Product Change Notice

Product Group: Lamp product/ Aug, 2022 / **PCN-22-0824-01_Rev 01**

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LITEON TH Lamp Change Specification of LTL-307A

Description of the Change:

LiteON-OPTO TH lamp would like to update luminous intensity value in datasheet of LTL-307A refer to new dice performance due to original dice supplier OPTOTECH stopped supplying original dice.

Original DS for LTL-307A

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	8.7	29		mcd	I_F = 10mA Note 1,4

New DS for LTL-307A

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	12.6	40		mcd	I_F = 10mA Note 1,5

Reason for Change:

Please refer to PCN-20-1106-02_Rev 04, OPTOTECH stopped supplying original dice, so we updated the luminous intensity for LTL-307A based on the new dice performance.

Affected Part numbers:

LTL-307A

Updated Datasheet:

Available

Effective Date:

Aug 24, 2022

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-307A

Rev	Description	By	Date
Above data for PD and Customer tracking only			
-		MH Lee	07/04/2000
A	New Format	BoRui	08/19/2022

Through Hole Lamp
LTL-307A

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.

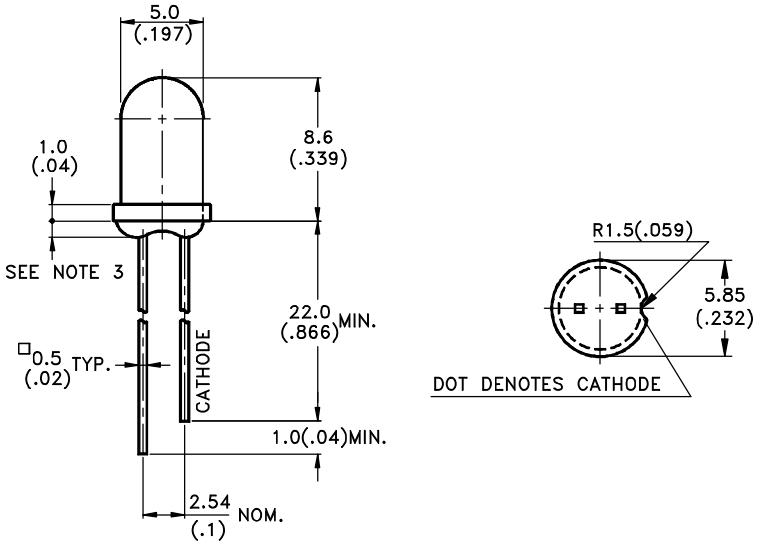
1. 1. Features

- Lead (Pb) free product – RoHS compliant.
- High luminous intensity output.
- Low power consumption.
- High efficiency.
- Versatile mounting on P.C. Board or panel.
- I.C. Compatible/low current requirement.
- Popular T-13/4 diameter.
- AlInGaP Amber Lamp & Amber diffused Lens

1.2. Applications

- Communication
- Computer
- Consumer
- Home appliance
- Industrial

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.

3. Absolute Maximum Ratings at TA=25°C

Parameter	Maximum Rating	Unit
Power Dissipation	60	mW
Peak Forward Current (Duty Cycle≦1/10, Pulse Width≦10 μs)	60	mA
DC Forward Current	20	mA
Operating Temperature Range	-40°C to + 85°C	
Storage Temperature Range	-40°C to + 100°C	
Lead Soldering Temperature [2.0mm (.079") From Body]	260°C for 5 Seconds Max.	

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	I_V	12.6	40		mcd	I_F = 10mA Note 1,5
Viewing Angle	$2\theta_{1/2}$		50		deg	Note 2 (Fig.6)
Peak Emission Wavelength	λ_P		610		nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λ_d		602		nm	Note 4
Spectral Line Half-Width	$\Delta\lambda$		35		nm	
Forward Voltage	V_F		2.0	2.6	V	I_F = 20mA
Reverse Current	I_R			100	μA	V_R = 5V, Note 6

NOTE:

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. I_V classification code is marked on each packing bag.
4. The dominant wavelength, λ_d is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
5. I_V guarantee must be included with ±15% testing tolerance.
6. Reverse voltage (V_R) condition is applied for I_R test only. The device is not designed for reverse operation.

5. Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

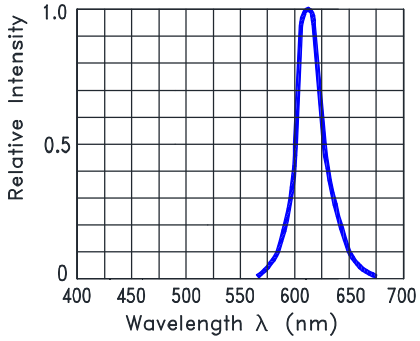


Fig.1 Relative Intensity VS. Wavelength

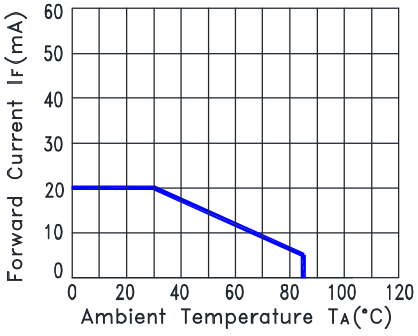


Fig.2 Forward Current Derating Curve

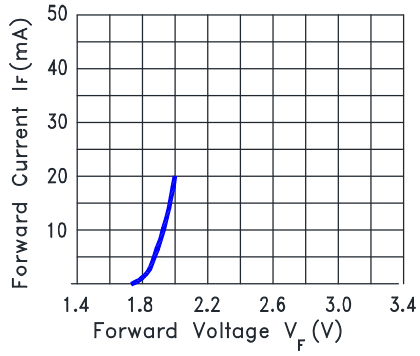


Fig.3 Forward Current vs. Forward Voltage

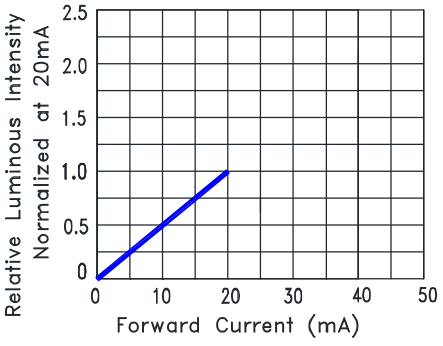


Fig.4 Relative Luminous Intensity vs. Forward Current

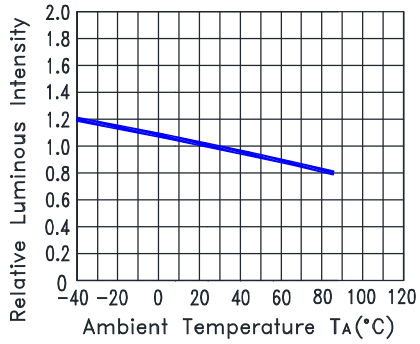


Fig.5 Relative Luminous Intensity VS. Ambient Temperature

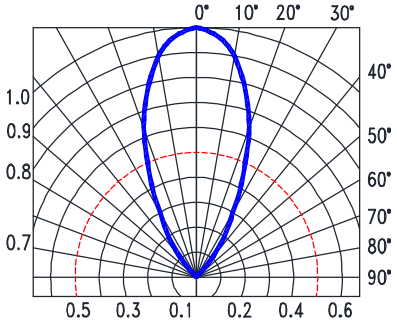
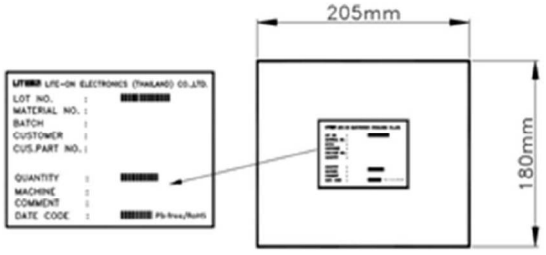


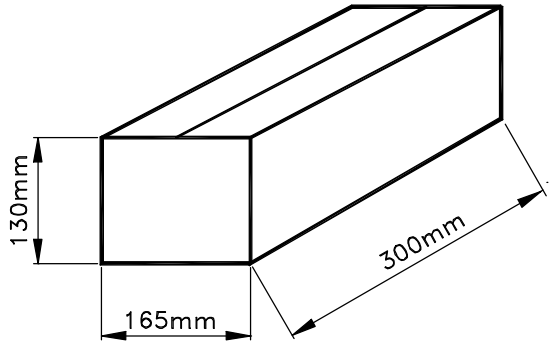
Fig.6 Spatial Distribution

6. Packing Spec.

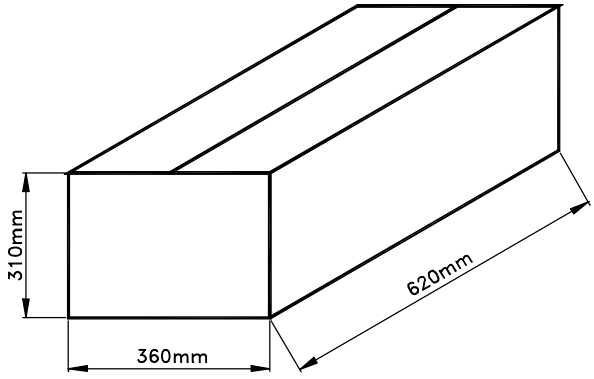
1000, 500, 200 or 100 pcs per packing bag



