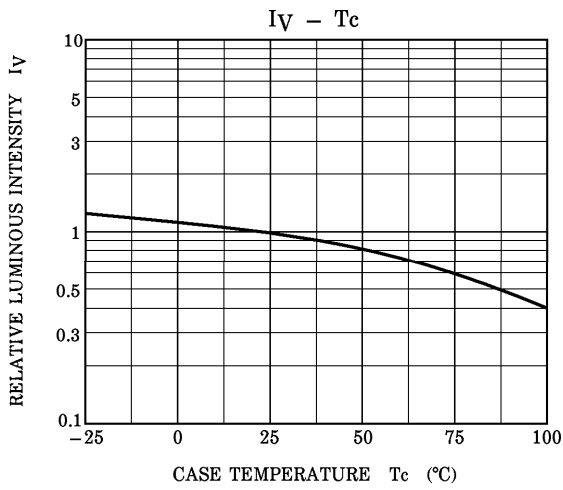
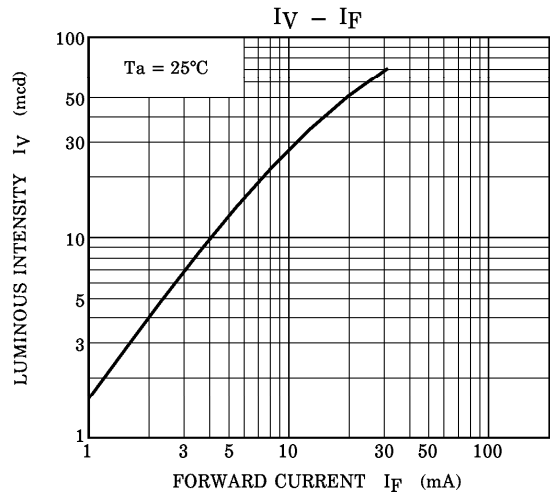
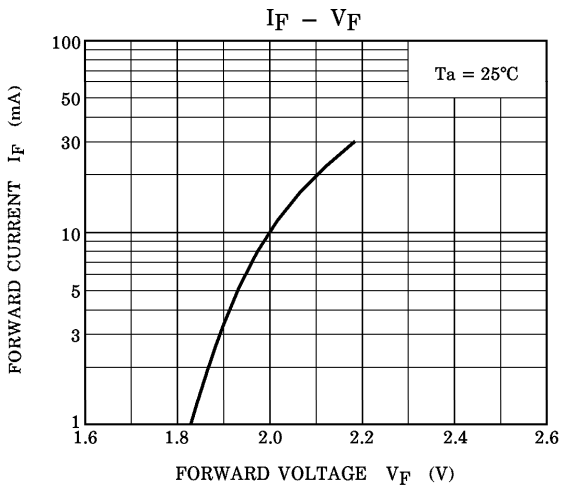
TLOU1100



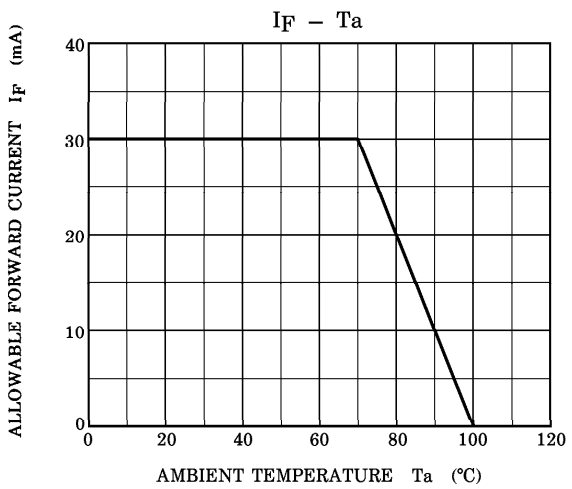
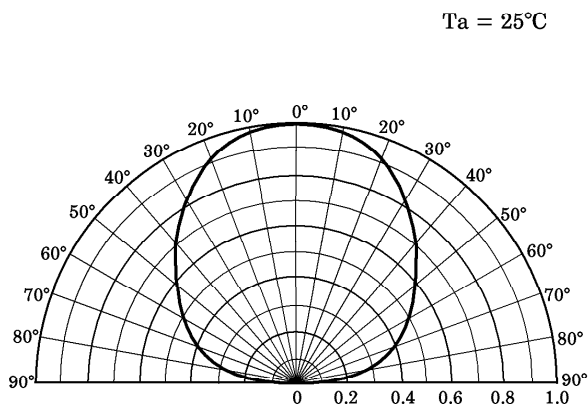
**RADIATION PATTERN**



