

TOSHIBA LED Lamps

TLRMH1100A (T11), TLSH1100A (T11), TLOH1100A (T11), TLYH1100A (T11)

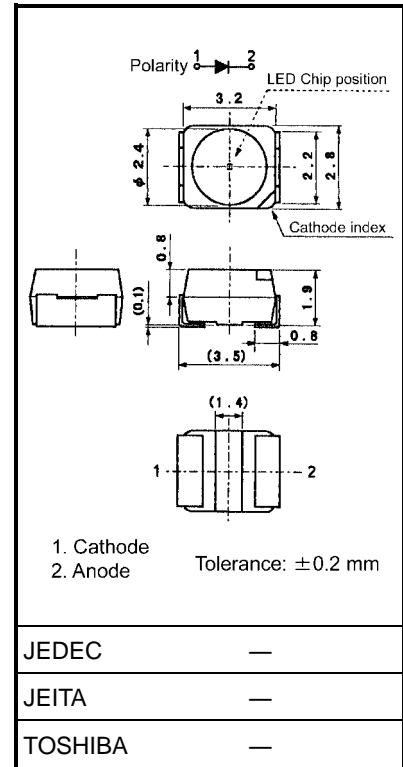
Panel Circuit Indicator

- Surface-mount devices
- 3.2 (L) × 2.8 (W) × 1.9 (H) mm
- Flat-top type
- InGaAlP LEDs
- High luminous intensity
- Low drive current, high-intensity light emission
- Colors: red, orange, yellow
- Reflow soldering possible
- Applications: automotive use, message signboards, backlighting etc.
- Standard embossed tape packing: T11 (2000/reel)
8-mm tape reel

Color and Material

Product Name	Color	Material
TLRMH1100A	Red	InGaAlP
TLSH1100A	Red	
TLOH1100A	Orange	
TLYH1100A	Yellow	

Unit: mm



Weight: 0.035 g (typ.)

Maximum Ratings (Ta = 25°C)

Product Name	Forward Current I _F (mA)	Reverse Voltage V _R (V)	Power Dissipation P _D (mW)	Operation Temperature T _{opr} (°C)	Storage Temperature T _{stg} (°C)
TLRMH1100A	70	4	161	-40~110	-40~110
TLSH1100A					
TLOH1100A					
TLYH1100A					

Electrical Characteristics (Ta = 25°C)

Product Name	Forward Voltage V _F			Reverse Current I _R		
	Min	Typ.	Max	I _F	V _R	
TLRMH1100A	—	1.9	2.3	20	10	
TLSH1100A	—	1.9	2.3			
TLOH1100A	—	2.0	2.3			
TLYH1100A	—	2.0	2.3			
Unit	V			mA	μA	V

Optical Characteristics-1 (Ta = 25°C)

Product Name	Luminous Intensity I _v			I _F
	Min	Typ.	Max	
TLRMH1100A	63	150	—	20
TLSH1100A	160	260	—	
TLOH1100A	160	270	—	
TLYH1100A	100	220	—	
Unit	mcd			mA

Optical Characteristics-2 (Ta = 25°C)

Product Name	Emission Spectrum							I _F
	Peak Emission Wavelength λ _p			Δλ Typ.	Dominant Wavelength λ _d			
	Min	Typ.	Max		Min	Typ.	Max	
TLRMH1100A	—	636	—	17	—	626	—	20
TLSH1100A	—	623	—	17	—	613	—	
TLOH1100A	—	612	—	15	—	605	—	
TLYH1100A	—	590	—	15	—	587	—	
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 the IR light.

