

TOSHIBA LED LAMP

**TLRE1102 (T10), TLSE1102 (T10), TLOE1102 (T10)
TLYE1102 (T10), TLGE1102 (T10), TLPGE1102 (T10)**

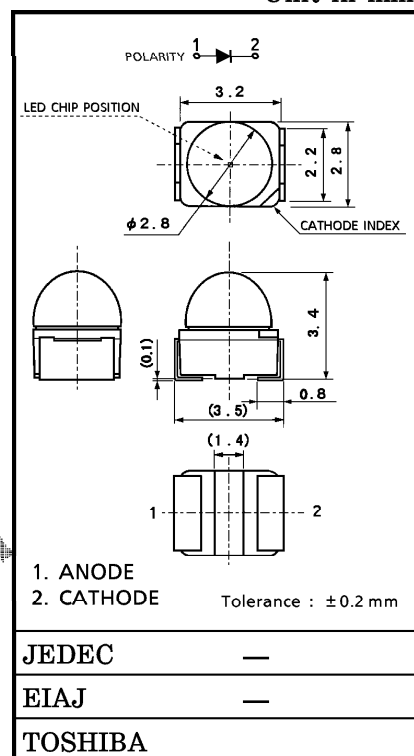
PANEL CIRCUIT INDICATOR

Unit in mm

- Surface Mount Device
- 3.2 (L) × 2.8 (W) × 3.4 (H) mm Size
φ2.8 mm Diameter Lens-Top Type
- InGaAlP LED
- Low Drive Current, High Intensity Light Emission
- Available of Automounting Machine Use
- Standard Embossed Taping : T10 (500 pcs / Reel)
- Reflow Soldering is Applicable.
- Applications : Automotive Use, Message Signboard,
Backlight, etc.

LINE-UP

PRODUCT NAME	COLOR	MATERIAL
TLRE1102	Red	InGaAlP
TLSE1102	Red	InGaAlP
TLOE1102	Orange	InGaAlP
TLYE1102	Yellow	InGaAlP
TLGE1102	Green	InGaAlP
TLPGE1102	Pure Green	InGaAlP



Weight : 42 mg

MAXIMUM RATINGS (Ta = 25°C)

PRODUCT NAME	FORWARD CURRENT (DC) If (mA)	REVERSE VOLTAGE VR (V)	POWER DISSIPATION PD (mW)	OPERATING TEMPERATURE Topr (°C)	STORAGE TEMPERATURE Tstg (°C)
TLRE1102	50	4	(120)	-40~100	-40~100
TLSE1102	50	4	(120)		
TLOE1102	50	4	(120)		
TLYE1102	50	4	(120)		
TLGE1102	50	4	(120)		
TLPGE1102	50	4	(120)		

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- The information contained herein is subject to change without notice.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

PRODUCT NAME	FORWARD VOLTAGE V_F				REVERSE CURRENT I_R	
	MIN	TYP.	MAX	I_F	MAX	V_R
TLRE1102	—	1.9	2.4	20	50	4
TLSE1102	—	1.9	2.4	20	50	4
TLOE1102	—	2.0	2.4	20	50	4
TLYE1102	—	2.0	2.4	20	50	4
TLGE1102	—	2.0	2.4	20	50	4
TLPGE1102	—	2.1	2.4	20	50	4
Unit	V			mA	μA	V

OPTICAL CHARACTERISTICS-1 (Ta = 25°C)

