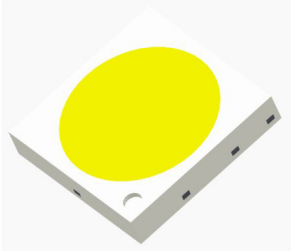
PLW3030DAB Series 3030
Mid Power LED

Product Datasheet



Description

Plessey PLW3030DAB SMT LEDs are designed for linear tubes, spot lights, bulb replacements and other general lighting applications. The light is emitted close to a Lambertian distribution and hence this SMT package is naturally suitable for backlighting panels and symbols. The LEDs are packed in reels containing 5000 pieces; each individual reel will be shipped in single intensity and colour bin, to provide close uniformity.

Features

- 3030 footprint (3 x 3 x 0.55mm)
- Hot colour binning (85°C)
- High reliability PLCC packaging
- Diffused pale yellow resin
- 110 degree wide viewing angle

Applications

- Decoration Lighting
- Instrument panel backlighting
- Illumination symbols
- General lighting
- Signage lighting

Variant	Colour	CCT	
		Min.	Max.
PLW3030DAB-2700	Warm White 2700K	2575K	2865K
PLW3030DAB-3000	Warm White 3000K	2865K	3215K
PLW3030DAB-4000	Neutral White 4000K	3660K	4195K
PLW3030DAB-5000	Cool White 5000K	4600K	5100K
PLW3030DAB-5700	Cool White 5700K	5100K	5790K
PLW3030DAB-6500	Cool White 6500K	5790K	6575K

Ordering Information

Name	Order Code	Luminous Flux Range	Forward Voltage Range
PLW3030DAB-2700	PLW3030DAB27000	0A, 1A, 2A	V1-V6
PLW3030DAB-3000	PLW3030DAB30000	1A, 2A, 3A	
PLW3030DAB-4000	PLW3030DAB40000	2A,3A,4A	
PLW3030DAB-5000	PLW3030DAB50000		
PLW3030DAB-5700	PLW3030DAB57000		
PLW3030DAB-6500	PLW3030DAB65000		

Absolute Maximum Ratings

T_{amb} = +25°C unless otherwise stated

Parameter	Symbol	Minimum	Maximum	Unit
DC Forward Current	I_F	-	180	mA
Peak Pulse Forward Current[1]	I_{FP}	-	240	mA
Power Dissipation	P_d	-	1.2	W
Storage Temperature	T_{stg}	-40	+100	°C
Junction Temperature	T_j	-40	125	°C

[1] Pulse width ≤10ms, duty cycle ≤10%

Electro-optical Characteristics

T_{amb} = +25°C unless otherwise stated

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F = 150mA	5.6	6.3	6.8	V
Reverse Current	I_R	V_R = 5V	-	-	10	µA
Colour Rendering Index	CRI	I_F = 150mA	80	82	-	%
Thermal Resistance	R_{thj-sp}		-	18	-	°C /W
Half-Intensity Angle	$2\Theta_{1/2}$	I_F = 150mA	-	110	-	deg

Recommended Operating Conditions

In typical applications, for optimum LED performance

Parameter	Symbol	Minimum	Maximum	Unit
Operating Ambient Temperature	T_{opr}	-40	+100	°C

Intensity Bin Groups

I_F = 150mA, T_{amb} = +25°C, unless otherwise stated

Group	Luminous flux [1] (lm)	
	Min.	Max.
0A	90	100
1A	100	110
2A	110	120
3A	120	130
4A	130	140

