No. 3, Gongye E. 3rd Road, Hsinchu Science Park, Hsinchu 30075, Taiwan
TEL：886-3-565-8800 Doc. No. Preliminary

Lextar

Lextar.com

55B PC55H16 V2

Product Specification *Preliminary*

No. 3, Gongye E. 3rd Road, Hsinchu Science Park, Hsinchu 30075, Taiwan
TEL：886-3-565-8800 Doc. No. Preliminary

Approval Sheet

PC55H16 V2

Product Specification

RoHS

Product	White SMD LED
Part Number	PC55H16 V2
Issue Date	2018/04/30

Feature

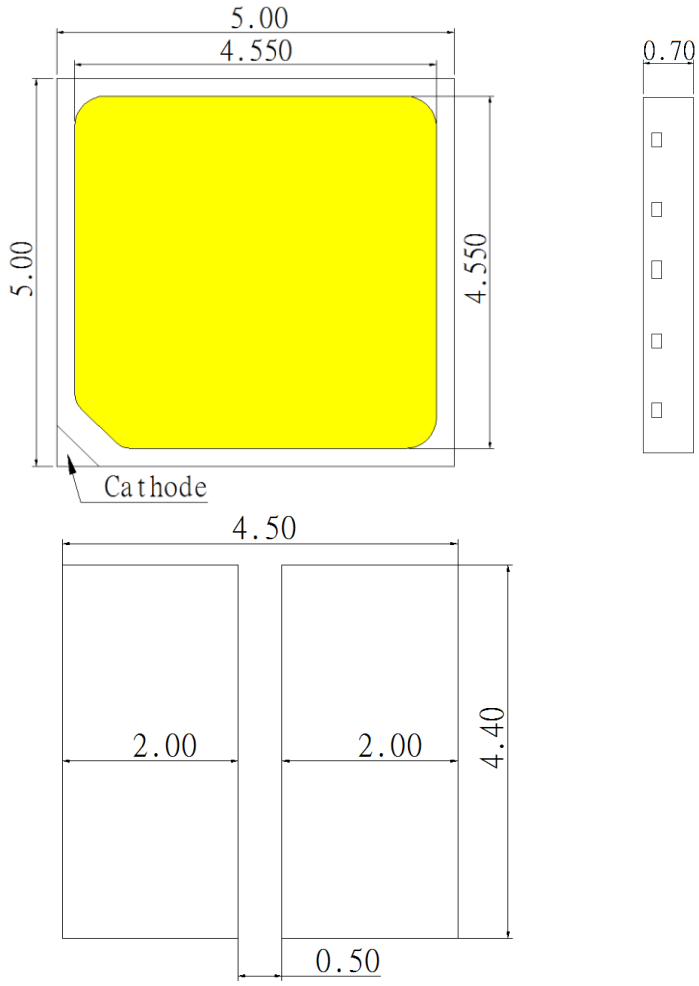
- ✓ White SMD LED (L x W x H) of 5.0 x 5.0 x 0.7 mm
- ✓ ANSI binning
- ✓ Dice Technology : InGaN
- ✓ Qualified according to JEDEC moisture sensitivity Level 3
- ✓ Environmental friendly ; RoHS compliance
- ✓ Packing : 500 pcs/reel

Applications

- ✓ MR16, GU10
- ✓ General lighting
- ✓ Outdoor lighting

Outline Dimension

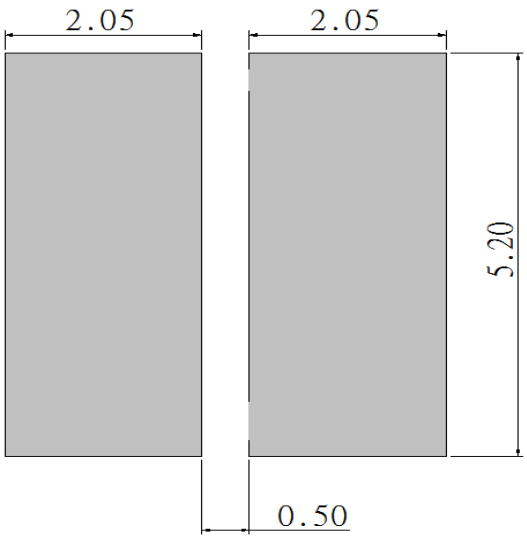
PC55H16 V2
Product Specification



Unit: mm,

Tolerance: ±0.1mm

Recommended Soldering Pad



Lextar

Performance

PC55H16 V2
Product Specification

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage(1)	V_F	I_F = 450 mA	11	12.5	13.5	V
Color Rendering Index(2)	Ra		80	-	-	-
Color Rendering Index(3)	R9		0			
View Angle	θ		-	120	-	deg
Thermal Resistance(4)	R_{th}		-	2	-	°C/W

(1) The Forward Voltage tolerance is ±3%

(2) The Color Rendering Index is measured at Ta=85℃ and tolerance is ±2

(3) The R9 is measured at Ta=85℃ and tolerance is ±6.

