

NLW7070PF

LED Specification



Anhui Retop Electronics Co., Ltd.

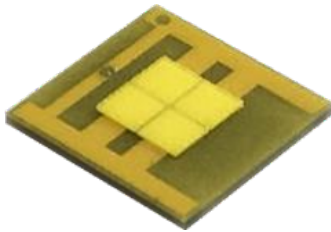
Part No: NLW7070PF

Version: V1.2

Date: 2019-04-24



NLW7070PF



Features

- Ceramic substrate package
- High Flux output and High Luminance
- Low thermal resistance
- Compatible with the JEDEC J-STD-020C

Applications

- Automotive lighting
- Low Beam and high Beam
- Fog light

Specification

CCT	CRI	Luminous Flux		Forward Voltage	View angle	Thermal resistance
	Typ.	Min.	Typ.	Typ.	Typ.	Typ.
5700K	70	1040lm	1160lm	6.1V	130°	1.5°C/W
6500K	70	1040lm	1160lm	6.1V	130°	1.5°C/W

Notes:

1. Electric-optical Parameters Test Condition : IF=1400mA, Test Time =20ms, Ambient Temperature = 25°C ;
2. The viewing angle is 50 % center light intensity angle, Optical simulation software light source data of ProSource\Lighttools\TracePro\ASAP\Zemaxetc can be provided ;
3. ETI maintains a testing tolerance of $\pm 7\%$ on flux and power measurements, ± 0.01 on chromaticity (CCx,CCy), ± 2 on CRI measurements, Voltage, $\pm 0.1V$ on voltage testing.

Absolute Maximum Ratings

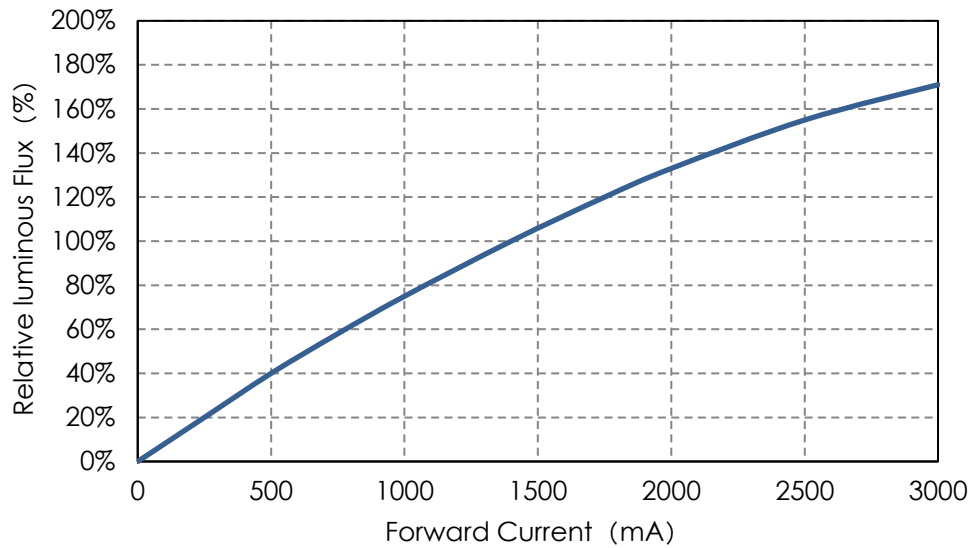
Item	Absolute Maximum Rating
DC Forward Current	100 - 3000mA
Pulse Forward Current	100 - 4000mA
Junction Temperature (Tj)	150°C
Solder Point Temperature (Ts)	105°C
Operating Temperature	-40°C ~ 120°C
Storage Temperature	-40°C - 120°C
Reflow Temperature (JEDEC 020c)	260°C
Reflow Cycle (Cycle)	3
Reverse	No Reverse Operation Design

Notes: 1. LED Package junction temperature lower than rated operating temperature is a prerequisite for Maximum forward current or Maximum pulse forward current.

