

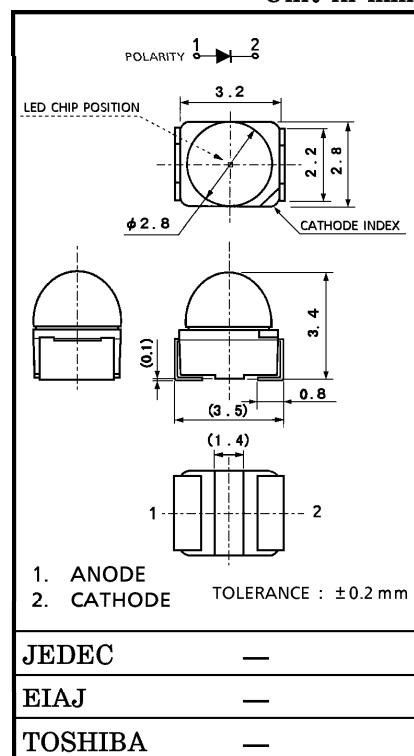
TOSHIBA LED LAMP

**TLSU1102 (T10), TLOU1102 (T10), TLYU1102 (T10)
TLGU1102 (T10), TLPGU1102 (T10)**

PANEL CIRCUIT INDICATOR

Unit in mm

- Surface Mount Device
- 3.2 (L) × 2.8 (W) × 3.4 (H) mm Size
- $\phi 2.8$ mm Diameter Lens-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 : T10 (500 pcs / reel)
- Applications : Automotive use, Message Signboard, Backlight, etc.



Weight : 42 mg

LINE-UP

PRODUCT NAME	COLOR	MATERIAL
TLSU1102	Red	InGaAlP
TLOU1102	Orange	InGaAlP
TLYU1102	Yellow	InGaAlP
TLGU1102	Green	InGaAlP
TLPGU1102	Pure Green	InGaAlP

MAXIMUM RATINGS ($T_a = 25^{\circ}\text{C}$)

PRODUCT NAME	FORWARD CURRENT I_F (mA)	REVERSE VOLTAGE V_R (V)	POWER DISSIPATION P_D (mW)	OPERATING TEMPERATURE T_{opr} ($^{\circ}\text{C}$)	STORAGE TEMPERATURE T_{stg} ($^{\circ}\text{C}$)
TLSU1102	30	4	72	$-40 \sim 100$	$-40 \sim 100$
TLOU1102	30	4	72		
TLYU1102	30	4	75		
TLGU1102	30	4	84		
TLPGU1102	30	4	84		

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

PRODUCT NAME	FORWARD VOLTAGE V_F				REVERSE CURRENT I_R	
	MIN	TYP.	MAX	I_F	MAX	V_R
TLSU1102	—	2.0	2.4	20	50	4
TLOU1102	—	2.0	2.4	20	50	4
TLYU1102	—	2.1	2.5	20	50	4
TLGU1102	—	2.3	2.8	20	50	4
TLPGU1102	—	2.3	2.8	20	50	4
Unit	V			mA	μA	V

OPTICAL CHARACTERISTICS-1 (Ta = 25°C)

