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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Enabling the best lm/W in Mid Power Range

Mid-Power LED - 5630 Series

STW9Q14C (Cool, Neutral, Warm)



Product Brief

Description

- This White Colored surface-mount LED comes in standard package dimension. Package Size: 5.6x3.0x0.75mm
- It has a substrate made up of a molded plastic reflector sitting on top of a lead frame.
- The die is attached within the reflector cavity and the cavity is encapsulated by silicone.
- The package design coupled with careful selection of component materials allow these products to perform with high reliability.

Features and Benefits

- The Best Efficacy in Mid Power LEDs
- Market Standard 5630 Package Size
- High Color Quality, CRI Min. 90(R9≥50)
- Wide CCT range 2600~7000K
- ANSI & MacAdam 3 Step compliant
- RoHS compliant

Key Applications

- Interior lighting
- General lighting
- Indoor and outdoor displays
- Architectural / Decorative lighting

Table 1. Product Selection Table

Part Number	CCT			
	Color	Min.	Typ.	Max.
STW9Q14C	Cool White	4700K	5600K	7000K
STW9Q14C	Neutral White	3700K	4200K	4700K
STW9Q14C	Warm White	2600K	3000K	3700K

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Product Performance & Characterization Guide

Table 2. Characteristics, $I_F=100\text{mA}$, $T_J= 25^\circ\text{C}$, RH30%

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Forward Current	I_F	-	100		mA
Forward Voltage ^[1]	V_F	2.8	-	3.4	V
Luminous Intensity ^[2] (5,000K) ^[3]	I_v	-	11.7 (35.1)	-	cd (lm)
CRI ^[4]	R_a	90	-	-	
Viewing Angle	$2\theta_{1/2}$	-	120	-	Deg.
Storage Temperature	T_{stg}	- 40	-	+ 100	$^\circ\text{C}$
Thermal resistance (J to S) ^[5]	$R\theta_{J-S}$	-	18	-	$^\circ\text{C}/\text{W}$
ESD Sensitivity(HBM)	-	Class 3A JESD22-A114-E			

Table 3. Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Forward Current	I_F	160	mA
Pulse Forward Current ^[6]	I_{FP}	300	mA
Power Dissipation	P_D	0.56	W
Junction Temperature	T_J	125	$^\circ\text{C}$
Operating Temperature	T_{opr}	-40 ~ + 85	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 ~ + 100	$^\circ\text{C}$

Notes :

- (1) Tolerance of forward voltage is $\pm 0.1\text{ V}$.
- (2) Seoul Semiconductor maintains a tolerance of $\pm 7\%$ on Intensity and power measurements
- (3) Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.
Color coordinate : ± 0.01 , CCT $\pm 5\%$ tolerance.
- (4) Tolerance is ± 2.0 on CRI measurements.
- (5) Thermal resistance is junction to Solder.
- (6) I_{FP} conditions with pulse width $\leq 10\text{ms}$ and duty cycle $\leq 10\%$

- **Calculated performance values are for reference only.**
- **All measurements were made under the standardized environment of Seoul Semiconductor.**

Characteristics Graph

Fig 1. Color Spectrum, $T_j = 25^\circ\text{C}$, $I_F = 100\text{mA}$

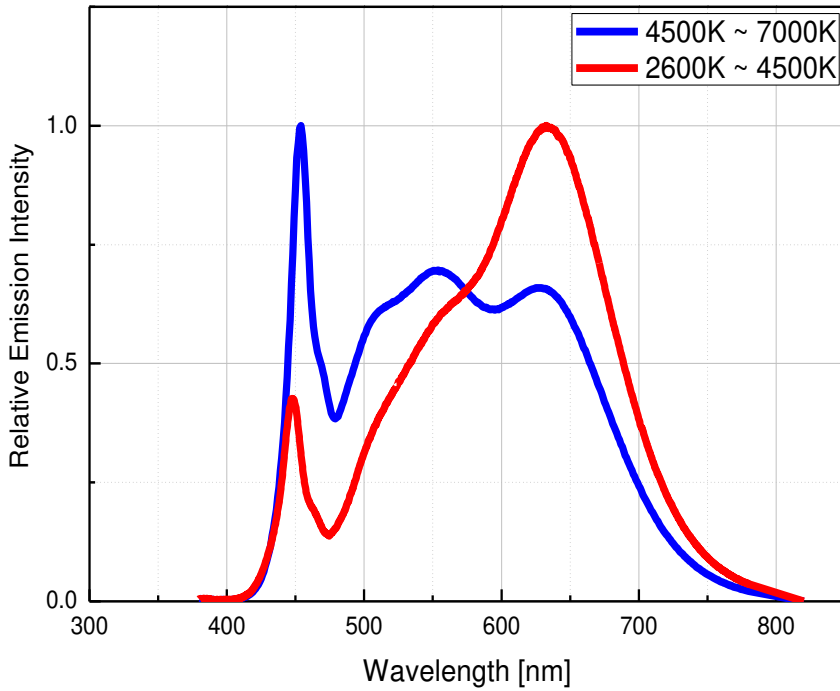
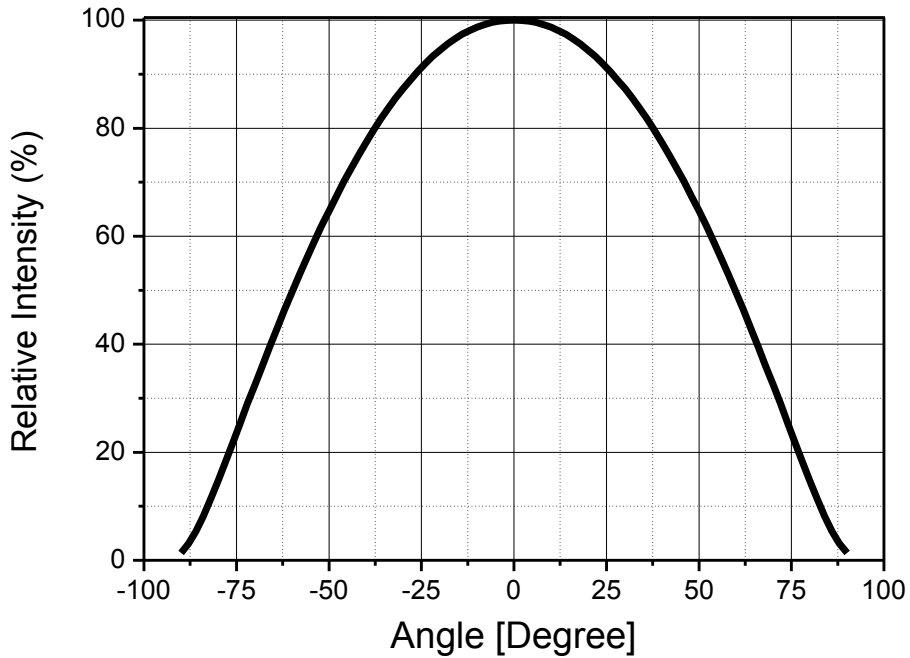


