

TOSHIBA LED LAMP

TLRH1100 (T09), TLSH1100 (T09)
TLOH1100 (T09), TLYH1100 (T09)

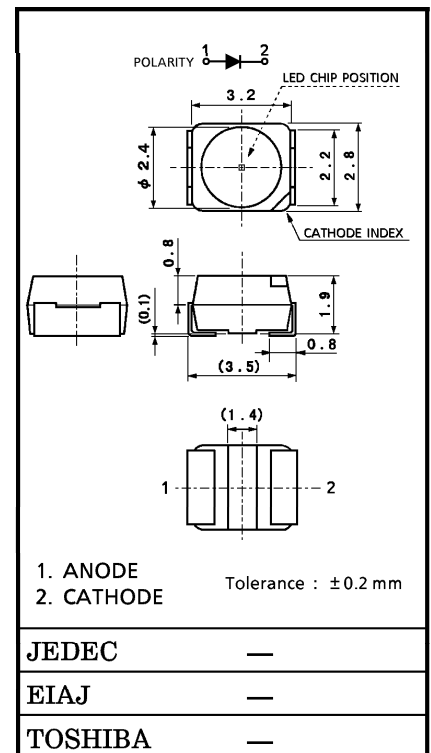
PANEL CIRCUIT INDICATOR

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

LINE-UP

PRODUCT NAME	COLOR	MATERIAL
TLRH1100	Red	InGaAlP
TLSH1100	Red	InGaAlP
TLOH1100	Orange	InGaAlP
TLYH1100	Yellow	InGaAlP

Unit in mm



Weight : 35 mg

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

PRODUCT NAME	FORWARD CURRENT (DC) I_F (mA)	REVERSE VOLTAGE V_R (V)	POWER DISSIPATION P_D (mW)	OPERATING TEMPERATURE T_{opr} ($^{\circ}\text{C}$)	STORAGE TEMPERATURE T_{stg} ($^{\circ}\text{C}$)
TLRH1100	50	4	125	$-40 \sim 100$	$-40 \sim 100$
TLSH1100	50	4	125		
TLOH1100	50	4	125		
TLYH1100	50	4	125		

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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
TLRH1100	—	1.9	2.5	20	50	4
TLSH1100	—	2.1	2.5	20	50	4
TLOH1100	—	2.1	2.5	20	50	4
TLYH1100	—	2.1	2.5	20	50	4
Unit	V			mA	μA	V

OPTICAL CHARACTERISTICS-1 (Ta = 25°C)

