



**BRIGHTTEK**  
BRIGHTTEK (EUROPE) LIMITED

*Brighten up The World With LED!*



ISO/TS 16949:2009

BS-EN ISO 14001:2004

QC 900000 IECQ HSP98

## PRODUCT DATASHEET



- ▶ Ceramic High Power
- ▶ 3535 Series
- ▶ Yellow (590nm)

**PRELIMINARY**

NOY10S12P

NOY10S12PSTAR



Release Date: 05 March 2015 Version: A1.2



### 3535 Series



#### FEATURES:

- **Package:** Ceramic SMT Package with Silicon Lens
- **Forward Current:** 350~700mA
- **Forward Voltage (typ.):** 2.4V
- **Luminous Flux (typ.):** 60lm@350mA; 102lm@700mA
- **Colour:** Yellow
- **Wavelength:** 590nm
- **Viewing angle:** 120°
- **Materials:**
  - Die: AlGaInP
  - Resin: Silicon (Water Clear)
  - L/T Finish: NiPdAu
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+100°C
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Flux
  - Dominant Wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** MSL2 according to J-STD020
- **Packing:** 12mm tape with 100pcs Min./reel,  $\varnothing$ 180mm (7'')  
35pcs/tray; 210pcs/carton (with Starboard)

#### APPLICATIONS:

- Automotive



## CHARACTERISTICS:

### Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	$I_F$	700	mA
Pulse Forward Current	$I_{PF}$	1000	mA
Reverse Current @5V	$I_R$	10	$\mu$ A
Junction Temperature	$T_j$	150	°C
Electrostatic Discharge (HBM: MIL-STD-883 C 3B)	ESD	8000	V
Operating Temperature	$T_{OPR}$	-40~+105	°C
Storage Temperature	$T_{STG}$	-40~+100	°C
Soldering Temperature	$T_{SOL}$	260	°C
Thermal Resistance - Junction to Solder Point	$R_{th}$	6	°C/W

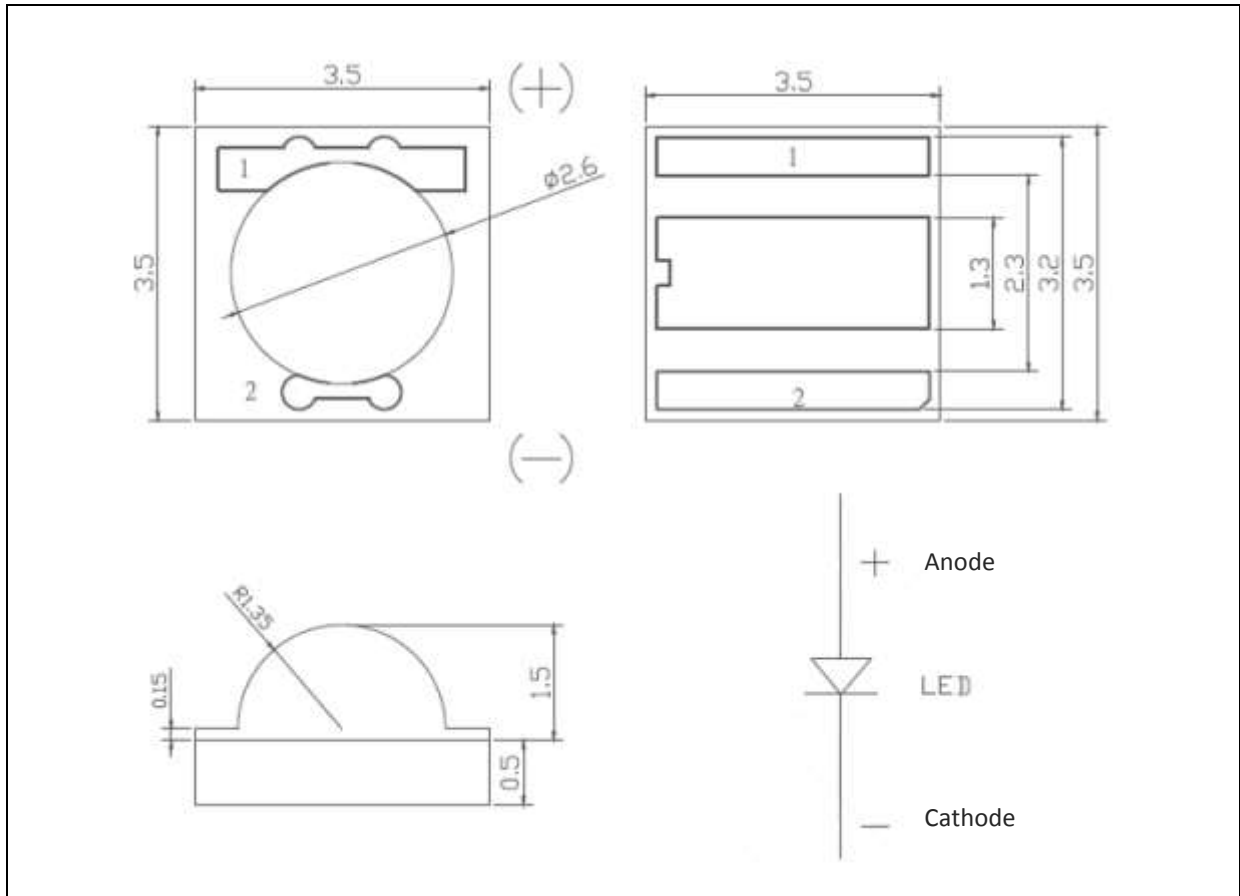
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	$V_F$	1.8	2.4	2.8	V	$I_F=350$ mA
Luminous Flux	$\Phi_V$	50	60	70	lm	$I_F=350$ mA
		85	102	118		$I_F=700$ mA
Dominant Wavelength	$\lambda_D$	585	---	595	nm	$I_F=350$ mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	$I_F=350$ mA