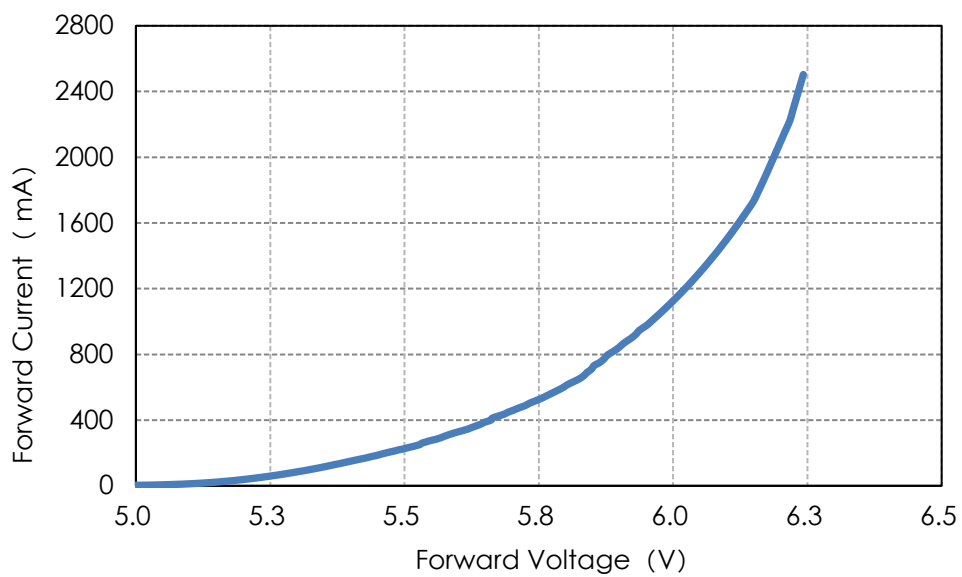
2. Maximum pulse forward current based on pulse width at 50ms and duty cycle at 0.016.

Product Characteristic Curve

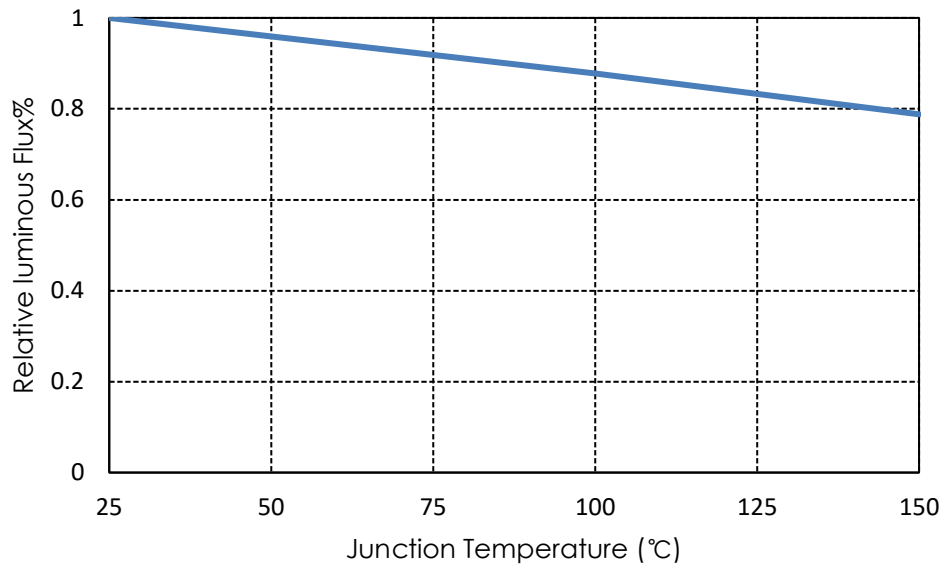
Relative Luminous Flux VS Forward Current
(Test time=20ms, Ambient temperature=25°C)



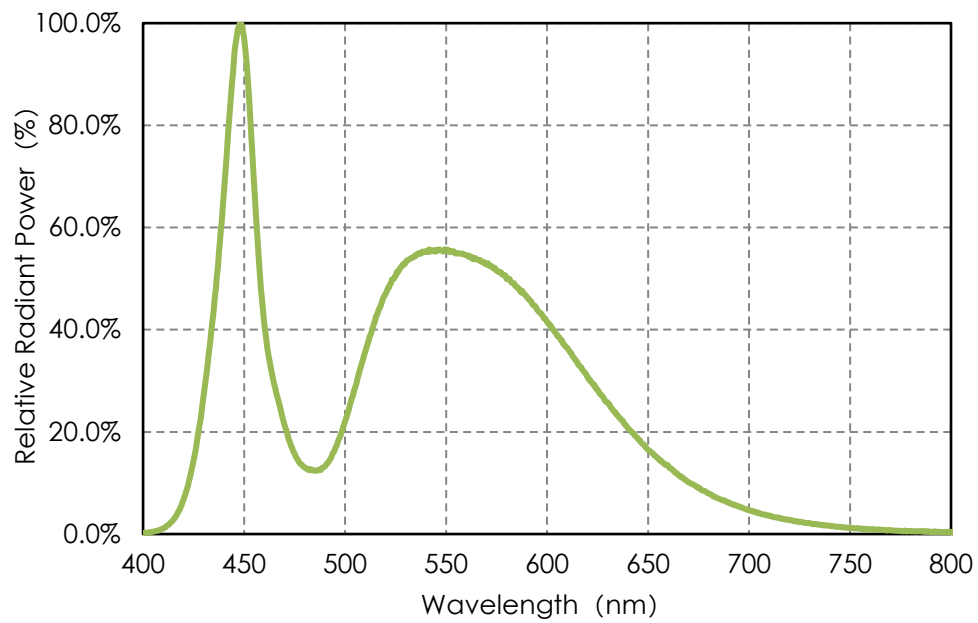
Forward Current VS Forward Voltage
(VF= 6V, Ambient temperature=25°C)



