PLW2835AA Series 2835
Mid Power LED

Product Datasheet

Description

Plessey PLW2835AA SMT LEDs are designed for optical indicators, indoor displays, automotive lighting, backlights for switches/symbols/LCD, tubular lighting and other general lighting applications and the light is emitted close to a Lambertian distribution. The LEDs are packed in reels containing 4000 pieces; each individual reel will be shipped in single intensity and colour bin, to provide close uniformity.

Features

- 2835 footprint (2.8 x 3.5 x 0.7mm)
- Colour binning
- High reliability PLCC-2 packaging
- Diffused pale yellow resin
- 120 degree wide viewing angle
- LM80 Certified

Applications

- Tubular Lighting
- Instrument panel backlighting
- Illumination symbols
- Automotive lighting
- General lighting

Variant	Colour	CCT	
		Min.	Max.
PLW2835AA-3000	Warm White 3000K	2870K	3220K
PLW2835AA-4000	Neutral White 4000K	3705K	4255K
PLW2835AA-5700	Cool White 5700K	5300K	6054K

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}	-	350	mA
Power Dissipation	P_d	-	612	mW
Storage Temperature	T_{stg}	-40	+100	°C
Junction Temperature	T_j		+115	°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	2.8	3.1	3.4	V
Reverse Current	I_R	V_R = 5V	-	-	10	µA
Colour Rendering Index	CRI	I_F = 150mA	80	82	84	%
Thermal Resistance	R_{thj-sp}		-	30	-	ºC/W
Half-Intensity Angle	$2\Theta_{1/2}$	I_F = 150mA	-	120	-	deg

Recommended Operating Conditions

In typical applications, for optimum LED performance

Parameter	Symbol	Minimum	Maximum	Unit
Operating Ambient Temperature	T_{opr}	-40	+85	°C

Ordering Information

Name	Order Code	Luminous Flux Range	Forward Voltage Range
PLW2835AA-3000	PLW2835AAW30000	2A, 3A, 4A, 5A	V1-V6
PLW2835AA-4000	PLW2835AAN40000		
PLW2835AA-5700	PLW2835AAC57000		

Intensity Bin Groups

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

Group	Luminous flux [1] (lm)	
	Min.	Max.
2A	50	55
3A	55	60
4A	60	65
5A	65	70

[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	2.8	2.9
V2	2.9	3.0
V3	3.0	3.1
V4	3.1	3.2
V5	3.2	3.3
V6	3.3	3.4