Fig 2. Radiant Pattern, $T_j = 25^\circ\text{C}$, $I_F = 100\text{mA}$



Characteristics Graph

Fig 3. Forward Voltage vs. Forward Current, $T_j = 25^\circ\text{C}$

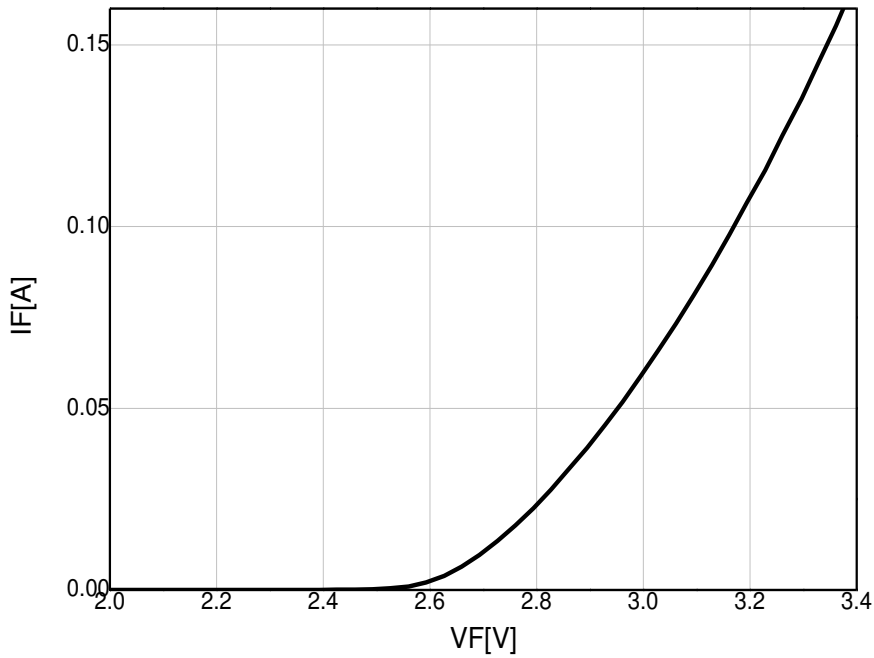
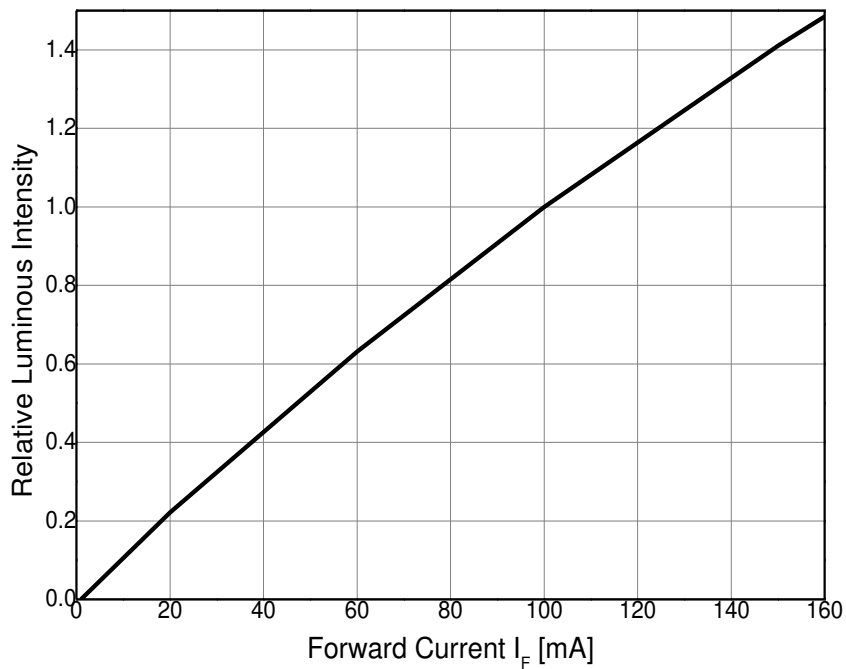
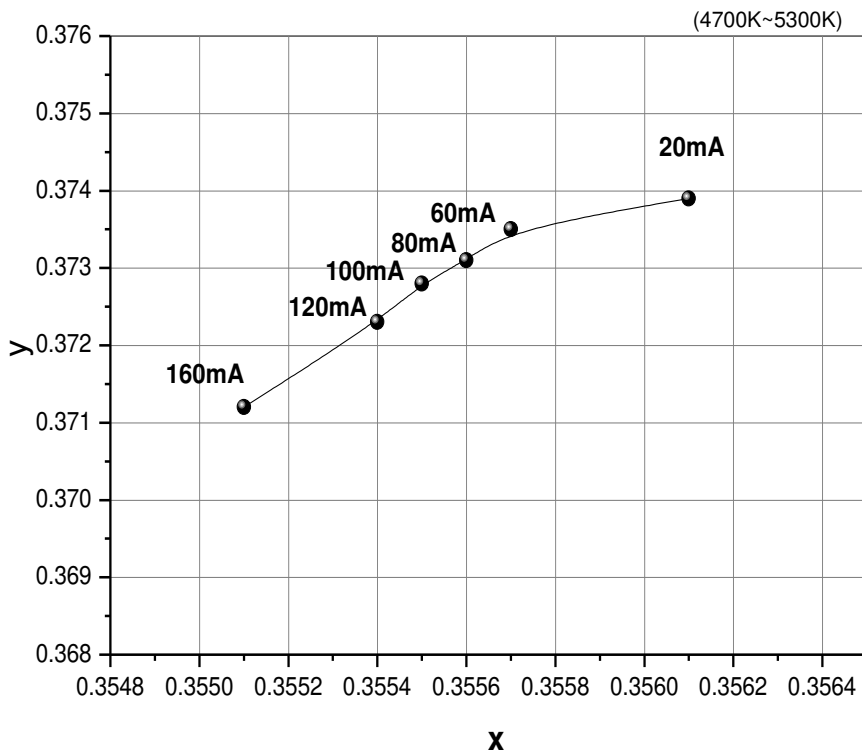
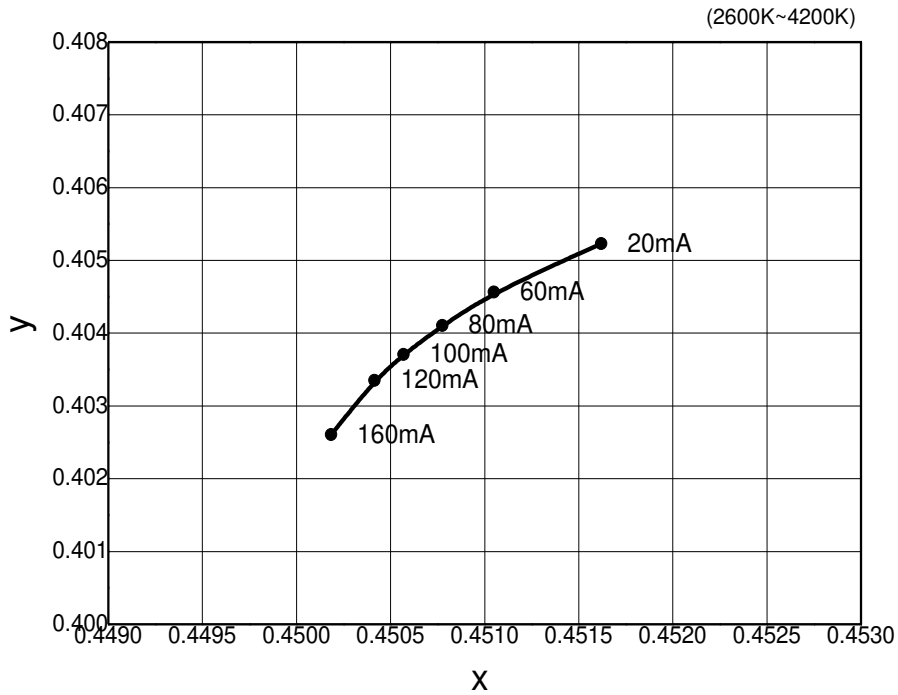


