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## LITEON would like to Change Package Design from 1BE to 1DE

### Description of Change:

LITEON-OPTO TH lamp product: Design of 1BE package will be changed to design of 1DE package. Please see detail information in below table.

	Current Design	New Design
Series Name	1BE Lamp	1DE Lamp
Outline Dimension		
Optical & Electrical	<b>Keep same specification</b>	
Flange Cutting Edge		



# Product Change Notice

Product Group: Lamp product/ Aug.20.2021 / PCN-210820-01\_Rev 1

## Products Affected:

Product Series Number			
LTL1BEA4JLC	LTL-1BEGYJRP2	LTL1BEKVJNN-002A	LTL1BETBYJR5
LTL1BEA4JLCH233	LTL-1BEGYJRP3	LTL1BEKVJNN-012A	LTL1BETBYJR5-112A
LTL1BECBEK5	LTL-1BEHJ	LTL1BEKVJNN-ADB	LTL1BETGEJ-7A
LTL1BECBEK5P1	LTL-1BEHJ-002A	LTL1BEKVJNNP2	LTL1BETGEJ-7A-012A
LTL1BECBEKS5	LTL-1BEHJ-012	LTL1BEKVJNN-RE	LTL1BETGELJ
LTL1BECBEKS5-112A	LTL-1BEHJ-012A	LTL1BEKVJP1	LTL1BETGELJH131
LTL1BECBYJ	LTL-1BEHJ-042A	LTL1BEKVJP2	LTL1BETGFLJ
LTL1BECBYJ4	LTL-1BEHJ-052	LTL1BEM2H188	LTL1BETGFLJH185
LTL1BECBYJ4P	LTL-1BEHJ-052A	LTL1BEM3H188	LTL1BETGSNJ
LTL1BECBYJR4	LTL-1BEHJ-0B2	LTL1BEM6H188	LTL1BEUBFJ
LTL1BECBYJR4-112A	LTL-1BEHJH144	LTL1BEM7H188	LTL1BEUBFJP
LTL-1BEDJ	LTL-1BEHJH144-TH	LTL1BERYDJ	LTL-1BEVPK
LTL-1BEDJ-012	LTL-1BEHJH185	LTL1BERYDJH149	LTL-1BEVPKM
LTL-1BEDJ-012A	LTL-1BEHJM	LTL1BESTBKJH185P	LTL-1BEVPKM08A
LTL-1BEDJ-0B2	LTL-1BEHJP1	LTL1BESTBKJH185T	LTL-1BEWJ
LTL-1BEDJ-0C2	LTL-1BEHJP2	LTL1BESTBKJ-HF	LTL-1BEWJ-012
LTL-1BEDJ-1	LTL-1BEHJ-PBF	LTL1BESTBKJP	LTL-1BEWJH149
LTL-1BEDJ2H188	LTL-1BEHJR	LTL1BETBEFJALC	LTL-1BEWJH194R
LTL-1BEDJH131	LTL-1BEHJR-DL	LTL1BETBEFJALCP1	LTL-1BEWJH233
LTL-1BEDJH185	LTL-1BEHJ-RE	LTL1BETBEFJALCP1DG	LTL-1BEWJ-HF
LTL-1BEDJP1	LTL-1BEHJ-SS	LTL1BETBEK5H149	LTL-1BEWJM1H188
LTL-1BEDJP2	LTL-1BEHKV	LTL1BETBEK5H149-WN	LTL-1BEWJP06C
LTL-1BEDJP3	LTL-1BEHKVMP1	LTL1BETBEK5-HF	LTL-1BEWJP1
LTL-1BEDJP4	LTL1BEKBK	LTL1BETBEMK	LTL-1BEWJR-HF
LTL-1BEDJP6	LTL1BEKGFJ	LTL1BETBEMKH149	LTL-1BEWJR-HFP1
LTL-1BEDJP7	LTL1BEKGFJH149	LTL1BETBFNJK	LTL-1BEWRJS
LTL-1BEDJP8	LTL1BEKGFJM1H188	LTL1BETBFNJK-052A	LTL-1BEWRJS-012
LTL-1BEFJ	LTL1BEKGFJP1	LTL1BETBLD	LTL-1BEY6JLC
LTL-1BEFJ-002A	LTL1BEKGFJP2	LTL1BETBRMJLC	LTL-1BEY6JLCH233
LTL-1BEFJ-PBF	LTL1BEKGSJ	LTL1BETBRMJLCH233	LTW-1BEEDNJCA
LTL-1BEFJ-RE	LTL1BEKGYJ	LTL1BETBRMJLCH263	LTW-1BEEDNJCAH131
LTL1BEGRFJ	LTL1BEKVJ	LTL1BETBRMJLCP1	LTW-1BEEDNJZ
LTL1BEGRFJP1	LTL1BEKVJH131	LTL1BETBYA7J	LTW-1BETBKJLC
LTL-1BEGYJ	LTL1BEKVJH159	LTL1BETBYA7J-012A	LTW-1BETBKJLCP1
LTL-1BEGYJP1	LTL1BEKVJH199	LTL1BETBYA7J-RE	LTW-1BETBKJLCP2
LTL-1BEGYJP2	LTL1BEKVJM1H188	LTL1BETBYJ4H188	
LTL-1BEGYJR	LTL1BEKVJM2H188	LTL1BETBYJ4-HF	
LTL-1BEGYJRP1	LTL1BEKVJNN	LTL1BETBYJ4-HFH188	



