

# 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**

$T_A = +25^\circ\text{C}$  unless otherwise stated

Parameter	Symbol	Min.	Max.	Unit
DC Forward Current	$I_F$	-	180	mA
Peak Pulse Forward Current <sup>[1]</sup>	$I_{FP}$	-	200	mA
Power Dissipation	$P_D$	-	612	mW
Storage Temperature	$T_{stg}$	-40	+100	$^\circ\text{C}$
Junction Temperature	$T_J$	-	+115	$^\circ\text{C}$

<sup>[1]</sup> Pulse width 0.1ms, duty cycle  $\leq 10\%$

## **Electro-optical Characteristics**

$T_A = +25^\circ\text{C}$  unless otherwise stated

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F = 150 \text{ mA}$	2.8	-	3.4	V
Reverse Current	$I_R$	$V_R = 5 \text{ V}$	-	-	10	$\mu\text{A}$
Colour Rendering Index <sup>[1]</sup>	$CRI$	$I_F = 150 \text{ mA}$	90	-	-	%
Thermal Resistance	$R_\theta$		-	30	-	K/W
Half-Intensity Angle	$2\theta_{1/2}$	$I_F = 150 \text{ mA}$	-	120	-	deg

<sup>[1]</sup> Tolerance  $\pm 2\%$

## **Recommended Operating Conditions**

In typical applications, for optimum LED performance

Parameter	Symbol	Min.	Max.	Unit
Operating Ambient Temperature	$V_F$	2.8	3.4	$^\circ\text{C}$

## 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

$I_F = 150\text{mA}$ ,  $T_A = +25^\circ\text{C}$ , unless otherwise stated

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

<sup>[1]</sup> Tolerance  $\pm 10\%$

## Forward Voltage Bin Groups

$I_F = 150\text{mA}$ ,  $T_A = +25^\circ\text{C}$ , unless otherwise stated

Group	Forward Voltage $V_F$ <sup>[1]</sup> (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

<sup>[1]</sup> Tolerance  $\pm 0.1\text{V}$ .