[1] Tolerance ±0.1V

Chromaticity Binning

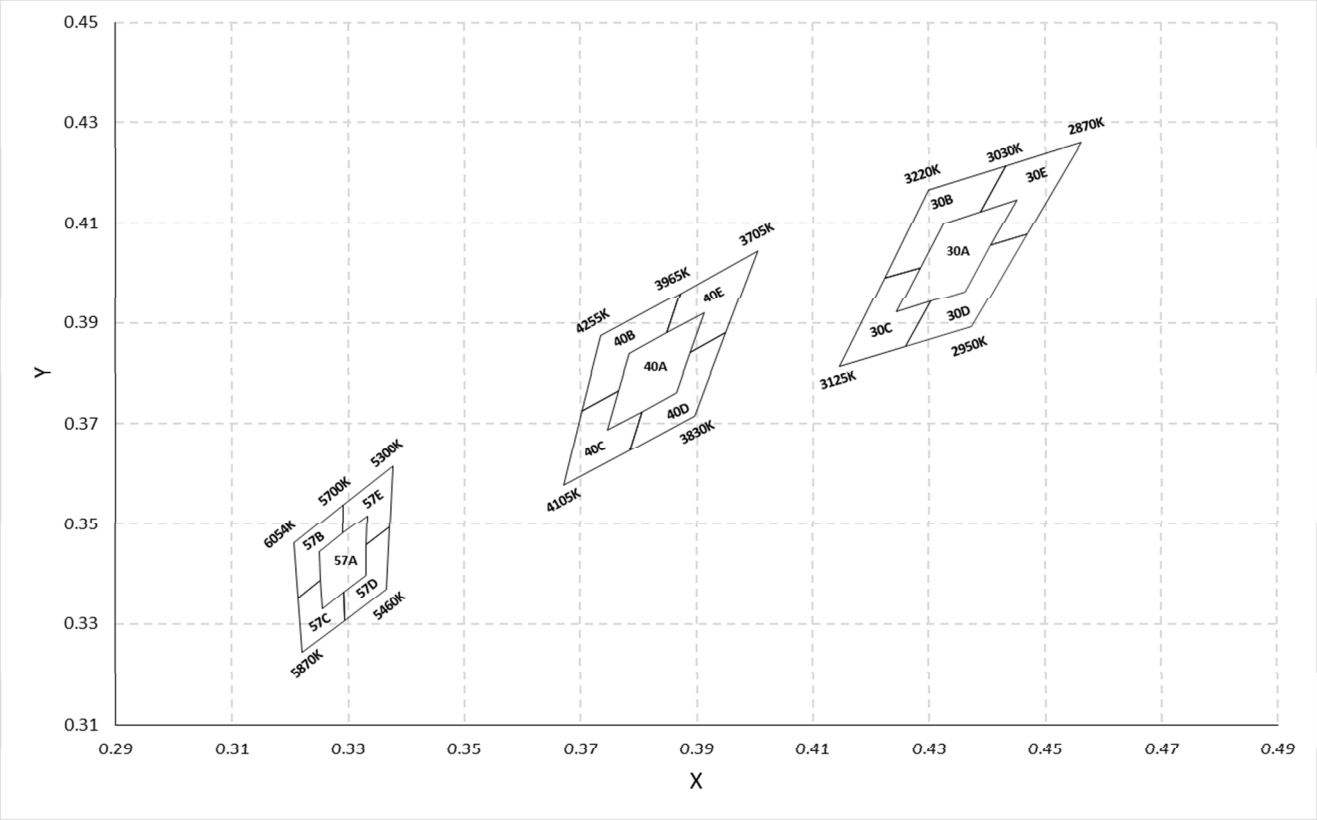


Figure 1. Colour Chromaticity Binning

ANSI 4-Step								
	X1	Y1	X2	Y2	X3	Y3	X4	Y4
30A	0.4324	0.4100	0.4451	0.4146	0.4361	0.3964	0.4244	0.3923
40A	0.3784	0.3840	0.3914	0.3921	0.3865	0.3761	0.3746	0.3688
57A	0.3251	0.3444	0.3333	0.3518	0.3331	0.3398	0.3256	0.3331

ANSI 7-Step												
	X1	Y1	X2	Y2	X3	Y3	X4	Y4	X5	Y5	X6	Y6
30B	0.4388	0.4123	0.4431	0.4213	0.4299	0.4165	0.4223	0.3990	0.4284	0.4011	0.4324	0.4100
30C	0.4260	0.3854	0.4303	0.3944	0.4244	0.3923	0.4284	0.4011	0.4223	0.399	0.4147	0.3814
30D	0.4260	0.3854	0.4303	0.3944	0.4361	0.3964	0.4406	0.4055	0.4468	0.4077	0.4373	0.3893
30E	0.4388	0.4123	0.4431	0.4213	0.4562	0.4260	0.4468	0.4077	0.4406	0.4055	0.4451	0.4146
40B	0.3849	0.3880	0.3871	0.3959	0.3736	0.3874	0.3703	0.3726	0.3765	0.3764	0.3784	0.3840
40C	0.3784	0.3647	0.3805	0.3724	0.3746	0.3688	0.3765	0.3764	0.3703	0.3726	0.367	0.3578
40D	0.3784	0.3647	0.3805	0.3724	0.3865	0.3761	0.3890	0.3841	0.3951	0.3880	0.3897	0.3716
40E	0.3849	0.3880	0.3871	0.3959	0.4005	0.4044	0.3951	0.3880	0.3890	0.3841	0.3914	0.3921
57B	0.3292	0.3481	0.3292	0.3539	0.3207	0.3462	0.3214	0.3352	0.3253	0.3388	0.3251	0.3444
57C	0.3294	0.3306	0.3293	0.3364	0.3256	0.3331	0.3253	0.3388	0.3214	0.3352	0.3222	0.3243
57D	0.3294	0.3306	0.3293	0.3364	0.3331	0.3398	0.3332	0.3458	0.3371	0.3493	0.3366	0.3369
57E	0.3292	0.3481	0.3292	0.3539	0.3376	0.3616	0.3371	0.3493	0.3332	0.3458	0.3333	0.3518

