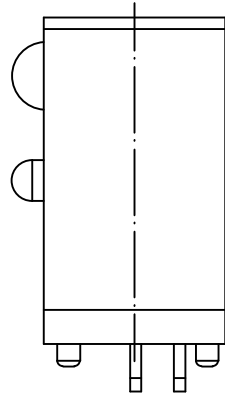
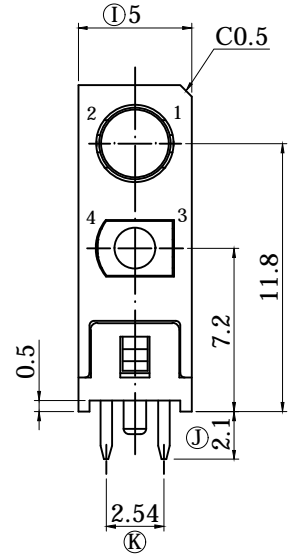
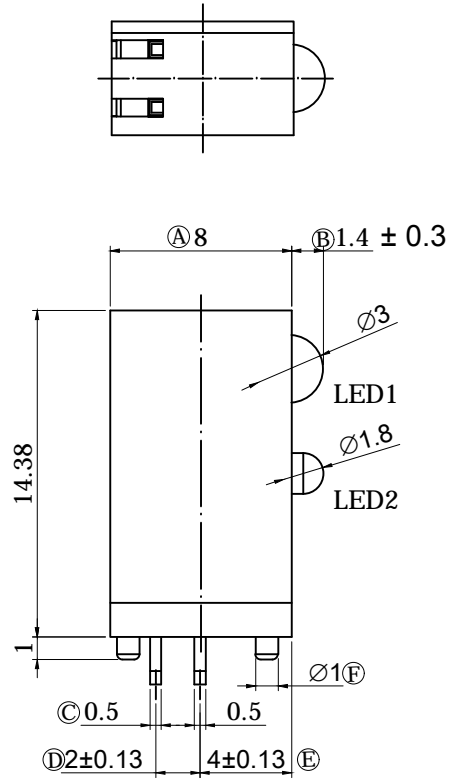
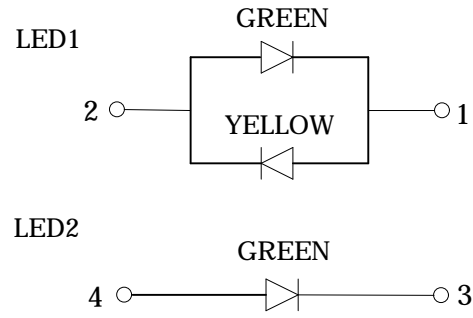
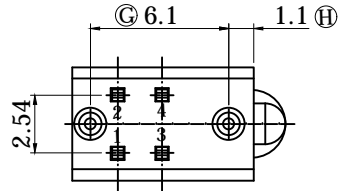
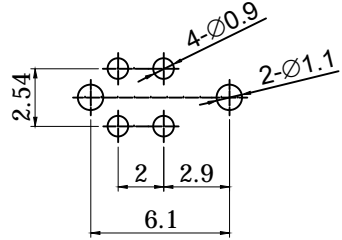


DIMENSION	TOLERANCE
BELOW 10 mm	± 0.25
10-100 mm	± 0.25
CRITICAL DIMENSIONS : 'A' ~ 'K'	



P.C. B LAYOUT



△					DATA	2019/12/26	UNIT	mm	MODE	
△					APPROVAL	KAVEN	SCALE	1 : 1	PART	LED003-KYGUG-TR
△					CONFIRM	EASON	VIEW		2D FILE NAME	LED003-KYGUG-TR
	DATA	APPROVAL	DESIGN	ENGINEERING CHANGE DESCRIPTION	DESIGN	YJS	VER.	01	3D FILE NAME	

WB Well Buying Industrial Co.,Ltd.

WELL BUYING INDUSTRIAL CO., LTD.
SPECIFICATIONS OF LED003 SERIES

1. PACKING AND SHIPPING:

LED003	200 PCS / 1 REEL
	8 REEL / 1 CTN
	1600 PCS/ 1 CTN
CARTON SIZE	35*35*32.5CM CM

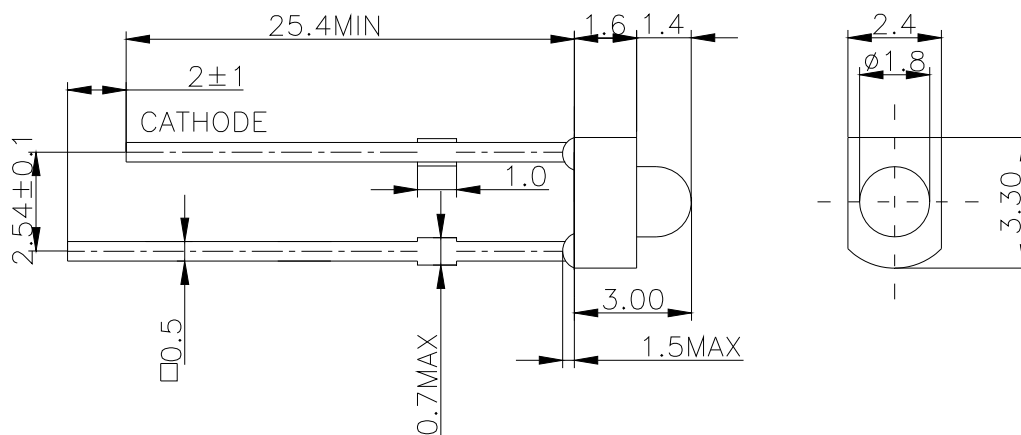
◆ Features

- 2mm Nipple LED Lamps
- Emitting Color: Green
- Lens Color: Green Diffuse
- Material: InGaN
- Low power consumption
- Excellent product quality and reliability
- Lead-free device

◆ Applications

- Electronic signs and signals
- Bright ambient lighting conditions
- Backlight
- General purpose indicators

◆ Package Dimensions



Notes:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.25 unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.
5. The design and working Current for Led is not less than 2mA.

◆ Absolute Maximum Ratings at TA=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	PD	120	mW
Forward Current	IF	30	mA
Peak Forward Current*1	IFP	100	mA
Reverse Voltage	VR	5	V
Operating Temperature	Topr	-40°C To +85°C	
Storage Temperature	Tstg	-40°C To +85°C	
Soldering Temperature*2	Tsol	260°C For 5 Seconds	

Notes:

*1: Pulse width≤0.1ms, Duty cycle≤1/10

*2: ΔAt the position of 3mm below package base.

