



**BRIGHTTEK**  
BRIGHTTEK (EUROPE) LIMITED

*Brighten up The World With LED!*



ISO/TS 16949:2009



BSI  
BS EN ISO 14001:2004



QC 800000 IECQ HSP08

## PRODUCT DATASHEET



- ▶ Ceramic High Power
- ▶ 3535FP 2.22t Series
- ▶ Warm White (1700K)

NOW04S50



Release Date: 25 August 2018 | Version: A1.1



### 3535 2.22t Series



#### FEATURES:

- **Package:** Ceramic SMT Package with Silicon Lens
- **Forward Current:** 350~700mA
- **Forward Voltage (typ.):** 3.1V
- **Luminous Flux (typ.):** 90lm@350mA
- **Colour:** Warm White
- **Colour Temperature (CCT):** 1700K
- **Viewing angle:** 120°
- **Materials:**
  - Die: Flip-Chip Phosphor-Converted InGaN
  - Resin: Silicon (Yellow Diffused)
  - L/T Finish: Ag plated
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+105°C
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Flux
  - CIE Chromaticity
- **Soldering methods:** IR Reflow Soldering
- **Preconditioning:** MSL2 according to J-STD020
- **Packing:** 12mm tape with Max.1000pcs/reel, ø180mm (7")

#### APPLICATIONS:

- Portable Lighting
- Outdoor Lighting
- Commercial Lighting
- Indoor Lighting
- Industrial Lighting
- Street and Tunnel Lighting

## CHARACTERISTICS:

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

Parameter	Symbol	Ratings	Unit
DC Forward Current	I <sub>F</sub>	700	mA
Pulse Forward Current, D=0.01s Duty 1/10	I <sub>PF</sub>	1000	mA
Reverse Current @5V	I <sub>R</sub>	10	μA
Reverse Voltage	V <sub>R</sub>	5	V
Junction Temperature	T <sub>j</sub>	150	°C
Electrostatic Discharge (HBM)	ESD	2000	V
Operating Temperature	T <sub>OPR</sub>	-40~+105	°C
Storage Temperature	T <sub>STG</sub>	-40~+105	°C
Soldering Temperature	T <sub>SOL</sub>	250	°C
Thermal Resistance - Junction to Solder Point	R <sub>th</sub>	10	°C/W