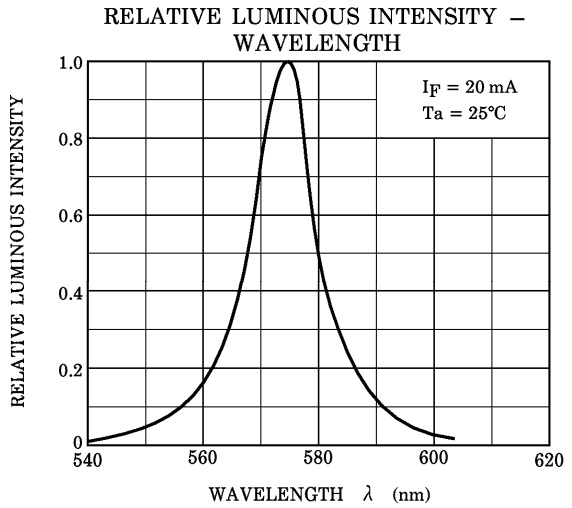
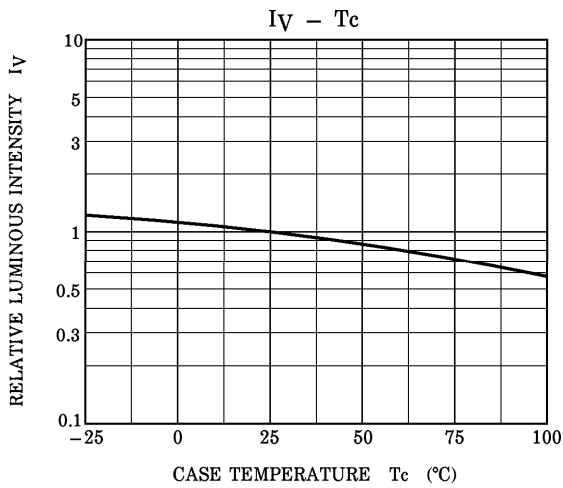
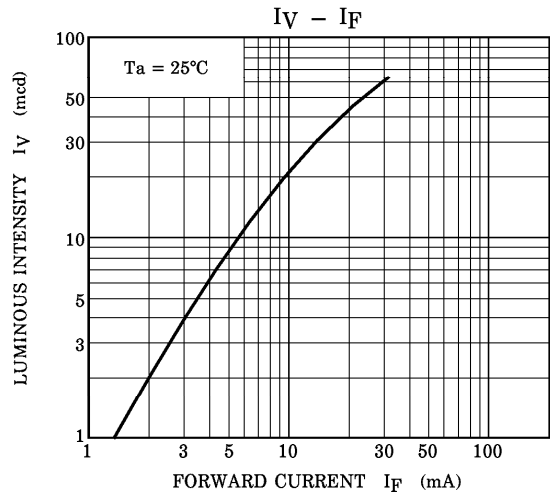
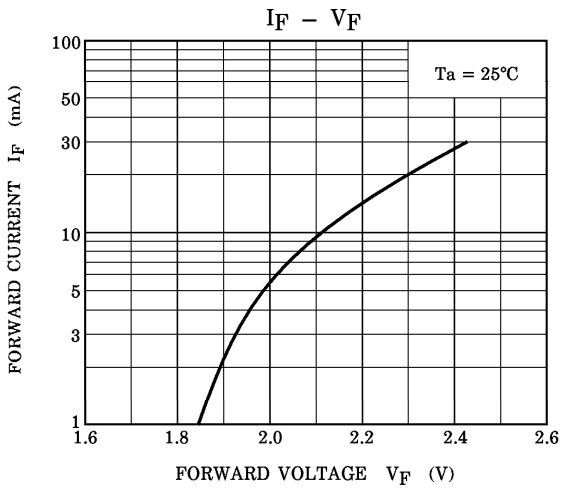
**TLYU1100**



