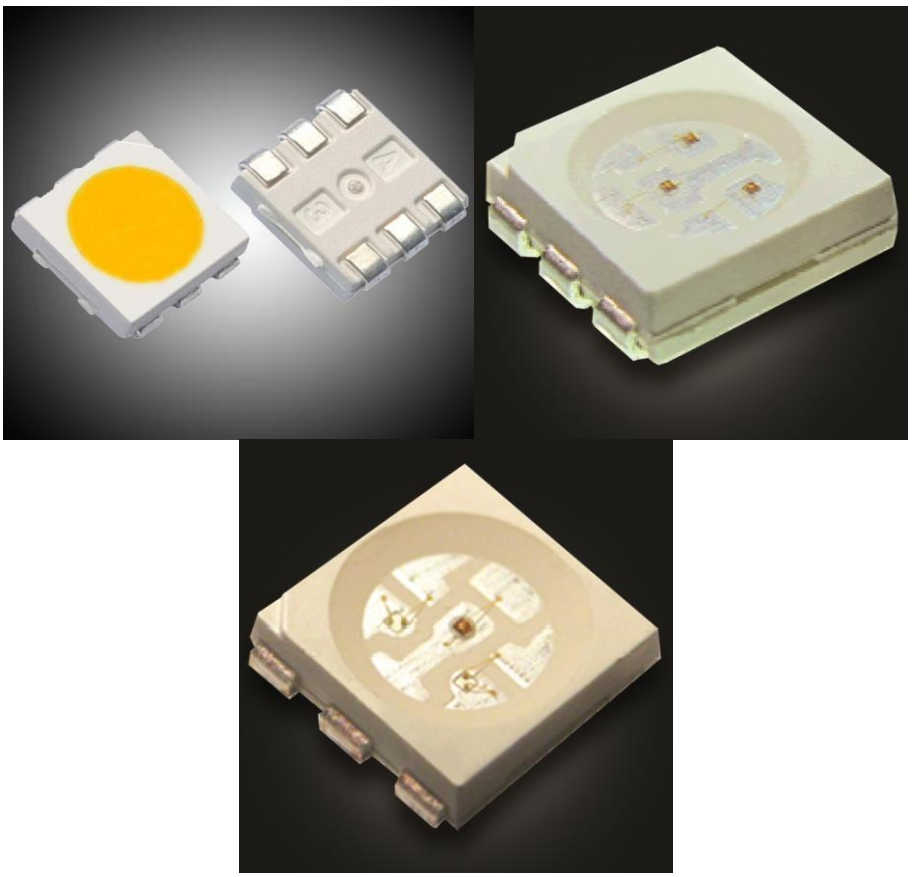
Data Sheet

5050 SMD LED

Nationstar LED



RoHS

ATTENTION
OBSERVE PRECAUTIONS
ELECTROSTATIC
SENSITIVE DEVICES

www.ilker.com.tr | www.iled.com | + 90 212 245 45 00 | mail@ilker.com.tr

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General Informations:

This product is generally used for electronic equipments such as dashboard and signal LED board. It also be widely used for indoor and outdoor decorative lightening.

Features:

- Silicone encapsulation
- Pb-free reflow soldering
- High luminous intensity
- Low power dissipation
- Good reliability and long life
- Various colors
- Good color uniformity
- Lead free reflow soldering
- RoHS compliant

Application：

- Reading lights (car, bus, aircraft)
- Portable (flashlight, bicycle)
- Uplighters/Downlighters
- Decorative/Entertainment
- Bollards/Security/Garden
- Cove/Undershelf/Task
- Indoor/Outdoor Commercial and
- Residential Architectural
- Automotive Ext (Stop-Tail-Turn),
- CHMSL, Mirror Side Repeat
- LCD backlights
- Numerous lightening applications

Electrical and Flux Characteristics:

Table 1: Flux Characteristics

Code	Size(mm)	Case	Color	Wavelenght	Angle
5055	5050	SMD LED	Red	615-630 nm	110°
5056	5050	SMD LED	Yellow	585-596 nm	110°
5054	5050	SMD LED	Blue	465-480 nm	110°
5053	5050	SMD LED	Green	520-535 nm	110°
5052	5050	SMD LED	White	3700-4200K	110°
5051	5050	SMD LED	Warm White	2800-3200K	110°
5050-1	5050	SMD LED	Cold White	7200-8500K	110°
5057	5050	SMD LED	RGB	R 615-630nm G 515-535nm B 465-480nm	110°

Notes for Table 1:

1. Parts are tested in pulsed conditions, Tj = 25°C. Pulse width is 10 ms at rated test current.
2. İlker Elektronik maintains a ± 10% tolerance on flux measurements.
3. Typical R9 value for 80CRI can be change with 90CRı.
4. Center beam candle power is a calculated value based on Lambertian radiation pattern at nominal test current.