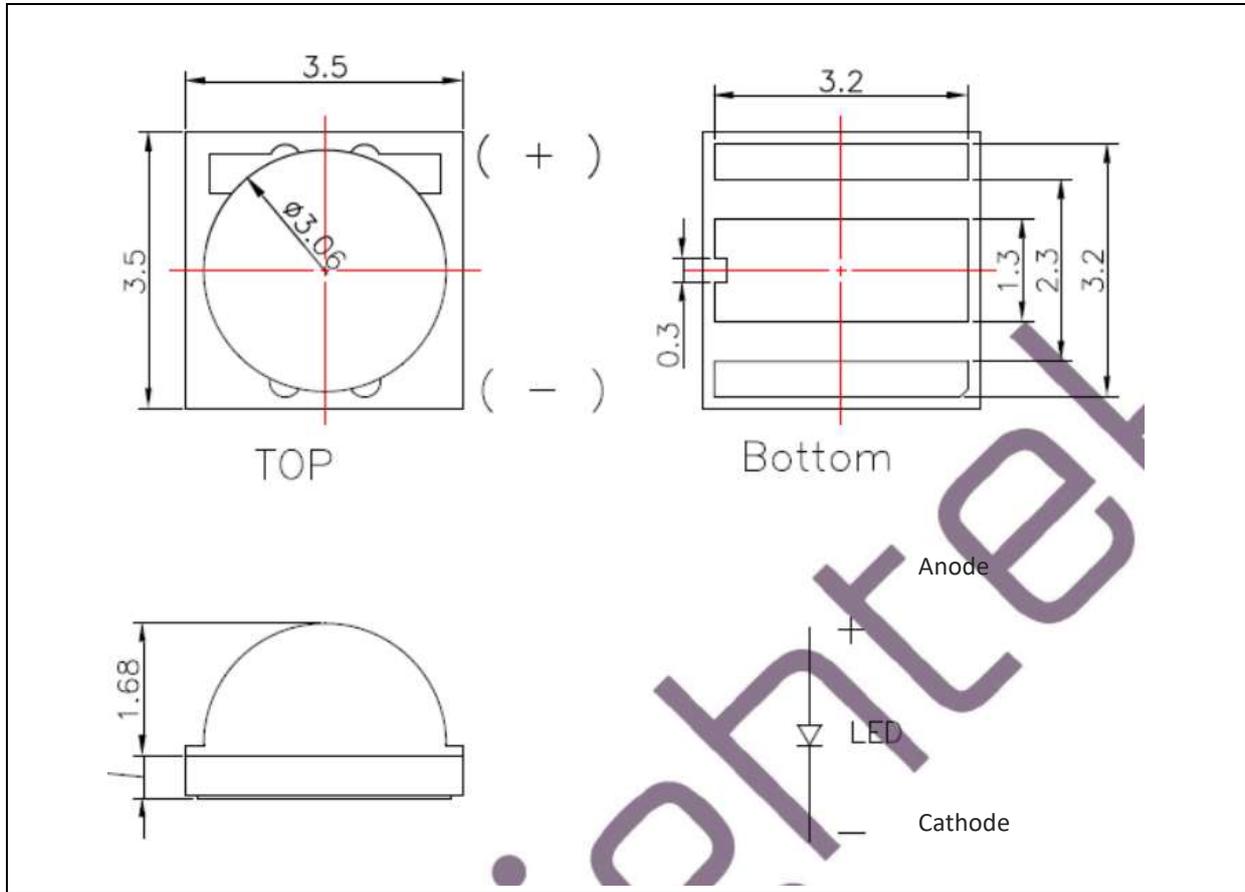
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>F</sub>	2.8	3.1	3.4	V	I <sub>F</sub> =350mA
Luminous Flux	Φ <sub>v</sub>	75	---	110	lm	I <sub>F</sub> =350mA
Chromaticity Coordinates	X	0.5375	---	0.6100	---	I <sub>F</sub> =350mA
	Y	0.3896	---	0.4400		
Colour Temperature	CCT	---	1700	---	K	I <sub>F</sub> =350mA
Viewing Angle	2θ <sub>1/2</sub>	---	120	---	deg	I <sub>F</sub> =350mA

1. Luminous flux (Φ<sub>v</sub>) ±7%, Forward Voltage (V<sub>F</sub>) ±0.05V, Viewing angle(2θ<sub>1/2</sub>) ±10°
2. IS standard testing

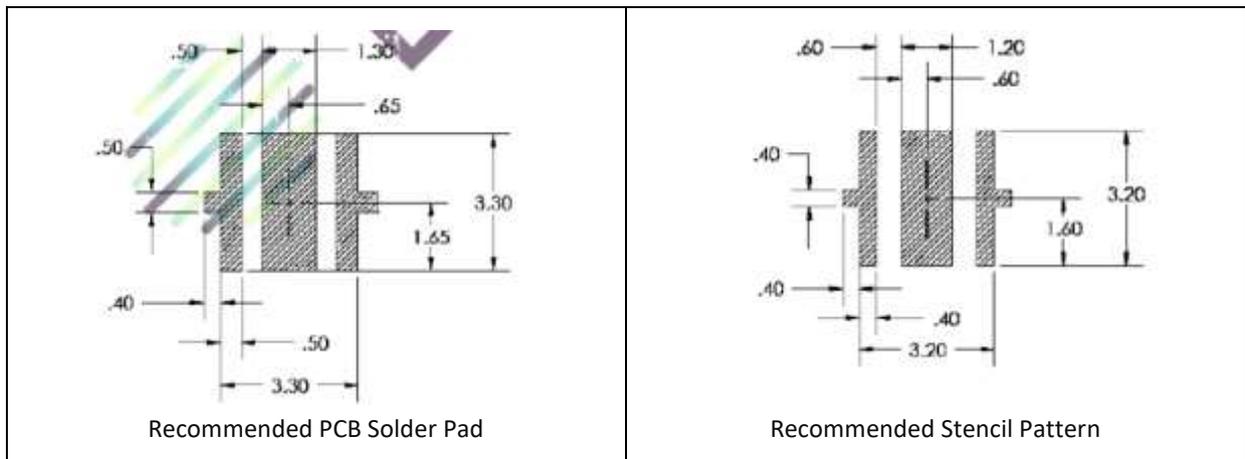
## OUTLINE DIMENSION:

Package Dimension:



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

Recommended Soldering Pad Dimension:



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

**BINNING GROUPS:**


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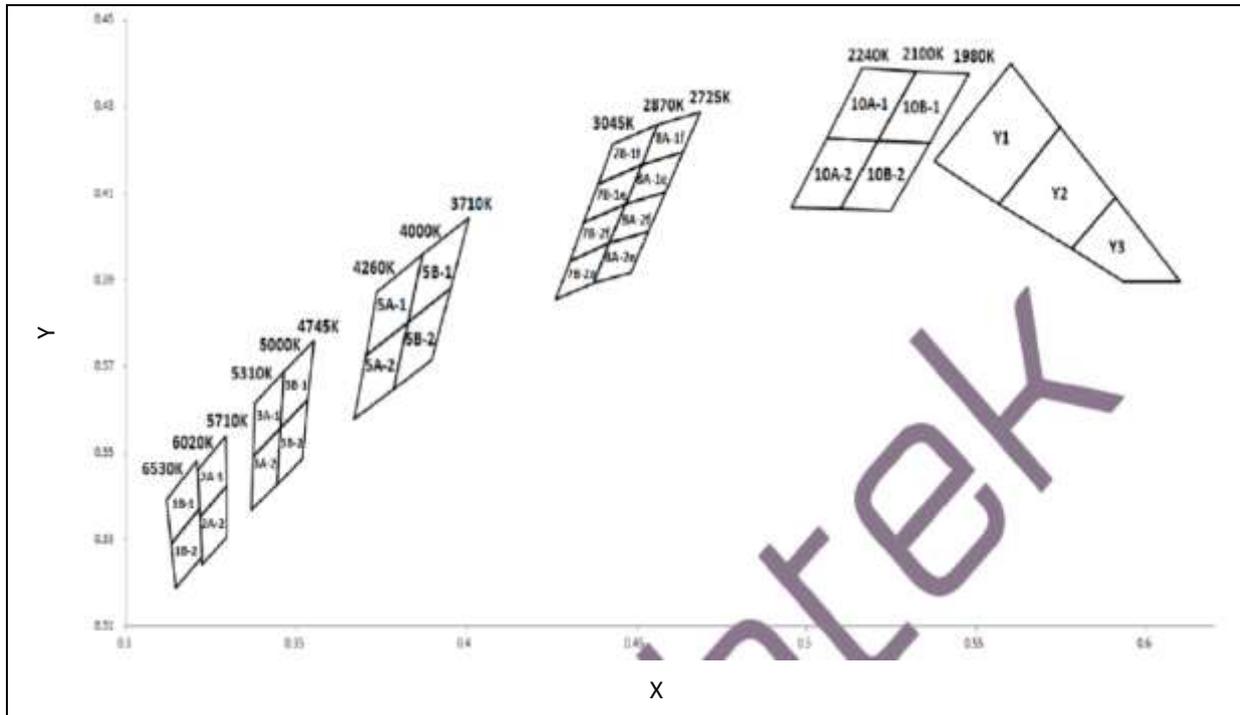
 Forward Voltage Classifications ( $I_F = 350\text{mA}$ ):