(4) Thermal resistance is calculated from junction to solder

Luminous Flux (Ta=25℃)

CCT	Condition	Rank	Typ.	Unit
2600K~3500K	I_F = 450 mA	GR,GS	780	lm
4000K~7000K		GS,GT	820	

* The luminous flux tolerance is ± 7%

Absolute Maximum Ratings

Parameter	Symbol	value	Unit
DC Forward Current(1)	I_F	600	mA
Power Dissipation	P_D	8	W
Pulse Forward Current (2)	I_{FP}	900	mA
Storage Temperature	T_{stg}	-40 ~ 100	°C
Operating Temperature	T_{opr}	-40 ~ 100	°C
Junction Temperature	T_J	125	°C
Assembly Temperature	-	260 (max. 10sec)	°C

(1) Proper current rating must be observed to maintain junction temperature below maximum at all time

(2) IFP Condition: Duty 1/10, Pulse within 10msec

Ordering Code

P C 5 5 H 1 6 2 - A 2 7 0 3 0 G R G S Y Y - 0 0 0

1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	17	18	19	20		21	22	23

Item		Pos.	Code	Spec
Model Name		1-8	PC55H162	PC55H16 V2
CIE Center Point		9	A	ANSI 1931 on B.B.L
CCT		10,11	27 30 40 50 65	27 = 2700K 30 = 3000K 40 = 4000K 50 = 5000K 65 = 6500K
R9		12	0	Default
CIE Bin Group(1)		13,14	30 50	273 273,275
IV Bin Group		15,16, 17,18	GR,GS GS,GT	Bin code : GR,GS Bin code : GS,GT
Vf Bin Group		19,20	Y	Bin code : Y
Kitting Rules	21,22,23	000	No requirements.	Kitting Rules

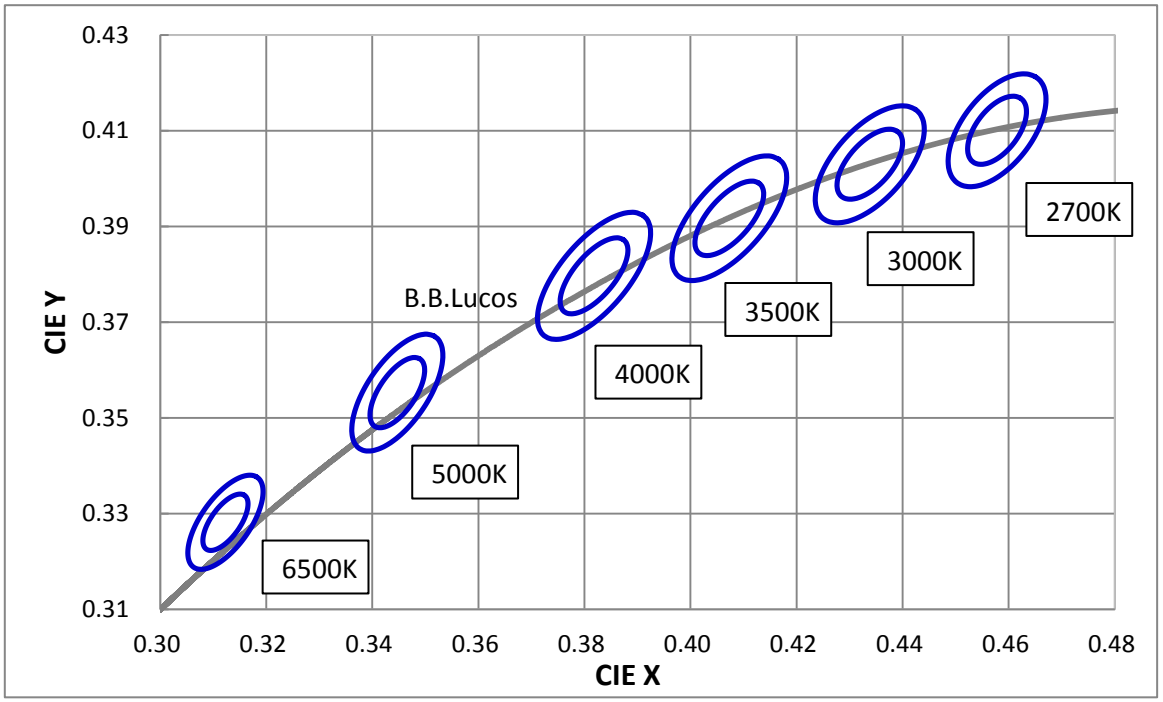
(1) The first two digits 27 means CCT in 2700K, can be replaced to 30, 40, 50 for different CCT requirements.

Standard Ordering Code:

CCT	Ordering Code(1)	CIE Bin Group	IV Bin Group	Vf Bin Group
2700K	PC55H162-A27030GRGSYY-000	30	GR,GS	Y
	PC55H162-A27050GRGSYY-000	50		
3000K	PC55H162-A30030GRGSYY-000	30	GR,GS	Y
	PC55H162-A30050GRGSYY-000	50		
4000K	PC55H162-A40030GSGTYY-000	30	GS, GT	Y
	PC55H162-A40050GSGTYY-000	50		
5000K	PC55H162-A50030GSGTYY-000	30	GS, GT	Y
	PC55H162-A50050GSGTYY-000	50		
6500K	PC55H162-A65030GSGTYY-000	30	GS, GT	Y
	PC55H162-A65050GSGTYY-000	50		

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

Chromaticity Coordinates(Ta=85℃)



Items	Center Point, Cx	Center Point, Cy	3 Step		5 Step		Rotation Angle
			Major Axis, a	Minor Axis, b	Major Axis, a	Minor Axis, b	
2700K	0.4578	0.4101	0.0081	0.0042	0.0135	0.007	53.7
3000K	0.4338	0.4030	0.0083	0.0040	0.0139	0.0068	53.2
4000K	0.3818	0.3797	0.0093	0.0040	0.0156	0.0040	53.7
5000K	0.3447	0.3553	0.0082	0.0035	0.0137	0.0059	59.6
6500K	0.3123	0.3282	0.0067	0.0029	0.0111	0.0048	58.6

Bin code definition

V_F Rank	Luminous Flux Rank	CIE Rank
1	GR	273S

V_F Rank	Condition	Min.	Max.
Y	I_F = 450 mA	11.1	13.5

Luminous Flux Rank	Condition	Min.	Max.
GR	I_F = 450 mA	660	726
GS		726	799
GT		799	879

Note:

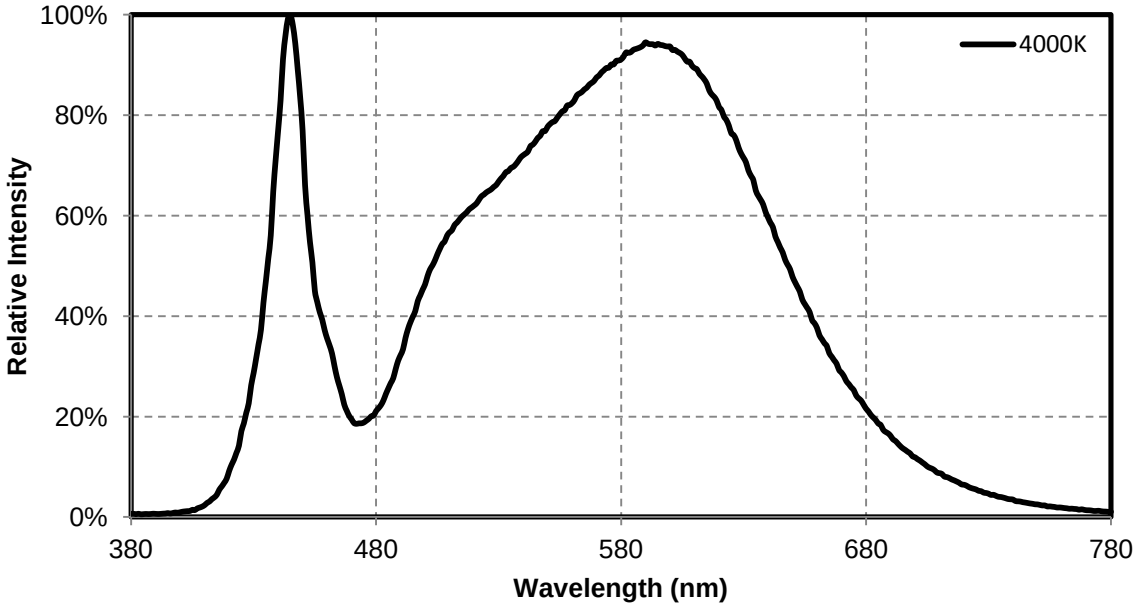
(1) Correlated color Temperature is derived from the CIE 1931Chromaticity diagram