# Product Change Notice

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## Reason for Change:

To enhance the strength of package mechanism structure:

1. Flange Cutting Edge: As above drawing
2. Flange Thickness: 1.0mm → 1.5mm
3. Main Body Diameter: 3.0mm → 3.1mm

## New Sample Availability:

Start from Sep.30.2021

## Last Time Buy Date:

Feb.28.2022 (Negotiable)

## Last Shipment Date:

Apr.30.2022 (Negotiable)

If there are no objections or requests for additional information received from our customers, then we assume approval for the proposed changes and can ship our product at the company discretion.

**Through Hole Lamp**  
**LTL-1DEDJ**  
**Preliminary Ver:P001**

# Through Hole Lamp

## LTL-1DEDJ

<u>Rev</u>	<u>Description</u>	<u>By</u>	<u>Date</u>
P001	Preliminary SPEC(RDR-20210725)	Lance	08/03/2021
Above data for PD and Customer tracking only			

## Through Hole Lamp LTL-1DEDJ Preliminary Ver:P001

### 1. Description

Through hole LEDs are offered in a variety of packages such as 3mm, 4mm, 5mm, rectangular, and cylinder which are suitable for all applications requiring status indication. Several intensity and viewing angle choices are available in each color for design flexibility.

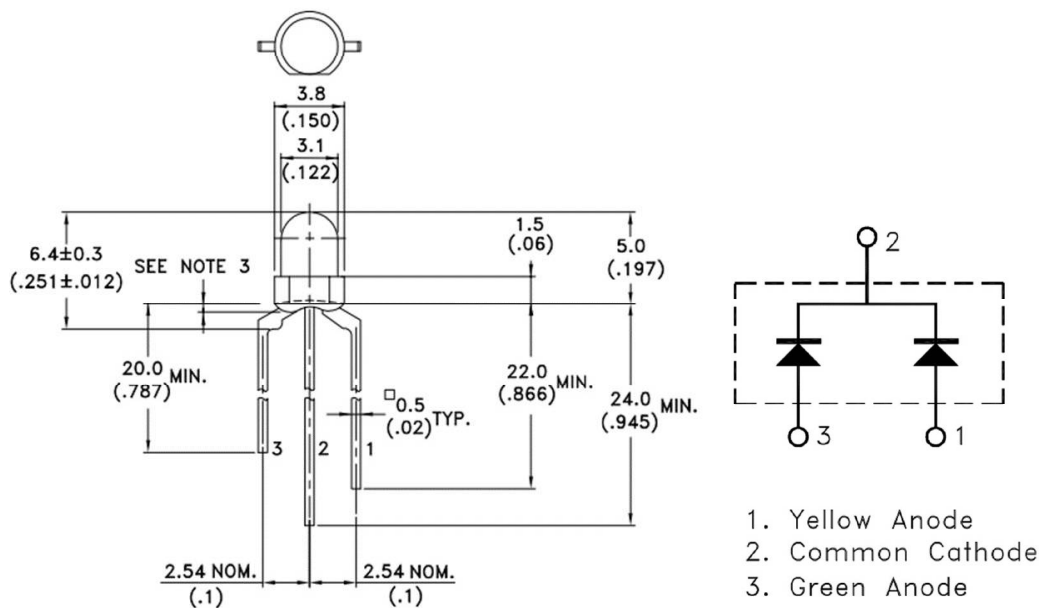
#### 1.1. Features

- Low power consumption & High efficiency
- Lead free & RoHS Compliant
- Popular T-1 diameter
- Yellow / Green Lamp & White Diffused lens.

#### 1.2. Applications

- Communication
- Computer
- Consumer
- Home appliance

### 2. Outline Dimensions



#### Notes :

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25mm (.010") unless otherwise noted.
3. Protruded resin under flange is 1.0mm (.04") max.
