PEX3N10 V1

Product Specification

 Lextar.com

Approval Sheet

PEX3N10 V1

Product Specification

RoHS

Product	PEX3N10 V1
Part Number	PEX3N10 V1
Issue Date	2022/08/26

Feature

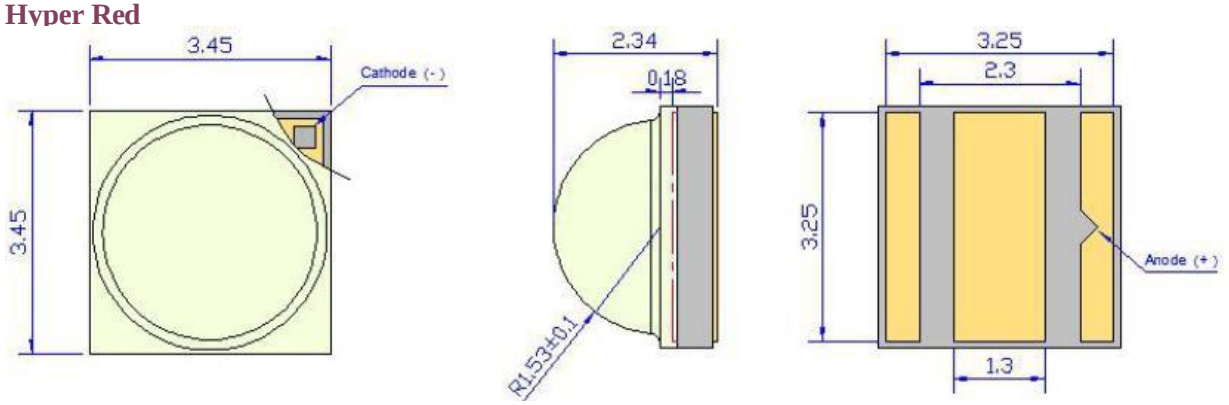
- ✓ Top view Emitter LED (3.45 x 3.45 x 2.34 mm)
- ✓ GaN-based LEDs (Blue), AlGaInP LED (Hyper Red)
- ✓ Wide view angle (X : 120° / Y : 120°)
- ✓ Qualified according to JEDEC moisture sensitivity Level 2
- ✓ Environmental friendly ; RoHS compliance
- ✓ Packing : 1000 pcs/reel

Applications

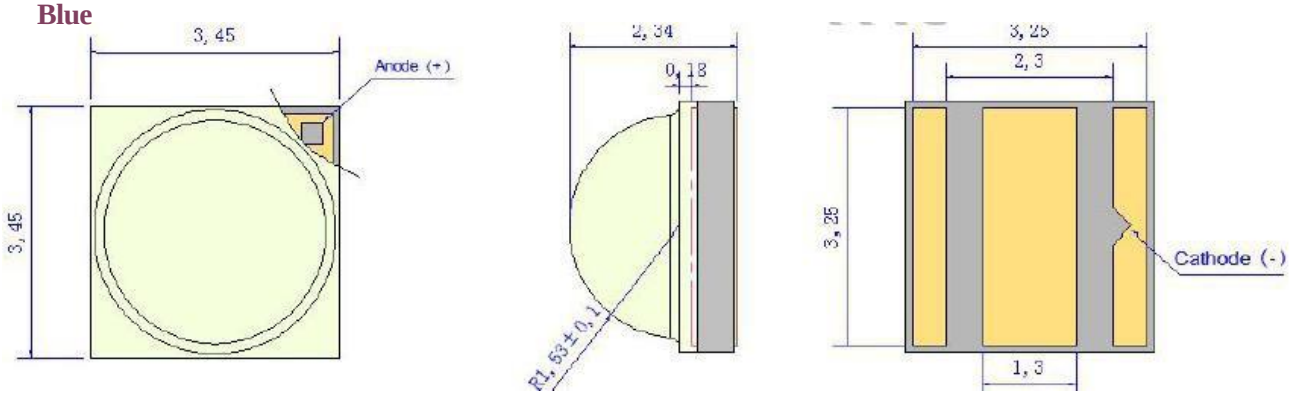
- ✓ Horticulture Lighting
- ✓ Highbay Industrial
- ✓ Downlight

