SPECIFICATION

LT P/N

LT3014WH-E-Q

R&D

Mass Product

1. Description ˛ ن ג

1.1General Description ˛ ن

The White LED,which was fabricated by using a blue chip and the phosphor.

Product Package:3.0mmX1.4mmX0.7mm.

˛ ن I ¨Ω LED, ¨Ω ´ ¨Ω ,˛ ن :3.0mmX1.4mmX0.7mm ר

1.2Features ˛ ن

►PLCC Package.PLCC

►Wide viewing angle. ´ ¨Ω

►Suitable for all SMT assembly and solder process. Q SMT س

►Available on tape and reel. Q ס ¯

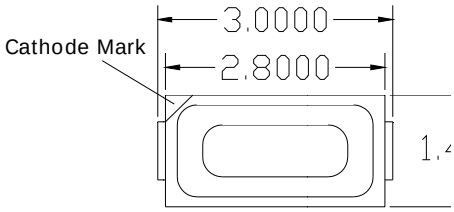
►Moisture sensitivity level: Level 3. Level3

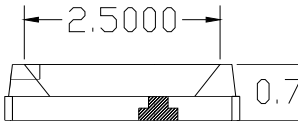
►RoHS compliant. RoHS

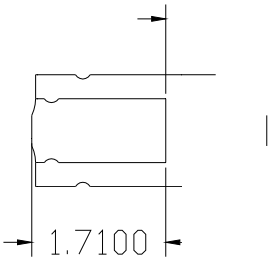
1.3Application ˛ ن

► LCD Back Light.LCD ¨Ω

1.4Package Dimension







Notes ※

1. All dimensions units ar

2. All dimensions toleranc

1.5Product Parameters ܀ ڹ غ

Table 1-1 Electrical / Optical Characteristics at Ts=25°C ҕ῭Ω

Item	Symbol ڴ	Test Condition ᴍ	Value			Unit ҍ ᵤ
			Min. € ẇ S	Typ. € ˝ ẇ S	Max. € ẇ S	
Forward Voltage € ٿ ư S	V_F	IF=80mA	---	3.0	---	V
Reverse Current € ي ٿ S	I_R	V_R=5V	---	---	1	uA
Luminous Intensity €῭Ω S	Iv	IF=80mA	---	24	---	lm
Viewing Angle € ˉ῭Ω S	2θ1/2	IF=80mA	---	120	---	deg

Table 1-2 Absolute Maximum Ratings at Ts=25°C ẇ

Parameter € غ S	Symbol € ڴ S	Rating € ẇ S	Units € ҍ ᵤ S
Forward Current € ٿ S	I_F	120	mA
Peak Forward Current € ẇ S	I_{FP}	150	mA
Reverse Voltage € ي ٿ ư S	V_R	5	V
Electrostatic Discharge (HBM) € S	E_{SD}	2000	V
LED Junction Temperature (LED)	Tj	105	
Operating Temperature € ۴ S	T_{OPR}	-30 ~ + 85	
Storage Temperature € ỵ S	T_{STG}	-40~+100	

Notes

1. 1/10 Duty cycle, 0.1ms pulse width.

2. The above forward voltage measurement allowance tolera

3. The above color coordinates measurement allowance toler

4. The above luminous intensity measurement allowance tole

5. Care is to be taken that power dissipation does not exceed

6. All measurements were made under the standardized envi

7.When the LEDs are in operation the maximum current shou
temperature,junction temperature should not exceed the m

1.6 Bin Range Of Forward Voltage and Lur
BIN (IF=80mA)

Table 1-3 Bin Range Of Luminous Intensity

BIN CODE	Min(lm)
T20	20.00
T22	22.00
T24	24.00
T26	26.00
T28	28.00
T30	30.00
T32	32.00
T34	34.00
T36	36.00
T38	38.00
T40	40.00

Tabl

BIN CODE	
V0	
V1	
V2	
V	
V	
V	
V	
V	

Notes ※

VF Tolerance
IV Tolerance:

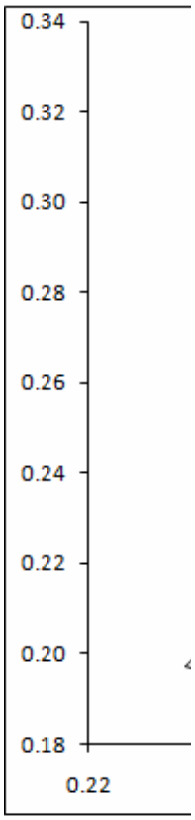


Table 1-4 The C.I.E Chromaticity Diagram CIE

BIN CODE	CIE-X1	CIE-Y1	CIE-X2	CIE-Y2	CIE-X3	CIE-Y3	CIE-X4	CIE-Y4
H23	0.3138	0.3120	0.3071	0.3157	0.3116	0.3247	0.3183	0.3210
H22	0.3093	0.3030	0.3026	0.3067	0.3071	0.3157	0.3138	0.3120
H21	0.3048	0.294	0.2981	0.2977	0.3026	0.3067	0.3093	0.303
H20	0.3003	0.285	0.2936	0.2887	0.2981	0.2977	0.3048	0.294
H00	0.2958	0.276	0.2891	0.2797	0.2936	0.2887	0.3003	0.285
H01	0.2913	0.267	0.2846	0.2707	0.2891	0.2797	0.2958	0.276
H02	0.2868	0.258	0.2801	0.2617	0.2846	0.2707	0.2913	0.267
H03	0.2823	0.249	0.2756	0.2527	0.2801	0.2617	0.2868	0.258
H04	0.2778	0.24	0.2711	0.2437	0.2756	0.2527	0.2823	0.249
H05	0.2733	0.231	0.2666	0.2347	0.2711	0.2437	0.2778	0.24
H06	0.2688	0.222	0.2621	0.2257	0.2666	0.2347	0.2733	0.231
H07	0.2643	0.213	0.2576	0.2167	0.2621	0.2257	0.2688	0.222
H08	0.2598	0.204	0.2531	0.2077	0.2576	0.2167	0.2643	0.213
H09	0.2553	0.195	0.2486	0.1987	0.2531	0.2077	0.2598	0.204
H10	0.2508	0.186	0.2441	0.1897	0.2486	0.1987	0.2553	0.195
K23	0.3071	0.3157	0.3004	0.3194	0.3049	0.3284	0.3116	0.3247
K22	0.3026	0.3067	0.2959	0.3104	0.3004	0.3194	0.3071	0.3157
K21	0.2981	0.2977	0.2914	0.3014	0.2959	0.3104	0.3026	0.3067
K20	0.2936	0.2887	0.2869	0.2924	0.2914	0.3014	0.2981	0.2977
K00	0.2891	0.2797	0.2824	0.2834	0.2869	0.2924	0.2936	0.2887
K01	0.2846	0.2707	0.2779	0.2744	0.2824	0.2834	0.2891	0.2797
K02	0.2801	0.2617	0.2734	0.2654	0.2779	0.2744	0.2846	0.2707
K03	0.2756	0.2527	0.2689	0.2564	0.2734	0.2654	0.2801	0.2617
K04	0.2711	0.2437	0.2644	0.2474	0.2689	0.2564	0.2756	0.2527
K05	0.2666	0.2347	0.2599	0.2384	0.2644	0.2474	0.2711	0.2437
K06	0.2621	0.2257	0.2554	0.2294	0.2599	0.2384	0.2666	0.2347
K07	0.2576	0.2167	0.2509	0.2204	0.2554	0.2294	0.2621	0.2257
K08	0.2531	0.2077	0.2464	0.2114	0.2509	0.2204	0.2576	0.2167
K09	0.2486	0.1987	0.2419	0.2024	0.2464	0.2114	0.2531	0.2077
K10	0.2441	0.1897	0.2374	0.1934	0.2419	0.2024	0.2486	0.1987
T23	0.2937	0.3231	0.2982	0.3321	0.3049	0.3284	0.3004	0.3194
T22	0.2937	0.3231	0.2892	0.3141	0.2959	0.3104	0.3004	0.3194
T21	0.2914	0.3014	0.2847	0.3051	0.2892	0.3141	0.2959	0.3104
T20	0.2869	0.2924	0.2802	0.2961	0.2847	0.3051	0.2914	0.3014
T00	0.2824	0.2834	0.2757	0.2871	0.2802	0.2961	0.2869	0.2924
T01	0.2779	0.2744	0.2712	0.2781	0.2757	0.2871	0.2824	0.2834
T02	0.2734	0.2654	0.2667	0.2691	0.2712	0.2781	0.2779	0.2744
T03	0.2689	0.2564	0.2622	0.2601	0.2667	0.2691	0.2734	0.2654
T04	0.2644	0.2474	0.2577	0.2511	0.2622	0.2601	0.2689	0.2564
T05	0.2599	0.2384	0.2532	0.2421	0.2577	0.2511	0.2644	0.2474
T06	0.2554	0.2294	0.2487	0.2331	0.2532	0.2421	0.2599	0.2384

