



N5050U-UNH4 Series

High Power UV LED

Introduction

The N5050U-UNH4 series is LED from TSLC brings industry leading technology to the UV lighting market with its high reliability and performance. With a ceramic substrate and 80 degree viewing angle primary optic, the N5050U-UNH4 is ideal for all UV curing and general UV applications.



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Characteristics

Absolute Maximum Ratings (T_j=25°C)

Parameter	Rating
	N5050U-UNH4 Series
Max Forward Current (mA)	700 mA
LED Junction Temperature	150°C
LED Operating Temperature	-40°C~85°C
Storage Temperature	-40°C~125°C
Soldering Temperature	Max. 260°C / Max. 10sec. (JEDEC 020)
ESD Sensitivity	2,000 V HBM (JESD-22A-114-B)
Reverse Voltage	Not designed to be driven in reverse bias(V _R ≤ 5V)
Preconditioning	Acc. to JEDEC Level 1

General Characteristics at 700mA

Part number	Color	Peak Wavelength λ _p		2θ _{1/2}	Thermal Resistance Junction to Pad (°C/W)
		Min	Max		RO _{J-L}
N5050U-UNH4	U40	380	390	80	1.5
	U50	390	400	80	1.5
	U60	400	410	80	1.5
	U70	410	420	80	1.5

Notes: The peak wavelength is measured with an accuracy of ±1nm

Radiometric Power and Forward Voltage (T_j=25°C)

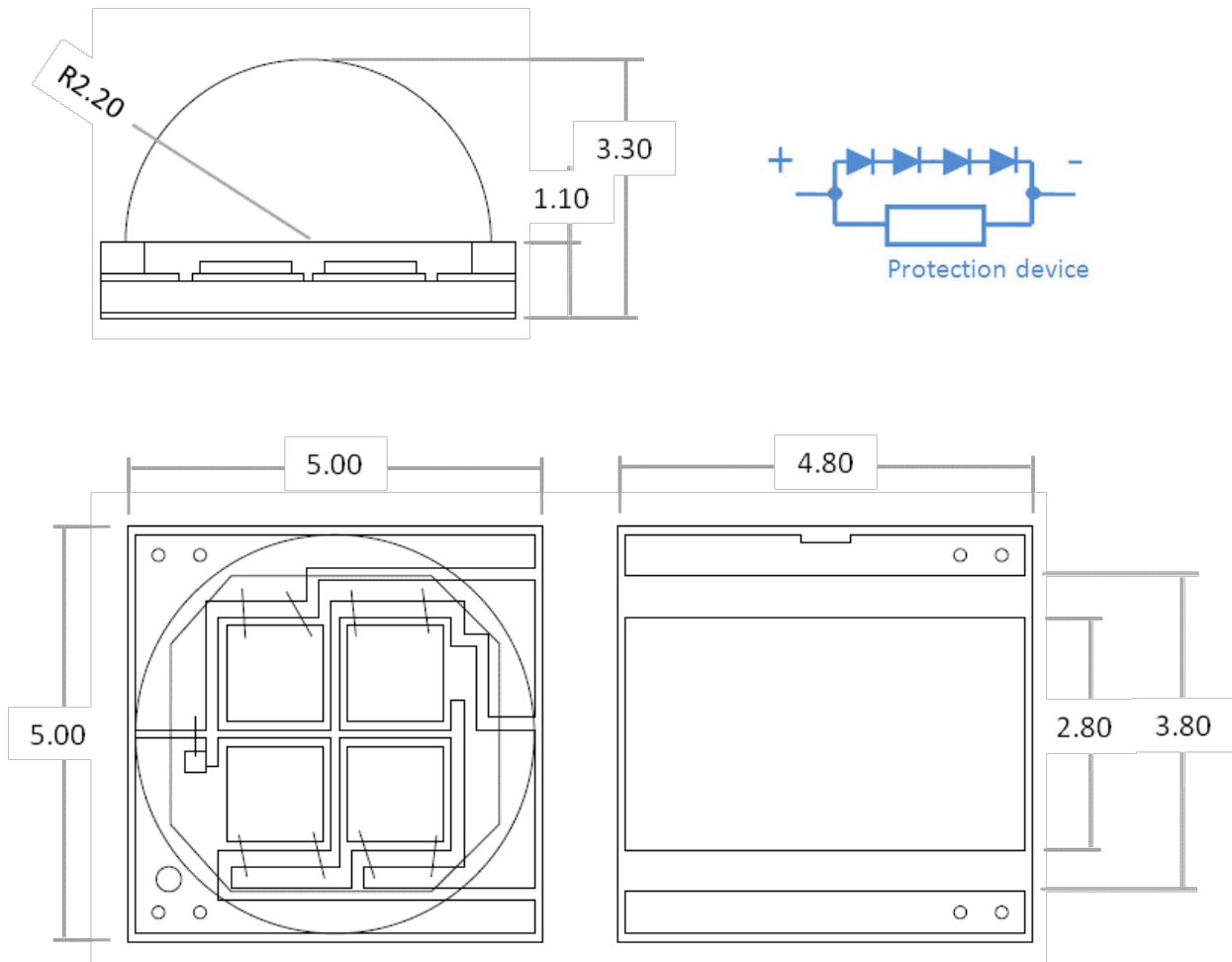
Part number	Color	Performance at Test Current (700mA)				
		Group	Radiometric Power(mW)		VF	
			Min	Max	Min	Max
N5050U-UNH4 (beam angle 80°)	U40 (380-390nm)	NJ1	3000	3300	11	15
		NJ2	3300	3600	11	15
		NJ3	3600	3900	11	15
		NJ4	3900	4200	11	15
	U50 (390-400nm)	NJ1	3000	3300	11	15
		NJ2	3300	3600	11	15
		NJ3	3600	3900	11	15
		NJ4	3900	4200	11	15
	U60 (400-410nm)	NJ1	3000	3300	11	15
		NJ2	3300	3600	11	15
		NJ3	3600	3900	11	15
		NJ4	3900	4200	11	15
	U70 (410-420nm)	NJ1	3000	3300	11	15
		NJ2	3300	3600	11	15
		NJ3	3600	3900	11	15
		NJ4	3900	4200	11	15