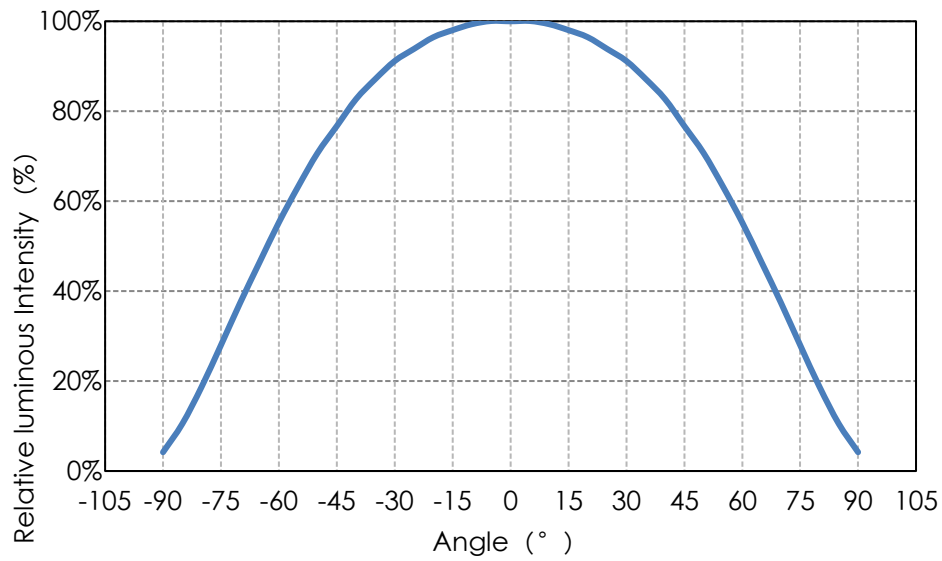
Relative Luminous Flux vs Junction Temperature



