



台灣半導體照明(股)有限公司

TSLC Corporation

文件制訂/修訂/作廢申請單

Document Application Form

台灣半導體照明股份有限公司
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文件名稱 Title	(1) D4525U-UND2 UV LED Module Series Product Datasheet (2) D4525U-UND2 UV LED Module Series Application Note (3) D4525U-UND2 Series Application Note Rev.2 20180605		文件編號 (右欄二選一) Document No.	<input type="checkbox"/> 新制定文件, NA <input checked="" type="checkbox"/> No.	
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二階文件: 程序文件 Level 2: Operation Procedures		◎	○	◎	●	
三階文件: 規範、辦法、產品規格書、規格承認書 Level 3: Standards, Instructions, Data Sheet, Product Delivery Spec.		○	◎	●		
四階文件: 表單 Level 4: Forms		○	●			
外來文件 External document		○	●			



Product Datasheet

D4525U-UND Series

High Power UV LED Module

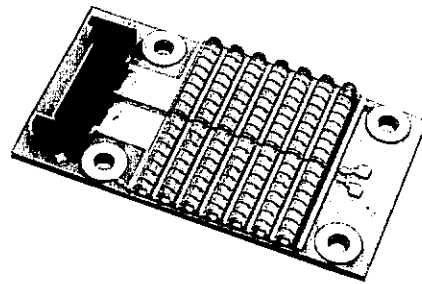


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Characteristics

Absolute Maximum Ratings ($T_{hs}=50^{\circ}\text{C}$)

Parameter	Rating
	D4525U-UND2 Series
DC Forward Current	5.6 A
Power Consumption	270 W
LED Junction Temperature	125°C
Operating Temperature	-40°C~70°C
Storage Temperature	-40°C~110°C

T_{hs} – Temperature at heat sink

General Characteristics (under the conditions set forth in the Notes section below)

Parameter	Rating
	D4525U-UND2 Series
Dimensions	45.5 mm x 25.2 mm x 3.1mm
Chip Connection Arrangement	14S8P
Emitting Area Size	20 mm x 25mm
Typical input current	4 A
Typical Input voltage	45 -50 V
Connector housing type	Molex 504051-1001 (10 pin)

Electro-Optical Characteristics

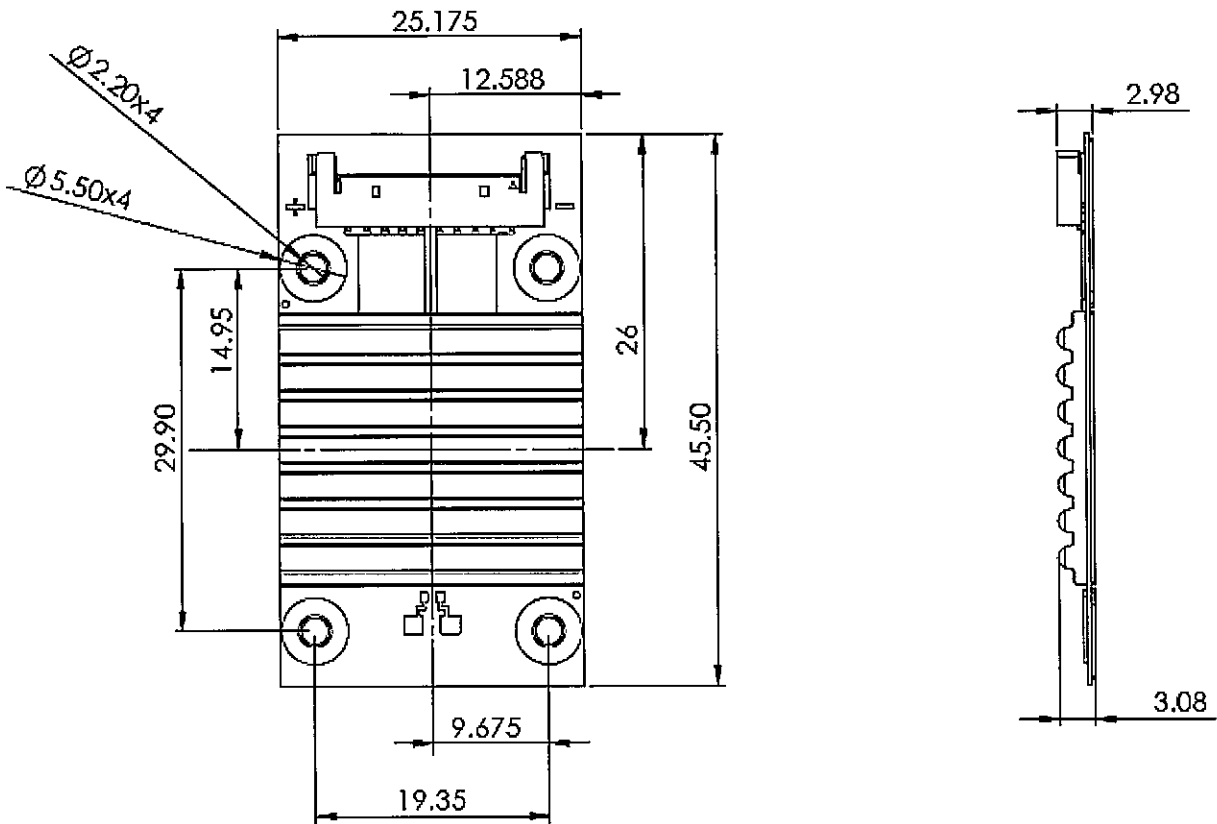
Part number	Bin Code	Peak Wavelength (nm)	Minimum Peak Irradiance ² (W/cm ²) Driving current = 5.6A Distance = 1mm from LED surface
D4525U-UND2 series	U40	380-390	12-14W/cm2
	U50	390-400	16-18W/cm2
	U60	400-410	18-20W/cm2

