PLW5630CB Series 5630 Mid Power LED

Product Datasheet

Description

Plessey PLW5630CB 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 3000 pieces; each individual reel will be shipped in single intensity and colour bin, to provide close uniformity.

Features

- 5630 footprint (5.7x3.0x0.8mm)
- High reliability PLCC-2 packaging
- Diffused pale yellow resin
- 120 degree wide viewing angle

Applications

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

Variant	Colour		CCT (K)	
			Min.	Max.
PLW5630CB-2700	Warm White	2700K	2600	2800
PLW5630CB-3000	Warm White	3000K	2800	3100
PLW5630CB-3400	Warm White	3400K	3250	3650
PLW5630CB-4000	Neutral White	4000K	3800	4250
PLW5630CB-5000	Cool White	5000K	4750	5300
PLW5630CB-6500	Cool White	6500K	6000	7000

Absolute Maximum Ratings

T_A = +25ºC unless otherwise stated

Parameter	Symbol	Min.	Max.	Unit
DC Forward Current	I_F	-	180	mA
Peak Pulse Forward Current[1]	I_{FP}	-	200	mA
Power Dissipation	P_D	-	612	mW
Storage Temperature	T_{stg}	-40	+100	°C
Junction Temperature	T_J	-	+115	°C

[1] Pulse width 0.1ms, duty cycle ≤10%

Electro-optical Characteristics

T_A = +25ºC unless otherwise stated

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F = 150 mA	2.8	-	3.4	V
Reverse Current	I_R	V_R = 5 V	-	-	10	µA
Colour Rendering Index[1]	*CRI*	I_F = 150 mA	90	-	-	%
Thermal Resistance	R_Θ		-	30	-	K/W
Half-Intensity Angle	2□1/2	I_F = 150 mA	-	120	-	deg

[1] Tolerance ±2%

Recommended Operating Conditions

In typical applications, for optimum LED performance

Parameter	Symbol	Min.	Max.	Unit
Operating Ambient Temperature	V_F	2.8	3.4	°C

Ordering Information

Name	Order Code	LF Min.	VF Max.
PLW5630CB-2700	PLW5630CBW27000	3A	V1 – V6
PLW5630CB-3000	PLW5630CBW30000		
PLW5630CB-3400	PLW5630CBW34000		
PLW5630CB-4000	PLW5630CBN40000	4A	
PLW5630CB-5000	PLW5630CBC50000		
PLW5630CB-6500	PLW5630CBC65000		