Relative Spectral Emission

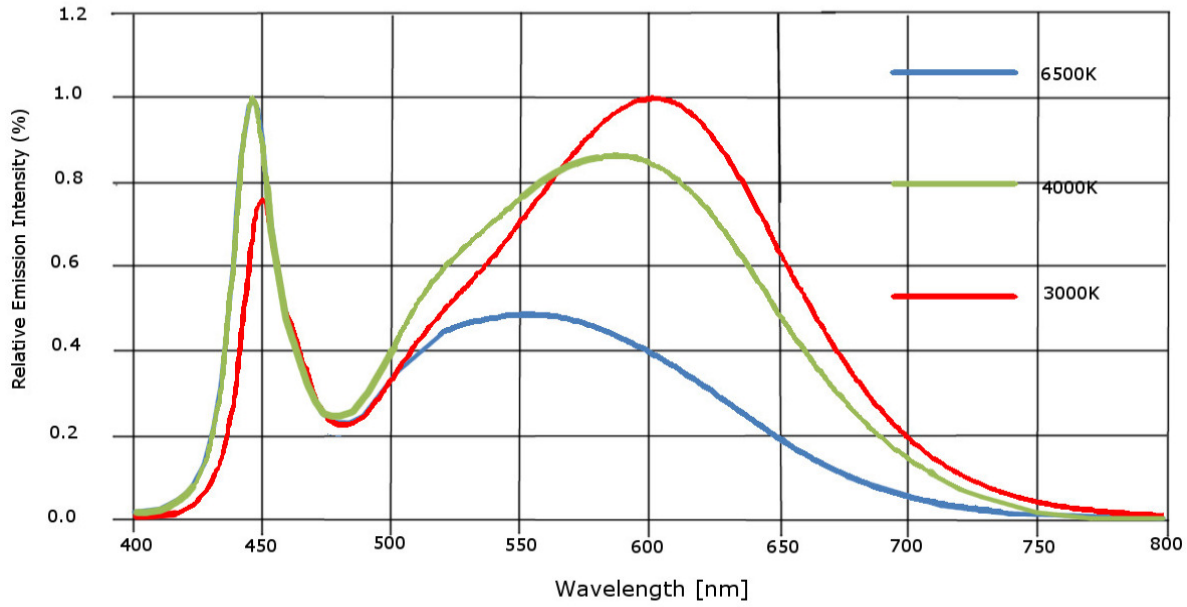


Figure 2. Normalised spectral power distribution Note: The relative spectral emission corresponds to a random LED sample.

Forward Current Characteristics

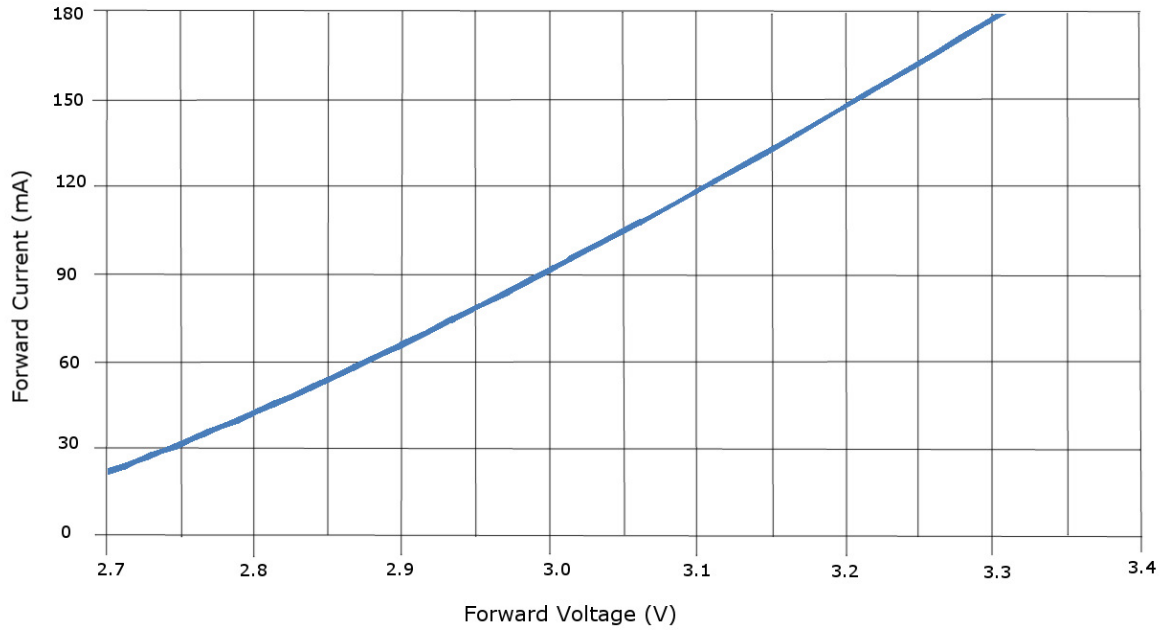


Figure 3. Typical forward current versus forward voltage (T_a=+25C)