Notes:

- The peak wavelength is measured with an accuracy of $\pm 1\text{nm}$
- Peak Irradiance refers to measurements with EIT UVICURE PLUS II in UVV program and/or UVA program at the emitting surface. Irradiance value can vary significantly by the type of measurement device and measurement conditions. The values stated are subject to the limits and set up of TSLC testers. All other measurement data are defined as long-term production mean values and are only given for reference.
- Data measurements are based on testing conditions with a constant substrate temperature at or below 50°C under pulse testing conditions.
- A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system. Life support devices or systems are intended (i) to be implanted in the human body, or (ii) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered. Components used as a critical component must be approved in writing by TSLC Corporation.
- These devices emit high intensity UV/NUV light. Necessary precautions must be taken during operation. Do not look directly into the light or look through the optical system when in operation. Protective eyewear should be worn at all times during operation.
- This product has been designed to operate only with a constant current power source.
- Always follow thermal design recommendations in the relevant Application Note.



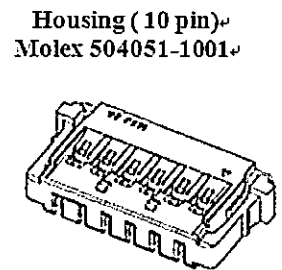
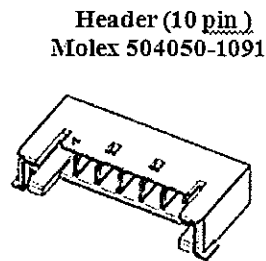
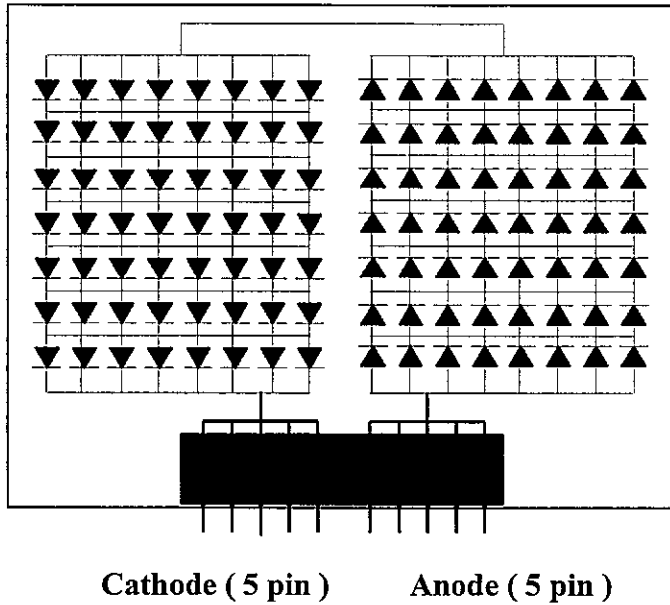
Mechanical Dimensions