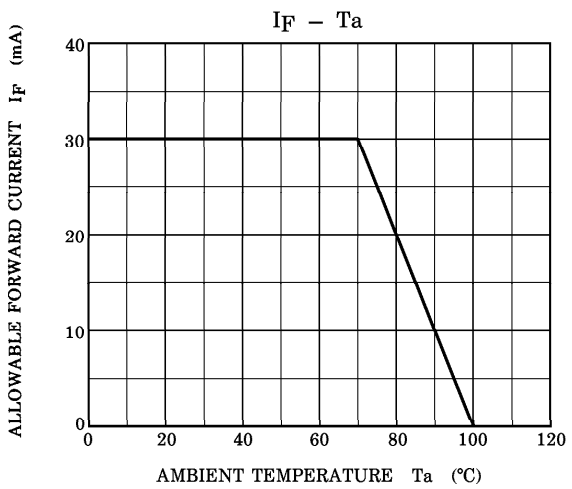
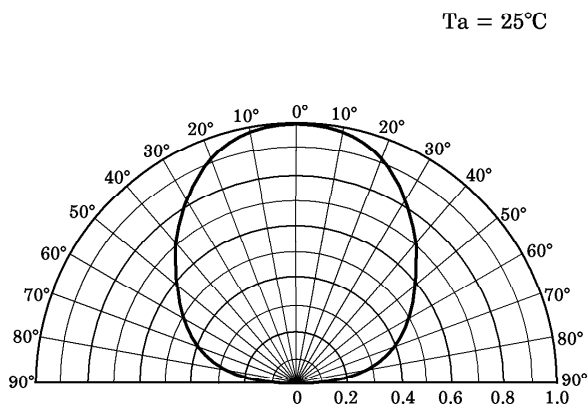
**RADIATION PATTERN**



