



KM2520ZGC03
Subminiature Solid State Lamp

DESCRIPTIONS

- The Green source color devices are made with InGaN on Sapphire Light Emitting Diode
- Electrostatic discharge and power surge could damage the LEDs
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs
- All devices, equipments and machineries must be electrically grounded

FEATURES

- Subminiature package
- Gull wing lead
- Long life - solid state reliability
- Low package profile
- Moisture sensitivity level: 3
- Package: 1000 pcs / reel
- Halogen-free
- RoHS compliant

APPLICATIONS

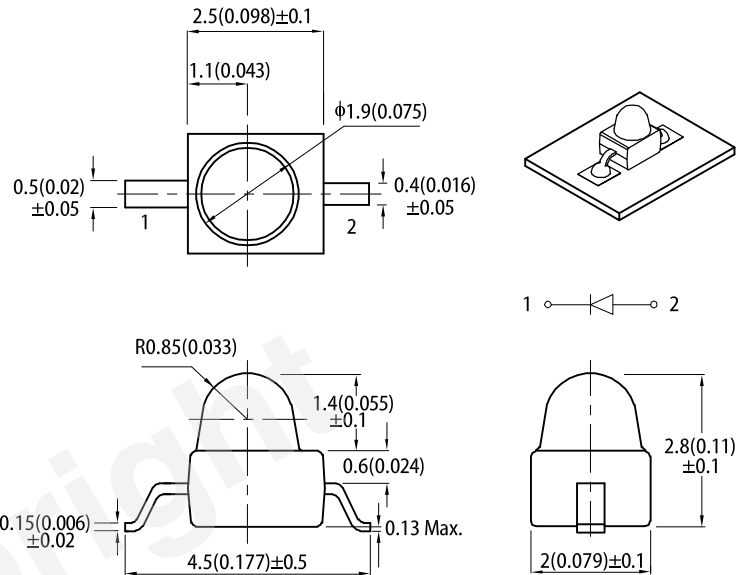
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

ATTENTION

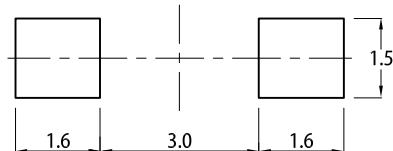
Observe precautions for handling electrostatic discharge sensitive devices



PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN
(units : mm; tolerance : ± 0.1)



- Notes:
1. All dimensions are in millimeters (inches).
 2. Tolerance is ±0.25(0.01") unless otherwise noted.
 3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
 4. The device has a single mounting surface. The device must be mounted according to the specifications.

SELECTION GUIDE

Part Number	Emitting Color (Material)	Lens Type	Iv (mcd) @ 20mA ^[2]		Viewing Angle ^[1]
			Min.	Typ.	2θ1/2
KM2520ZGC03	■ Green (InGaN)	Water Clear	4200	7000	20°

- Notes:
1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
 2. Luminous intensity / luminous flux: +/-15%.
 3. Luminous intensity value is traceable to CIE127-2007 standards.

ELECTRICAL / OPTICAL CHARACTERISTICS at T_A=25°C

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission I _F = 20mA	λ _{peak}	Green	515	-	nm
Dominant Wavelength I _F = 20mA	λ _{dom} ^[1]	Green	525	-	nm
Spectral Bandwidth at 50% Φ REL MAX I _F = 20mA	Δλ	Green	30	-	nm
Capacitance	C	Green	45	-	pF
Forward Voltage I _F = 20mA	V _F ^[2]	Green	3.3	4.1	V
Reverse Current (V _R = 5V)	I _R	Green	-	50	μA
Temperature Coefficient of λ _{peak} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λpeak}	Green	0.05	-	nm/°C
Temperature Coefficient of λ _{dom} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λdom}	Green	0.03	-	nm/°C
Temperature Coefficient of V _F I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _V	Green	-3.0	-	mV/°C