Note:1. Radiometric power is measured with an accuracy of ±10%

2. The forward voltage is measured with an accuracy of ±0.2V

* Calculated values are for reference only.

Mechanical Dimensions

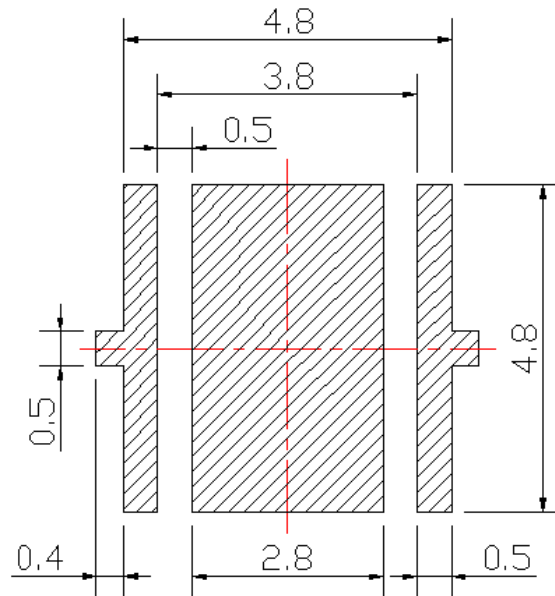


Notes :