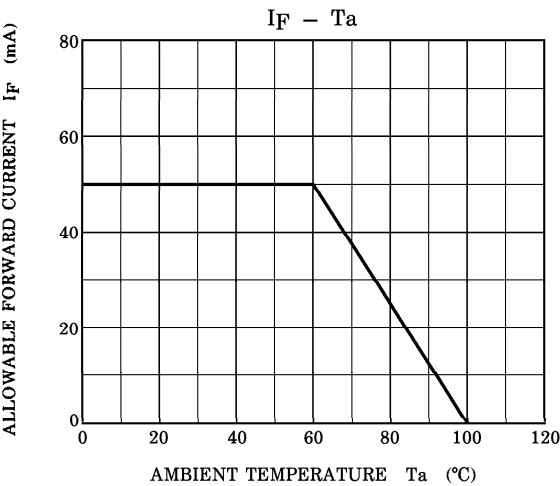
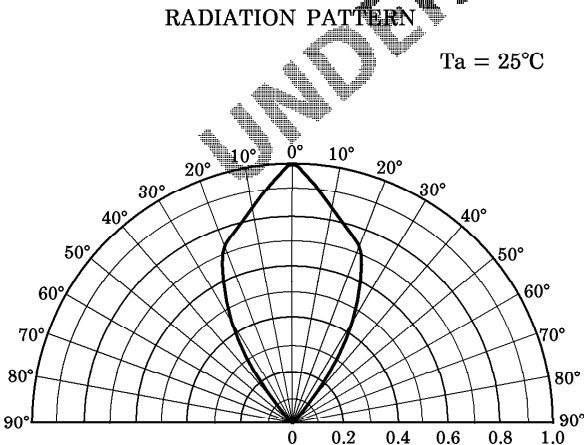
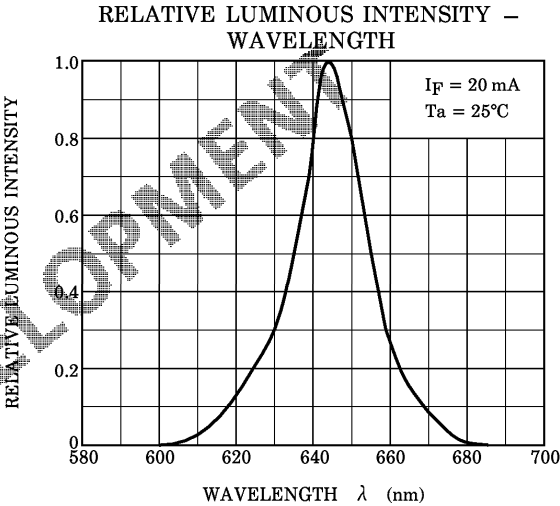
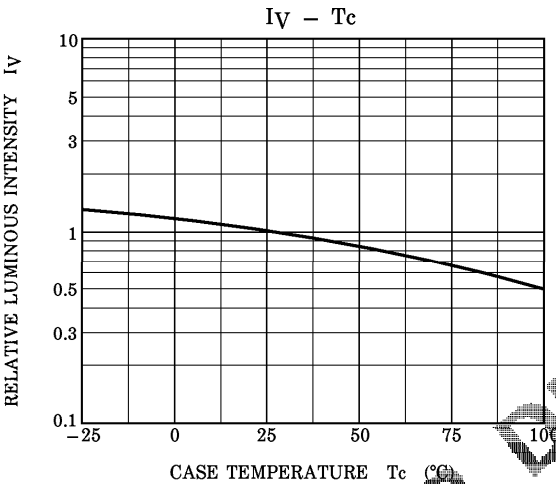
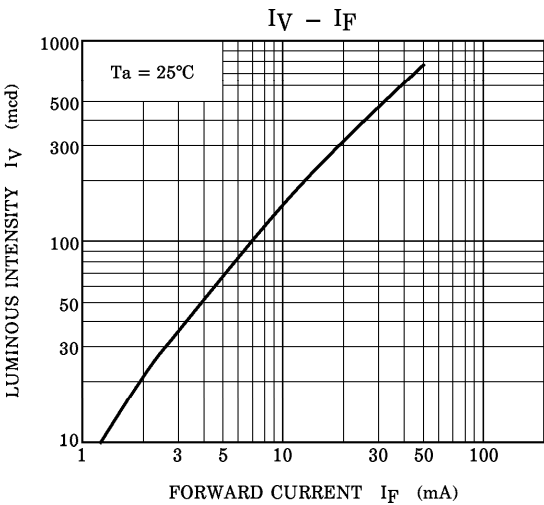
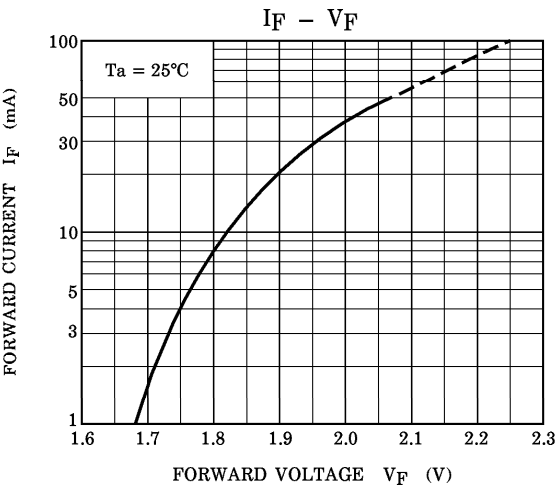
PRODUCT NAME	LUMINOUS INTENSITY I_V			I_F
	MIN	TYP.	MAX	
TLRE1102	—	(320)	—	20
TLSE1102	—	(600)	—	20
TLOE1102	—	(650)	—	20
TLYE1102	—	(480)	—	20
TLGE1102	—	(300)	—	20
TLPGE1102	—	(75)	—	20
Unit	mcd			mA

OPTICAL CHARACTERISTICS-2 (Ta = 25°C)

