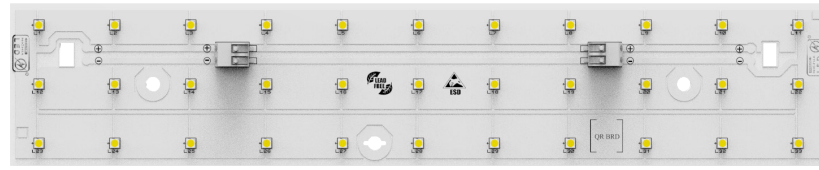




## PRODUCT PHOTO



## SPECIFICATIONS

- Default driving method is constant current input
- CCT Range from 2000K up to 6500K
- This module is standard and can be connected as 11 Series 3 Parallel.
- Luminous flux range from 316 lm to 2905 lm
- Efficacy of the module up to 210 lm/W
- CRI 80 is standard, CRI 70 and CRI 90 are available
- Outstanding system color tolerance MacAdam 3 over the full operating area
- Simple installation (e.g. screw)
- Long life-time > 60,000 hours
- 5 years guarantee at specified conditions



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## APPLICATIONS

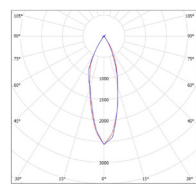


High Bay Lighting

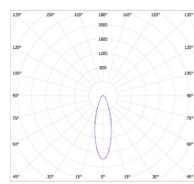
Very High Bay  
Lighting

Shop Lighting

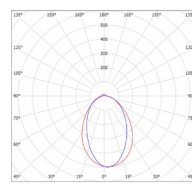
## PHOTOMETRY



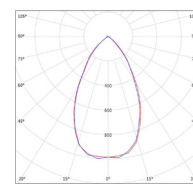
TLS33NI-W61L286-30-NB



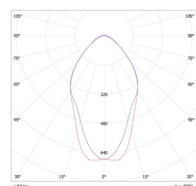
TLS33NI-W61L286-30



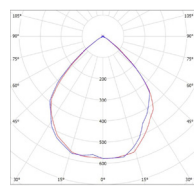
TLS33NI-W61L286-30x90



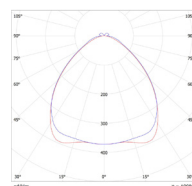
TLS33NI-W61L286-60-MB



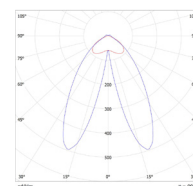
TLS33NI-W61L286-60



TLS33NI-W61L286-90-WB



TLS33NI-W61L286-90



TLS33NI-W61L286-SYM

## TECHNICAL DATA

|                                              |                        |                        |                     |                     |               |
|----------------------------------------------|------------------------|------------------------|---------------------|---------------------|---------------|
| Beam Angle                                   | 120°                   |                        |                     |                     |               |
| Ambient temperature range                    | -25° ~ +55°C           |                        |                     |                     |               |
| Tc max                                       | 85°C                   |                        |                     |                     |               |
|                                              | NF2W757G-P5H6_R9050J85 | NFSW757G-V1H6_R9050J85 | NFSW757G-P5H5_R8020 | NFSW757H-V2H5_R8020 | NF2W757H-V2H5 |
| Max. DC forward current                      | 540mA                  | 540mA                  | 540mA               | 540mA               | 540mA         |
| Typical voltage of LED Module at max current | 36,3V                  | 34,1V                  | 36,3V               | 34,1V               | 36,3V         |
| Insulation test voltage                      | 2kV                    | 2kV                    | 2kV                 | 2kV                 | 2kV           |
| ESD classification                           | Class 1                | Class 1                | Class 1             | Class 1             | Class 1       |
| Risk group (EN 62471:2008)                   | 2                      | 2                      | 2                   | 2                   | 2             |
| Type of protection                           | IP00                   | IP00                   | IP00                | IP00                | IP00          |