## Chromaticity Binning

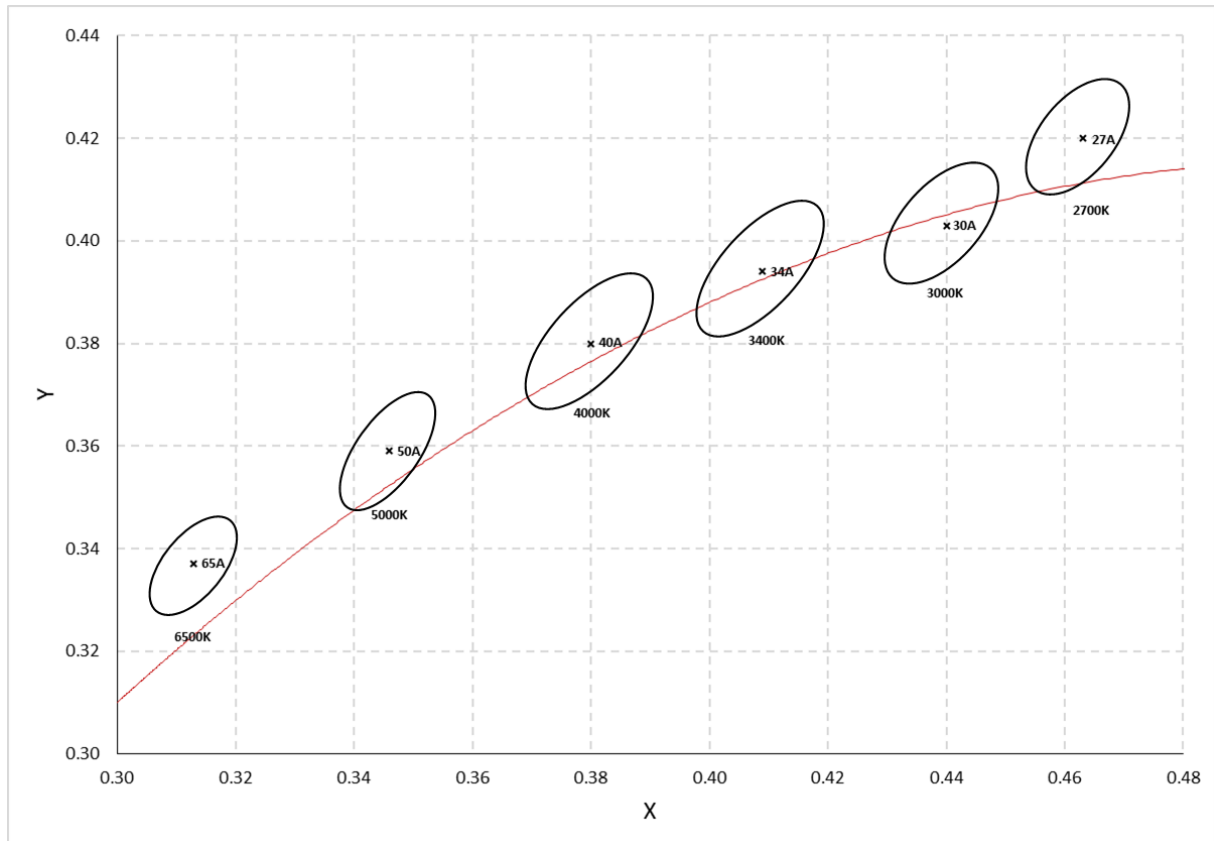


Figure 1: Colour Chromaticity Binning  
 Chromaticity tolerance:  $\pm 0.003$

CCT (K)	Bin	CIE x	CIE y	a	d	$\theta$
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

