



BRIGHTTEK
BRIGHTTEK (EUROPE) LIMITED

Brighten up The World With LED!



ISO/TS 16949:2009



BS EN ISO 14001:2004



QC 080000 IECQ HSPM

PRODUCT DATASHEET



- ▶ PLCC2
- ▶ 7020 Series
- ▶ Sky White (>10,000K)

NOW02S85



Release Date: 29 July 2014 Version: A1.1



7020 Series



FEATURES:

- **Package:** PLCC White SMT Package
- **Forward Current:** 150mA
- **Forward Voltage (typ.):** 3.2V
- **Luminous Flux (typ.):** 45lm @150mA
- **Colour:** Sky White
- **CCT:** >10,000K
- **Viewing angle:** 120°
- **Materials:**
 - Die: InGaN
 - Resin: Silicon (Yellow Diffused)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **ESD:** 2000V
- **Grouping parameters:**
 - Forward voltage
 - Luminous flux
 - CIE Chromaticity
- **Soldering methods:** Reflow soldering
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 16mm tape with 2000pcs/reel, ø180mm (7")

APPLICATIONS:

- TV Backlighting
- General Lighting
- Commercial Lighting
- Residential Lighting
- Architectural Lighting
- Flash Lighting

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	200	mA
Peak Forward Current Duty 1/10@10KHz	I_{FP}	400	mA
Reverse Current @5V	I_R	10	μ A
Power Dissipation	PD	0.76	W
Electrostatic Discharge	ESD	2000	V
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+100	°C
Junction Temperature	T_j	125	°C

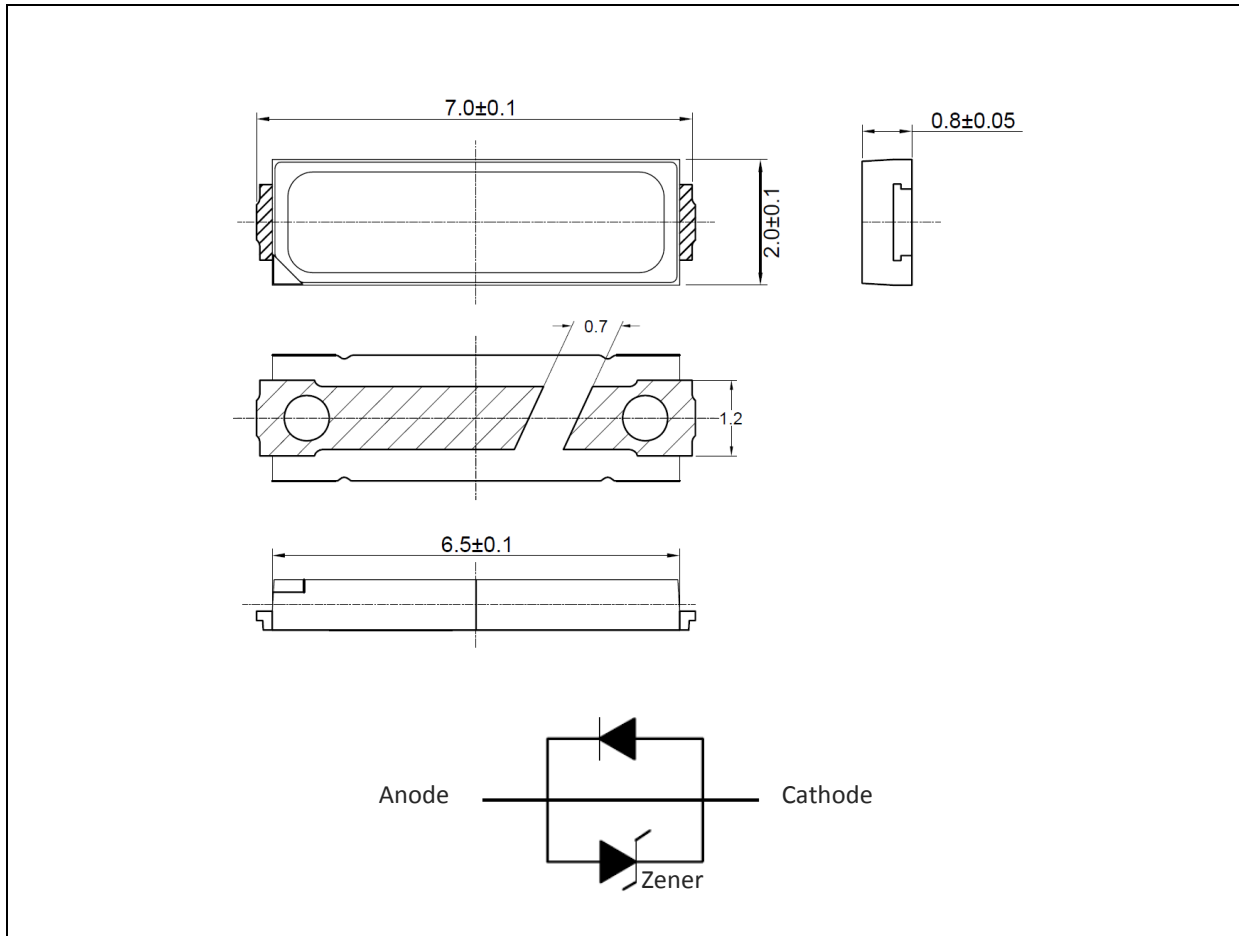
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.8	---	3.8	V	$I_F=150$ mA
Luminous Flux	Φ_V	45	48	---	lm	$I_F=150$ mA
Chromaticity Coordinates	X	0.2503	---	0.2753	---	$I_F=150$ mA
	Y	0.2106	---	0.2492		
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	$I_F=150$ mA