Fig 4. Forward Current vs. Relative Luminous Intensity, $T_j = 25^\circ\text{C}$



Characteristics Graph

Fig 5. Forward Current vs. CIE X,Y Shift, $T_j = 25^\circ\text{C}$


Characteristics Graph

Fig 6. Junction Temperature vs. Relative Luminous Intensity, $I_F=100\text{mA}$

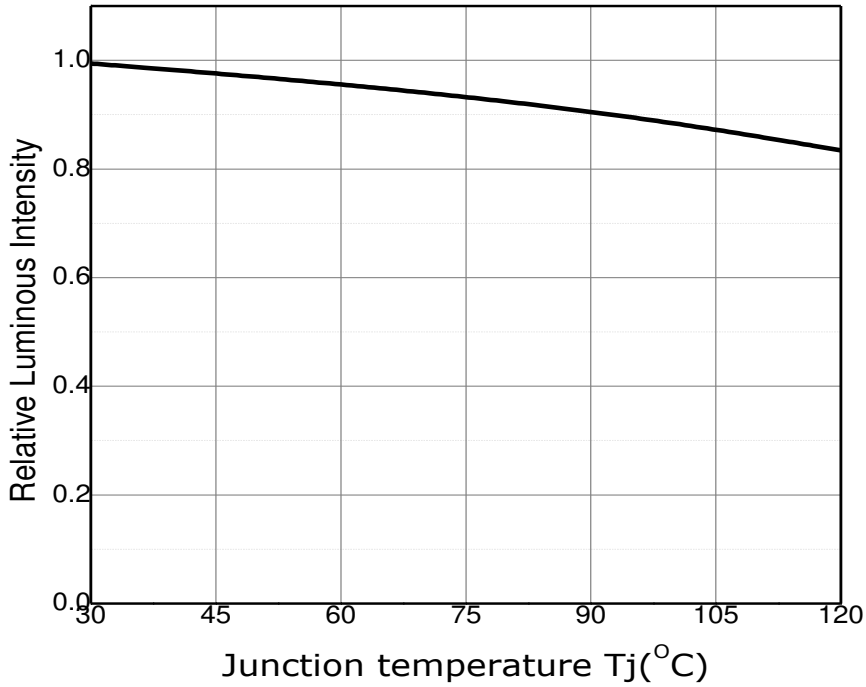
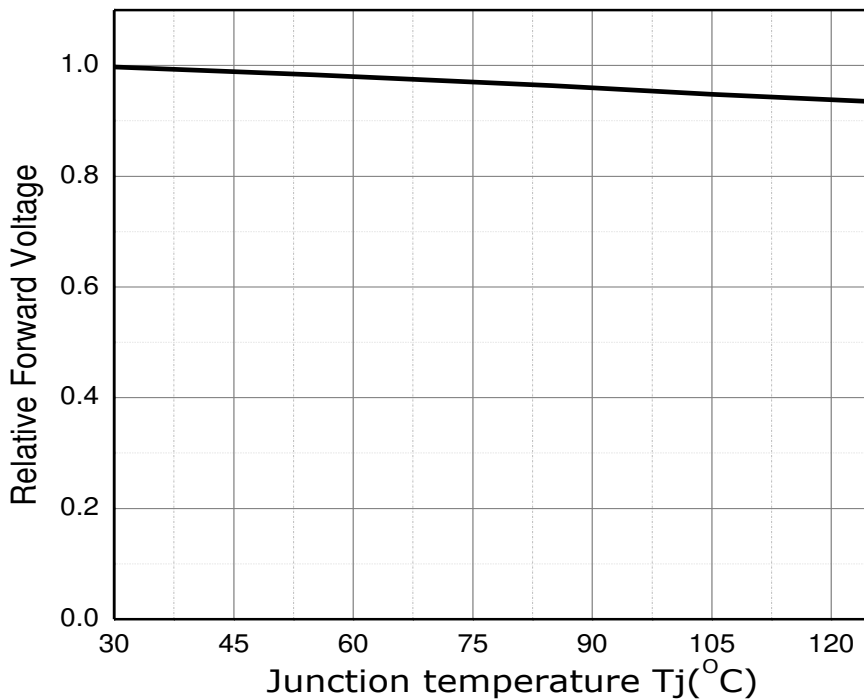
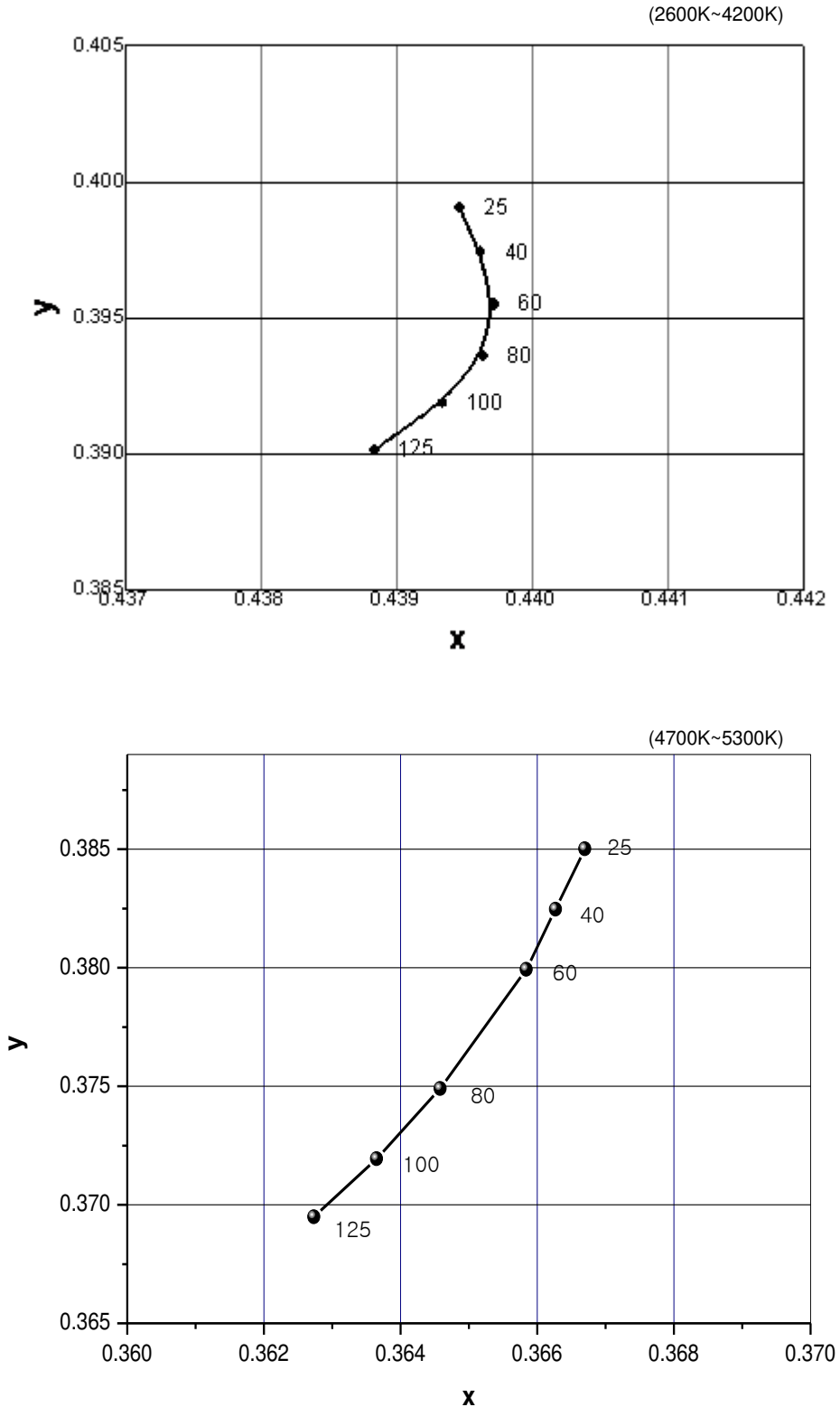


Fig 7. Junction Temperature vs. Relative Forward Voltage, $I_F=100\text{mA}$



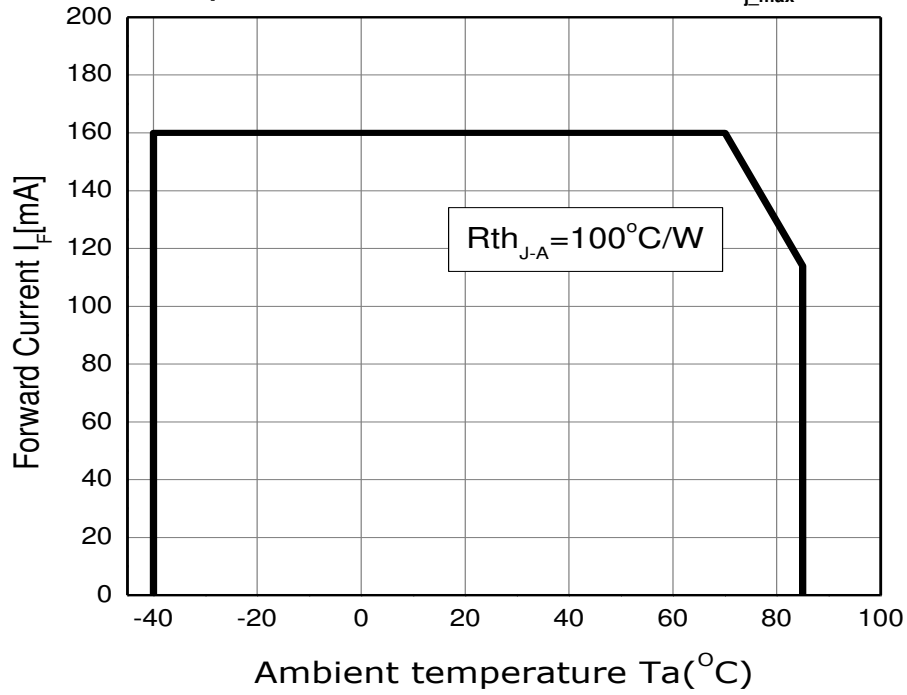
Characteristics Graph

Fig 8. Chromaticity Coordinate vs. Junction Temperature, $I_F=100\text{mA}$



Characteristics Graph

Fig 9. Ambient Temperature vs. Maximum Forward Current, $T_{j,max} = 125^{\circ}\text{C}$



Color Bin Structure

Table 4. Bin Code description, $T_j=25^\circ\text{C}$, $I_F=100\text{mA}$

Part Number	Luminous Intensity (cd)			Luminous Flux (lm) [1]		Color Chromaticity Coordinate	Typical Forward Voltage (V)		
	Bin Code	Min.	Max.	Min.	Max.		Bin Code	Min.	Max.
STW9Q14C	T0	10.0	10.5	30.0	31.5	Refer to Page. 12	Y3	2.9	3.0
	T5	10.5	11.0	31.5	33.0		Z1	3.0	3.1
	U0	11.0	11.7	33.0	35.1		Z2	3.1	3.2
	U7	11.7	12.5	35.1	37.5		Z3	3.2	3.3
	V5	12.5	13.5	37.5	40.5		A1	3.3	3.4
	W5	13.5	14.5	40.5	43.5		-	-	-

Table 5. Intensity rank distribution

Available ranks

CCT	CIE	IV Rank					
6000 ~ 7000K	A	T0	T5	U0	U7	V5	W5
5300 ~ 6000K	B	T0	T5	U0	U7	V5	W5
4700 ~ 5300K	C	T0	T5	U0	U7	V5	W5
4200 ~ 4700K	D	T0	T5	U0	U7	V5	W5
3700 ~ 4200K	E	T0	T5	U0	U7	V5	W5
3200 ~ 3700K	F	T0	T5	U0	U7	V5	W5
2900 ~ 3200K	G	T0	T5	U0	U7	V5	W5
2600 ~ 2900K	H	T0	T5	U0	U7	V5	W5

