

TOSHIBA LED LAMP

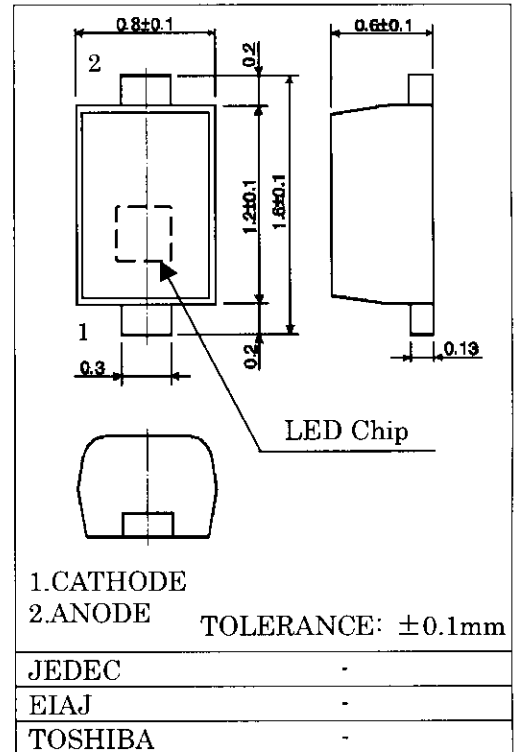
**TLRV1020(T14), TLSV1020(T14), TLOV1020(T14),  
TLYV1020(T14), TLGV1020(T14), TLP GV1020(T14)**

**TENTATIVE**

PANEL CIRCUIT INDICATOR

- Surface Mount Device
- 1.6(L) × 0.8(W) × 0.6(H)mm size
- InGaAlP LED
- High Luminous Intensity & Low power consumption
  - Recommendable driving conditions are 2mA and 5mA.
  - 2mA driving : General backlighting.
  - 5mA driving : High brightness applications.
- Suitable for backlighting.
- Color: Red, Orange, Yellow, Green, Pure Green
- Standard embossed taping
  - 4mm pitch: T14(4000pcs/ reel)
- Applications : Mobile phone  
Portable VCR , Camera  
Backlighting source for battery applications etc.

Unit in mm



Weight: 1.3mg

COLOR and MATERIAL

PRODUCT NAME	COLOR	MATERIAL
TLRV1020	Red	InGaAlP
TLSV1020	Red	InGaAlP
TLOV1020	Orange	InGaAlP
TLYV1020	Yellow	InGaAlP
TLGV1020	Green	InGaAlP
TLP GV1020	Pure Green	InGaAlP

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In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

●Gallium arsenate (GaAs) is a substance used in some of the products described in this documents. GaAs dust and fumes are toxic. Do not break, cut or pulverize the products, 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.

MAXIMUM RATINGS (Ta=25degC)

PRODUCT NAME	FORWARD CURRENT I <sub>F</sub> (mA)	REVERSE VOLTAGE V <sub>R</sub> (V)	POWER DISSIPATION P <sub>D</sub> (mW)	OPERATION TEMPERATURE T <sub>opr</sub> (°C)	STORAGE TEMPERATURE T <sub>stg</sub> (°C)
TLRV1020	(15)	4	(30)	-30~85	-40~100
TLSV1020			(30)		
TLOV1020			(30)		
TLYV1020			(30)		
TLGV1020			(30)		
TLPGV1020			(30)		

ELECTRICAL CHARACTERISTICS (Ta=25degC)

PRODUCT NAME	FORWARD VOLTAGE V <sub>F</sub>			REVERS CURRENT I <sub>R</sub>		
	MIN	TYP	MAX	I <sub>F</sub>	V <sub>R</sub>	
TLRV1020	—	2.0	2.3	5	10	4
TLSV1020	—	2.0	2.3			
TLOV1020	—	2.0	2.3			
TLYV1020	—	2.0	2.3			
TLGV1020	—	2.0	2.3			
TLPGV1020	—	2.0	2.3			
UNIT	V			mA	μA	V

OPTICAL CHARACTERISTICS -1(Ta=25degC)

This product has two tables for the luminosity specifications based on deferent forward current conditions. The standard is specified by 5mA and the 2MA specification are specified by 2mA. The 2MA specification is used for applications of low power consumption .