4. Lead spacing is measured where the leads emerge from the package.
5. Specifications are subject to change without notice.

## Through Hole Lamp LTL-1DEDJ Preliminary Ver:P001

### 3. Absolute Maximum Ratings at TA=25°C

Parameter	Yellow	Green	Unit
Power Dissipation	75	75	mW
Peak Forward Current (Duty Cycle ≤ 1/10, Pulse Width ≤ 10 μs)	60	60	mA
DC Forward Current	30	30	mA
Operating Temperature Range	-40°C to + 85°C		
Storage Temperature Range	-40°C to + 100°C		
Lead Soldering Temperature [2.0mm(.0787") From Body]	260°C for 5 Seconds Max.		

### 4. Electrical / Optical Characteristics at TA=25°C

Parameter	Symbol	Color	Min.	Typ.	Max.	Unit	Test Condition
Radiant Intensity	I <sub>v</sub>	Yellow	23		110	mcd	IF = 20mA Note 1,4
		Green	23		110		
Viewing Angle	2θ <sub>1/2</sub>	Yellow		75		deg	Note 2 (Fig.6)
		Green		75			
Peak Emission Wavelength	λ <sub>P</sub>	Yellow		591		nm	Measurement @Peak (Fig.1)
		Green		570			
Dominant Wavelength	λ <sub>d</sub>	Yellow		590		nm	Note 3
		Green		568			
Spectral Line Half-Width	Δλ	Yellow		25		nm	
		Green		30			
Forward Voltage	V <sub>F</sub>	Yellow		2.0	2.5	V	IF = 20mA
		Green		2.0	2.5		
Reverse Current	I <sub>R</sub>	Yellow Green			100	μA	V <sub>R</sub> = 5V Note 6

#### NOTES:

- Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
- θ<sub>1/2</sub> is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
- I<sub>v</sub> classification code is marked on each packing bag.
- The dominant wavelength, λ<sub>d</sub> is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
- I<sub>v</sub> guarantee must be included with ±15% testing tolerance.
- Reverse voltage (V<sub>R</sub>) condition is applied for I<sub>R</sub> test only. The device is not designed for reverse operation.