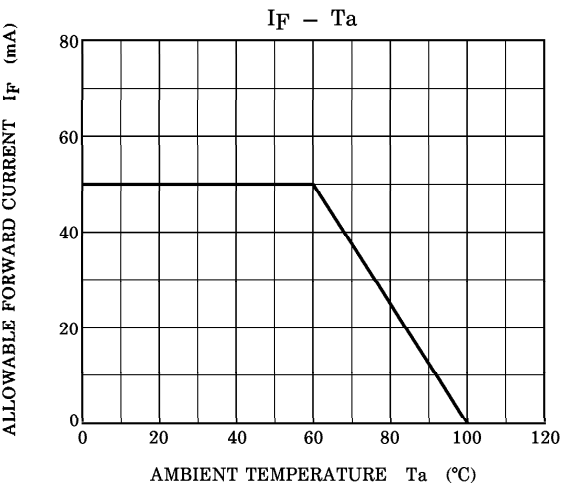
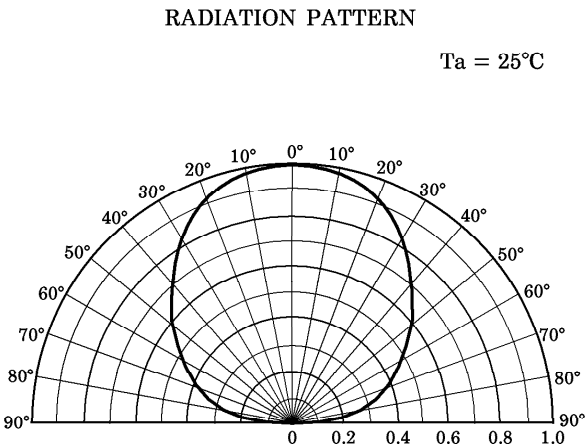
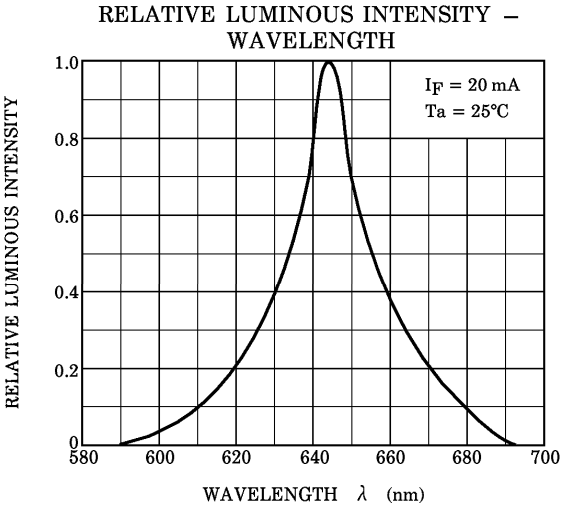
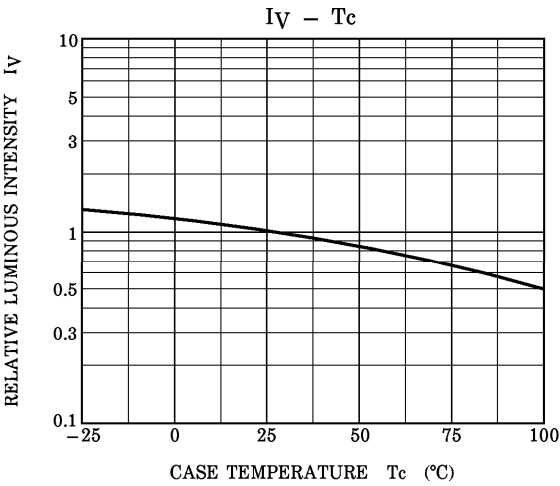
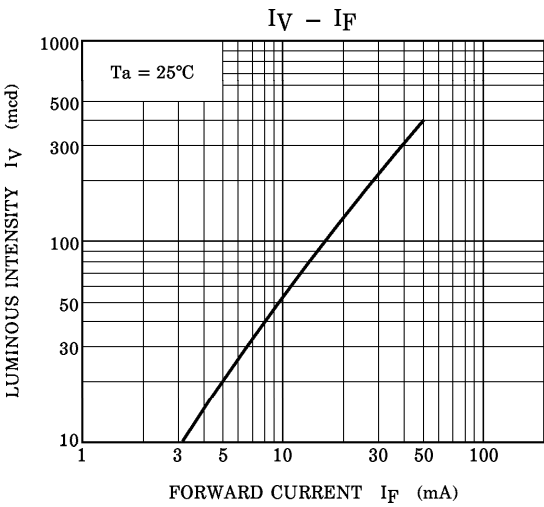
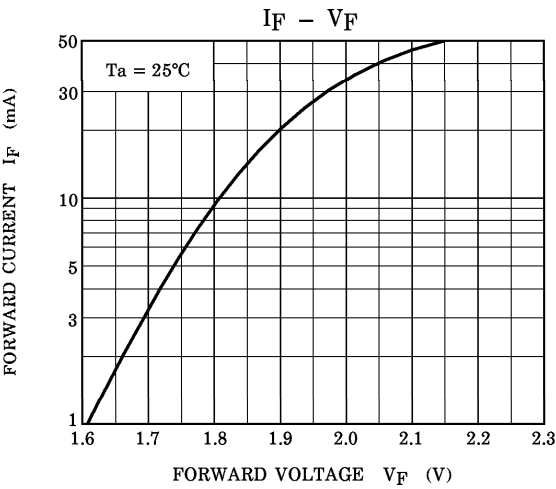
PRODUCT NAME	LUMINOUS INTENSITY I_v			
	MIN	TYP.	MAX	I_F
TLRH1100	47.6	130	—	20
TLSH1100	85.0	240	—	20
TLOH1100	85.0	260	—	20
TLYH1100	85.0	190	—	20
Unit	mcd			mA

OPTICAL CHARACTERISTICS-2 (Ta = 25°C)