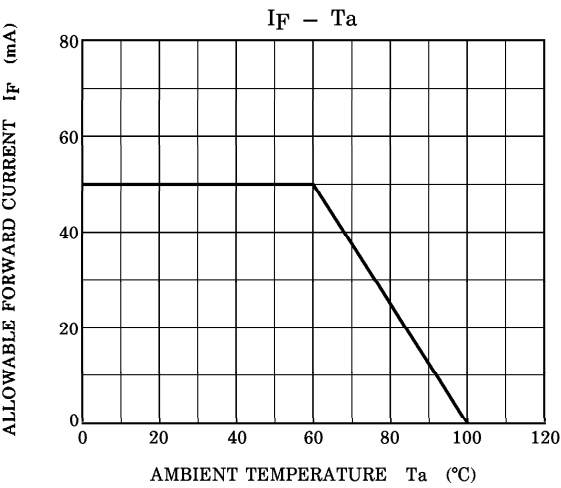
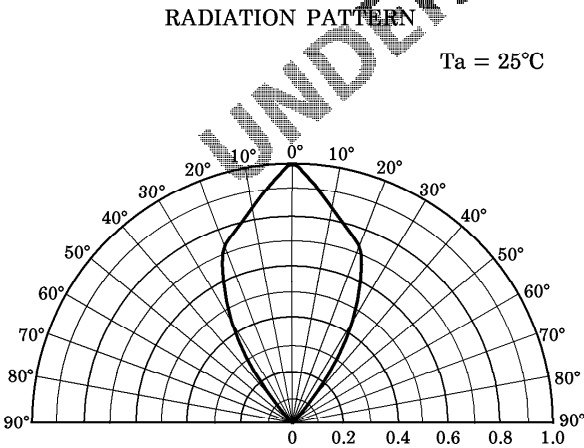
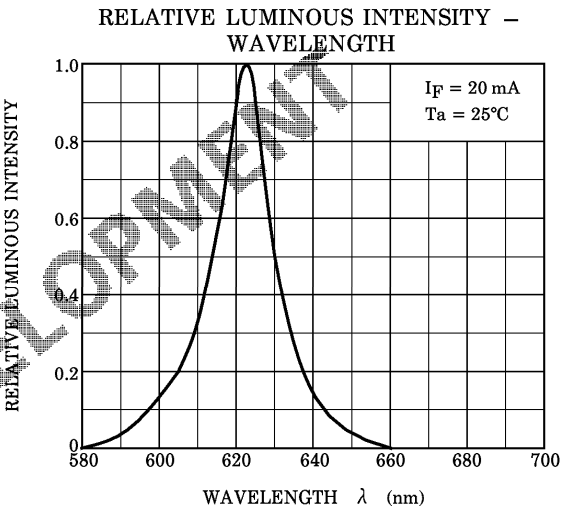
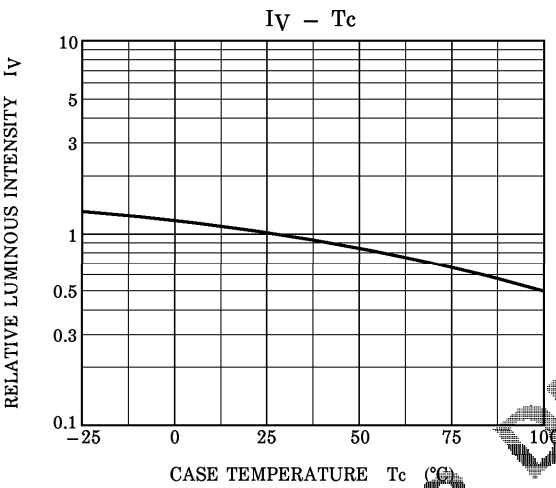
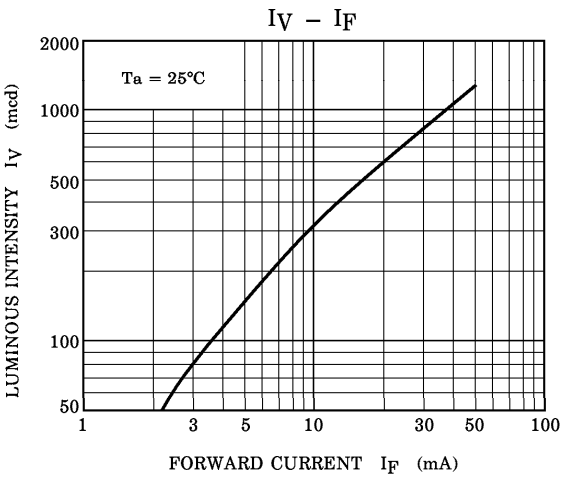
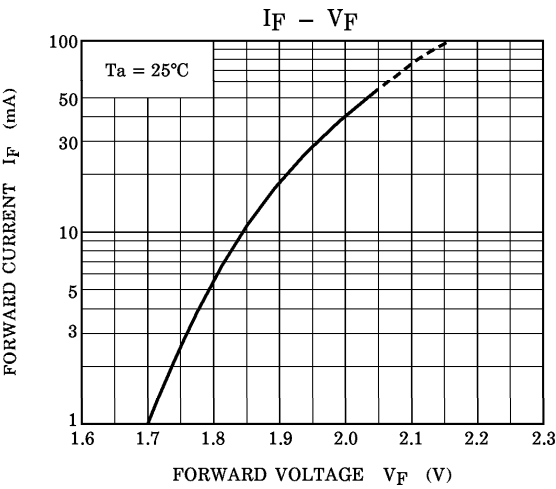
PRODUCT NAME	EMISSION SPECTRUM							I _F
	Peak Emission Wavelength		λ_p	$\Delta\lambda$	Dominant Wavelength		λ_d	
	MIN	TYP.			MIN	TYP.		
TLRE1102	—	(644)	—	(20)	—	630	—	20
TLSE1102	—	(623)	—	(20)	—	613	—	20
TLOE1102	—	(612)	—	(20)	—	605	—	20
TLYE1102	—	(590)	—	(17)	—	587	—	20
TLGE1102	—	(574)	—	(17)	—	571	—	20
TLPGE1102	—	(562)	—	(14)	—	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.