Intensity Bin Groups

I_F = 150mA, T_A = +25°C, unless otherwise stated

Group	Luminous Flux (lm)	
	Min.	Max.
3A	42	50
4A	50	55
5A	55	60

[1] Tolerance ±10%

Forward Voltage Bin Groups

I_F = 150mA, T_A = +25°C, unless otherwise stated

Group	Forward Voltage 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

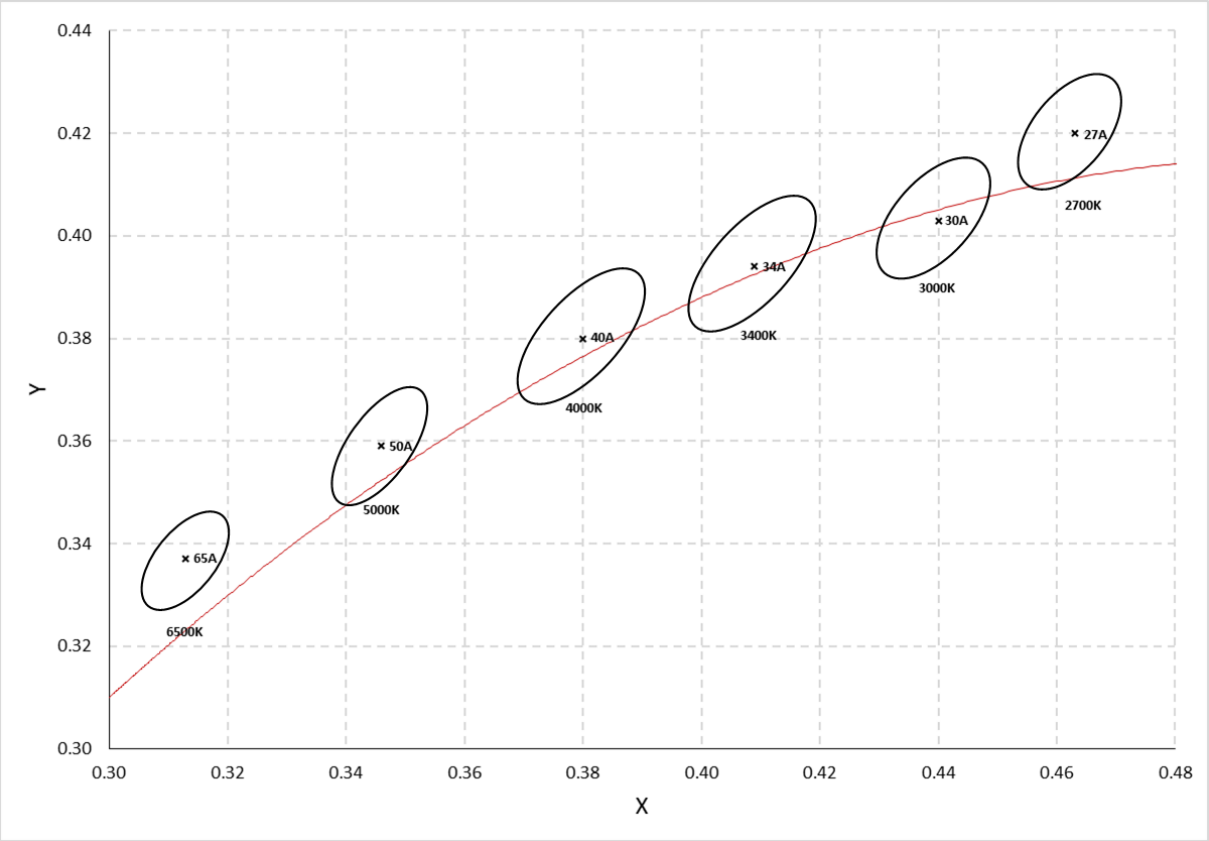


Figure 1: Colour Chromaticity Binning

Chromaticity tolerance: ± 0.003

CCT (K)	Bin	CIE x	CIE y	a	d	Ɵ
6500	65A	0.313	0.337	0.01115	0.00475	58°23′
5000	50A	0.346	0.359	0.0137	0.00590	59°37′
4000	40A	0.380	0.380	0.01565	0.00670	54°00′
3400	34A	0.409	0.394	0.01585	0.00695	52°28′
3000	30A	0.440	0.403	0.01390	0.00680	53°10′
2700	27A	0.463	0.420	0.01290	0.00685	53°17′

