BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED!

PRODUCT DATASHEET

- ► Ceramic High Power
- ► 3535 Series
- ► Infrared (850nm)

Release Date: 03 March 2015 Version: A1.0

N0F16S73
N0F16S73STAR

3535 2.0t Series

3535 2.0t Series

RoHS Compliant

FEATURES:

- **Package:** Ceramic SMT Package with Silicon Lens
- **Forward Current:** 350~600mA
- **Forward Voltage (typ.):** 1.6V
- **Radiant Power (typ.):** 250mW@350mA; 425mW@600mA
- **Colour:** Infrared (IR)
- **Wavelength:** 840-870nm
- **Viewing angle:** 120°
- **Materials:**
  - Die: InGaInP
  - Resin: Silicon (Water Clear)
  - L/T Finish: Ag plated
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+100°C
- **Grouping parameters:**
  - Forward Voltage
  - Radiant Power
  - Dominant Wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** MSL2 according to J-STD020
- **Packing:** 12mm tape with 100pcs Min./reel, ø180mm (7'')
  35pcs/tray; 210pcs/carton (with Starboard)

APPLICATIONS:

- Security Camera
- Motion Detection
- Night Viewer

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I_F	600	mA
Pulse Forward Current	I_{PF}	800	mA
Reverse Current @5V	I_R	10	μA
Junction Temperature	T_j	150	°C
Electrostatic Discharge (HBM: MIL-STD-883 C 2)	ESD	2000	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

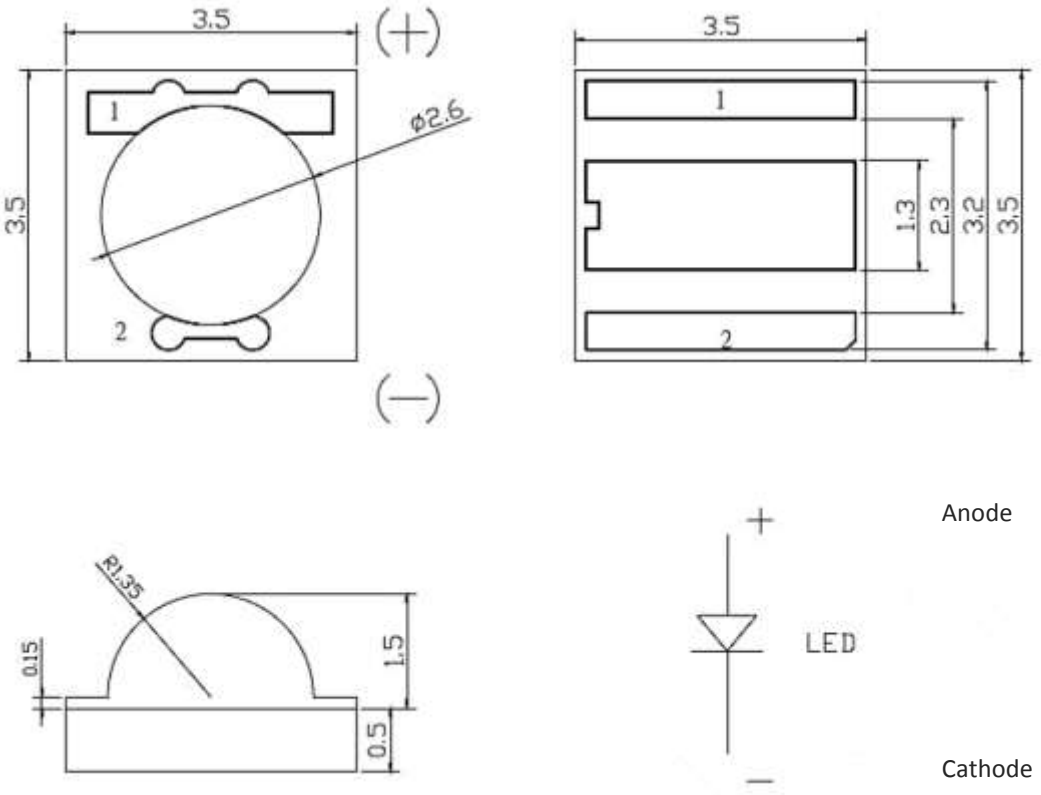
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	1.4	1.6	2.0	V	I_F=350mA
Radiant Power	P_O	200	250	300	mW	I_F=350mA
		340	425	505		I_F=600mA
Dominant Wavelength	λ_D	840	---	870	nm	I_F=350mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	I_F=350mA