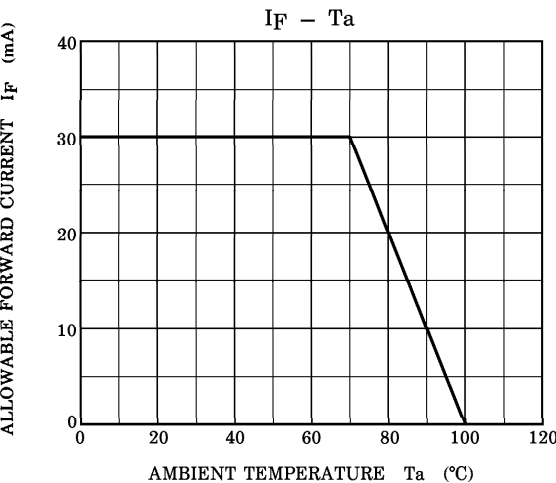
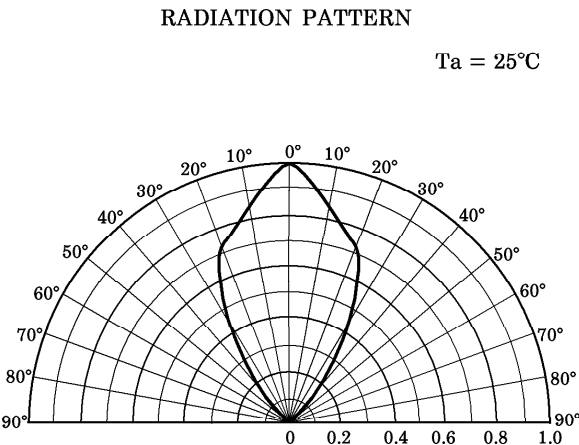
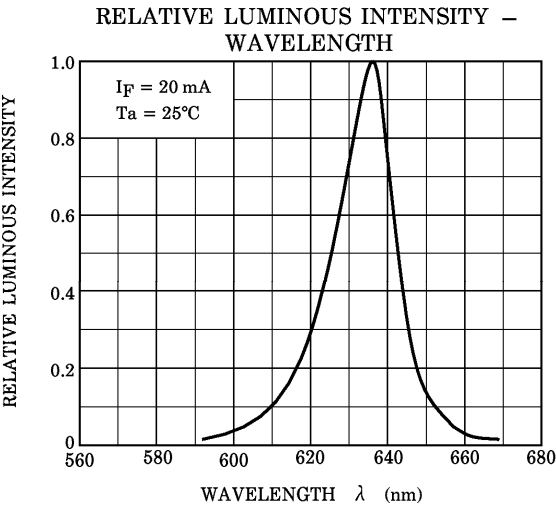
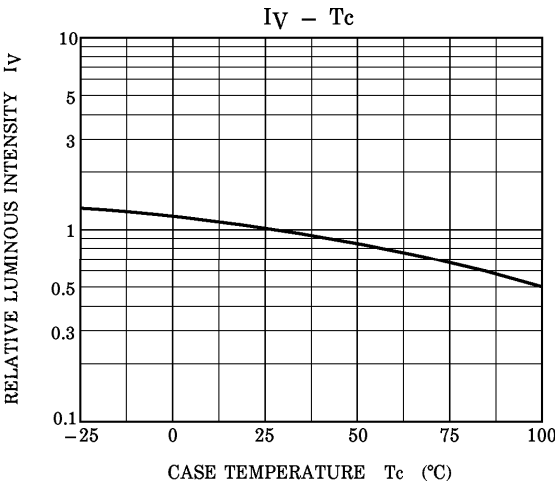
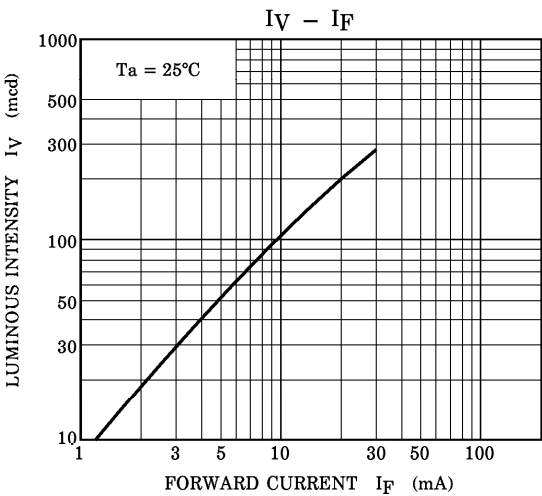
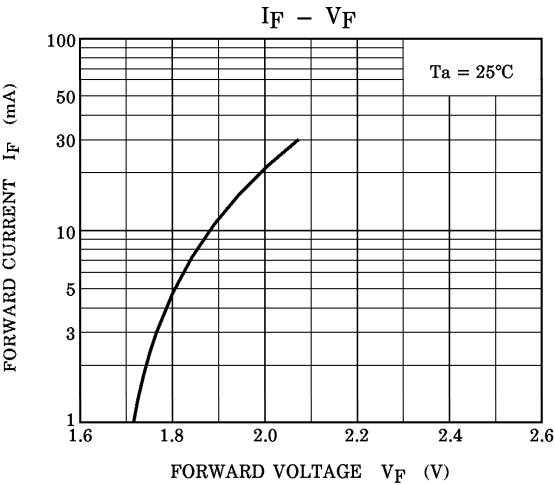
PRODUCT NAME	LUMINOUS INTENSITY I_v			
	MIN	TYP.	MAX	I_F
TLSU1102	85	200	—	20
TLOU1102	85	250	—	20
TLYU1102	47.6	130	—	20
TLGU1102	47.6	120	—	20
TLPGU1102	8.5	30	—	20
Unit	mcd			mA

OPTICAL CHARACTERISTICS-2 (Ta = 25°C)

