

SPECIFICATION SHEET NO.	T0814 – BND0603JKRS001	
ORIGINAL MFG/PART NO.	Oriental Technology (BND) / BND-0603JKR	
NEXTGEN PART CODE	BND0603JKRS001	Indicate This Orderable Code For RFQ / Order
DATE	Aug. 14, 2026	
REVISION	A1	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	SMD LED 0603 Color Red Clear, BND0603 Series L1.6*W0.8*H0.6mm, Wide Viewing Angle 120° Forward Voltage (VF) 1.8~2.4 V Dominant Wavelength Rank (WL) 620~630nm Luminous Intensity Rank @20mA (IV) 115~285mcd Operating Temp. Range -40°C ~+85°C, Package in Tape/Reel, 4000pcs/Reel RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863) and Halogen Free (HF)	
CUSTOMER		
CUSTOMER PART NUMBER		
CROSS REF. PART NUMBER		
MEMO		

VENDOR APPROVE			
Issued/Checked/Approved			
Effective Date: Aug. 14, 2026			

CUSTOMER APPROVE
Date:

MAIN FEATURE

- Wide Viewing Angle 120°
- High Luminous Intensity and Low Power Dissipation
- Reflow Solderable
- Suitable for SMT process
- Meet MSL 1 Requirement
- Cross Competitors Parts and More.
- RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863)



Red Clear

Image shown is a representation only. Exact specifications should be obtained from the product dimension.

APPLICATION

- Optical Indicator
- Indoor Display
- Backlighting In Dashboard And Switch
- Backlighting For LCD, Symbol And Display



ELECTRICAL CHARACTERISTICS

- See Page 5 ~ Page 6.
- All Products Parameters are Subject To NextGen Components' Final Confirmation.

HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate NextGen Part Code BND0603JKRS001 For RFQ and Order.

PART CODE GUIDE

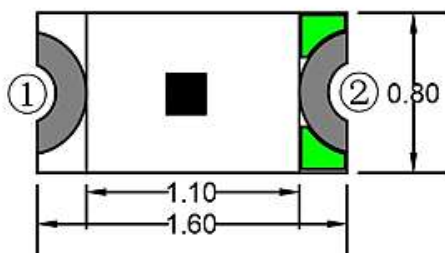
RFQ
[Request For Quotation](#)

CODE	NAME	KEY SPECIFICATION OPTION
BND0603	Product Series Code	SMD LED 0603, Red Clear Color, Wide Viewing Angle 120° Dimensions L1.6*W0.8*H0.6mm
JK	Internal Control Code	Custom letter A~Z, a-z or digits (0-9)
R	Color Code	R: Red Clear; B: Blue Clear; G: Pure Green; YG: Yellow Green Clear; W: White Clear; RGB: Red/Green/Blue Tri-color.
S001	Internal Control Code	Custom letter A~Z, a-z or digits (0-9)
XX	Special/Custom Parameters	Blank: N/A; XX: Letter A~Z, a~z or digits (0~9) for Special/Custom Parameters

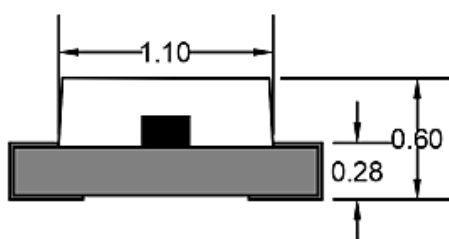
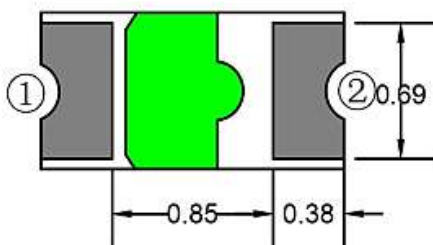
DIMENSION -- Unit: (mm), Case 0603 Outline, Tolerance: +/-0.1mm)

