



SPECIFICATION FOR APPROVAL

Customer Name

Customer Part No. \varnothing 5mm Round Red LED

Part No. TL-BUD334-45

No. 2019043003

AUTHORIZED BY	CHECK BY	VALIDATED BY

Dongguan City Optoelectronics Co.,LTD

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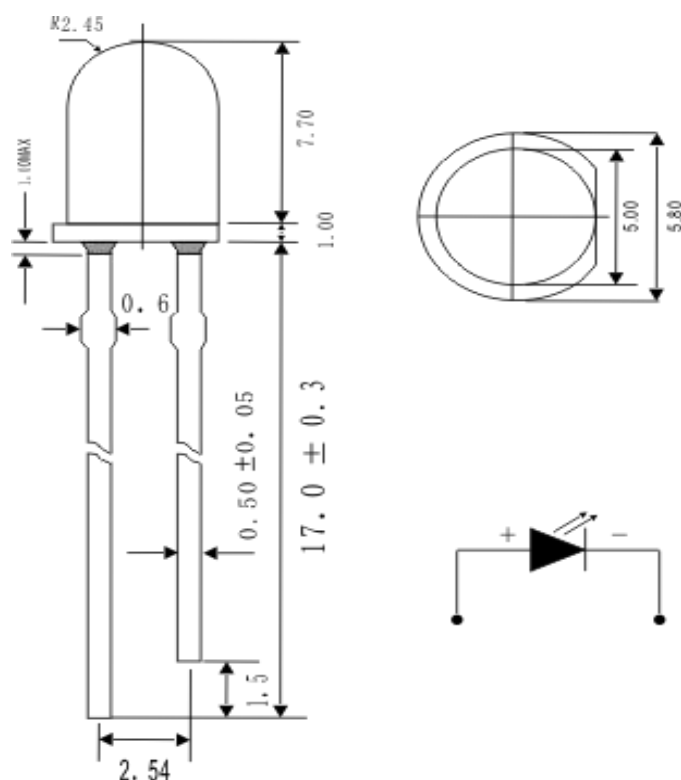
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Features:

- Part No: TL-BUD334-45
- Lens Color: Water Clear
- Source Color: Super Bright Red
- Pb free product—RoHS compliant
- Low power consumption, High efficiency
- Wide viewing angle, High intensity
- I.C. compatible/low current requirement
- Versatile mounting on p.c. board or pannel
- General purpose leads

Package Dimension:



Notes:

1. All dimensions are in millimeters .
2. Tolerance is ±0.10mm unless otherwise noted.
3. Protruded resin under flange is 1.0mm max
4. Lead spacing is measured where the leads emerge from the package.
5. Caution in ESD:

Static Electricity and surge damages the LED. It is recommend to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.

Absolute Maximum Ratings at Ta=25℃

Parameter	MAX.	Unit
Power Dissipation	80	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	100	mA
Continuous Forward Current	30	mA
Derating Linear From 50℃	0.4	mA/℃
Reverse Voltage	5	V
Electrostatic Discharge(HBM) ESD	2000	V
Operating Temperature Range	-40℃ to +85℃	
Storage Temperature Range	-40℃ to +100℃	
Lead Soldering Temperature [4mm(.157") From Body]	260℃ for 5 Seconds	

Electrical Optical Characteristics at Ta=25℃

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	6000	---	9000	mcd	If=25mA (Note 1)
Viewing Angle	2θ _{1/2}	---	45	---	Deg	(Note 2)
Dominant Wavelength	λ _d	620	625	630	nm	IF=25mA (Note 3)
Forward Voltage	VF	1.8	---	2.4	V	IF=25mA
Reverse Current	IR	---	---	5	μA	VR=5V

Note:

- 1.Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
- 2.θ_{1/2} is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
- 3.The dominant wavelength(λ_d)is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

● Reliability Test

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS-C-7021 :B-1	Connect with a power $I_f=20\text{mA}$ $T_a=\text{Under room temperature}$ Test time=1,000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS-C-7021 :B-11	$T_a=+65^{\circ}\text{C}\pm 5^{\circ}\text{C}$ $\text{RH}=90\%-95\%$ Test time=240hrs	0/20
	High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High $T_a=+85^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Test time=1,000hrs	0/20
	Low Temperature Storage	JIS-C-7021 :B-12	Low $T_a=-35^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Test time=1,000hrs	0/20
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS-C-7021 :A-4	$-35^{\circ}\text{C} \sim +25^{\circ}\text{C} \sim +85^{\circ}\text{C} \sim +25^{\circ}\text{C}$ 60min 20min 60min 20min Test Time=5cycle	0/20
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	$35^{\circ}\text{C}\pm 5^{\circ}\text{C} \sim +85^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 20min 20min Test Time=10cycle	0/20
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS-C-7021 :A-1	Preheating : $140^{\circ}\text{C} - 160^{\circ}\text{C}$, within 2 minutes. Operation heating : 235°C (Max.), within 10seconds.	0/20