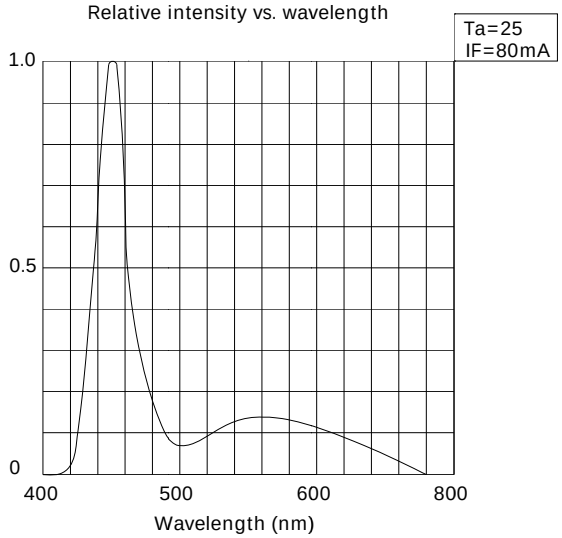
T07	0.2509	0.2204	0.2442	0.2241	0.2487	0.2331	0.2554
T08	0.2464	0.2114	0.2397	0.2151	0.2442	0.2241	0.2509
T09	0.2419	0.2024	0.2352	0.2061	0.2397	0.2151	0.2464
T10	0.2374	0.1934	0.2307	0.1971	0.2352	0.2061	0.2419
D23	0.3205	0.3083	0.3138	0.312	0.3183	0.321	0.325
D22	0.316	0.2993	0.3093	0.303	0.3138	0.312	0.3205
D21	0.3115	0.2903	0.3048	0.294	0.3093	0.303	0.316
D20	0.307	0.2813	0.3003	0.285	0.3048	0.294	0.3115
D00	0.3025	0.2723	0.2958	0.276	0.3003	0.285	0.307
D01	0.298	0.2633	0.2913	0.267	0.2958	0.276	0.3025
D02	0.2935	0.2543	0.2868	0.258	0.2913	0.267	0.298
D03	0.289	0.2453	0.2823	0.249	0.2868	0.258	0.2935
D04	0.2845	0.2363	0.2778	0.24	0.2823	0.249	0.289
D05	0.28	0.2273	0.2733	0.231	0.2778	0.24	0.2845
D06	0.2755	0.2183	0.2688	0.222	0.2733	0.231	0.28
D07	0.271	0.2093	0.2643	0.213	0.2688	0.222	
D08	0.2665	0.2003	0.2598	0.204	0.2643	0.213	
D09	0.262	0.1913	0.2553	0.195	0.2598	0.204	
D10	0.2575	0.1823	0.2508	0.186	0.2553	0.195	

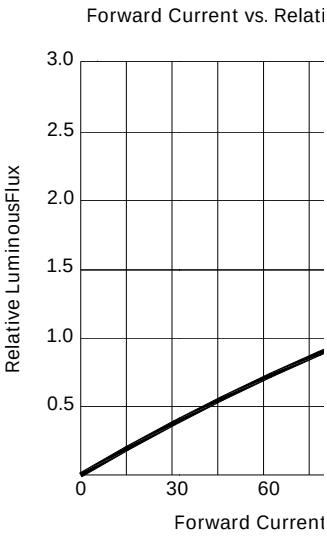
Notes

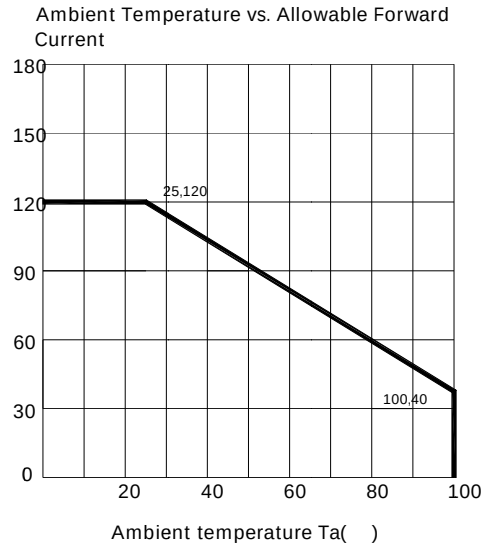
1 Measurement uncertainty of the color coordinates: ± 0.003.

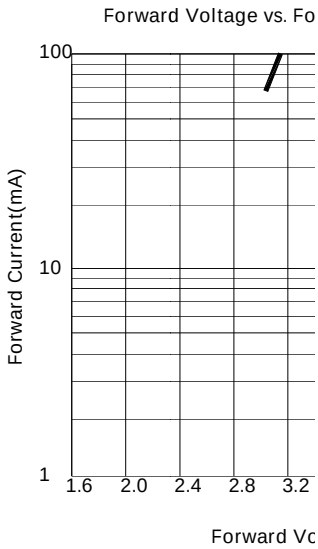
2 The new white dustbin refers to the application of small backlight standard.