Notes:
1. The dominant wavelength (λd) above is the setup value of the sorting machine. (Tolerance λd : ±1nm.)
2. Forward voltage: ±0.1V.
3. Wavelength value is traceable to CIE127-2007 standards.
4. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

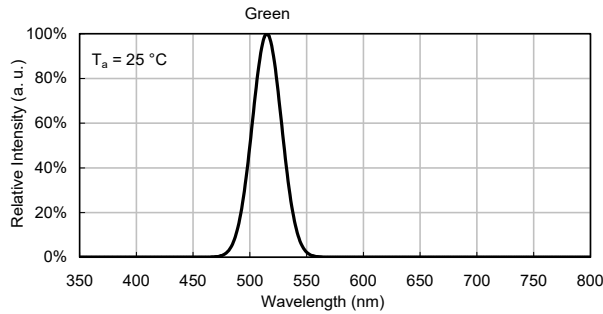
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	102.5	mW
Reverse Voltage	V _R	5	V
Junction Temperature	T _j	115	°C
Operating Temperature	T _{op}	-40 to +85	°C
Storage Temperature	T _{stg}	-40 to +85	°C
DC Forward Current	I _F	25	mA
Peak Forward Current	I _{FP} ^[1]	150	mA
Electrostatic Discharge Threshold (HBM)	-	450	V
Thermal Resistance (Junction / Ambient)	R _{th JA} ^[2]	540	°C/W
Thermal Resistance (Junction / Solder point)	R _{th JS} ^[2]	360	°C/W

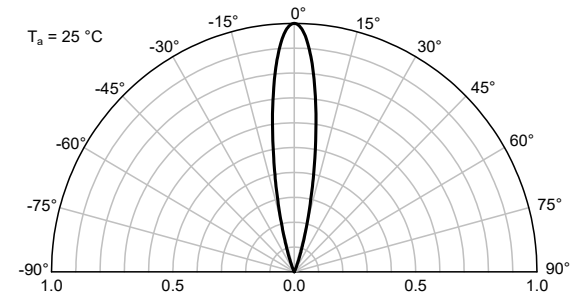
Notes:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. R_{th JA}, R_{th JS} Results from mounting on PC board FR4 (pad size ≥ 16 mm² per pad).
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