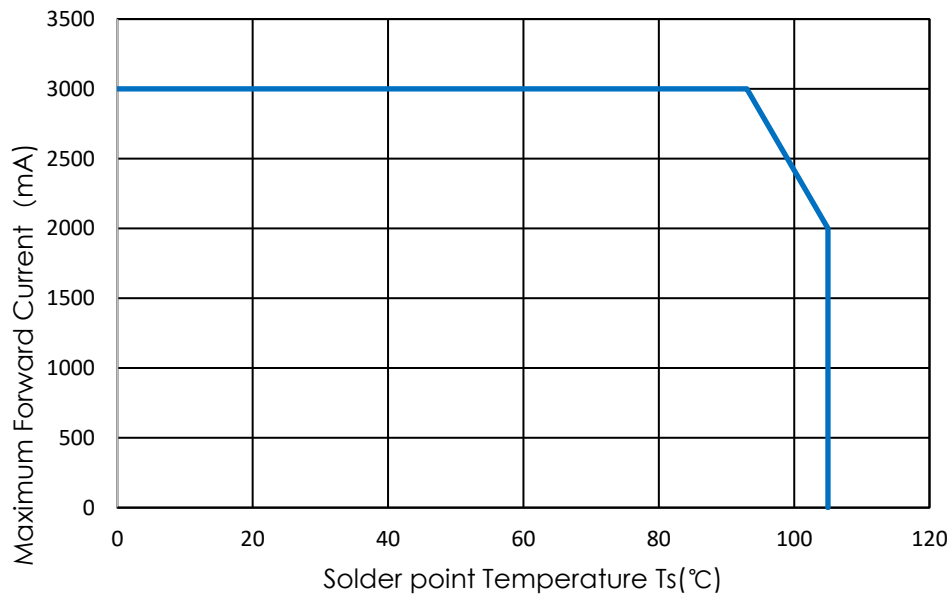
Relative Radiant Power vs Wavelength



Relative Luminous Intensity VS Angle



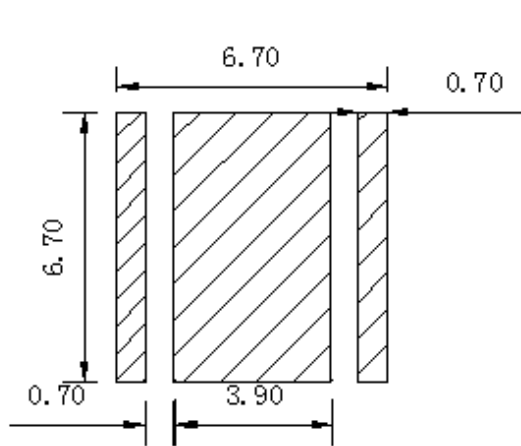
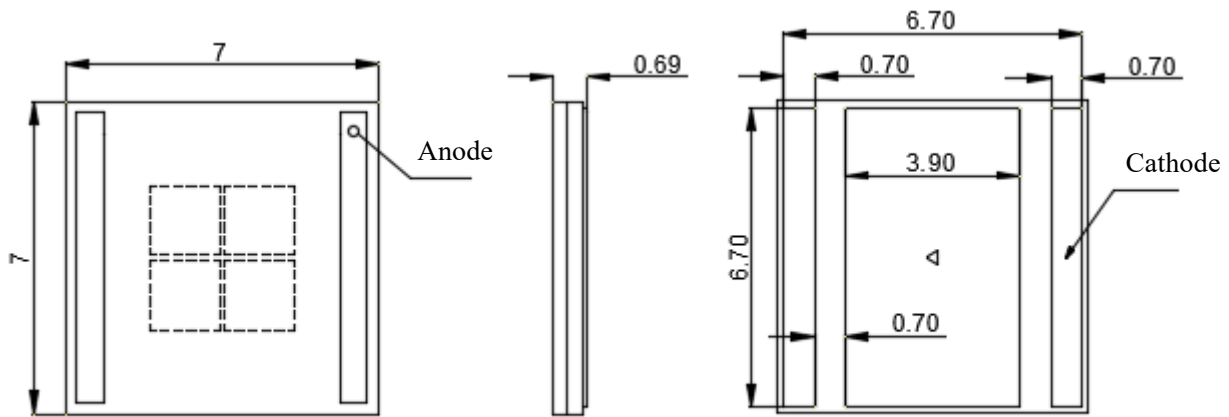
Maximum Forward Current VS Solder Point Temperature



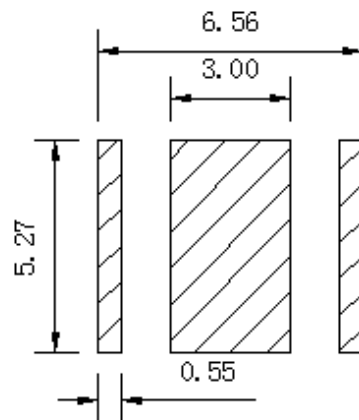
Notes: Please ensure LED solder point temperature lower 105°C when current is 3000mA, otherwise, lowering drive current.