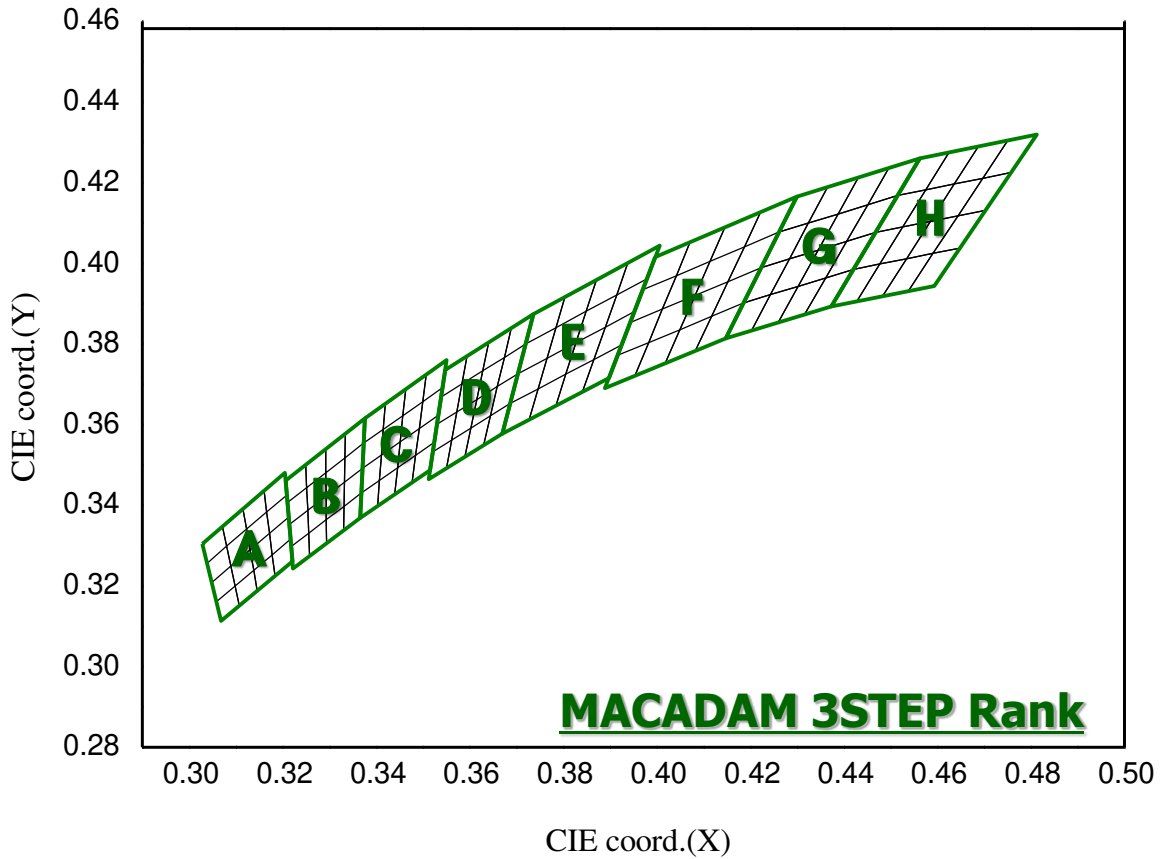
***Notes :**

(1) Calculated performance values are for reference only.

- All measurements were made under the standardized environment of Seoul Semiconductor. In order to ensure availability, single color rank will not be orderable.

Color Bin Structure

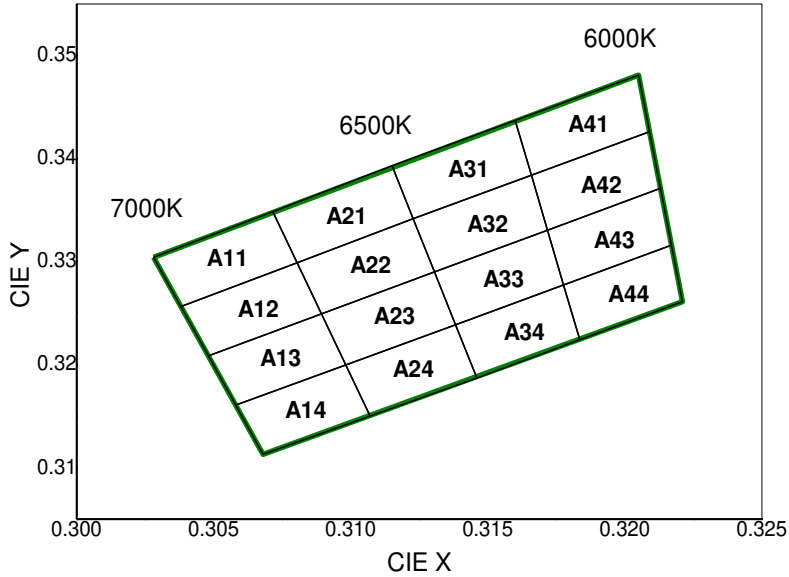
CIE Chromaticity Diagram $T_j=25^\circ\text{C}$, $I_f=100\text{mA}$



***Notes :**

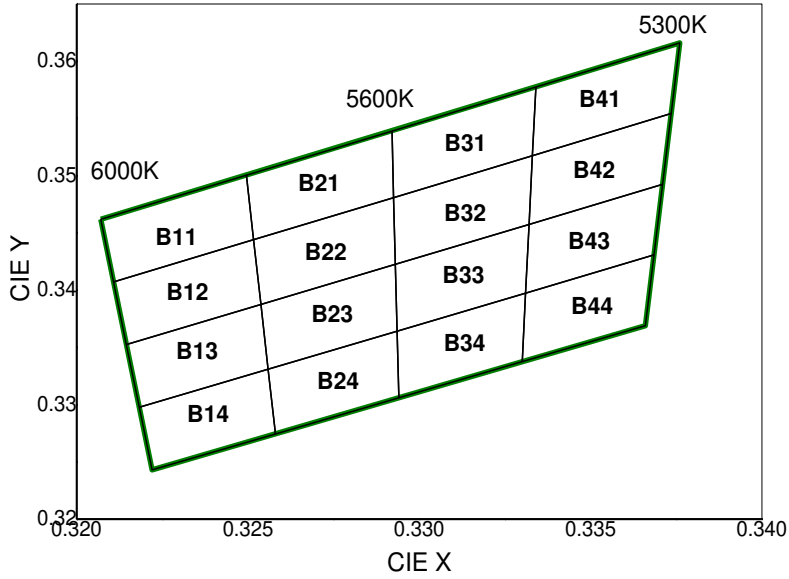
- Energy Star binning applied to all 2600~7000K.
- Measurement Uncertainty of the Color Coordinates : ± 0.01

Color Bin Structure

CIE Chromaticity Diagram (Cool white), $T_j=25^\circ\text{C}$, $I_F=100\text{mA}$


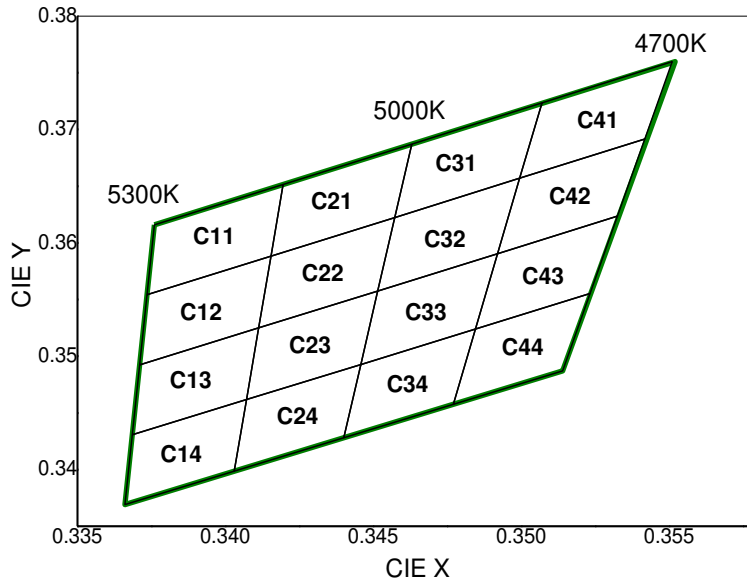
A11		A21		A31		A41	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3028	0.3304	0.3072	0.3349	0.3115	0.3393	0.3160	0.3437
0.3038	0.3256	0.3080	0.3299	0.3123	0.3342	0.3166	0.3384
0.3080	0.3299	0.3123	0.3342	0.3166	0.3384	0.3209	0.3426
0.3072	0.3349	0.3115	0.3393	0.3160	0.3437	0.3205	0.3481
A12		A22		A32		A42	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3038	0.3256	0.3080	0.3299	0.3123	0.3342	0.3166	0.3384
0.3048	0.3209	0.3089	0.3249	0.3131	0.3290	0.3172	0.3331
0.3089	0.3249	0.3131	0.3290	0.3172	0.3331	0.3213	0.3371
0.3080	0.3299	0.3123	0.3342	0.3166	0.3384	0.3209	0.3426
A13		A23		A33		A43	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3048	0.3209	0.3089	0.3249	0.3131	0.3290	0.3172	0.3331
0.3058	0.3161	0.3098	0.3200	0.3138	0.3239	0.3178	0.3277
0.3098	0.3200	0.3138	0.3239	0.3178	0.3277	0.3217	0.3316
0.3089	0.3249	0.3131	0.3290	0.3172	0.3331	0.3213	0.3371
A14		A24		A34		A44	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3058	0.3161	0.3098	0.3200	0.3138	0.3239	0.3178	0.3277
0.3068	0.3113	0.3107	0.3150	0.3146	0.3187	0.3184	0.3224
0.3107	0.3150	0.3146	0.3187	0.3184	0.3224	0.3221	0.3261
0.3098	0.3200	0.3138	0.3239	0.3178	0.3277	0.3217	0.3316