Outline

- **Hyper Red**

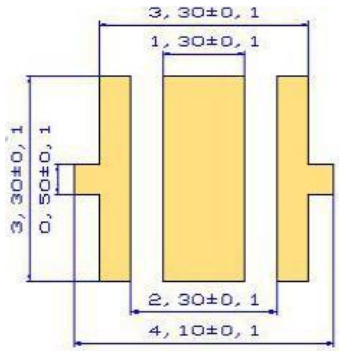


- **Blue**



Unit: mm, Tolerance: ±0.1mm

Recommended Soldering Pad



Unit: mm, Tolerance: ±0.1mm

Optical Characteristics at 700mA(Tj=25℃)

Color	Dominant Wavelength λ_D Peak Wavelength λ_P				View Angle (degrees)
	Min.	Typ.	Max.	unit	$2\theta_{1/2}$
Hyper Red	650	660	670	nm	120
Blue	450	462	475	nm	120

- Lextar maintains a tolerance of ±1nm on dominant wavelength measurements

Flux / Electrical Characteristics at 700mA (Tj=25℃)

Color	Radiometric Power (mW)		PPF (μ mol/s)	PPE (PPF/W)	Forward Voltage (V)			Thermal Resistance (°C/ W)
	Min.	Typ.	Typ.	Typ.	Min.	Typ.	Max.	
Hyper Red	1050	1150	6.19	4.29	1.8	2.0	2.2	1.4
Blue	900	1110	5.54	2.71	2.8	3.0	3.2	1.8

- Tolerance of +/-7% on flux and power measurements
- The Forward Voltage tolerance is ±0.1V
- Thermal resistance is calculated from junction to solder
- Please do not drive at rated current more than 1 second without proper heatsink

Absolute Maximum Ratings

Parameter	Symbol	value	Unit
DC Forward Current(1)	I_F	1500	mA
ESD Sensitivity(HBM per MIL-STD-883E Method 3015.7)		8kV (Class 3B)	V
Pulse Forward Current (2)	I_{FP}	1300	mA
LED Junction Temperature	T_J	125	°C
Storage Temperature	T_s	-40 ~ 125	°C
Operating Temperature	T_{opr}	-40 ~ 105	°C
Soldering Temperature	T_{sol}	260 (max. 5 sec)	°C

(1) Proper current rating must be observed to maintain junction temperature below maximum
(2) IFP Condition: less than 1/10 duty cycle@1KHz

Ordering Code

Standard Ordering Code:

CCT	Ordering Code(1)	CIE or Wd or Wp Bin Group	IV Bin Group	Vf Bin Group
Hyper Red	PEX3N101-HR	H2,H3,H4,H5	AA9,AAA,AAB,AAC	AA8,AA9,AAA
Blue	PEX3N101-BL	D1	AAH-AAT	AB8,AB9,ABA

(1) Only under an agreement between customer and Lextar Electronics, Ordering codes not in “Standard Ordering Code Definitions” can be supplied.

Bincode definition

Color	Wd/Wp Rank	Flux Rank	V_f Rank
RED	H3	AA8	AA9

Color

- RED: Red
- BLU: Blue

Wavelength Bin Structure(I_F = 700mA, T_j=25ºC)

Color	Bincode	Wd or Wp Rank		Unit
		min	max	
Hyper Red	H2	650	655	nm
	H3	655	660	nm
	H4	660	665	nm
	H5	665	670	nm
Blue	D1	450	455	nm
	D2	455	460	nm
	D3	460	465	nm
	D4	465	470	nm
	D5	470	475	nm

* Lextar maintains a tolerance of ±1nm on dominant wavelength measurements

Radiation power Bin (I_F = 700mA, T_j=25ºC)