Product and PCB Pad Dimensions

Unit: millimeter (mm) , Dimension tolerance: ± 0.1

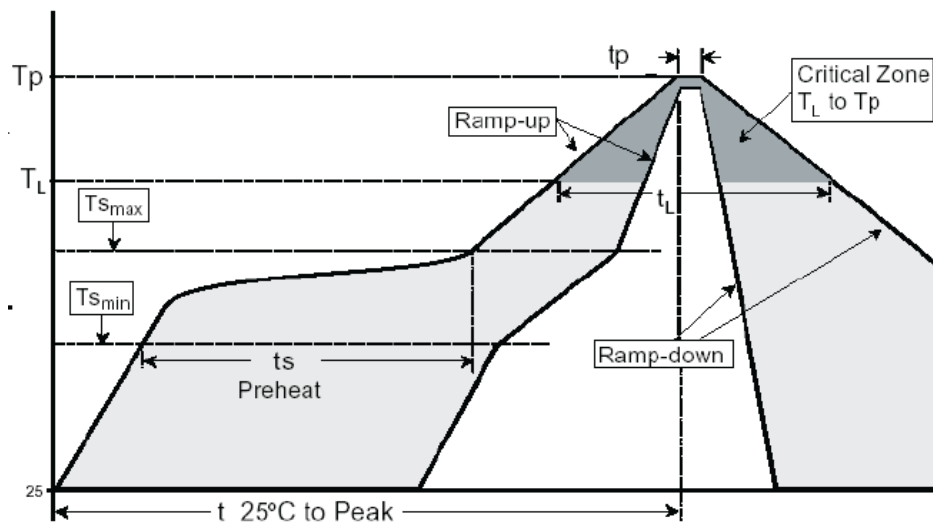


Recommended Solder Pad dimension



Recommended PCB Stencil dimension

Reflow soldering characteristics



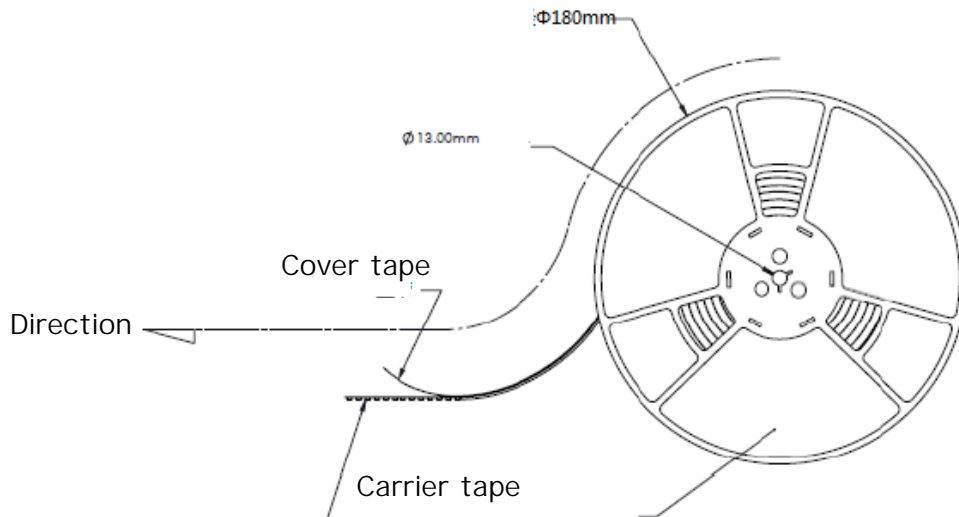
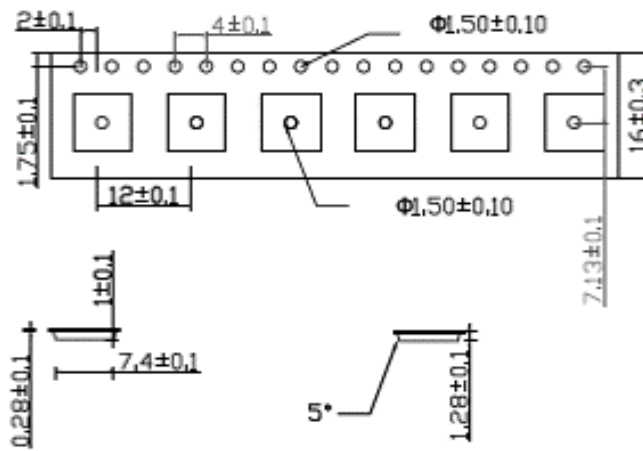
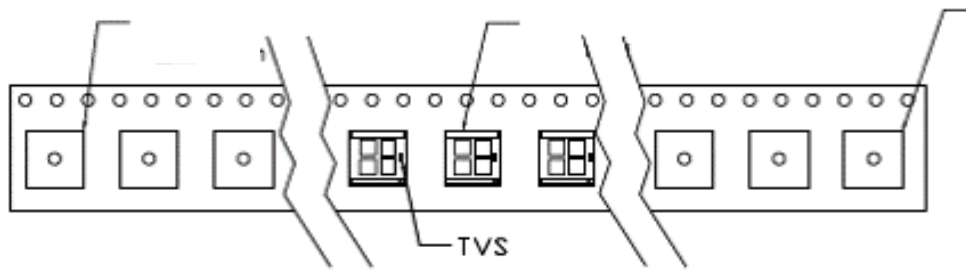
Profile Feature	Lead based solder	Lead free solder
Average Ramp-Up Rate ($T_{s_{max}}$ to T_p)	3°C/sec. Max	3°C/sec. Max
Preheat: Temperature Min ($T_{s_{min}}$)	100°C	150°C
Preheat: Temperature Max ($T_{s_{max}}$)	150°C	200°C
Preheat Time ($T_{s_{min}}$ to $T_{s_{max}}$)	60-120 Sec.	60-180 Sec.
Time Maintained Above: Temperature (T_L)	183°C	217°C
Time Maintained Above: Time (t_L)	60-150 Sec.	60-150 Sec.
Peak/Classification Temperature (T_p)	215°C	260°C
Time within 5°C of Actual Peak temperature (t_p)	10-30 Sec.	20-40 Sec.
Ramp-Down (T_p to T_L)	6°C/Sec. Max	6°C/Sec. Max
Time 25°C to Peak Temperature	6 minutes Max	8 minutes Max