Relative Spectral Emission

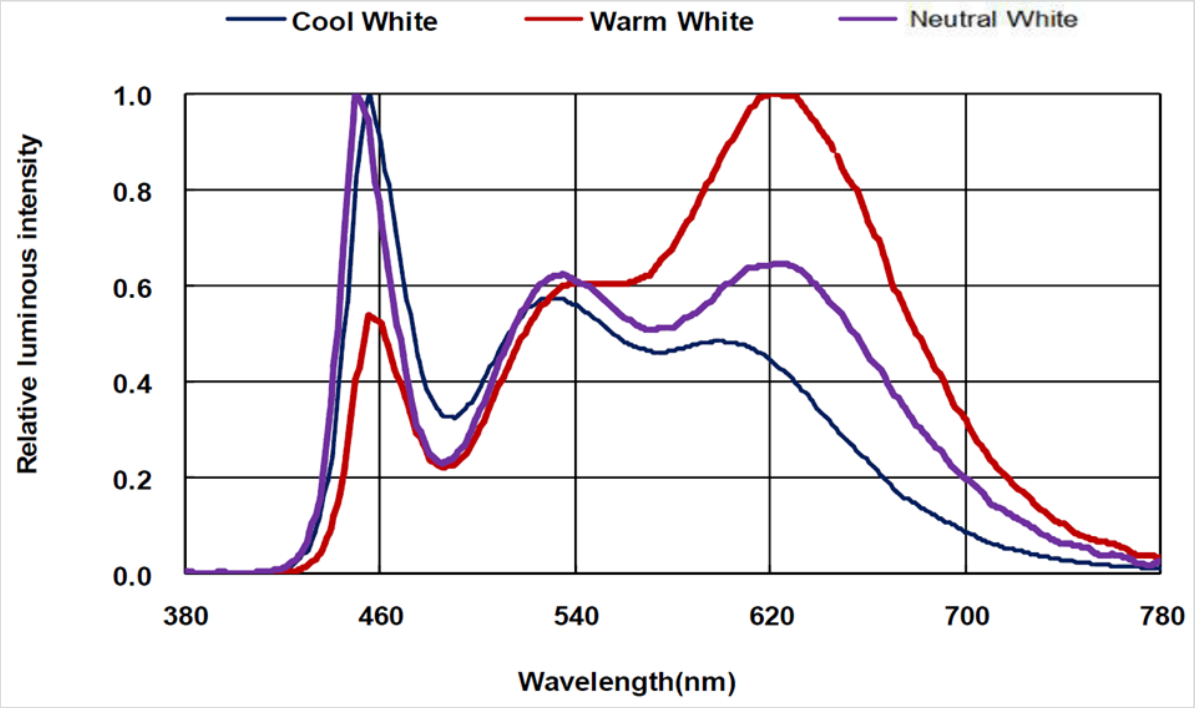


Figure 2: Normalised spectral power distribution

Forward Current Characteristics

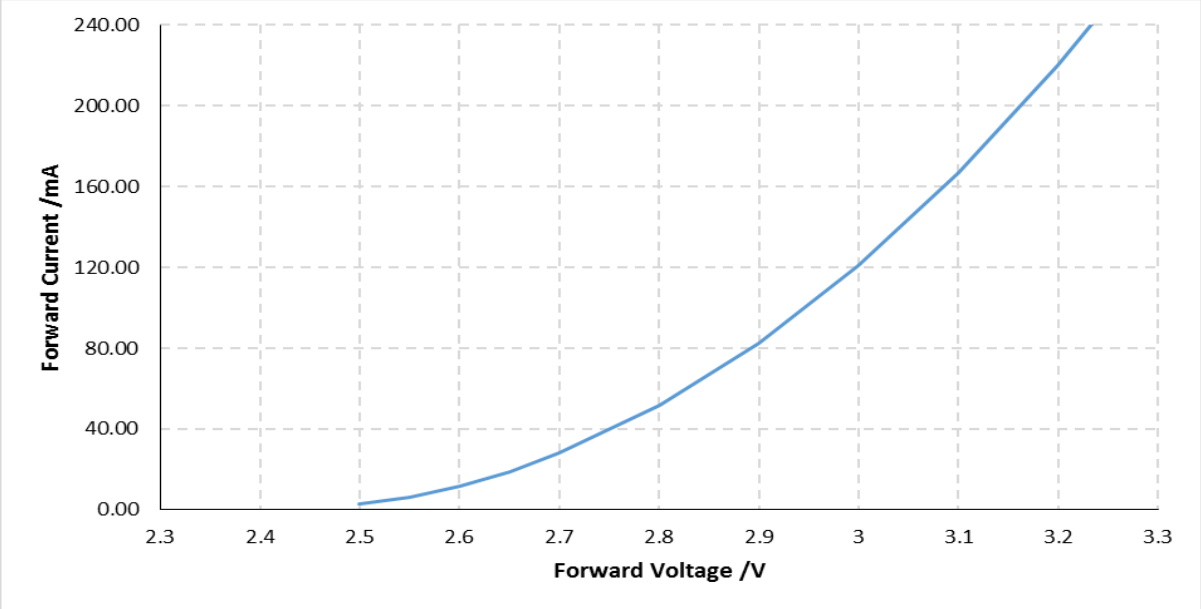


Figure 3: Typical forward current versus forward voltage (T_a=+25°C)

Forward Current Characteristics (Continued)