1. Luminous flux (Φ_V) ±5%, Forward Voltage (V_F) ±0.05V, Viewing angle($2\theta_{1/2}$) ±10°
2. IS standard testing

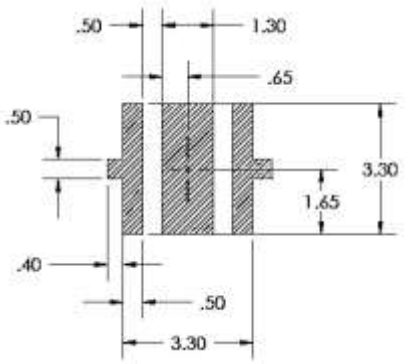
OUTLINE DIMENSION:

Package Dimension:

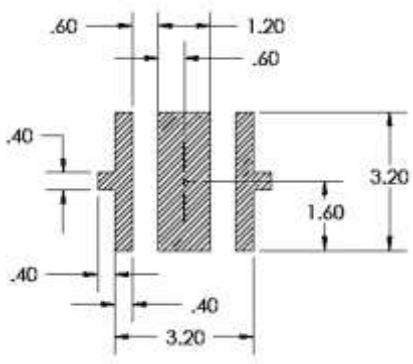


1. All dimensions are in millimetre (mm).
2. Tolerance ±0.13mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



Recommended PCB Solder Pad

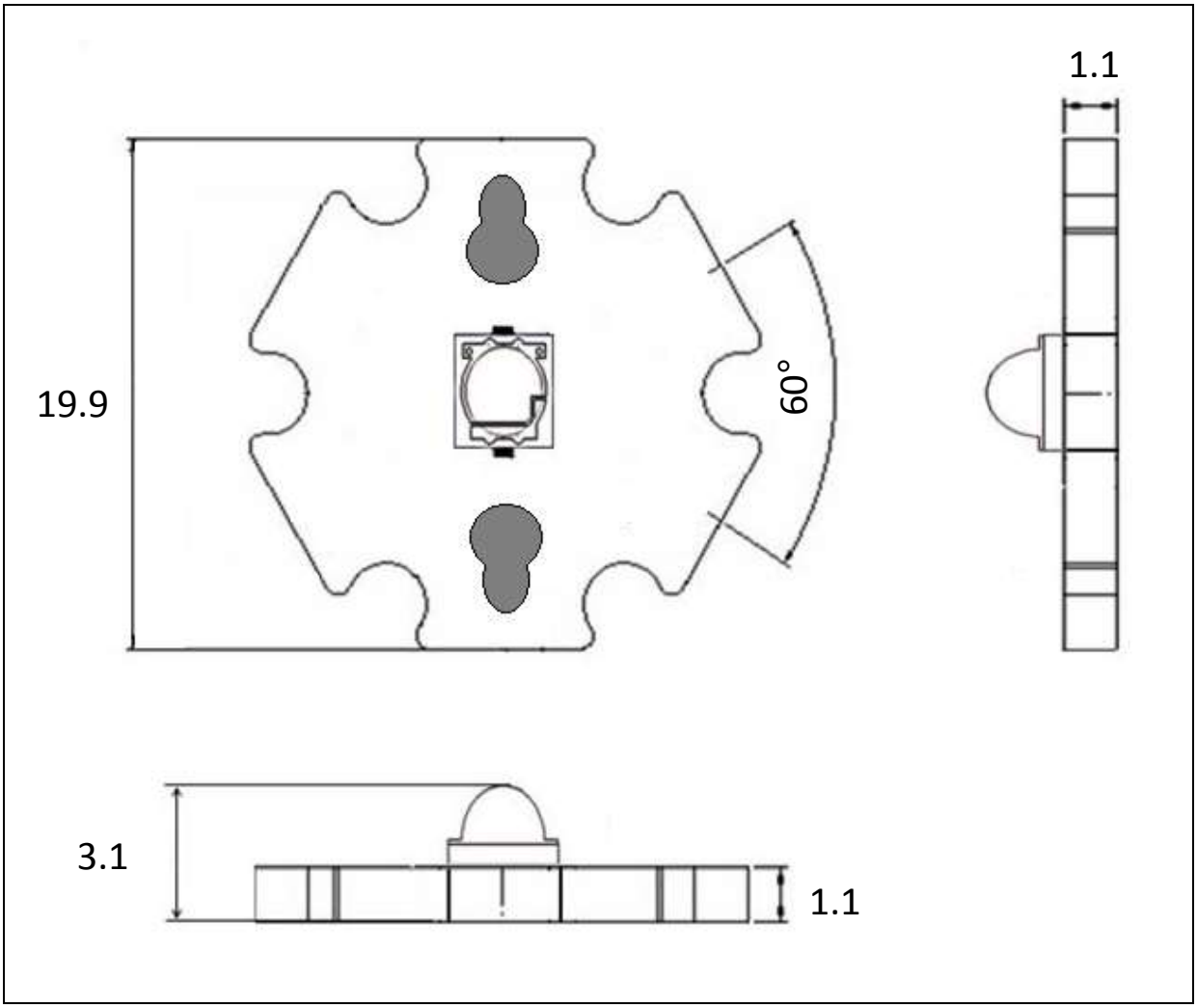


Recommended Stencil Pattern

1. Dimensions are in millimetre (mm).
2. Tolerance ±0.12mm with angle tolerance ±0.5°.

MCPCB:

Starboard Dimensions:



1. Dimensions are in millimetre (mm).
2. Tolerance ±0.25mm with angle tolerance ±0.5°.

BINNING GROUPS:

Forward Voltage Classifications (I_F = 350mA):

Code	Min.	Max.	Unit
V1416	1.4	1.6	V
V1618	1.6	1.8	
V1820	1.8	2.0	

Radiant Power Classifications (I_F = 350mA):

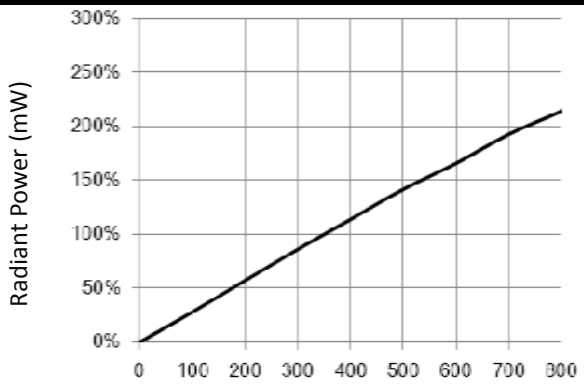
Code	Min.	Max.	Unit
P21	200	225	mW
P22	225	250	
P23	250	275	
P24	275	300	

Dominant Wavelength Classifications (I_F = 350mA):

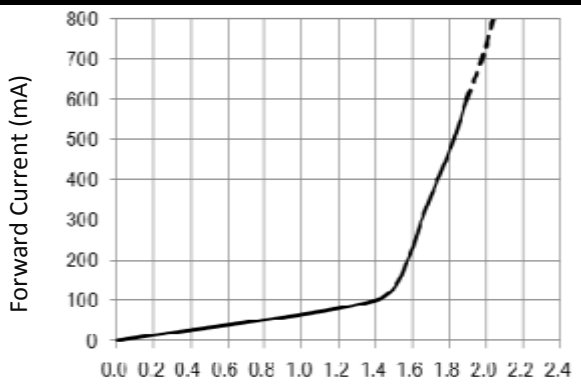
Code	Min.	Max.	Unit
IR1	840	870	nm

ELECTRO-OPTICAL CHARACTERISTICS:

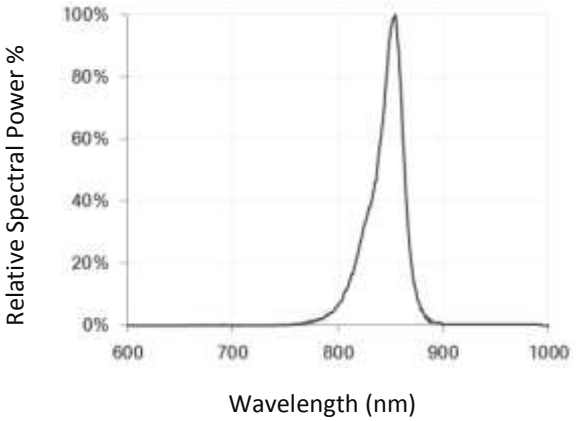
Radiant Power Flux v.s. Forward Current



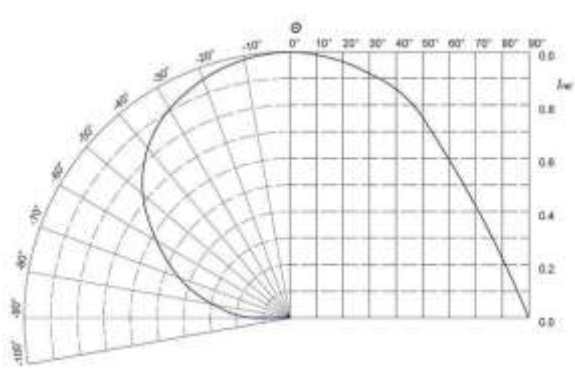
Forward Current v.s. Forward Voltage



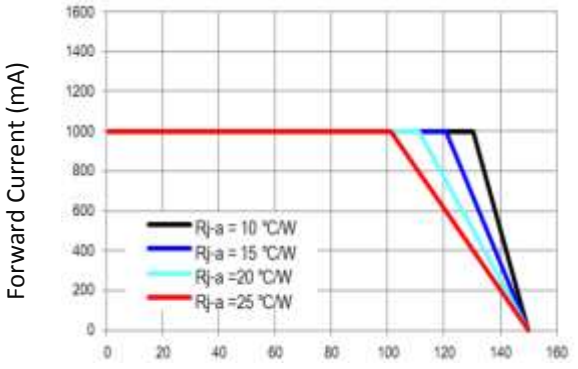
Relative Spectral Power v.s. Wavelength