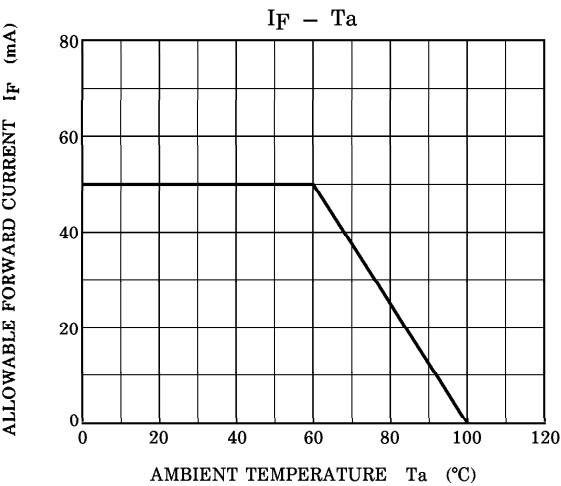
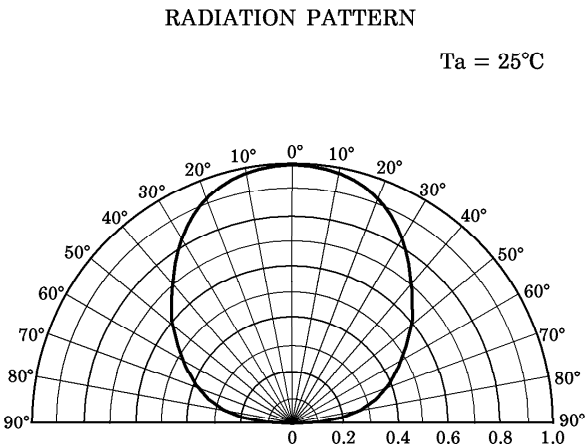
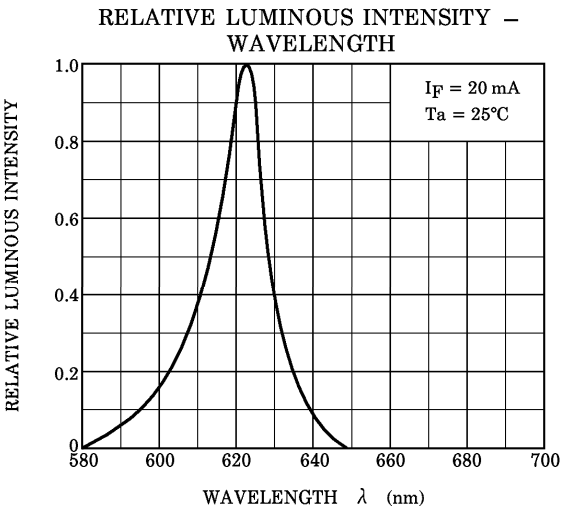
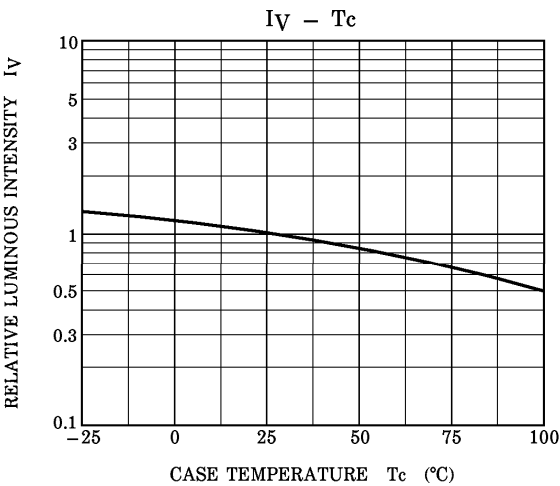
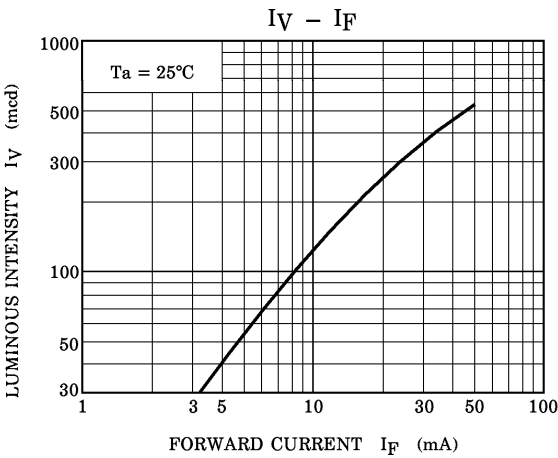
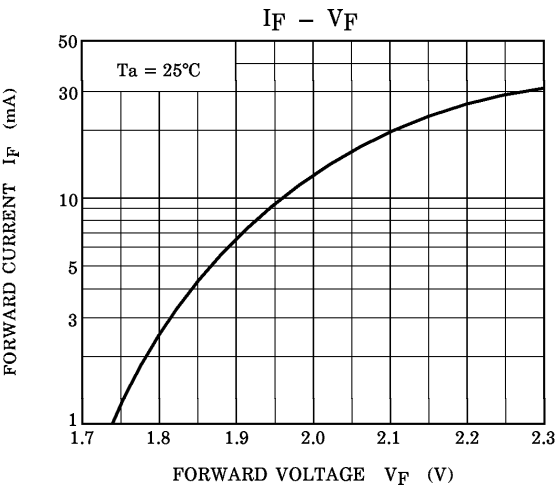
PRODUCT NAME	EMISSION SPECTRUM							
	Peak Emission Wavelength λ_p			$\Delta\lambda$	Dominant Wavelength λ_d			I_F
	MIN	TYP.	MAX	TYP.	MIN	TYP.	MAX	
TLRH1100	—	644	—	18	—	630	—	20
TLSH1100	—	623	—	15	—	613	—	20
TLOH1100	—	612	—	15	—	605	—	20
TLYH1100	—	590	—	13	—	587	—	20
Unit	nm			nm	nm			mA