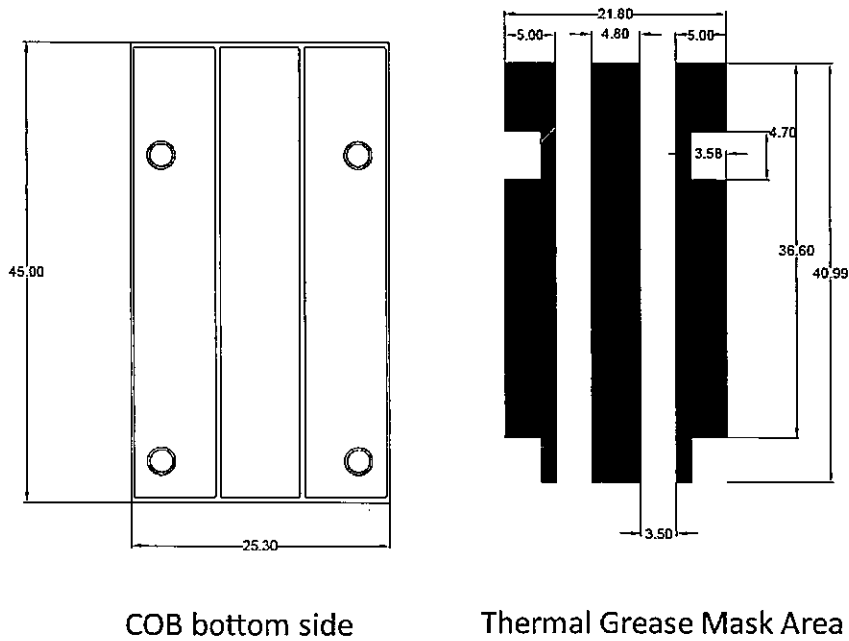
Notes :

1. Drawings are not to scale
2. All dimensions are in millimeter
3. Dimensions are $\pm 0.13\text{mm}$ unless otherwise indicated

Electrical Connector



Recommended Stencil Pattern Design for Thermal Grease



COB bottom side

Thermal Grease Mask Area

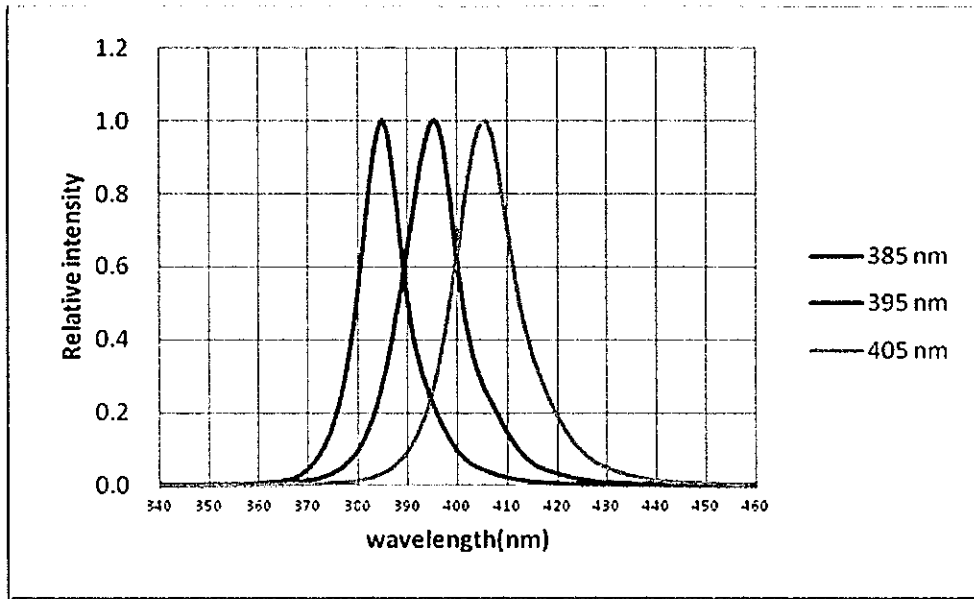
Notes:

1. All dimensions is millimeter
2. Drawing is not to scale
3. Stencil thickness is dependent on selected thermal interface material (TIM). Please consult TIM provider.
4. Excess TIM should be avoided.