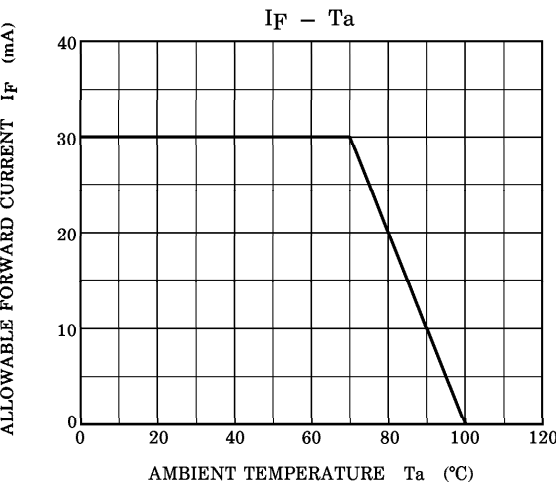
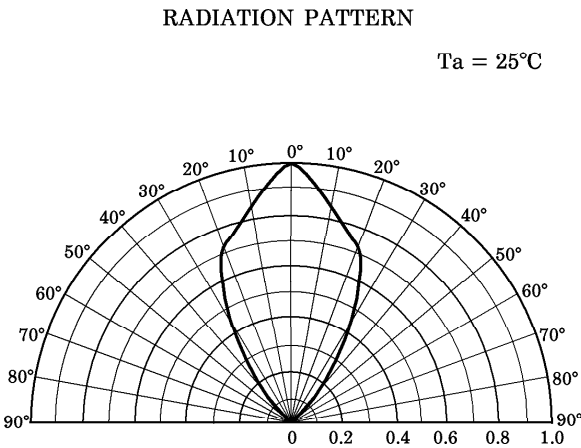
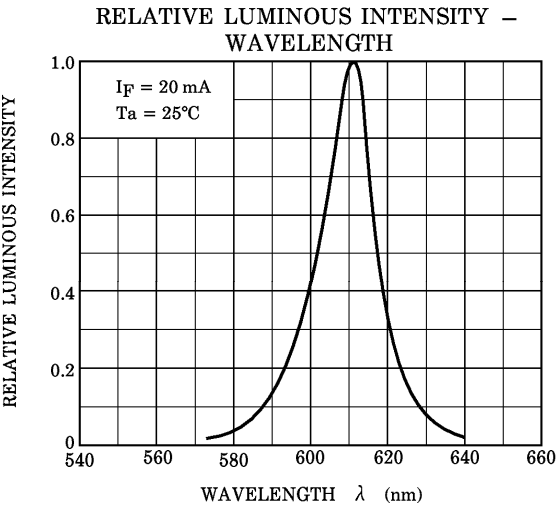
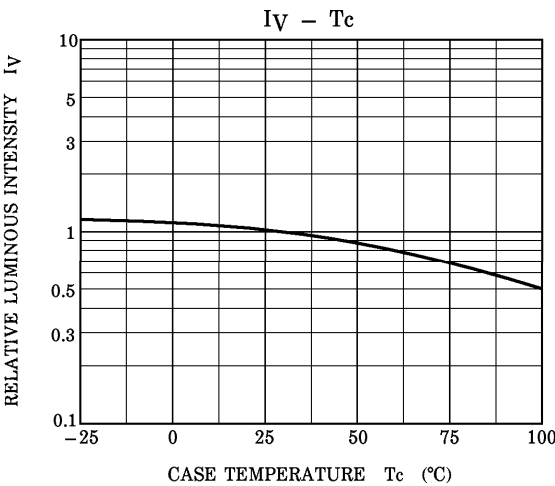
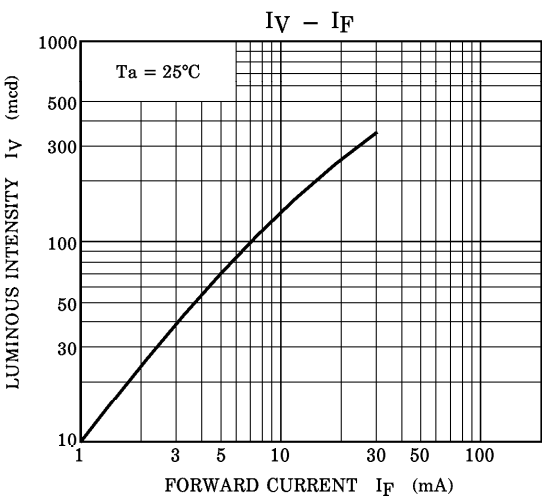
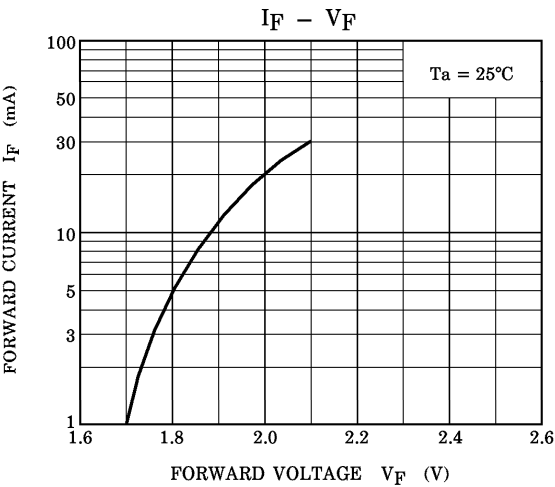
PRODUCT NAME	EMISSION SPECTRUM						
	Peak Emission Wavelength λ_p			$\Delta\lambda$	Dominant Wavelength λ_d		
	MIN	TYP.	MAX		MIN	TYP.	MAX
TLSU1102	—	636	—	17	—	623	—
TLOU1102	—	612	—	15	—	605	—
TLYU1102	—	590	—	13	—	587	—
TLGU1102	—	574	—	11	—	571	—
TLPGU1102	—	562	—	11	—	558	—
UNIT	nm			nm	nm		

(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.