Through Hole Lamp  
LTL-1DEDJ

Preliminary Ver:P001

5. Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

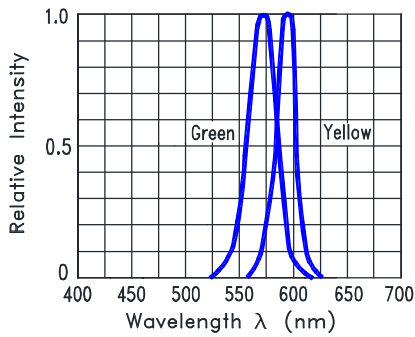


Fig.1 Relative Intensity VS. Wavelength

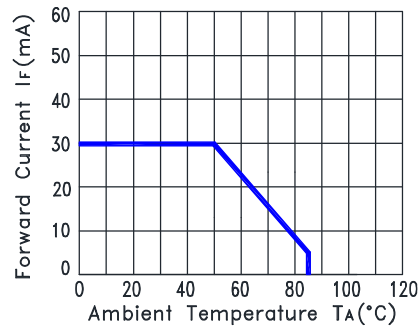


Fig.2 Forward Current Derating Curve

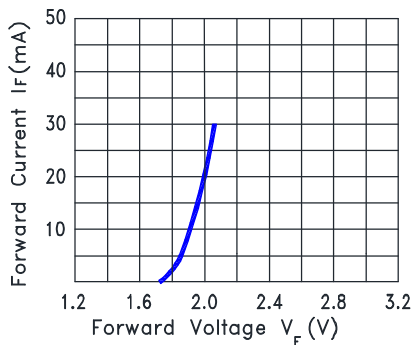


Fig.3 Forward Current vs. Forward Voltage

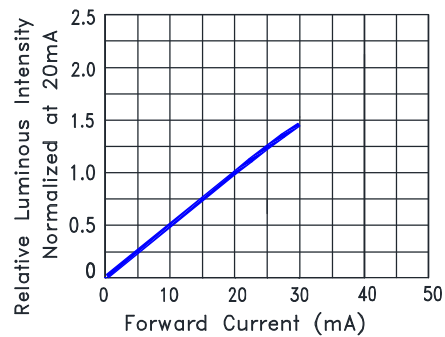


Fig.4 Relative Luminous Intensity vs. Forward Current

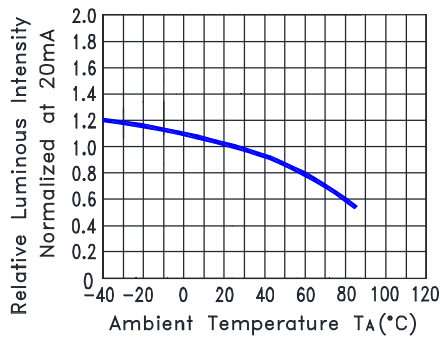


Fig.5 Relative Luminous Intensity vs. Ambient Temperature

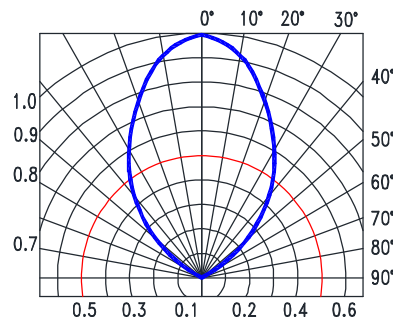
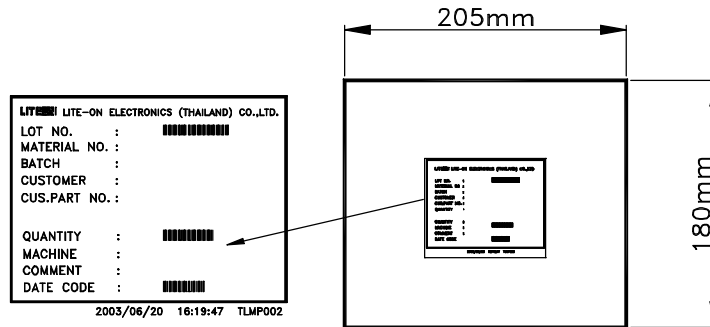


Fig.6 Spatial Distribution

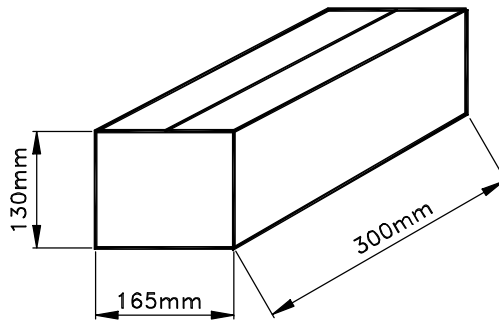
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**LTL-1DEDJ**  
**Preliminary Ver:P001**

**6. Packing Spec.**

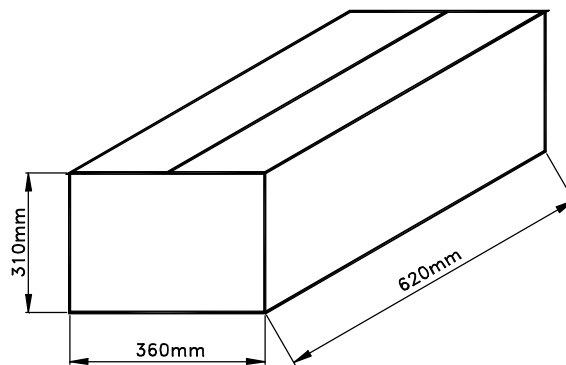
500 or 200,100 pcs per packing bag



10 packing bags per Inner carton  
Total 5,000 pcs per Inner carton



8 inner cartons per outer carton  
Total 40,000 pcs per outer carton  
In every shipping lot, only the last pack will be non-full packing