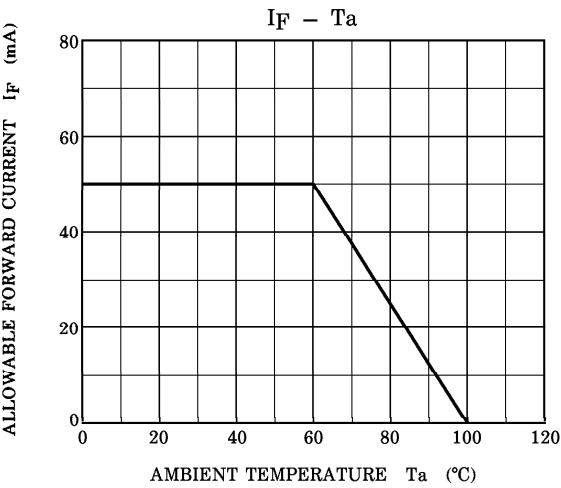
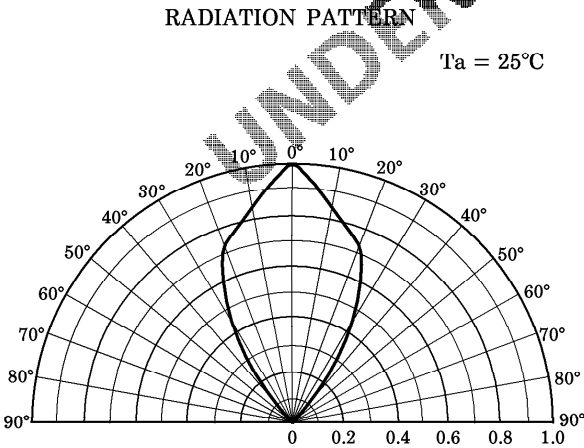
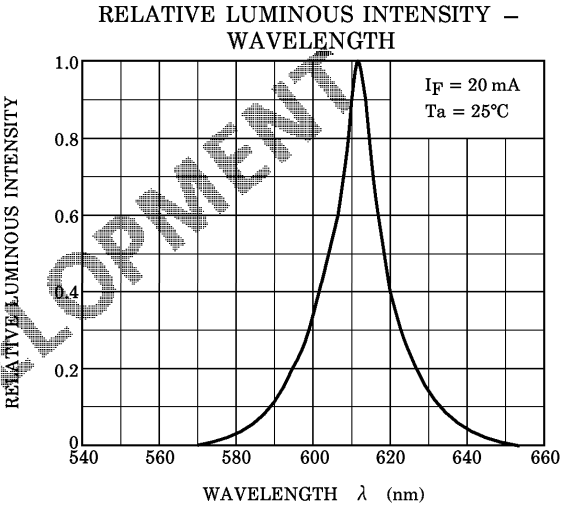
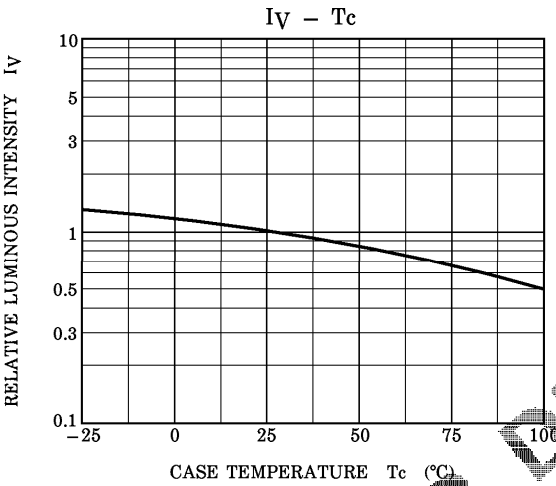
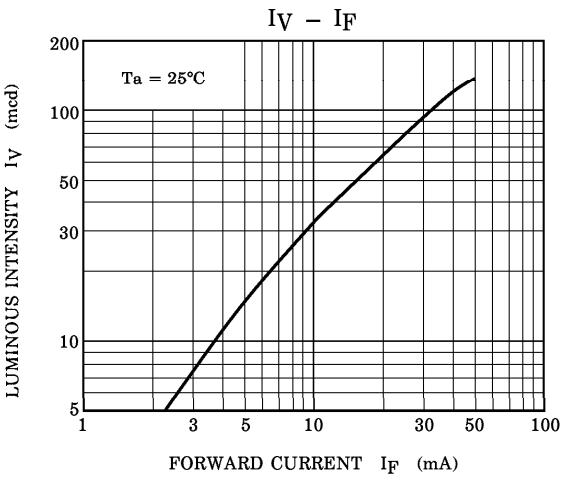
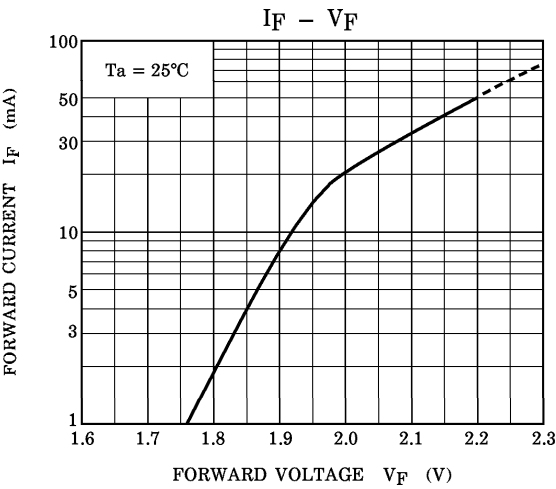
TLRE1102