Notes: 1. MSL=2

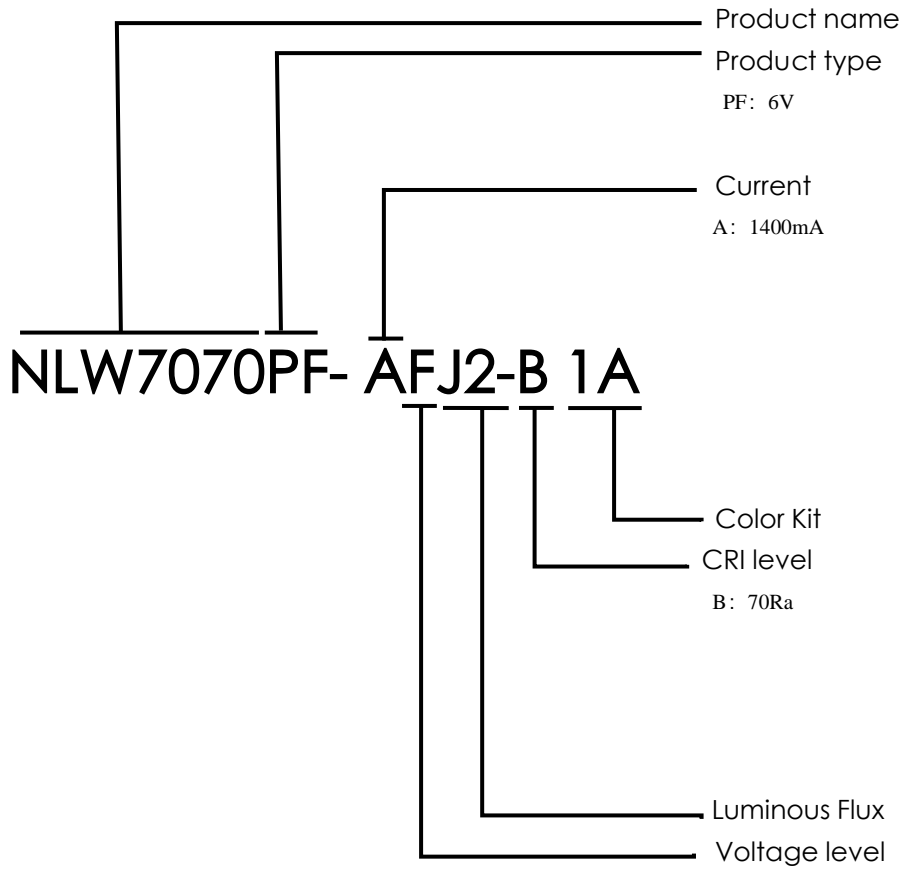
2. Compatible with IPC/JEDEC J-STD-020C.

Tap & Reel Packaging (Min. 50pcs /reel, Standard 300pcs/reel)