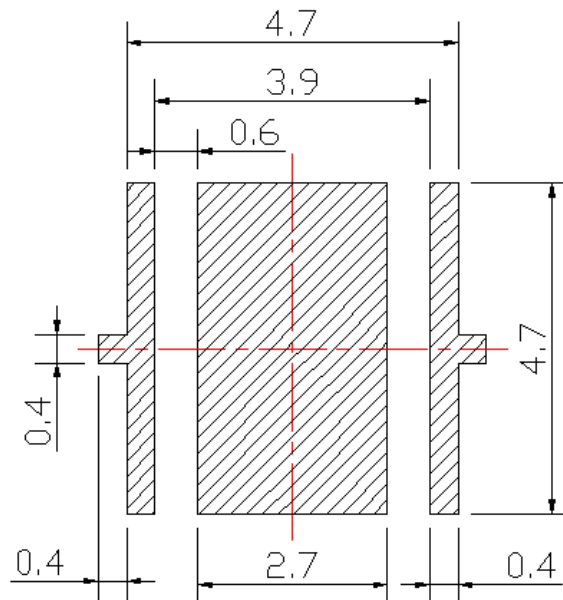
1. Drawing is not to scale
2. All dimensions are in millimeter
3. Dimensions are ± 0.13 mm unless otherwise indicated

Recommended Solder Pad Design

Recommended Soldering Pad Design



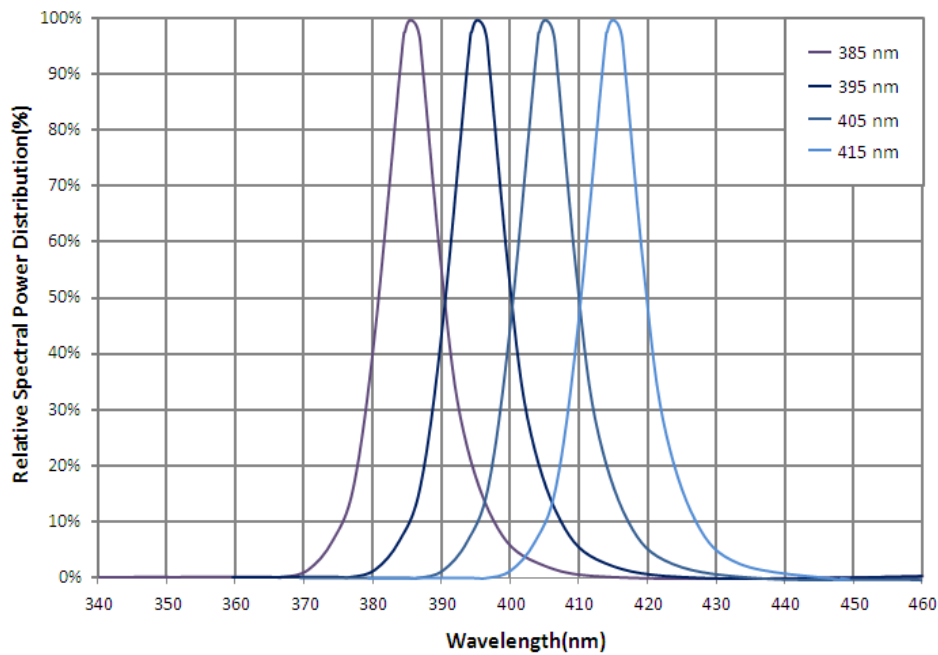
Recommended Stencil Pattern Design (Marked Area is Opening)



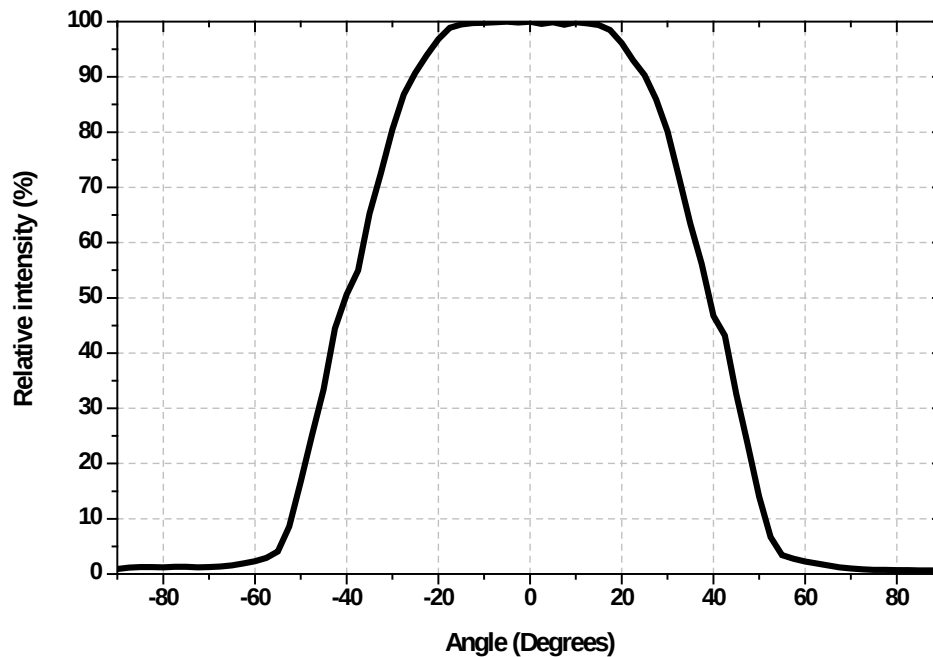
Notes :