## ORDERING INFORMATION

X-M F DDDD LB KK CC - LLLLL - Q - AAA

Internal Code

xxV-IC

xxV-R

xxV-ICR

Quantity of LED

LED Information

CRI

70+ 80+ 90+ 99+

Kelvin

20:2000K 25:2500K

27:2700K 30:3000K

40:4000K 50:5000K

57:5700K 65:6500K

LED Brand

NC:Nichia LM:Lumileds

ED:Edison SE:Seoul

Dimensions

l\*w

Form

R:Round

S:Square

L:Linear

Module Code

X-M: Module Code

## DRIVING CURRENT VS LUMEN OUTPUT SPECIFICATION

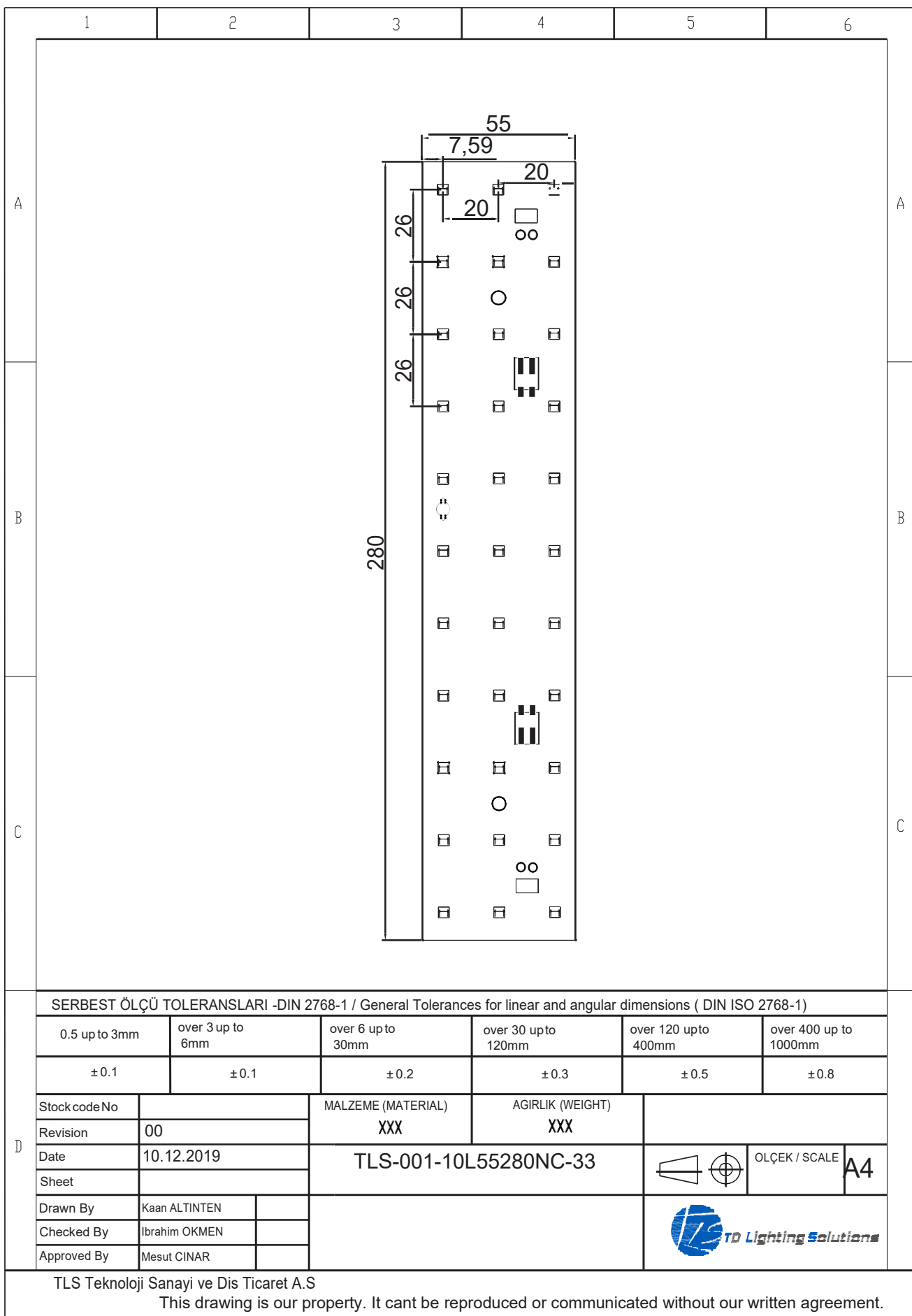
| Common Characteristic [ @Tj : 85°C ] ; |                                |                       |       |
|----------------------------------------|--------------------------------|-----------------------|-------|
| Module Code                            | X-ML28055NC4090-NFSW757G-V2-33 |                       |       |
| PCB Material                           | ALU                            | Electrical Connection |       |
| Operating Temperature (°C)             | -40 ~ +85                      | Parallel              | 3     |
| Storage Temperature (°C)               | -40 ~ +55                      | Series                | 11    |
| Thermal Conductivity (W/m-K)           | 1>                             | LED Quantity          | 33    |
| LED NF2W757G-P5H6_R9050j85             |                                |                       |       |
| Correlated Color Temperature (CCT)     | 4000K                          |                       |       |
| Color Rendering Index (CRI)            | 90+                            |                       |       |
| Module Operating Voltage (V)           | 31                             | 33                    | 35    |
| Module Operating Current (mA)          | 250                            | 350                   | 500   |
| Branch Operating Current (mA)          | 83                             | 117                   | 167   |
| Module Power (W)                       | 7,86                           | 11,43                 | 17,27 |
| Module Light Output (lm)               | 1.250                          | 1.704                 | 2.349 |
| Module Efficiency (lm/W)               | 159                            | 149                   | 136   |
| LED NFSW757G-V1H6_R9050j85             |                                |                       |       |
| Correlated Color Temperature (CCT)     | 4000K                          |                       |       |
| Color Rendering Index (CRI)            | 90+                            |                       |       |
| Module Operating Voltage (V)           | 31                             | 32                    | 34    |
| Module Operating Current (mA)          | 250                            | 350                   | 500   |
| Branch Operating Current (mA)          | 83                             | 117                   | 167   |
| Module Power (W)                       | 7,73                           | 11,24                 | 16,94 |
| Module Light Output (lm)               | 1.368                          | 1.877                 | 2.592 |