(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.

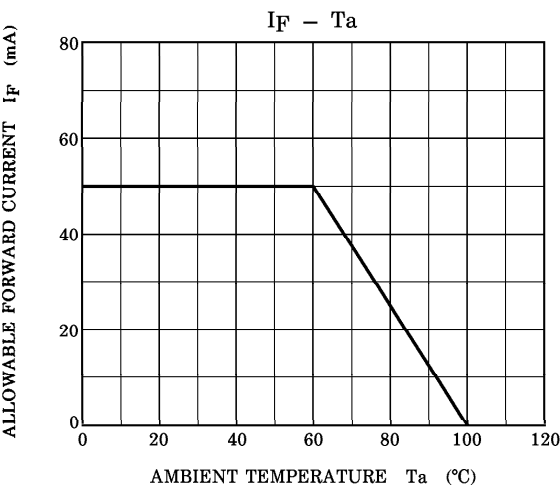
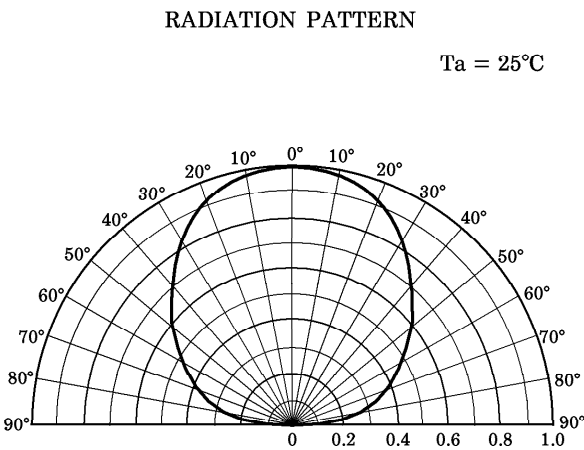
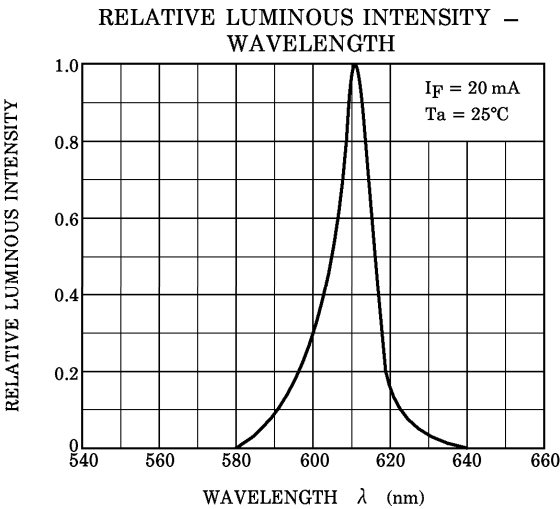
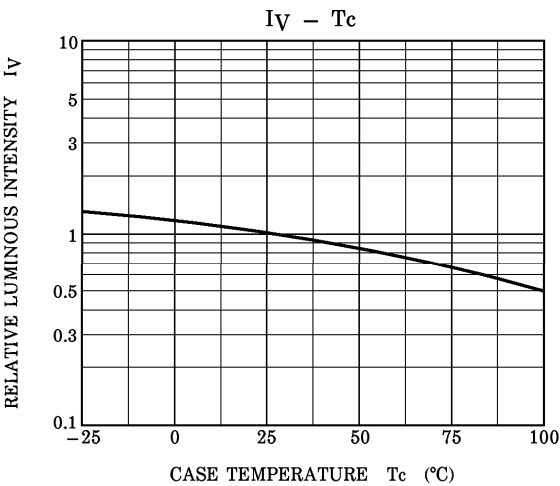
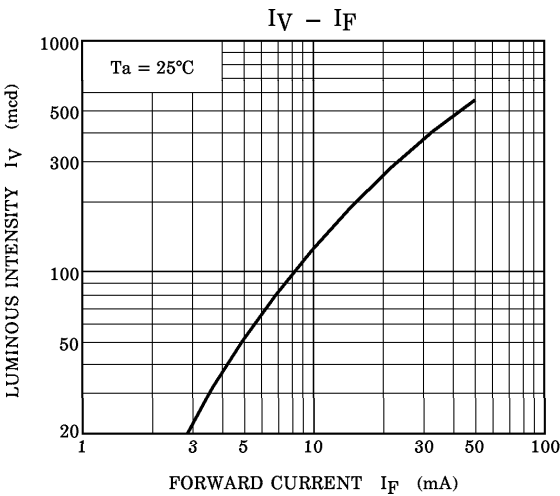
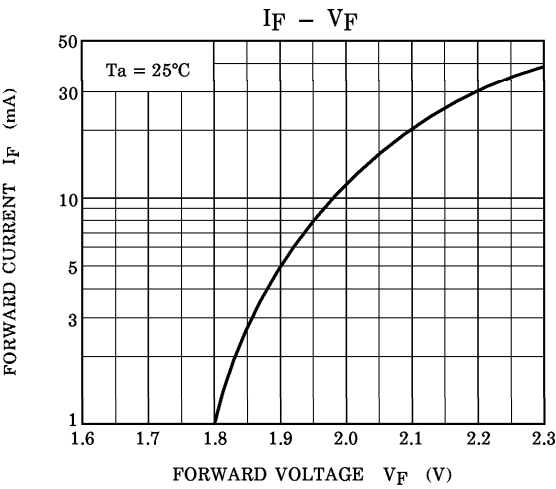
TLRH1100