Unit: millimeter (mm), Dimension tolerance: ± 0.1



Product Order Code



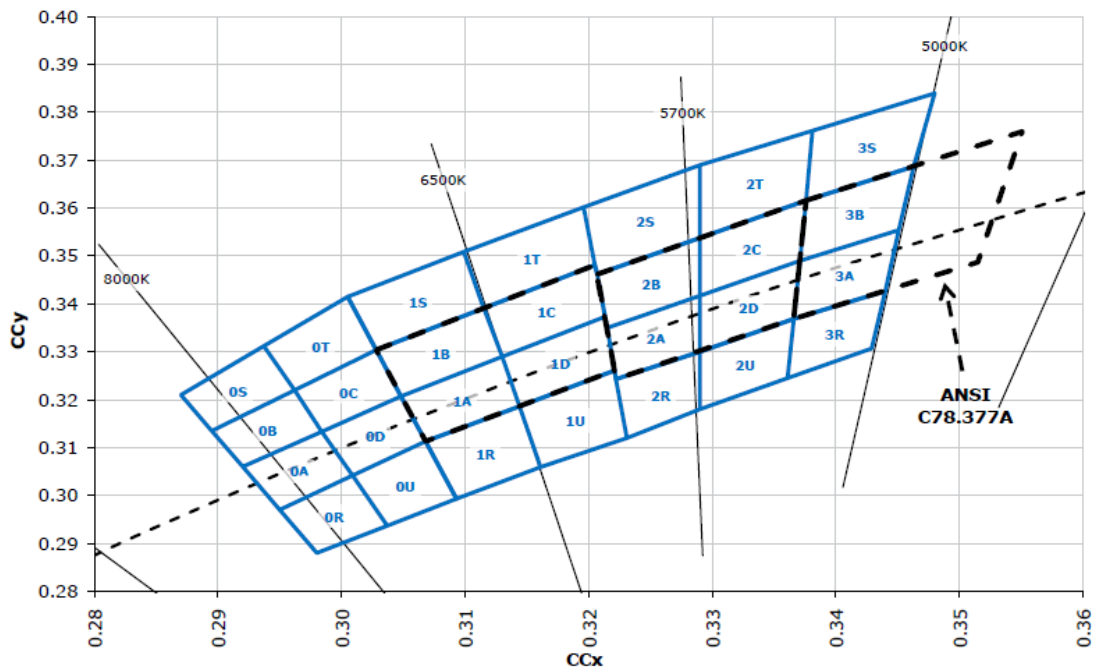
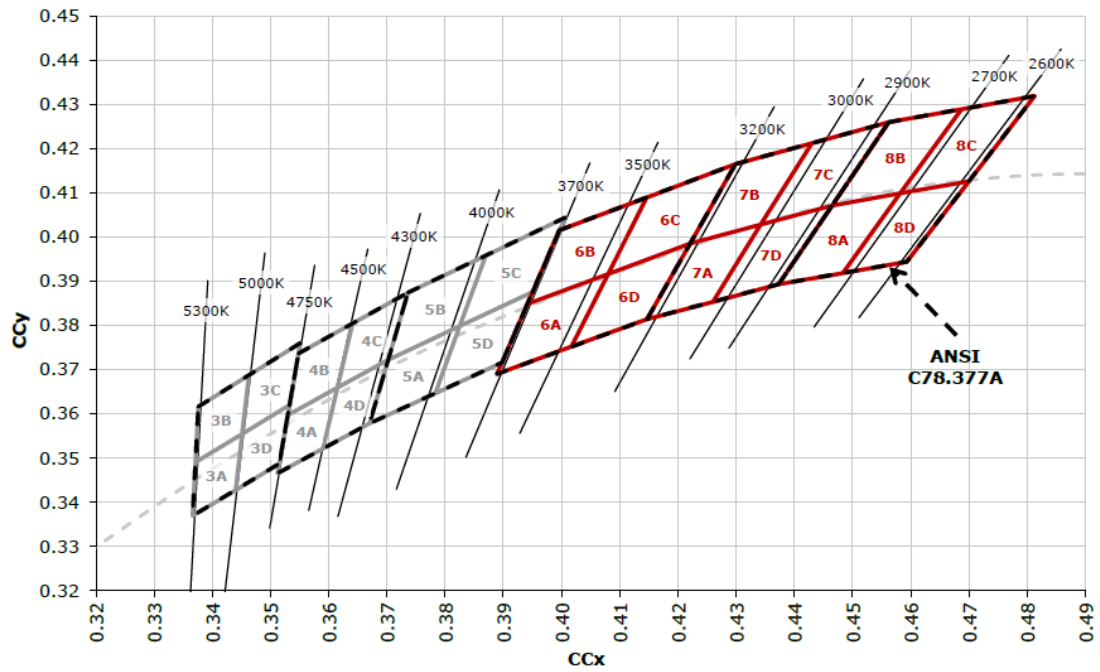
Luminous Flux Binning

Group Code	Min	Max
J2	1040	1120
J4	1120	1200
K2	1200	1290

Forward Voltage Binning

Voltage	Min.	Max.
F	5.2	5.7
G	5.7	6.2
H	6.2	6.7

Color Group Description



Notes:

Ambient Temperature: 25°C

Test time: 20ms

Tolerance: ± 0.007 on chromaticity (CCx, CCy)