Bincode	Radiation power		Unit
	min	max	
AA1	900	925	mW
AA2	925	950	mW
AA3	950	975	mW
AA4	975	1000	mW
AA5	1000	1025	mW

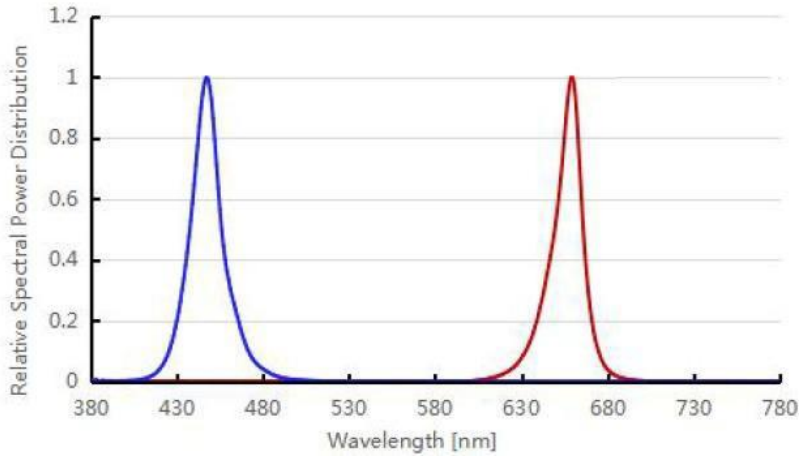
AA6	1025	1050	mW
AA7	1050	1075	mW
AA8	1075	1100	mW
AA9	1100	1125	mW
AAA	1125	1150	mW
AAB	1150	1175	mW
AAC	1175	1200	mW
AAD	1200	1225	mW
AAE	1225	1250	mW
AAF	1250	1275	mW
AAG	1275	1300	mW
AAH	1300	1325	mW
AAJ	1325	1350	mW
AAK	1350	1375	mW
AAL	1375	1400	mW
AAM	1400	1425	mW
AAN	1425	1450	mW
AAO	1450	1475	mW
AAP	1475	1500	mW
AAQ	1500	1525	mW
AAR	1525	1550	mW
AAS	1550	1575	mW
AAT	1575	1600	mW

Forward Voltage Bin Structure (I_F = 350mA, T_j=25°C)

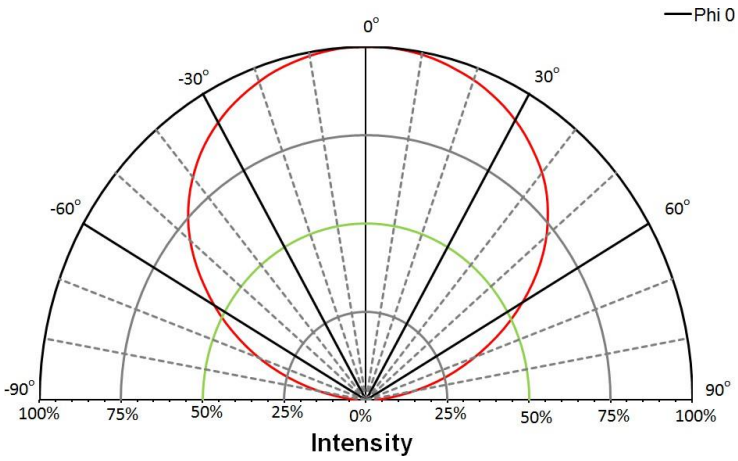
Color	Bincode	Forward Voltage (Vf)		Unit
		min	max	
Hyper Red	AA7	1.8	1.9	V
	AA8	1.9	2	V
	AA9	2.0	2.1	V
	AAA	2.1	2.2	V
	AAB	2.2	2.3	V
	AAC	2.3	2.4	V
Blue	AB7	2.4	2.6	V
	AB8	2.6	2.8	V
	AB9	2.8	3.0	V
	ABA	3.0	3.2	V
	ABB	3.2	3.4	V