Color Bin Structure

CIE Chromaticity Diagram (Cool white), $T_j=25^\circ\text{C}$, $I_f=100\text{mA}$


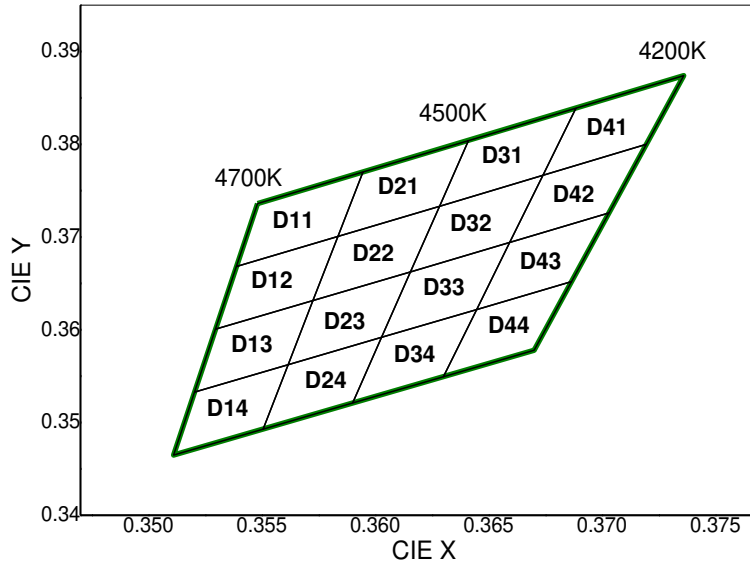
B11		B21		B31		B41	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3207	0.3462	0.3250	0.3501	0.3292	0.3539	0.3334	0.3578
0.3211	0.3407	0.3252	0.3444	0.3293	0.3481	0.3333	0.3518
0.3252	0.3444	0.3293	0.3481	0.3333	0.3518	0.3374	0.3554
0.3250	0.3501	0.3292	0.3539	0.3334	0.3578	0.3376	0.3616
B12		B22		B32		B42	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3211	0.3407	0.3252	0.3444	0.3293	0.3481	0.3333	0.3518
0.3215	0.3353	0.3254	0.3388	0.3293	0.3423	0.3332	0.3458
0.3254	0.3388	0.3293	0.3423	0.3332	0.3458	0.3371	0.3493
0.3252	0.3444	0.3293	0.3481	0.3333	0.3518	0.3374	0.3554
B13		B23		B33		B43	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3215	0.3353	0.3254	0.3388	0.3293	0.3423	0.3332	0.3458
0.3218	0.3298	0.3256	0.3331	0.3294	0.3364	0.3331	0.3398
0.3256	0.3331	0.3294	0.3364	0.3331	0.3398	0.3369	0.3431
0.3254	0.3388	0.3293	0.3423	0.3332	0.3458	0.3371	0.3493
B14		B24		B34		B44	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3218	0.3298	0.3256	0.3331	0.3294	0.3364	0.3331	0.3398
0.3222	0.3243	0.3258	0.3275	0.3294	0.3306	0.3330	0.3338
0.3258	0.3275	0.3294	0.3306	0.3330	0.3338	0.3366	0.3369
0.3256	0.3331	0.3294	0.3364	0.3331	0.3398	0.3369	0.3431

Color Bin Structure

CIE Chromaticity Diagram (Cool white), $T_j=25^\circ\text{C}$, $I_F=100\text{mA}$


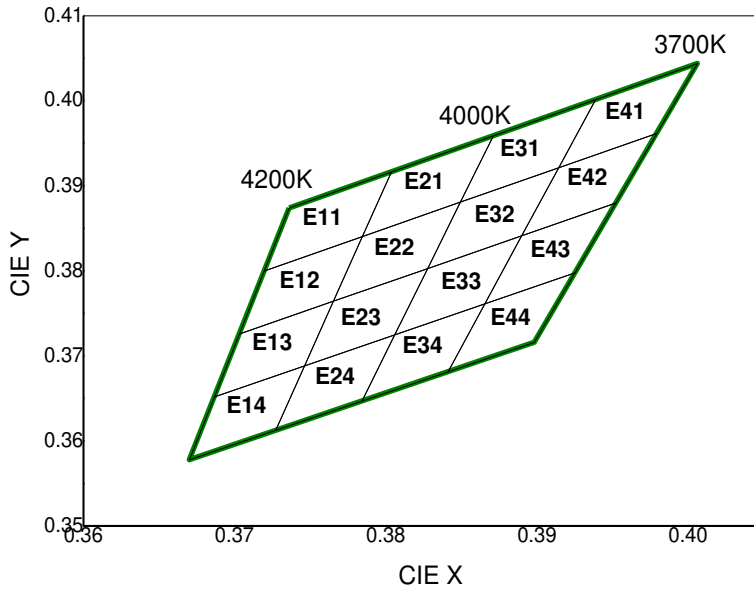
C11		C21		C31		C41	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3376	0.3616	0.3420	0.3652	0.3463	0.3687	0.3507	0.3724
0.3374	0.3554	0.3415	0.3588	0.3457	0.3622	0.3500	0.3657
0.3415	0.3588	0.3457	0.3622	0.3500	0.3657	0.3542	0.3692
0.3420	0.3652	0.3463	0.3687	0.3507	0.3724	0.3551	0.3760
C12		C22		C32		C42	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3374	0.3554	0.3415	0.3588	0.3457	0.3622	0.3500	0.3657
0.3371	0.3493	0.3411	0.3525	0.3452	0.3558	0.3492	0.3591
0.3411	0.3525	0.3452	0.3558	0.3492	0.3591	0.3533	0.3624
0.3415	0.3588	0.3457	0.3622	0.3500	0.3657	0.3542	0.3692
C13		C23		C33		C43	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3371	0.3493	0.3411	0.3525	0.3452	0.3558	0.3492	0.3591
0.3369	0.3431	0.3407	0.3462	0.3446	0.3493	0.3485	0.3524
0.3407	0.3462	0.3446	0.3493	0.3485	0.3524	0.3523	0.3555
0.3411	0.3525	0.3452	0.3558	0.3492	0.3591	0.3533	0.3624
C14		C24		C34		C44	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3369	0.3431	0.3407	0.3462	0.3446	0.3493	0.3485	0.3524
0.3366	0.3369	0.3403	0.3399	0.3440	0.3428	0.3477	0.3458
0.3403	0.3399	0.3440	0.3428	0.3477	0.3458	0.3514	0.3487
0.3407	0.3462	0.3446	0.3493	0.3485	0.3524	0.3523	0.3555

Color Bin Structure

CIE Chromaticity Diagram (Neutral white), $T_j=25^\circ\text{C}$, $I_f=100\text{mA}$