The following are product names

Standard specification (5mA type) : TLxV1020(T14)

2MA specification (2mA type) : TLxV1020(T14,2MA)

(1)Standard specification(5mA)

PRODUCT NAME	Luminous intensity I <sub>v</sub>			I <sub>F</sub>
	MIN	TYP	MAX	
TLRV1020	4.76	9	—	5
TLSV1020	8.5	30	—	
TLOV1020	8.5	38	—	
TLYV1020	8.5	25	—	
TLGV1020	4.76	14	—	
TLPGV1020	1.53	3.5	—	
UNIT	mcd			mA

(2) 2MA specification(2mA)

PRODUCT NAME	Luminous intensity I <sub>v</sub>			I <sub>F</sub>
	MIN	TYP	MAX	
TLRV1020	1.53	4	—	2
TLSV1020	4.76	12	—	
TLOV1020	4.76	14	—	
TLYV1020	4.76	9	—	
TLGV1020	2.72	7	—	
TLPGV1020	0.85	1.5	—	
UNIT	mcd			mA

OPTICAL CHARACTERISTICS -2(Ta=25degC)

PRODUCT NAME	EMISSION SPECTRUM							I <sub>F</sub>
	Peak Emission Wavelength $\lambda_p$			$\Delta\lambda$	Dominant Wavelength $\lambda_d$			
	MIN	TYP	MAX		MIN	TYP	MAX	
TLRV1020	—	644	—	17	—	630	—	5
TLSV1020	—	623	—	17	—	613	—	
TLOV1020	—	612	—	15	—	605	—	
TLYV1020	—	590	—	13	—	587	—	
TLGV1020	—	574	—	11	—	571	—	
TLPGV1020	—	562	—	11	—	558	—	
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.

[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 : 5~30degC
- Relative humidity : 60% max.
- Time : 168h

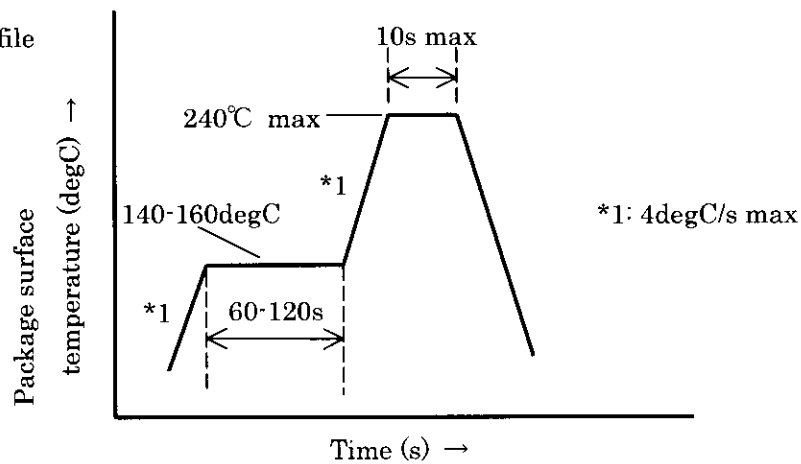
Backing is required if the device have been stored with unopened for more than 6months or if the aluminum envelope has been opened for more than 168h.

Recommended baking condition is 60degC for 12hour minimum in the dry atmosphere.

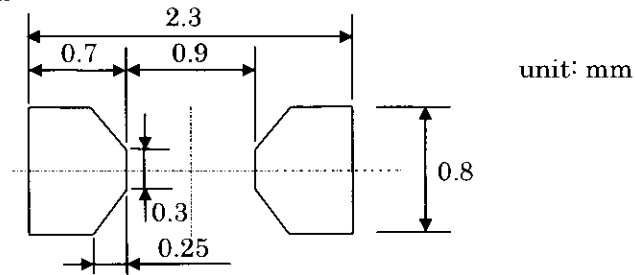
[SOLDERING]

Reflow soldering

Temperature profile



Recommended soldering pattern



Please perform the first reflow soldering within 168h after opening the package with reference to the above temperature profile.

Second time reflow soldering

In case of second time reflow soldering, it should be performed within 168h after first reflow under the above conditions.

Storage conditions before second reflow soldering : 30degC, 60%RH or lower

Do not perform flow soldering.

Recommended for manual soldering

- Soldering iron : Less than 25W
- Temperature : Lower than 300°C
- Time : Within 3s(Up to 1 time per place)

[CLEANING]

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

Cleaning solvents: AK225 or Alcohol

Temperature : 50degC(max) for 30s(max) or 30degC(max) for 3min(max)

Ultrasonic : 300W max.

[PRECAUTION FOR MOUNTING]

Do not apply force to the plastic part of the LED in high temperature conditions.