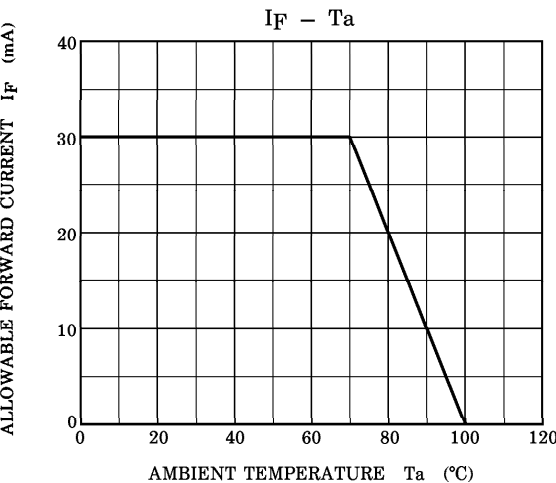
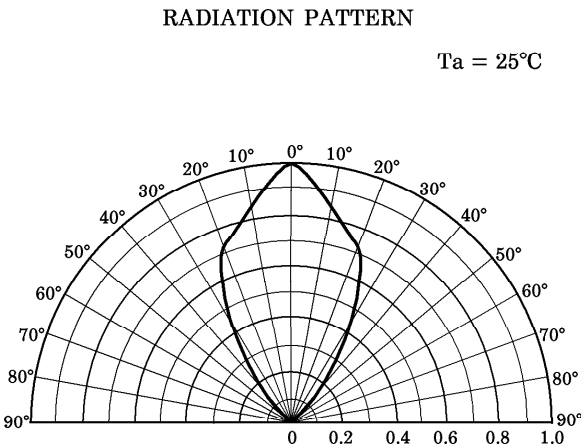
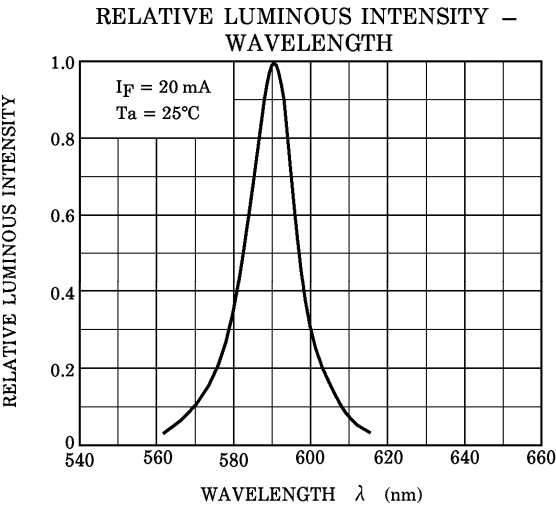
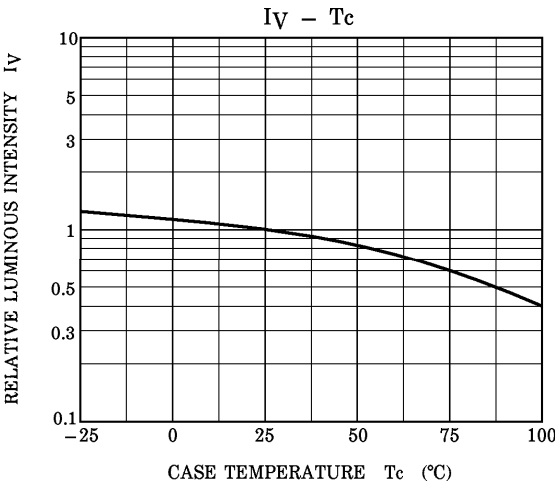
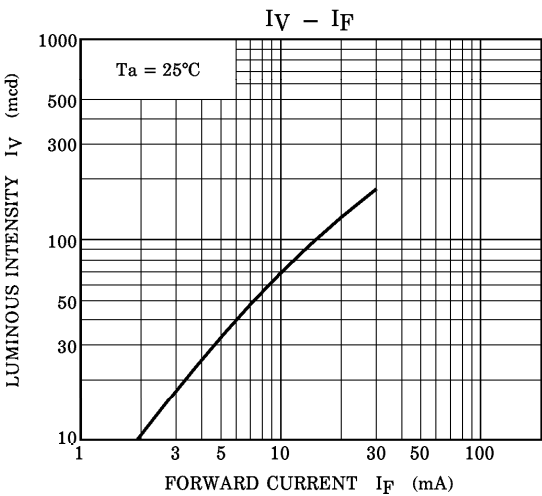
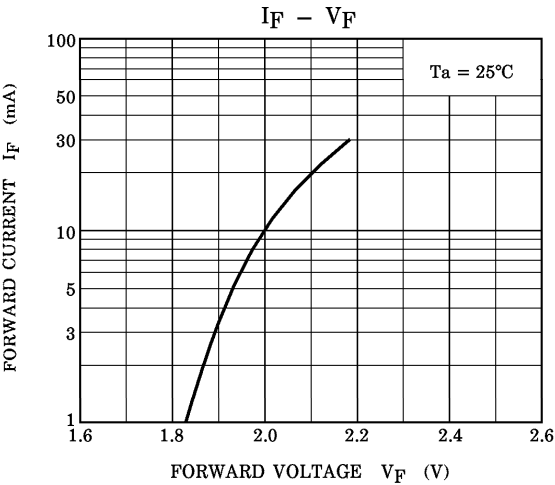
TLSU1102