*3: ▲Please refer to the curve of forward current vs.temperature

◆ Electrical / Optical Characteristics at TA=25°C

Parameter	Symbol	Min.	Typ.	Max	Unit	Test Conditions
Forward Voltage	VF	2.6	3.0	3.4	V	IF=20mA
Reverse Current	IR	—	—	10	μA	VR=5V
Dominant Wavelength	λ_d	514	517	522	nm	IF=20mA
Peak Wavelength	λ_P	—	515	—	nm	IF=20mA
Spectral line Half-width	$\Delta\lambda$	—	30	—	nm	IF=20mA
Luminous Intensity	IV	400	840	1700	mcd	IF=20mA
Power Angle	2θ1/2	—	29	—	Deg.	IF=20mA

Remarks:

If special sorting is required (e.g. binning based on forward voltage, luminous intensity, or dominant wavelength), the typical accuracy of the sorting process is as follows:

1. Dominant Wavelength: +/-1nm
2. Chromatic Coordinates: +/-0.01
3. Luminous Intensity: +/-15%
4. Forward Voltage: +/-0.1V

◆ VF Rank

Rank	VF(V)		Condition
	Min	Max	
E2F1	2.6	2.8	IF=20mA
F2G1	2.8	3.0	
G2H1	3.0	3.2	
H2I1	3.2	3.4	

Tolerance:±0.1V

◆ λD Rank

Rank	λD(nm)		Condition
	Min	Max	
GA	514	516	IF=20mA
GB	516	518	
GC	518	520	
GD	520	522	

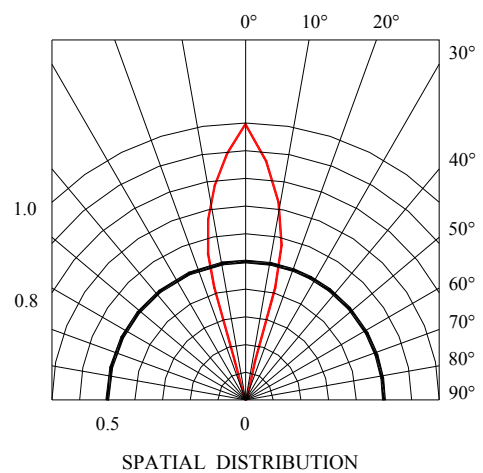
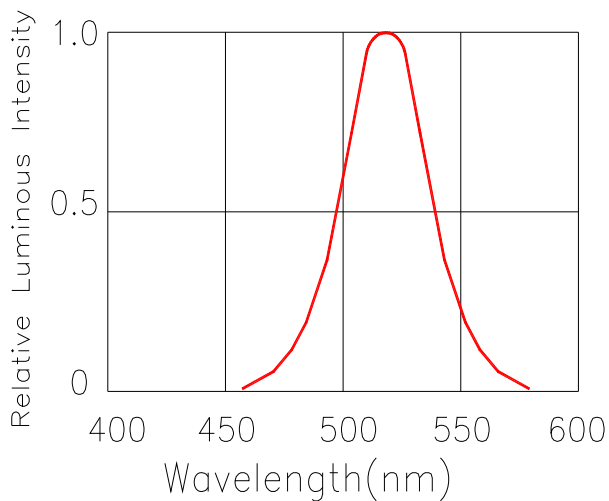
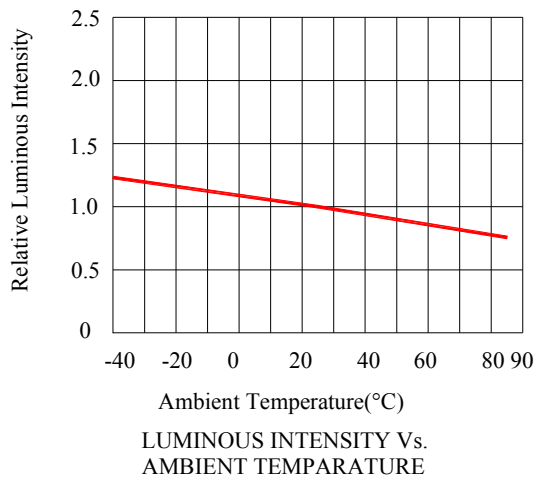
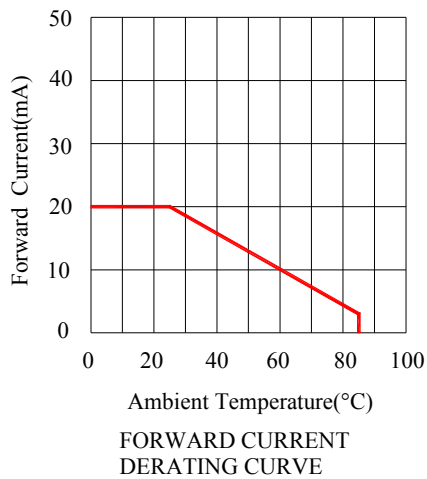
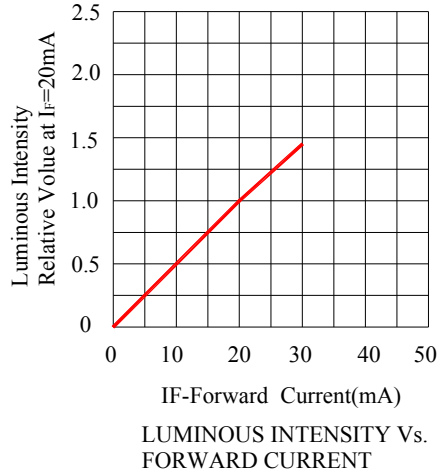
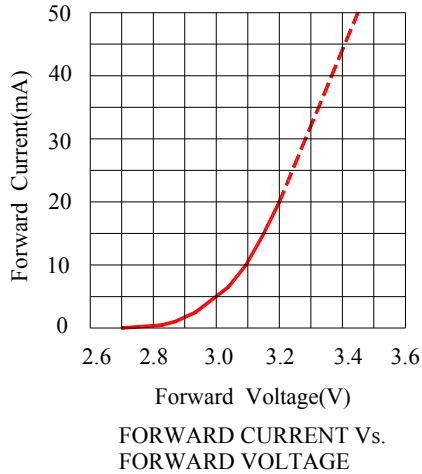
Tolerance:±1nm