(2) CIE Measurement tolerance is ± 0.005

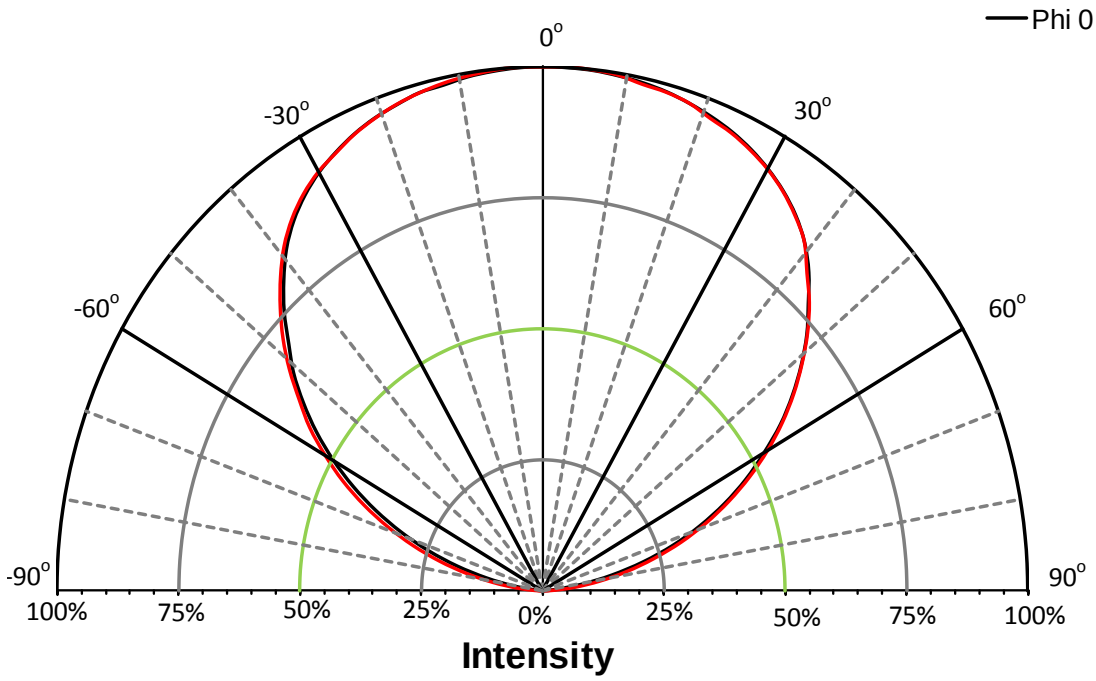
(3) The luminous flux tolerance is ±7%

(4) The Forward Voltage tolerance is ±3%

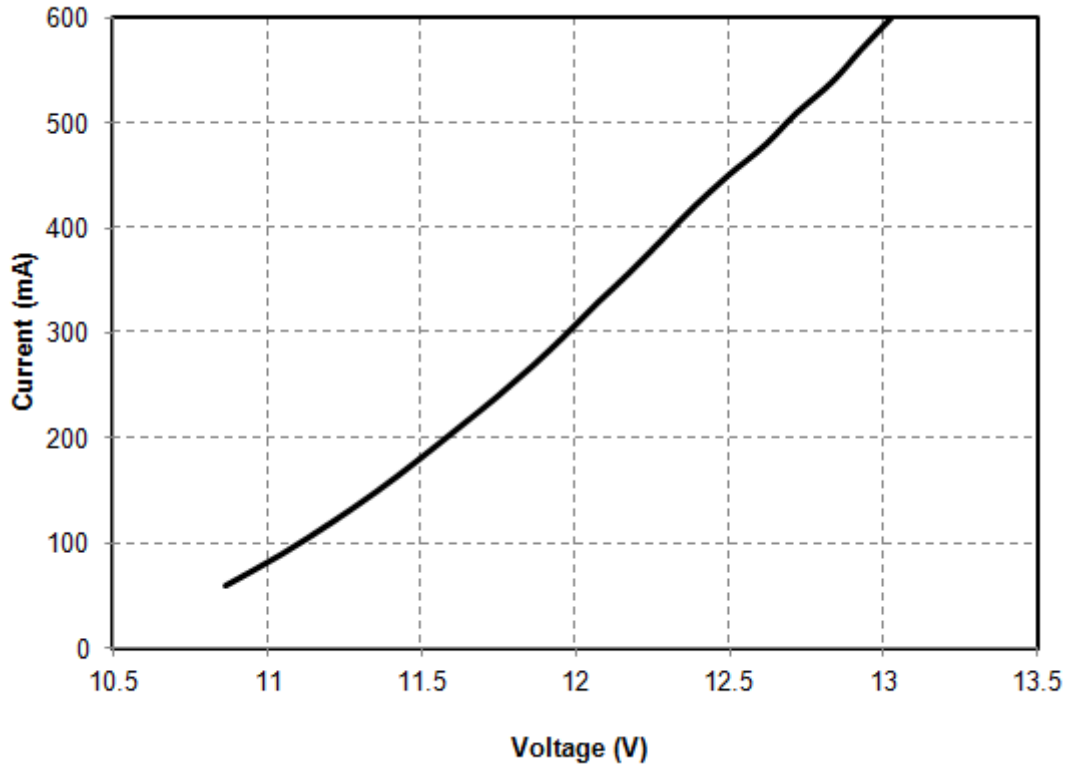
Radiation Pattern



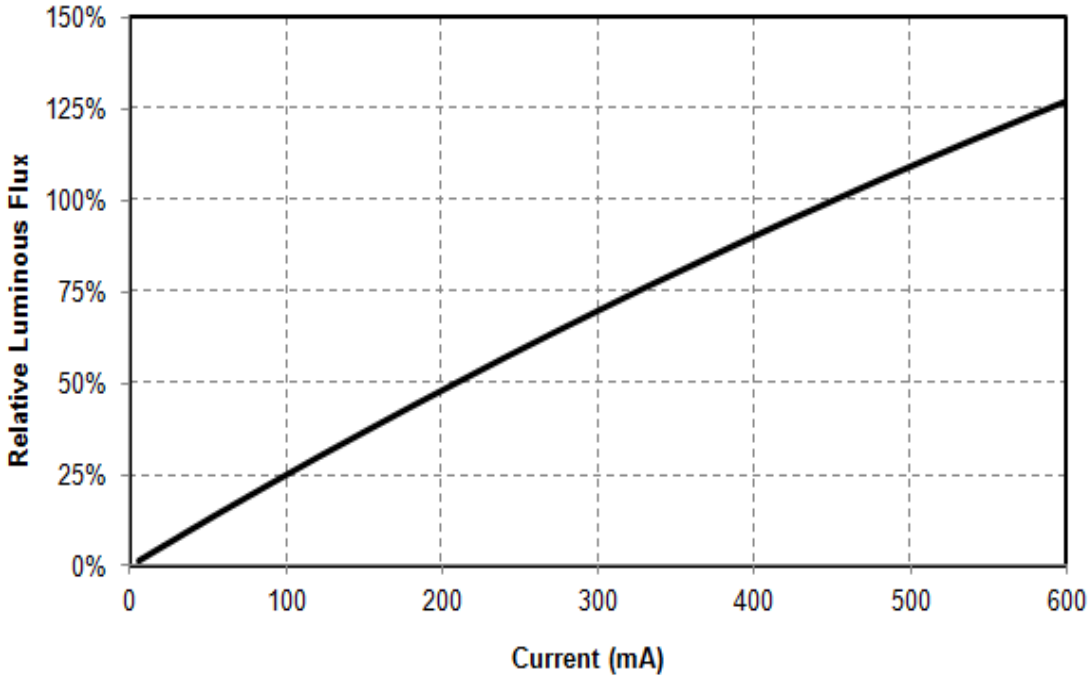