| Module Efficiency (lm/W)               | 177                            | 167                   | 153   |
| LED NFSW757G-P5H5_R8020                |                                |                       |       |
| Correlated Color Temperature (CCT)     | 4000K                          |                       |       |
| Color Rendering Index (CRI)            | 80+                            |                       |       |
| Module Operating Voltage (V)           | 31                             | 33                    | 35    |
| Module Operating Current (mA)          | 250                            | 350                   | 500   |
| Branch Operating Current (mA)          | 83                             | 117                   | 167   |
| Module Power (W)                       | 7,86                           | 11,43                 | 17,27 |
| Module Light Output (lm)               | 1.290                          | 1.738                 | 2.400 |
| Module Efficiency (lm/W)               | 164                            | 152                   | 139   |
| LED NFSW757H-V2H5_R8020                |                                |                       |       |
| Correlated Color Temperature (CCT)     | 4000K                          |                       |       |
| Color Rendering Index (CRI)            | 80+                            |                       |       |
| Module Operating Voltage (V)           | 31                             | 32                    | 33    |
| Module Operating Current (mA)          | 250                            | 350                   | 500   |
| Branch Operating Current (mA)          | 83                             | 117                   | 167   |
| Module Power (W)                       | 7,67                           | 11,09                 | 16,61 |
| Module Light Output (lm)               | 1.427                          | 1.951                 | 2.707 |
| Module Efficiency (lm/W)               | 186                            | 176                   | 163   |
| LED NF2W757H-V2H5                      |                                |                       |       |
| Correlated Color Temperature (CCT)     | 4000K                          |                       |       |
| Color Rendering Index (CRI)            | 80+                            |                       |       |
| Module Operating Voltage (V)           | 30                             | 31                    | 31    |
| Module Operating Current (mA)          | 250                            | 350                   | 500   |
| Branch Operating Current (mA)          | 83                             | 117                   | 167   |
| Module Power (W)                       | 7,53                           | 10,74                 | 15,73 |
| Module Light Output (lm)               | 1.454                          | 2.019                 | 2.847 |
| Module Efficiency (lm/W)               | 193                            | 188                   | 181   |