◆ IV Rank

Rank	IV(mcd)		Condition
	Min	Max	
L	400	600	IF=20mA
M	600	1000	
N	1000	1700	

Tolerance:±15%

◆ Typical Electrical/Optical Characteristics Curves



◆ Reliability Test Items and Conditions

Test Classification	Test Item	Test Conditions	Test Duration	Sample Size	AC/RE
Life Test	Room Temperature DC Operating Life Test	Ta=25°C±5°C, If=20mA	1000hrs	22pcs	0/1
Environment Test	Thermal Shock Test	100°C±5°C 5min ↓↑ -40°C±5°C 5min	20 cycles	22pcs	0/1
	Temperature Cycle Test	100°C±5°C 30min ↓↑5min -40°C±5°C 30min	20 cycles	22pcs	0/1
	High Temperature & High Humidity Test	85°C±5°C /85% RH	1000hrs	22pcs	0/1
	High Temperature Storage	Ta=100°C±5°C	1000hrs	22pcs	0/1
	Low temperature Storage	Ta=-40°C±5°C	1000hrs	22pcs	0/1
Mechanical Test	Resistance to Soldering Heat	Temp=260°C ±5°C T=5s max	2 times	22pcs	0/1

◆ Criteria for Judging the Damage

Item	Symbol	condition	Criteria for Judgement	
			MIN.	MAX.
Forward Voltage	VF (V)	IF=20mA	---	U.S.L*1.1
Reverse Current	IR (uA)	VR=5V	---	10uA
Luminous Intensity	IV (mcd)	IF=20mA	L.S.L*0.5	---

【Note】 1.USL: Upper Specification Level 2.LSL: Lower Specification Level

◆ CAUTIONS:

1. Lead Forming & Assembly

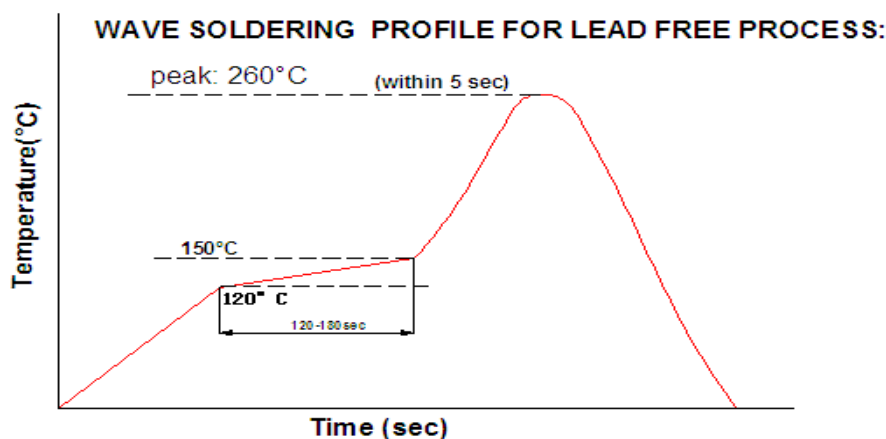
- Lead forming or bending must be done before soldering, at normal temperature.
- During lead forming, the leads should be bent at a point at least 3mm from the base of LED lens.
- Do not use the base of the lead frame as a fulcrum during lead forming.
- Avoid bending the leads at the same point more than once.
- During assembly on PCB, use minimum clinch force possible to avoid excessive mechanical stress.

2. LED Mounting Method

- The lead pitch of the LED must match the pitch of the mounting holes on the PCB during component placement. Lead-forming may be required to insure the lead pitch matches the hole pitch.
- When soldering wire to the LED. Use individual heat-shrink tubing to insulate the exposed leads to prevent accidental contact short-circuit.
- Use stand-offs or spacers to securely position the LED above the PCB.

3. Soldering

- When soldering, the soldering iron needs to be at least 3mm away from the epoxy edge. After soldering, allow at least 3 minutes for LEDs to cool back to normal temperature. DO not apply any pressure to the epoxy encapsulation or the lead frame during the soldering process.



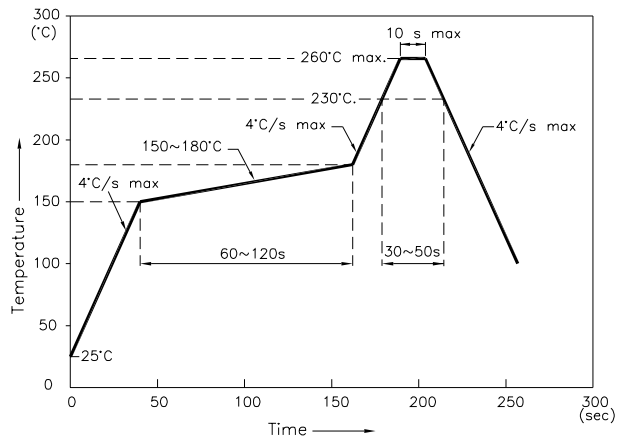
- When using soldering iron, please solder once for less than 5 seconds at a maximum temperature of 300°C. When soldering a row of LED on a PCB. Please do not solder both leads of a LED in sequence. (Solder all the positive lead first, then all the negative leads).
 - Do not dip the epoxy encapsulation part of LED into any soldering paste liquid.
 - After soldering, do not adjust the location of the LED anymore.
-

- When attaching electronic parts to a PCB with LEDs .the curing time for the whole PCB

Should be less than 60 seconds .at less than a temperature of 120°C.

Soldering Profile

Reflow Soldering Profile For Lead-free SMT Process.



NOTES:

1. We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

過錫爐條件:IR Reflow 2次

4.Cleaning:

- Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LEDs if necessary.

5.Storage

- The storage ambient for the LEDs should not exceed 30°C temperature or 70% relative humidity.
- It is recommended that LEDs out of their original packaging are used within three months. For extended storage out of their original packaging, it is recommended that the LEDs be stored in a sealed container with appropriate desiccant or in desiccators with nitrogen ambient.

6.ESD (Electrostatic Discharge)

Static Electricity or power surge will damage the LED.

Suggestions to prevent of ESD damage.

- All devices, equipment, and machinery must be properly grounded.
- Use a conductive wrist band or anti-electrostatic glove when handling these LEDs.
- Maintain a humidity level of 50% or higher in production areas.
- Use anti-static packaging for transportation and storage.