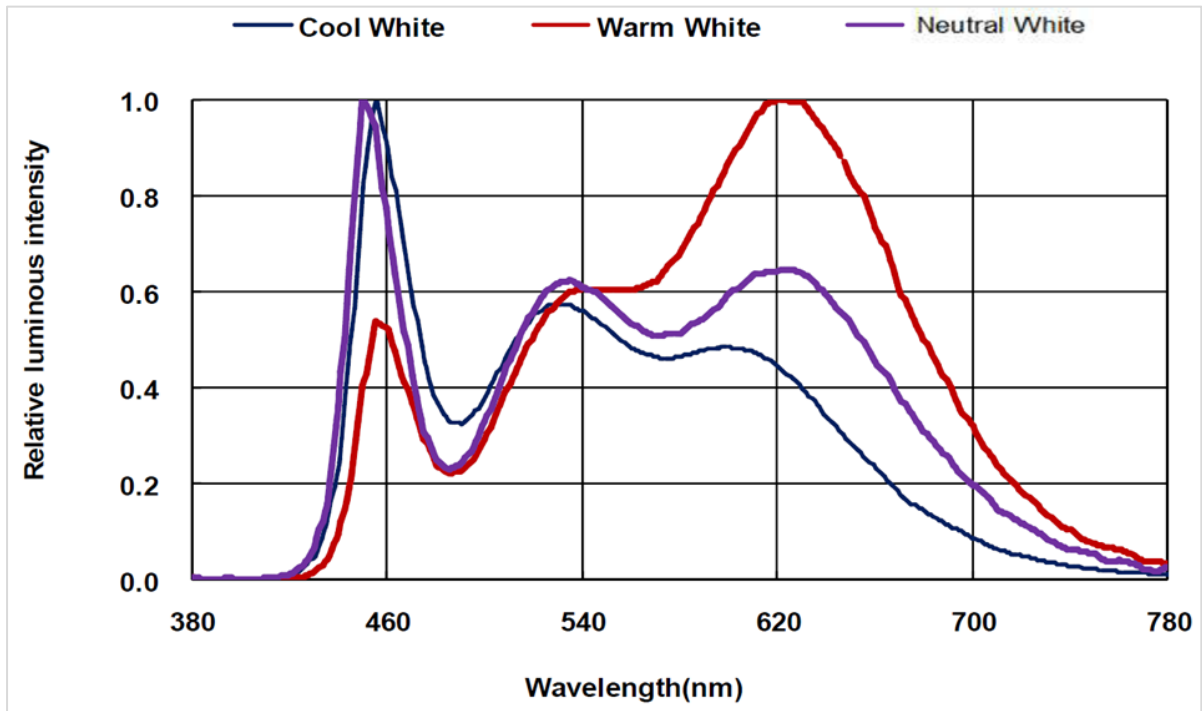


Figure 2: Normalised spectral power distribution

## Forward Current Characteristics

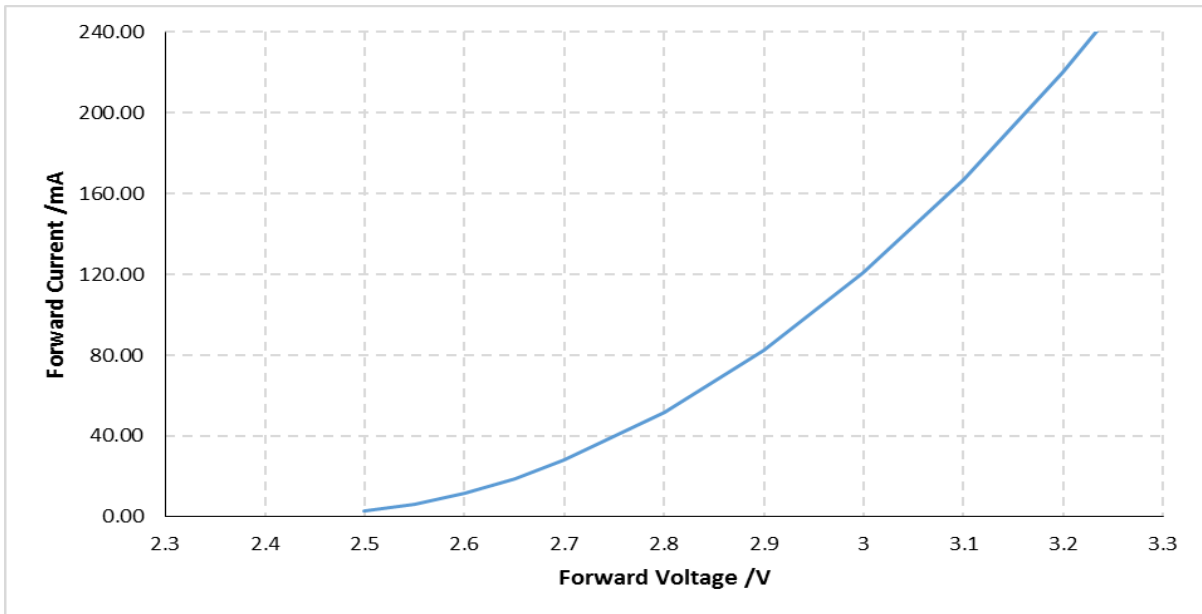


Figure 3: Typical forward current versus forward voltage ( $T_a=+25^{\circ}\text{C}$ )