* The Forward Voltage tolerance is ±0.1V

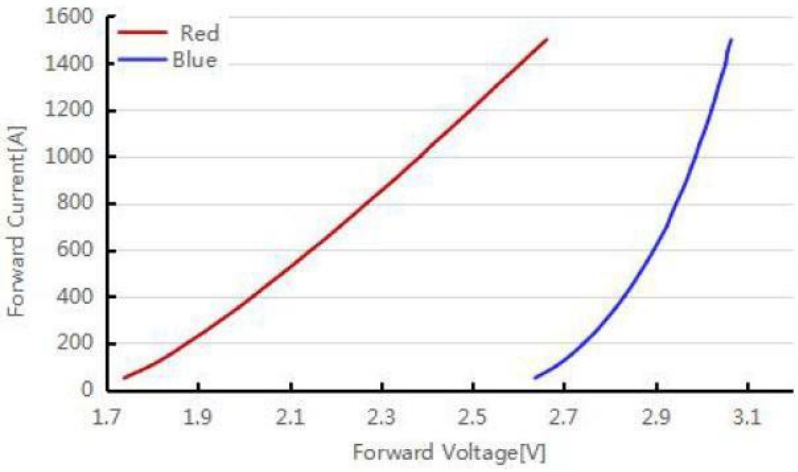
Spectrum, T_j=25 °C



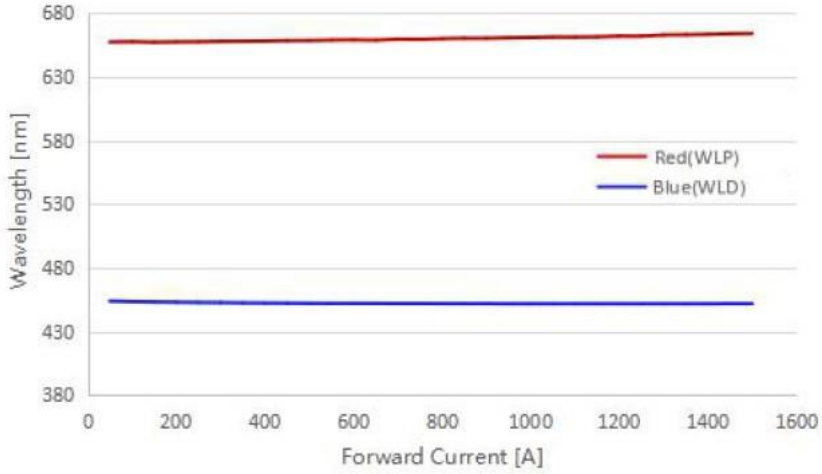
Radiation Characteristics



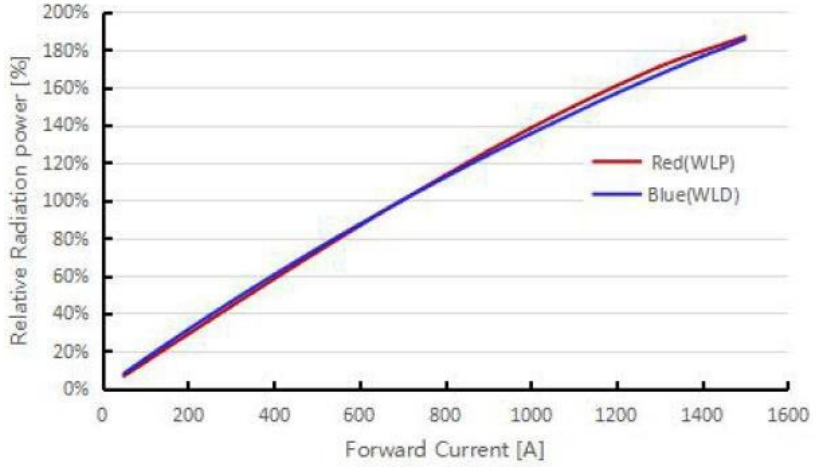
Forward Voltage Vs. Forward Current, T_j=25 °C