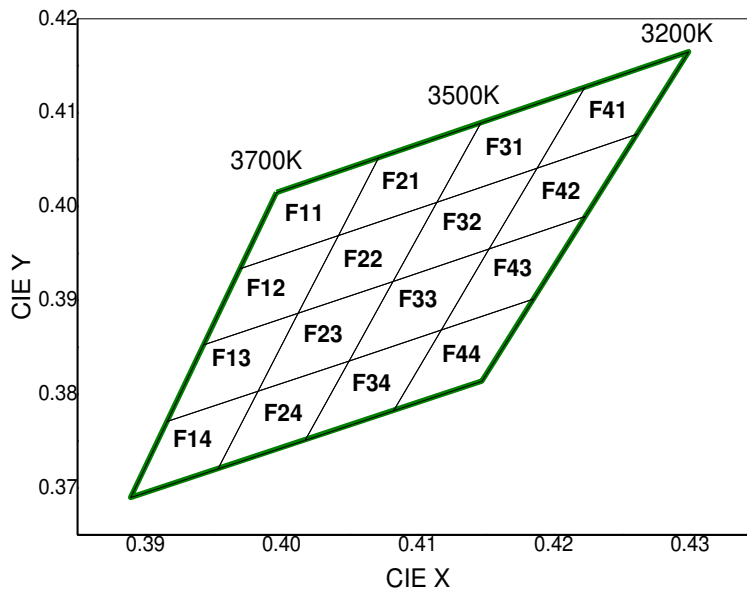
D11		D21		D31		D41	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3548	0.3736	0.3595	0.3770	0.3641	0.3804	0.3689	0.3839
0.3539	0.3668	0.3584	0.3701	0.3628	0.3733	0.3674	0.3767
0.3584	0.3701	0.3628	0.3733	0.3674	0.3767	0.3720	0.3800
0.3595	0.3770	0.3641	0.3804	0.3689	0.3839	0.3736	0.3874
D12		D22		D32		D42	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3539	0.3668	0.3584	0.3701	0.3628	0.3733	0.3674	0.3767
0.3530	0.3601	0.3573	0.3632	0.3616	0.3663	0.3659	0.3694
0.3573	0.3632	0.3616	0.3663	0.3659	0.3694	0.3703	0.3726
0.3584	0.3701	0.3628	0.3733	0.3674	0.3767	0.3720	0.3800
D13		D23		D33		D43	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3530	0.3601	0.3573	0.3632	0.3616	0.3663	0.3659	0.3694
0.3520	0.3533	0.3562	0.3562	0.3603	0.3592	0.3645	0.3622
0.3562	0.3562	0.3603	0.3592	0.3645	0.3622	0.3687	0.3652
0.3573	0.3632	0.3616	0.3663	0.3659	0.3694	0.3703	0.3726
D14		D24		D34		D44	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3520	0.3533	0.3562	0.3562	0.3603	0.3592	0.3645	0.3622
0.3511	0.3465	0.3551	0.3493	0.3590	0.3521	0.3630	0.3550
0.3551	0.3493	0.3590	0.3521	0.3630	0.3550	0.3670	0.3578
0.3562	0.3562	0.3603	0.3592	0.3645	0.3622	0.3687	0.3652

Color Bin Structure

CIE Chromaticity Diagram (Neutral white), $T_j=25^\circ\text{C}$, $I_f=100\text{mA}$


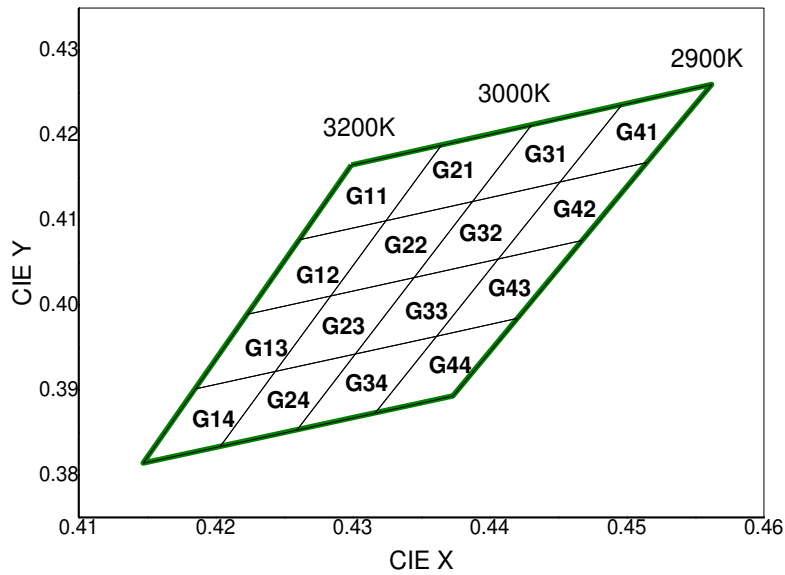
E11		E21		E31		E41	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3736	0.3874	0.3804	0.3917	0.3871	0.3959	0.3939	0.4002
0.3720	0.3800	0.3784	0.3841	0.3849	0.3881	0.3914	0.3922
0.3784	0.3841	0.3849	0.3881	0.3914	0.3922	0.3979	0.3962
0.3804	0.3917	0.3871	0.3959	0.3939	0.4002	0.4006	0.4044
E12		E22		E32		E42	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3720	0.3800	0.3784	0.3841	0.3849	0.3881	0.3914	0.3922
0.3703	0.3726	0.3765	0.3765	0.3828	0.3803	0.3890	0.3842
0.3765	0.3765	0.3828	0.3803	0.3890	0.3842	0.3952	0.3880
0.3784	0.3841	0.3849	0.3881	0.3914	0.3922	0.3979	0.3962
E13		E23		E33		E43	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3703	0.3726	0.3765	0.3765	0.3828	0.3803	0.3890	0.3842
0.3687	0.3652	0.3746	0.3689	0.3806	0.3725	0.3865	0.3762
0.3746	0.3689	0.3806	0.3725	0.3865	0.3762	0.3925	0.3798
0.3765	0.3765	0.3828	0.3803	0.3890	0.3842	0.3952	0.3880
E14		E24		E34		E44	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3687	0.3652	0.3746	0.3689	0.3806	0.3725	0.3865	0.3762
0.3670	0.3578	0.3727	0.3613	0.3784	0.3647	0.3841	0.3682
0.3727	0.3613	0.3784	0.3647	0.3841	0.3682	0.3898	0.3716
0.3746	0.3689	0.3806	0.3725	0.3865	0.3762	0.3925	0.3798

Color Bin Structure

CIE Chromaticity Diagram (Warm white), $T_j=25^\circ\text{C}$, $I_F=100\text{mA}$


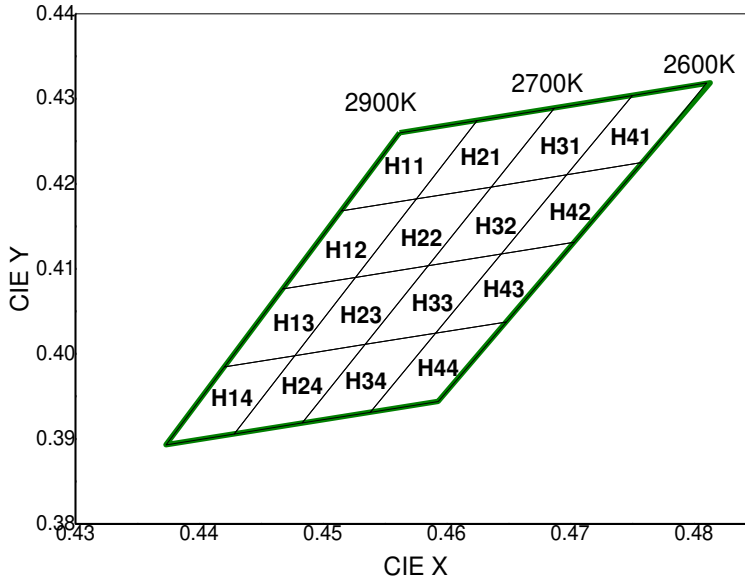
F11		F21		F31		F41	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3996	0.4015	0.4071	0.4052	0.4146	0.4089	0.4223	0.4127
0.3969	0.3934	0.4042	0.3969	0.4114	0.4005	0.4187	0.4041
0.4042	0.3969	0.4114	0.4005	0.4187	0.4041	0.4261	0.4077
0.4071	0.4052	0.4146	0.4089	0.4223	0.4127	0.4299	0.4165
F12		F22		F32		F42	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3969	0.3934	0.4042	0.3969	0.4114	0.4005	0.4187	0.4041
0.3943	0.3853	0.4012	0.3886	0.4082	0.3920	0.4152	0.3955
0.4012	0.3886	0.4082	0.3920	0.4152	0.3955	0.4223	0.3990
0.4042	0.3969	0.4114	0.4005	0.4187	0.4041	0.4261	0.4077
F13		F23		F33		F43	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3943	0.3853	0.4012	0.3886	0.4082	0.3920	0.4152	0.3955
0.3916	0.3771	0.3983	0.3803	0.4049	0.3836	0.4117	0.3869
0.3983	0.3803	0.4049	0.3836	0.4117	0.3869	0.4185	0.3902
0.4012	0.3886	0.4082	0.3920	0.4152	0.3955	0.4223	0.3990
F14		F24		F34		F44	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3916	0.3771	0.3983	0.3803	0.4049	0.3836	0.4117	0.3869
0.3889	0.3690	0.3953	0.3721	0.4017	0.3751	0.4082	0.3783
0.3953	0.3721	0.4017	0.3751	0.4082	0.3783	0.4147	0.3814
0.3983	0.3803	0.4049	0.3836	0.4117	0.3869	0.4185	0.3902

Color Bin Structure

CIE Chromaticity Diagram (Warm white), $T_j=25^\circ\text{C}$, $I_F=100\text{mA}$