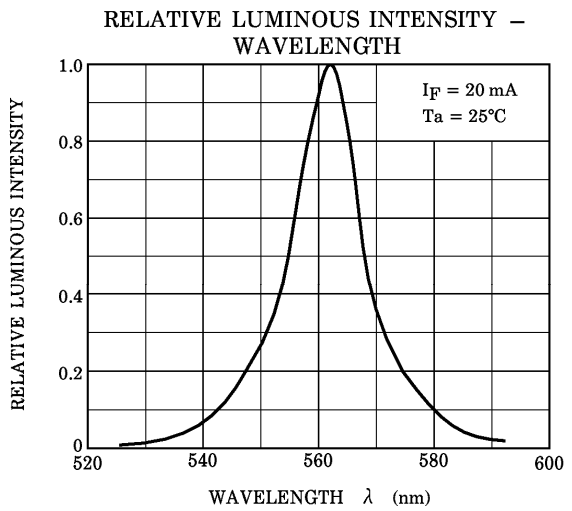
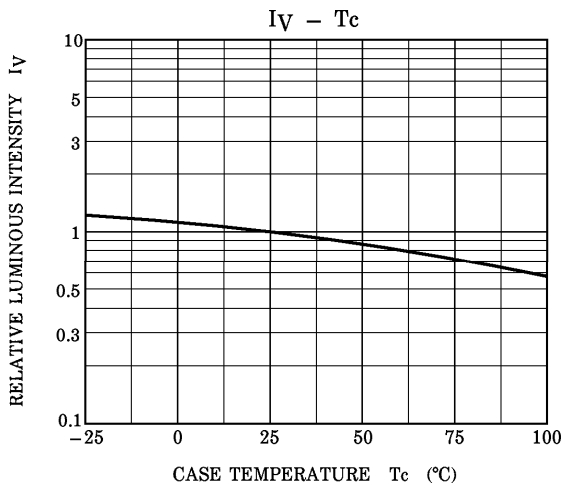
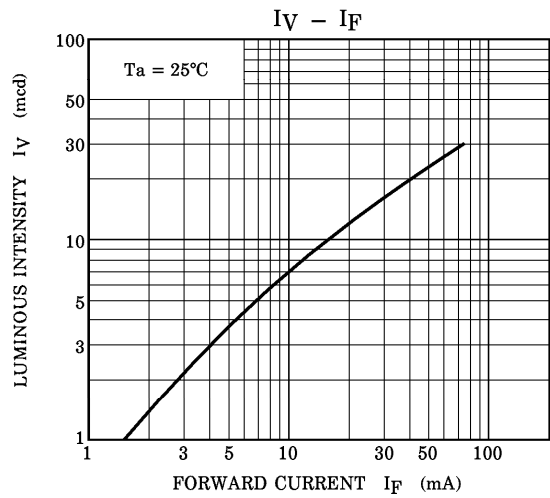
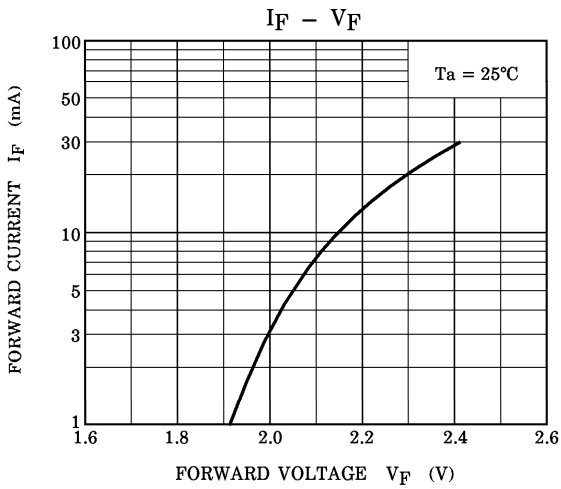
**TLGU1100**



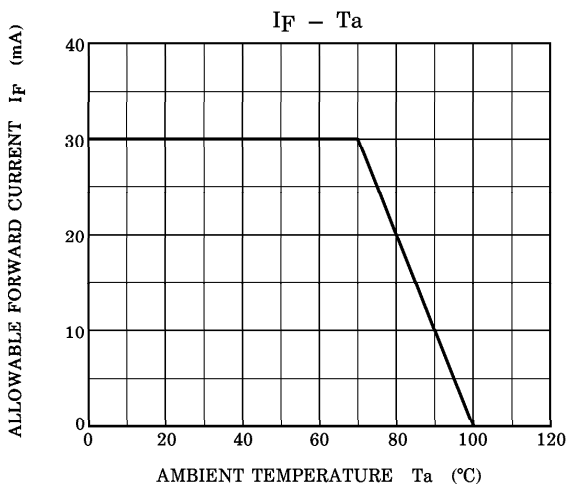
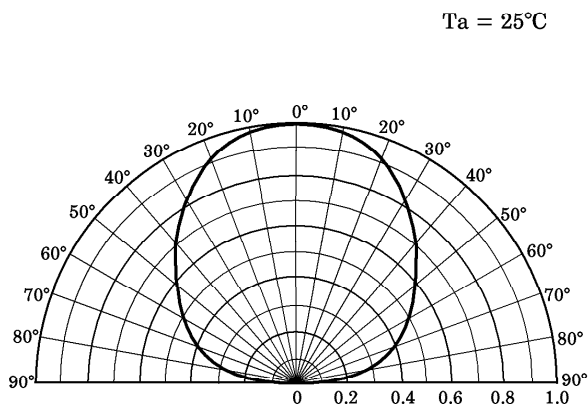
**RADIATION PATTERN**