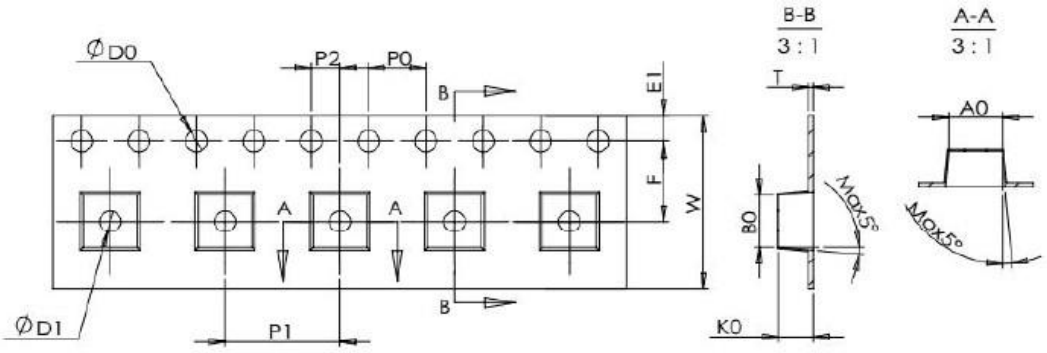
Forward Current Vs. Wavelength , T_j=25 ºC



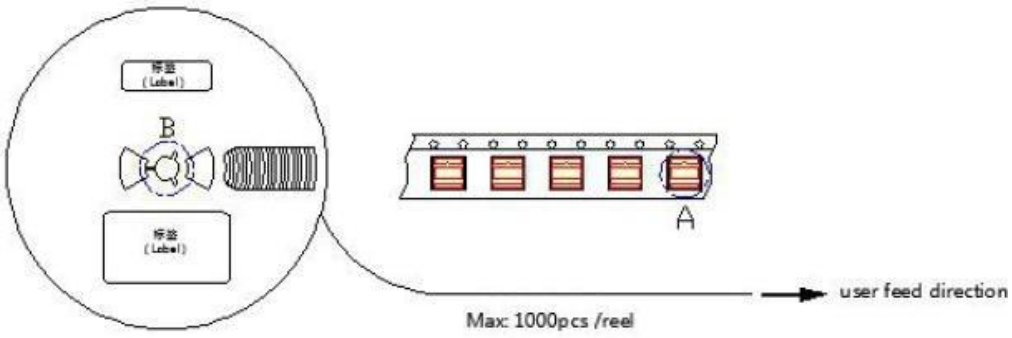
Forward Current Vs. Relative Luminous Flux , T_j=25 ºC

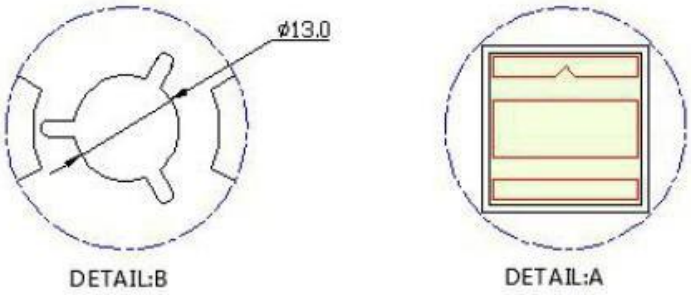


Carrier Dimensions



Item	Spec
W	12.00+0.30/-0.10
P_1	8.00±0.10
E_1	1.75±0.10
F	5.50±0.10
D_0	1.50+0.10/0
D_1	1.50±0.10
P_0	4.00±0.10
$P_0$10	40.00±0.20
P_2	2.00±0.10
A_0	3.65±0.10
B_0	3.65±0.10
K_0	2.45±0.10
T	0.30±0.05
	Unit: mm