● Judgment criteria of failure for the reliability

Measuring items	Symbol	Measuring conditions	Judgement criteria for failure
Forward voltage	V_F (V)	$I_f=25\text{mA}$	Over $U \times 1.2$
Reverse current	I_R (uA)	$V_R=5\text{V}$	Over $U \times 2$
Luminous intensity	I_v (mcd)	$I_f=25\text{mA}$	Below $S \times 0.5$

Notes:

- 1.U means the upper limit of specified characteristics. S means initial value.
- 2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

Soldering :

1. Manual Of Soldering

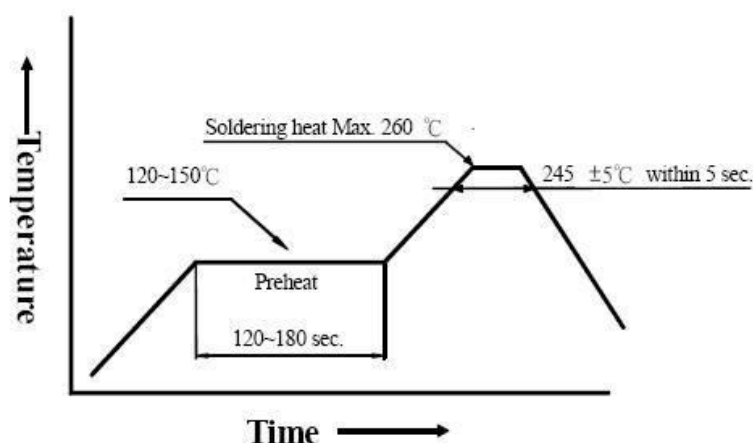
The temperature of the iron tip should not be higher than 300°C(572°F) and Soldering within 3 seconds per solder-land is to be observed.

2. Reflow Soldering

Preheating : 140°C~160°C±5°C, within 2 minutes.

Operation heating : 235°C(Max.) within 10 seconds.(Max)

Gradual Cooling (Avoid quenching).

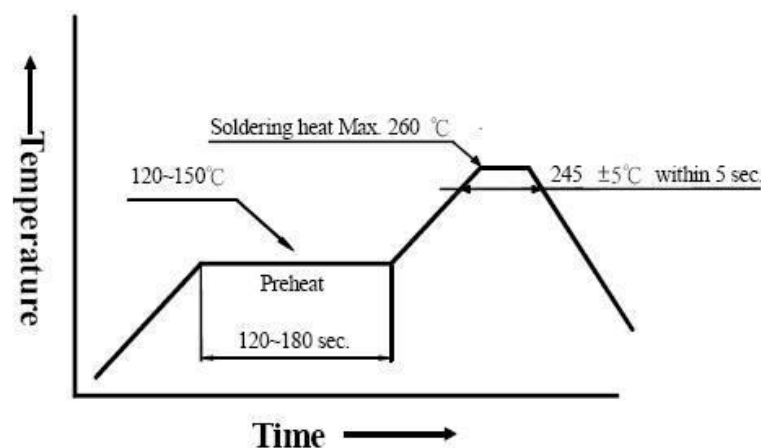


3. DIP soldering (Wave Soldering) :

Preheating : 120°C~150°C, within 120~180 sec.

Operation heating : 245°C±5°C within 5 sec. 260°C (Max)

Gradual Cooling (Avoid quenching).



● Handling :

Care must be taken not to cause to the epoxy resin portion of TONGCAN LEDs while it is exposed to high temperature.

Care must be taken not rub the epoxy resin portion of TONGCAN LEDs with hard or sharp article suchas the sand blast and the metal hook.

● Notes for designing:

Care must be taken to provide the current limiting resistor in the circuit so as to drive the TONGCAN LEDs within the rated figures. Also, caution should be taken not to overload TONGCAN LEDs with instantaneous voltage at the turning ON and OFF of the circuit.

When using the pulse drive care must be taken to keep the average current within the rated figures.

Also, the circuit should be designed so as be subjected to reverse voltage when turning off the TONGCAN LEDs.

● Storage:

In order to avoid the absorption of moisture, it is recommended to solder TONGCAN LEDs as soon as possible after unpacking the sealed envelope.

If the envelope is still packed, to store it in the environment as following:

(1) Temperature : 5°C-30°C(41°F) Humidity : RH 60 % Max.

(2) After this bag is opened, devices that will be applied to infrared reflow, vapor-phase reflow, or equivalent soldering process must be:

a. Completed within 24 hours.

b. Stored at less than 30% RH.

(3) Devices require baking before mounting, if:

(4) a or (2) b is not met.

(5) If baking is required, devices must be baked under below conditions:

(6) hours at 60°C±3°C.

● Package and Label of Products:

1) Package: Products are packed in one bag of 1000 pcs (one taping reel) and a label is attached on each bag.