

NLW3535AV4 LED

Package of Specifications



Wuhu Retop Electronics Co., Ltd.

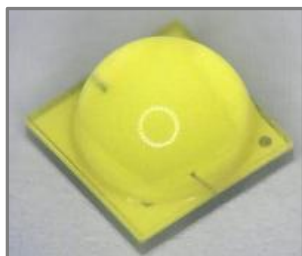
Product: NLW3535AV4

Version: V1.3

Date : 2024-02-14



NLW3535AV4



Product Features

- High efficacy for cost effective solutions
- high quality lighting solution
- Industry-leading thermal resistance
- Reflow solder able-JEDEC J-STD-020C
- Excellent Lumen maintenance requirements

Product Applications

- Outdoor lighting
- Indoor lighting
- Working lighting

Product Specification

CCT (K)	CRI	Luminous Flux		Forward Voltage		Viewing Angle	Thermal resistance
	Typ	Typ	Typ	Typ	Max	Typ	Typ
	@350mA	@350mA	@700mA	@350mA	@350mA		
3000K	70	172	295	2.85	3.0	125 °	4.0°C/W
4000K	70	176	302	2.85	3.0	125 °	4.0°C/W
5000K	70	184	316	2.85	3.0	125 °	4.0°C/W
5700K	70	182	309	2.85	3.0	125 °	4.0°C/W
6500K	70	180	315	2.85	3.0	125 °	4.0°C/W
3000K	80	160	288	2.85	3.0	125 °	4.0°C/W
4000K	80	168	302	2.85	3.0	125 °	4.0°C/W
5000K	80	172	309	2.85	3.0	125 °	4.0°C/W
5700K	80	174	313	2.85	3.0	125 °	4.0°C/W
6500K	80	173	311	2.85	3.0	125 °	4.0°C/W

Notes :

1. Photoelectric parameters :Test Current =350mA, Test Time =20ms, Ambient Temperature = 25℃ ;
2. The viewing angle is 50 % center light intensity angle,Optical simulation software light source data of
ProSource\Lighttools\TracePro\ASAP\Zemax etc can be provided ;
- 3.ETI maintains a testing tolerance of $\pm 7\%$ on flux and power measurements, ± 0.007 on chromaticity (CCx, CCy),
 ± 3 on CRI measurements,Voltage, $\pm 0.1V$ on voltage testing

Absolute Maximum Ratings

Item	Symbol	Absolute Maximum Rating
Junction Temperature (°C)	T_j	150°C
Operating Temperature (°C)	T_{op}	-40°C - 100°C
Storage Temperature (°C)	T_{stg}	-40°C - 100°C
Forward Current	I_F	1500mA
Pulse Forward Current	I_{FM}	2000mA
Reverse Voltage	V_R	No Reverse Operation Design
Electrostatic Discharge	ESD (HBM)	8000V

Notes :

1. Maximum Forward Current and Maximum Pulse Current require the junction temperature to be lower than the rated junction temperature ;
2. IFM condition Pulse width at 50ms and duty cycle at 0.016 ;
3. Built-in ESD protection diode.

Luminance binning comparison between at 25°C and at 85°C

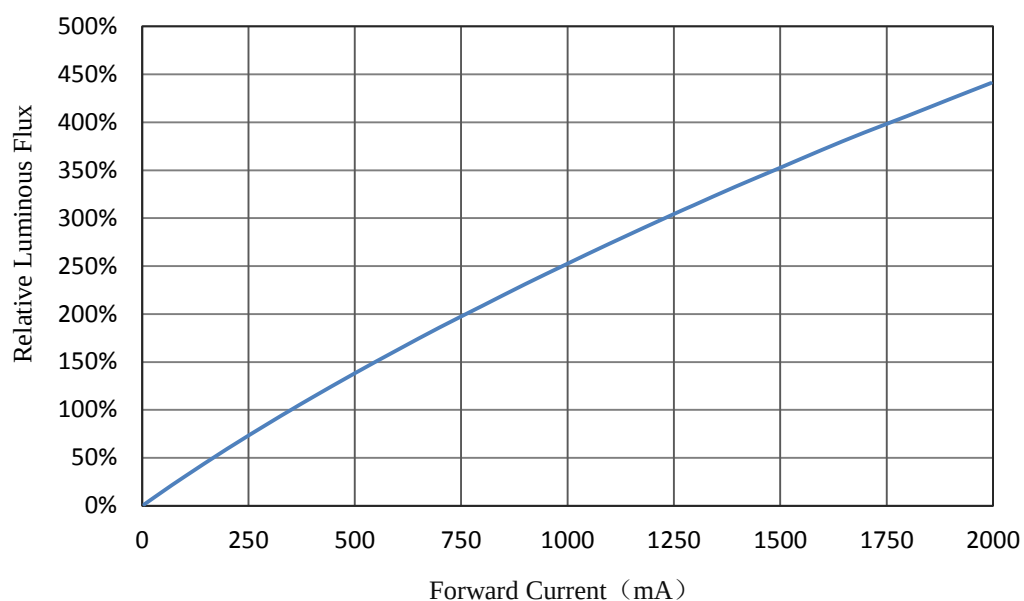
Color temp.	Luminance range (lm) @25°C		Luminance range (lm) @85°C	
4000~6500K	S4	164-172	S2	148-156
	S5	172-182	S3	156-164
	S6	182-192	S4	164-172
	S7	192-205	S5	172-182