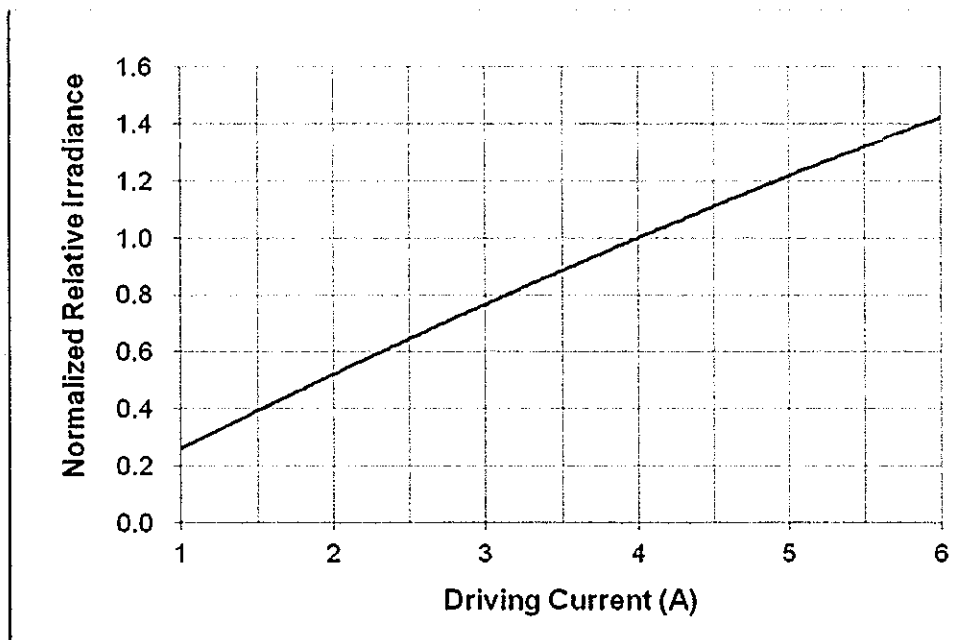
Typical Relative Spectral Power Distribution

D4525U-UND2 Series



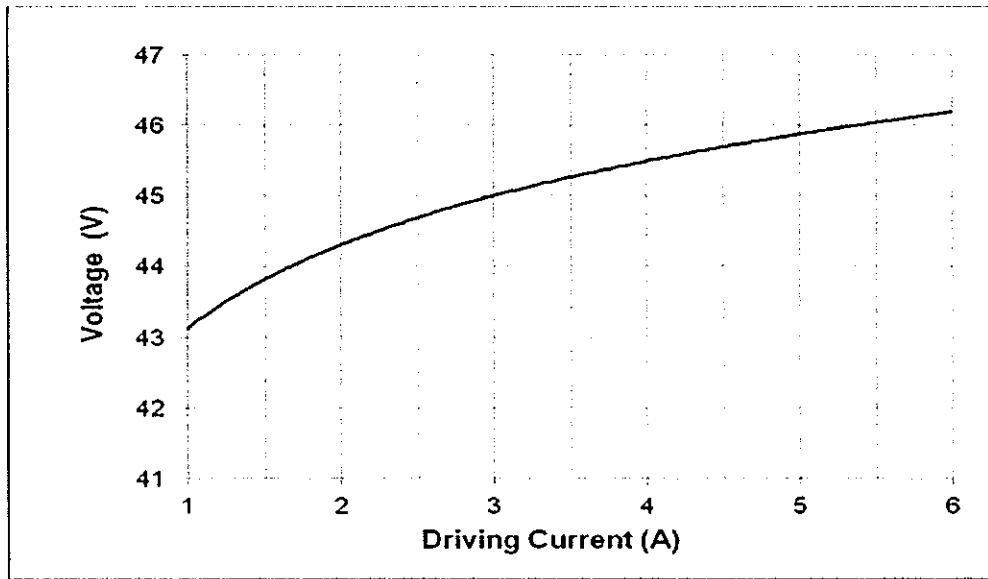
Input Current vs. Irradiance Characteristics

D4525U-UND2 Series

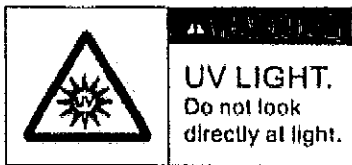


Input Current vs. Voltage Characteristics

D4525U-UND2-Series



Safety Precautions



The UV LED COB module emits a strong UV light in the UVA range. It is strongly recommended to use the appropriate eye and body protection while using the product and to follow the recommended safety and handling precautions.