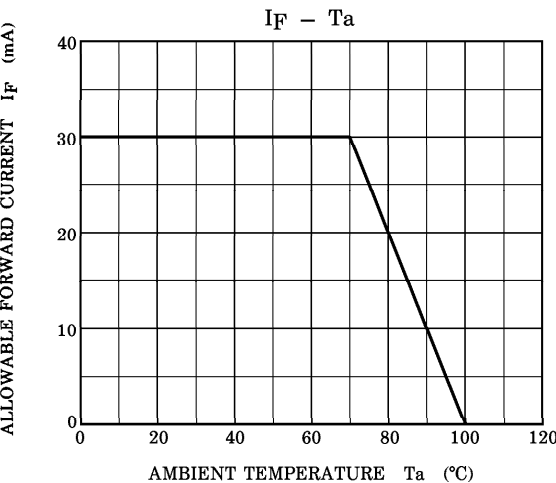
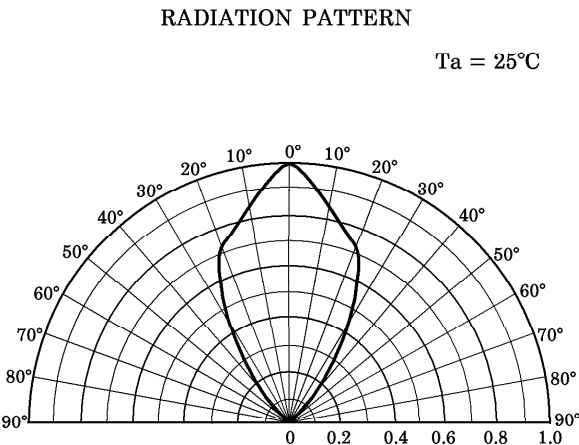
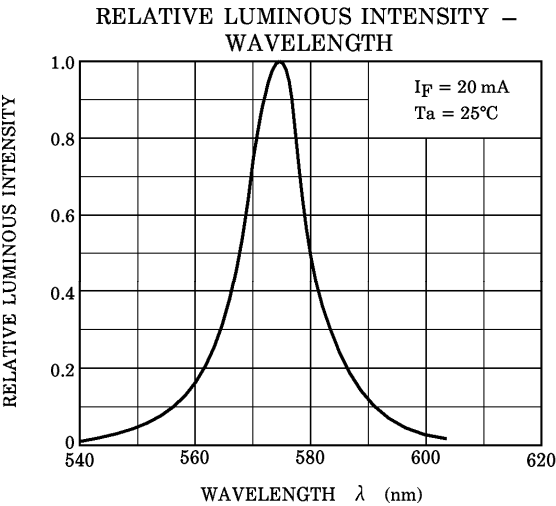
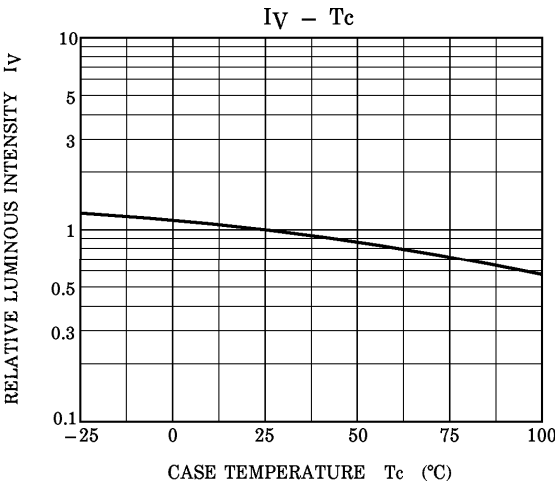
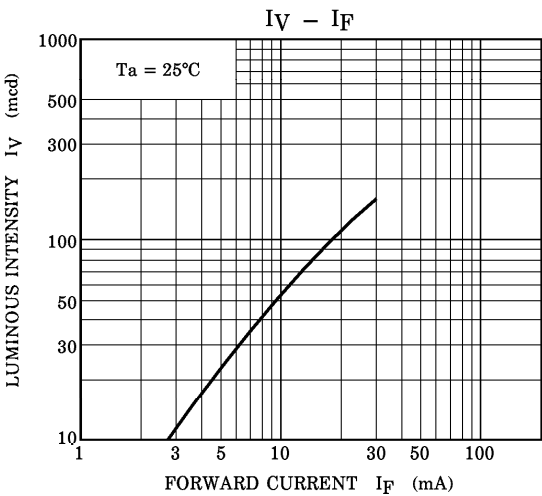
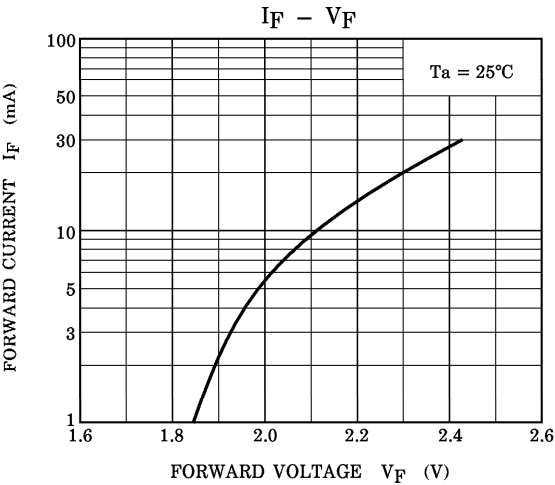
TLOU1102