1. Luminous intensity (I_v) \pm 15%, Forward Voltage (V_f) \pm 0.1V, Viewing angle($2\theta_{1/2}$) \pm 5%, CRI \pm 3
2. IS standard testing

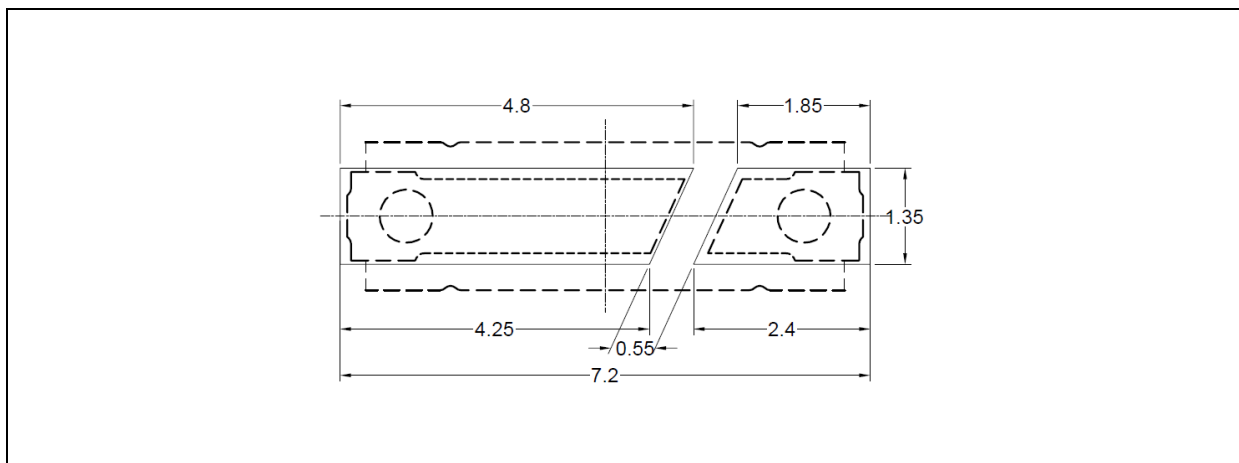
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance ± 0.1 mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance ± 0.1 mm with angle tolerance $\pm 0.5^\circ$.