[1] Tolerance ±10%

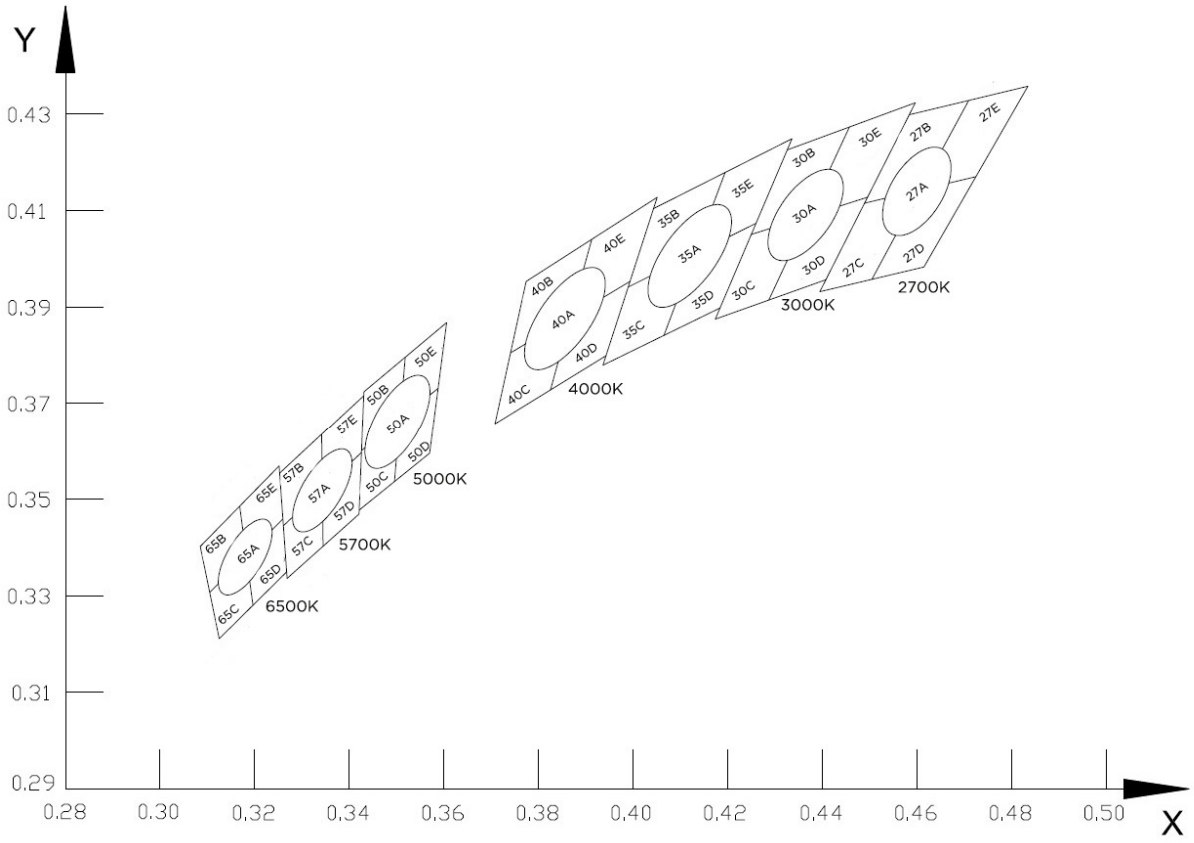
Forward Voltage Bin Groups

I_F = 150mA, T_{amb} = +25°C, unless otherwise stated

Group	V_F [1] (V)	
	Min.	Max.
V1	5.6	5.8
V2	5.8	6.0
V3	6.0	6.2
V4	6.2	6.4
V5	6.4	6.6
V6	6.6	6.8

[1] Tolerance ±0.1V

Hot Chromaticity Binning

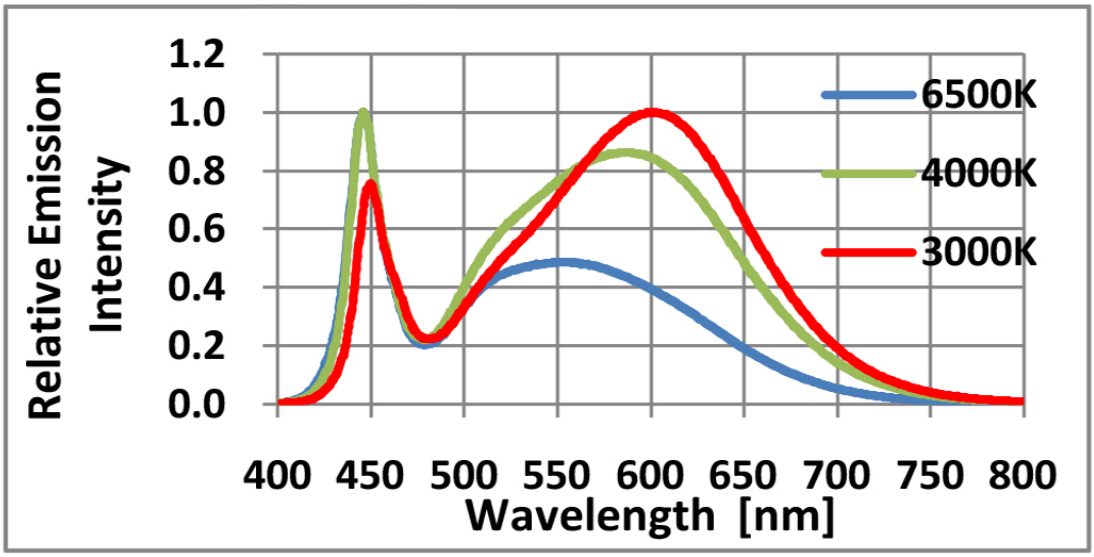


	X	Y	a	b	θ
27A	0.4600	0.4101	0.0132	0.00548	57.17
30A	0.4365	0.4091	0.0112	0.00544	53.10
40A	0.3856	0.3876	0.01252	0.00536	54.00
50A	0.3502	0.3661	0.01096	0.00472	59.37
57A	0.3343	0.3518	0.00980	0.00420	58.00
65A	0.3180	0.3380	0.00892	0.00380	58.23