- BND0603 Series, L1.6*W0.8*H0.6mm

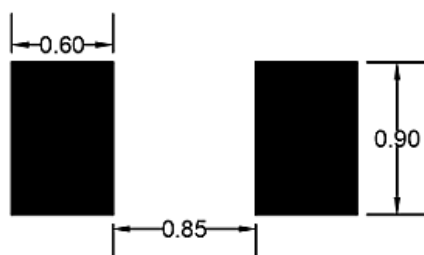
Top View



Side View



Recommend Solder Pattern



MAXIMUM RATINGS $T_s=25^{\circ}\text{C}$, RH60%

PARAMETERS	SYMBOL	VALUES	UNIT
Operating Temperature	Top	-40~+85	$^{\circ}\text{C}$
Storage Temperature	Tstg	-40~+85	$^{\circ}\text{C}$
Junction Temperature	Tj	110	$^{\circ}\text{C}$
Forward Current ($T_s=25^{\circ}\text{C}$)	IF	30	mA
Peak Forward Current Duty ratio=1/10, Pulse Width=0.1ms	IFS	100	mA
Reverse Voltage ($T_s=25^{\circ}\text{C}$)	VR	5	V
Electrostatic Discharge (acc.to ANSI/ESDA/JEDEC JS-001-2017)	VESD	≥ 2	kV

OPTICAL & ELECTRICAL CHARACTERISTICS $I_F=20\text{mA}$, $T_s=25^{\circ}\text{C}$, RH60%

PARAMETERS	SYMBOL	VALUES			UNIT
		MIN.	TYP.	MAX.	
Peak Wavelength	λ_{peak}	-	632	-	nm
Luminous Intensity @20mA	Iv	115	-	285	mcd
Dominant wavelength	λ_{dom}	620	-	630	nm
Spectral bandwidth at 50% IV	$\Delta\lambda$	-	22	-	nm
Viewing Angle	$2\theta_{1/2}$	-	120	-	Deg
Forward Voltage	VF	1.8	-	2.4	V
Reverse Current	IR (VR=5V)	-	-	50	μA
Power Dissipation	PD	-	-	72	mW

ELECTRICAL CHARACTERISTICS IF=20mA, Ts=25°C, RH60%

Part Code	Forward Voltage - VF (V)	Dominant Wavelength- DWL (nm)	Luminous Intensity- IV (mcd)
BND0603JKRS001	1.8~2.4	620~630	115~285

BIN CODE LIST

PARAMETERS	SYMBOL	VALUES	TOLERANCE	UNIT
Forward Voltage Rank (VF) @IF=20mA, Ts=25°C, RH60%	Vp	1.8~2.0	±0.1	V
	Vq	2.0~2.2		
	VL	2.2~2.4		
Dominant Wavelength Rank (WLD) @IF=20mA, Ts=25°C, RH60%	W5	620~625	±1.5	nm
	W6	625~630		
Luminous Intensity Rank (IV) @IF=20mA, Ts=25°C, RH60%	F3	115~143	±15%	mcd
	F4	143~182		
	F5	182~227		
	F6	227~285		

Note:

1. We support custom parameter on the basis of above mentioned Bin Code List if customer required.
2. Custom parameter code can be added as per Part Code Guide Page 3.

OPTICAL & ELECTRICAL CHARACTERISTICS CURVES -IF=20mA, Ts=25°C, RH60%

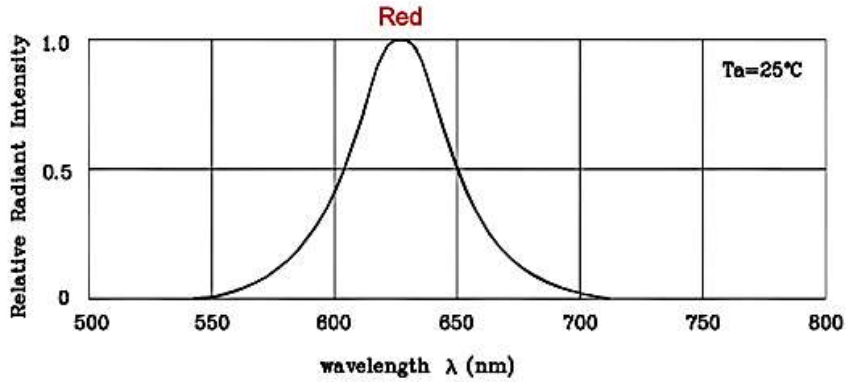
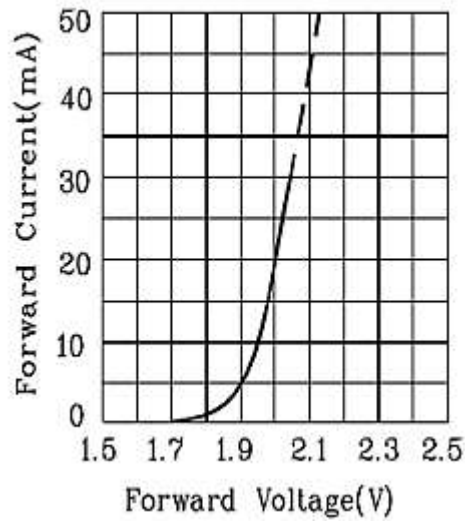