The table below shows how to Module Light Output changes depending on CCT (K)

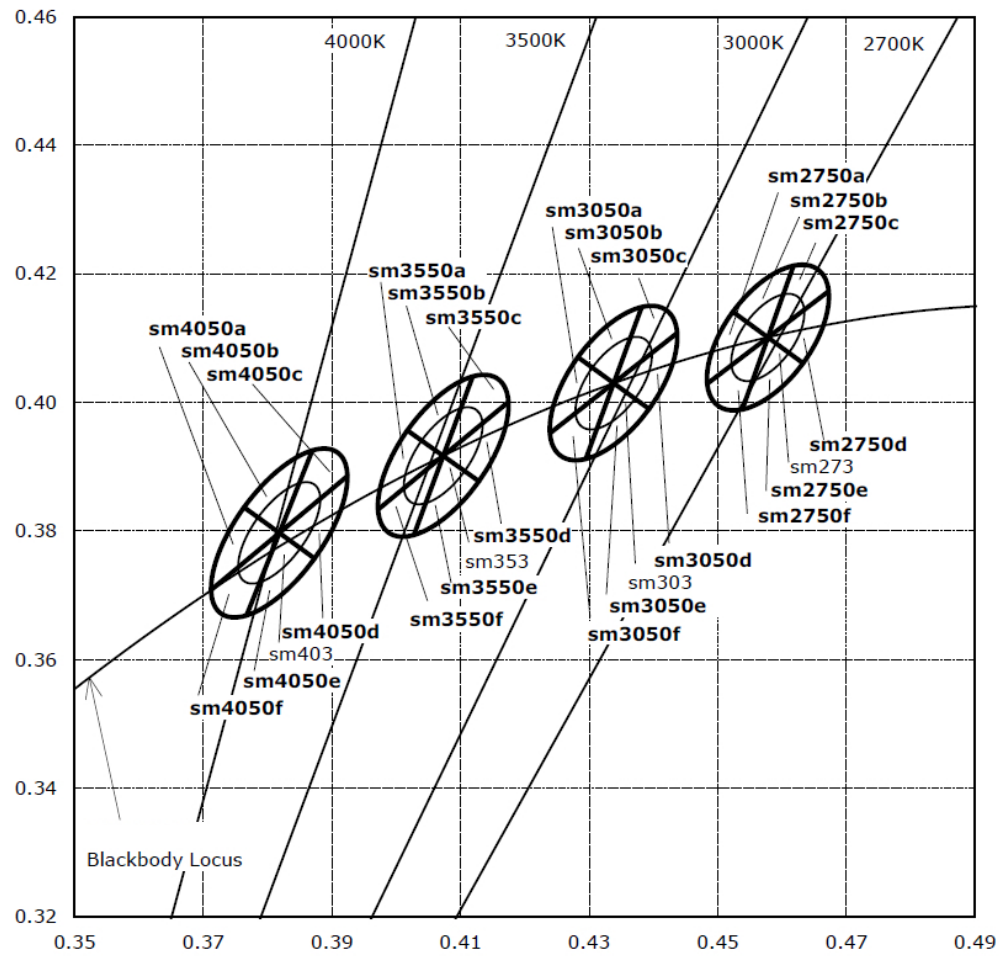
| LED                    | Lumen Output Multiplier |                |                |                |                |
|------------------------|-------------------------|----------------|----------------|----------------|----------------|
|                        | 2700K (CRI 80)          | 3000K (CRI 80) | 4000K (CRI 80) | 5000K (CRI 80) | 6500K (CRI 80) |
| NF2W757G-P5H6_R9050j85 | 0,981                   | 0,975          | 0,985          | 1              | 1              |
| NFSW757G-V1H6_R9050j85 | 0,982                   | 0,975          | 0,986          | 1              | 1              |
| NFSW757G-P5H5_R8020    | 0,968                   | 0,975          | 1              | 1              | 1              |
| NFSW757H-V2H5_R8020    | 0,97                    | 0,994          | 0,997          | 1              | 1              |
| NF2W757H-V2H5          | 0,97                    | 0,994          | 1,00           | 1              | 1              |

Relative luminous intensity versus CCT (K)