The color coordinate difference in value between 25°C and at 85°C

Color temp.	ΔX	ΔY	ΔT_c (K)
2200	<0.002	<0.002	<50
2700	<0.002	<0.002	<50
3000	<0.003	<0.004	<50
4000	<0.004	<0.005	<50
5000	<0.002	<0.003	<100
5700	<0.002	<0.002	<100
6500	<0.003	<0.004	<150

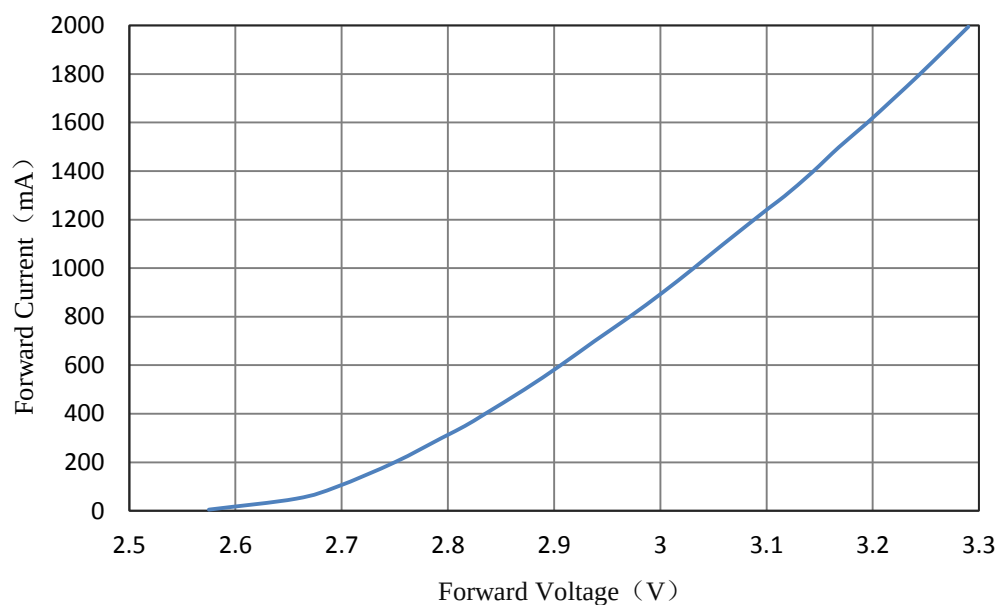
Product Characteristic Curve