### Forward Current Characteristics (Continued)

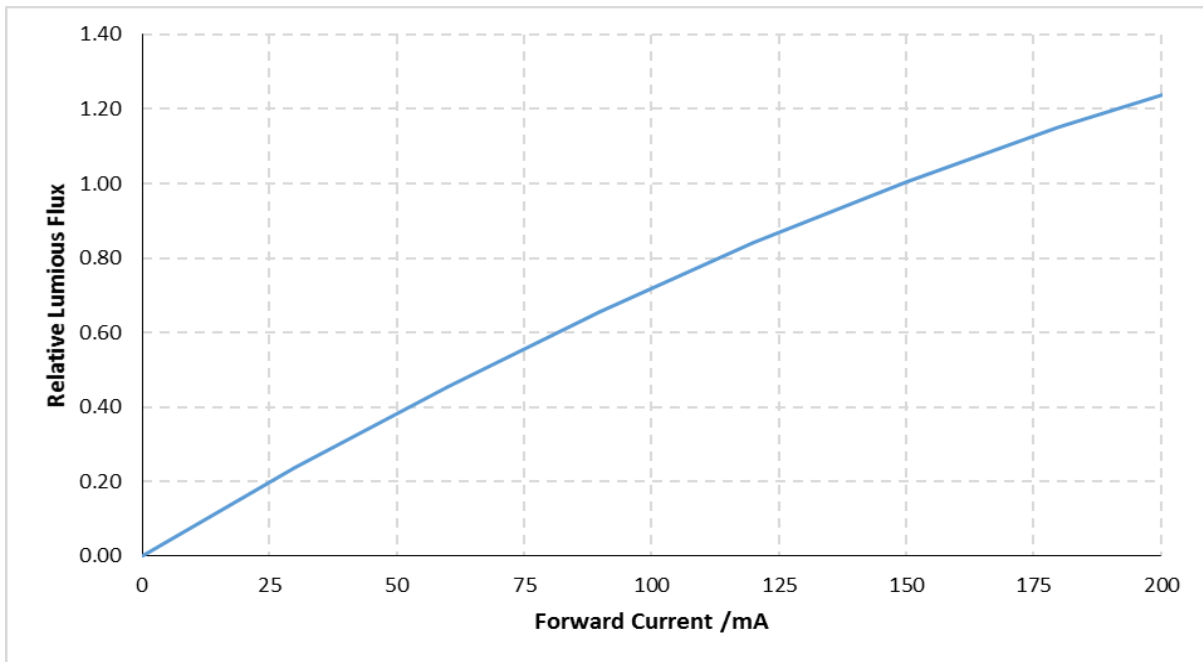


Figure 4: Relative luminous flux versus forward current ( $T_a=+25^{\circ}\text{C}$ ) Temperature Characteristics

### Temperature Characteristics

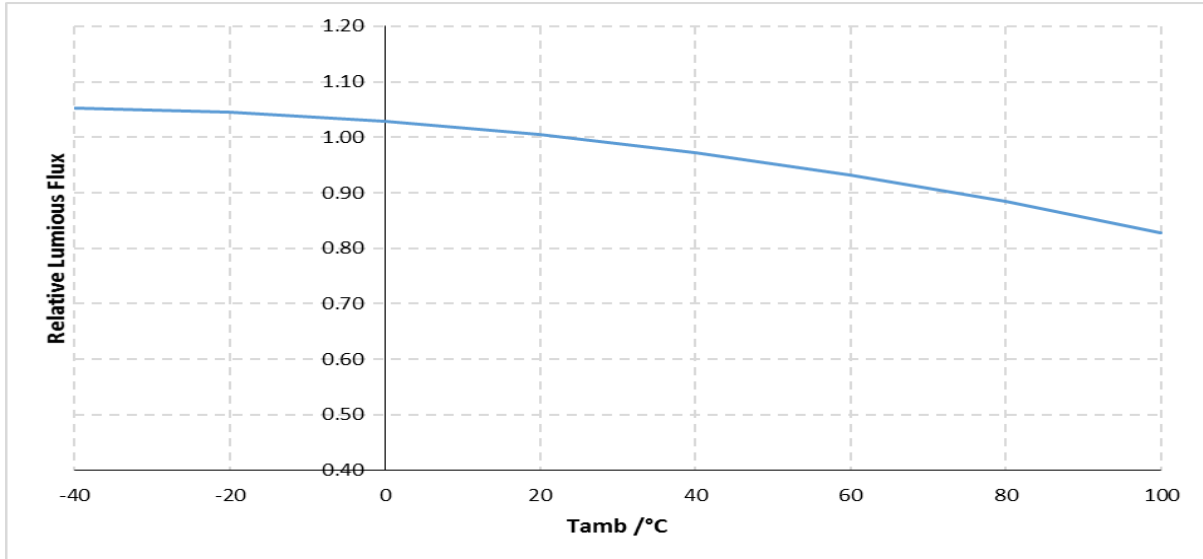
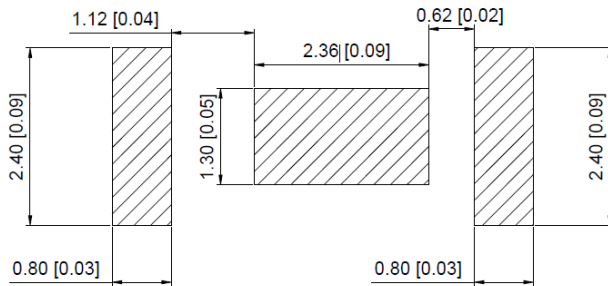