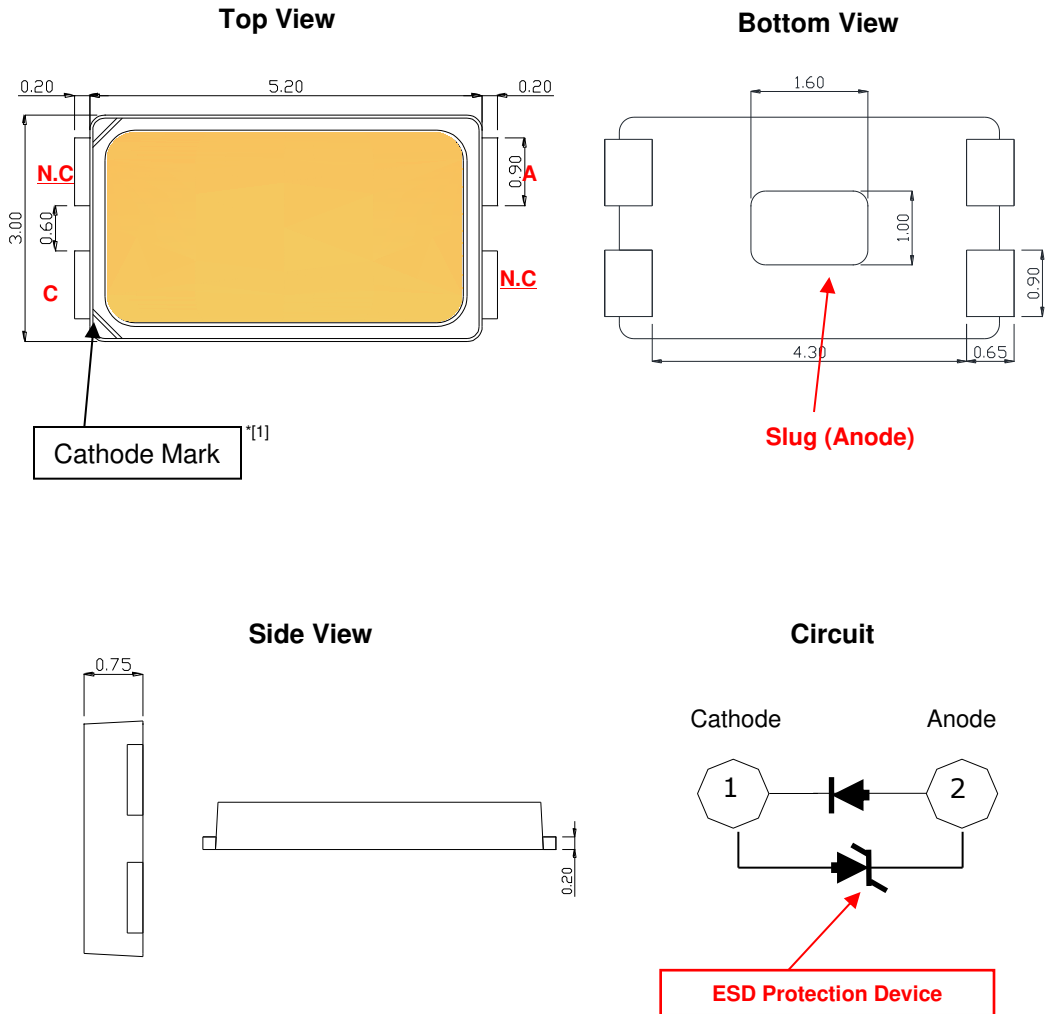
G11		G21		G31		G41	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4299	0.4165	0.4364	0.4188	0.4430	0.4212	0.4496	0.4236
0.4261	0.4077	0.4324	0.4099	0.4387	0.4122	0.4451	0.4145
0.4324	0.4100	0.4387	0.4122	0.4451	0.4145	0.4514	0.4168
0.4365	0.4189	0.4430	0.4212	0.4496	0.4236	0.4562	0.4260
G12		G22		G32		G42	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4261	0.4077	0.4324	0.4100	0.4387	0.4122	0.4451	0.4145
0.4223	0.3990	0.4284	0.4011	0.4345	0.4033	0.4406	0.4055
0.4284	0.4011	0.4345	0.4033	0.4406	0.4055	0.4468	0.4077
0.4324	0.4100	0.4387	0.4122	0.4451	0.4145	0.4515	0.4168
G13		G23		G33		G43	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4223	0.3990	0.4284	0.4011	0.4345	0.4033	0.4406	0.4055
0.4185	0.3902	0.4243	0.3922	0.4302	0.3943	0.4361	0.3964
0.4243	0.3922	0.4302	0.3943	0.4361	0.3964	0.4420	0.3985
0.4284	0.4011	0.4345	0.4033	0.4406	0.4055	0.4468	0.4077
G14		G24		G34		G44	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4243	0.3922	0.4302	0.3943	0.4302	0.3943	0.4361	0.3964
0.4203	0.3834	0.4259	0.3853	0.4259	0.3853	0.4316	0.3873
0.4147	0.3814	0.4203	0.3834	0.4316	0.3873	0.4373	0.3893
0.4185	0.3902	0.4243	0.3922	0.4361	0.3964	0.4420	0.3985

Color Bin Structure

CIE Chromaticity Diagram (Warm white), $T_j=25^\circ\text{C}$, $I_F=100\text{mA}$


H11		H21		H31		H41	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4562	0.4260	0.4625	0.4275	0.4687	0.4289	0.4750	0.4304
0.4515	0.4168	0.4575	0.4182	0.4636	0.4197	0.4697	0.4211
0.4575	0.4182	0.4636	0.4197	0.4697	0.4211	0.4758	0.4225
0.4625	0.4275	0.4687	0.4289	0.4750	0.4304	0.4810	0.4319
H12		H22		H32		H42	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4515	0.4168	0.4575	0.4182	0.4636	0.4197	0.4697	0.4211
0.4468	0.4077	0.4526	0.4090	0.4585	0.4104	0.4644	0.4118
0.4526	0.4090	0.4585	0.4104	0.4644	0.4118	0.4703	0.4132
0.4575	0.4182	0.4636	0.4197	0.4697	0.4211	0.4758	0.4225
H13		H23		H33		H43	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4468	0.4077	0.4526	0.4090	0.4585	0.4104	0.4644	0.4118
0.4420	0.3985	0.4477	0.3998	0.4534	0.4012	0.4591	0.4025
0.4477	0.3998	0.4534	0.4012	0.4591	0.4025	0.4648	0.4038
0.4526	0.4090	0.4585	0.4104	0.4644	0.4118	0.4703	0.4132
H14		H24		H34		H44	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4420	0.3985	0.4477	0.3998	0.4534	0.4012	0.4591	0.4025
0.4373	0.3893	0.4428	0.3906	0.4483	0.3919	0.4538	0.3932
0.4428	0.3906	0.4483	0.3919	0.4538	0.3932	0.4593	0.3944
0.4477	0.3998	0.4534	0.4012	0.4591	0.4025	0.4648	0.4038

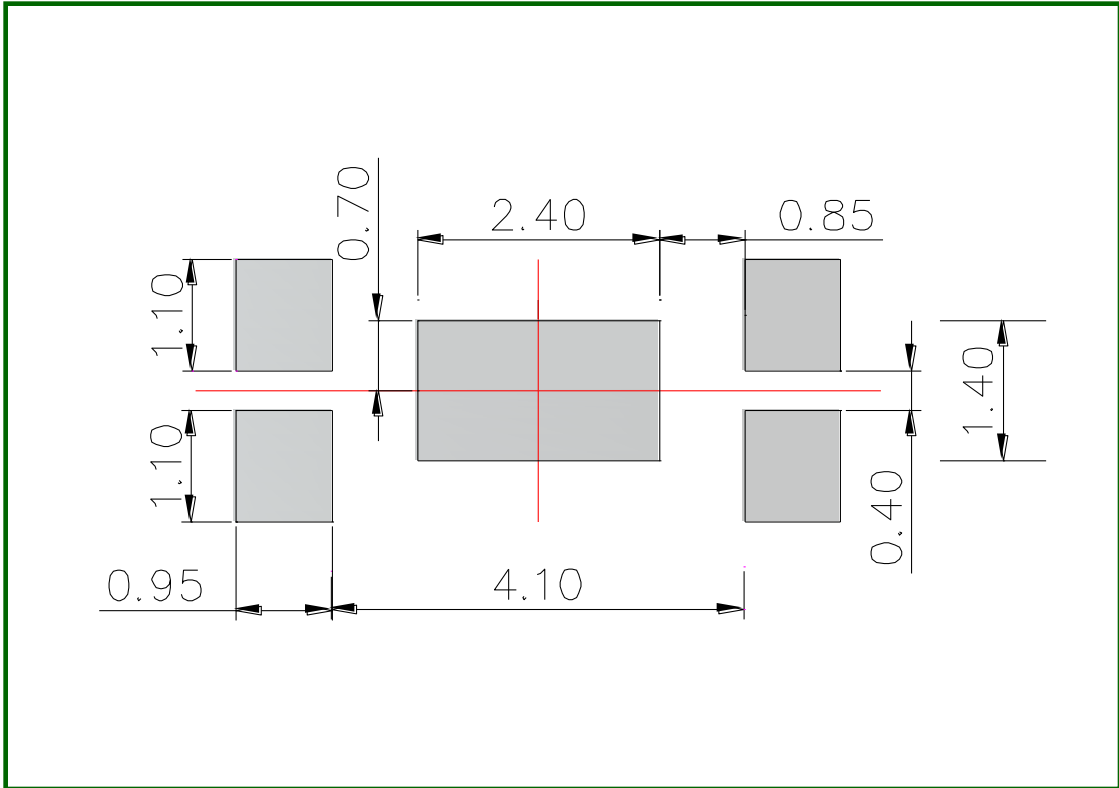
Mechanical Dimensions



Notes :