Relative Luminous Flux vs. Forward Current

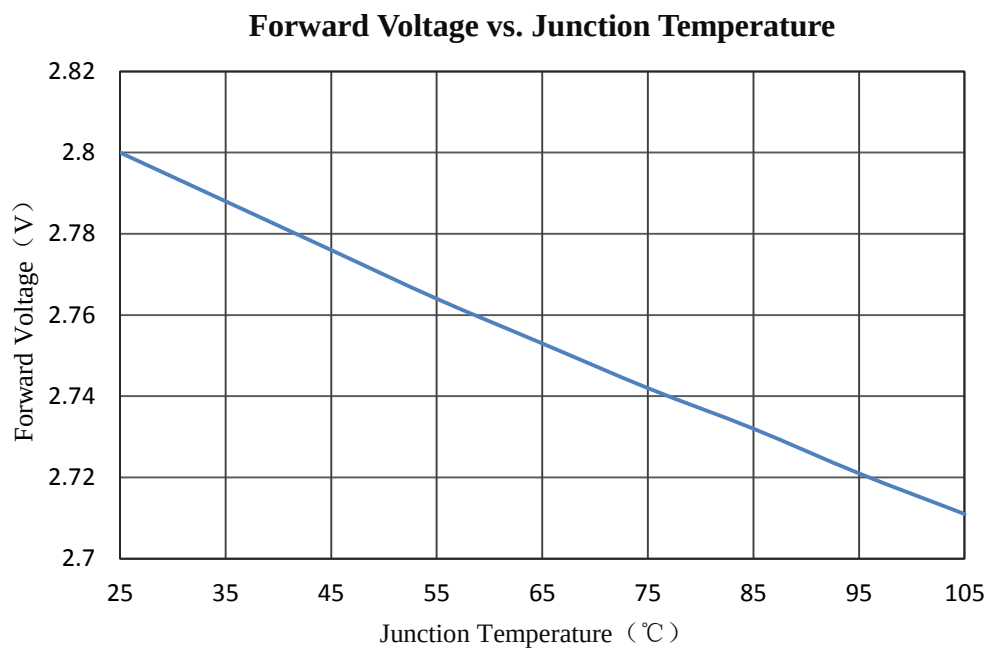


Product Characteristic Curve

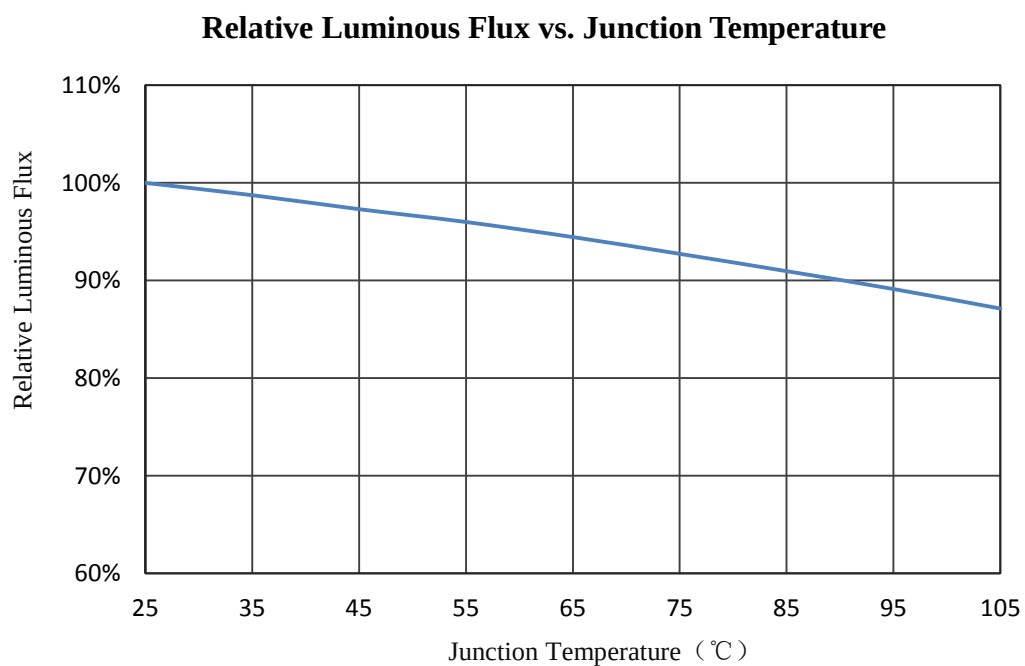
Forward Current vs. Forward Voltage



Product Characteristic Curve

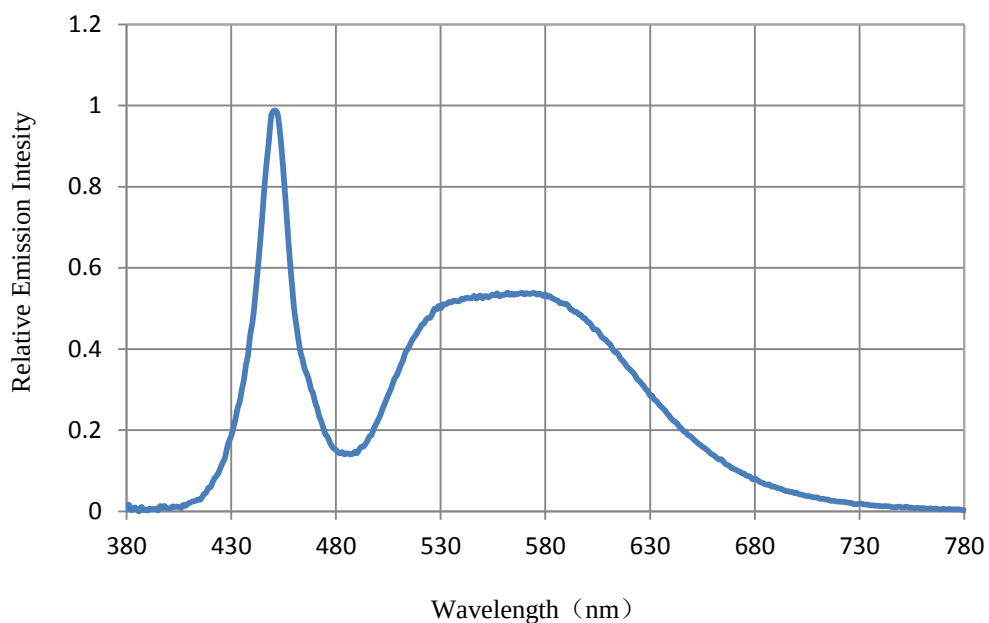


Product Characteristic Curve