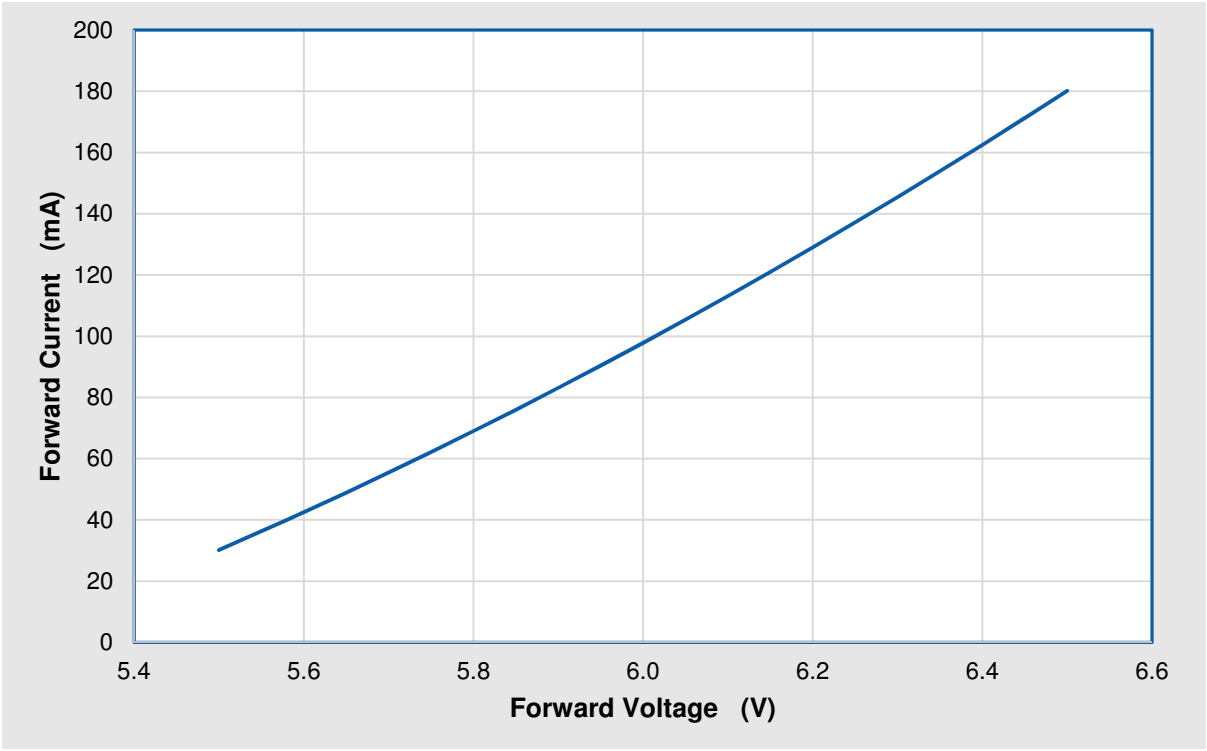
	X1	Y1	X2	Y2	X3	Y3	X4	Y4	X5	Y5
27B	0.4835	0.4358	0.4710	0.4329	0.4654	0.4228	0.4668	0.4157	0.4725	0.4171
27C	0.4710	0.4329	0.4584	0.4299	0.449	0.4116	0.4533	0.4126	0.4654	0.4228
27D	0.4395	0.3932	0.449	0.4116	0.4533	0.4126	0.4555	0.4049	0.4505	0.3958
27E	0.4505	0.3958	0.4555	0.4049	0.4668	0.4157	0.4725	0.4171	0.4615	0.3983
30B	0.4597	0.4324	0.4458	0.4274	0.4416	0.4186	0.4437	0.4109	0.4496	0.4128
30C	0.4458	0.4274	0.4326	0.4226	0.4250	0.4051	0.4290	0.4063	0.4416	0.4186
30D	0.4174	0.3875	0.425	0.4051	0.4290	0.4063	0.4326	0.3997	0.4287	0.3915
30E	0.4287	0.3915	0.4326	0.3997	0.4437	0.4109	0.4496	0.4128	0.4408	0.3957
40B	0.4051	0.4128	0.3913	0.4040	0.3895	0.3979	0.3937	0.392	0.3994	0.3953
40C	0.3774	0.3953	0.3741	0.3805	0.3773	0.3824	0.3895	0.3979	0.3913	0.4040
40D	0.3708	0.3657	0.3741	0.3805	0.3773	0.3824	0.3842	0.3787	0.3826	0.3728
40E	0.3943	0.3799	0.3826	0.3728	0.3842	0.3787	0.3937	0.3920	0.3994	0.3953
50B	0.3606	0.3868	0.3519	0.3796	0.3514	0.3746	0.3571	0.3717	0.3588	0.3732
50C	0.3431	0.3724	0.3426	0.3601	0.3434	0.3607	0.3514	0.3746	0.3519	0.3796
50D	0.3421	0.3477	0.3426	0.3601	0.3434	0.3607	0.3500	0.3584	0.3496	0.3536
50E	0.3570	0.3595	0.3496	0.3536	0.3500	0.3584	0.3571	0.3717	0.3588	0.3732
57B	0.3431	0.3716	0.3342	0.3635	0.3342	0.3583	0.3406	0.3578	0.3426	0.3596
57C	0.3253	0.3554	0.3261	0.3445	0.3280	0.3463	0.3342	0.3583	0.3342	0.3635
57D	0.3269	0.3336	0.3261	0.3445	0.3280	0.3463	0.3344	0.3454	0.3345	0.3406
57E	0.3421	0.3469	0.3345	0.3402	0.3344	0.3454	0.3406	0.3578	0.3426	0.3596
65B	0.3252	0.3569	0.3168	0.3485	0.3175	0.3435	0.3237	0.3436	0.326	0.3459
65C	0.3085	0.3402	0.3105	0.3307	0.3123	0.3325	0.3175	0.3435	0.3168	0.3485
65D	0.3125	0.3211	0.3105	0.3307	0.3123	0.3325	0.319	0.333	0.3196	0.328
65E	0.3268	0.3349	0.3196	0.328	0.319	0.333	0.3237	0.3436	0.326	0.3459