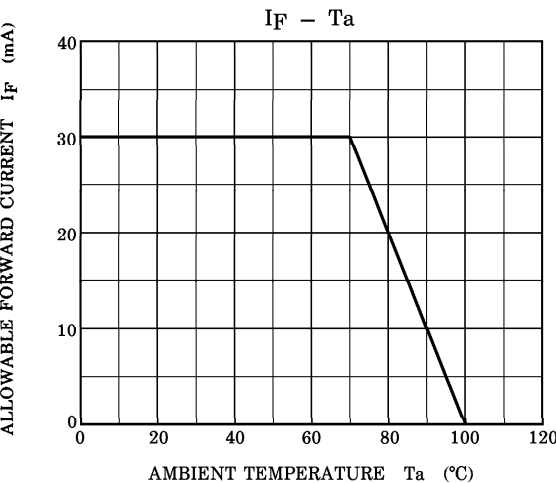
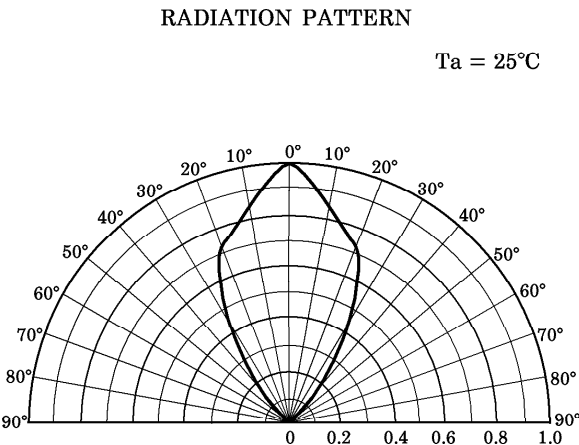
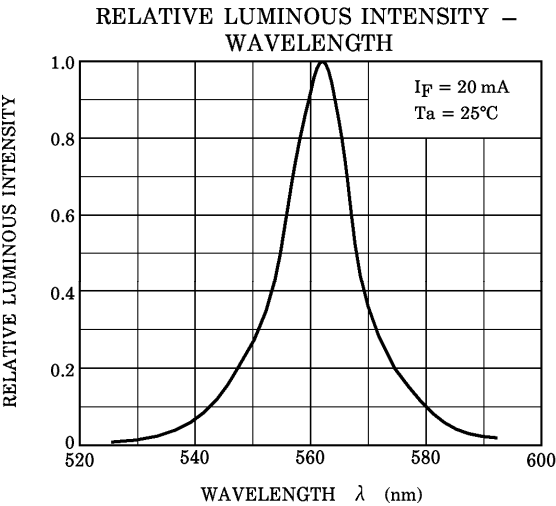
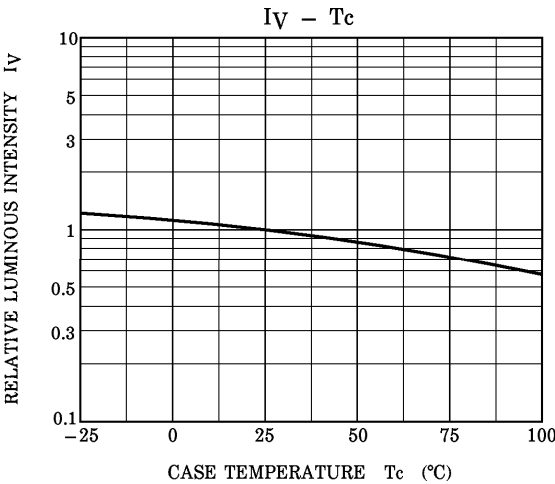
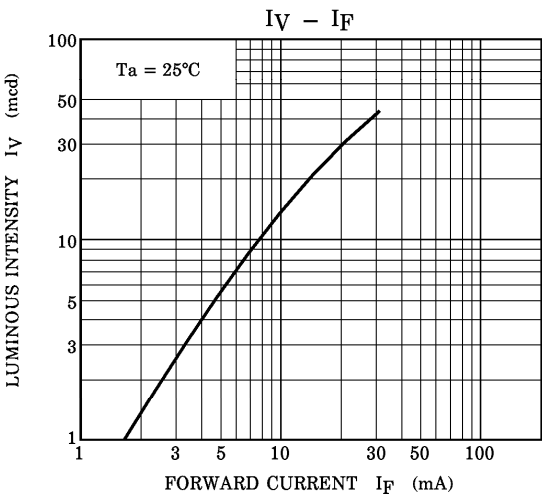
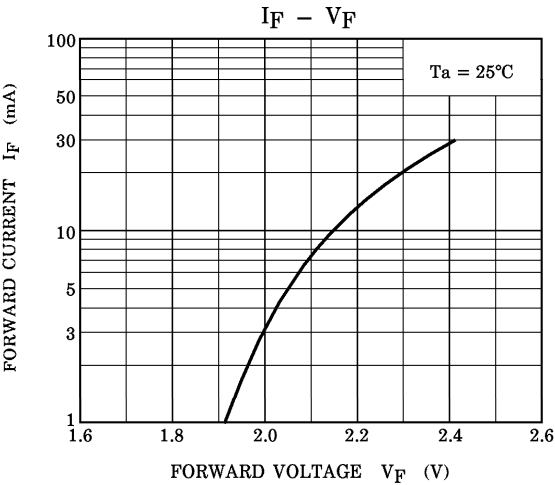
TLYU1102