**Through Hole Lamp**  
**LTL-1DEDJ**  
**Preliminary Ver:P001**

**7. Bin Table Specification**

Luminous Intensity Unit : mcd @20mA					
Yellow			Green		
Bin Code	Min.	Max.	Bin Code	Min.	Max.
3ZA	23	38	3ZA	23	38
BC	38	65	BC	38	65
DE	65	110	DE	65	110

Note: Tolerance of each bin limit is  $\pm 30\%$

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**Preliminary Ver:P001**

**8. CAUTIONS**

**8.1. Application**

This LED lamp is good for application of indoor and outdoor sign, also ordinary electronic equipment.

**8.2. Storage**

The storage ambient for the LEDs should not exceed 30°C temperature or 70% relative humidity. It is recommended that LEDs out of their original packaging are used within three months. For extended storage out of their original packaging, it is recommended that the LEDs be stored in a sealed container with appropriate desiccant or in desiccators with nitrogen ambient.

**8.3. Cleaning**

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LEDs if necessary.

**8.4. Lead Forming & Assembly**

During lead forming, the leads should be bent at a point at least 3mm from the base of LED lens. Do not use the base of the lead frame as a fulcrum during forming. Lead forming must be done before soldering, at normal temperature. During assembly on PCB, use minimum clinch force possible to avoid excessive mechanical stress.

**8.5. Soldering**

When soldering, leave a minimum of 2mm clearance from the base of the lens to the soldering point. Dipping the lens into the solder must be avoided. Do not apply any external stress to the lead frame during soldering while the LED is at high temperature.

**Recommended soldering conditions:**

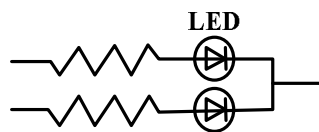
Soldering iron		Wave soldering	
Temperature	350°C Max.	Pre-heat	100°C Max.
Soldering time	3 seconds Max. (one time only)	Pre-heat time	60 seconds Max.
Position	No closer than 2mm from the base of the epoxy bulb	Solder wave	260°C Max.
		Soldering time	5 seconds Max.
		Dipping Position	No lower than 2mm from the base of the epoxy bulb

Note: Excessive soldering temperature and/or time might result in deformation of the LED lens or catastrophic failure of the LED. IR reflow is not suitable process for through hole type LED lamp product.

**8.6. Drive Method**

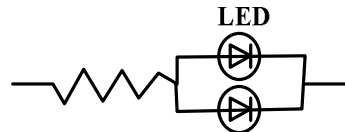
An LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.

**Circuit model (A)**



(A) Recommended circuit

**Circuit model (B)**



(B) The brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs.

**8.7. ESD (Electrostatic Discharge)**

## Through Hole Lamp LTL-1DEDJ

Preliminary Ver:P001

**Static Electricity or power surge will damage the LED.**

**Suggestions to prevent ESD damage:**

- Use a conductive wrist band or anti- electrostatic glove when handling these LEDs
- All devices, equipment, and machinery must be properly grounded
- Work tables, storage racks, etc. should be properly grounded
- Use ion blower to neutralize the static charge which might have built up on surface of the LEDs plastic lens as a result of friction between LEDs during storage and handing

**Suggested checking list:**

**Training and Certification**

- 8.7.1.1. Everyone working in a static-safe area is ESD-certified?
- 8.7.1.2. Training records kept and re-certification dates monitored?

**Static-Safe Workstation & Work Areas**

- 8.7.2.1. Static-safe workstation or work-areas have ESD signs?
- 8.7.2.2. All surfaces and objects at all static-safe workstation and within 1 ft measure less than 100V?
- 8.7.2.3. All ionizer activated, positioned towards the units?
- 8.7.2.4. Each work surface mats grounding is good?