Reliability test

Item	Condition	Time/Cycle
Steady State Operating Life of High Temperature 25℃	25℃ Operating	1000 Hrs
High Humidity Heat 85℃85% Operating	85℃/85% Operating	1000 Hrs
Low temperature storage -40℃	-40℃ Storage	1000 Hrs
High temperature storage 100℃	100℃ Storage	1000 Hrs
High Humidity Heat 85℃85% storage	85℃/85% Storage	1000 Hrs
Resistance to soldering heat on PCB (JEDEC MSL3)	pre-store@60℃, 60%RH for 52hrs Tsld max.=260℃ 10sec	1 cycle 3 Times
Thermal shock	-40℃/20minr ~5minr ~ 100℃/20min	200 Cycles

Judgment Criteria

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	700mA	ΔVf < 10 %
Luminous Flux	Iv	700mA	ΔIv < 30 %

Safety Precautions

- The LED light output is too strong for human eyes without shield. Prevent eye contact directly more than seconds.
- Ensure operating under maximum rating.

Storage

- Before opening the package, the LEDs should storage under 30℃, 70% RH.
- After opening the package bag, the LEDs should be keep under 30℃, 70% RH. Recommend to use within 168 hours. If unused LEDs remain, suggest to store into moisture proof bag or original package bag with moisture absorbent material such as silica gel. Reseal well is necessary.
- If the product exceeded the storage period or the moisture absorbent material faded away, baking treatment should be done by following conditions.

  Bake condition: 60℃, 12hours (One time only).

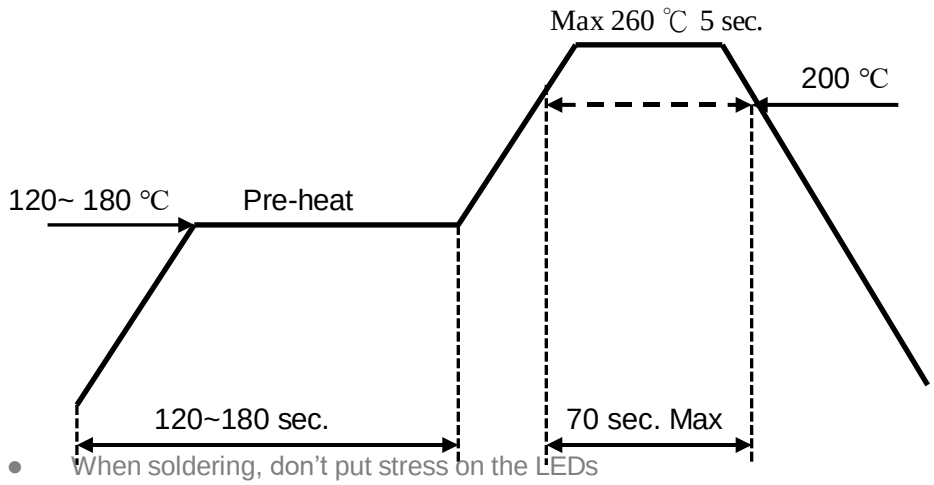
Soldering Notice and Conditions

- When soldering LEDs,
- Do not solder/reflow the same LED over two times.
- Recommend soldering conditions:

  Hand soldering: 350 ℃ max, 3 sec. max.

  Reflow soldering: Pre-heat 180 ℃ max, 180 sec. max.

  Peak 260℃ max, 5 sec. max.
- Reflow temperature profile as below: (lead-free solder)



- When soldering, don't put stress on the LEDs
- After LEDs have been soldered, strongly recommend not to repair to keep the LEDs performance.

Static Electricity

- LED package is extremely sensitive to static electricity. It's recommended that anti-electrostatic glove and wrist band is necessary when handling the LEDs. All devices are also be grounded properly as well.
- Protection devices design should be considered in the LED driving circuit.

■ Cleaning

- If washing is required, recommend to use alcohol as a solvent.
- Recommend to avoid cleaning the LEDs by ultrasonic. If necessary, pre-test the LED is necessary to confirm whether any damage occur after the process.