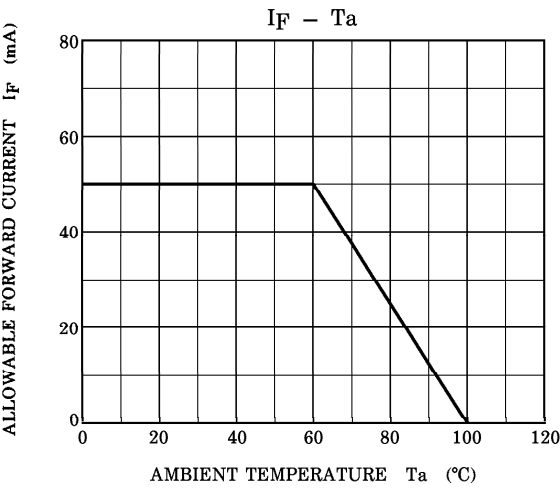
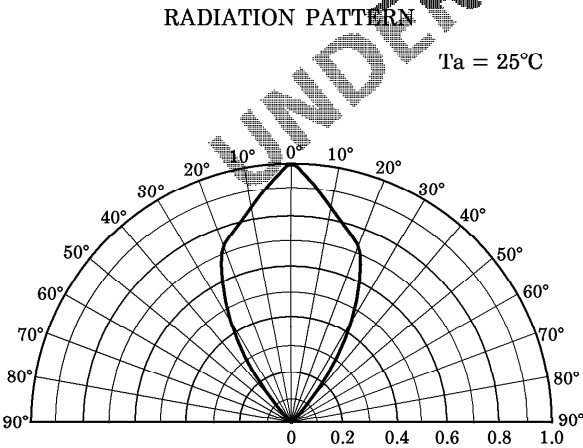
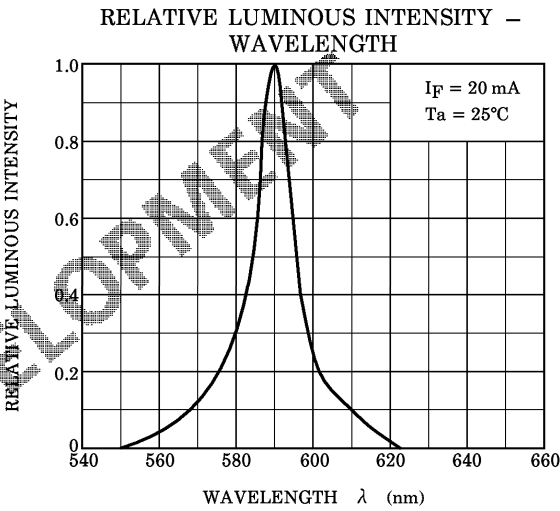
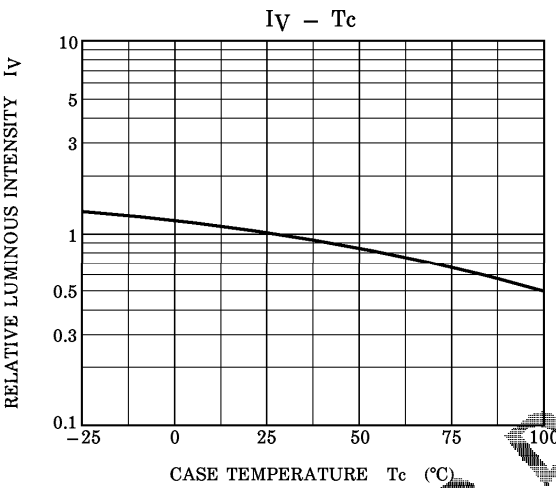
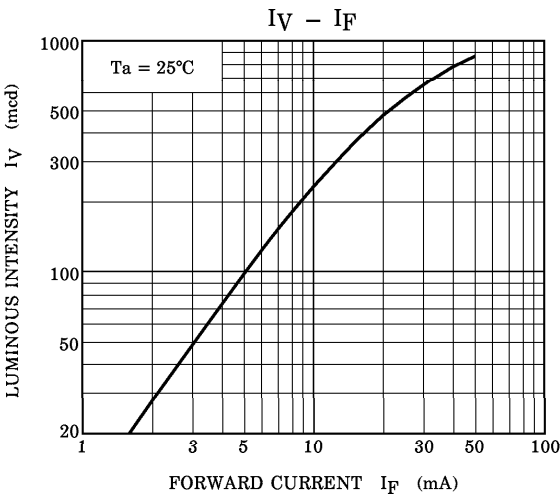
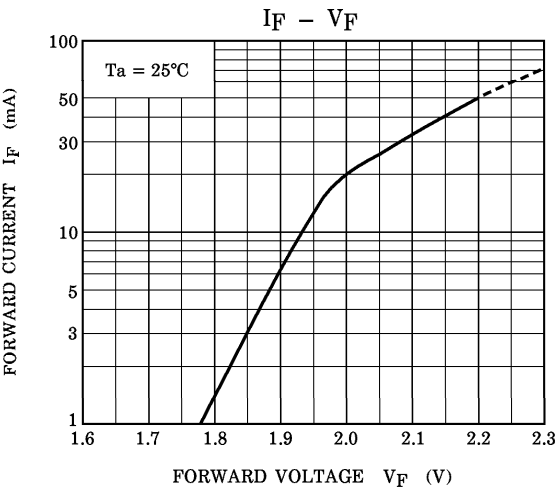
TLSE1102



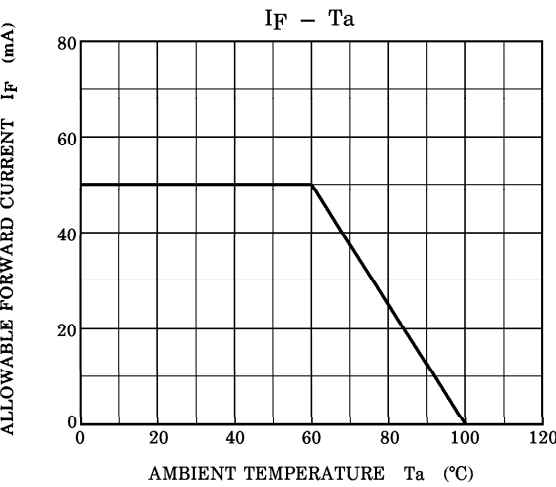
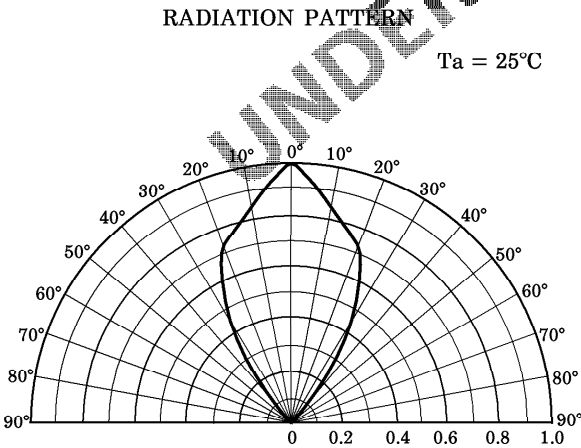
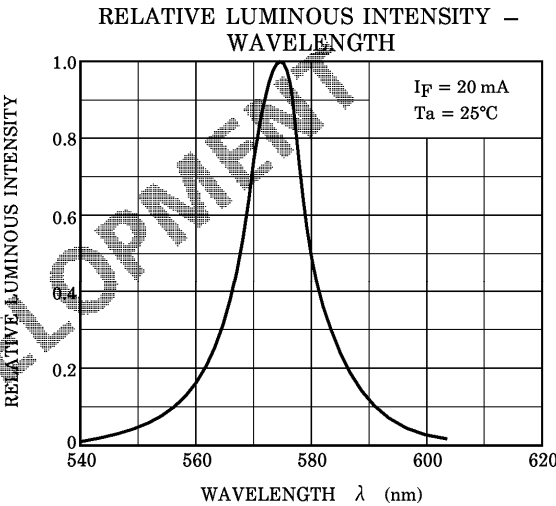
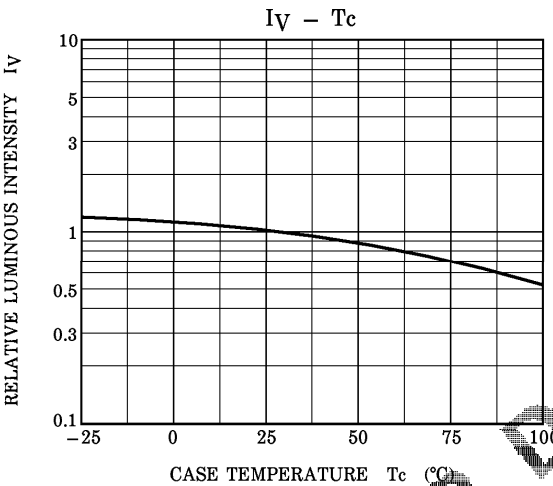
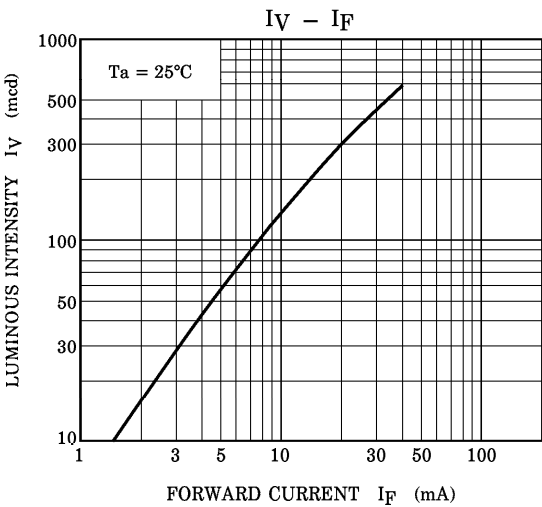
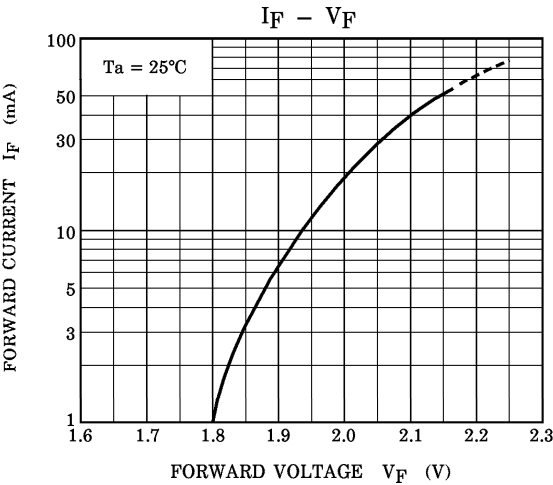
TLOE1102