Figure 2. Forward Current Vs. Forward Voltage



OPTICAL & ELECTRICAL CHARACTERISTICS CURVES - $I_F=20\text{mA}$, $T_s=25^\circ\text{C}$, RH60%

Figure 3. Luminous Intensity Vs. Forward Current

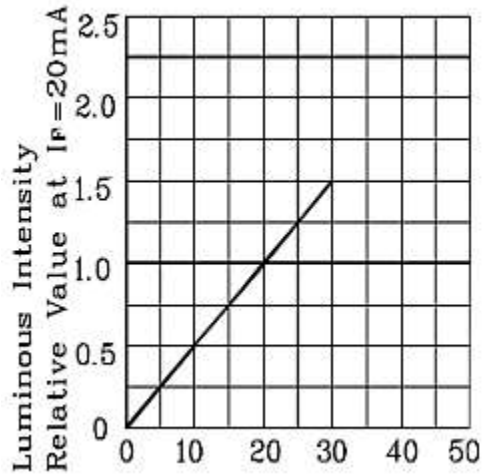
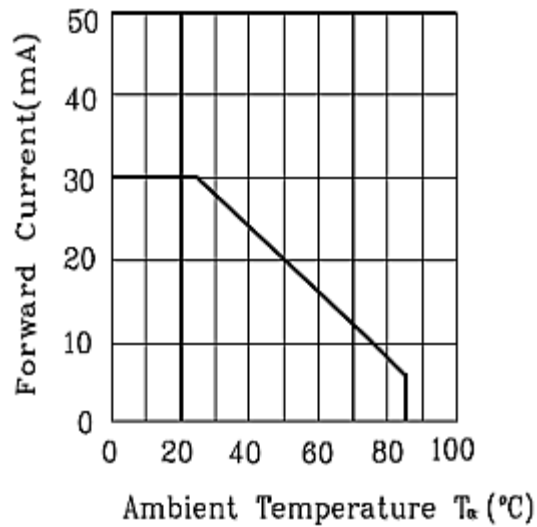
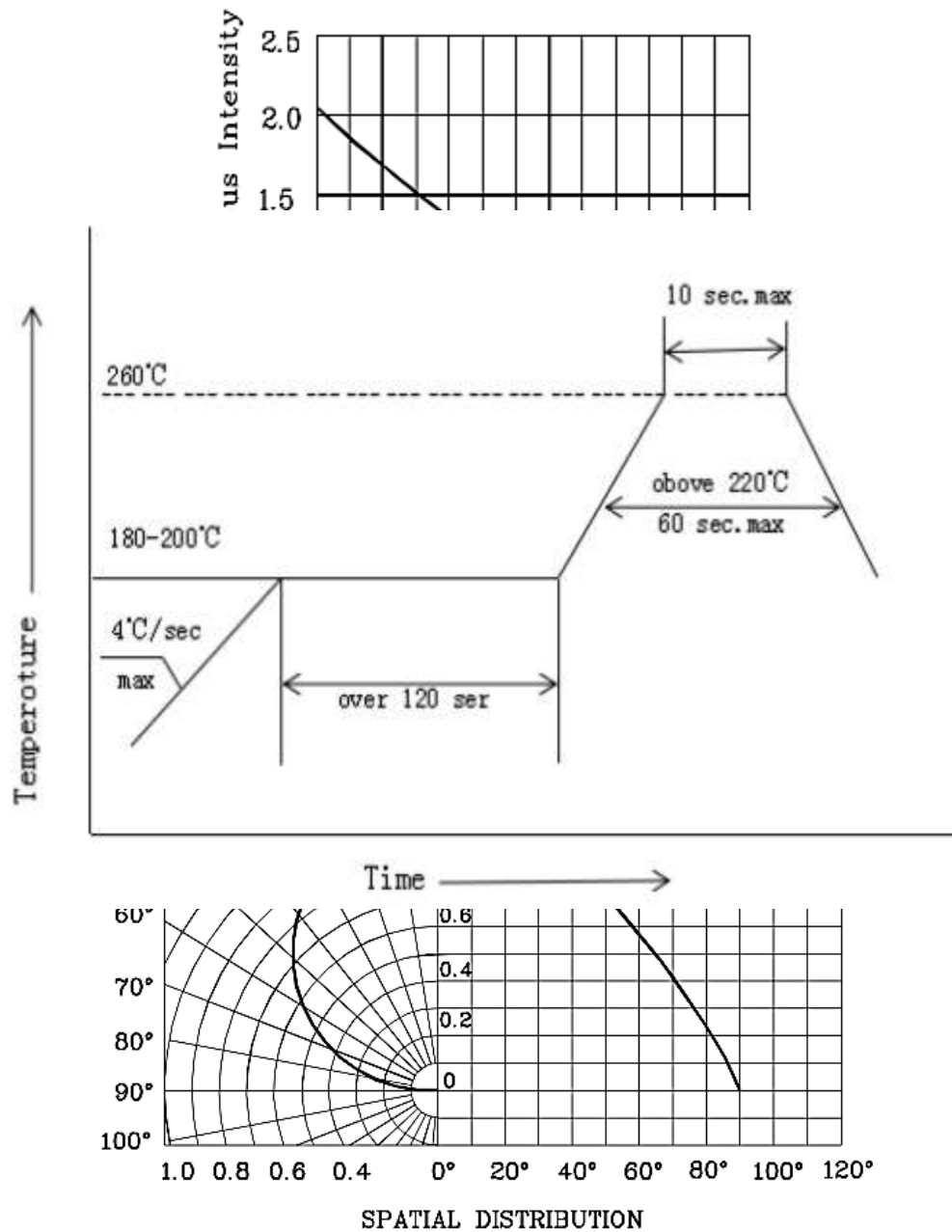