Table 2: Electrical Characteristics

Code	Color	Typical Forward Current (mA)	Max Forward Current (mA)	Typical Input Voltage (CV)	Max Input Voltage (CV)	Typical Lm	Max Lm
5055	Red	60mA	75mA	2.0V	2.6V	1800 mcd	850 mcd
5056	Yellow	60mA	75mA	2.2V	2.6V	1800 mcd	900 mcd
5054	Blue	60mA	75mA	3.2V	3.6V	900 mcd	600 mcd
5053	Green	60mA	75mA	3.2V	3.6V	2700 mcd	1800 mcd
5052	White	60mA	75mA	3.2V	3.6V	7700 mcd	3600 mcd
5051	Warm White	60mA	75mA	3.2V	3.6V	7500 mcd	3300 mcd
5050-1	Cold White	60mA	75mA	3.2V	3.6V	8000 mcd	3600 mcd
5057	RGB	60mA	75mA	R 1.8V G 2.8V B 2.8V	2.0V 3.0V 3.2V	500 mcd 1000 mcd 220 mcd	750 mcd 1600 mcd 380 mcd

Notes for Table 2:

1. Parts are tested in pulsed conditions, Tj = 25°C. Pulse width is 10 ms at rated test current.
2. İlker Elektronik maintains a ± 10% tolerance on Current values.
3. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Table 3: Maximum Ratings

Parameter	Maximum Performance
Storage Temperature Range	-40 ~ +100° C
Operating Temperature Range	-30 ~ +85° C
Mounting Surface Temperature	60° C
LED Junction Temperature[1]	125° C
Electrostatic Discharge Classification (JEDEC-JESD22-A114F)	Class 1C
Reverse Voltage[2,3]	-5V
UL Recognition	UL recognized

Notes for Table 3:
1. Proper current de-rating must be observed to maintain junction temperature below the maximum.
2. Power LEDs are not designed to be driven in reverse bias.
3. At maximum reverse current of 10μA/LED.

Application Notes:

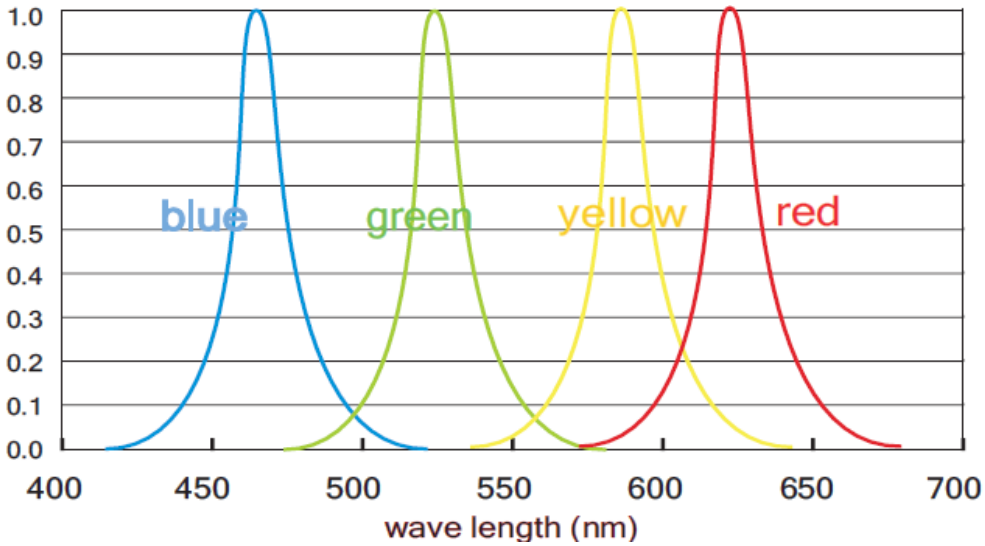
- The Anode side of the device is denoted by a hole in the lead frame.
- Electrical insulation between the case and the board is required. Do not electrically connect either the anode or cathode to the slug.
- Drawing not to scale.
- All dimensions are in millimeters.
- Unless otherwise indicated, tolerances are ± 0.20mm.
- Please do not bend the leads of the LED, otherwise it will damage the LED.