**Personnel Grounding**

- 8.7.3.1. Every person (including visitors) handling ESD sensitive (ESDS) items wear wrist strap, heel strap or conductive shoes with conductive flooring?
- 8.7.3.2. If conductive footwear used, conductive flooring also present where operator stand or walk?
- 8.7.3.3. Garments, hairs or anything closer than 1 ft to ESD items measure less than 100V\*?
- 8.7.3.4. Every wrist strap or heel strap/conductive shoes checked daily and result recorded for all DLs?
- 8.7.3.5. All wrist strap or heel strap checkers calibration up to date?

Note: \*50V for Blue LED.

**Device Handling**

- 8.7.4.1. Every ESDS items identified by EIA-471 labels on item or packaging?
- 8.7.4.2. All ESDS items completely inside properly closed static-shielding containers when not at static-safe workstation?
- 8.7.4.3. No static charge generators (e.g. plastics) inside shielding containers with ESDS items?
- 8.7.4.4. All flexible conductive and dissipative package materials inspected before reuse or recycle?

**Others**

- 8.7.5.1. Audit result reported to entity ESD control coordinator?
- 8.7.5.2. Corrective action from previous audits completed?
- 8.7.5.3. Are audit records complete and on file?

**Through Hole Lamp**  
**LTL-1DEDJ**  
**Preliminary Ver:P001**

**9. Reliability Test**

Classification	Test Item	Test Condition	Sample Size	Reference Standard
Endurance Test	Operation Life	Ta = Under room temperature IF = per datasheet maximum drive current Test Time= 1000hrs	22 PCS (CL=90%; LTPD=10%)	MIL-STD-750D:1026 (1995) MIL-STD-883G:1005 (2006)
	High Temperature High Humidity storage	Ta = 60°C RH = 90% Test Time= 240hrs	22 PCS (CL=90%; LTPD=10%)	MIL-STD-202G:103B (2002) JEITA ED-4701:100 103 (2001)
	High Temperature Storage	Ta= 105 ± 5°C Test Time= 1000hrs	22 PCS (CL=90%; LTPD=10%)	MIL-STD-750D:1031 (1995) MIL-STD-883G:1008 (2006) JEITA ED-4701:200 201 (2001)
	Low Temperature Storage	Ta= -55 ± 5°C Test Time= 1000hrs	22 PCS (CL=90%; LTPD=10%)	JEITA ED-4701:200 202 (2001)
Environmental Test	Temperature Cycling	100°C ~ 25°C ~ -40°C ~ 25°C 30mins 5mins 30mins 5mins 30 Cycles	22 PCS (CL=90%; LTPD=10%)	MIL-STD-750D:1051 (1995) MIL-STD-883G:1010 (2006) JEITA ED-4701:100 105 (2001) JESD22-A104C (2005)
	Thermal Shock	100 ± 5°C ~ -30°C ± 5°C 15mins 15mins 30 Cycles (<20 secs transfer)	22 PCS (CL=90%; LTPD=10%)	MIL-STD-750D:1056 (1995) MIL-STD-883G:1011 (2006) MIL-STD-202G:107G (2002) JESD22-A106B (2004)
	Solder Resistance	T.sol = 260 ± 5°C Dwell Time= 10±1 seconds 3mm from the base of the epoxy bulb	11 PCS (CL=90%; LTPD=18.9%)	MIL-STD-750D:2031(1995) JEITA ED-4701: 300 302 (2001)
	Solderability	T. sol = 245 ± 5°C Dwell Time= 5 ± 0.5 seconds (Lead Free Solder, Coverage ≥ 95% of the dipped surface)	11 PCS (CL=90%; LTPD=18.9%)	MIL-STD-750D:2026 (1995) MIL-STD-883G:2003 (2006) MIL-STD-202G:208H (2002) IPC/EIA J-STD-002 (2004)
	Soldering Iron	T. sol = 350 ± 5°C Dwell Time= 3.5 ± 0.5 seconds	11 PCS (CL=90%; LTPD=18.9%)	MIL-STD-202G:208H (2002) JEITA ED-4701:300 302 (2001)

**10. Others**

The appearance and specifications of the product may be modified for improvement, without prior notice.