7.Recommended Usage Guidelines

- Please only use 20mA(Lamp LED) of forward current to drive LEDs whether one LED or multiple LEDs are being used.
 - Sudden surge could damage the LED interior connections.please design circuit with care to no sudden voltage surge or current surge will show when turning the circuit on or off.
-

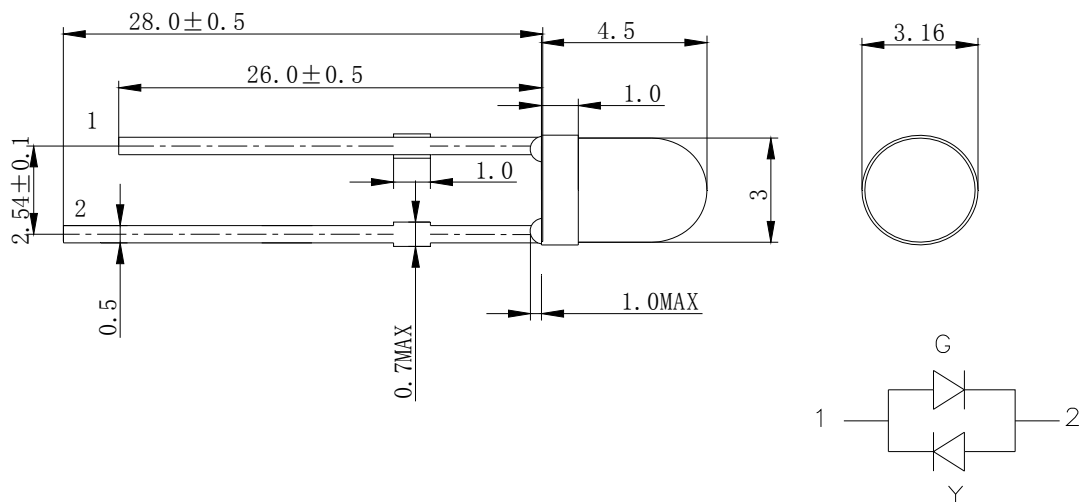
◆ Features

- 3mm Rounded LED Lamps
- Emitting Color: Yellow /Green
- Lens Color: White diffuse
- Material: AlGaInP/InGaN
- Low power consumption
- Excellent product quality and reliability
- Lead-free device

◆ Applications

- Electronic signs and signals
- Bright ambient lighting conditions
- Backlight
- General purpose indicators

◆ Package Dimensions



Notes:

1. All dimensions are in millimeters.
 2. Tolerance is ± 0.25 unless otherwise noted.
 3. Lead spacing is measured where the leads emerge from the package.
 4. Specifications are subject to change without notice.
 5. The design and working Current for Led is not less than 2mA.
-

◆ Absolute Maximum Ratings at TA=25°C

Parameter	Symbol	Value		Unit
		Yellow	Green	
Power Dissipation	P _D	80	120	mW
Forward Current	I _F	30	30	mA
Peak Forward Current*1	I _{FP}	100	100	mA
Reverse Voltage	V _R	5	5	V
Operating Temperature	T _{opr}	-40°C To +85°C		
Storage Temperature	T _{stg}	-40°C To +85°C		
Soldering Temperature*2	T _{sol}	260°C For 5 Seconds		

Notes:

*1: Pulse width≤0.1ms, Duty cycle≤1/10

*2: ΔAt the position of 3mm below package base.

*3: ▲Please refer to the curve of forward current vs.temperature

◆ Electrical / Optical Characteristics at TA=25°C

Parameter		Symbol	Min.	Typ.	Max	Unit	Test Conditions
Forward Voltage	Yellow	V _F	1.8	2.0	2.6	V	I _F =20mA
	Green	V _F	2.7	3.0	3.5	V	
Reverse Current	Yellow	I _R	—	—	10	μA	V _R =5V
	Green	I _R	—	—	10	μA	
Dominant Wavelength	Yellow	λ _d	585	590	595	nm	I _F =20mA
	Green	λ _d	515	518	525	nm	
Peak Wavelength	Yellow	λ _p	—	595	—	nm	I _F =20mA
	Green	λ _p	—	515	—	nm	
Spectral line Half-width	Yellow	Δλ	—	16	—	nm	I _F =20mA
	Green	Δλ	—	30	—	nm	
Luminous Intensity	Yellow	I _v	120	180	400	mcd	I _F =20mA
	Green	I _v	500	1000	2300	mcd	
Power Angle		2θ _{1/2}	—	G:71 Y:85	—	Deg	I _F =20mA

Remarks:

If special sorting is required (e.g. binning based on forward voltage, luminous intensity, or dominant wavelength), the typical accuracy of the sorting process is as follows:

1. Dominant Wavelength: +/-1nm
2. Chromatic Coordinates: +/-0.01
3. Luminous Intensity: +/-15%
4. Forward Voltage: +/-0.1V

◆ VF Rank

Yellow

Rank	VF(V)		Condition
	Min	Max	
A2B1	1.8	2.0	IF=20mA
B2C1	2.0	2.2	
C2D1	2.2	2.4	
D2E1	2.4	2.6	

Tolerance:±0.1V

◆ λ_D Rank

Yellow

Rank	λ_D (nm)		Condition
	Min	Max	
Y2	585	590	IF=20mA
Y3	590	595	

Tolerance:±1nm

◆ IV Rank

Yellow

Rank	IV(mcd)		Condition
	Min	Max	
I	120	180	IF=20mA
J	180	270	
K	270	400	

Tolerance:±15%

◆ VF Rank

Green

Rank	VF(V)		Condition
	Min	Max	
F1F2	2.7	2.9	IF=20mA
G1G2	2.9	3.1	
H1H2	3.1	3.3	
I1I2	3.3	3.5	