Radiation Pattern



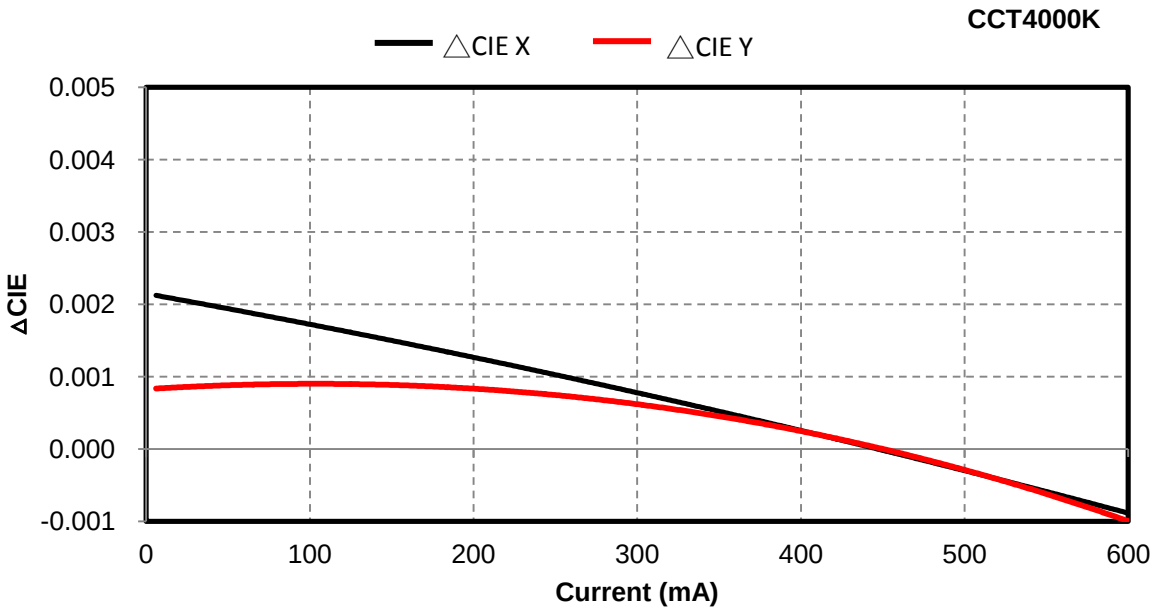
Forward Voltage vs. Forward Current



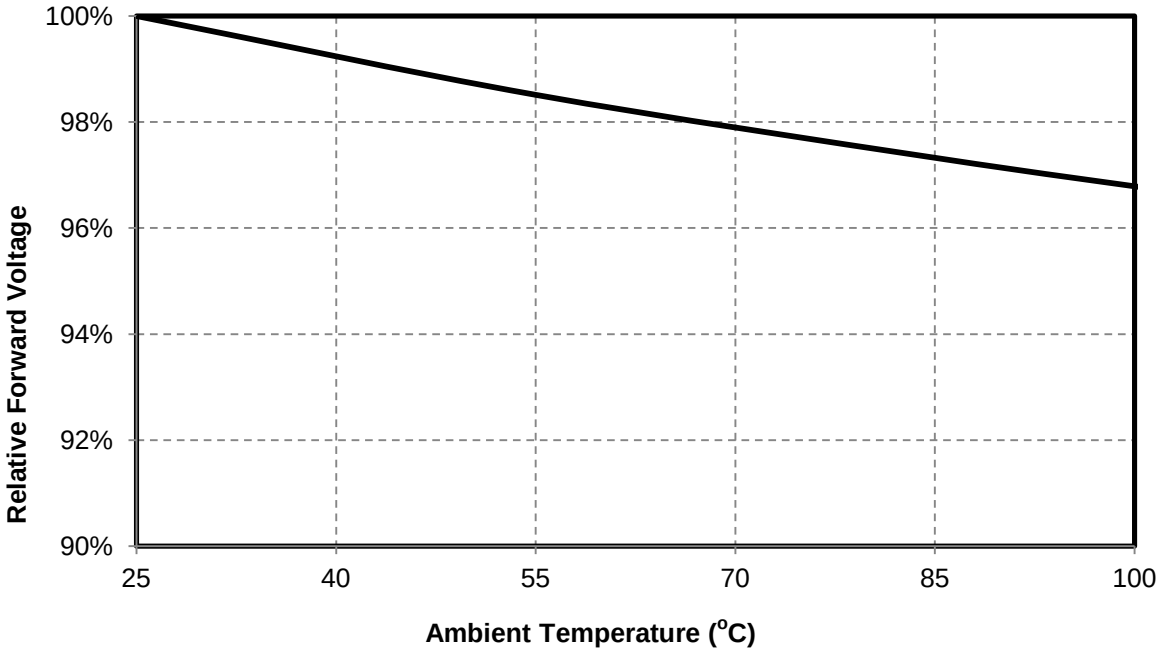
Forward Current vs. Relative Luminosity



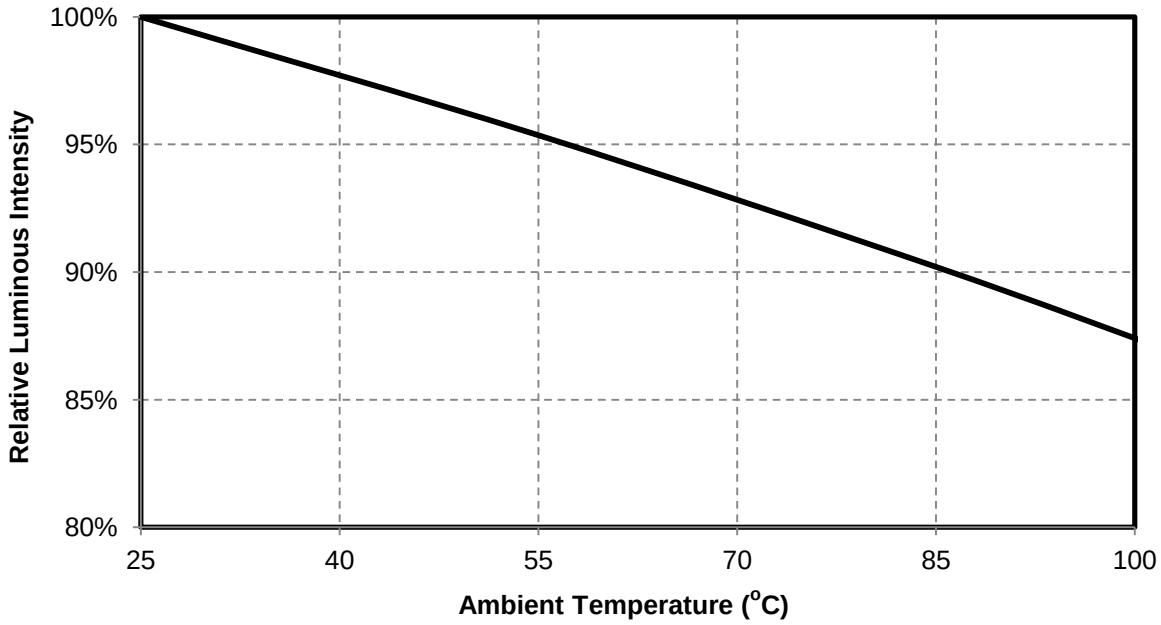
Forward Current vs. Chromaticity Coordinate