## X-ML28055NC4090-NFSW757G-V2-33 MECHANICAL DRAWINGS



## CCT AND BINNING INFORMATION



## LIFE TIME

MODEL NUMBER: NFSW757G

## RELIABILITY

## (1) Tests and Results

| Test                                            | Reference Standard      | Test Conditions                                                                                                                                   | Test Duration | Failure Criteria # | Units Failed/Tested |
|-------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------|---------------------|
| Resistance to Soldering Heat (Reflow Soldering) | JEITA ED-4701 300 301   | $T_{\text{refl}}=260^{\circ}\text{C}$ , 10sec, 2reflows, Precondition: $30^{\circ}\text{C}$ , 70%RH, 168hr                                        |               | #1                 | 0/22                |
| Solderability                                   | JEITA ED-4701 303 303A  | $T_{\text{refl}}=245\pm 5^{\circ}\text{C}$ , 5sec, Lead-free Solder(Sn-3.0Ag-0.5Cu)                                                               |               | #2                 | 0/22                |
| Temperature Cycle                               | JEITA ED-4701 100 105   | $-40^{\circ}\text{C}(30\text{min})\sim 25^{\circ}\text{C}(5\text{min})\sim 100^{\circ}\text{C}(30\text{min})\sim 25^{\circ}\text{C}(5\text{min})$ | 100cycles     | #1                 | 0/50                |
| Moisture Resistance (Cyclic)                    | JEITA ED-4701 200 203   | $25^{\circ}\text{C}\sim 65^{\circ}\text{C}\sim -10^{\circ}\text{C}$ , 90%RH, 24hr per cycle                                                       | 10cycles      | #1                 | 0/22                |
| High Temperature Storage                        | JEITA ED-4701 200 201   | $T_A=100^{\circ}\text{C}$                                                                                                                         | 1000hours     | #1                 | 0/22                |
| Temperature Humidity Storage                    | JEITA ED-4701 100 103   | $T_A=60^{\circ}\text{C}$ , RH=90%                                                                                                                 | 1000hours     | #1                 | 0/22                |
| Low Temperature Storage                         | JEITA ED-4701 200 202   | $T_A=-40^{\circ}\text{C}$                                                                                                                         | 1000hours     | #1                 | 0/22                |
| Room Temperature Operating Life Condition 1     |                         | $T_A=25^{\circ}\text{C}$ , $I_F=65\text{mA}$<br>Test board: See NOTES below                                                                       | 1000hours     | #1                 | 0/22                |
| Room Temperature Operating Life Condition 2     |                         | $T_A=25^{\circ}\text{C}$ , $I_F=180\text{mA}$<br>Test board: See NOTES below                                                                      | 500hours      | #1                 | 0/22                |
| High Temperature Operating Life                 |                         | $T_A=100^{\circ}\text{C}$ , $I_F=70\text{mA}$<br>Test board: See NOTES below                                                                      | 1000hours     | #1                 | 0/22                |
| Temperature Humidity Operating Life             |                         | $60^{\circ}\text{C}$ , RH=90%, $I_F=65\text{mA}$<br>Test board: See NOTES below                                                                   | 500hours      | #1                 | 0/22                |
| Low Temperature Operating Life                  |                         | $T_A=-40^{\circ}\text{C}$ , $I_F=65\text{mA}$<br>Test board: See NOTES below                                                                      | 1000hours     | #1                 | 0/22                |
| Vibration                                       | JEITA ED-4701 400 403   | $200\text{m/s}^2$ , 100~2000~100Hz, 4cycles, 4min, each X, Y, Z                                                                                   | 48minutes     | #1                 | 0/22                |
| Electrostatic Discharges                        | ANSI/ESDA/ JEDEC JS-001 | HBM, 8kV, 1.5k $\Omega$ , 100pF, 1pulse, alternately positive or negative                                                                         |               | #1                 | 0/22                |
| Board Bending                                   |                         | 1bend to a deflection of 2mm for 5 $\pm$ 1sec                                                                                                     |               | #3                 | 0/22                |
| Soldering Joint Shear Strength                  | JEITA ED-4702B 002 3    | 5N, 10 $\pm$ 1sec                                                                                                                                 |               | #1                 | 0/22                |

## NOTES:

- 1) Test board: FR4 board thickness=1.6mm, copper layer thickness=0.07mm,  $R_{\text{thJA}}\approx 74^{\circ}\text{C/W}$   
The Board Bending is performed using an exclusive test board.
- 2) Measurements are performed after allowing the LEDs to return to room temperature.

## (2) Failure Criteria

| Criteria # | Items                     | Conditions        | Failure Criteria               |
|------------|---------------------------|-------------------|--------------------------------|
| #1         | Forward Voltage( $V_F$ )  | $I_F=65\text{mA}$ | $> \text{U.S.L.} \times 1.1$   |
|            | Luminous Flux( $\Phi_v$ ) | $I_F=65\text{mA}$ | $< \text{L.S.L.} \times 0.7$   |
| #2         | Solderability             | -                 | Less than 95% solder coverage  |
| #3         | Appearance                | -                 | The light emission is abnormal |

U.S.L. : Upper Specification Limit    L.S.L. : Lower Specification Limit

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