Tolerance ±0.003

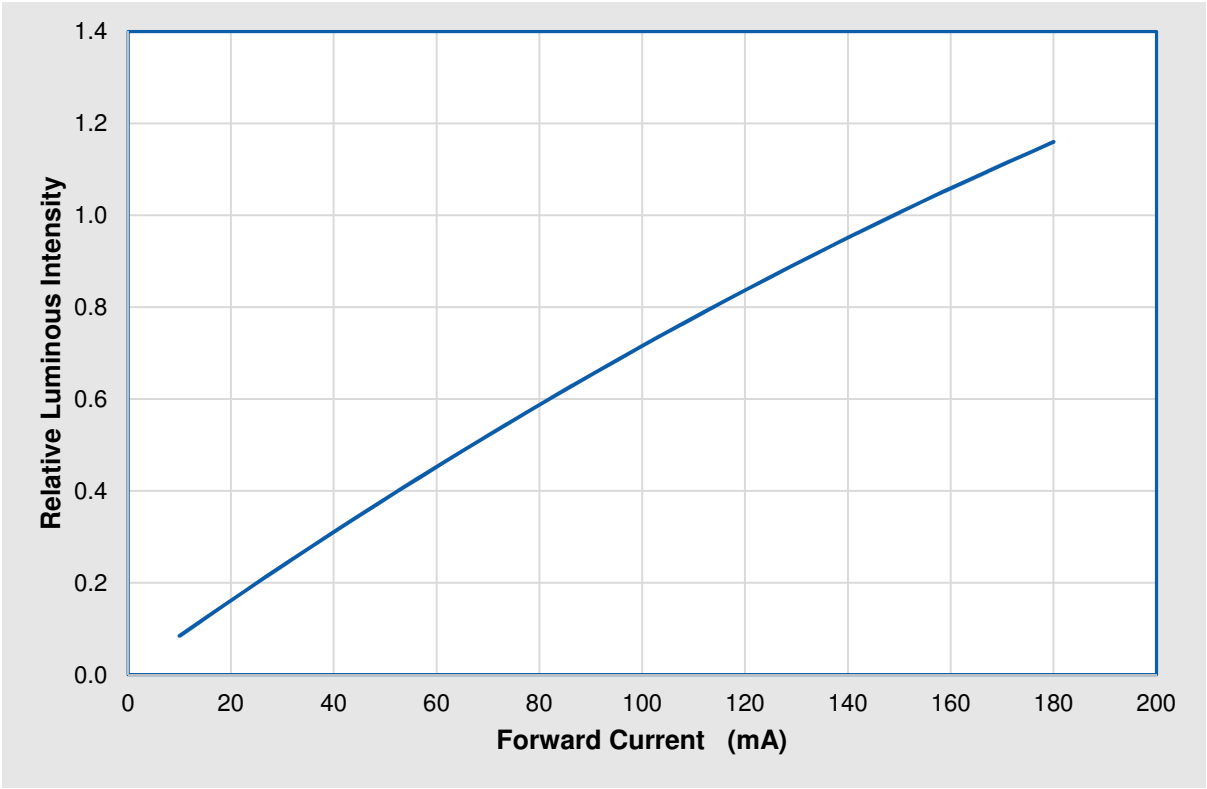
Relative Spectral Emission



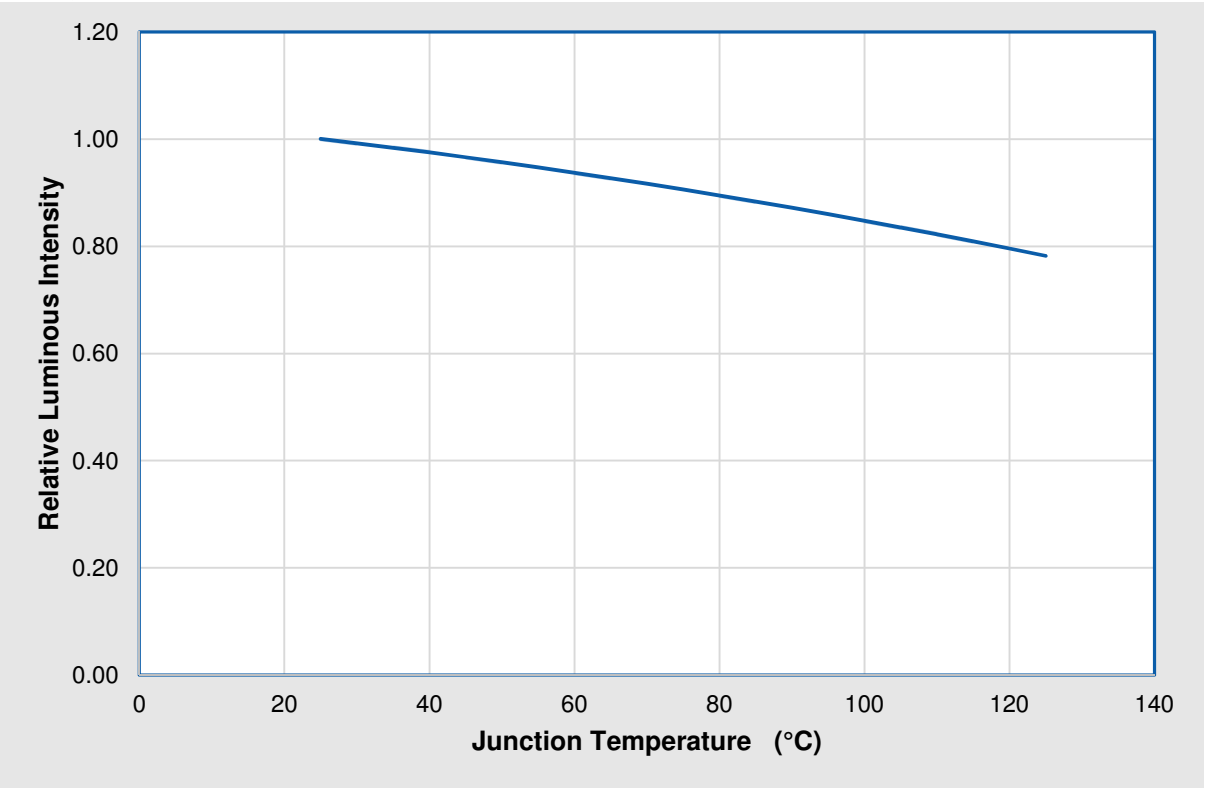