TLPGU1100



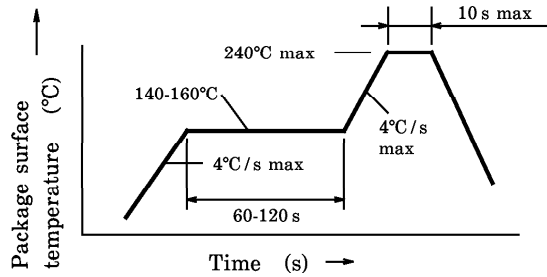
**RADIATION PATTERN**



**SOLDERING**

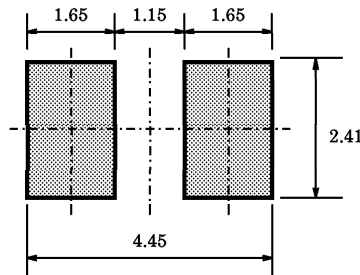
Reflow soldering

Temperature profile



Recommended soldering pattern

(Unit in mm)



**RECOMMENDATION FOR MANUAL SOLDERING**

- Soldering iron : Less than 25 W
- Temperature : Lower than 300°C
- Time : Within 3 s

**POST SOLDERING CLEANING**

When cleaning after soldering is needed, the following condition must be adhered to.

- Cleaning solvents : AK225 or Alcohol
- Temperature : 50°C (max) for 30 s (max) or 30°C (max) for 3 minutes (max)
- Ultrasonic : 300 W max



**PACKAGING**

This LED device is packed in an aluminum envelope with silica-gel to avoid moisture absorption. The optical characteristics may be affected by exposure to moisture in the air before soldering and it should be stored under the following conditions.

- Temperature : 5~30°C
- Relative Humidity : 60% or lower

Baking is required if the device have been stored unopened for more than 6 month or if the aluminum envelope has been opened for more than 168 h.

Recommended baking condition is 60°C for 12 h minimum in the dry atmosphere.

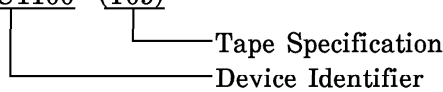
**PRECAUTION FOR MOUNTING**

Do not apply force to the plastic part of the LED in high temperature conditions.  
 Do not apply friction using hard materials for avoid injuring the plastic part of the LED.  
 Keep the LED away from any other parts when assembling boards into the set.

**TAPING SPECIFICATIONS**

1. Taping Number

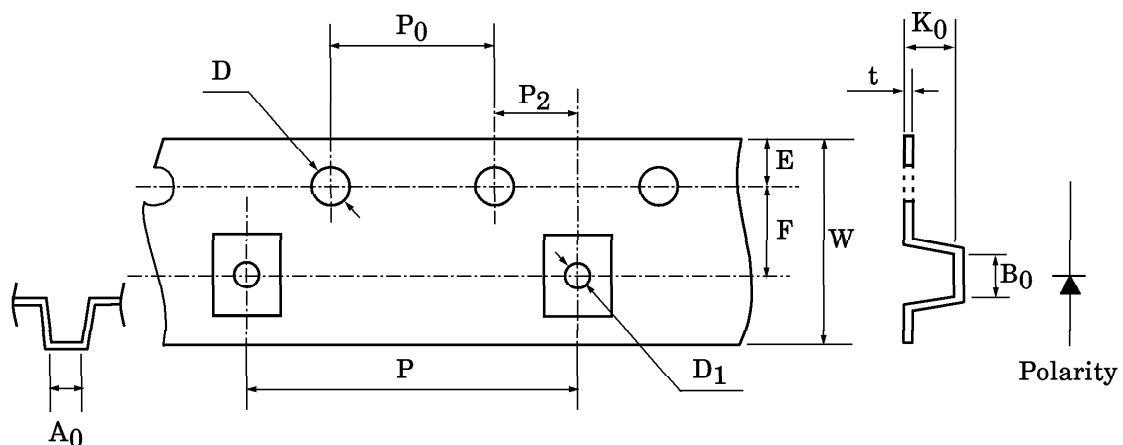
- (1) Name : T09
- (2) Example : TLSU1100 (T09)