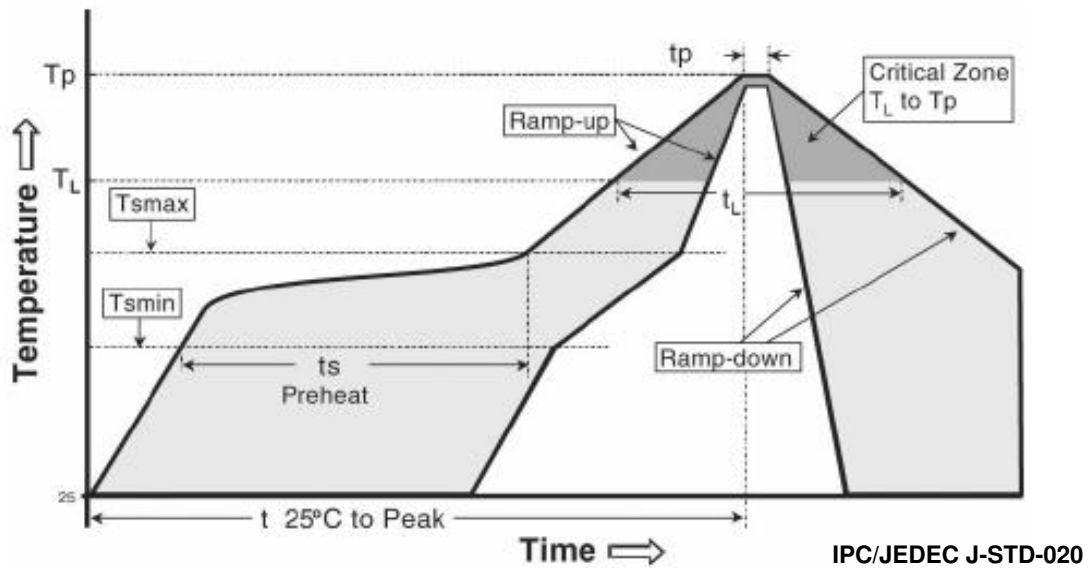
- (1) All dimensions are in millimeters.
- (2) Scale : none
- (3) Undefined tolerance is $\pm 0.2\text{mm}$

Recommended Solder Pad


Notes :

- (1) All dimensions are in millimeters.
- (2) Scale : none
- (3) This drawing without tolerances are for reference only
- (4) Undefined tolerance is $\pm 0.1\text{mm}$
- (5) The appearance and specifications of the product may be changed for improvement without notice.

Reflow Soldering Characteristics


Table 6. Reflow Soldering Characteristics

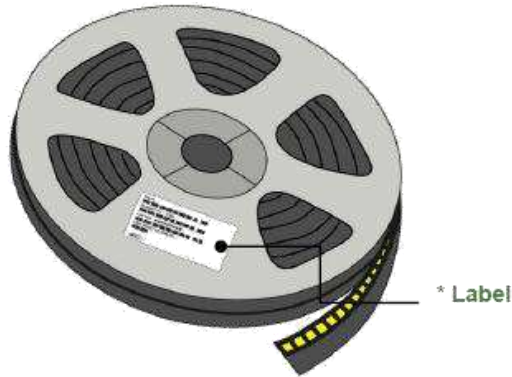
Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T _{s_max} to T _p)	3° C/second max.	3° C/second max.
Preheat - Temperature Min (T _{s_min}) - Temperature Max (T _{s_max}) - Time (T _{s_min} to T _{s_max}) (t _s)	100 °C 150 °C 60-120 seconds	150 °C 200 °C 60-180 seconds
Time maintained above: - Temperature (T _L) - Time (t _L)	183 °C 60-150 seconds	217 °C 60-150 seconds
Peak Temperature (T _p)	215 °C	260 °C
Time within 5°C of actual Peak Temperature (t _p) ²	10-30 seconds	20-40 seconds
Ramp-down Rate	6 °C/second max.	6 °C/second max.
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.

Caution :

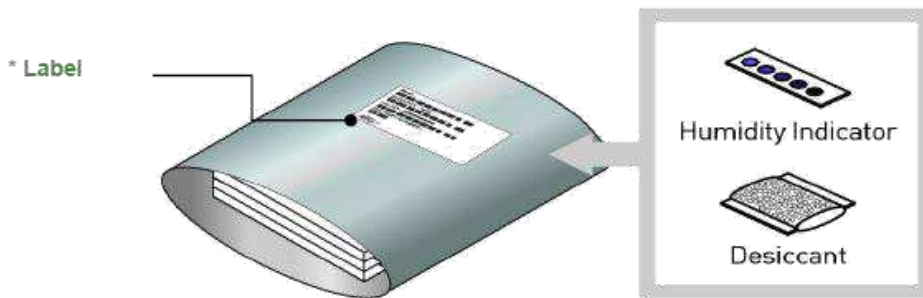
- (1) Reflow soldering is recommended not to be done more than two times
In the case of more than 24 hours passed soldering after first, LEDs will be damaged.
- (2) Repairs should not be done after the LEDs have been soldered
When repair is unavoidable, suitable tools must be used.
- (3) Die slug is to be soldered.
- (4) When soldering, do not put stress on the LEDs during heating.
- (5) After soldering, do not warp the circuit board.

Emitter Tape & Reel Packaging

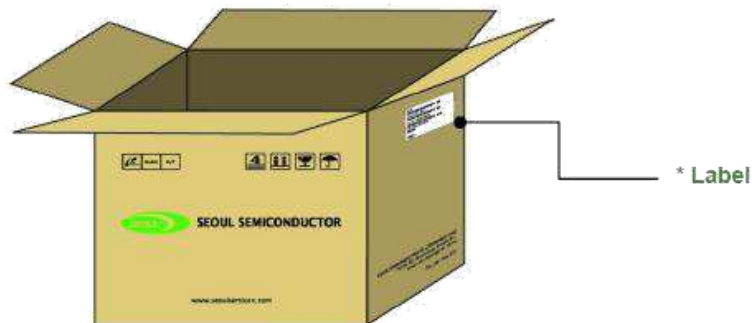
Reel



Aluminum Bag



Outer Box



Product Nomenclature

Table 7. Part Numbering System : X₁X₂X₃X₄X₅X₆X₇X₈

Part Number Code	Description	Part Number	Value
X ₁	Company	S	
X ₂	Top View LED series	T	
X ₃	Color Specification	W9	CRI 90
X ₄	Package series	Q	Q series
X ₅ X ₆	Characteristic code	14	
X ₇	Revision	C	

Table 8. Lot Numbering System : Y₁Y₂Y₃Y₄Y₅Y₆Y₇Y₈Y₉Y₁₀–Y₁₁Y₁₂Y₁₃Y₁₄Y₁₅Y₁₆Y₁₇

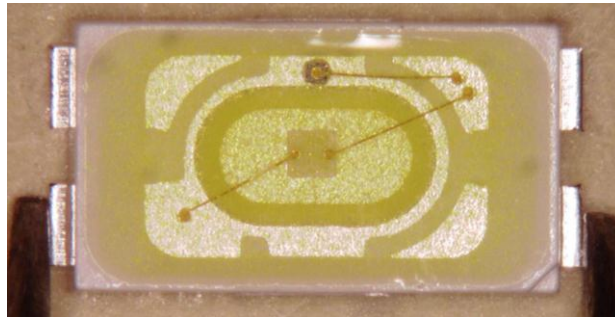
Lot Number Code	Description	Lot Number	Value
Y ₁ Y ₂	Year		
Y ₃	Month		
Y ₄ Y ₅	Day		
Y ₆	Top View LED series		
Y ₇ Y ₈ Y ₉ Y ₁₀	Mass order		
Y ₁₁ Y ₁₂ Y ₁₃ Y ₁₄ Y ₁₅ Y ₁₆ Y ₁₇	Internal Number		

Handling of Silicone Resin for LEDs

(1) 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.



(2) 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.



(3) When populating boards in SMT production, there are basically no restrictions regarding the form of the pick and place nozzle, except that mechanical pressure on the surface of the resin must be prevented. This is assured by choosing a pick and place nozzle which is larger than the LED's reflector area.

(4) Silicone differs from materials conventionally used for the manufacturing of LEDs. These conditions must be considered during the handling of such devices. Compared to standard encapsulants, silicone is generally softer, and the surface is more likely to attract dust.

As mentioned previously, the increased sensitivity to dust requires 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.

(5) SSC 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.

(6) Please do not mold this product into another resin (epoxy, urethane, etc) and do not handle this product with acid or sulfur material in sealed space.