Forward Current Characteristics (Continued)

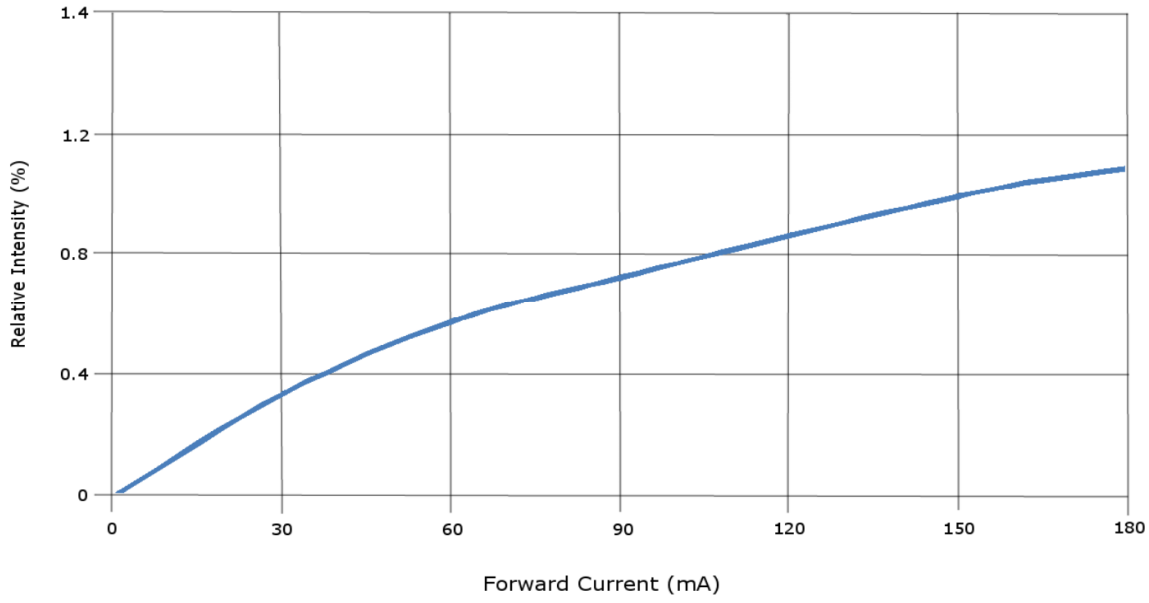


Figure 4. Relative luminous flux versus forward current (T_a=+25C)