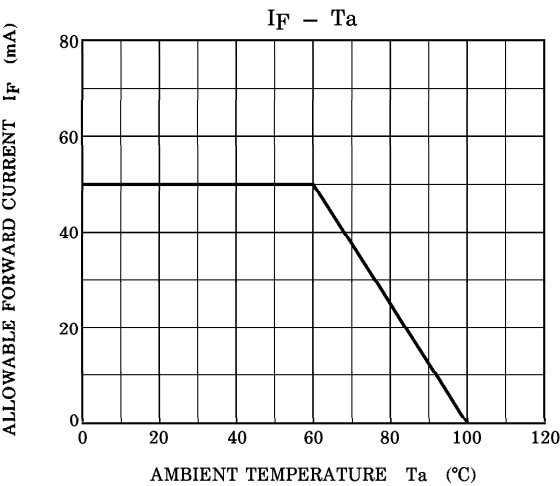
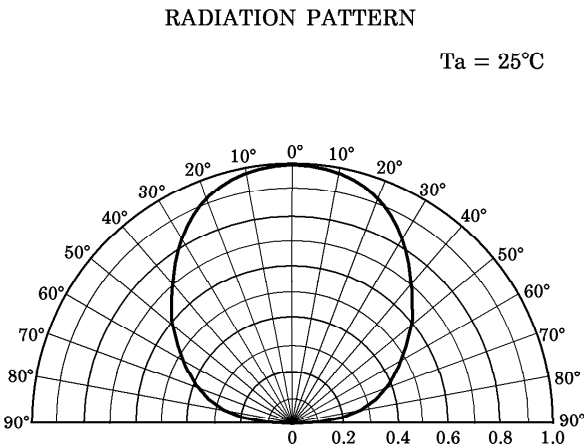
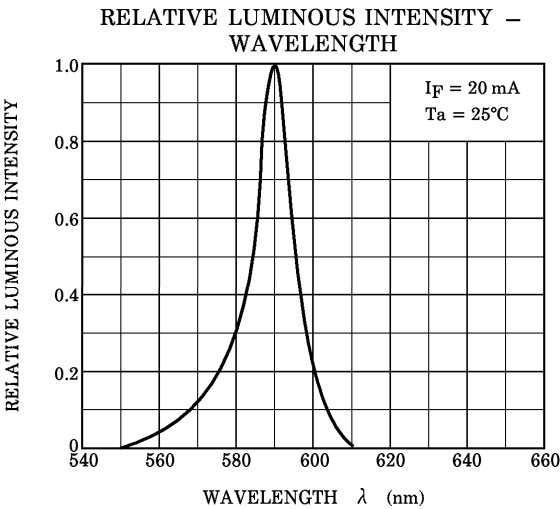
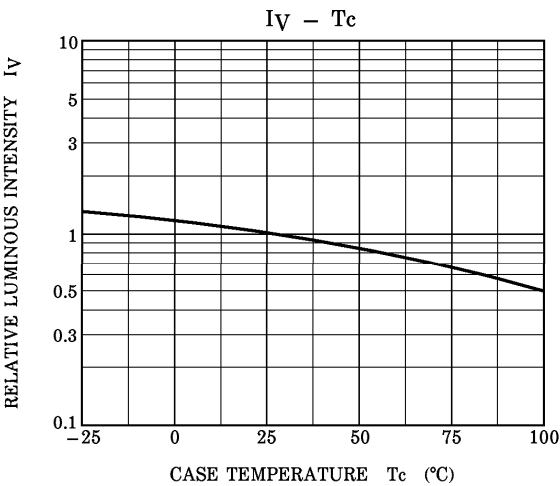
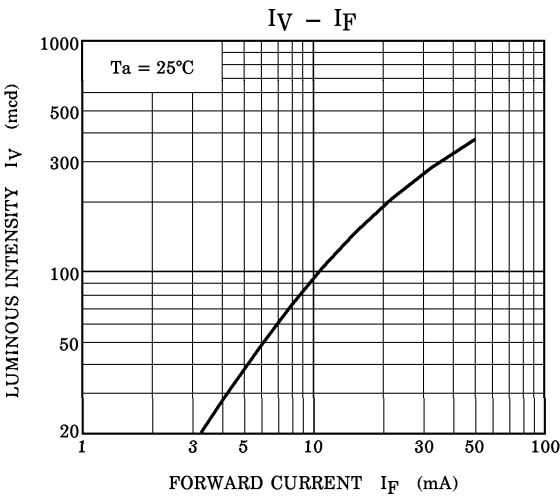
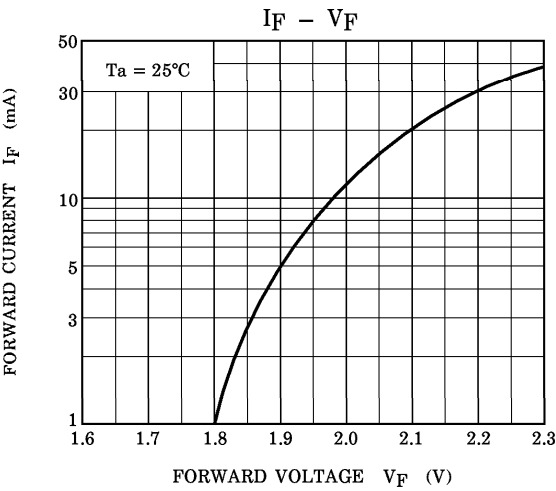
TLSH1100