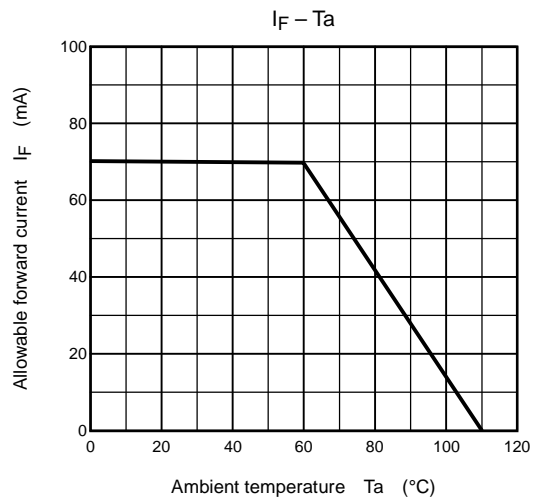
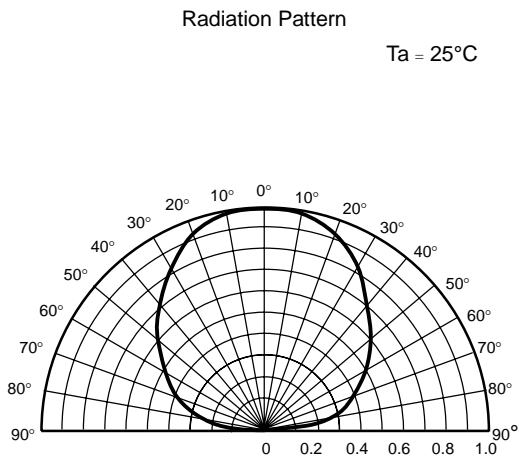
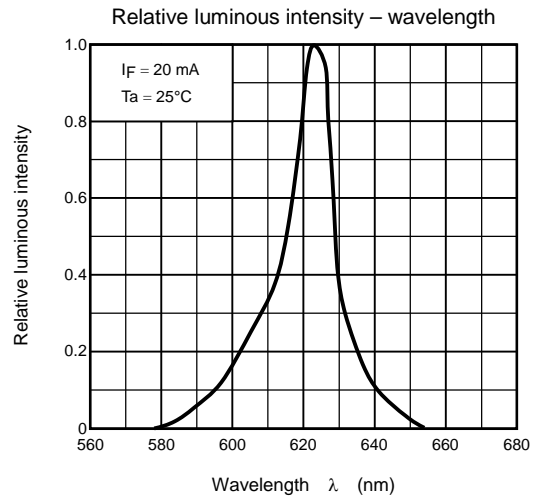
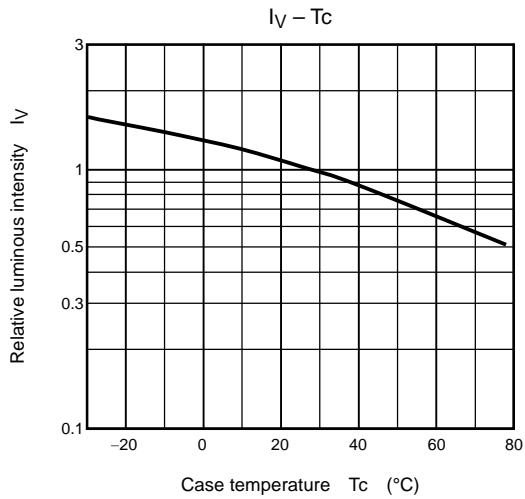
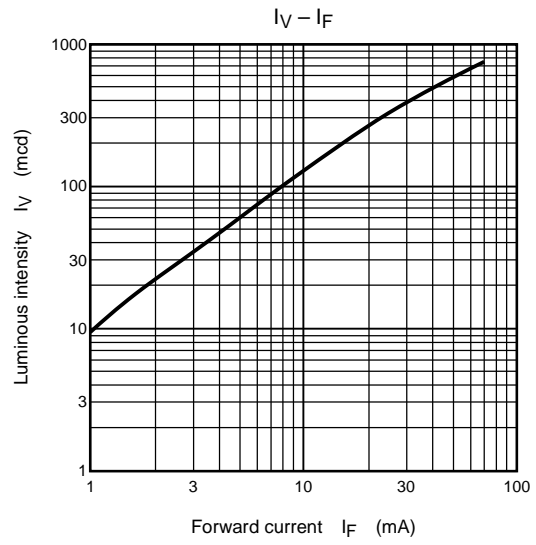
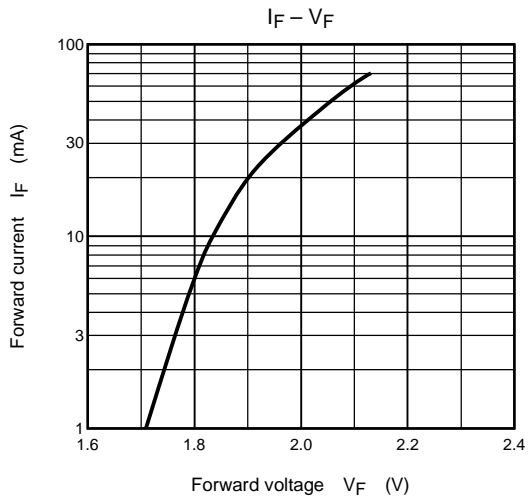
$I_V - I_F$