1. Luminous flux ( $\Phi_V$ )  $\pm 5\%$ , Forward Voltage ( $V_F$ )  $\pm 0.05$ V, Viewing angle( $2\theta_{1/2}$ )  $\pm 10^\circ$
2. IS standard testing

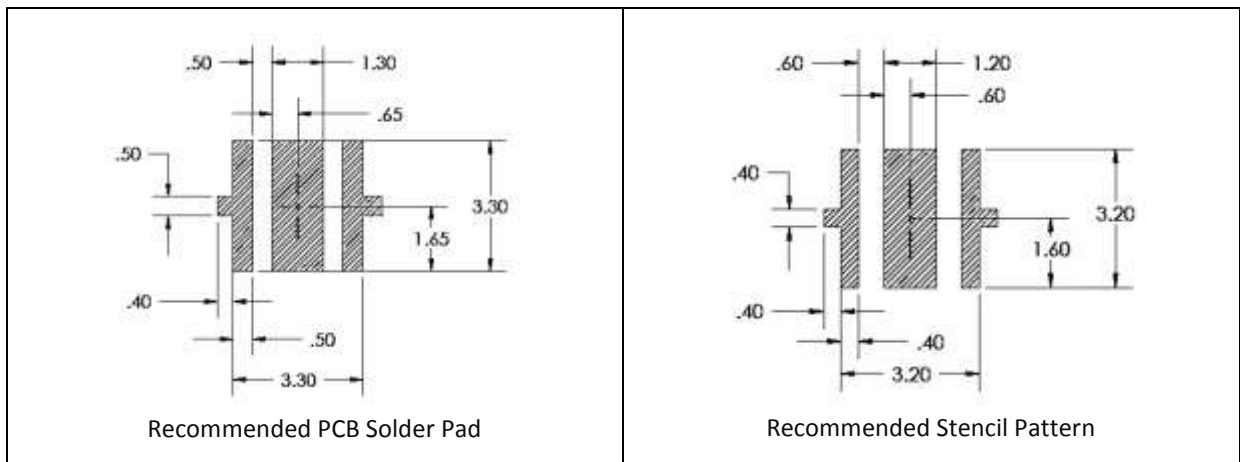
## OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.13$ mm, unless otherwise noted.