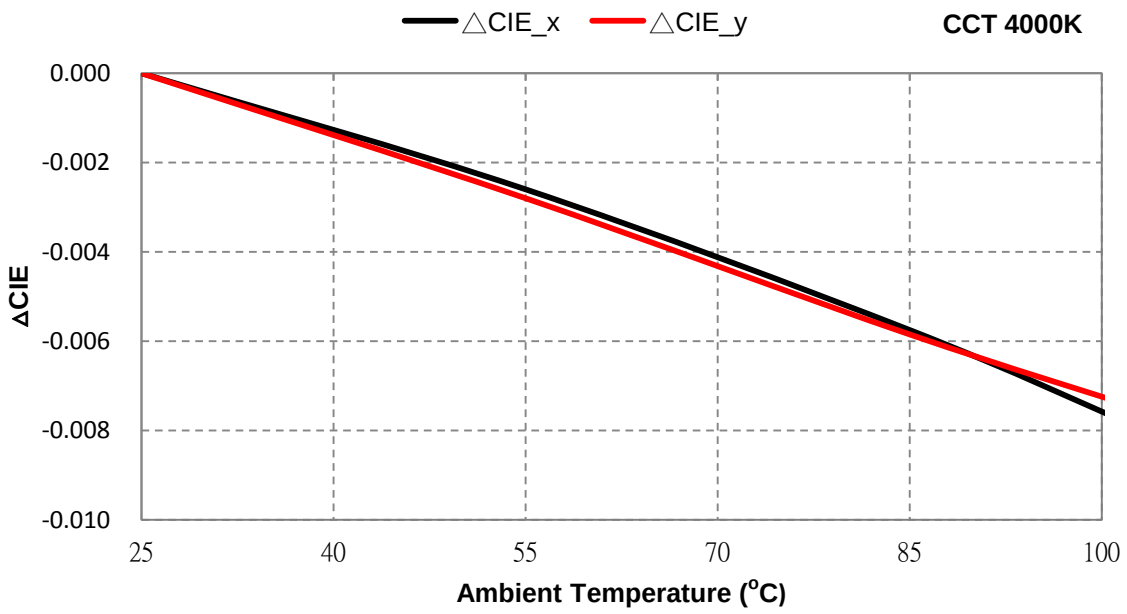
Relative Forward Voltage vs. Ambient Temperature



Relative Luminous Intensity vs. Ambient Temperature



Chromaticity vs. Ambient Temperature



Reliability

Reliability test

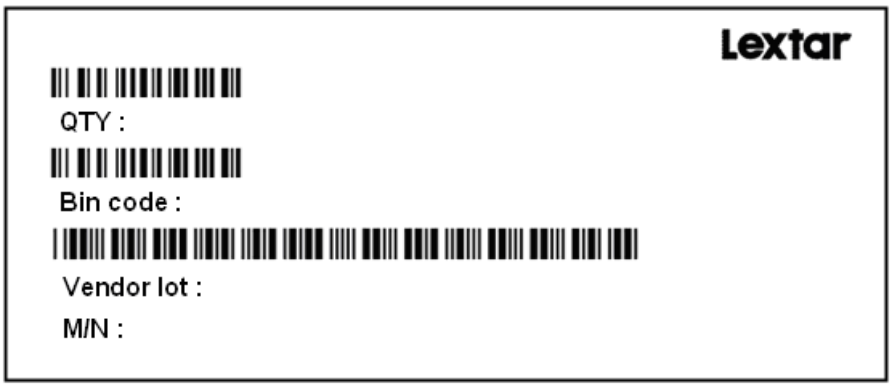
Item	Condition	Time/Cycle
Steady State Operating Life of Low Temperature -40℃	-40℃ Operating	1000 Hrs
Steady State Operating Life of High Temperature 60℃	60℃ Operating	1000 Hrs
Steady State Operating Life of High Temperature 85℃	85℃ Operating	1000 Hrs
Steady State Operating Life of High Temperature 100℃	105℃ Operating	1000 Hrs
Low temperature storage -40℃	-40℃ Storage	1000 Hrs
High temperature storage 100℃	105℃ Storage	1000 Hrs
Steady State Operating Life of High Humidity Heat 60℃90%	60℃/90% Operating	1000 Hrs
Resistance to soldering heat on PCB (JEDEC MSL3)	pre-store@60℃, 60%RH for 52hrs Tsld max.=260℃ 10sec	3 Times
Thermal shock	-40℃/20minr ~5minr ~ 100℃/20min	300 Cycles
ESD	-1KV	Pass

Judgment Criteria

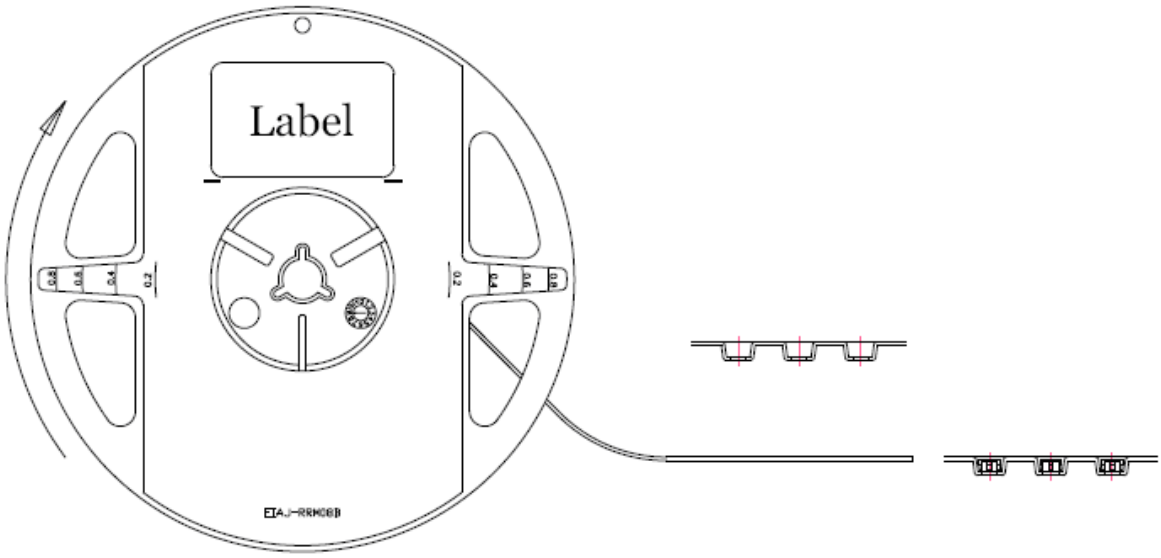
Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	450mA	ΔVf < 10 %
Luminous Flux	Iv	450mA	ΔIv < 30 %