Tolerance:±0.1V

◆ λD Rank

Green

Rank	λD(nm)		Condition
	Min	Max	
G4	515	520	IF=20mA
G5	520	525	

Tolerance:±1nm

◆ IV Rank

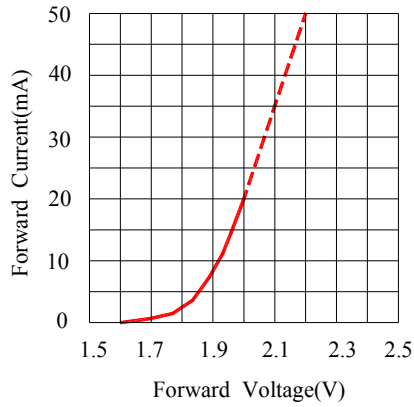
Green

Rank	IV(mcd)		Condition
	Min	Max	
M	500	1050	IF=20mA
N	1050	1500	
O	1500	2300	

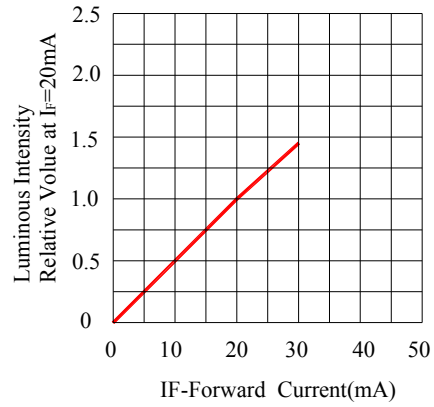
Tolerance:±15%

◆ Typical Electrical/Optical Characteristics Curves

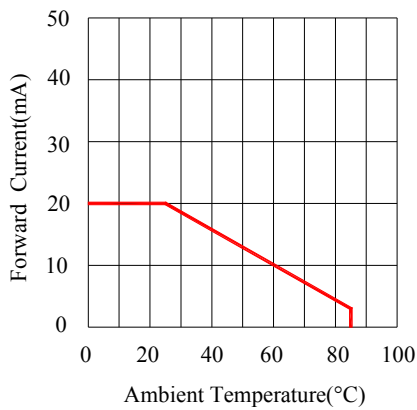
◆ Yellow



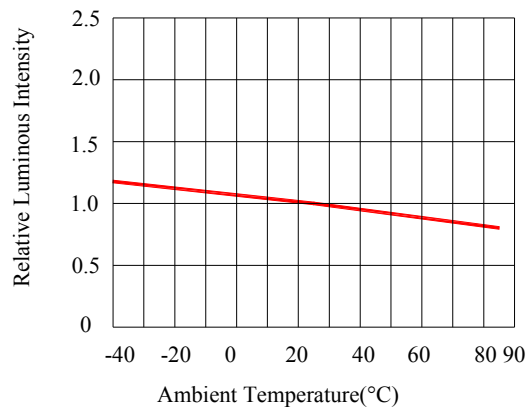
FORWARD CURRENT Vs. FORWARD VOLTAGE



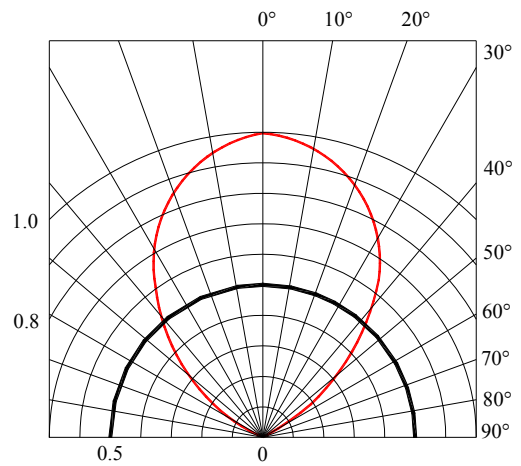
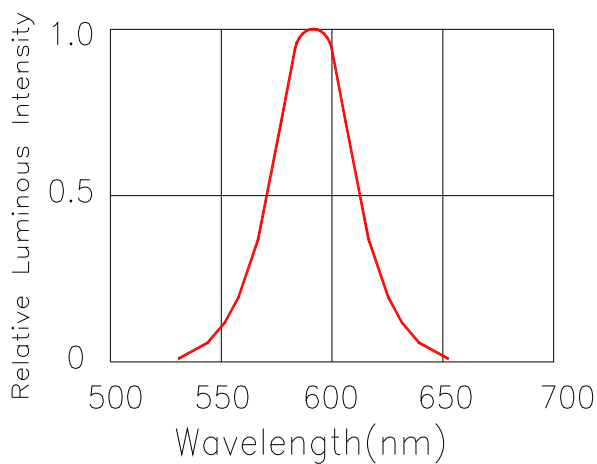
LUMINOUS INTENSITY Vs. FORWARD CURRENT



FORWARD CURRENT DERATING CURVE



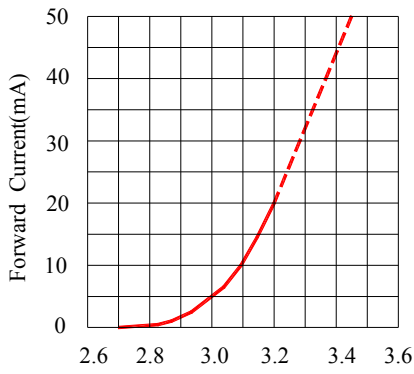
LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE



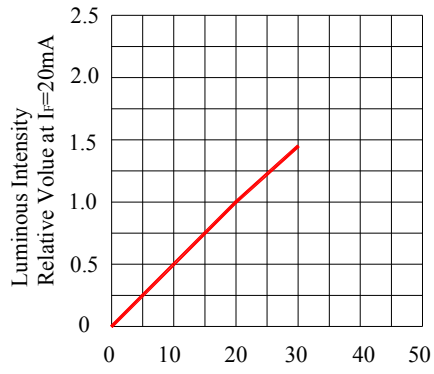
SPATIAL DISTRIBUTION

◆ Typical Electrical/Optical Characteristics Curves

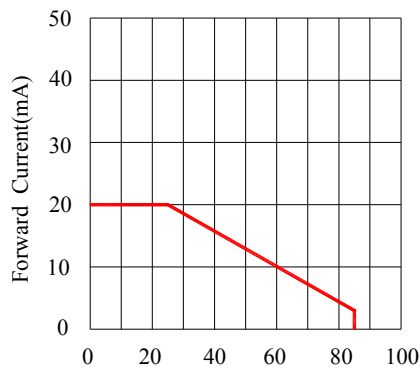
◆ Green



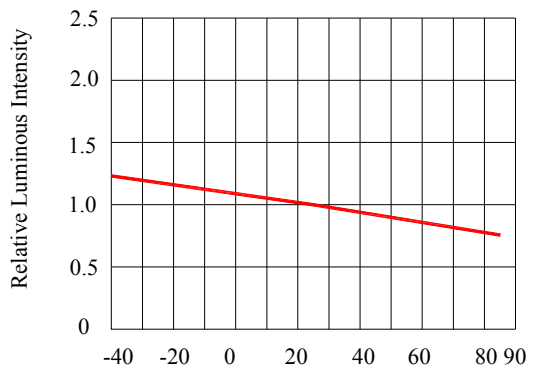
FORWARD CURRENT Vs. FORWARD VOLTAGE



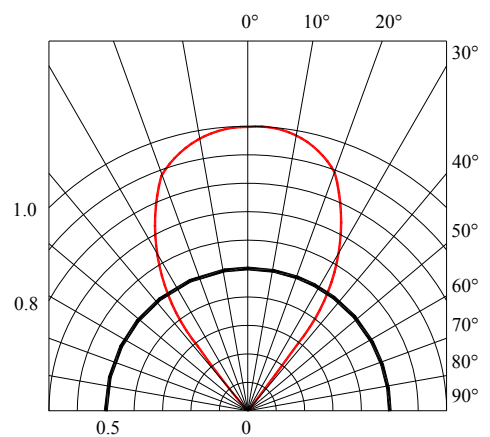
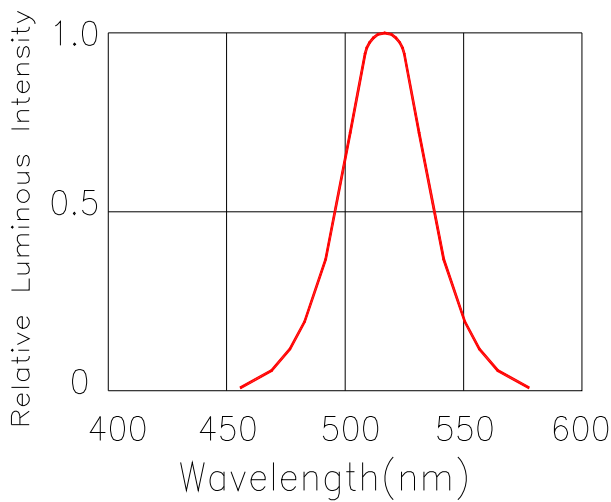
LUMINOUS INTENSITY Vs. FORWARD CURRENT



FORWARD CURRENT DERATING CURVE



LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE



SPATIAL DISTRIBUTION

◆ Reliability Test Items and Conditions

Test Classification	Test Item	Test Conditions	Test Duration	Sample Size	AC/RE
Life Test	Room Temperature DC Operating Life Test	Ta=25°C±5°C, If=20mA	1000hrs	22pcs	0/1
Environment Test	Thermal Shock Test	100°C±5°C 5min ↓↑ -40°C±5°C 5min	20 cycles	22pcs	0/1
	Temperature Cycle Test	100°C±5°C 30min ↓↑5min -40°C±5°C 30min	20 cycles	22pcs	0/1
	High Temperature & High Humidity Test	85°C±5°C /85% RH	1000hrs	22pcs	0/1
	High Temperature Storage	Ta=100°C±5°C	1000hrs	22pcs	0/1
	Low temperature Storage	Ta=-40°C±5°C	1000hrs	22pcs	0/1
Mechanical Test	Resistance to Soldering Heat	Temp=260°C ±5°C T=5s max	2 times	22pcs	0/1

◆ Criteria for Judging the Damage

Item	Symbol	condition	Criteria for Judgement	
			MIN.	MAX.
Forward Voltage	VF (V)	IF=20mA	---	U.S.L*1.1
Reverse Current	IR (uA)	VR=5V	---	10uA
Luminous Intensity	IV (mcd)	IF=20mA	L.S.L*0.5	---

【Note】 1.USL: Upper Specification Level 2.LSL: Lower Specification Level

◆ CAUTIONS:

1. Lead Forming & Assembly

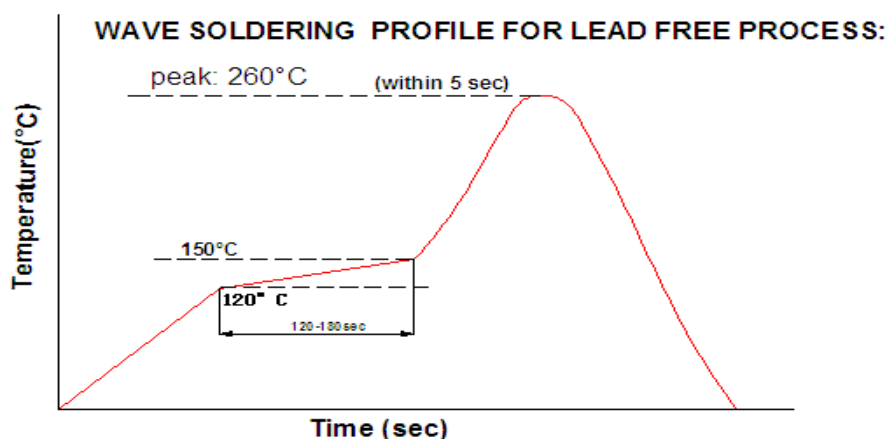
- Lead forming or bending must be done before soldering, at normal temperature.
- During lead forming, the leads should be bent at a point at least 3mm from the base of LED lens.
- Do not use the base of the lead frame as a fulcrum during lead forming.
- Avoid bending the leads at the same point more than once.
- During assembly on PCB, use minimum clinch force possible to avoid excessive mechanical stress.

2. LED Mounting Method

- The lead pitch of the LED must match the pitch of the mounting holes on the PCB during component placement. Lead-forming may be required to insure the lead pitch matches the hole pitch.
- When soldering wire to the LED. Use individual heat-shrink tubing to insulate the exposed leads to prevent accidental contact short-circuit.
- Use stand-offs or spacers to securely position the LED above the PCB.

3. Soldering

- When soldering, the soldering iron needs to be at least 3mm away from the epoxy edge. After soldering, allow at least 3 minutes for LEDs to cool back to normal temperature. DO not apply any pressure to the epoxy encapsulation or the lead frame during the soldering process.