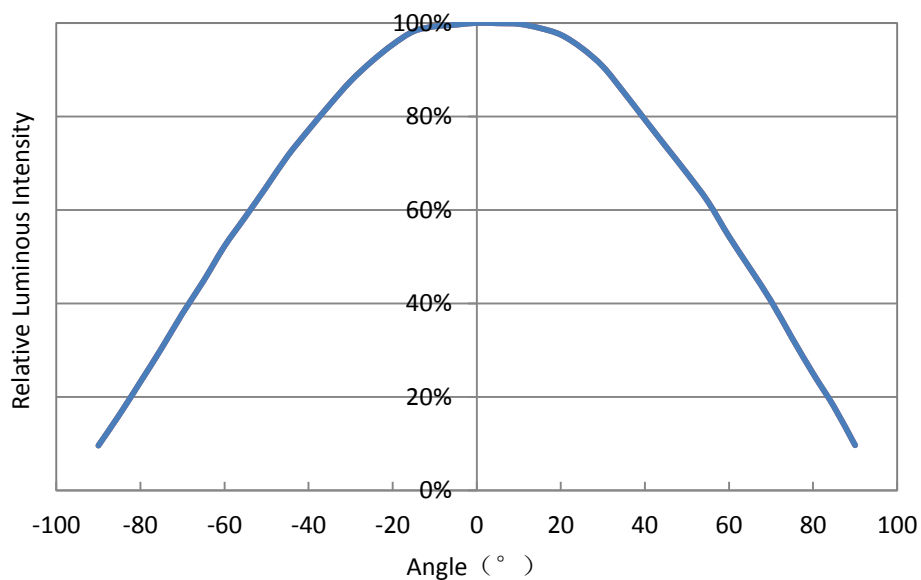
Product Characteristic Curve

Relative Emission Intensity vs. Wavelength



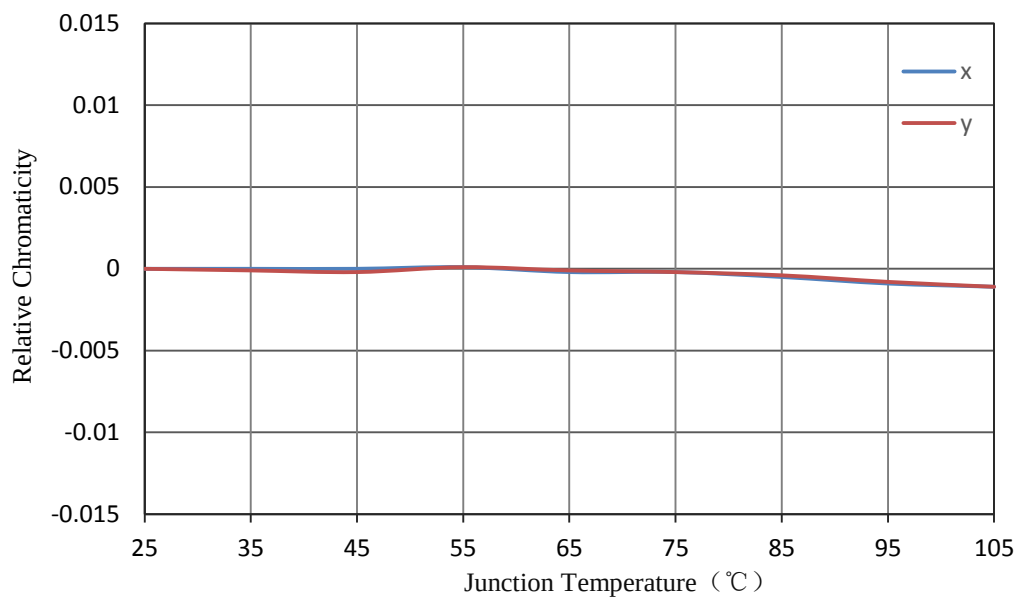
Product Characteristic Curve

Relative Luminous Intensity vs. Angle



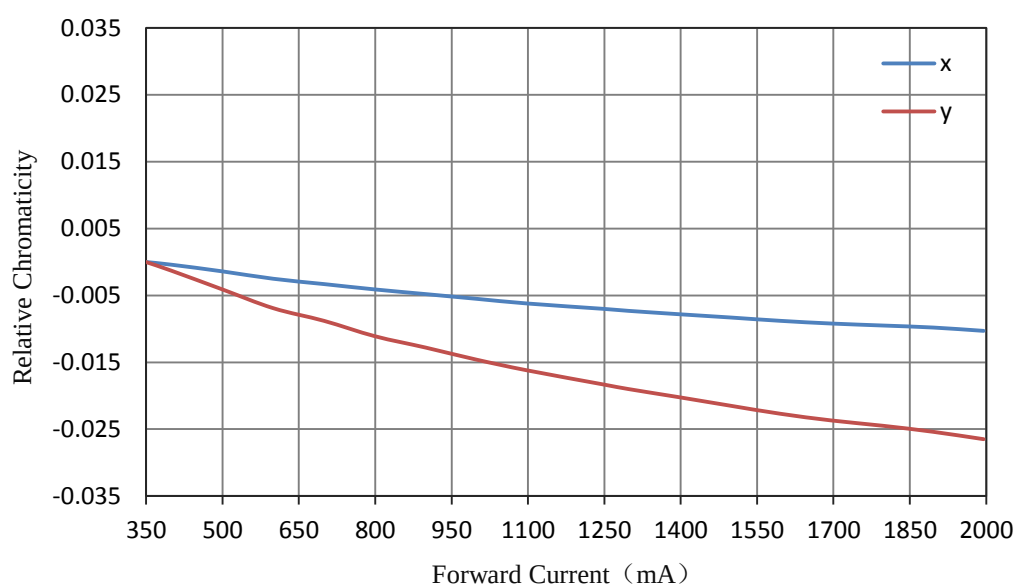
Product Characteristic Curve

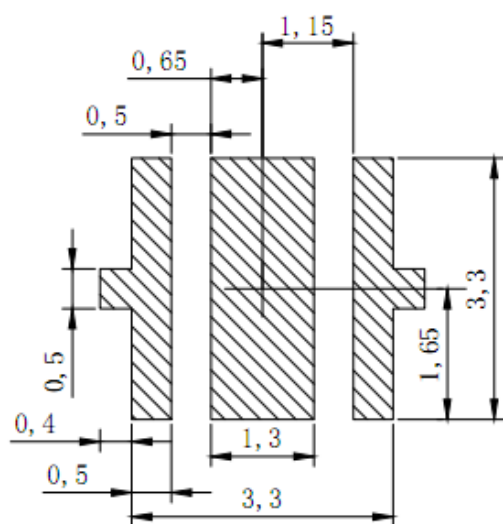