TLGU1102



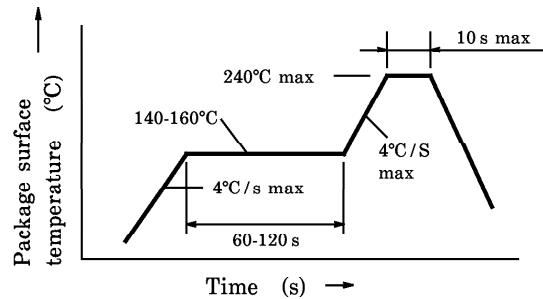
TLPGU1102



SOLDERING

Reflow soldering

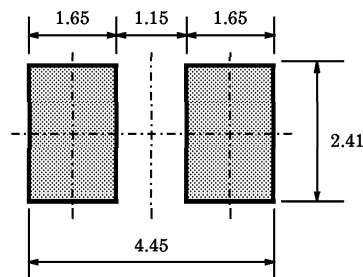
Temperature profile



(*) Reflow is permitted just one time.

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

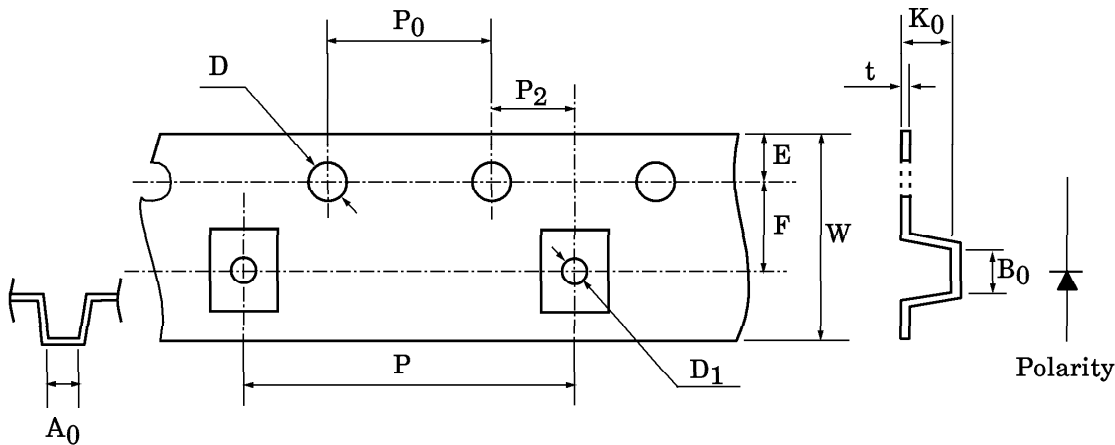
1. Taping Number

- (1) Name : T10
- (2) Example : TL□U1102 (T10)
Tape Specification
Device Identifier

2. Dimension of tape

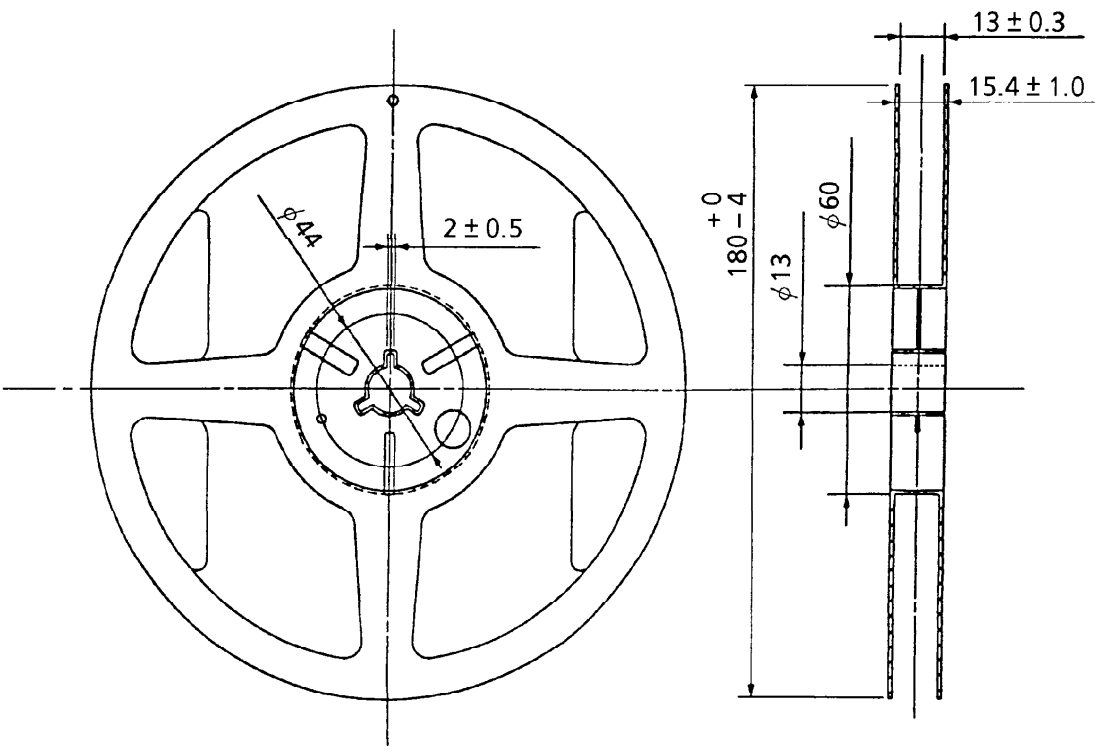
(Unit in mm)