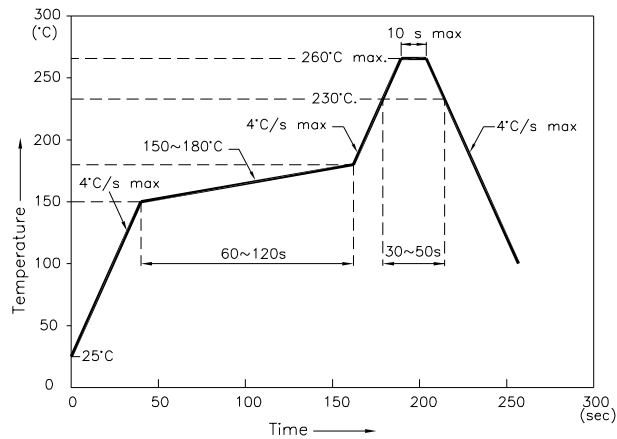
- When using soldering iron, please solder once for less than 5 seconds at a maximum temperature of 300°C. When soldering a row of LED on a PCB. Please do not solder both leads of a LED in sequence. (Solder all the positive lead first, then all the negative leads).
 - Do not dip the epoxy encapsulation part of LED into any soldering paste liquid.
 - After soldering, do not adjust the location of the LED anymore.
-

- When attaching electronic parts to a PCB with LEDs .the curing time for the whole PCB

Should be less than 60 seconds .at less than a temperature of 120°C.

Soldering Profile

Reflow Soldering Profile For Lead-free SMT Process.



NOTES:

- 1.We recommend the reflow temperature 245°C(+/-5°C).The maximum soldering temperature should be limited to 260°C.
- 2.Don't cause stress to the epoxy resin while it is exposed to high temperature.
- 3.Number of reflow process shall be 2 times or less.

過錫爐條件:IR Reflow 2 次

4.Cleaning:

- Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LEDs if necessary.

5.Storage

- The storage ambient for the LEDs should not exceed 30°C temperature or 70% relative humidity.
- It is recommended that LEDs out of their original packaging are used within three months. For extended storage out of their original packaging, it is recommended that the LEDs be stored in a sealed container with appropriate desiccant or in desiccators with nitrogen ambient.

6.ESD (Electrostatic Discharge)

Static Electricity or power surge will damage the LED.

Suggestions to prevent of ESD damage.

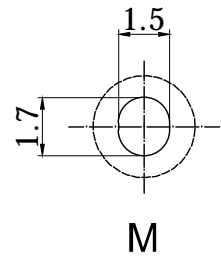
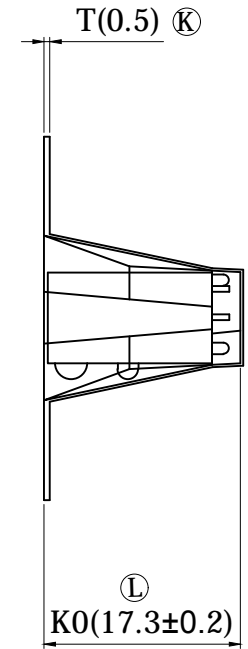
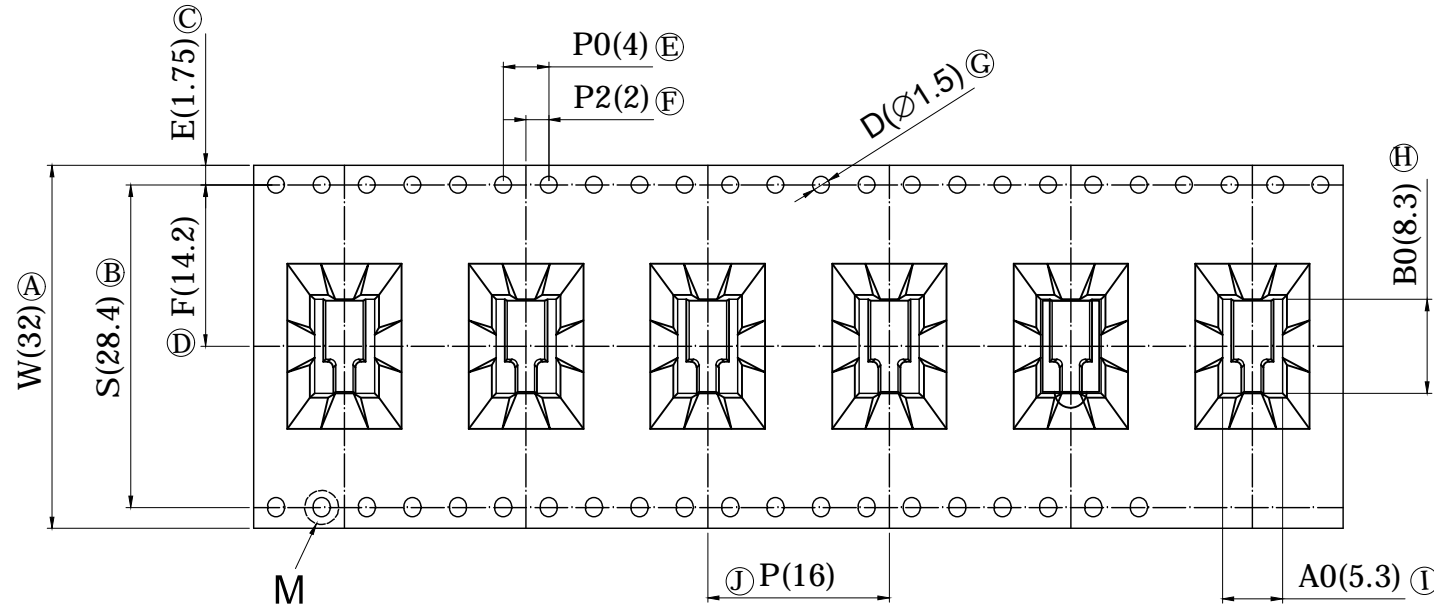
- All devices, equipment, and machinery must be properly grounded.
- Use a conductive wrist band or anti-electrostatic glove when handling these LEDs.
- Maintain a humidity level of 50% or higher in production areas.
- Use anti-static packaging for transportation and storage.