Forward Current Characteristics



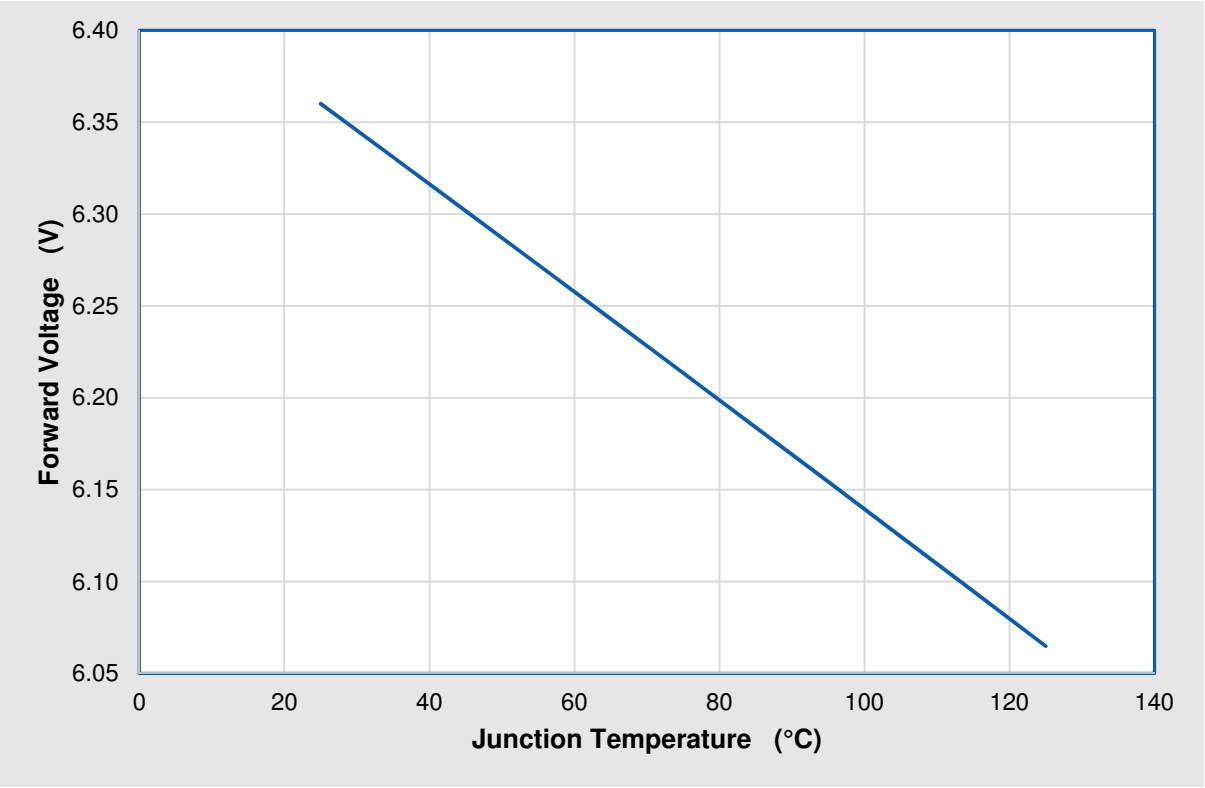
Forward Current Characteristics (Continued)