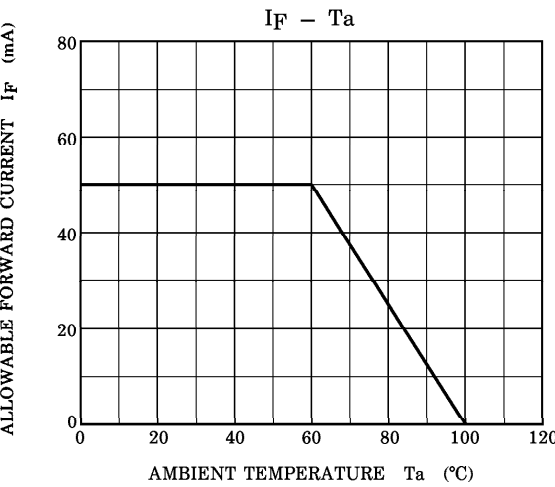
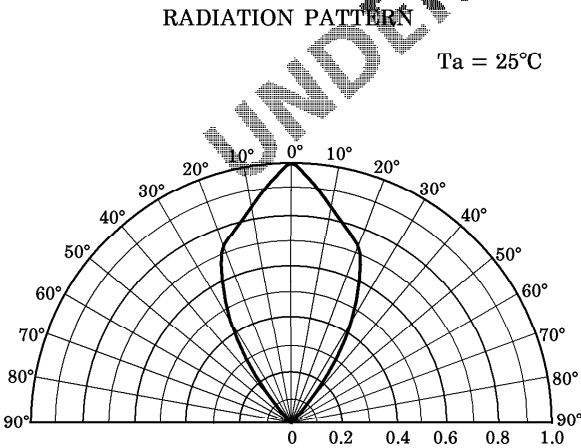
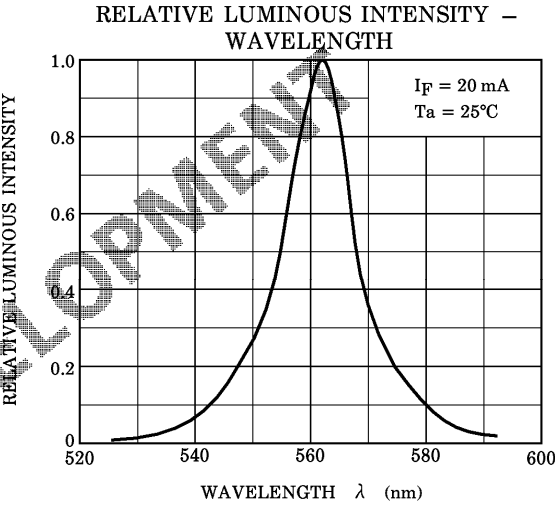
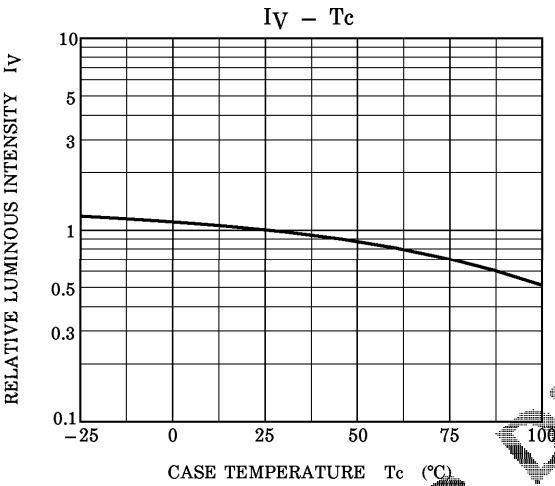
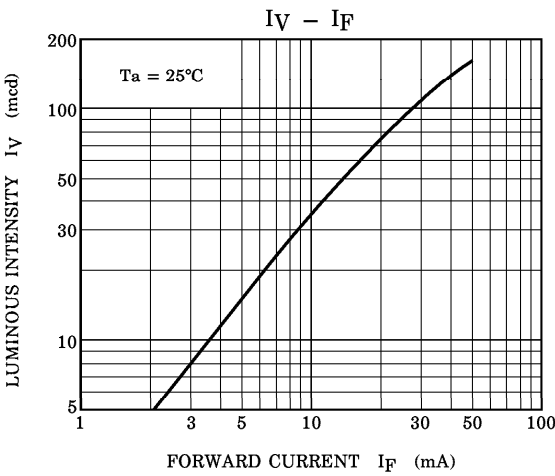
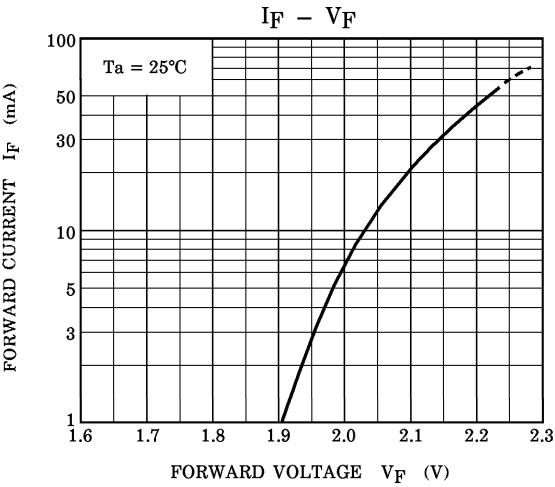
TLYE1102