TLOH1100



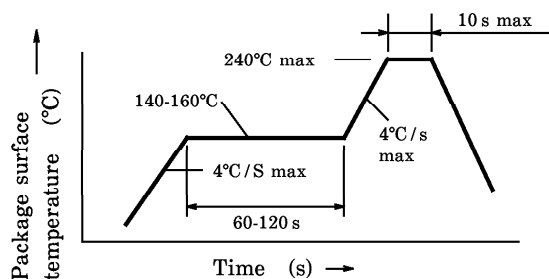
TLYH1100



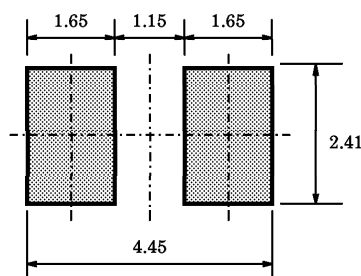
SOLDERING

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.

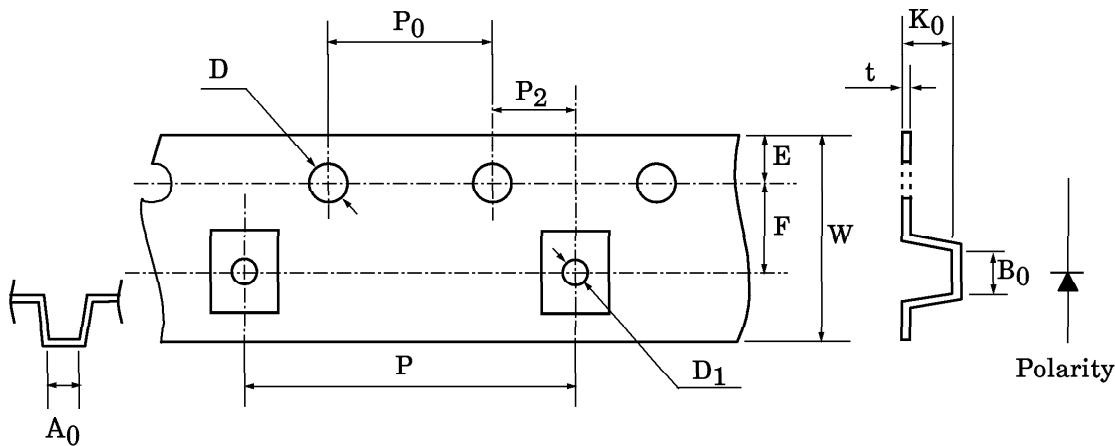
TAPING SPECIFICATIONS

1. Taping Number

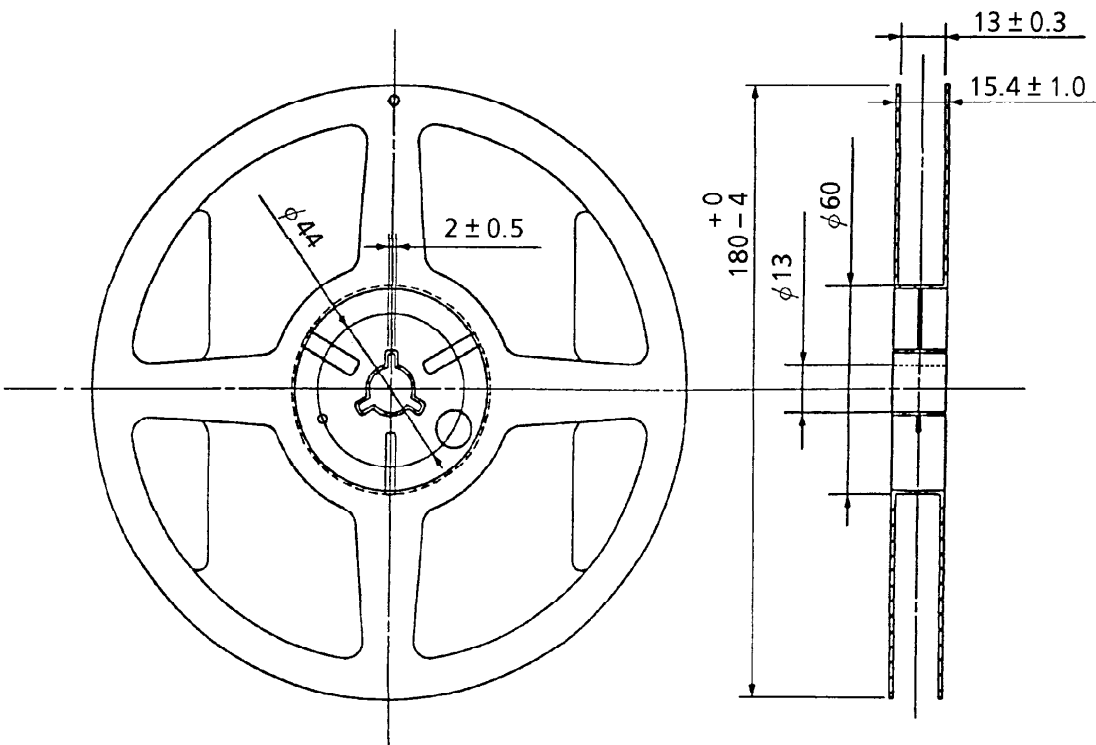
- (1) Name : T09
- (2) Example : TL□H1100 (T09)
 - Tape Specifications
 - Device Identifier