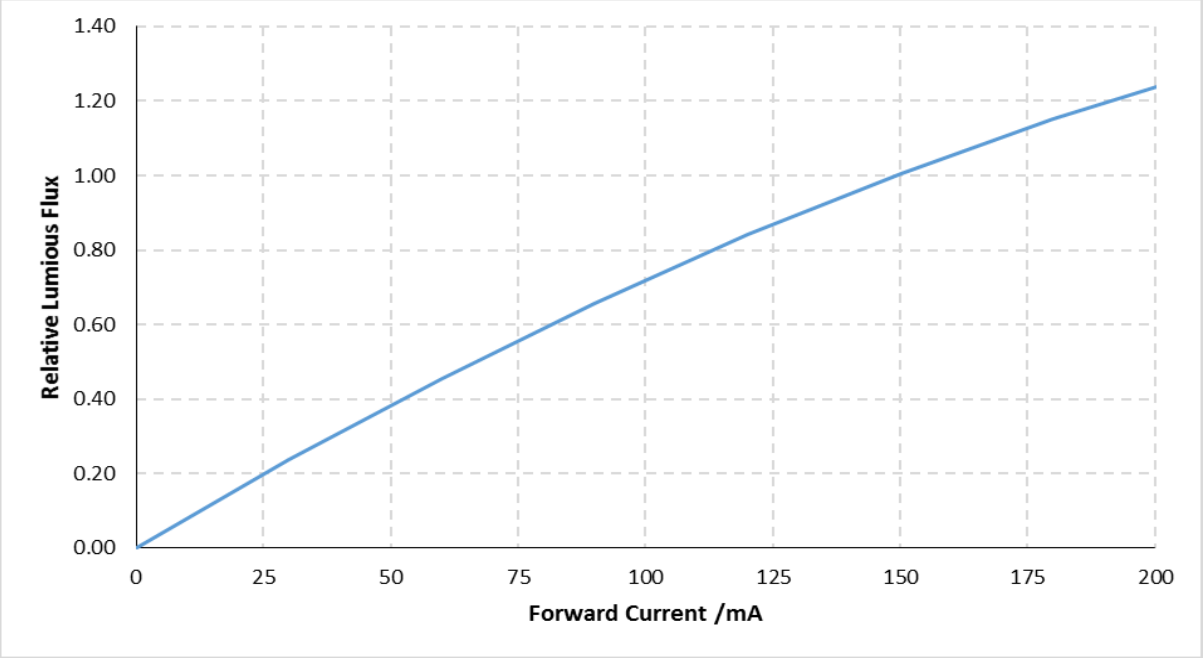


Figure 4: Relative luminous flux versus forward current (Ta=+25°C) Temperature Characteristics

Temperature Characteristics

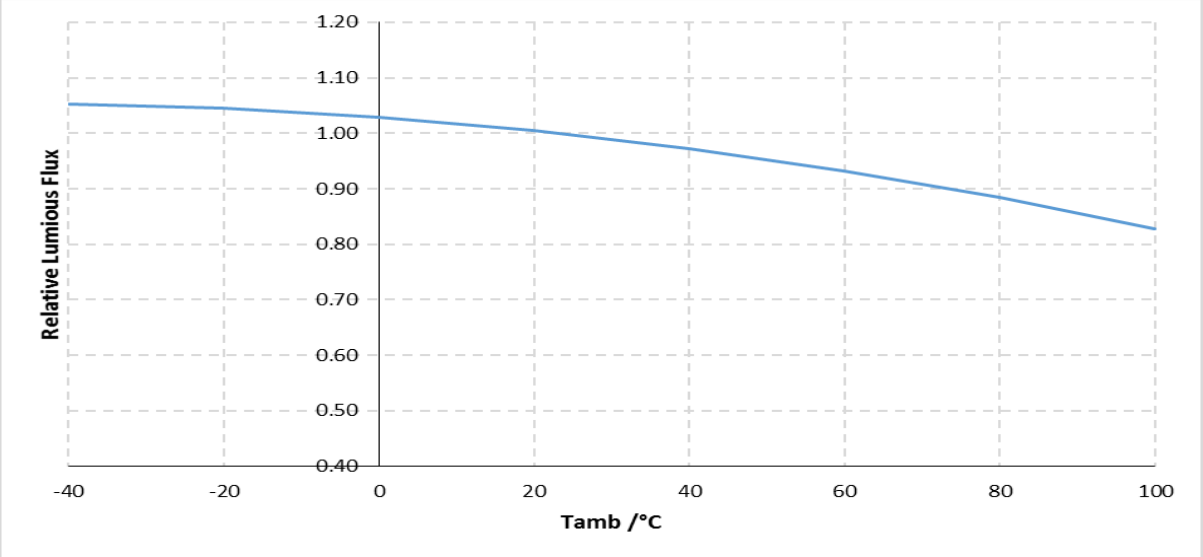
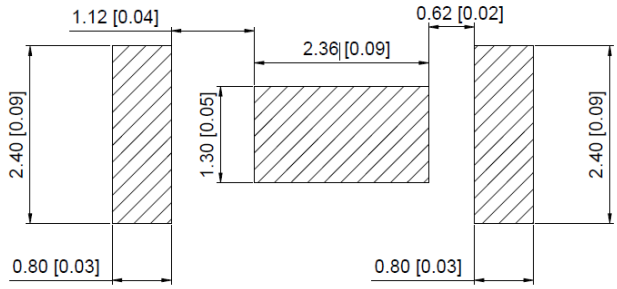