Precautions:

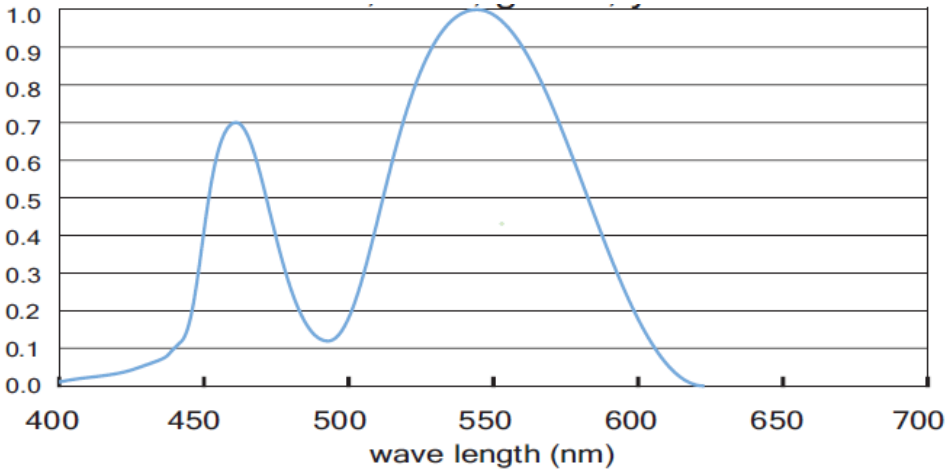
- Current should be derated in order to keep junction temperature below maximum by reducing power dissipation.
- Current spikes should be avoided especially during power up. It is good practice to initially connect PCB to unactivated supply, then gradually ramp up voltage to desired value.
- Proper management of the thermal path should be observed. Adequate heatsinking of strip should be provided in order to maintain junction temperature below maximum. Proper thermal conduction layers should be introduced at all interfaces to prevent insulating air gaps in the thermal path.
- As with all semiconductor devices, it is good practice to avoid electrostatic discharge (ESD).

Color Wavelength Diagram:

LED Color Spectrum for Red, Green, Blue, Yellow:



LED Color Spectrum for White (80 CRI) :

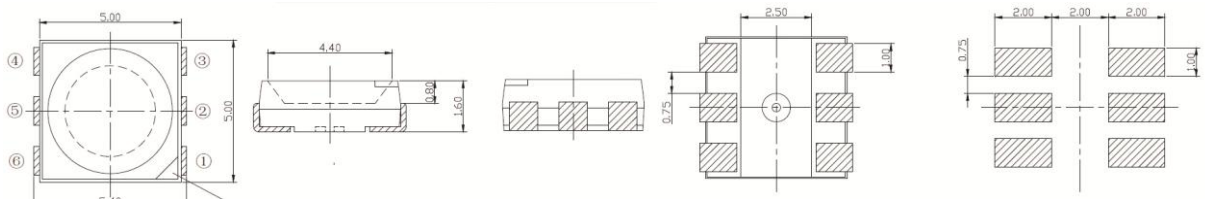


DO NOT LOOK DIRECTLY AT LED WITH UNSHIELDED EYES OR DAMAGE TO RETINA MAY OCCUR.

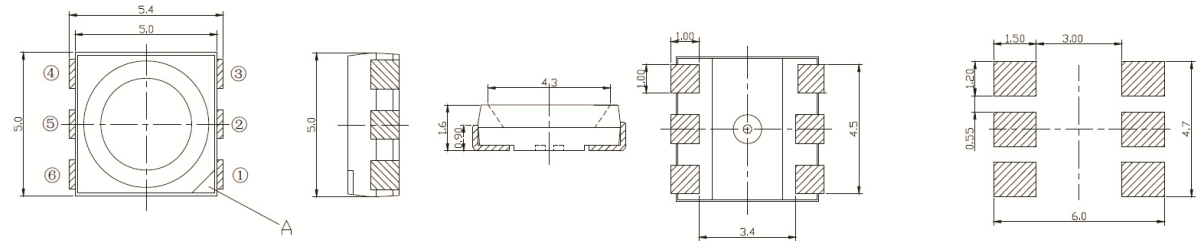
Mechanical Dimensions:

Technical Drawing:

4050-4052



4053-4055



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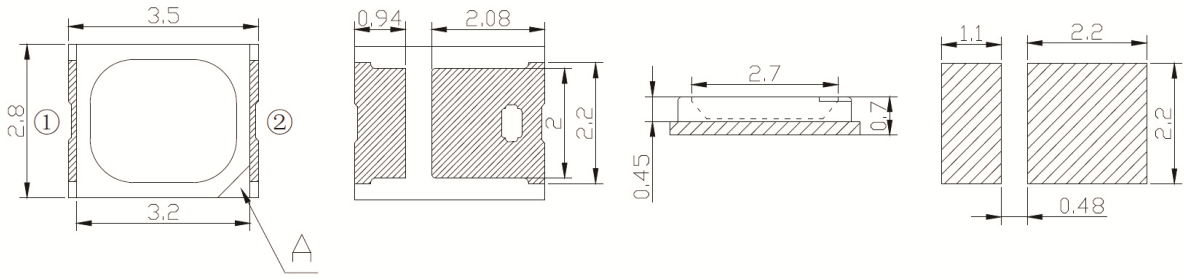
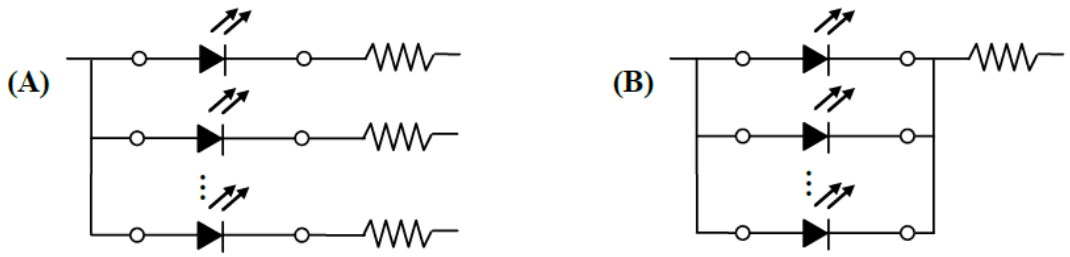
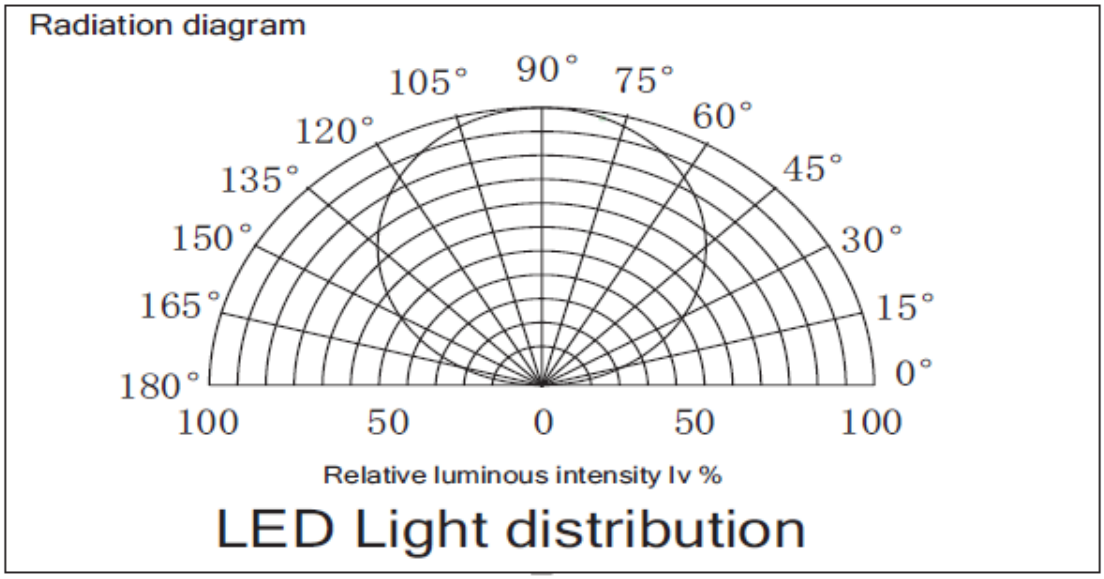


Electrical Connection:

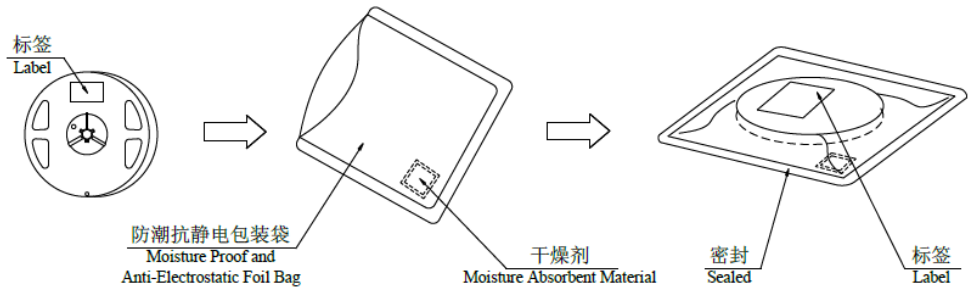
Circuit Diagram:



Optical Characteristics:



Packing:



✧ 外包装箱 **Cardboard Box**