Temperature Characteristics

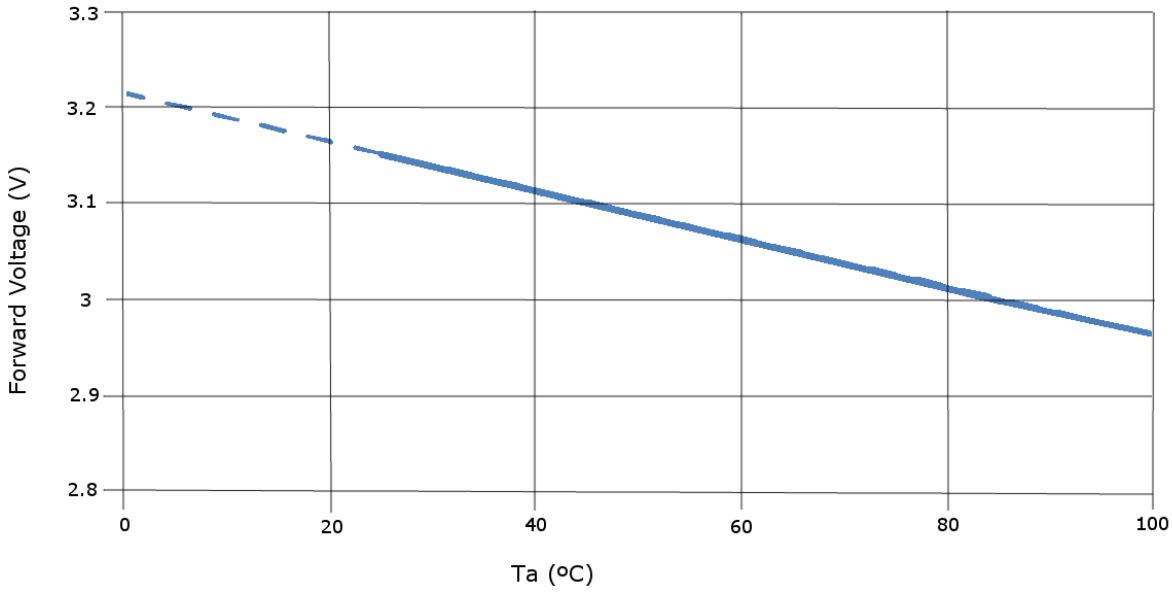


Figure 5. Typical forward voltage versus ambient temperature (I_F=150mA)

Temperature Characteristics (Continued)