Do not apply friction using a 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. Work environment

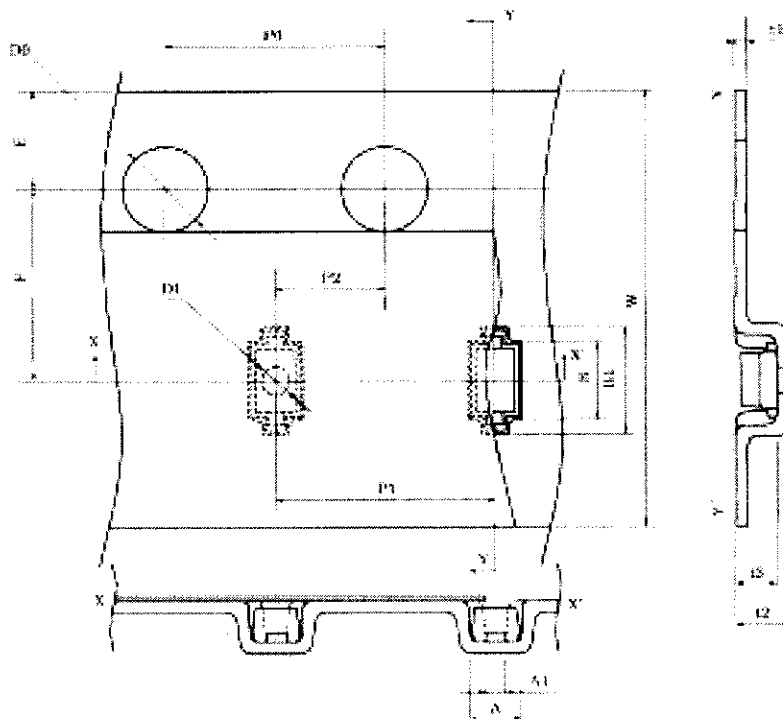
- In process, taping materials may sustain an electrostatic charge, use an ionizer to neutralize the ions.
- For transport and temporary storage of devices, use containers(boxes, jigs, bags)that are made of anti-static materials or of materials that dissipate electrostatic electricity.

2. Dimensions of tape

(unit: mm)

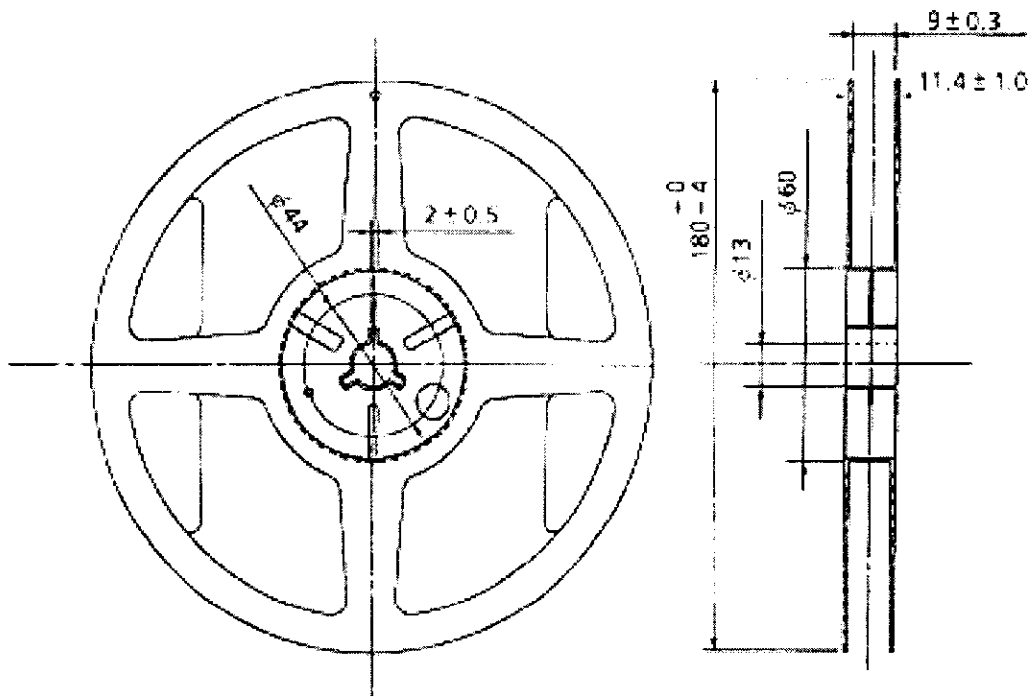
Item	Symbol	Value	Tolerance
Carrier tape	Width	W	8.0 ±0.2
	Thickness	t1	0.2 ±0.05
Feed hole	Diameter	D0	1.55 ±0.1
	Pitch	P0	4.0 ±0.1
	Position	E	1.75 ±0.1
Distance from center line	Vertical direction(1)	P1	4.0 ±0.1
	Vertical direction(2)	P2	2.0 ±0.1
	Horizontal direction	F	3.5 ±0.1