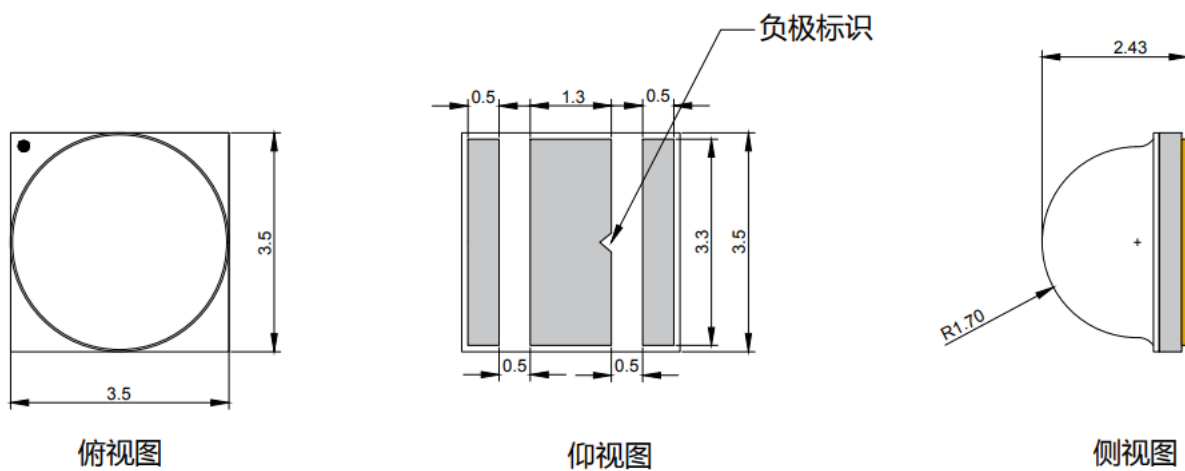
Relative Chromaticity vs. Junction Temperature



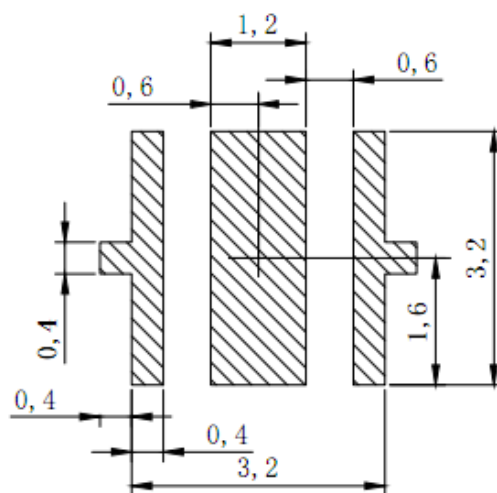
Product Characteristic Curve

Relative Chromaticity vs. Forward Current



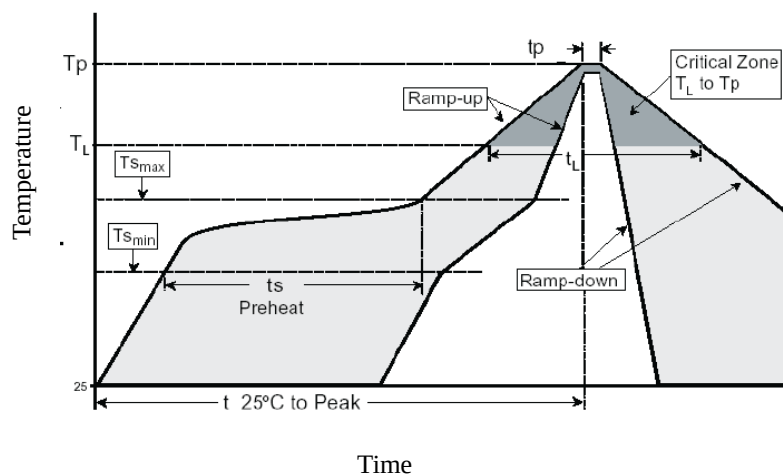
Mechanical Dimensions:**Unit: mm Tolerance: ± 0.1** 