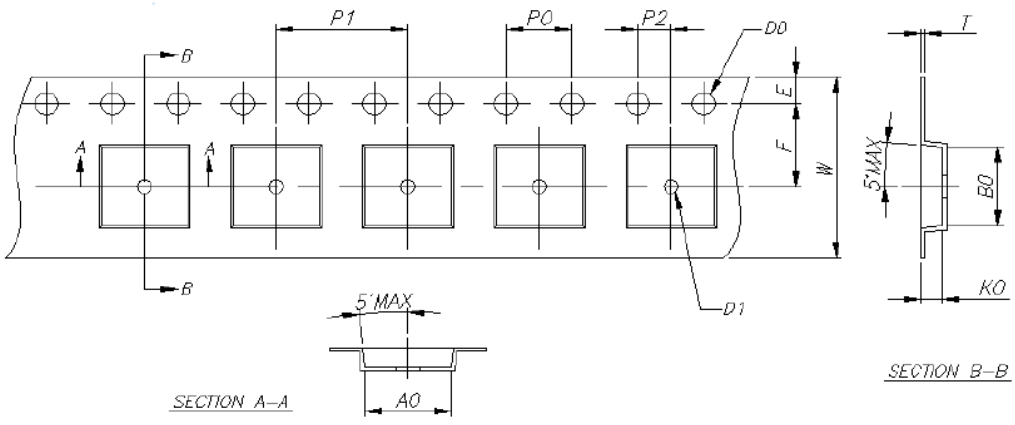
Packing

Label



Carrier Taping



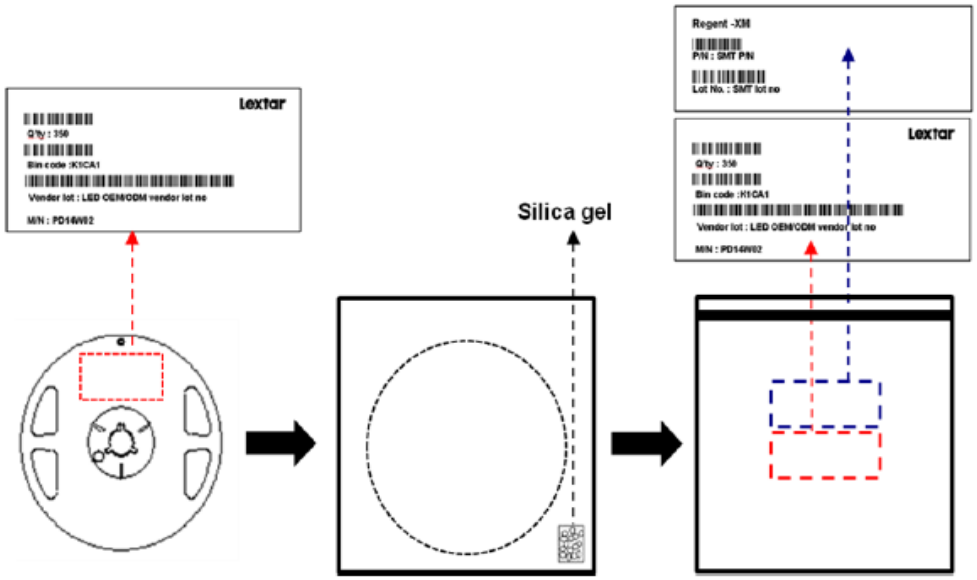


PS : unit : mm

Item	Specification	Tol. (+/-)
W	**12.00**	± 0.20
E	**1.75**	± 0.10
F	**5.50**	± 0.10
D0	**1.50**	± 0.10
D1	**1.50**	± 0.10
P0	**4.00**	± 0.10
P1	**8.00**	± 0.10
P2	**2.00**	± 0.05
P0 x 10	**40.00**	± 0.20

Item	Specification	Tol. (+/-)
t	**0.25**	± 0.02
A0	**5.25**	± 0.10
B0	**5.25**	± 0.10
K0	**1.10**	± 0.10