TLGE1102



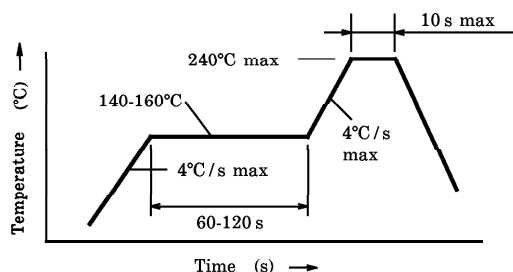
TLPGE1102



SOLDERING

Reflow soldering

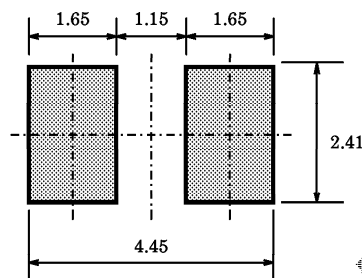
Temperature profile



(*) 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 seconds

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 storage at the following condition is recommended.

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

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

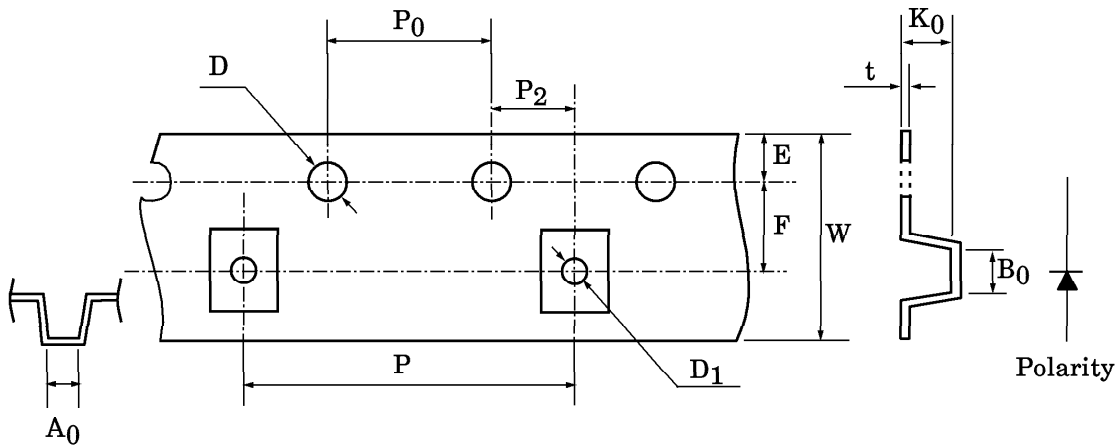
1. Taping Number

- (1) Name : T10
- (2) Example : TLSE1102 (T10)
- Tape Specification
- Device Identifier