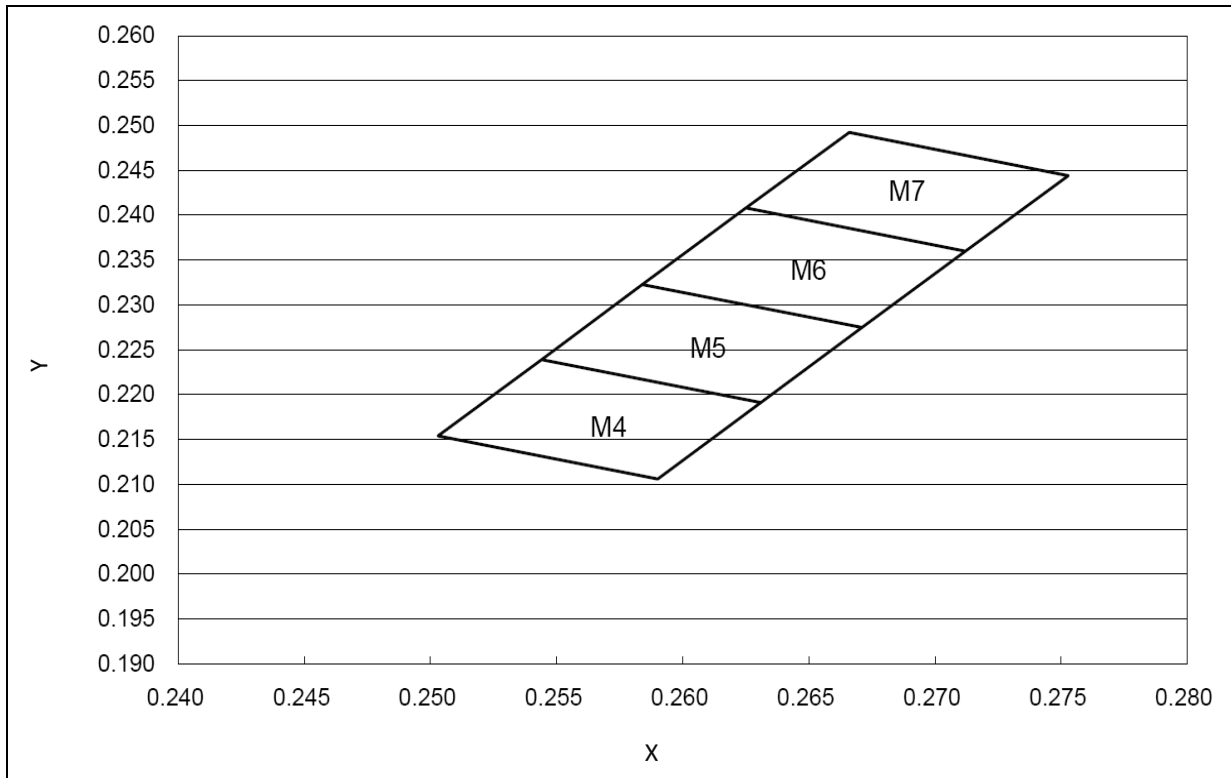
BINNING GROUPS:

 Forward Voltage Classifications ($I_F = 150\text{mA}$):