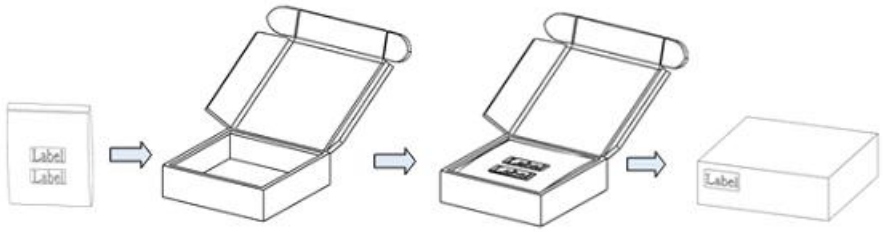
Shield Bag Taping



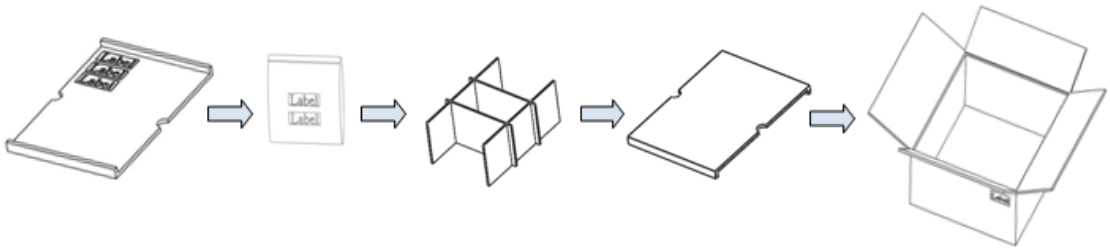
Packing Box

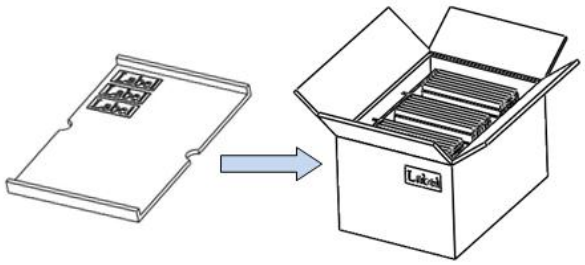
Type	Large Box		Medium Box		Small Box	
Dimension	541X511X276mm		385X303X260mm		283X235x70mm	
Maximum Reels	7"X12mm Reel	64/R	7"X12mm Reel	21/R	7"X12mm Reel	4/R
Minimum Reels	7"X12mm Reel	32/R	7"X12mm Reel	9/R	7"X12mm Reel	1/R

Small Box

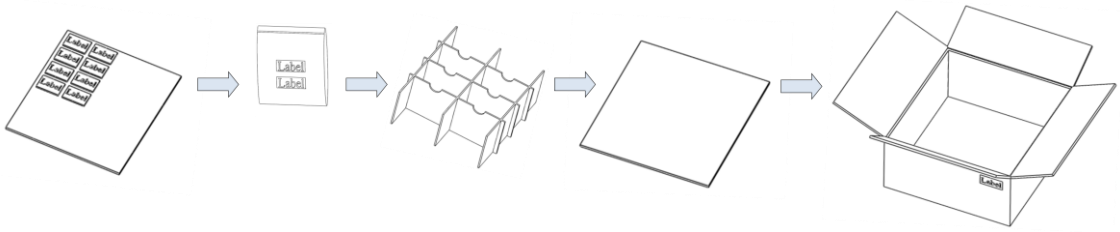


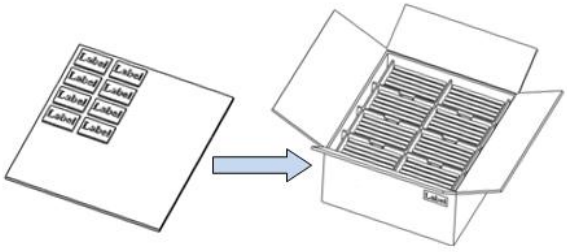
Medium Box





Large Box





Precautions

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℃, 60% RH.
- After opening the package bag, the LEDs should be keep under 30℃, 60% RH. Recommend to use within 168 hrs. 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

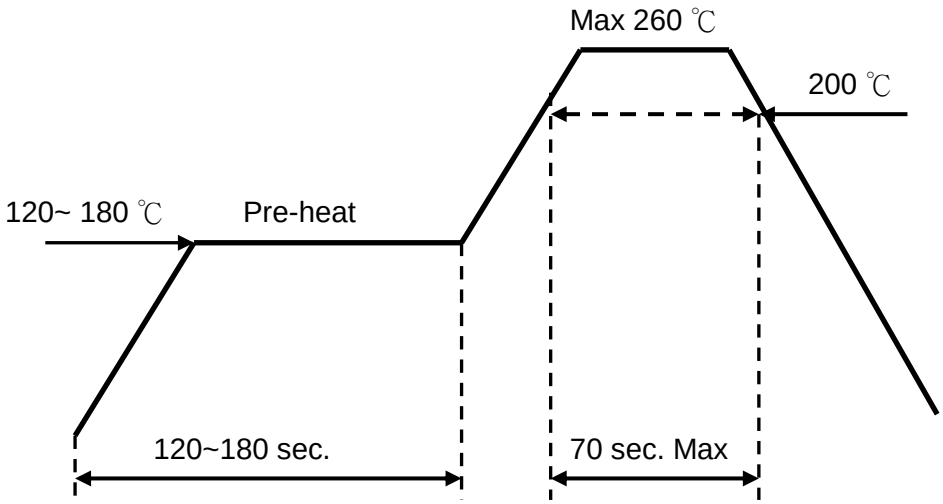
- When soldering LEDs,
- Do not solder/reflow the same LED over two times.
- Recommend soldering conditions:

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

Reflow soldering: Pre-heat 150 ℃ max , 180 sec. max.

Peak 260 ℃ max , 10 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 life saving 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.

Miscellaneous

- 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;
  (c) 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.

LIMITED WARRANTY

The applicable warranty period is ____ months from the date that the products are manufactured.

DISCLAIMERS:

- 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

PC55H16 V2
Product Specification

Date	Contents	Writer	Approved
2018.04.30	New version	Anita Chen	Berris Huang
2018.05.22	Add CCT Chart	Chin Lin	Louis Chu

Smart Lighting
Amazing Life

Lextar Electronics Corp. is the leading LED (Light Emitting Diode)
maker integrating upper stream epitaxial, middle stream chip, and downstream package,
SMT and LED lighting applications. Founded in May, 2008, Lextar is a subsidiary of AU Optronics,
the leading TFT-LCD and solar PV manufacturer. Lextar's product applications include lighting and LCD backlight.
Lextar's manufacturing sites include Hsinchu and Chunan in Taiwan, and Suzhou in China.
The company turnover in 2010 is 266 million USD.