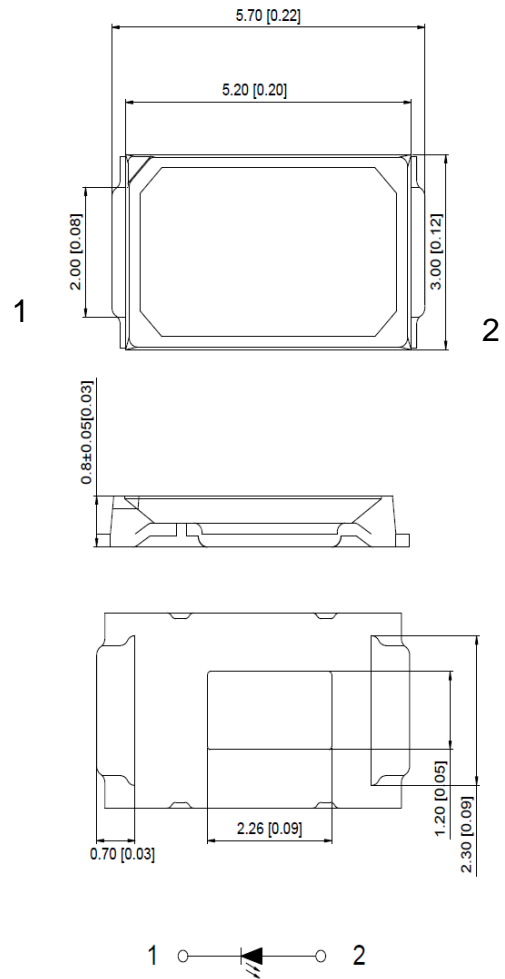
Figure 5: Relative Luminous Intensity versus ambient temperature ( $I_F=150\text{mA}$ )