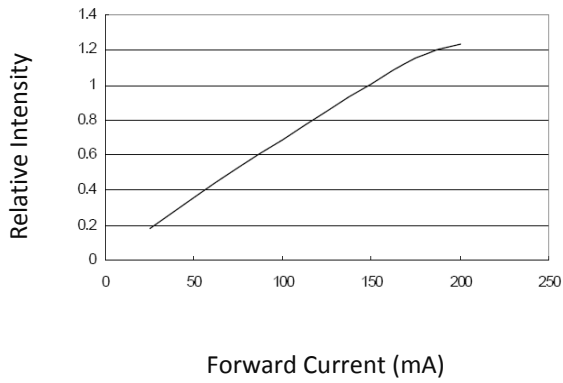
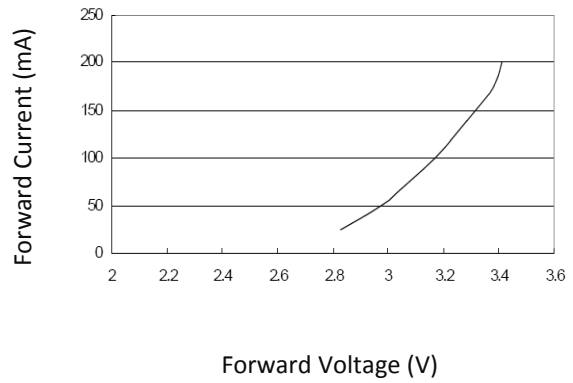
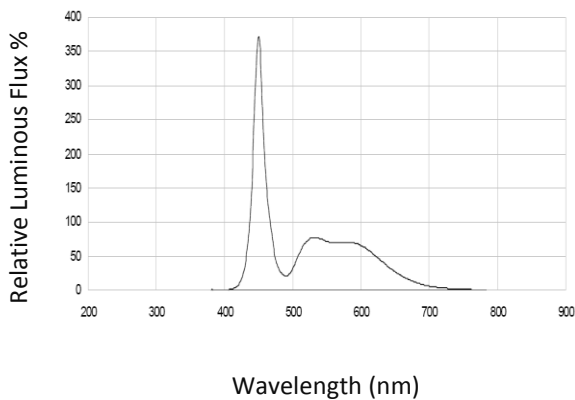
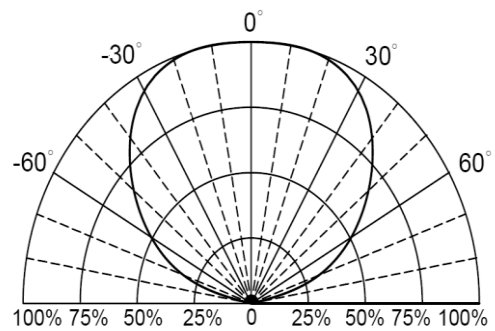
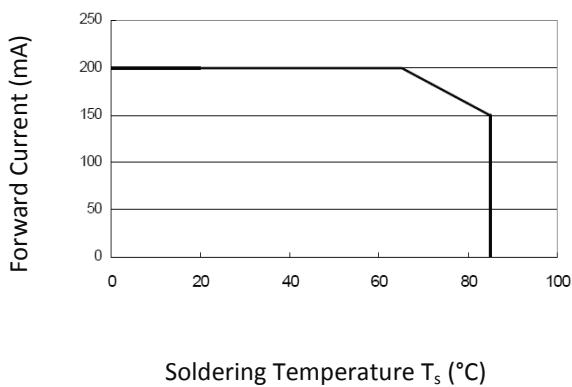
Code	Min.	Max.	Unit
1	2.8	2.9	V
2	2.9	3.0	
3	3.0	3.1	
4	3.1	3.2	
5	3.2	3.3	
6	3.3	3.4	
7	3.4	3.5	
8	3.5	3.6	
9	3.6	3.7	
10	3.7	3.8	

 Luminous Flux Classifications ($I_F = 150\text{mA}$):