Performance Group- Chromaticity

Code	CCT	Bin Code	x	y
E1	6500	1A	0.3048	0.3207
			0.313	0.329
			0.3144	0.3186
			0.3068	0.3113
		1B	0.3028	0.3304
			0.3115	0.3391
			0.313	0.329
			0.3048	0.3207
		1C	0.3115	0.3391
			0.3205	0.3481
			0.3213	0.3373
			0.313	0.329
		1D	0.313	0.329
			0.3213	0.3373
			0.3221	0.3261
			0.3144	0.3186

Code	CCT	Bin Code	x	y
E2	5700	2A	0.3215	0.335
			0.329	0.3417
			0.329	0.33
			0.3222	0.3243
		2B	0.3207	0.3462
			0.329	0.3538
			0.329	0.3417
			0.3215	0.335
		2C	0.329	0.3538
			0.3376	0.3616
			0.3371	0.349
			0.329	0.3417
		2D	0.329	0.3417
			0.3371	0.349
			0.3366	0.3369
			0.329	0.33

Code	CCT	Bin Code	x	y
E3	5000	3A	0.3371	0.349
			0.3451	0.3554
			0.344	0.3427
			0.3366	0.3369
		3B	0.3376	0.3616
			0.3463	0.3687
			0.3451	0.3554
			0.3371	0.349
		3C	0.3463	0.3687
			0.3551	0.376
			0.3533	0.362
			0.3451	0.3554
		3D	0.3451	0.3554
			0.3533	0.362
			0.3515	0.3487
			0.344	0.3427

Code	CCT	Bin Code	x	y
E4	4500	4A	0.353	0.3597
			0.3615	0.3659
			0.359	0.3521
			0.3512	0.3465
		4B	0.3548	0.3736
			0.3641	0.3804
			0.3615	0.3659
			0.353	0.3597
		4C	0.3641	0.3804
			0.3736	0.3874
			0.3702	0.3722
			0.3615	0.3659
		4D	0.3668	0.3957
			0.3771	0.4034
			0.3736	0.3874
			0.3641	0.3804

Performance Group- Chromaticity

Code	CCT	Bin Code	x	y
E5	4000	5A	0.367	0.3578
			0.3702	0.3722
			0.3825	0.3798
			0.3783	0.3646
		5B	0.3702	0.3722
			0.3736	0.3874
			0.3869	0.3958
			0.3825	0.3798
		5C	0.3825	0.3798
			0.3869	0.3958
			0.4006	0.4044
			0.395	0.3875
		5D	0.3783	0.3646
			0.3825	0.3798
			0.395	0.3875
			0.3898	0.3716

Code	CCT	Bin Code	x	y
E6	3500	6A	0.3889	0.369
			0.3941	0.3848
			0.408	0.3916
			0.4017	0.3751
		6B	0.3941	0.3848
			0.3996	0.4015
			0.4146	0.4089
			0.408	0.3916
		6C	0.408	0.3916
			0.4146	0.4089
			0.4299	0.4165
			0.4221	0.3984
		6D	0.4017	0.3751
			0.408	0.3916
			0.4221	0.3984
			0.4147	0.3814

Code	CCT	Bin Code	x	y
E7	3000	7A	0.4147	0.3814
			0.4221	0.3984
			0.4342	0.4028
			0.4259	0.3853
		7B	0.4221	0.3984
			0.4299	0.4165
			0.443	0.4212
			0.4342	0.4028
		7C	0.4342	0.4028
			0.443	0.4212
			0.4562	0.426
			0.4465	0.4071
		7D	0.4259	0.3853
			0.4342	0.4028
			0.4465	0.4071
			0.4373	0.3893

Code	CCT	Bin Code	x	y
E8	2700	8A	0.4373	0.3893
			0.4465	0.4071
			0.4582	0.4099
			0.4483	0.3919
		8B	0.4465	0.4071
			0.4562	0.426
			0.4687	0.4289
			0.4582	0.4099
		8C	0.4582	0.4099
			0.4687	0.4289
			0.4813	0.4319
			0.47	0.4126
		8D	0.4483	0.3919
			0.4582	0.4099
			0.47	0.4126
			0.4593	0.3944

Performance Group- Chromaticity

CCT	Color Kit	Chromaticity Bins
Cool White	E1	1A,1B,1C,1D
	E2	2A,2B,2C,2D
Neutral White	E3	3A,3B,3C,3D
	E4	4A,4B,4C,4D
	E5	5A,5B,5C,5D
	E6	6A,6B,6C,6D
Warm White	E7	7A,7B,7C,7D
	E8	8A,8B,8C,8D

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*、*E8*