2. Dimension of tape

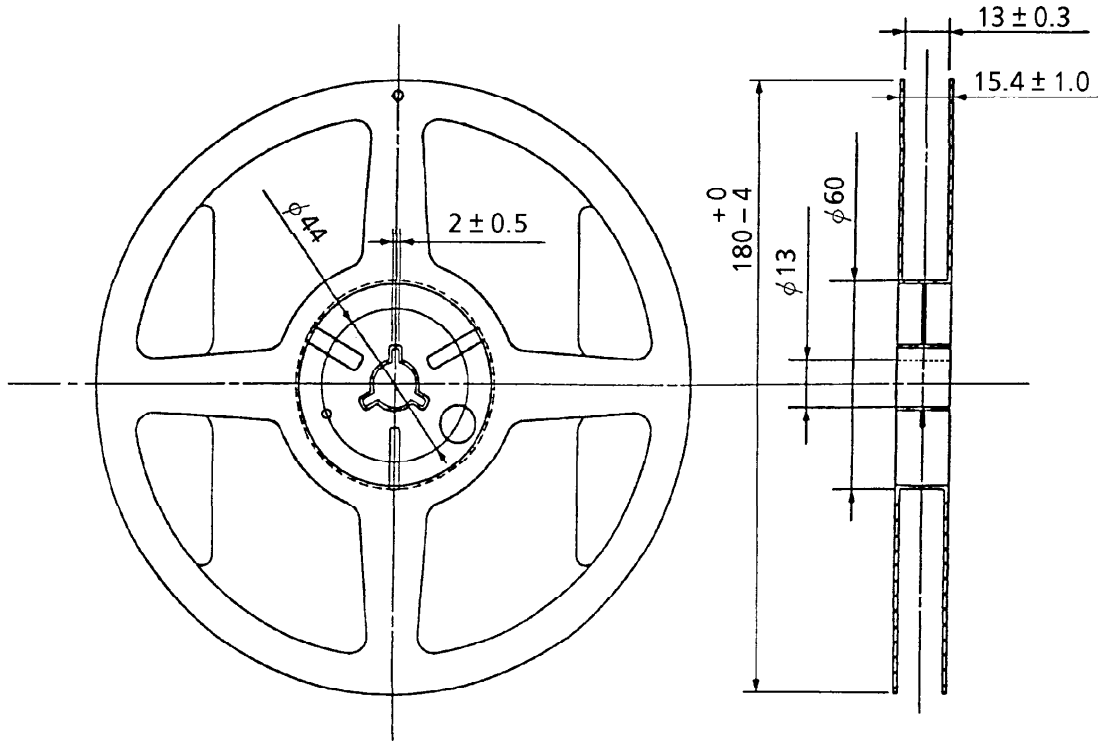
(Unit in mm)

ITEM	DIMENSIONS	TOLERANCE	ITEM	DIMENSIONS	TOLERANCE
D	1.5	+0.1/ -0	P <sub>2</sub>	2.0	±0.05
E	1.75	±0.1	W	12.0	±0.3
P <sub>0</sub>	4.0	±0.1	P	8.0	±0.1
t	0.3	±0.05	A <sub>0</sub>	2.9	±0.1
F	5.5	±0.05	B <sub>0</sub>	3.7	±0.1
D <sub>1</sub>	1.5	+0.1/ -0	K <sub>0</sub>	2.3	±0.1