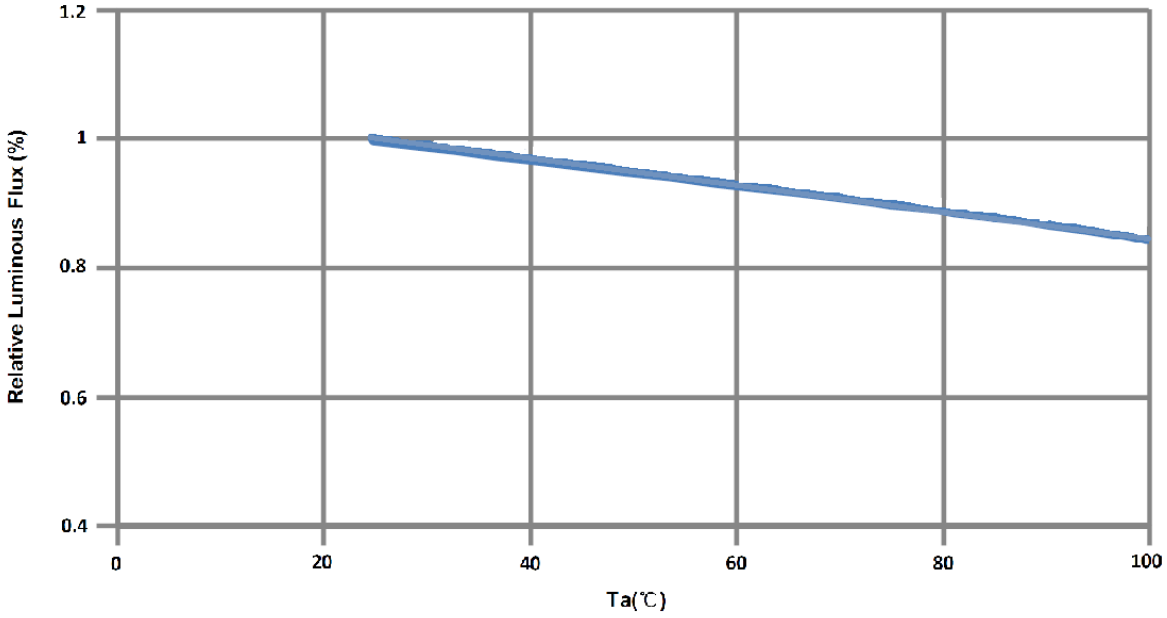


Figure 6: Ambient Temperature versus Relative Luminous Flux

Outline Dimensions & Soldering Pattern

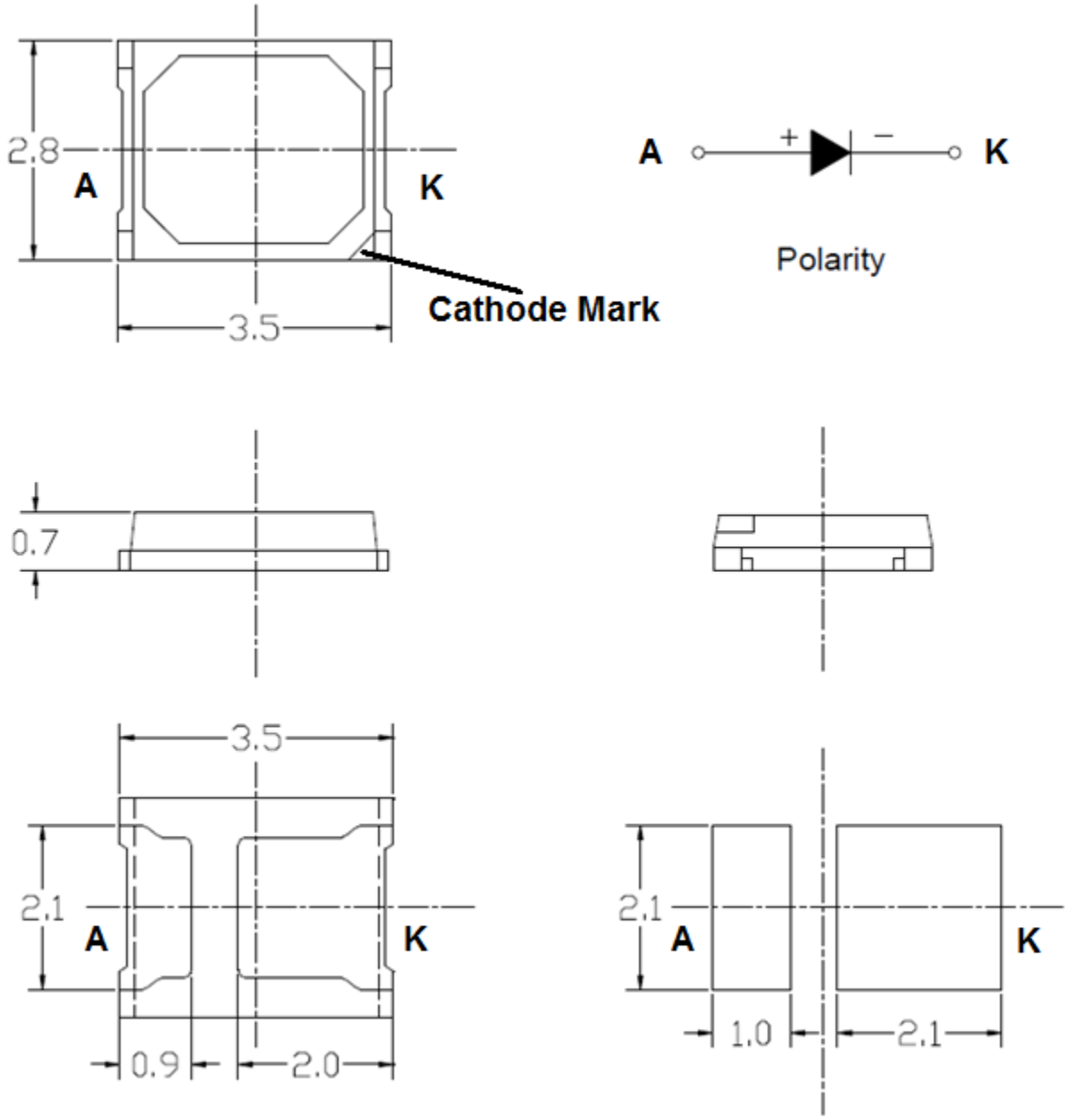


Figure 7. Mechanical Drawing & Soldering Pattern of the 2835 package

1. All dimensions units are millimeters.

2. All dimensions tolerances are ±0.2mm unless otherwise stated.

Reflow Soldering Profile

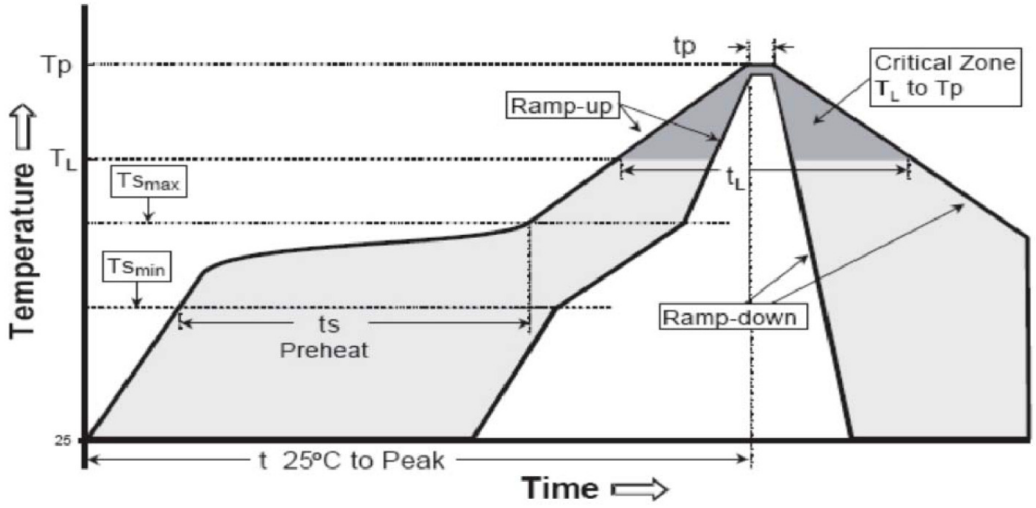


Figure 8. Reflow soldering profile

Reflow Soldering Characteristics

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T_s max to T_p)	Max 3°C/sec	Max 3°C/sec
Preheat: Min Temperature(T_{s_min})	100°C	150°C
Preheat: Max Temperature(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
Storage time within 5°C of actual peak t_p	10 – 30 sec	20 – 40 sec
Ramp-down rate	Max 6°C/sec	Max 6°C/sec
Time required 25°C to peak temperature	Max 6 mins	Max 8 mins