1. Drawing is not to scale
2. All dimensions are in millimeter

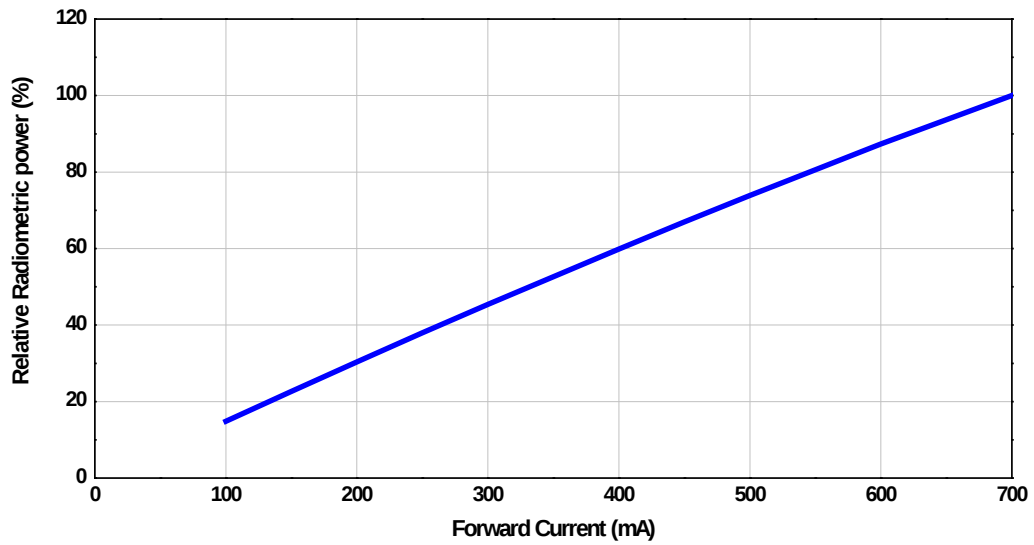
Relative Spectral Power Distribution, $T_j=25^{\circ}\text{C}$