Figure 4. Forward Current Derating Curve



OPTICAL & ELECTRICAL CHARACTERISTICS CURVES -IF=20mA, Ts=25°C, RH60%

Figure 5. Luminous Intensity Vs. Ambient Temperature



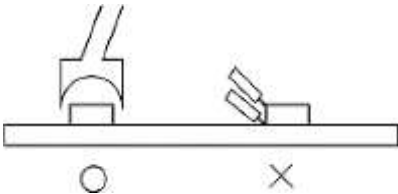
RELIABILITY TEST ITEMS AND CONDITION

TEST ITEMS	TEST CONDITIONS	REQUIREMENT
Solderability	Solder Temperature : 240 °C Solder Duration:3.5 +/-0.5 sec.	Solderable Area over 95%
Thermal Shock Followed by High Temperature & High Humidity Cyclic	-40° → 10min. 5 Cycles ↑ ↓ Shift (2~3) min 100 °C → 10min 25 °C ~55 °C (90%~ 95%) RH 2 Cycles for 48 hours. Recover for 2 hours.	C = 0 & I **
Resistance for Soldering Heat	Reflow Solder	
DC Operating Life	1000 hours Forward Current: 20 mA	
High Temperature Storage	100 °C → 1000 hrs.	
High Temperature & Humidity Cyclic	25 °C ~55 °C (90%~ 95%) RH 6 Cycles for 144 hours. Recover for 2 hours.	

REMINDS:

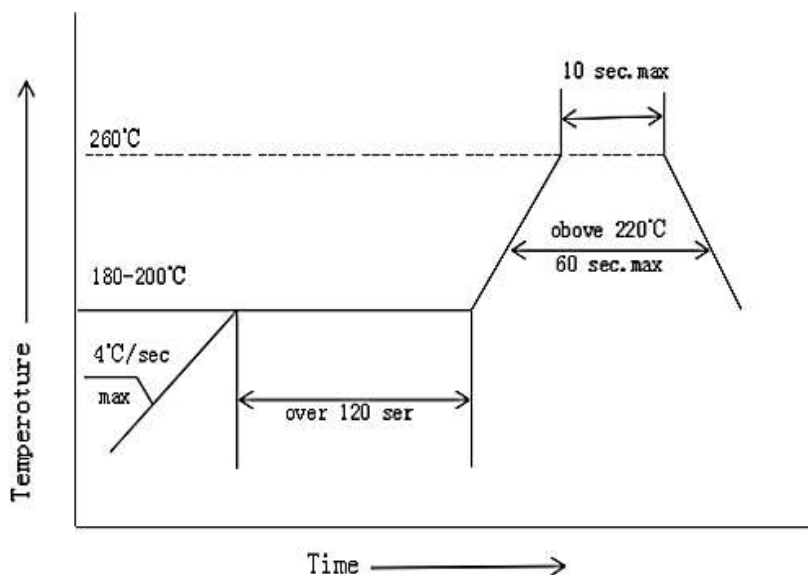
1. The reliability of products shall be satisfied with items listed above
2. Confidence level: 90%; LTPD:10%
3. The technical information shown in the data sheets are limited to the typical characteristics and related circuit samples.