Recommended PCB solder PAD



Recommended stencil pattern

Recommended Reflow Profile

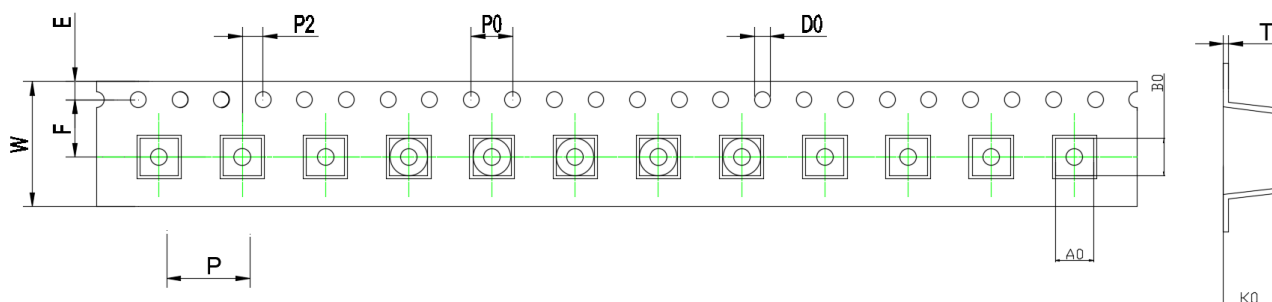


Profile Feature	Lead-Based Solder	Lead-Free Solder
Average Ramp-Up Rate (Ts max to Tp)	3°C/ s Max	3°C/ s Max
Preheat: Temperature Min (Tsmin)	100°C	150°C
Preheat: Temperature Max (Tsmax)	150°C	200°C
Preheat Time (Tsmin to Ts max)	60-120s	60-180s
Time Maintain Above: Temperature (TL)	183°C	217°C
Time Maintain Above: Time (tL)	60-150s	60-150s
Peak/Classification Temperature (Tp)	215°C	260°C
Time within 5°C of Peak Temperature (tP)	10-30s	20-40s
Ramp-Down (Tp to TL)	6°C/s Max	6°C/s Max
Time 25 °C to peak Temperature	6min Max	8min Max

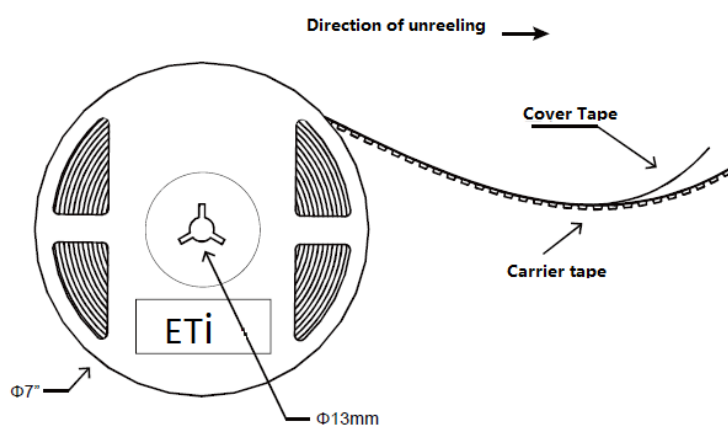
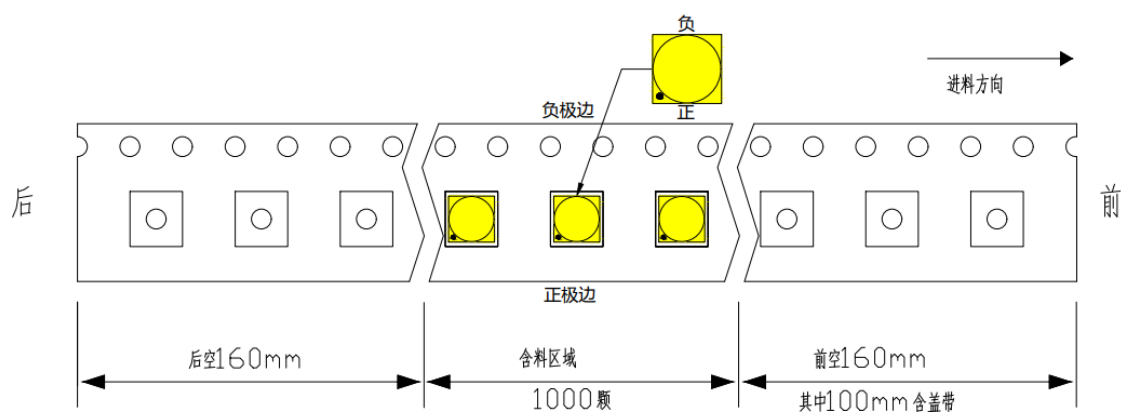
Notes: 1. The soldering condition refers to J-STD-020D.

2. Moisture sensitivity level 2.

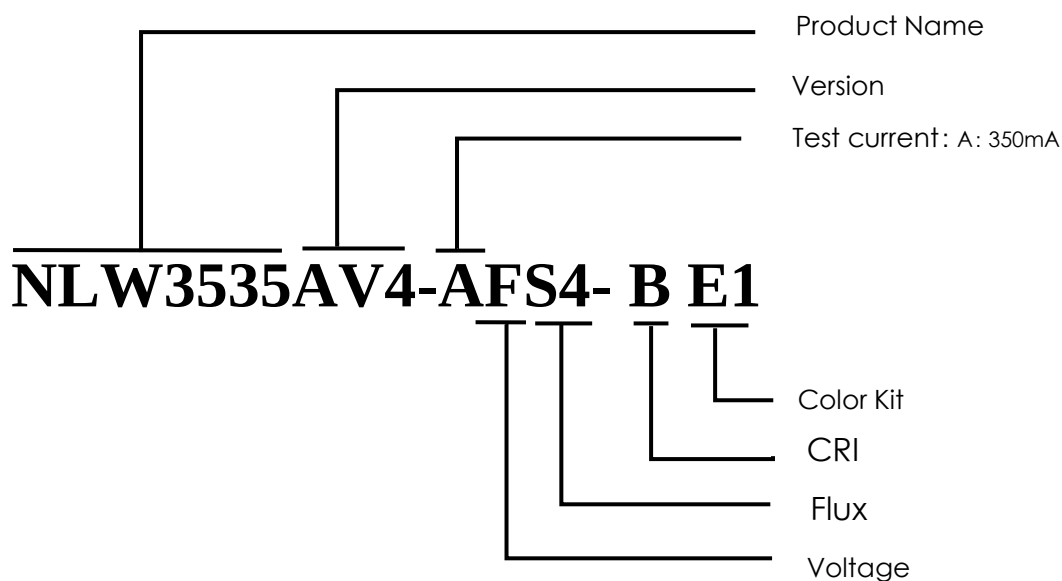
Tap and Reel Dimensions (mm):