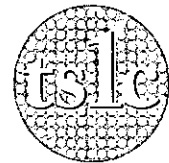
- Do not look directly into the UV module when it is operating.
- Always wear a UV-proof face shield and cover all exposed skin while the UV module is in operation.
- Hold the UV module so that the light beams are facing away from you.
- Always turn off the device and unplug the power cord before handling the module.
- Keep the module dry at all times.
- For indoor use only.
- Do not attempt to repair the product.

About Us

TSLC Corporation is devoted to developing high-density and multi-size emitters with powerful output to satisfy the needs of every customer.

TSLC Corporation is the leader in LED solutions. Unlimited design flexibility for interior and exterior spaces with high-end lighting effect; energy-efficient for UV curing to improve the quality of medical care; horticulture solutions create a better environment for everyone; high-intensity rotatable lightings for the entertainment industry, TSLC is always there for your lighting needs.

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D4525U-UND Series Application Note

Introduction

This application note is for D4525U-UND2 series products. It describes cleaning, storage, handling, assembly, operation conditions and safety caution.

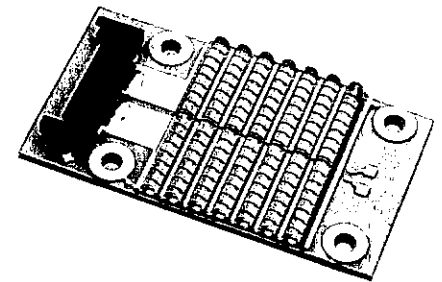


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Storage

Recommended storage conditions:

1. The storage conditions should have temperature maintained between 5 ~ 50 °C and relative humidity less than 60 %.
2. Do not stack boards on top of another. These boards may be damaged due to improper storage. The boards should remain in their original packaging prior to assembling.

Cleaning

Products were cleaned thoroughly before shipping, which means that in most normal cases there is no need to clean before using. In cases where it cannot be guaranteed that only a minimal amount of dirt and dust particles will come in contact with the product, it is advised to follow the following suggestions.

1. Try swabbing gently using a lint-free swab.
2. If needed, the use of lint-free swab and IPA (isopropyl alcohol) or ethanol used gently removes dirt from the surface. Do not use other solvents as they may directly react with the LED emitting region.
3. Do not use ultrasonic cleaning that the LED will be damaged.
4. Do not press on the emitting region during the cleaning.

Handling

If it is necessary to manually pick and place the product, keep the environment cleaning. And TSLC recommended to use plastic tweezers or plastic gloves. Do not touch the lens with tweezers or fingers. Gently grab the base of the COB using tweezers.