Item	Symbol	Value	Tolerance
Length	B1	1.85	±0.05
	B	1.3	±0.05
Width	A	0.9	±0.05
	A1	0.4	±0.05
Depth	t2	(0.85)	
	t3	0.7	±0.05
Diameter of mark hole	D1	0.5	±0.1

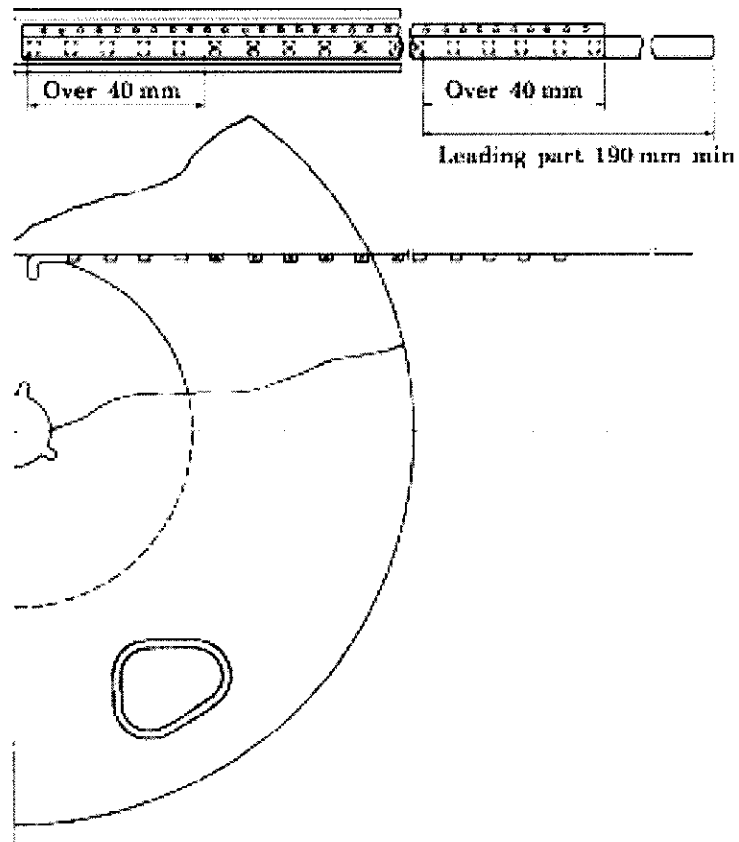


3. Dimension of reel  
[Reel]

unit: mm



[Leading part]



4. Packing display

(1) Packing quantity

Reel	4000pcs
Carton	20000pcs

(2) Packing form Silica-gel and a reel are sealed in an aluminum pack.

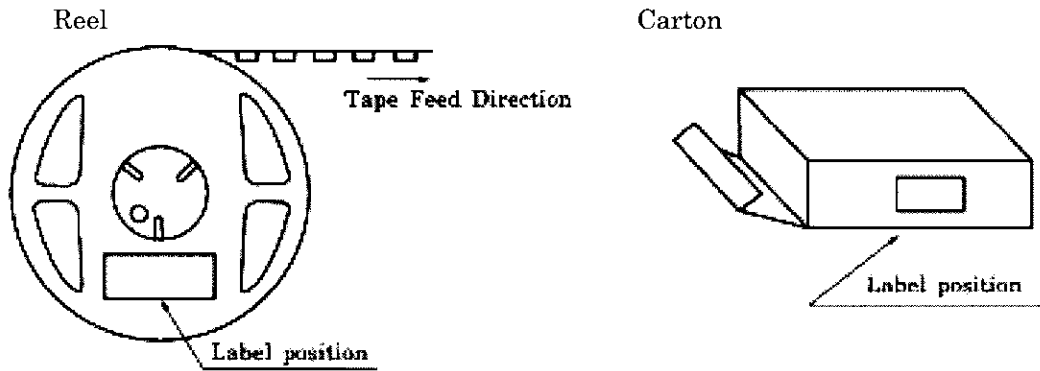
(3) Display method

Example: TLSV1020(T14)

P/N:

TYPE	TLSV1020		
ADD.C	(T14)	QTY.	4000pcs
NOTE	(RANK SYMBOL)		Lot Number

(4) Label location



Aluminum pack: Attached to center of one side