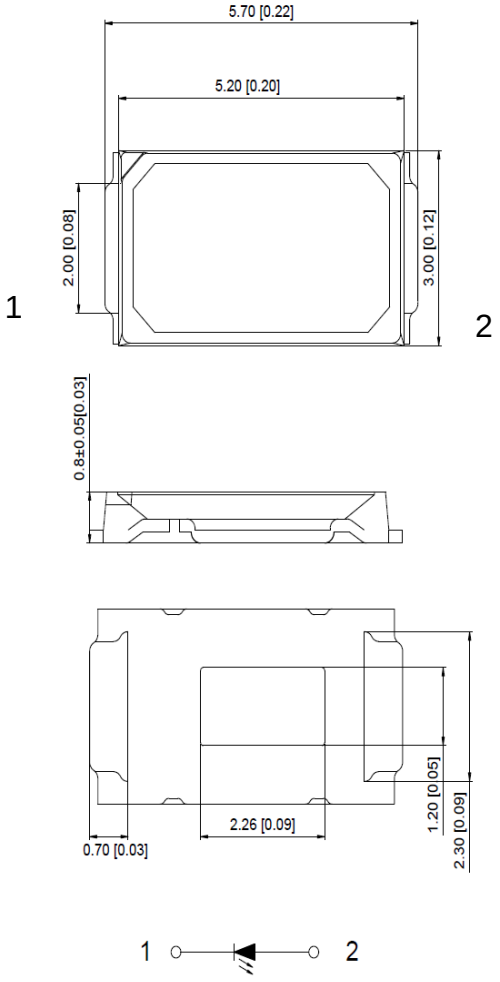
Figure 5: Relative Luminous Intensity versus ambient temperature (IF=150mA)