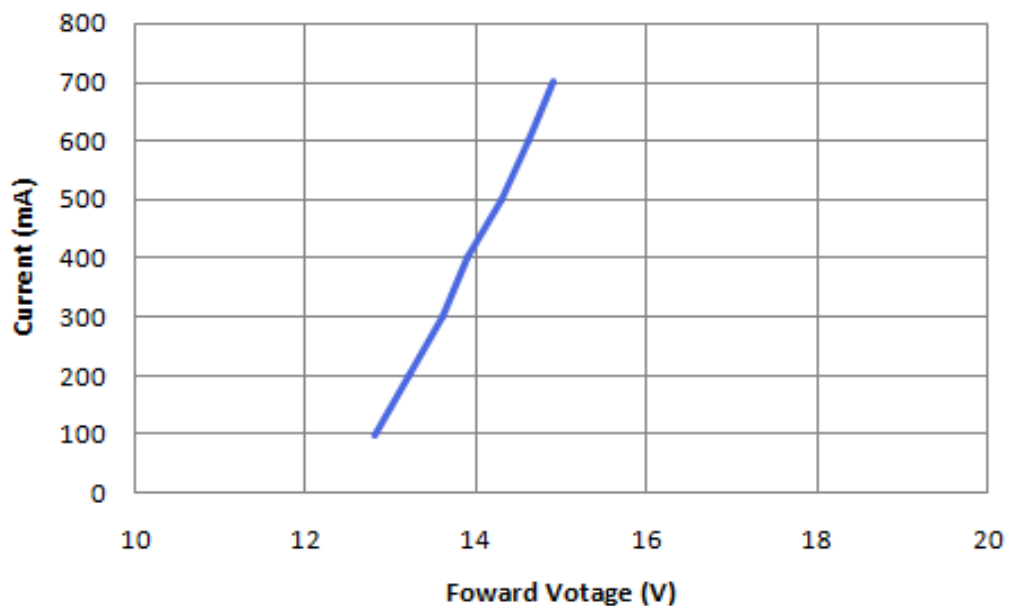
Typical Spatial Radiation Pattern



Typical Forward L-I Characteristics, $T_j=25^{\circ}\text{C}$

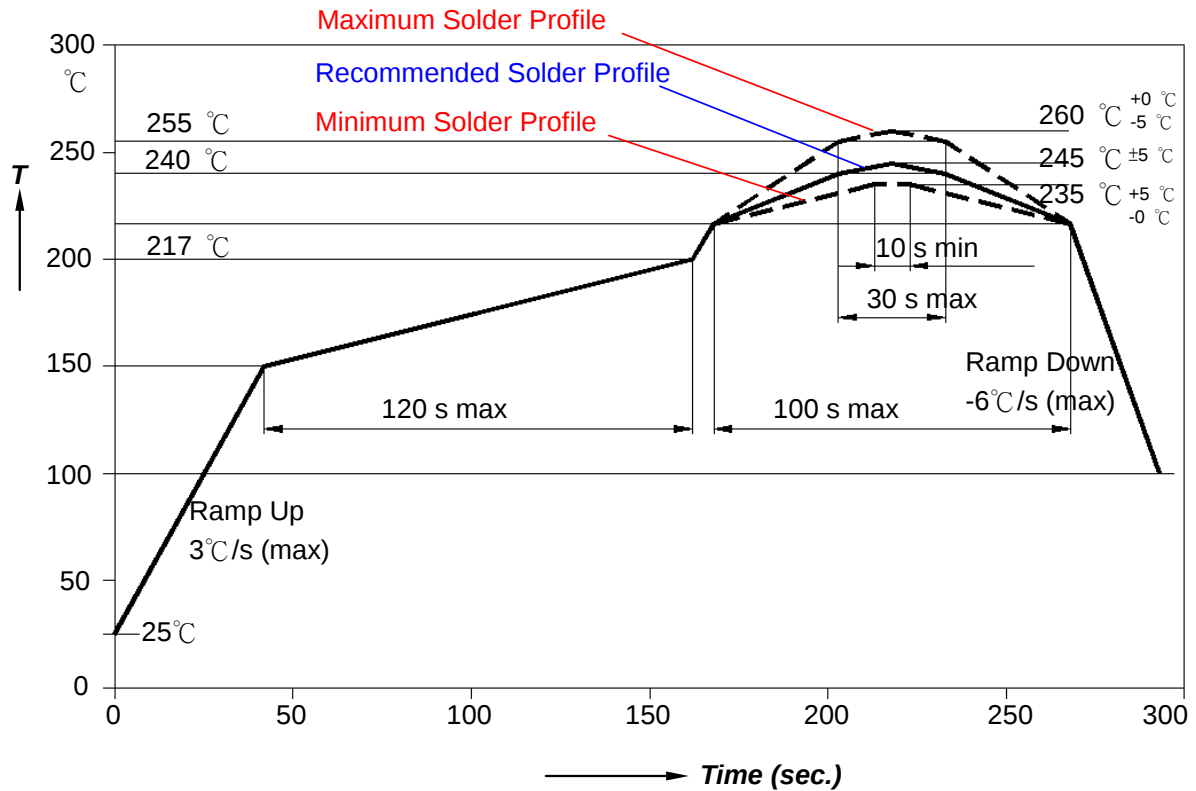


Typical Forward I-V Characteristics, $T_j=25^{\circ}\text{C}$



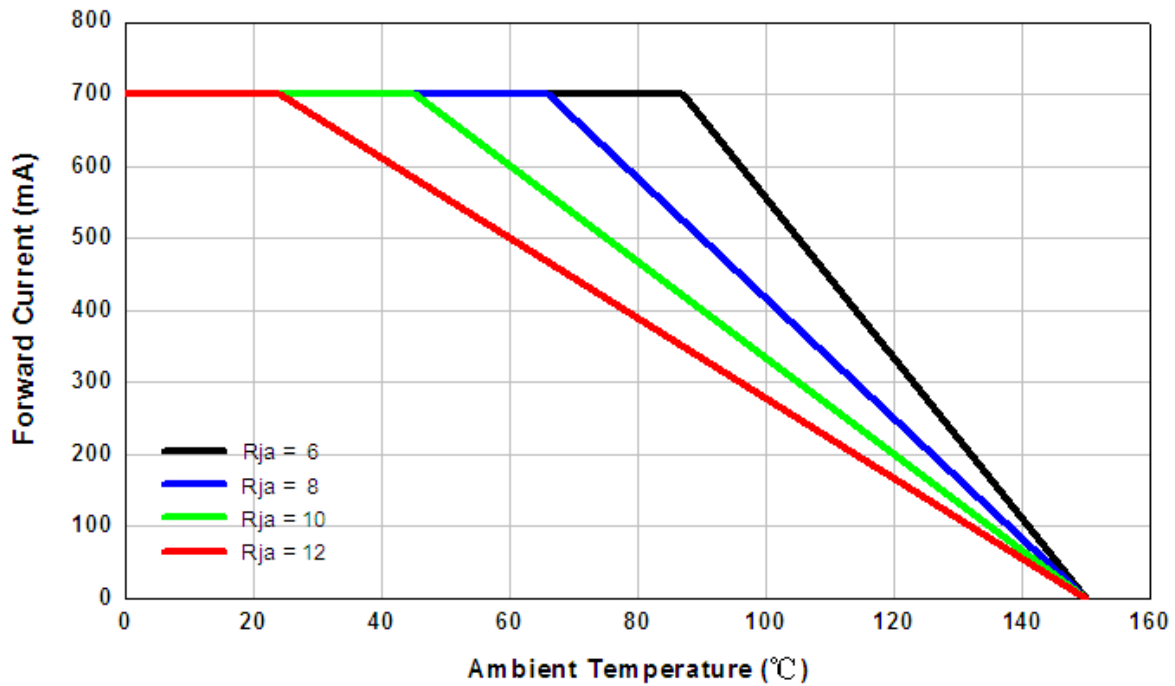
Recommended Soldering Profile

The LEDs can be soldered using the parameters listed below. As a general guideline, the users are suggested to follow the recommended soldering profile provided by the manufacturer of the solder paste. Although the recommended soldering conditions are specified in the list, reflow soldering at the lowest possible temperature is advised for the LEDs.



Thermal Design

Thermal design of the end product is important. The thermal resistance between the junction and the solder point ($R\theta_{j-p}$) and the end product should be designed to minimize the thermal resistance from the solder point to ambient in order to optimize the emitter life and optical characteristics. The maximum operation current is determined by the plot of Allowable Forward Current vs. Ambient Temperature.



The junction temperature can be correlated to the thermal resistance between the junction and ambient (R_{ja}) by the following equation.

$$T_j = T_a + R_{ja} \cdot W$$

T_j : LED junction temperature

T_a : Ambient temperature

R_{ja} : Thermal resistance between the junction and ambient

W : Input power ($I_F \cdot V_F$)

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.

Chu-Nan Site

For further company or product information, please visit us at www.tslc.com.tw or please contact sales@tslc.com.tw.



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