7.Recommended Usage Guidelines

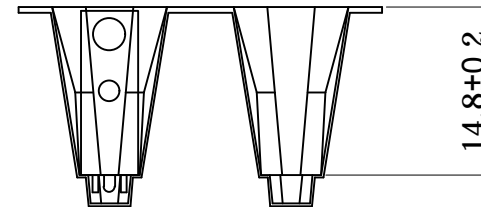
- Please only use 20mA(Lamp LED) of forward current to drive LEDs whether one LED or multiple LEDs are being used.
 - Sudden surge could damage the LED interior connections.please design circuit with care to no sudden voltage surge or current surge will show when turning the circuit on or off.
-

ITEM	W	A0	B0	D	E	F	S	K0	P0	P2	P	T
DIM	32	5.3	8.3	1.5	1.75	14.2	28.4	17.3	4	2	16	0.5
TOLE	±0.3	±0.1	±0.1	$\begin{matrix} +0.1 \\ -0 \end{matrix}$	±0.1	±0.1	±0.1	±0.2	±0.1	±0.1	±0.1	±0.05

DIMENSION	TOLERANCE
BELOW 10 mm	± 0.3
10~100 mm	± 0.5
ABOVE 100 mm	± 0.8
ANGLE	± 3°
CRITICAL DIMENSIONS : 'A' ~ 'L'	



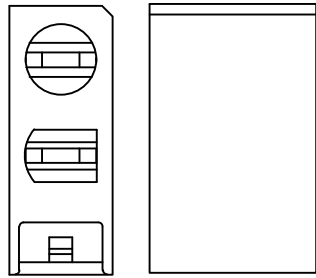
- NOTE:
- 1.10 SPROCKET HOLE PITCH CUMULATIVE TOLERANCE±0.2
 - 2.CARRIER CAMBER IS 1MM IN 100MM
 - 3.A0 AND B0 MEASURED ON A PLANCE 0.3MM ABOVE THE BOTTOM OF THE POCKET
 - 4.K0 MEASURED FROM A PLANE ON THE INSIDE BOTTOM OF THE POCKET TO THE TOP SURFACE OF THE CARRIER
 - 5.ALL DIMENSIONS MEET EIA-481-3 REQUIREMENTS
 - 6.PACKING LENGTH PER 13"REEL : 3.8 METERS
 - 7.COMPONENT LOAD PER 13"REEL : 200 PCS



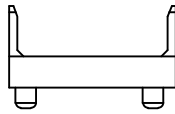
△				DATA	2020/03/12	UNIT	mm	MODE	
△				APPROVAL	KAVEN	SCALE	1 : 1	PART	LED003 料带图
△				CONFIRM	EASON	VIEW	$\begin{matrix} \text{---} \\ \text{---} \end{matrix}$	2D FILE NAME	LED003 料带图
	DATA	APPROVAL	DESIGN	ENGINEERING CHANGE DESCRIPTION	DESIGN	VER.	01	3D FILE NAME	

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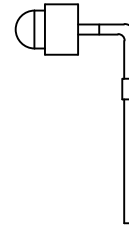
DIMENSION	TOLERANCE
BELOW 10 mm	± 0.3
10-100 mm	± 0.5
ABOVE 100 mm	± 0.8
ANGLE	± 3°



①



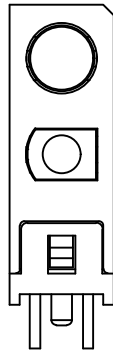
②



③



④



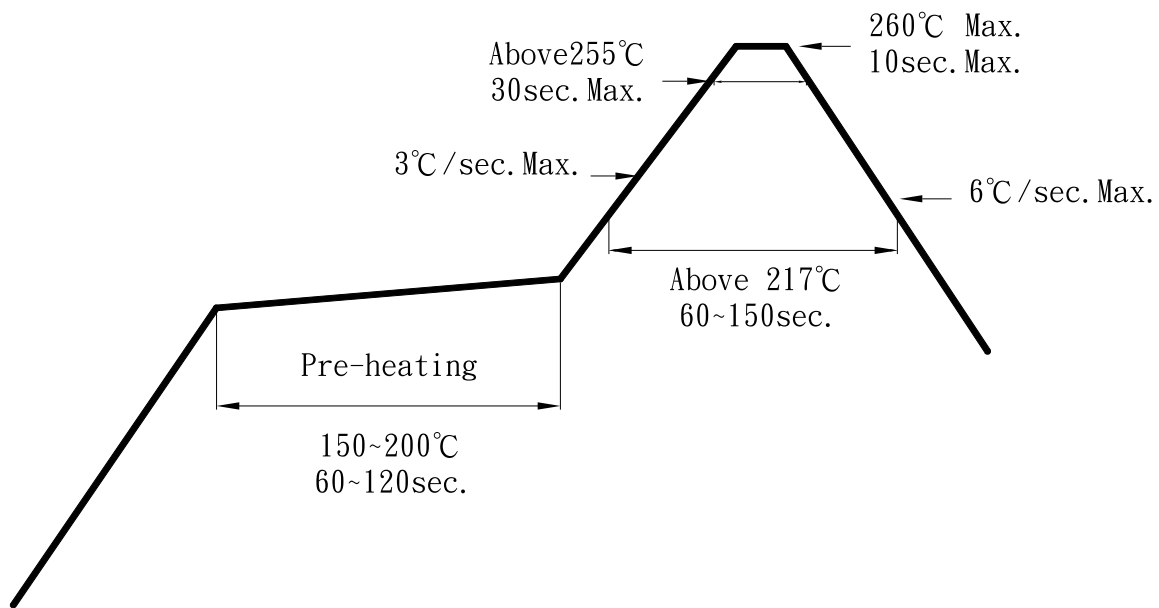
NO.	PART NAME	QTY	MATERIAL	SPECIAL DEAL	RoHS REPORT No.
1	FRAME	1	PA6T	BLACK	CE-2019-10882
2	BASE FRAME	1	PA6T	BLACK	CE-2019-10882
3	LED2	1		GREEN	
4	LED1	1		YELLOW/GREEN	

DATA	APPROVAL	DESIGN	ENGINEERING CHANGE DESCRIPTION	DESIGN	YJS	VER.	01	3D FILE NAME
△				DATA	2019/12/26	UNIT	mm	MODE
△				APPROVAL	KAVEN	SCALE	1 : 1	PART
△				CONFIRM	EASON	VIEW	⊕	2D FILE NAME
	DATA	APPROVAL	DESIGN	ENGINEERING CHANGE DESCRIPTION	DESIGN	YJS	VER.	01

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LED003-KYGUG-TR MATERIALS LIST

● IR-Reflow Soldering



1. Avoid any external stress applied to the resin while the LEDs are at high temperature, especially during soldering .
2. Avoid rapid cooling or any excess vibration during temperature ramp-down process
3. Although the soldering condition is recommended above,
soldering at the lowest possible temperature is feasible for the LEDs
4. Conform with JEDEC J-STD-020 with MSL 3.
5. Maximum times of IR Reflow process: 2 times.

● IRON Soldering

350°C Within 3 sec., One time only.