Use Applications

- The products are not intended to military, aircraft, automotive, medical, life sustaining or lifesaving applications or any other application which can result in human injury or death. Please be noted that a different product may be required. If you have any concerns, please contact us before using the products in your desired application. This specification guarantees the quality and performance of the products as an individual component. Do not use the products beyond the use case and use environment that the specification has described in this document. We assume no responsibility and liability for any lost and damage resulting from the use or operation of the products which do not comply with any absolute maximum ratings, warnings, restriction and instructions recited in these specification sheets or other forms of notices from us or resulting from the use or operation of the products under non-standard environment or non-regular operations.

- All measurement data is taken from standard experiment procedure and environment with conditions on each discrete product, which is not integrated with other components and materials which are not provided by us. Therefore the measurement result is just provided for reference and evaluation. The products should always be cautiously used with other parts not supplied by us. It is your or your customer's responsibility to perform sufficient verification under your expected environment prior to use the products with other parts to ensure that the lifetime and other quality characteristics required for the intended use in real life are met. It is recommended to consult with us instantly while there is any concern or inconsistency about the LED operation under certain environment and procedure. It is highly possible to cause malfunctions or damages to the products or risks of life or health under non-standard environment and operations.
- You will not reverse engineer, disassemble or otherwise attempt to extract knowledge/design information from the products. In the case of any incident or quality concern that appears to be in breach of these specifications, the products in question must be reported to our local sales representatives to discuss instructions on how to precede while ensuring that the products in question are not dissembled or removed from the PCBs(if any). The determination of whether the products in question are defective and are required for any corrective action thereafter shall be made by us in accordance with our cause analysis procedure. If you do not agree with our cause analysis result for a quality issue, you may request us to send the products in question to a mutually agreed third party for inspection. The cost of such third party inspection shall be borne by you unless it is determined by such third party that said quality issue is solely attributable to us. In the above case, our sole and exclusive obligation shall be, either to repair, replace or refund the products in question to the extent commercially practicable with the products without such quality issue.
- All previous negotiation and agreements not specifically incorporated herein are superseded and rendered null and avoid. We assume no liability with respect to defects and/or issues of the products caused by:

  (a) alternation, modification or change of the products by someone other than us;

  (b) attempt by someone other than us to repair the products;

  I not our negligent, gross negligent, reckless, or other improper use of the LEDs;

  (d) installation, operation, or maintenance of the products by someone other than us and not in a manner described in the instruction manual, if applicable; and

  (e) combination of products by someone other than us with those not supplied by us.

- REPAIR, REPLACE OR REFUND OF THE PRODUCTS SHALL CONSTITUTE THE EXCLUSIVE REMEDY FOR A BREACH OF THIS LIMITED WARRANTY, AND WE WILL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES, PERSONAL INJURY, LOSSES, DAMAGES, OR EXPENSES DIRECTLY OR INDIRECTLY RESULTING FROM THE USE OF THE PRODUCTS. LIABILITY OF US TO YOU OR CUSTOMER FOR PRODUCTS SHALL BE LIMITED TO THE NET SALES AMOUNT OF THE PRODUCTS SOLD TO CUSTOMER. WE DISCLAIM ALL OTHER WARRANTIES, EXPRESS OR IMPLIED INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
- BOTH PARTIES INTEND TO AGREE ON THE OFFICIAL SPECIFICATIONS FOR THE SUPPLIED PRODUCTS BEFORE ANY PROGRAMS ARE OFFICIALLY LAUNCHED SUCH AS BEFORE THE MASS PRODUCTION LAUNCHED.WITHOUT THIS CONSENT AGREEMENT IN WRITING (I.E. PRODUCT SPECIFICATION), THE CONTENT OF THIS SPECIFICATION SHALL BE DEEMED SUBJECT TO CHANGE WITHOUT NOTICE FROM US.

Revision History

Date	Contents	Writer
2022.06.13	New version	Josh Yang
2022.08.26	Add Distribution	Josh Yang
2023.01.16	Revise Flux / Electrical Characteristics	Josh Yang