Luminous intensity I_V (mcd)

Forward current I_F (mA)

Relative luminous intensity

TLSH1100A

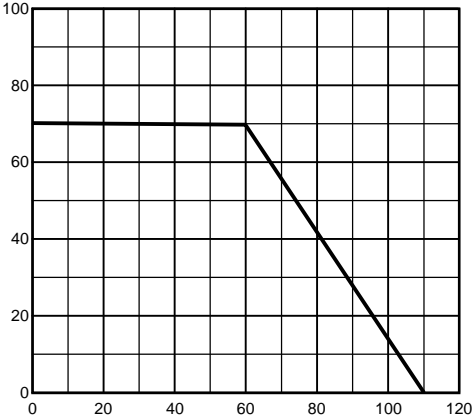


TLOH1100A

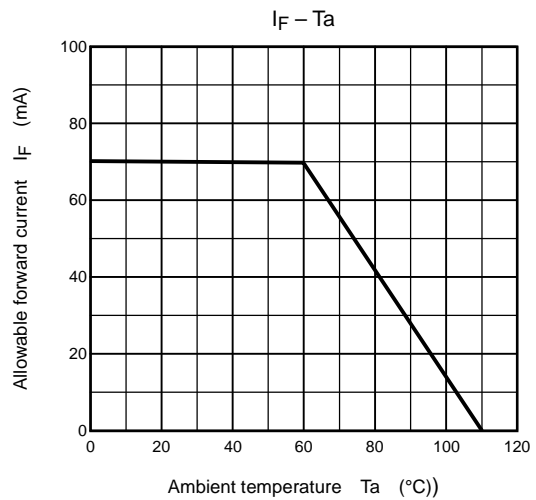
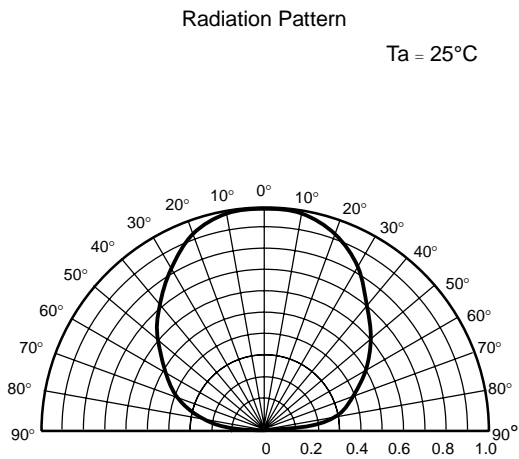
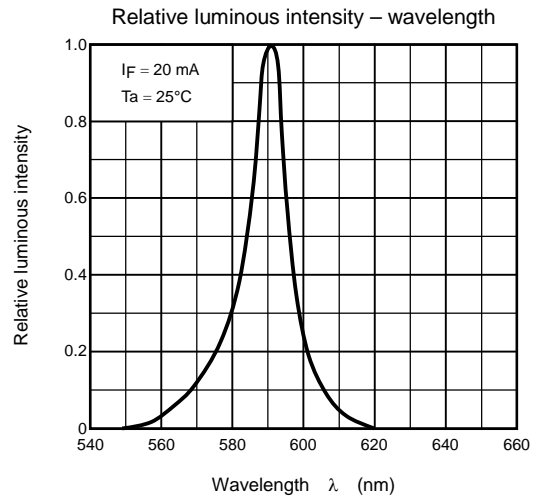
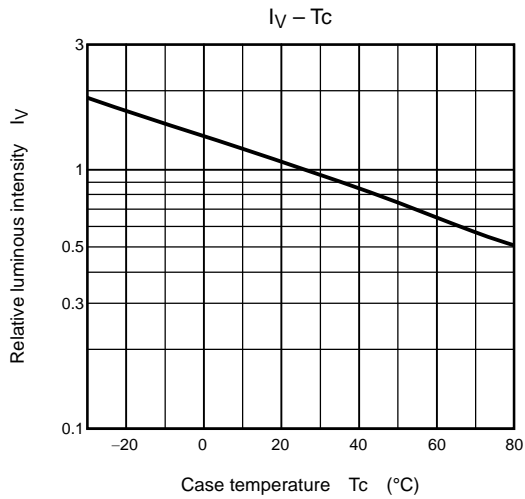
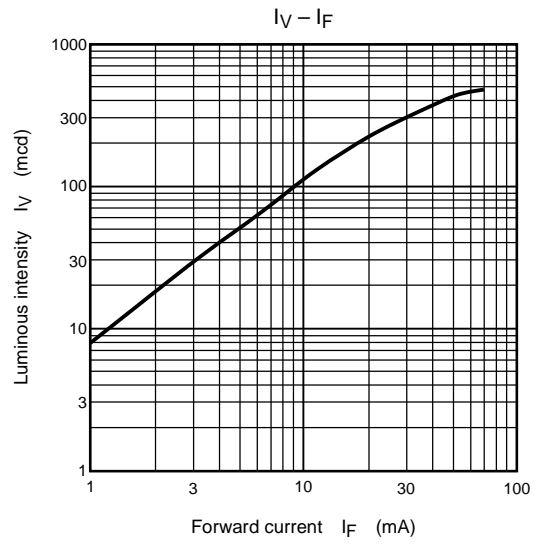
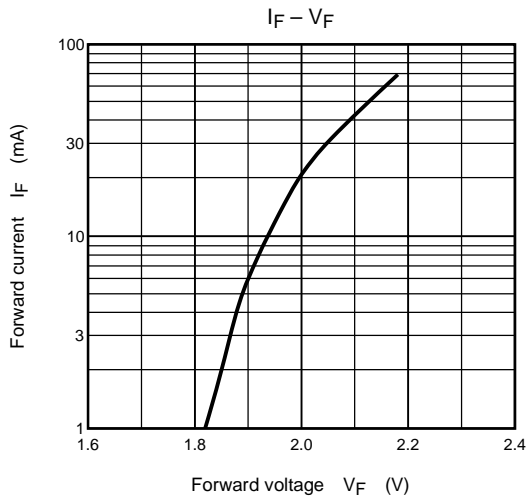
$I_F - V_F$

Forward voltage V_F (V)

Relative luminous intensity



TLYH1100A



Packaging

These LED devices are packed in an aluminum envelope with a silica gel and a moisture indicator to avoid moisture absorption. The optical characteristics of the devices may be affected by exposure to moisture in the air before soldering and they should therefore be stored under the following conditions:

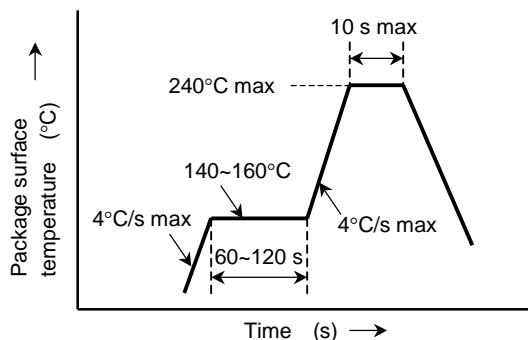
1. This moisture proof bag may be stored unopened within 12 months at the following conditions.
 Temperature: 5°C~30°C
 Humidity: 90% (max)
2. After opening the moisture proof bag, the devices should be assembled within 168 hours in an environment of 5°C to 30°C/60% RH or below.
3. If upon opening, the moisture indicator card shows humidity 30% or above (Color of indication changes to pink) or the expiration date has passed, the devices should be baked in taping with reel.
 After baking, use the baked devices within 72 hours, but perform baking only once.
 Baking conditions: 60±5°C, for 12 to 24 hours.
 Expiration date: 12 months from sealing date, which is imprinted on the same side as this label affixed.
4. Repeated baking can cause the peeling strength of the taping to change, then leads to trouble in mounting. Furthermore, prevent the devices from being destructed against static electricity for baking of it.
5. If the packing material of laminate would be broken, the hermeticity would deteriorate. Therefore, do not throw or drop the packed devices.

Mounting Method

Soldering

- Reflow soldering

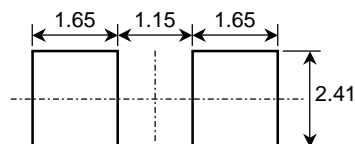
Temperature profile



- Please perform the first reflow soldering with reference to the above temperature profile and within 168 h of opening the package.
- Second reflow soldering
 In case of second reflow soldering should be performed within 168 h of the first reflow under the above conditions.
 Storage conditions before the second reflow soldering: 30°C, 60% RH max
- Make any necessary soldering corrections manually.
 (only once at each soldering point)
 Soldering iron: 25 W
 Temperature : 300°C or less
 Time : within 3 s

Recommended soldering pattern

Unit: mm



Cleaning

5. Packing display

(1) Packing quantity

Reel	2,000 pcs
Carton	10,000 pcs

(2) Packing form: Each reel is sealed in an aluminum pack with silica gel.

6. Label format

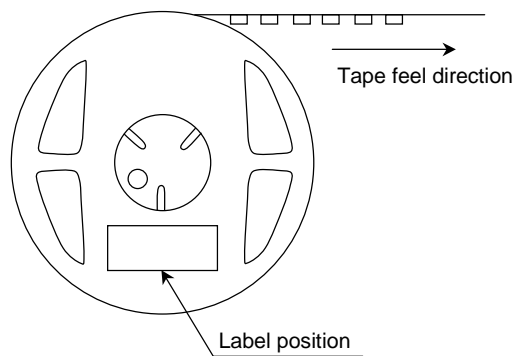
(1) Example: TLSH1100A (T11)

P/N:

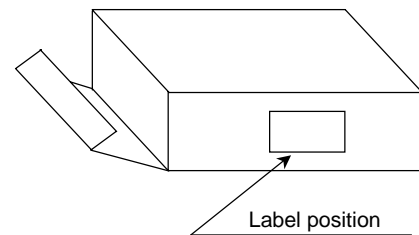
TYPE	TLSH1100A		
ADD.C	(T11)	Q'TY	2,000 pcs
NOTE (RANK SYMBOL)	Lot Number		

(2) Label location

• Reel



• Carton



- The aluminum package in which the reel is supplied also has the label attached to center of one side.

RESTRICTIONS ON PRODUCT USE

000707EAC

- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.