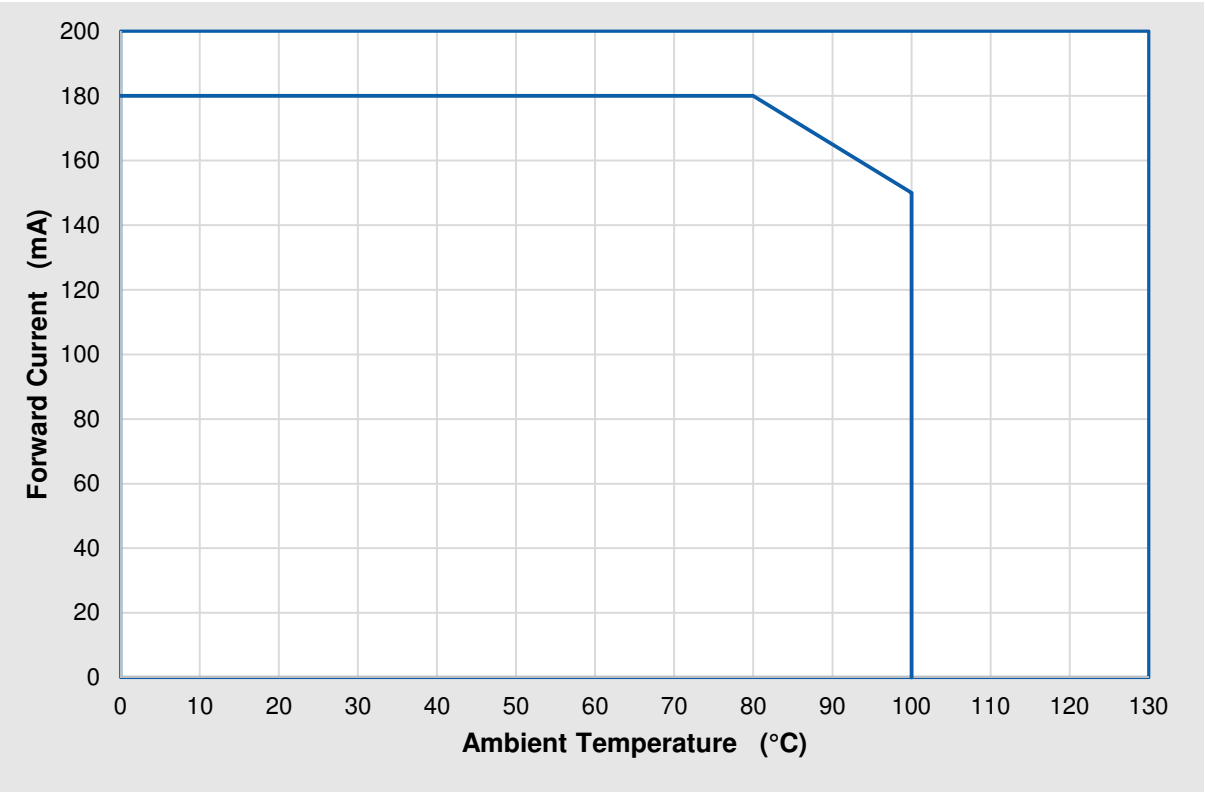


Temperature Characteristics

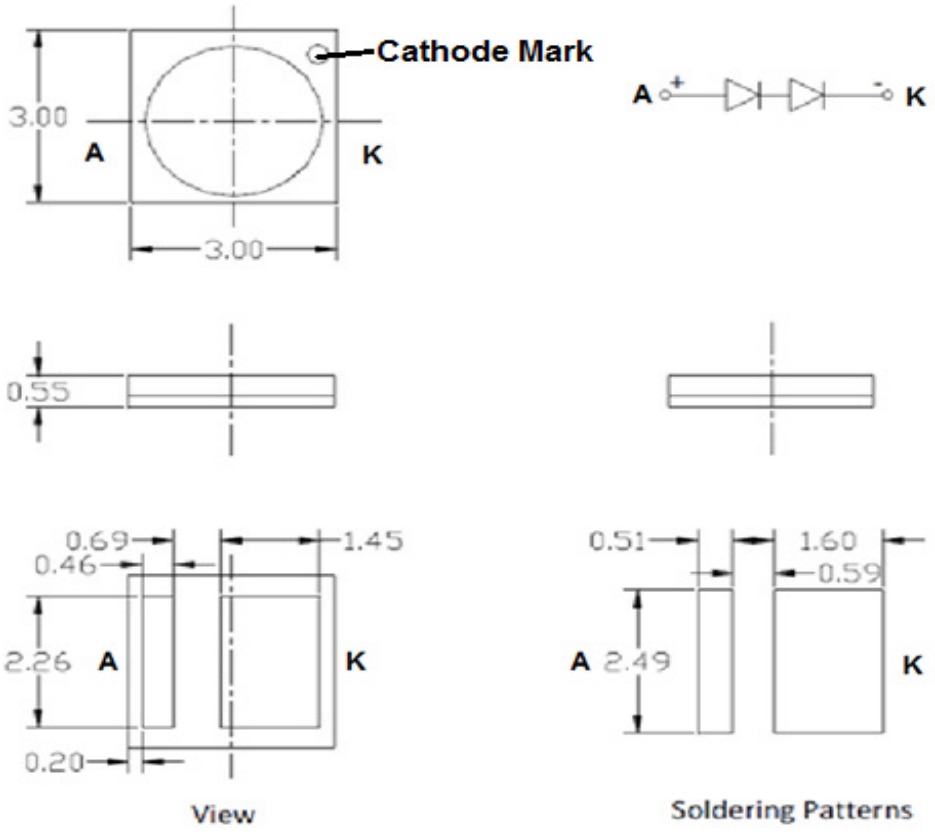


Temperature Characteristics (Continued)




Forward Current (mA)
200
180
160
140
120
100
80
60
40
20
0
0
10
20
30
40
50
60
70
80
90
100
110
120
130
Ambient Temperature (°C)

Mechanical Dimensions



All dimensions tolerances are ±0.05mm unless otherwise noted

Reflow Soldering Profile

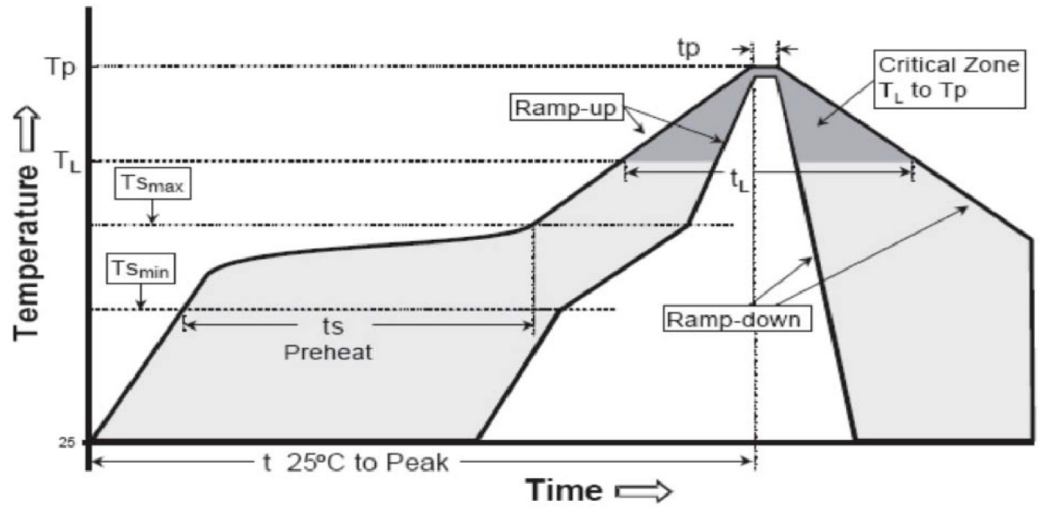


Figure 8. Reflow soldering profile

Reflow Soldering Characteristics

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_s max to T_p)	Max 3°C/sec
Preheat: Min Temperature(T_{s_min})	150°C
Preheat: Max Temperature(T_{s_max})	200°C
Preheat: Time (T_{s_min} to T_{s_max})	60 – 120 sec
Time maintained above: Temperature (T_L)	217°C
Time maintained above: Time (t_L)	60 sec
Peak/Classification Temperature T_p	260°C
Storage time within 5°C of actual peak t_p	30 sec
Ramp-down rate	Max 6°C/sec
Time required 25°C to peak temperature	Max 8 mins