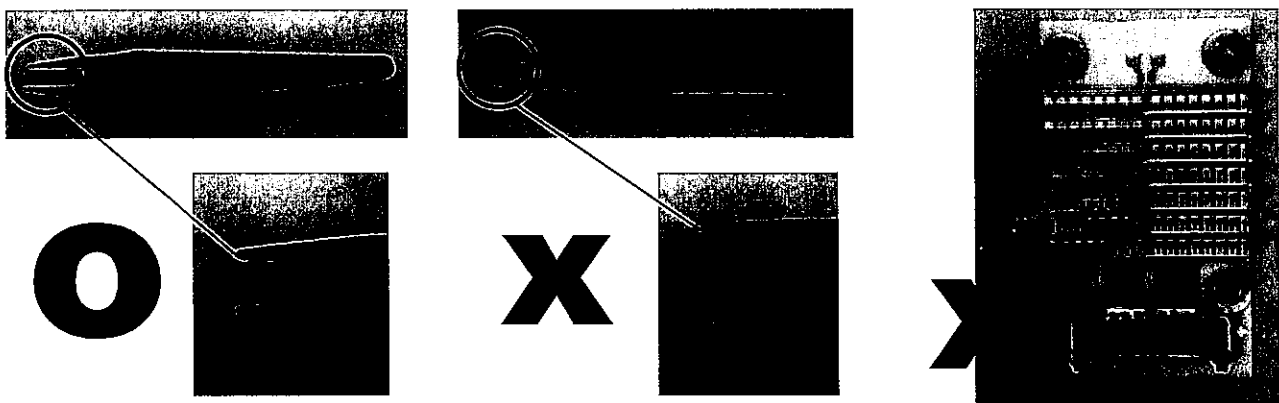


Figure 1. Recommended tweezers selection

Assembly

1. Do not touch emitting area during assembling, it could damage the product.
2. TSLC recommend assembly using M2 screw with washer to connect D4525U-UND2 and heat sink is shown below (Fig.2).
3. TSLC suggest thermal interface material using thermal grease. TSLC suggest two thermal pastes. One is Dow Corning® TC-5026, the other is Shin Etsu X23-7762. If it is possible, user can take X-ray to check if have void.
4. TSLC has found the flux, thermal paste, glue or solvents might damage the lens after you light the D4525U-UND2 up. Do not forget to clean the dirt on lens after you assembly the light board, even the dirt is not obviously. About the clean step please see the page 1. The concern positions with issues are like the broadside of D4525U-UND2, the interface between D4525U-UND2 and the ravines.

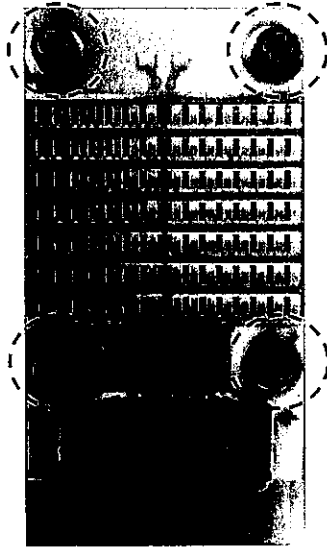


Figure 2. Recommended use M2 screw with washer to connector

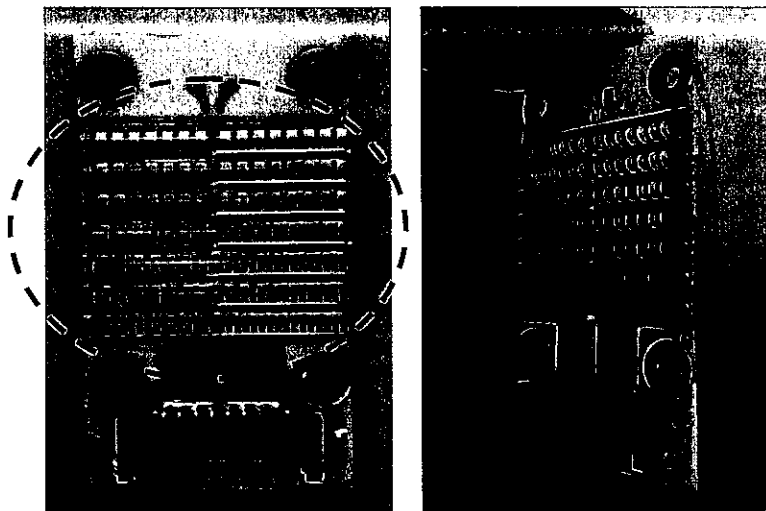


Figure 3. Concern positions: emitting area (red circuit), ravine(blue line), broadside (green circuit)

5. If user wants to disassemble connector wire, please push clamp pin of connector and pull connector back as figure 4a. Please don't pull wire directly. And if user wants to assemble connector, please push connector into the connector housing as figure 4b.

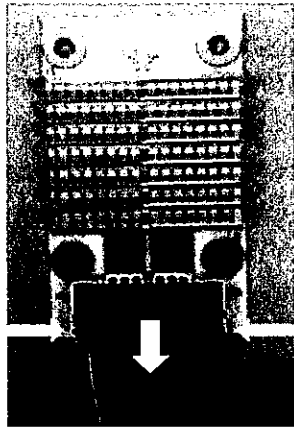


Figure 4a.

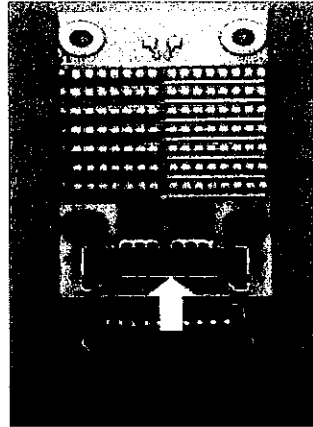


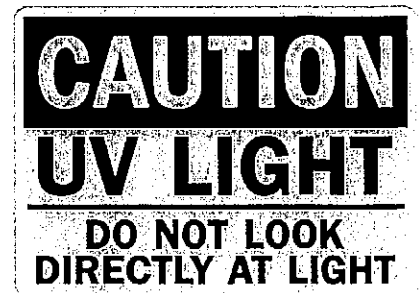
Figure 4b.