Code	Min.	Max.	Unit
V2830	2.8	3.0	V
V3032	3.0	3.2	
V3234	3.2	3.4	

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

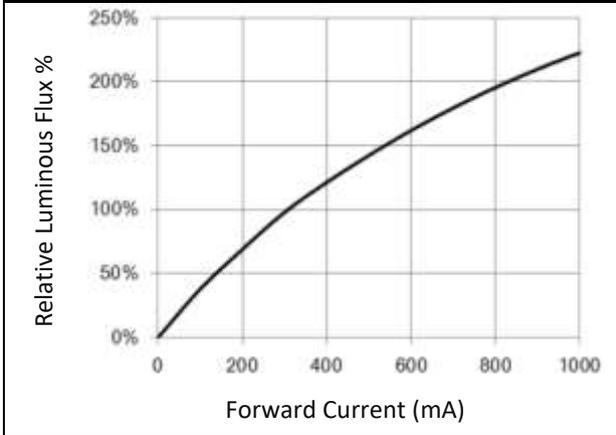
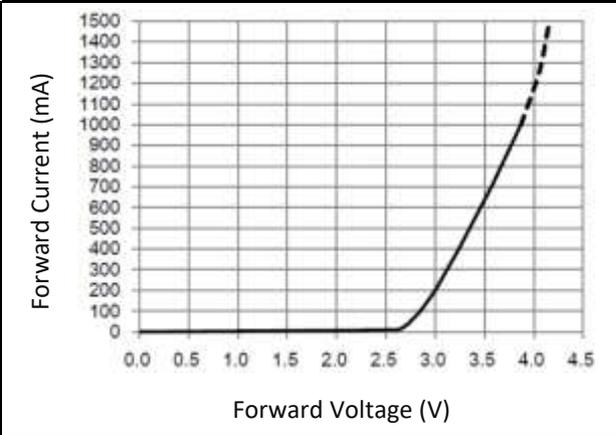
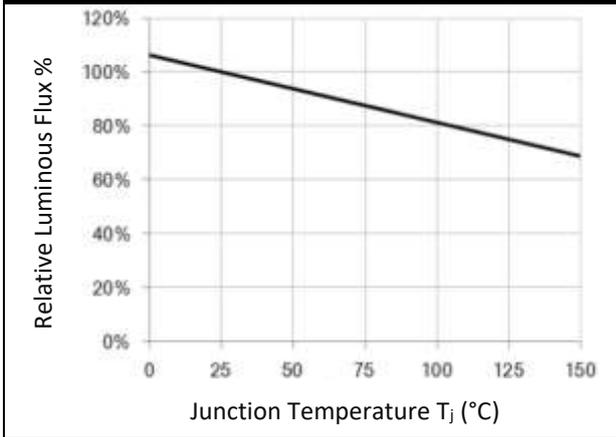
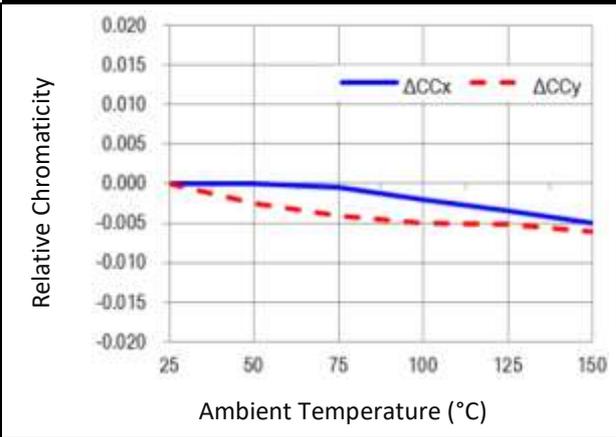
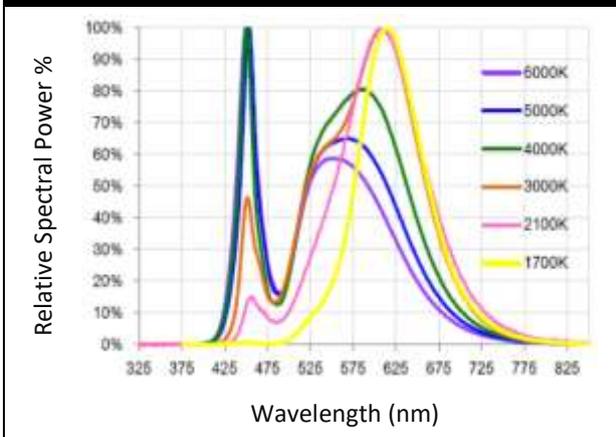
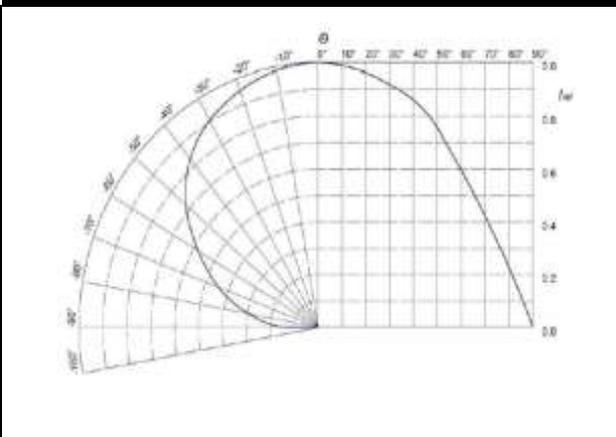
Code	Min.	Max.	Unit
B30	75	80	lm
B31	80	90	
B32	90	100	
B33	100	110	