NOTICE CONDITION

ITEMS	TEST CONDITIONS
Soldering by Iron	1. The temperature of Iron must be lower than 300 °C, 3 second by hand soldering 2. The hand solder should be done only one times
Repairing	Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed before if the characteristics of LEDS will or not be damaged by repair. 
Storage	1. Package is sealed: Recommended storage condition @ 5°C ~30°C and Humidity 90% RH Max. for 24 months 2. Package is opened: (1) After this bag is opened ,devices that will be applied to infrared to infrared reflow, vapor-phase reflow. A. Completed within 672 hour. B. Stored at 5°C~30°Cand 60% RH or less 3. If baking is required, devices must be baked under below conditions 24 hours at 60°C±3°C
Handling Precautions	1. Don't stack together assembled PCBs containing LEDs. Impact may scratch the silicone lens or damage 2. Not available in the situation of Acidity for PH 

REFLOW SOLDERING CHARACTERISTICS

Product complies to MSL Level 2a acc. To JEDEC J-STD-020 D.01

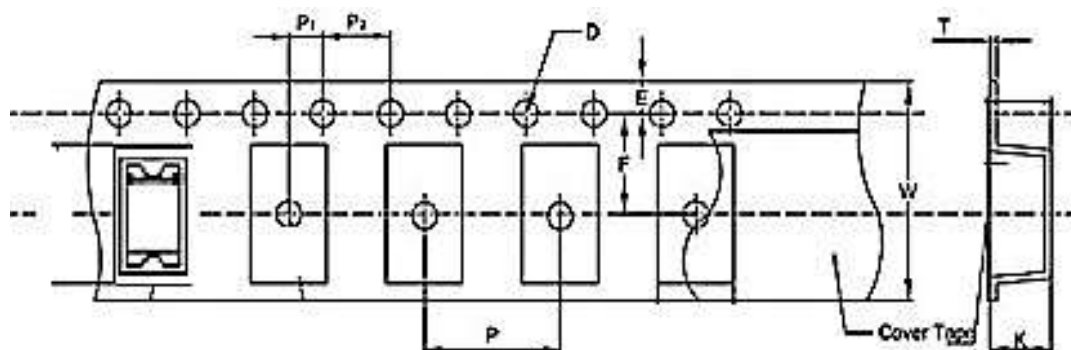


PROFILE FEATURE		PB-FREE ASSEMBLY
Average Ramp-up Rate (Ts Max to Tp)		4°C/second Max
Preheat	Temperature Min (Ts Min.)	180°C
	Temperature Max (Ts Max.)	200°C
	Time (ts Min. to ts Max.)	60 ~ 120 seconds
Time maintained above	Temperature (Tl)	220°C
	Time (tl)	60 seconds Max.
Peak/Classification Temperature (Tp)		260 °C
Time within 5°C of actual Peak Temperature (tp)		10 seconds Max
Suggest reflow times		2 Times Max.

TAPE/REEL, 4000pcs/Reel (Unit: mm)

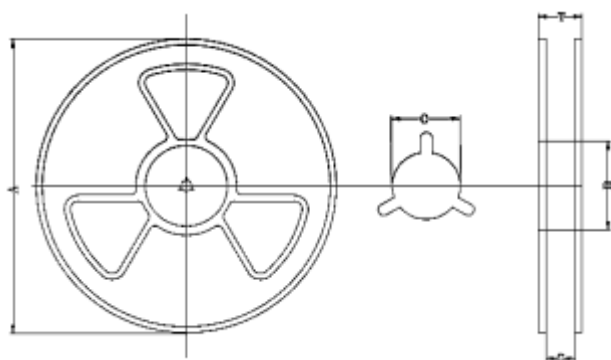
- All Devices are packed in accordance with EIA standard RS-481-A
- Cumulative Tolerance : Cumulative Tolerance/10 pitches to be $\pm 0.2\text{mm}$
- Adhesion Strength of Cover Tape Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10° to the carrier tape.
- Moisture Resistant Package