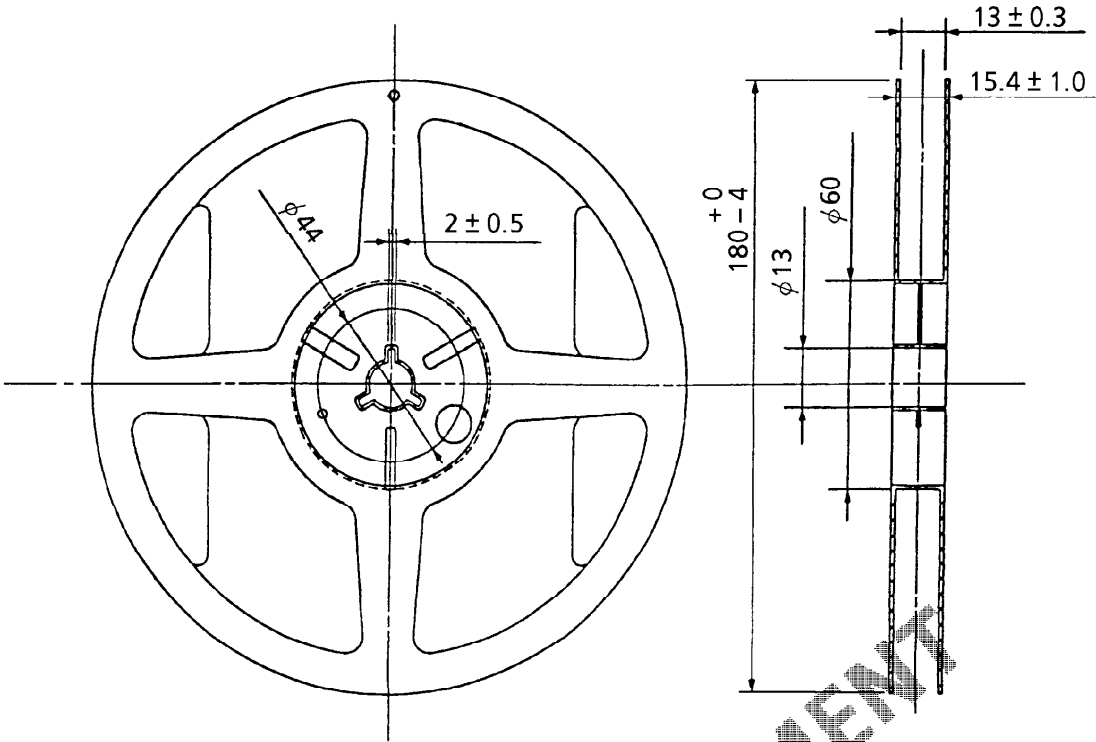
2. Dimension of tape

(Unit in mm)

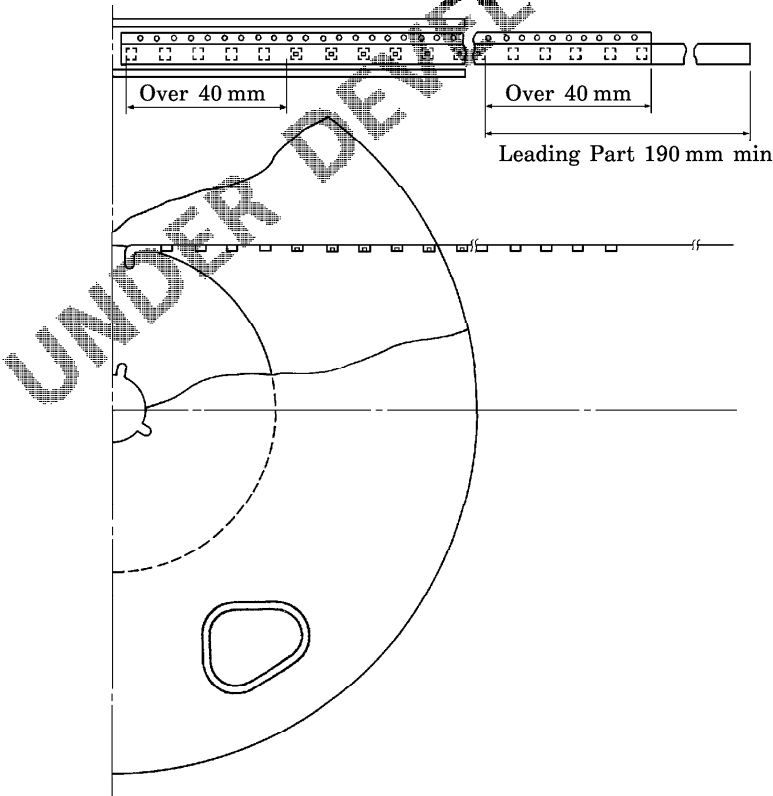
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D	1.5	+0.1 / -0	P ₂	2.0	±0.05
E	1.75	±0.1	W	12.0	±0.3
P ₀	4.0	±0.1	P	8.0	±0.1
t	0.3	±0.05	A ₀	2.9	±0.1
F	5.5	±0.05	B ₀	3.7	±0.1
D ₁	1.5	+0.1 / -0	K ₀	3.6	±0.1



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.

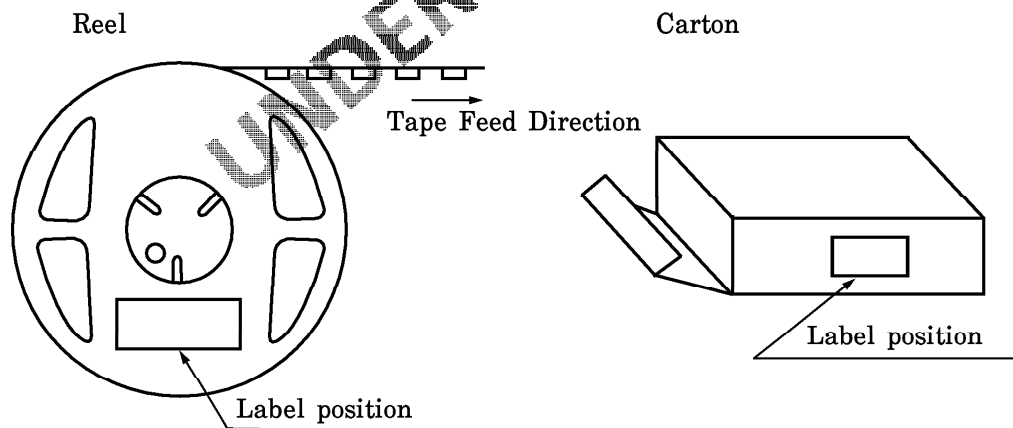
6. Notation Method

(1) Example : TLRE1102 (T10)

P/N :

TYPE	TLRE1102		
ADD. C	(T10)	Q'TY	500 pcs
NOTE	(rank symbol) Lot Number		

(2) Label location :



Aluminum pack : Attached to center of one side