10 packing bags per inner carton
Total 10,000 pcs per inner carton



8 Inner cartons per outer carton
Total 80,000 pcs per outer carton
In every shipping lot, only the last pack will be non-full packing



7. Bin Table Specification

Luminous Intensity Unit : mcd @ 10 mA		
Bin Code	Min.	Max.
N1	40	90
N2	29	40
N3	19	29
N4	12.6	19

Note: Tolerance of each bin limit is ±15%

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:

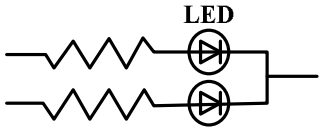
Soldering iron		Wave soldering	
Temperature	350°C Max.	Pre-heat	100°C Max.
Soldering time	3 seconds Max. (one time only)	Pre-heat time	60 seconds Max.
		Solder wave	260°C Max.
Position	No closer than 2mm from the base of the epoxy bulb	Soldering time	5 seconds Max.
		Dipping Position	No lower than 2mm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

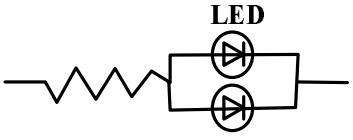
8.6. Drive Method

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)



Circuit model (B)



(A) Recommended circuit

(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)

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?
8.7.3.1. If conductive footwear used, conductive flooring also present where operator stand or walk?
8.7.3.2. Garments, hairs or anything closer than 1 ft to ESD items measure less than 100V*?
8.7.3.3. Every wrist strap or heel strap/conductive shoes checked daily and result recorded for all DLs?
8.7.3.4. 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?

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.

Product Change Notice

Product Group: Lamp product/ NOV 06, 2020 / **PCN-20-1106-02_Rev 04**

Contact: Ruby Lu, Product Marketing
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LITEON would like to change dice of all products using OPTOTECH dice

Description of the Change:
LITEON TH Lamp product will change dices of part numbers in below table due to dice supplier OPTOTECH stops supplying original dice.

Products Affected:

LTL-10223W	LTL-307CR-SA3A	LTL-4251N-022
LTL-10223W-002	LTL-307CR-SA4A	LTL-4251N-072A
LTL-10223W-132A	LTL-307E	LTL-4251NDLR1
LTL-10223WH91	LTL-307E-002	LTL-4251NH129
LTL-10224W	LTL-307E-002A	LTL-4251NLC
LTL-10233W	LTL-307E-011A	LTL-4251NLC-002
LTL-10233W-002	LTL-307E-012	LTL-4251NLDL
LTL-10233W-132A	LTL-307E-021A	LTL-4251NLDLLC
LTL-10233WH210R	LTL-307E-032	LTL-4251P11C
LTL-10233WH91	LTL-307E-0L1A	LTL-4251P11C2
LTL-10234W	LTL-307EE	LTL-4252
LTL-10253W	LTL-307EE-002	LTL-4252N
LTL-10253WH91	LTL-307EE-012	LTL-4253
LTL-10254W	LTL-307ELC	LTL-4253-012
LTL-10CE	LTL-307GE	LTL-4253-032A
LTL-10CEJ	LTL-307GE-012	LTL-4254
LTL-10CHJ	LTL-307P	LTL-4254-012
LTL-1214A	LTL-307P-0G1A	LTL-4256N
LTL-14AWJ	LTL-307PE	LTL-4261N
LTL-14AWJP	LTL-307Y	LTL-4261NR
LTL-14CAJ	LTL-307Y-002	LTL-4261NR-022