Recommended Soldering Pad Dimension:

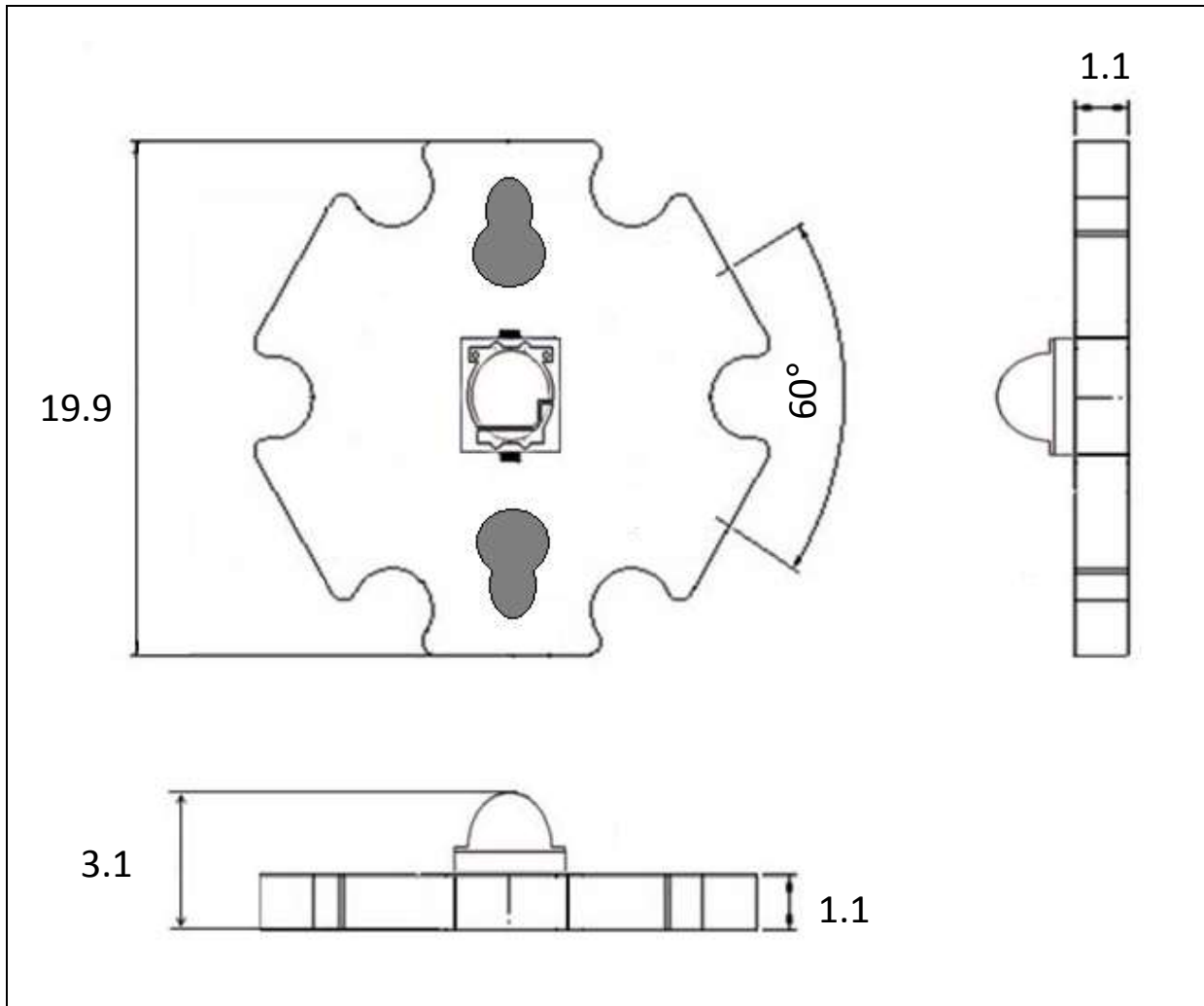


1. Dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.12$ mm with angle tolerance  $\pm 0.5^\circ$ .

**MCPCB:**

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Starboard Dimensions:



1. Dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.25\text{mm}$  with angle tolerance  $\pm 0.5^\circ$ .

**BINNING GROUPS:**


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 Forward Voltage Classifications ( $I_F = 350\text{mA}$ ):

Code	Min.	Max.	Unit
V1820	1.8	2.0	V
V2022	2.0	2.2	
V2224	2.2	2.4	
V2426	2.4	2.6	
V2628	2.6	2.8	

 Luminous Flux Classifications ( $I_F = 350\text{mA}$ ):

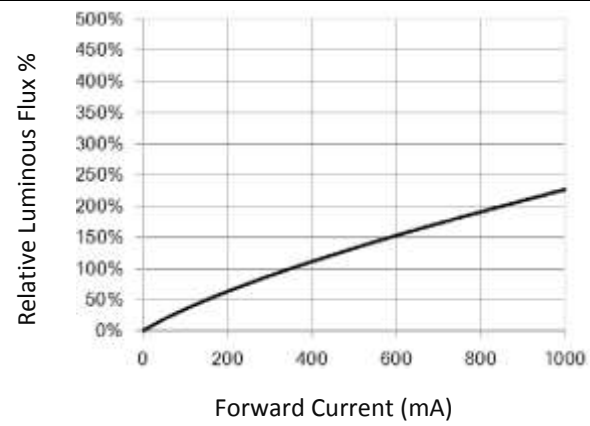
Code	Min.	Max.	Unit
B24	45	50	lm
B25	50	55	
B26	55	60	
B27	60	65	

 Dominant Wavelength Classifications ( $I_F = 350\text{mA}$ ):

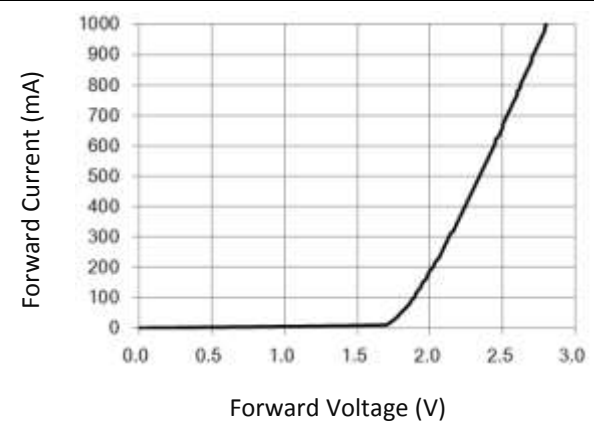
Code	Min.	Max.	Unit
Y585	585	590	nm
Y590	590	595	

## ELECTRO-OPTICAL CHARACTERISTICS:

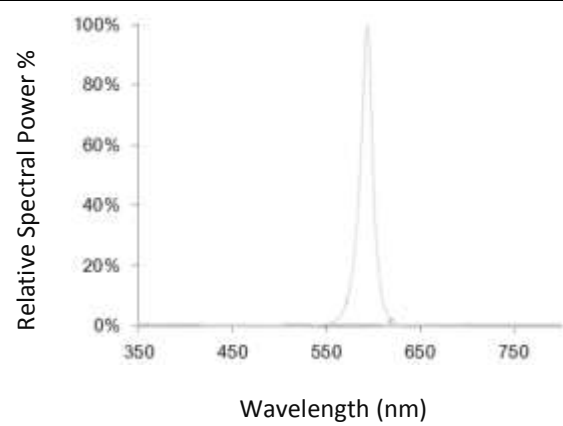
Relative Luminous Flux v.s. Forward Current