Package Outline Dimensions & Soldering Pattern

Solder Pad Pattern Drawing



Mechanical Package Drawing



1. All dimensions units are millimeters.

2. All dimensions tolerances are ±0.15mm unless otherwise stated.

Figure 6: Mechanical Drawing & Soldering Pattern of the 5630 package

Reflow Soldering Profile

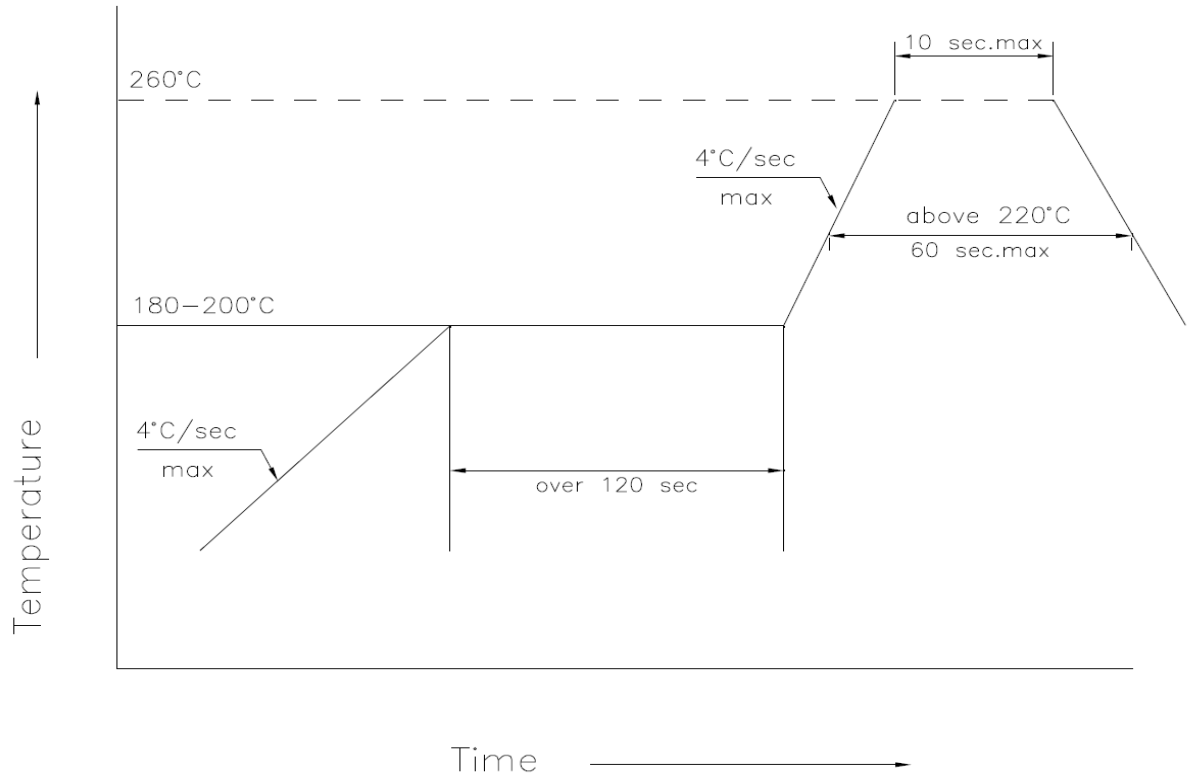


Figure 7: Reflow soldering profile

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

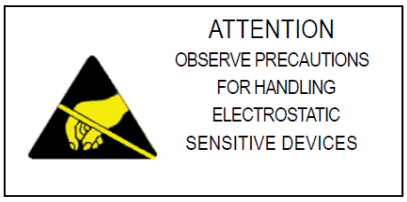
Soldering iron

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

JEDEC Level	Floor life		Soak Requirements	
	Time	Conditions	Time	Conditions
4	72 hours	≤+30°C / 60% RH	96±2 hours	+30°C / 60% RH

Packing Information

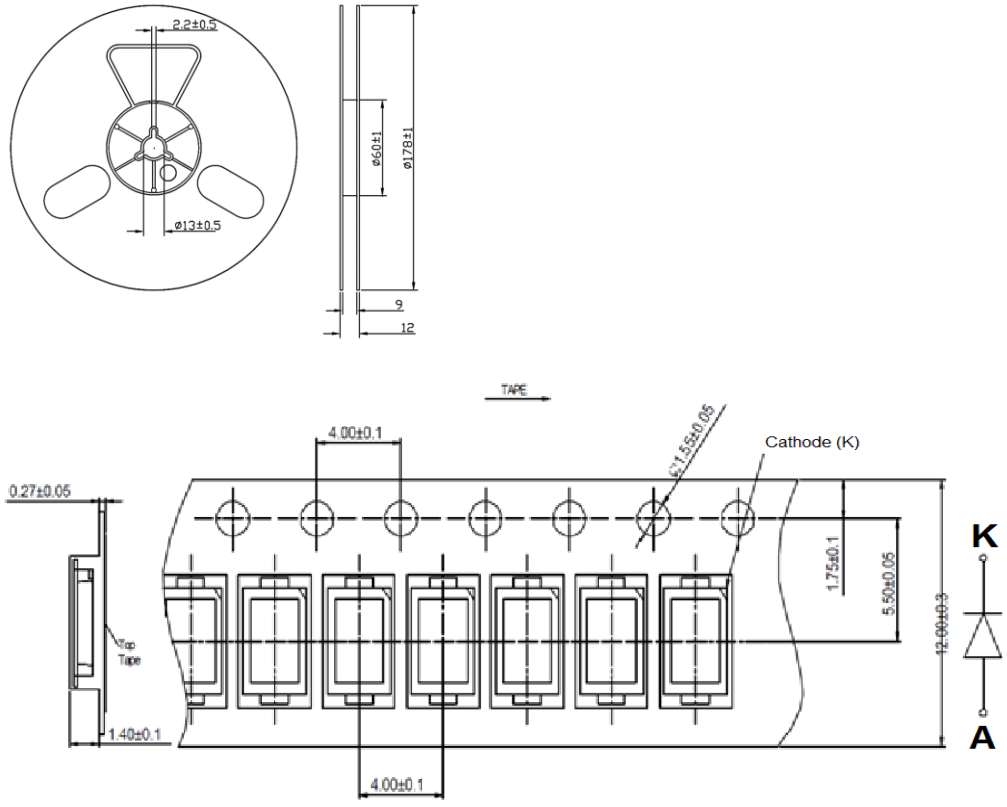


Figure 8: Reel Specification (units in mm)

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