2. Dimension of tape (Unit in mm)

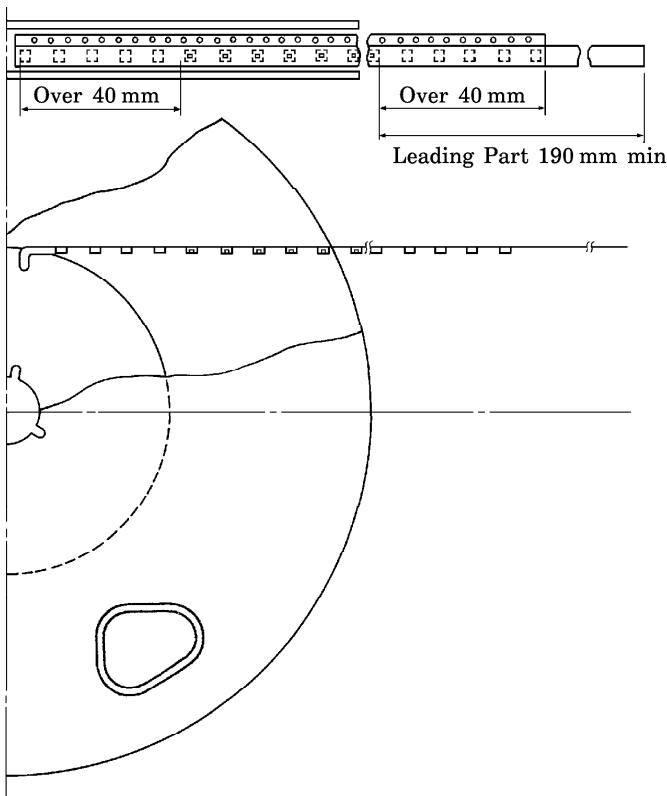
ITEM	DIMENSIONS	TOLERANCE	ITEM	DIMENSIONS	TOLERANCE
D	1.5	+0.1 / -0	P ₂	2.0	±0.05
E	1.75	±0.1	W	12.0	±0.3
P ₀	4.0	±0.1	P	8.0	±0.1
t	0.3	±0.05	A ₀	2.9	±0.1
F	5.5	±0.05	B ₀	3.7	±0.1
D ₁	1.5	+0.1 / -0	K ₀	2.3	±0.1



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.

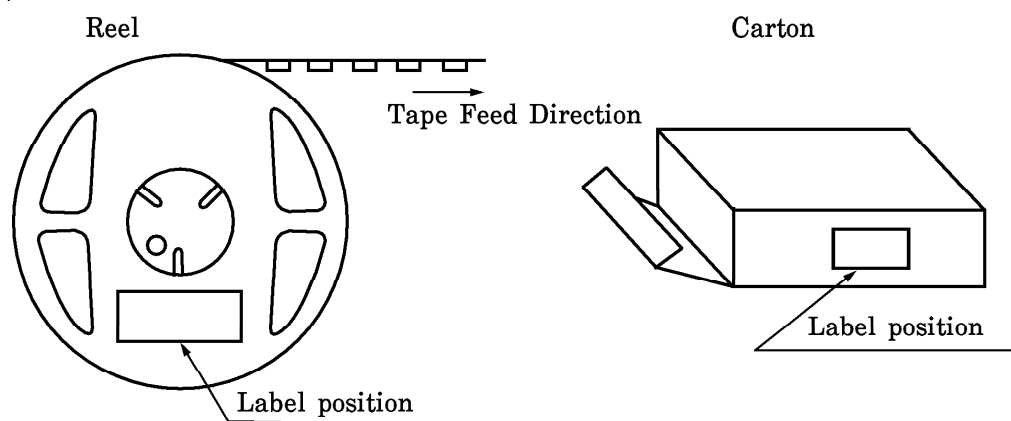
7. Notation Method

(1) Example : TLRH1100 (T09)

P/N :

TYPE	TLRH1100		
ADD. C	(T09)	Q'TY	1000 pcs
NOTE	(rank symbol)	Lot Number	

(2) Label location :



Aluminum pack : Attached to center of one side