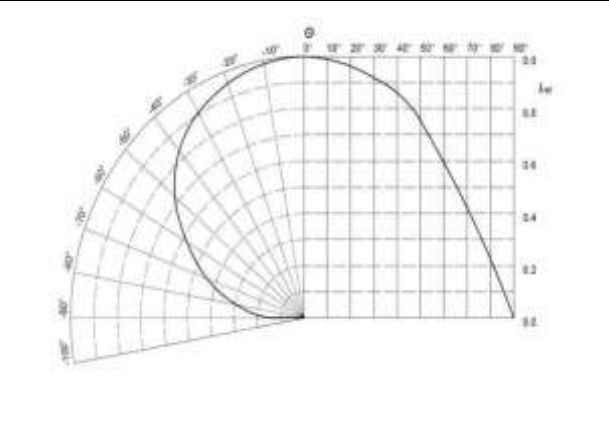
Forward Current v.s. Forward Voltage



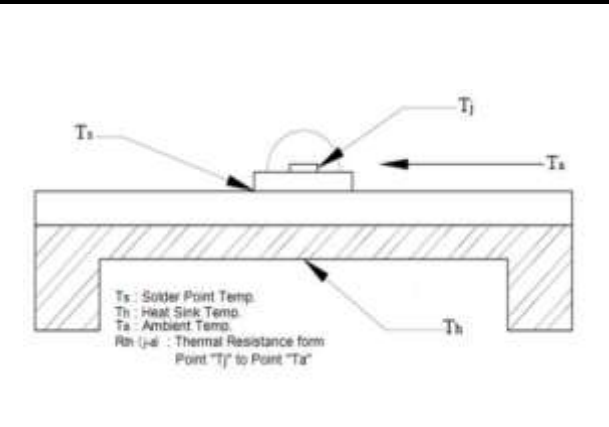
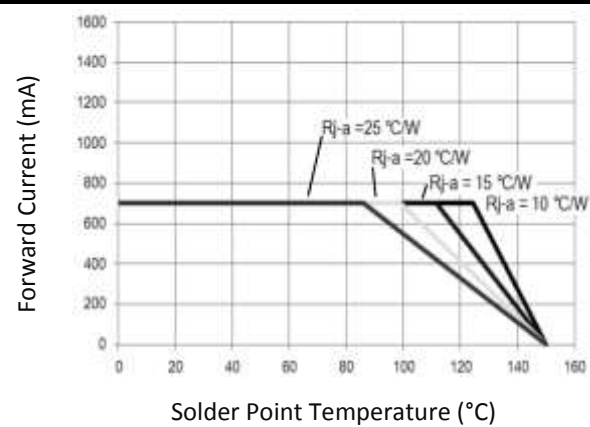
Relative Spectral Power v.s. Wavelength