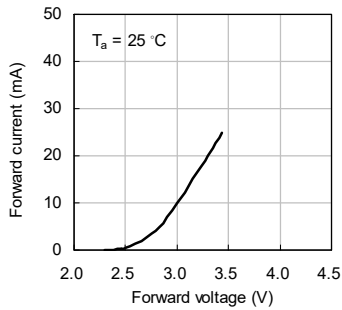


SPATIAL DISTRIBUTION

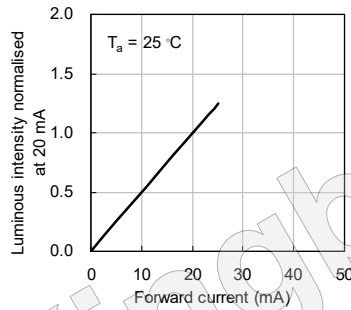


GREEN

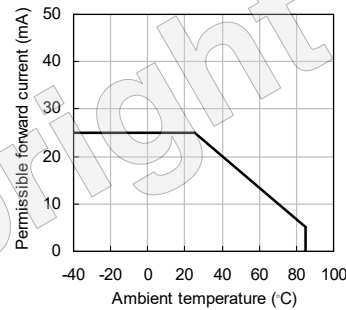
Forward Current vs. Forward Voltage



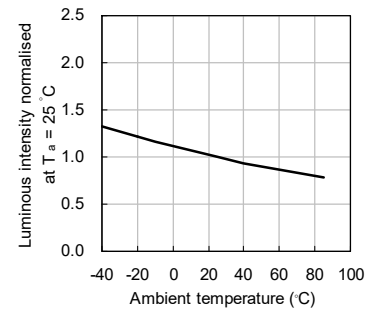
Luminous Intensity vs. Forward Current



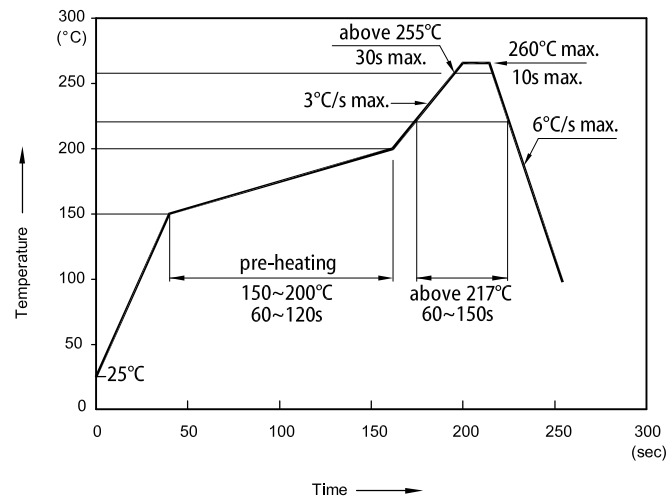
Forward Current Derating Curve



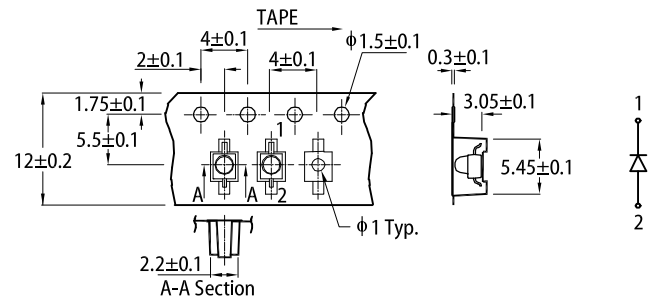
Luminous Intensity vs. Ambient Temperature



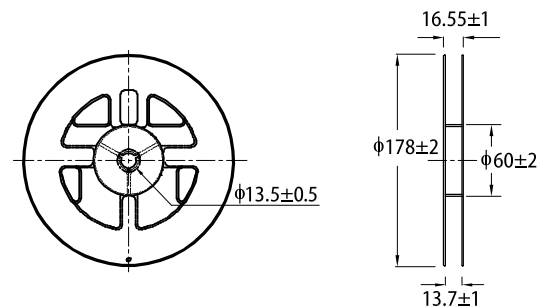
REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS



TAPE SPECIFICATIONS (units : mm)



REEL DIMENSION (units : mm)



- Notes:
1. Don't cause stress to the LEDs while it is exposed to high temperature.
 2. The maximum number of reflow soldering passes is 2 times.
 3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.

The diagram illustrates the packaging process for Kingbright LEDs, showing the progression from individual components to bulk packaging:

- Individual Components:** Three small square components, each with a circular LED die in the center, are shown on the left.
- Reel Packaging:** An arrow points to a reel of components. A label is shown being applied to the reel. The text "User Direction of Feed" is indicated above the reel. Below the reel, it says "1,000pcs / Reel".
- Bag Packaging:** An arrow points to a bag of components. A label is shown being applied to the bag. Below the bag, it says "1 Reel / Bag".
- Box Packaging (10K):** An arrow points to a box labeled "Kingbright". An "Outside Label" is shown on the side of the box. Below the box, it says "10K / Box".
- Box Packaging (20K):** An arrow points to a larger box labeled "Kingbright". An "Outside Label" is shown on the side of the box. Below the box, it says "20K / Box".

Kingbright

XXXXXXXXXX-XXXX

P/N: XXXXXXXX

QTY: XXXXX pcs

S/N: XXXX

CODE: XX

COUNTRY: CN

QC DATE: XX XX XXXX PASSED

LOT NO: XXXXXXXXXX

(SP)XXXXXXXXXX

RoHS Compliant

PRECAUTIONARY NOTES

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
3. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
4. The information in this document applies to typical usage in consumer electronics applications. If customer's application has special reliability requirements or have life-threatening liabilities, such as automotive or medical usage, please consult with Kingbright representative for further assistance.
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