Operation condition

1. The LEDs are a kind of semiconductors, their voltage will vary with temperature. So, D4525U-UND2 must be driven by constant current power suppliers..
2. The LEDs are sensitive to any current over the maximum of specifications. It will cause damage or possible totally failure if the current exceeds the maximum current of D4525U-UND2.
3. Using a constant current driver to light up the LED module, please connect the power supply and the LED module before turn on the power supply. This can reduce the probability of surge current damaging the LED modules.
4. Clean the surface of D4525U-UND2 after each use if the D4525U-UND2 is exposure in the processes. About the clean step please see the page 1.
5. Do not light the D4525U-UND2 up immediately if you just clean the lens. The residue of solvent in the lens might vaporize and expand the silicone lens, it will cause damage the products or possible complete failure of products.
6. TSLC recommended the board temperature of D4525U-UND2 should be under 60 degree Celsius.

Safety Caution

1. Do not look directly at UV light as it is hazardous to your eyes.
2. Do not expose to UV light as it is hazardous to your skin.
3. Wear at least a UV-proof face shield and cover all exposed skin.
4. Do not block the air cooling outlet.
5. Do not splash water on the device.

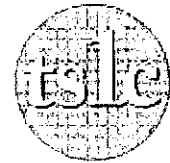


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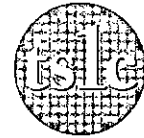
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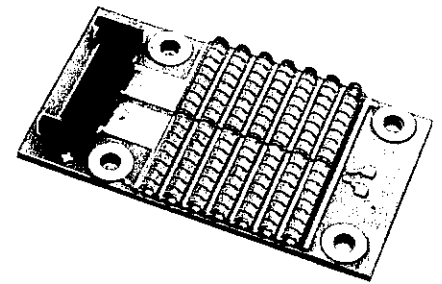


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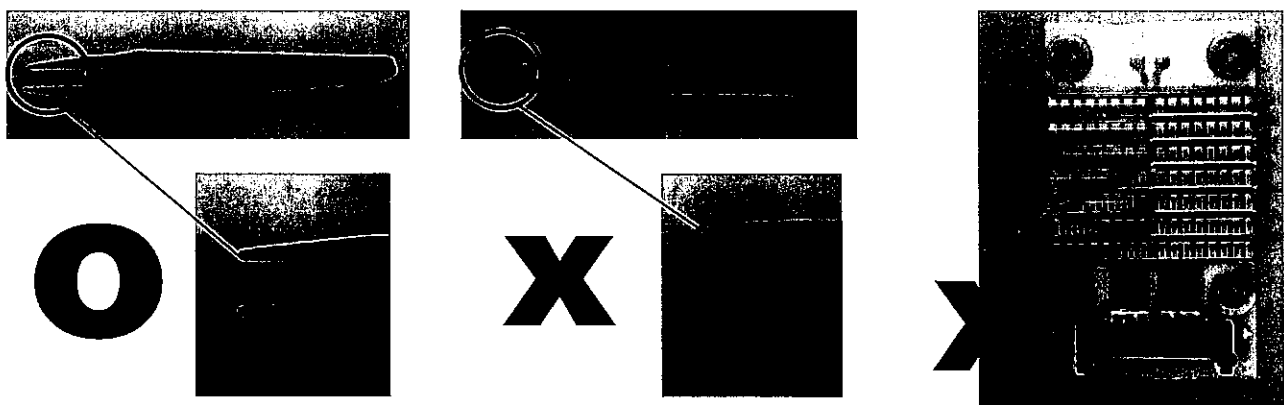


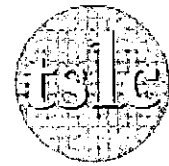
Figure 1. Recommended tweezers selection

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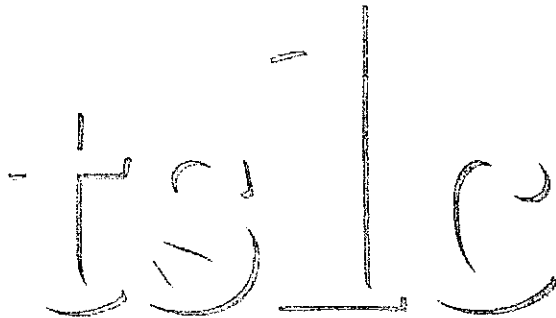
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