Directive Radiation

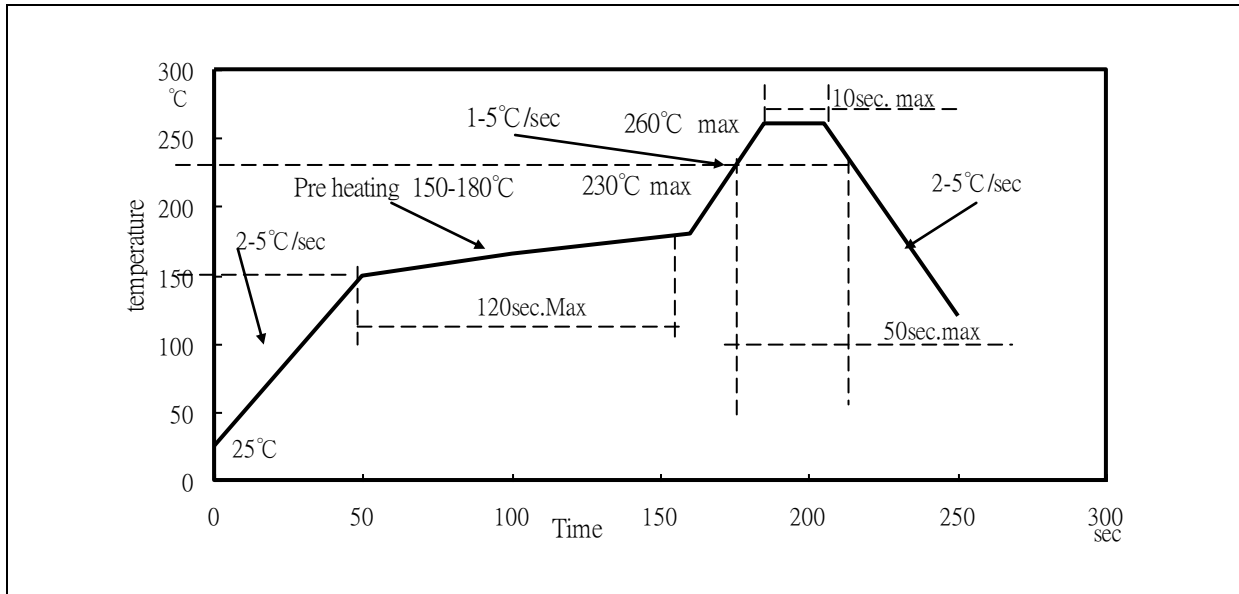


Forward Current Derating Curve



## RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



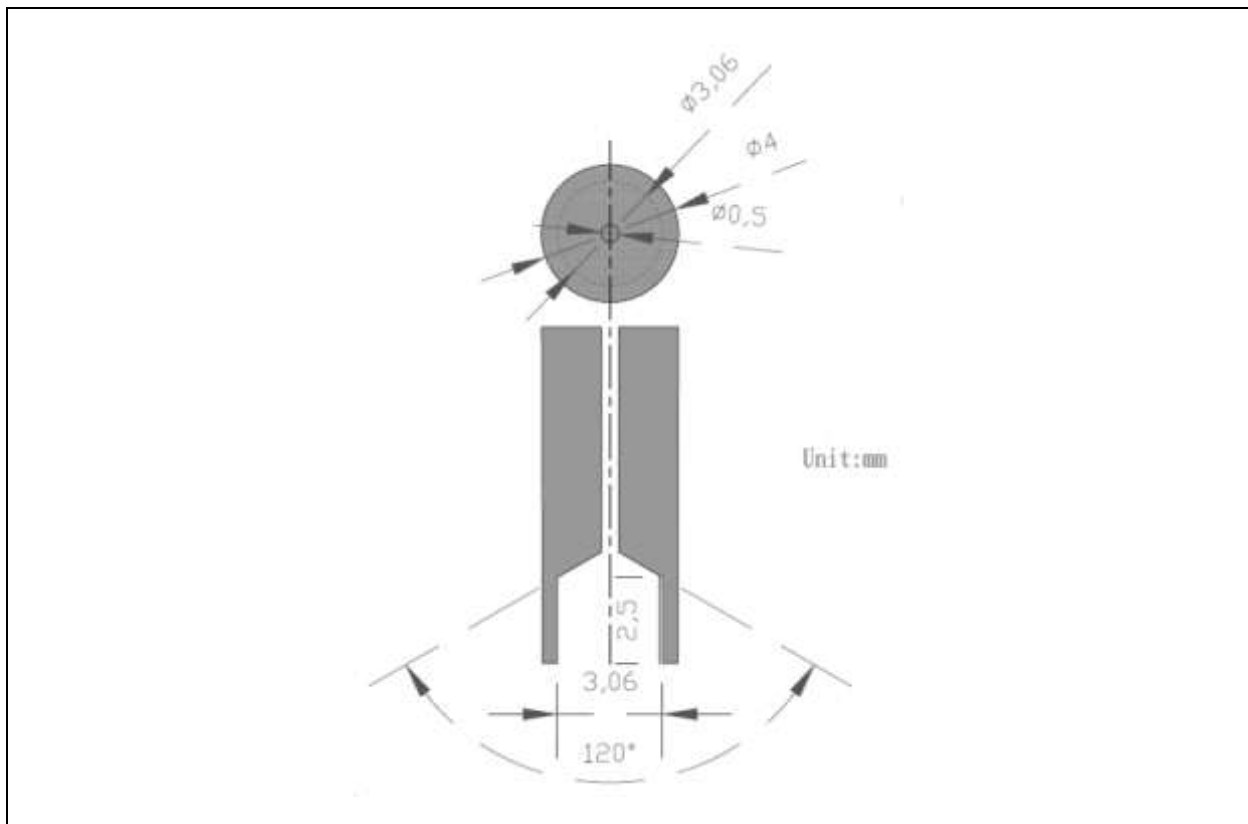
Note:

1. Maximum reflow soldering: 3 times.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.

## RECOMMENDED NOZZLE FOR SMT:

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Recommended Pick & Place Nozzle:

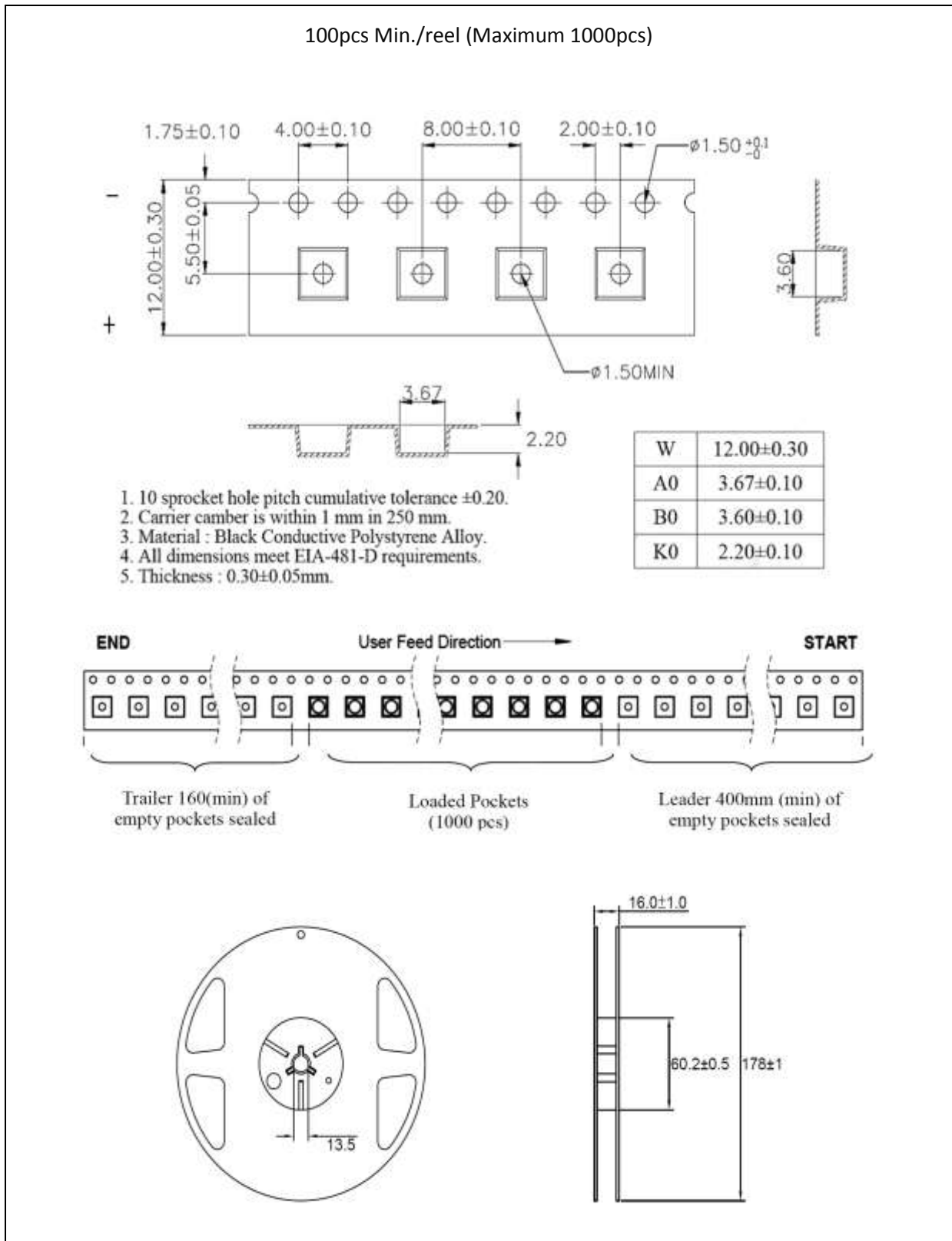


1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.1\text{mm}$ , unless otherwise noted.



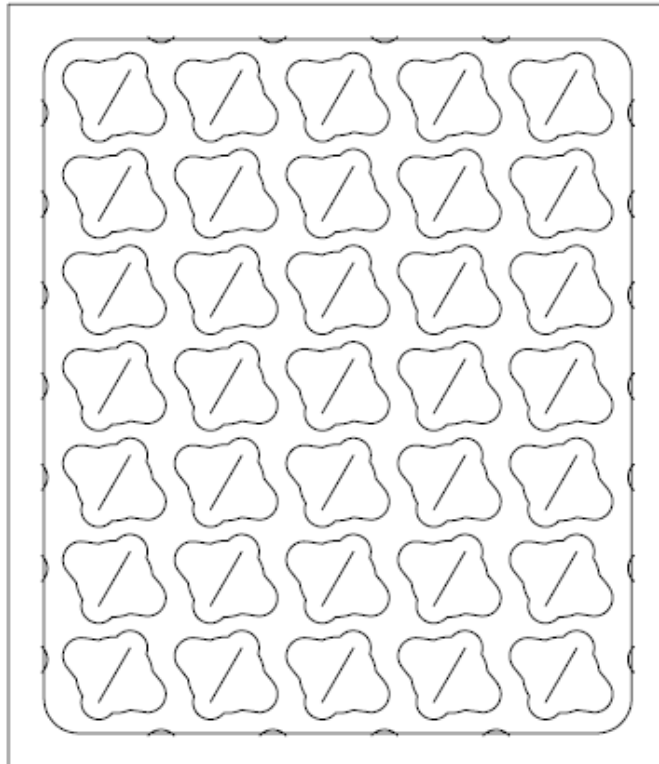
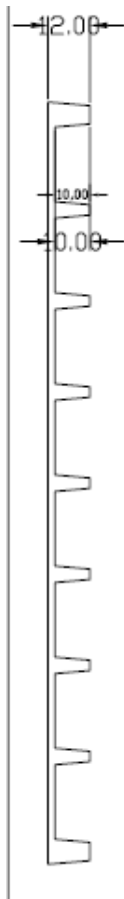
## PACKING SPECIFICATION:

Reel Dimension:



Tray Dimension for Starboard:

35pcs/tray; 210pcs/carton



## PRECAUTIONS OF USE:

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### 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:

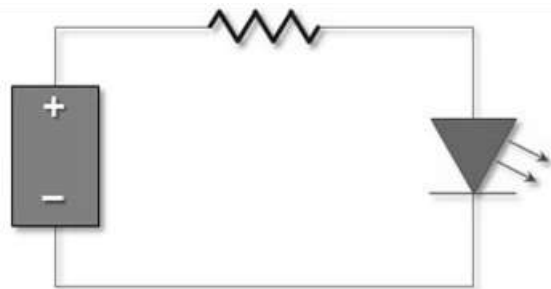
It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs.

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:**

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Version	Date	Summary of Revision
A1.0	26/07/2014	Datasheet set-up.
A1.1	28/08/2014	Add starboard information.
A1.2	05/03/2015	Revised reel quantity.