Tape



CODE	D	E	F	K	P	P1	P2	T	W
Dimension	1.50	1.75	3.50	0.70	4.00	2.00	4.00	0.235	8.00
	± 0.20	± 0.10	± 0.05	± 0.10	± 0.10	± 0.05	± 0.10	± 0.1	± 0.30

Reel



CODE	A	B	C	G	T
Dimension	178 ± 2.0	$\Phi 60 \pm 2.0$	$R6.5 \pm 0.5$	9.0 ± 1.0	12.0 ± 1.0

APPLICATION NOTES - Part I

- Storage: To avoid the moisture penetration, we recommend store in a dry box with a desiccant, The maximum storage temperature range is 40°C and a maximum humidity of RH60%.
- Use Precaution after Opening the Packaging: Recommend conditions after opening the package
a) Sealing b) Temperature : 30°C Humidity: Less than RH50% c) Recommend to use up before 72hrs after opening the package.
- If the package has been opened more than 4 weeks(MSL_2a) or the color desiccant changes, LED Components should be dried for 12hrs at 60±5°C. .
- Do not apply mechanical force or excess vibration during the cooling process to normal temperature after soldering.
- Do not rapidly cool device after soldering.
- The LED should not be mounted on warped portion of PCB.
- The LED should not be used in any type of fluid such as water, oil, organic solvent and etc. When washing is required, IPA (Isopropyl Alcohol) should be used.
- When the LEDs are in operation the maximum current should be decided after measuring the package temperature.
- Long time exposure of sunlight or occasional UV exposure will cause lens discoloration.
- The driving circuit must be designed to allow forward voltage only when it is ON or OFF. If the reverse voltage is applied to LED, migration can be generated resulting in LED damage.
- LEDs are sensitive to Electro-Static Discharge (ESD). Below is a list of suggestions that BND purposes to minimize these effects.
- The products are sensitive to static electricity or surge voltage. ESD can damage a die and it's Reliability. When handing the products, the following measures against electrostatic discharge are strongly recommended:

APPLICATION NOTES - Part II

- a) Increase in reverse leakage current lowered turn-on voltage
- b) Abnormal emissions from the LED at low current LED

The following recommendations are suggested to help minimize the potential for an ESD event.

- One or more recommended work area suggestions:
 - a) Dissipating static charge with conductive materials
 - b) Preventing charge generation with moisture
 - c) ESD safe storage containers ESD
- One or more personnel suggestion options:
 - a) Antistatic wrist-strap b) Antistatic material shoes c) Antistatic clothes
- Environmental controls: Humidity control (ESD gets worse in a dry environment).
- Handling Precautions: During processing, mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types should not be used to pierce the sealing compound. In general, LEDs should only be handled from the side. By the way, this also applies to LEDs Without a silicone sealant, since the surface can also become scratched.
- NextGen suggests using isopropyl alcohol for cleaning. In case other solvents are used, it must be assured that these solvents do not dissolve the package or resin. Please do not mold this products into another resin (epoxy, urethane, etc.) and do not handle this Product with acid or sulfur material in sealed space.

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GLOSSARY

- **Brightness:** Brightness values are measured during a current pulse of typically 20ms, with an internal reproducibility of $\pm 5\%$.
- **Wavelength:** The wavelength is measured at a current pulse of typically 20ms, with an internal reproducibility of ± 1.5 nm.
- **Forward Voltage:** The forward voltage is measured during a current pulse of typically 20ms, with an internal reproducibility of ± 0.05 V.
- **Reverse Operation:** Continuous reverse operation is not allowed.
- **Thermal Resistance:** RthJA results from mounting on PC board.
- **Typical Values:** Due to the special conditions of the manufacturing processes of semiconductor devices, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.
- **Characteristic curve:** In the range where the line of the graph is broken, you must expect higher differences between single devices within one packing unit.

IMPORTANT NOTES AND DISCLAIMER

1. **ROHS COMPLIANCE:** The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained at Download Center.
2. **REACH COMPLIANCE:** REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained at Download Center.
3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
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8. *NextGen* requires that customers first obtain an RMA (Returned Merchandise Authorization) number prior to returning any products. Returns must be made within 30 days of the date of invoice, be in the original packaging, unused and like-new condition. At the time of quoting or purchasing, a product may say that it is Non-Cancelable/ Non-Returnable (NCNR). These products are not returnable and not refundable.