Symbol	A0	B0	K0	P0	P1	P2
Spec	3.7±0.10	3.7±0.10	2.55±0.10	4.00±0.10	8.00±0.10	2.00±0.10
Symbol	W	T	E	F	D0	D1
Spec	12.00±0.30	0.30±0.05	1.75±0.10	5.5±0.10	1.5+0.10,-0.00	1.5±0.10



Product Name Description



Voltage Specification

Voltage	Max	Min	Unit
F	2.75	3.0	V

CRI Specification

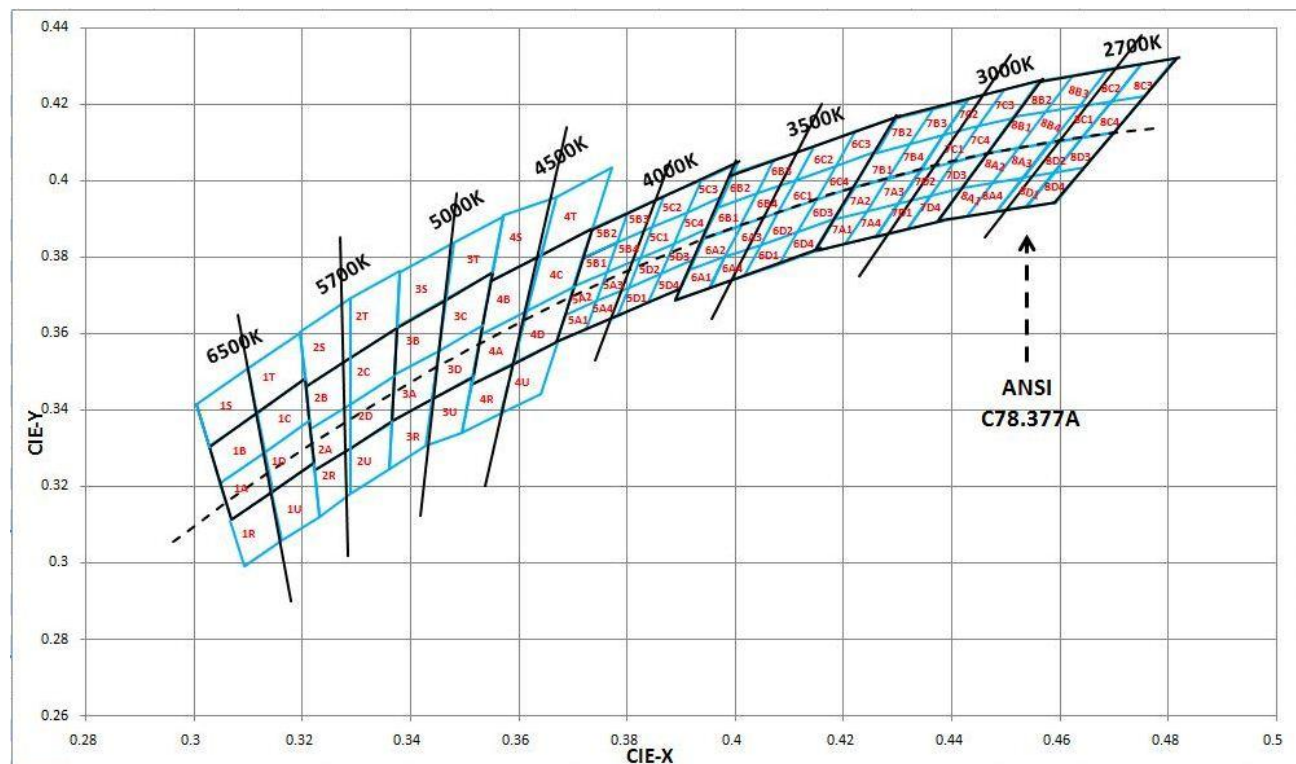
CRI	Specification
B	CRI70
H	CRI80

Color Kit

Color Kit	CCT	Unit
E1	6500	K
E2	5700	K
E3	5000	K
E4	4500	K
E5	4000	K
E6	3500	K
E7	3000	K

Flux Specification

Voltage	Max	Min	Unit
R5	139	148	Lm
S2	148	156	Lm
S3	156	164	Lm
S4	164	172	Lm
S5	172	182	Lm
S6	182	192	Lm
S7	192	205	Lm
S8	205	220	Lm

Color Group Description :**Notes:**

Ambient Temperature: 25°C

Forward Current: 350mA

Tolerance: ± 0.007 on chromaticity (CCx, CCy)