## CIE CHROMATICITY DIAGRAM:

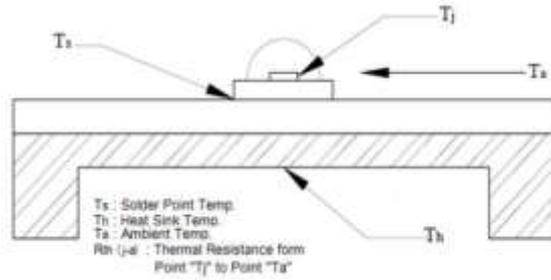
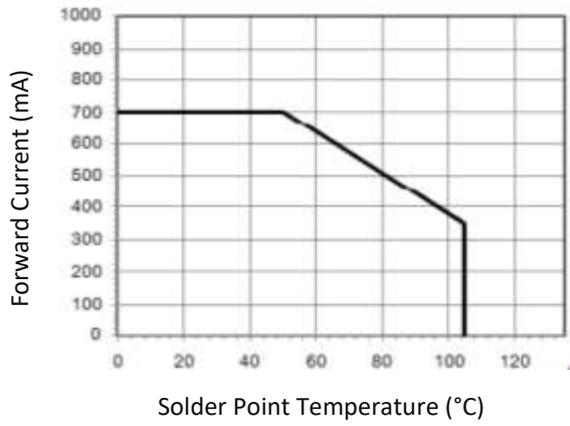


Chromaticity Coordinates Classifications ( $I_F = 350\text{mA}$ ):

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
Y1	0.5600	0.4400	0.5375	0.4174	0.5566	0.4076	0.5745	0.4253
Y2	0.5745	0.4253	0.5566	0.4076	0.5780	0.3972	0.5908	0.4090
Y3	0.5908	0.4090	0.5780	0.3972	0.5933	0.3896	0.6100	0.3896