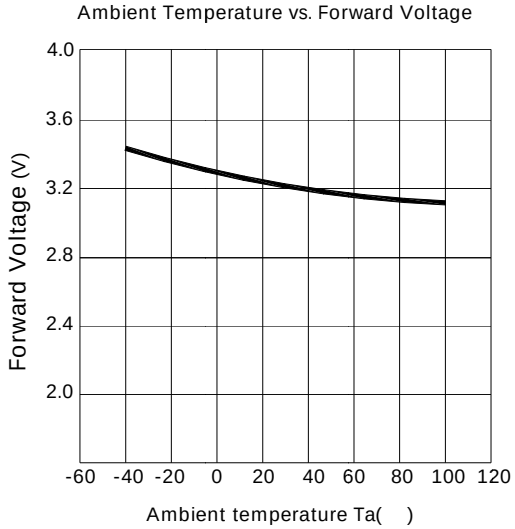
1.7 Typical Optical Characteristics Curves ˝ ˇQ

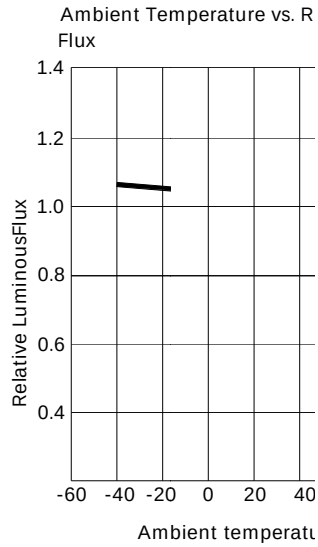










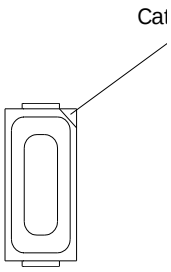


Allowable Forward Current

2.1 Packa

Package:40

2.1.1 Carrier



scale 2:1

Notes

The

2.1.2Label Fc

Table 2-

2.2Moistur

2.3

2.4Reliability Test Items And Conditions ḫ o M

Table 2-6 Reliability Test Items And Conditions ḫ M

TestItems	Test Condition M	Time	Quantity	Ac/Re /
Reflow	Temp:260 ŏ max T=10 sec	---	20pcs.	0/1
Thermal Shock › ‰ ⅛	-40 ŏ 20min ↑↓10s 100 ŏ 20min	100 cycle	20pcs.	0/1
High Temperature Storage ḧ	Temp:100 ŏ	1000hrs.	20pcs.	0/1
Low Temperature Storage v ḧ	Temp:-40 ŏ	1000hrs.	20pcs.	0/1
Life Test	Ta=25 ŏ IF=80mA	1000hrs.	20pcs.	0/1
High Temperature and Humidity storage ẏ	60 ŏ / 90%RH	1000hrs.	20pcs.	0/1
Temperature Humidity Operation Life 5	IF=80mA 60 ŏ / 90%RH	500hrs	20pcs.	0/1

2.5 Criteria For Judging Damage ├ 8

Table 2-7 Criteria For Judging Damage ├ 8

Test Items	Symbol ڳ	Test Condition M	Criteria For Judgement ├ 8	
			Min.	Max.
Forward Voltage ڽ ڈ	V_F	IF=80mA	-	>U.S.L*)x1.1
Reverse Current ی ڽ	I_R	V_R = 5V	-	>U.S.L*)x2.0
Luminous Flux ̈Ω	Φ	IF=80mA	<L.S.L*)x0.7	-

Notes

1.U.S.L: Upper standard level

2.The above reliability tests is based o
platform,the reliability experiment was
the LED to the series and parallel circu
voltage distribution, heat dissipation ar

LED

3.The technical information shown in tl
of the referenced products. It does nc
license.