Test Time: 20ms

Performance Groups—Chromaticity

Region	x	y	Region	x	y	Region	x	y	Region	x	y
1A	0.3048	0.3207	1B	0.3028	0.3304	1C	0.3115	0.3391	1D	0.3130	0.3290
	0.3130	0.3290		0.3115	0.3391		0.3205	0.3481		0.3213	0.3373
	0.3144	0.3186		0.3130	0.3290		0.3213	0.3373		0.3221	0.3261
	0.3068	0.3113		0.3048	0.3207		0.3130	0.3290		0.3144	0.3186
1R	0.3068	0.3113	1S	0.3005	0.3415	1T	0.3099	0.3509	1U	0.3144	0.3186
	0.3144	0.3186		0.3099	0.3509		0.3196	0.3602		0.3221	0.3261
	0.3161	0.3059		0.3115	0.3391		0.3205	0.3481		0.3231	0.3120
	0.3093	0.2993		0.3028	0.3304		0.3115	0.3391		0.3161	0.3059
2A	0.3215	0.3350	2B	0.3207	0.3462	2C	0.3290	0.3538	2D	0.3290	0.3417
	0.3290	0.3417		0.3290	0.3538		0.3376	0.3616		0.3371	0.3490
	0.3290	0.3300		0.3290	0.3417		0.3371	0.3490		0.3366	0.3369
	0.3222	0.3243		0.3215	0.3350		0.3290	0.3417		0.3290	0.3300
2R	0.3222	0.3243	2S	0.3196	0.3602	2T	0.3290	0.3690	2U	0.3290	0.3300
	0.3290	0.3300		0.3290	0.3690		0.3381	0.3762		0.3366	0.3369
	0.3290	0.3180		0.3290	0.3538		0.3376	0.3616		0.3361	0.3245
	0.3231	0.3120		0.3207	0.3462		0.3290	0.3538		0.3290	0.3180
5A	0.3702	0.3722	5B	0.3736	0.3874	5C	0.3870	0.3958	5D	0.3825	0.3798
	0.3825	0.3798		0.3870	0.3958		0.4006	0.4044		0.3951	0.3876
	0.3783	0.3646		0.3825	0.3798		0.3951	0.3876		0.3898	0.3716
	0.3670	0.3578		0.3702	0.3722		0.3825	0.3798		0.3783	0.3646
5A1	0.3670	0.3578	5A2	0.3686	0.3649	5A3	0.3744	0.3685	5A4	0.3726	0.3612
	0.3686	0.3649		0.3702	0.3722		0.3763	0.3760		0.3744	0.3685
	0.3744	0.3685		0.3763	0.3760		0.3825	0.3798		0.3804	0.3721
	0.3726	0.3612		0.3744	0.3685		0.3804	0.3721		0.3783	0.3646
5B1	0.3702	0.3722	5B2	0.3719	0.3797	5B3	0.3782	0.3837	5B4	0.3763	0.3760
	0.3719	0.3797		0.3736	0.3874		0.3802	0.3916		0.3782	0.3837
	0.3782	0.3837		0.3802	0.3916		0.3869	0.3958		0.3847	0.3877
	0.3763	0.3760		0.3782	0.3837		0.3847	0.3877		0.3825	0.3798
5C1	0.3825	0.3798	5C2	0.3847	0.3877	5C3	0.3912	0.3917	5C4	0.3887	0.3836
	0.3847	0.3877		0.3869	0.3958		0.3937	0.4001		0.3912	0.3917
	0.3912	0.3917		0.3937	0.4001		0.4006	0.4044		0.3978	0.3958
	0.3887	0.3836		0.3912	0.3917		0.3978	0.3958		0.3950	0.3875
5D1	0.3783	0.3646	5D2	0.3804	0.3721	5D3	0.3863	0.3758	5D4	0.3840	0.3681
	0.3804	0.3721		0.3825	0.3798		0.3887	0.3836		0.3863	0.3758
	0.3863	0.3758		0.3887	0.3836		0.3950	0.3875		0.3924	0.3794
	0.3840	0.3681		0.3863	0.3758		0.3924	0.3794		0.3898	0.3716

Performance Groups—Chromaticity :

Color	Kit	Chromaticity Bins
Cool White	E1	1A,1B,1C,1D
	E2	2A,2B,2C,2D
	E3	3A,3B,3C,3D
Neutral White	E4	4A,4B,4C,4D
	E5	5A1,5A2,5A3,5A4,5B1,5B2,5B3,5B4,5C1,5C2,5C3,5C4,5D1,5D2,5D3,5D4
	E6	6A1,6A2,6A3,6A4,6B1,6B2,6B3,6B4,6C1,6C2,6C3,6C4,6D1,6D2,6D3,6D4
Warm White	E7	7A1,7A2,7A3,7A4,7B1,7B2,7B3,7B4,7C1,7C2,7C3,7C4,7D1,7D2,7D3,7D4

Ordering Description

White LEDs have performance distribution and been classified into multiple color groups. It is recommended to order products in combination of color groups.

Color group classification for reference: E1,E2,E3,E4,E5,E6,E7.

Revision Record

Version	Prepared by	Content	Date
V1.0	Song. Meng	New Established	2018-01-15
V1.1	Song. Meng	Add 3000K / 4000K specification	2022-07-30
V1.2	Song. Meng	Add 5000K / 6500K CIE	2023-04-29
V1.3	Manyi.Zhu	Add cri80 cct3000k/4000K/5000K/6500K parameter	2024-02-14