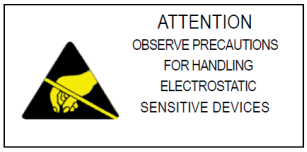
1. Reflow soldering should not be done more than twice
2. When soldering, do not put stress on the LEDs during heating

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.

Handling Instructions

Plessey LEDs are not designed to operate with reverse bias. Precautions are required to prevent reverse bias in applications and during handling.



Moisture Sensitivity

MSL 2a.

To avoid the moisture penetration, store in a dry box with a desiccant. The recommended storage temperature range is 5℃ to 30℃ and a maximum humidity of RH50%. If the colour of the humidity indicator/desiccant changes, components should be dried for 10-12hr at 60±5℃.

Packing Information

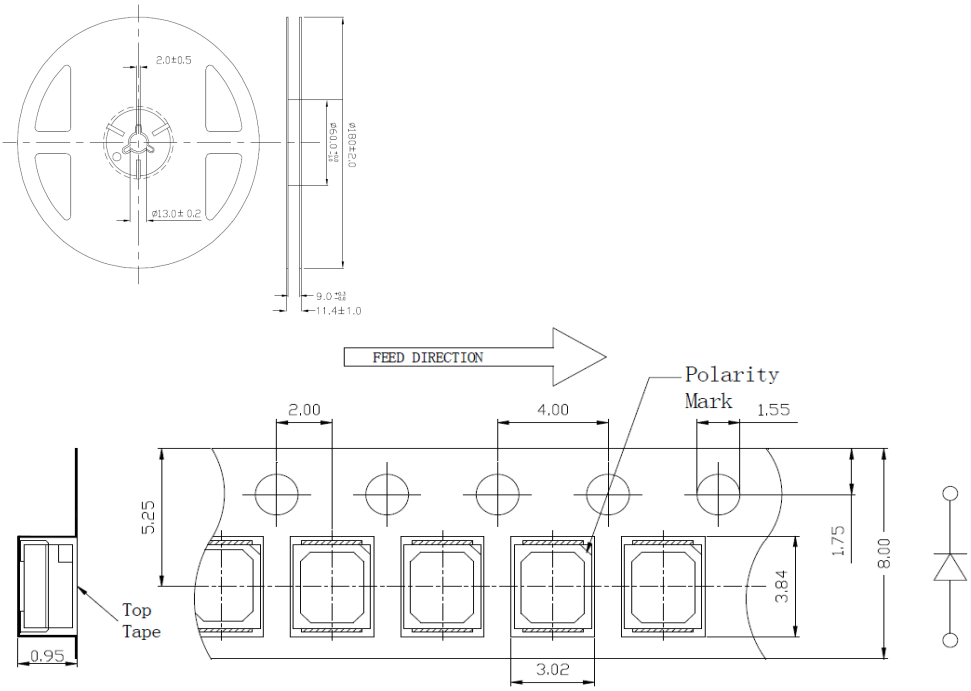


Figure 9. Reel Specification (units in mm)

Legal Notice

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