3. SMT Reflow

3.1 SMT Reflow Soldering I

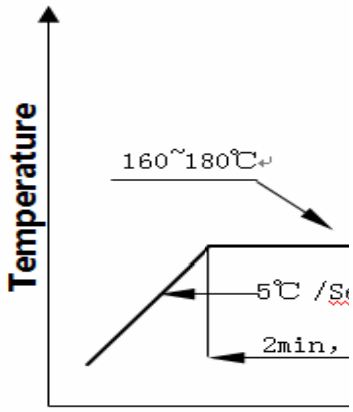


Fig.3-1

Fig.3-2 SMT Reflow Soldering Instructions SMT

Average temperature rise speed o Є Tsmax TP S	5 °C/ Max 5 °C/ s
Preheating: minimum temperature Ж v (Tsmin)	160 °C
Preheating: Max temperature Ж (Tsmax)	260 °C
Preheating: Time Ж Є Tsmin Tsmax S	60 - 120 60s-120s
Time limited to maintain high temperature: the temperature Ж (TL)	217 °C
Time limited to maintain high temperature: The Time Ж (tL)	60 Max 60s
Peak /Classification of temperature: Ẇ / ↨ (TP)	260 °C
Time limit classification of peak temperature time Ẇ ↨ Ж Є tp S	10 Max 10s
Ƀ Ẇ (TP) 5 °C ıI ´Y ḧ Hold time within 5 °C with the actual peak temperature (TP)	30 Max 30s
Cooling speed	6 °C/ Max 6 °C/ s
25 °C o Ẇ Needed time from 25 °C to Tp	8 ↨ Max 8 minutes

Notes Ж

(1)Reflow soldering should not be done more than twice. If more than 24 hours between the two solderings , LED will be damaged.

ғ ҷ ıI Ç J Ç 24 J LED ҷ Q ک ſ

(2)Whensoldering , do not put stress on the LEDs during heating. J ғ ʻ fI ᵾ χ ſ

3.1.1 Soldering Iron

(1) When do soldering by hand, keep the temperature of iron below less 300 less than 3 seconds. ,

Q 300 ŏ ғ ҷ 3 ſ

(2) Soldering by hand should be done only one time. ب ҷ ' ſ

3.1.2 Repairing

Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable,a double-iron should be used (as below figure). It should be confirmed in advance whether the characteristics of LEDsm0 1 i r31bee g 0046 Tc 0044 damaged by repairing.

LED

3.1.3 Cautions

(1) The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on to the top surface will be impacted on the reliability of the LEDs. Precautions should be taken to encapsulated part. So when usethe picking up nozzle, the pressure on the silicone resin should b

(2) Components should not be mounted on warped (non coplanar) portion of PCB. After soldering, board.LED PCB

(3) Do not apply mechanical force or excess vibration during the cooling process to normal temper rapidly cool device after soldering.

4. Handling Precautions

4.1 Handling Precautions

(1) LED operating environment and sulfur element composition cannot be over 100PPM in the LEI provided for informational purposes only and is not a warranty or endorsement.LED 100PPM.

(2) In order to prevent ex-ternal material from getting into the inside of LED, which may cause the content of Bromine element is required to be less than 900PPM,the single content of Chlorine eler 900PPM,the total content of Bromine element and Chlorine element in the external materials of the required to be less than 1500PPM. This is provided for informational purposes only and is not a wa

LED 900PPM 1500PPM.

(3) VOCs (Volatile organic compounds) emitted from materials used in the construction of fixtures encapsulants of LEDs and discolor when exposed to heat and photonic energy. The result can be

from the fixture. Knowledge of the properties of the materials selected to be used in the construction of fixtures can help prevent these issues. LT advises against theuse of any chemicals or materials that have been found or are suspected to have an adverse affect on device performance or reliability. To verifycompatibility, LT recommends that all chemicals and materials be tested in the specific application and environment for which they are intended tobe used. Attaching LEDs, do not use adhesives that outgas organic vapor.

(4) Handle the component along the side surface by using forceps or appropriate tools; do not directlytouch or Handle the silicone lens surface, it may damage the internal circuitry.

(5) In designing a circuit,the current through each LED must exceed the absolute maximum rating specified for each LED.In the meanwhile,resistors for protection should be applied,otherwise slight voltage shift will cause big current change,burn out may happen. 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.

(6) Thermal Design is paramount importance because heat generation may result in the Characteristics decline,such as brightness decreased,Color change and so on.Please consider the heat generation of the LEDs when making the system design.LED

(7) Compared to standard encapsulants, silicone is generally softer, and the surface is more likely to attract dust requiring special care during processing. In cases where a minimal level of dirt and dust particles cannot be guaranteed, a suitable cleaning solution must be applied to the surface after the soldering of components. LT 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. Ultrasonic cleaning is not recommended. Ultrasonic cleaning may cause damage to the LED.

	Conditions
Storage	Before Opening Alum
	After Opening Alumi
	Baking

(8) If the moisture absorbent material silica

treatment should be performed

If the package is flatulence or d

(9)Similar to most Solid state d

Version History/ Ļ ų ę

Date	Revisor Ļ	Version	Verifier	Remarks
2019/11/1		E/0	≤	