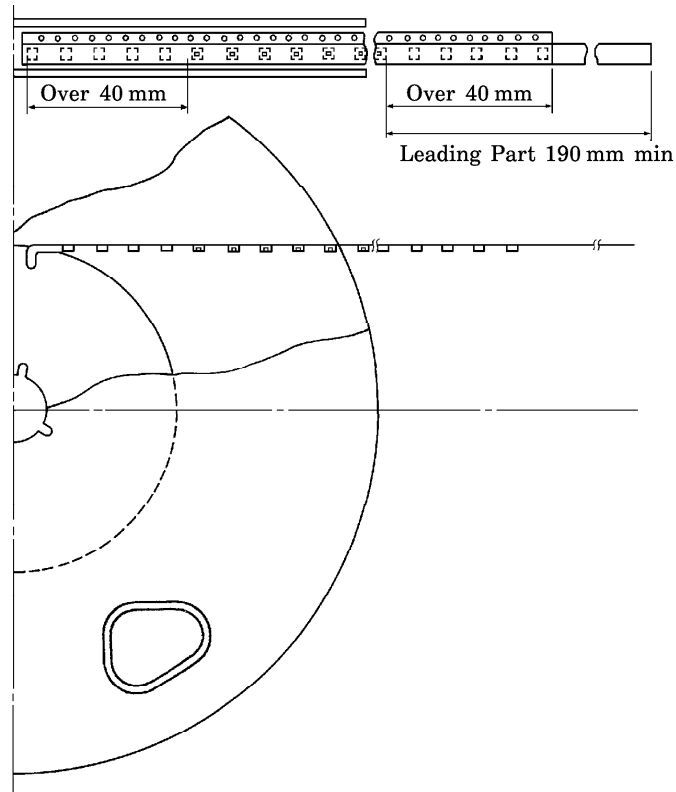
3. Dimension of reel

(Unit in mm)



4. Leading part

(Unit in mm)



6. Packing Form

(1) Number of Devices per Reel and Carton

Reel	1000 devices
Carton	5000 devices

(2) Packing : Silica gel and reel are packed into sealed aluminum pack.

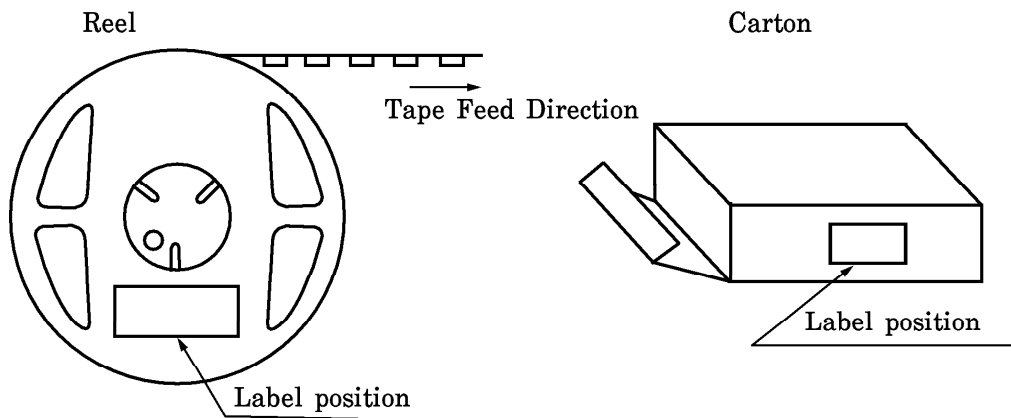
7. Notation Method

(1) Example : TLSU1100 (T09)

P/N :

TYPE	TLSU1100		
ADD. C	(T09)	Q'TY	1000 pcs
NOTE	(rank symbol)		Lot Number

(2) Label location :



Aluminum pack : Attached to center of one side