Code	Min.	Max.	Unit
F45T	45	48	lm
F48T	48	51	
F51T	51	54	
F54T	54	57	
F57T	57	60	

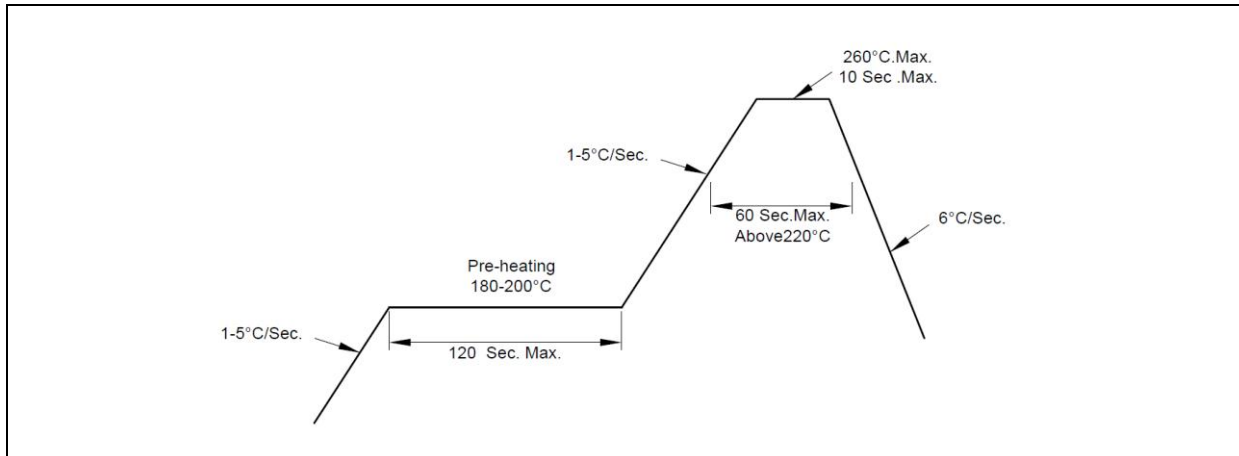
CIE CHROMATICITY DIAGRAM:

Chromaticity Coordinates Classifications ($I_F = 150\text{mA}$):

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
M4	0.2631	0.2191	0.2590	0.2106	0.2503	0.2154	0.2544	0.2239
M5	0.2584	0.2323	0.2544	0.2239	0.2631	0.2191	0.2671	0.2275
M6	0.2625	0.2408	0.2584	0.2323	0.2671	0.2275	0.2712	0.2360
M7	0.2666	0.2492	0.2625	0.2408	0.2712	0.2360	0.2753	0.2444

ELECTRO-OPTICAL CHARACTERISTICS:
Relative Intensity v.s. Forward Current

Forward Current v.s. Forward Voltage

Luminous Spectrum

Directive Radiation

Luminous Spectrum


RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:

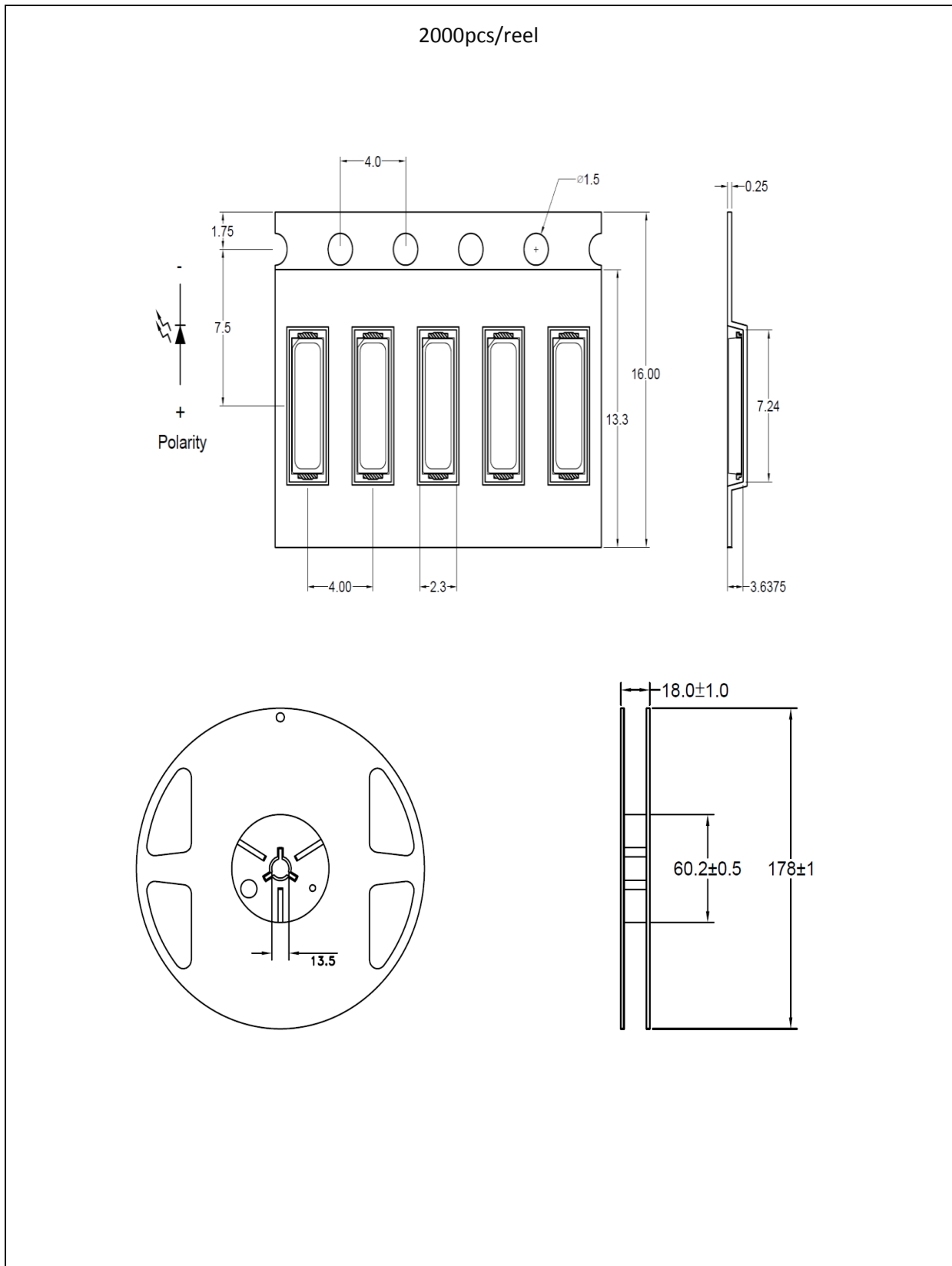


Note:

1. Maximum reflow soldering: 2 times.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.

PACKING SPECIFICATION:

Reel Dimension:



PRECAUTIONS OF USE:

Storage:

It is recommended to store the products in the following conditions:

- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 month at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with desiccating agent and apply baking at 60°C±5°C for 15hrs before use.

Baking:

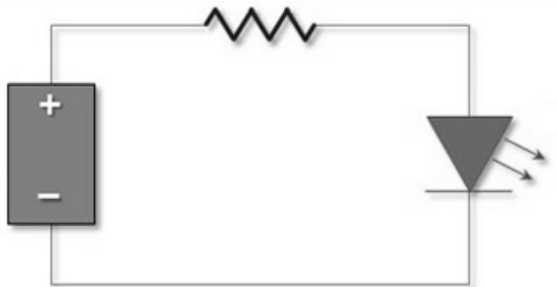
It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs.

The suggested baking conditions are as followings:

- 70±3°C x 24hrs and <5%RH, taped / reel package.
- 100±3°C x 2hrs, bulk (loose) package.
- 130±3°C x 30min, bulk (loose) package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

Testing Circuit:



Must apply resistor(s) for protection (over current proof).

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrostatic glove is recommended when handling the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	23/12/2013	Datasheet set-up.
A1.1	29/07/2014	Revise colour description from "Pale White" to "Sky White".