ITEM	DIMENSIONS	TOLERANCE	ITEM	DIMENSIONS	TOLERANCE
D	1.5	+0.1 / -0	P ₂	2.0	±0.05
E	1.75	±0.1	W	12.0	±0.3
P ₀	4.0	±0.1	P	8.0	±0.1
t	0.3	±0.05	A ₀	2.9	±0.1
F	5.5	±0.05	B ₀	3.7	±0.1
D ₁	1.5	+0.1 / -0	K ₀	3.6	±0.1



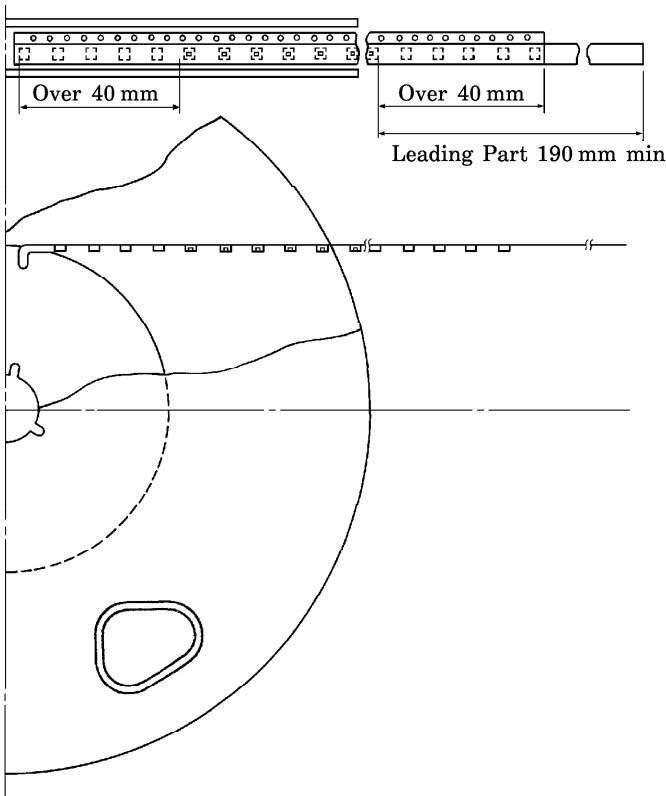
3. Dimension of reel

(Unit in mm)



4. Leading part

(Unit in mm)



5. Packing Form

(1) Number of Devices per Reel and Carton

Reel	500 devices
Carton	2500 devices

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

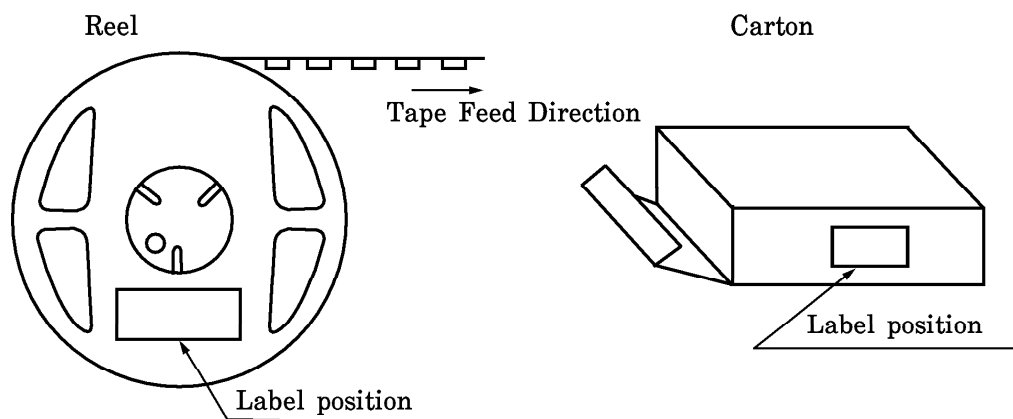
6. Notation Method

(1) Example : TLSU1102 (T10)

P/N :

TYPE	TLSU1102		
ADD. C	(T10)	Q'TY	500 pcs
NOTE	(rank symbol) Lot Number		

(2) Label location :



Aluminum pack : Attached to center of one side