1. Reflow soldering should not be done more than twice
2. When soldering, do not put stress on the LEDs during heating

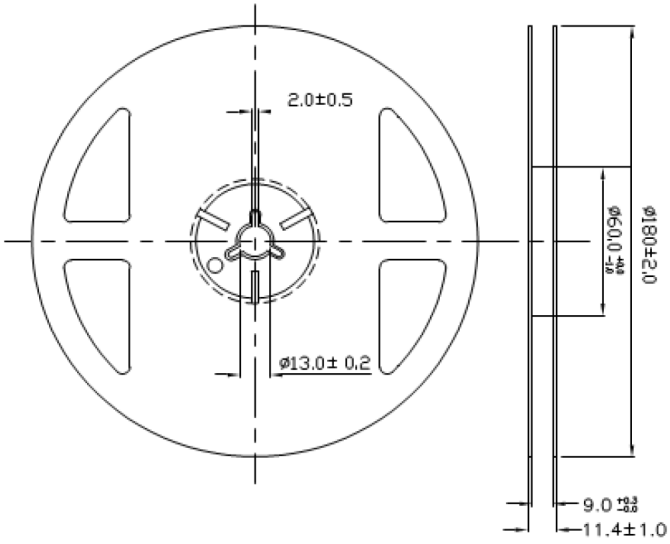
Soldering iron

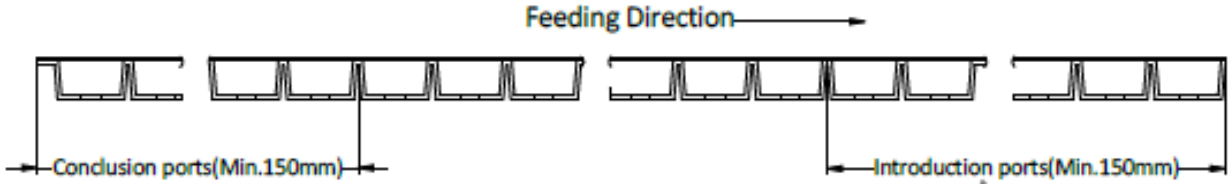
1. When hand soldering, the temperature of the iron must be ≤+300ºC for 3 seconds
2. Hand soldering should be performed only once.

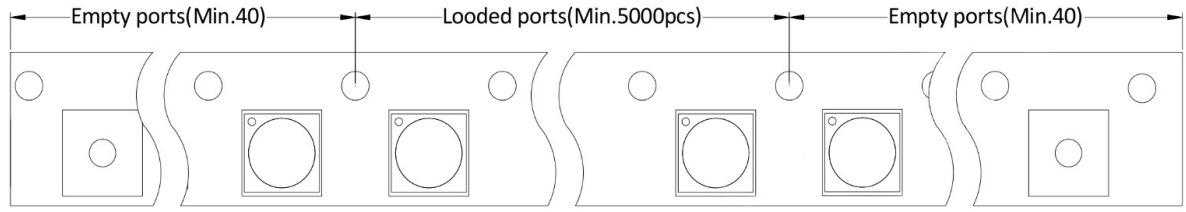
Moisture Sensitivity

JEDEC Level	Floor life		Bake	
	Time	Conditions	Time	Conditions
2	1 year	≤+30°C / 50% RH	≥12 hours	+60°C ±5°C / 5% RH

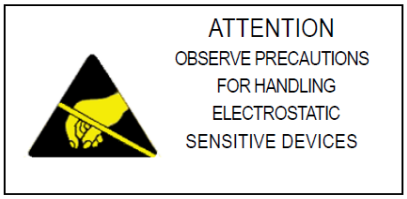
Packing Information







Cautions

Sulphur	Avoid storing or operation the LEDs in a sulphur containing environment. Some materials, such as seals, printing ink, enclosure and adhesives, may contain sulphur. Avoiding the exposure in acid or halogen environment.
Reverse Bias	These LEDs are not designed to operate in reverse bias. Precautions are required to prevent reverse bias in applications and during handling.
ESD	 These LEDs are ESD sensitive. Safe ESD handling precautions are required.

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