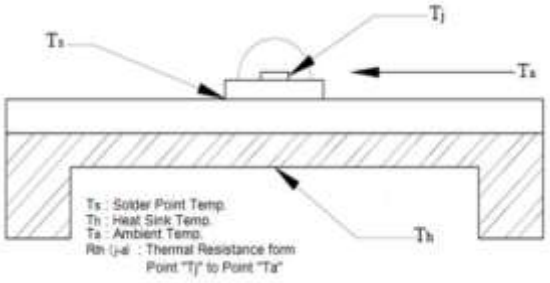


Directive Radiation



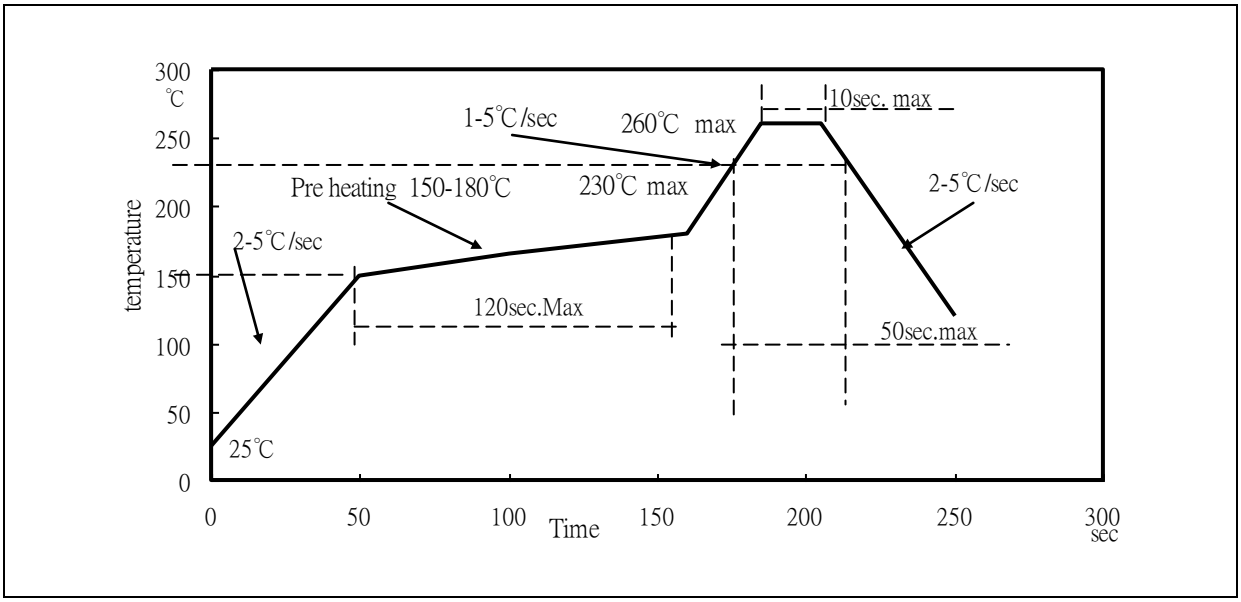
Forward Current Derating Curve





RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:

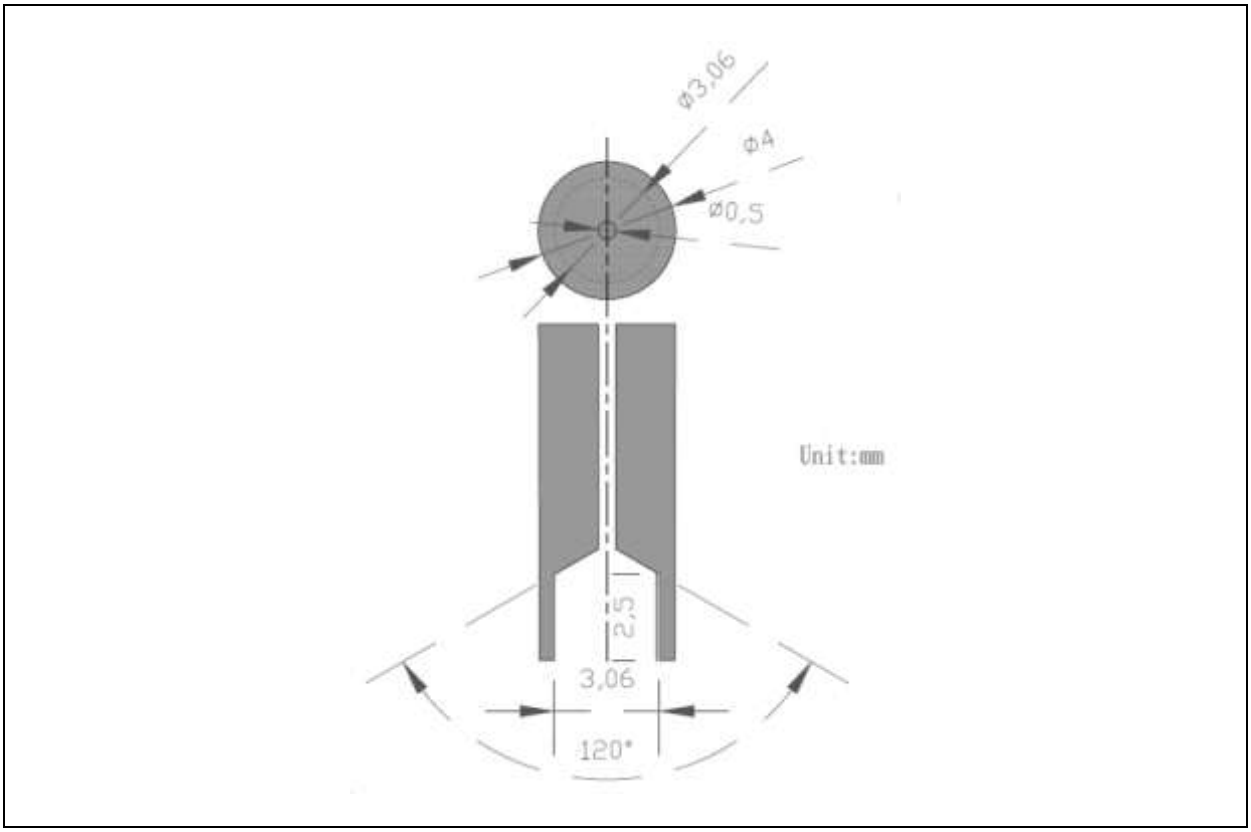


Note:

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:

Recommended Pick & Place Nozzle:

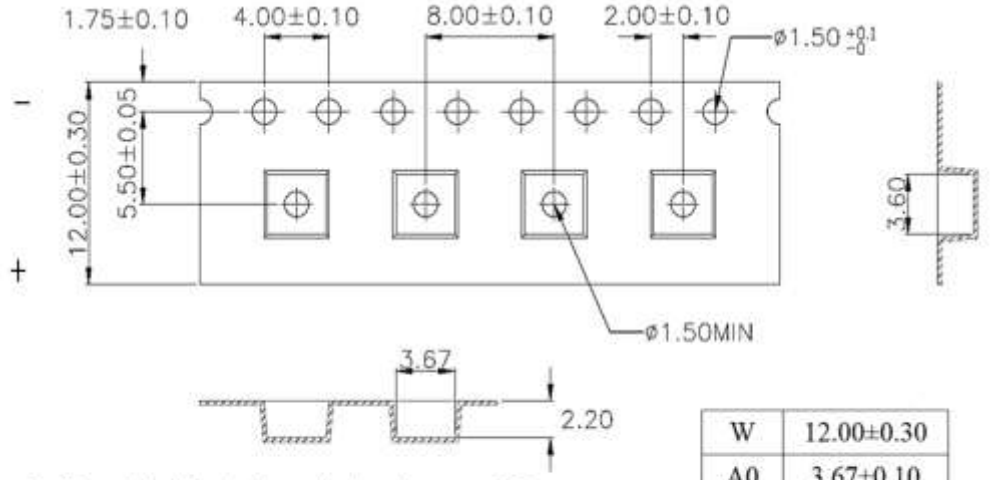


1. All dimensions are in millimetre (mm).
2. Tolerance ±0.1mm, unless otherwise noted.

PACKING SPECIFICATION:

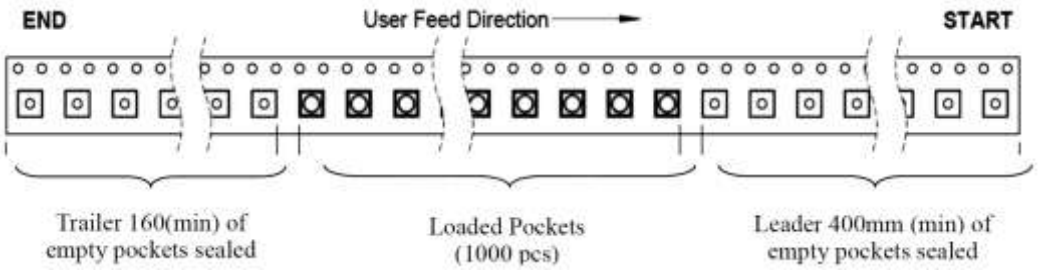
Reel Dimension:

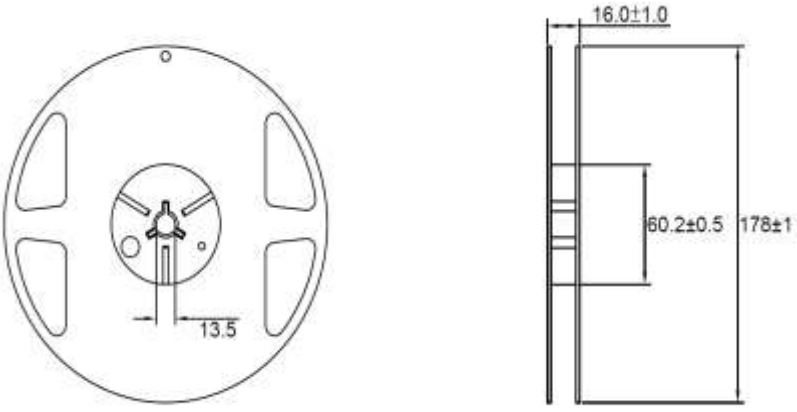
100pcs Min./reel (Maximum 1000pcs)