**ELECTRO-OPTICAL CHARACTERISTICS:**
**Relative Luminous Flux v.s. Forward Current**

**Forward Current v.s. Forward Voltage**

**Relative Flux v.s. Junction Temperature**

**Relative Chromaticity v.s. Ambient Temperature**

**Relative Spectral Power v.s. Wavelength**

**Directive Radiation**


### Forward Current Derating Curve

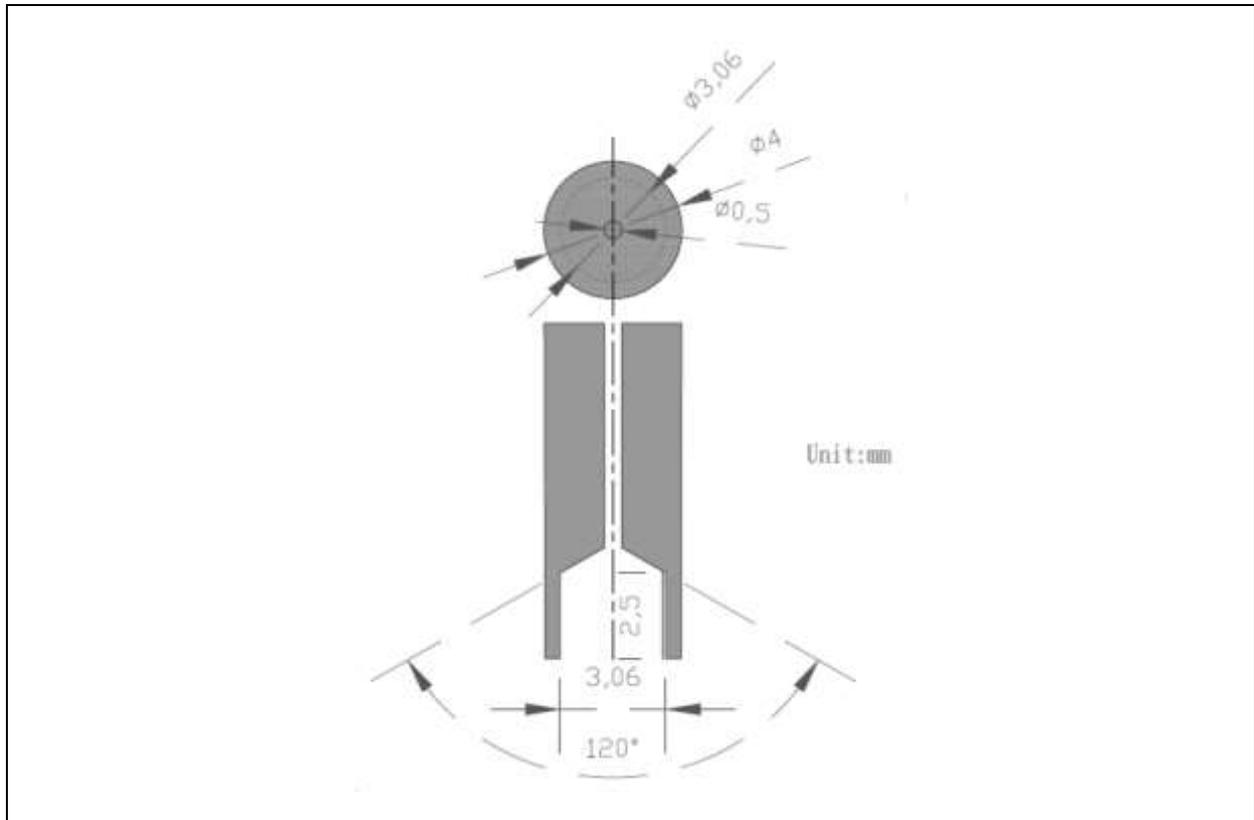




## RECOMMENDED NOZZLE FOR SMT:

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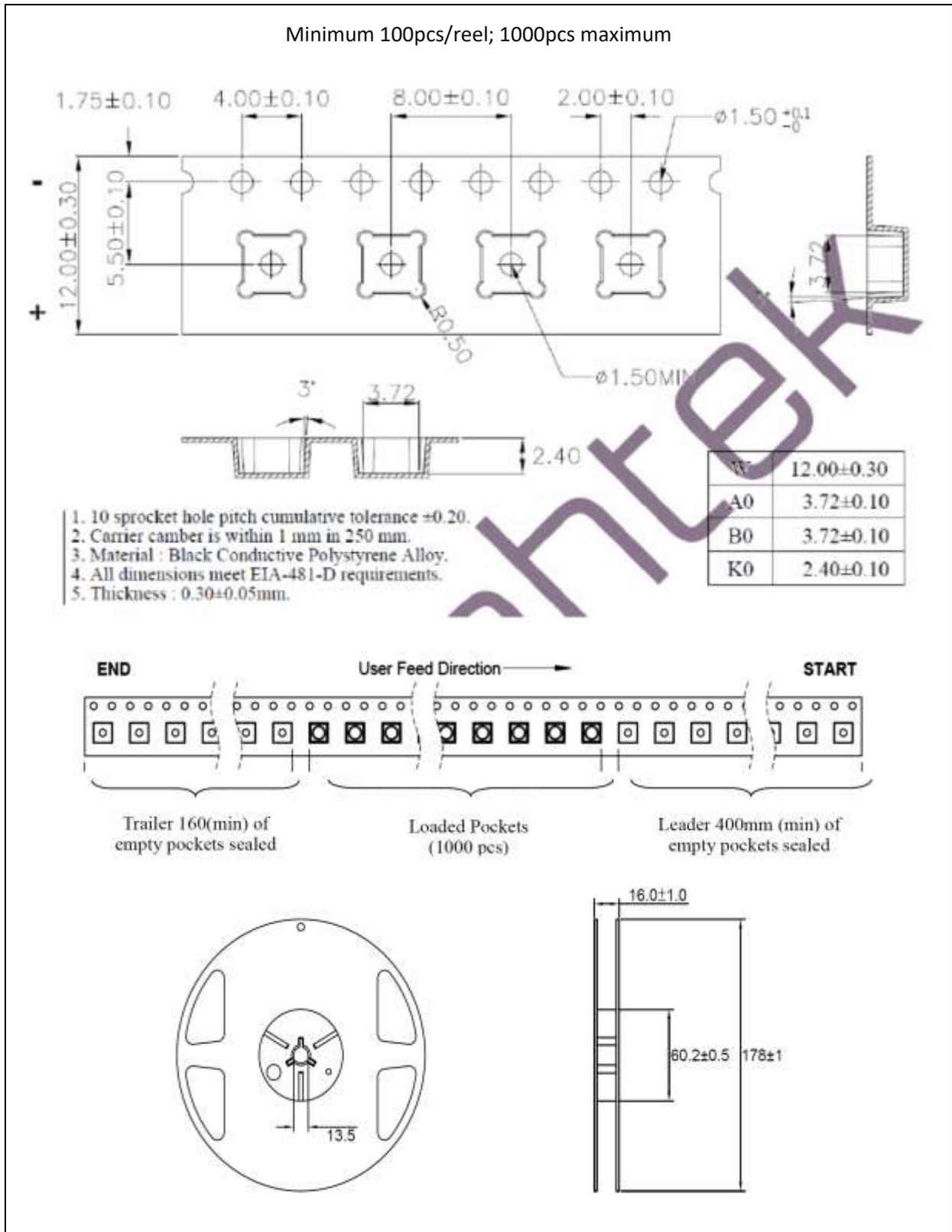
Recommended Pick & Place Nozzle:



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

## PACKING SPECIFICATION:

Reel Dimension:



## 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 months 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.

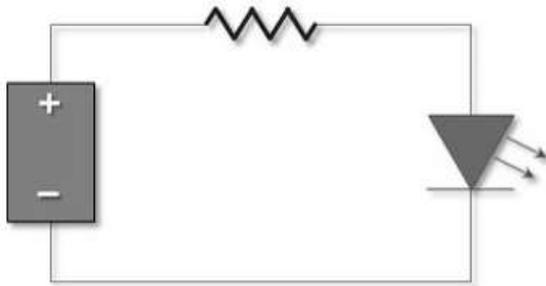
### Baking:

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:

- 60±3°C x 24hrs and <5%RH, taped / reel 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-electrosatic 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	06/12/2016	Datasheet set-up.
A1.1	25/08/2018	Revise dimension 2.22t.