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LTL-14CAJHBP	LTL-307Y-011A	LTL-4261NR-022A
LTL-14CAJNN	LTL-307Y-012	LTL-4262N
LTL-14CAJNNHBP	LTL-307Y-021A	LTL-4262N-011A
LTL-14CDJ	LTL-307Y08A-D	LTL-4262N-061A
LTL-14CDJLDL	LTL-307YA-112A	LTL-4263
LTL-14CDJN	LTL-307Y-DL	LTL-4266N
LTL-14CDJN3H79	LTL-307YE	LTL-4266NR
LTL-14CDJN-DL	LTL-307YE-012	LTL-4268-H3
LTL-14CDJNHBP	LTL-307YLC	LTL-4273
LTL-14CHJ	LTL-30EDJ	LTL-4291
LTL-14CHJ1	LTL-30EFJ	LTL-4291N
LTL-14CHJ1M1H106	LTL-30EHJ	LTL-4293
LTL-14CHJ-HFH183	LTL-30EHJ-002A	LTL-4294-012
LTL-14CHJ-HFH195	LTL-30EHJ-012A	LTL-4296N
LTL-14CHJLDL	LTL-30EHJ-042A	LTL-42GPNHDP-HF
LTL-14CHJN-DL	LTL-30EHJH96	LTL-42M15NHKP-TH
LTL-14CJJ	LTL30EKDFGJ	LTL-42M5NH51
LTL-14CM1H025A	LTL30EKDFGJ-004A	LTL-42MDNHKPR
LTL-14CM1H51	LTL-30EWJ	LTL-42MFNH51R
LTL-14CM1H79	LTL-3223A-091A	LTL-433G
LTL-14CM1H79P	LTL-353CKR-H3	LTL-433G-012A
LTL-14CM7H51	LTL-403G	LTL-433HR
LTL-14FFGAJ2H106T	LTL-403G-DL	LTL-433HR-001A
LTL17KPA6D-J-012A	LTL-403HR	LTL-433P
LTL-1AHG	LTL-403HR-012A	LTL-433Y
LTL-1BEDJ	LTL-403P	LTL-5223
LTL-1BEDJ2H188	LTL-403Y	LTL-523-11
LTL-1BEFJ-002A	LTL-40CDJ	LTL-5234
LTL-1BEHJ	LTL-40CHJ	LTL-533-11
LTL-1BEHJ-012	LTL-4211	LTL-533-11P2T
LTL-1BEHJ-052A	LTL-4211-002	LTL-553-11
LTL-1BEHJH144	LTL-4211N	LTL-643G
LTL-1BEHJH144-TH	LTL-4211N-072	LTL-643Y
LTL-1BEHJH185	LTL-4211N-072A	LTL-709E
LTL-1BEHJP1	LTL-4213	LTL-709L

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LTL-1BEHJ-SS	LTL-4213-012	LTL-709Y
LTL-1BEWJ	LTL-4221	LTL-816AE-004A
LTL-1BEY6JLC	LTL-4221-002	LTL-816GE
LTL-1BEY6JLCH233	LTL-4221NDLR1	LTL-816GE-004A
LTL-1CHA	LTL-4221NLDL	LTL-81HGK-002
LTL-1CHAE	LTL-4222	LTL-N709E
LTL-1CHAE-002A	LTL-4222N	LTL-N709P
LTL-1CHAE-041A	LTL-4222N-002	LTL-N709Y
LTL-1CHGE-HF	LTL-4222N-022	
LTL-1CHGE-SC	LTL-4223	
LTL-1CHP	LTL-4223-012	
LTL-1CHY	LTL-4223-021	
LTL-1CHY-012A	LTL-4223-032A	
LTL-1CHY-032A	LTL-4231N-1	
LTL-1CHYE-SC	LTL-4231NDLR1	
LTL-1FHG	LTL-4231NLDL	
LTL-1FHG-013A	LTL-4231NLDLLC	
LTL-1KHCE-S1HA	LTL-4231NLDLLC-DL	
LTL-1KHEE-091A	LTL-4232	
LTL-1LHAE-002A	LTL-4232-041	
LTL-1LHEE-002A	LTL-4232-071	
LTL-1LHG-002A	LTL-4232NC	
LTL-1LHGK-002A	LTL-4232N-HF	
LTL-2221AT	LTL-4233	
LTL-2231AT	LTL-4233-012	
LTL-293SJ	LTL-4233-012A	
LTL-293SJW	LTL-4233-032A	
LTL-2K3C	LTL-4236N	
LTL-2K3CJ	LTL-4238	
LTL-307A	LTL-4251	
LTL-307AE	LTL-4251-072A	
LTL-307C	LTL-4251N	
LTL-307CR-S	LTL-4251N-002	
LTL-307CR-S-051A	LTL-4251N-002A	

Product Change Notice

Reason for Change:
OPTOTECH will stop supplying original dices used

Last time buy date:
2021/02/06
Last shipment date:
2021/05/31
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.