W	12.00±0.30
A0	3.67±0.10
B0	3.60±0.10
K0	2.20±0.10

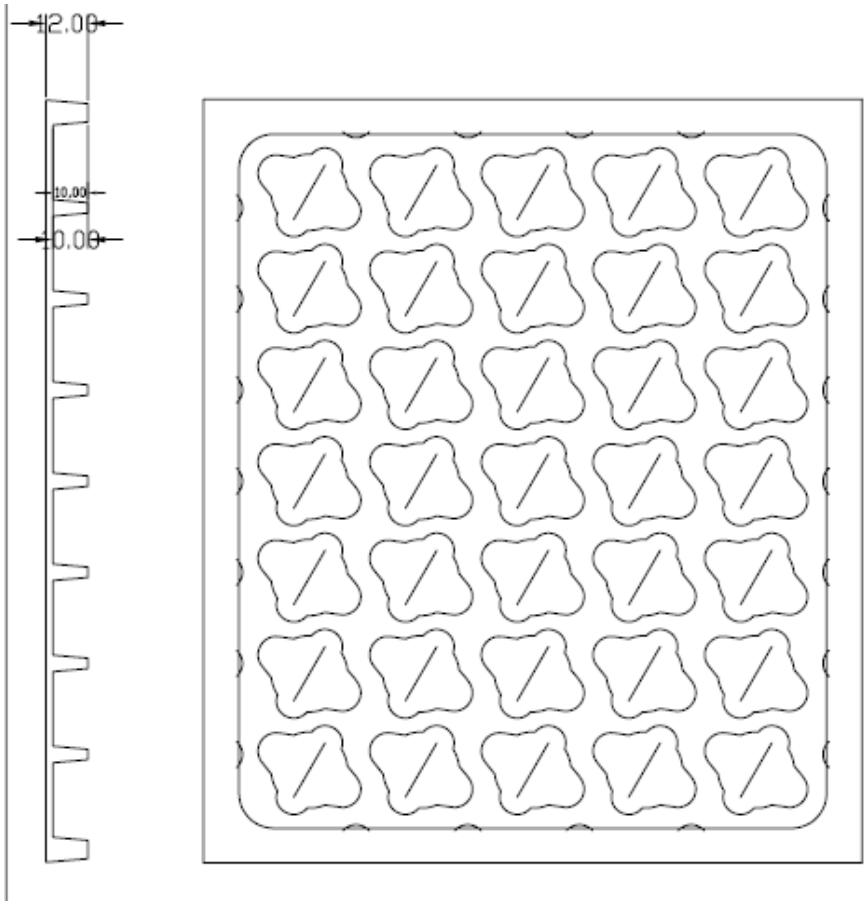
1. 10 sprocket hole pitch cumulative tolerance ±0.20.
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness : 0.30±0.05mm.





Tray Dimension for Starboard:

35pcs/tray; 210pcs/carton



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 descanting agent and apply baking at 60°C±5°C for 15hrs before use.

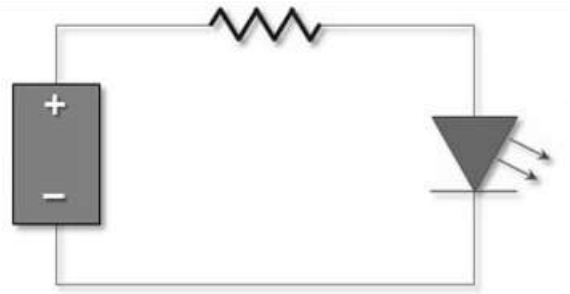
Baking:

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-electrosatic glove is recommended when handing 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	03/03/2015	Datasheet set-up.