## Package Outline Dimensions & Soldering Pattern

### Solder Pad Pattern Drawing



### Mechanical Package Drawing



1. All dimensions units are millimeters.
2. All dimensions tolerances are  $\pm 0.15$ mm unless otherwise stated.

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

## Reflow Soldering Profile

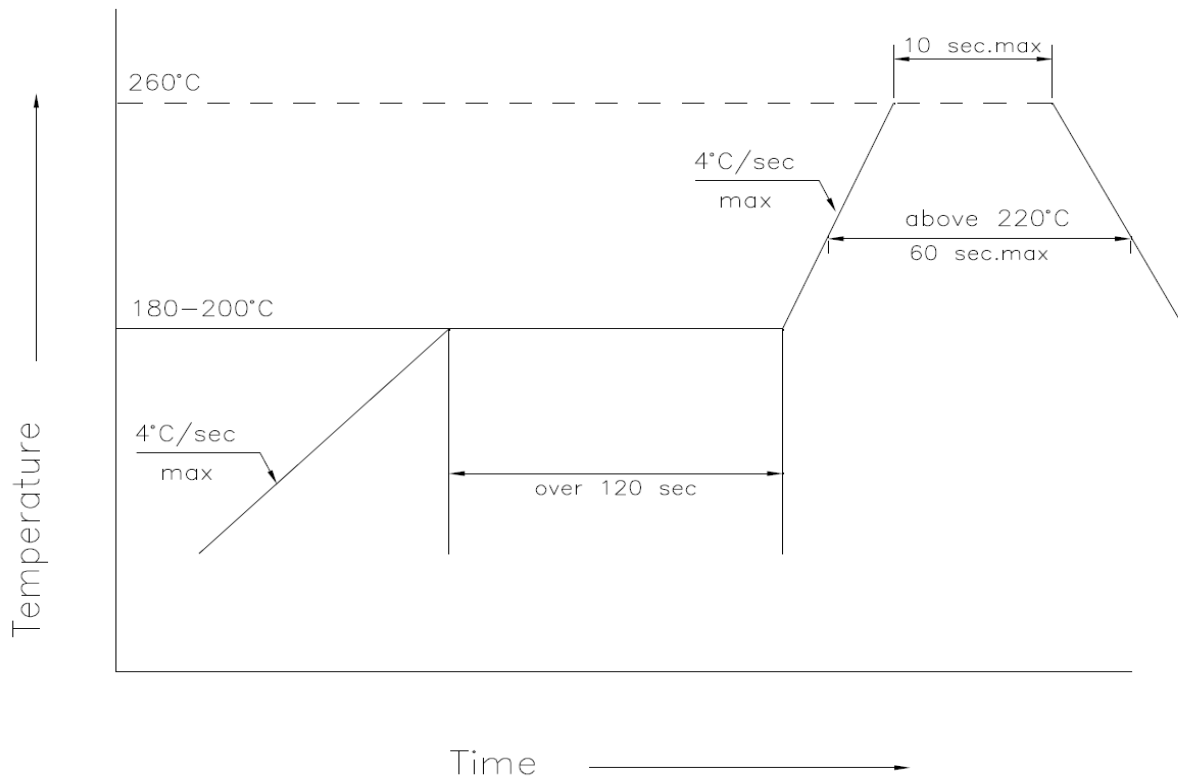


Figure 7: Reflow soldering profile

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

### **Soldering iron**

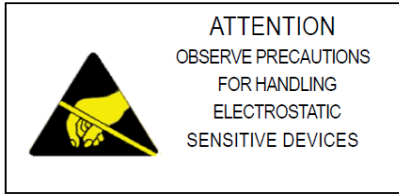
1. When hand soldering, the temperature of the iron must be  $\leq +300^{\circ}\text{C}$  for 3 seconds
2. Hand soldering should be performed only once.



## 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

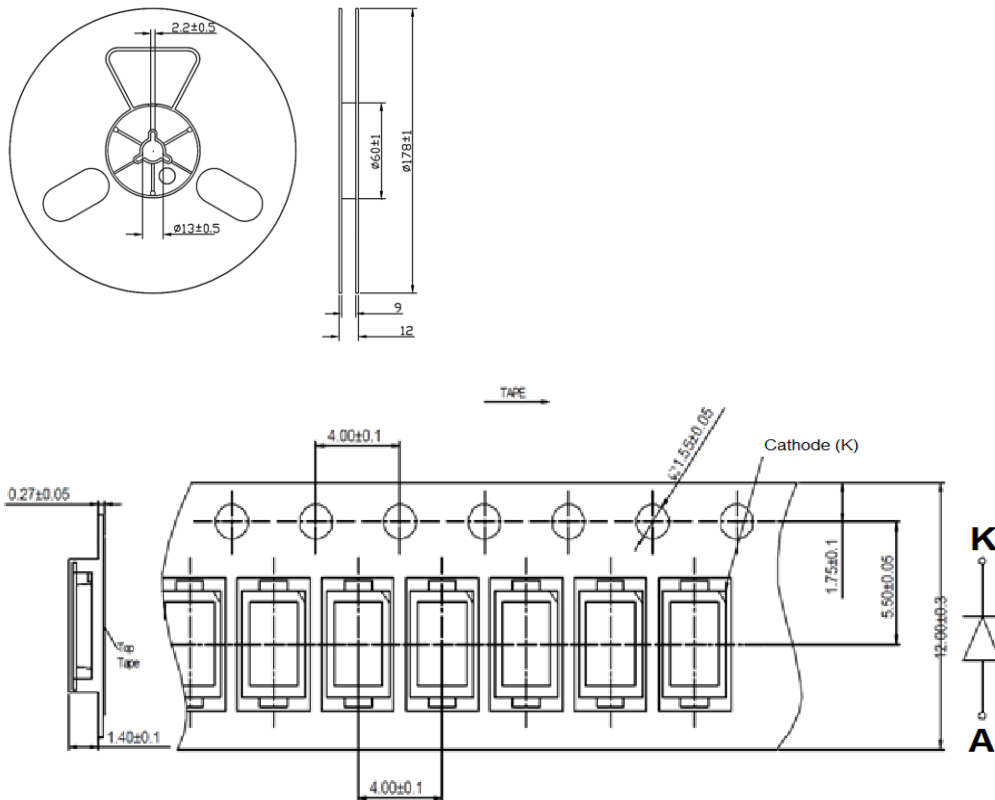


Figure 8: Reel Specification (units in mm)

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## **Contact**

Customer Enquiries/Sales

+44 1752 693000 | [sales@plesseysemi.com](mailto:sales@plesseysemi.com) | [www.plesseysemi.com](http://www.plesseysemi.com)

Plessey Semiconductors Ltd | Plymouth

Tamerton Road, Roborough

Plymouth, Devon

PL6 7BQ United Kingdom

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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9