



**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



- ▶ Subminiature SMD
- ▶ 2421 2.8t Series
- ▶ Infrared (IR) 940nm

**NOF28S60** (1500pcs/7" reel)

**NOF28S60SR** (5000pcs/13" reel)



Release Date: 14 October 2021 Version: A1.1



Subminiature 2421

## 2421 2.8t Series

**RoHS**  
Compliant



### FEATURES:

- **Package:** Subminiature Top View SMD
- **Forward Current:** 20mA
- **Forward Voltage (typ.):** 1.2V
- **Radiant Intensity (typ.):** 2.9mW/sr@20mA
- **Colour:** Infrared (IR)
- **Peak Wavelength:** 930~950nm
- **Viewing angle:** 20°
- **Materials:**
  - Die: GaAlAs/GaAs
  - Resin: Epoxy (Water Clear)
- **Operating Temperature:** -40~+80°C
- **Storage Temperature:** -40~+85°C
- **Grouping parameters:**
  - Forward voltage
  - Radiant intensity
  - Peak wavelength
- **Soldering methods:** Reflow; Hand soldering
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 16mm tape with max.1500pcs/reel, ø180mm (7") or max.5000pcs/reel, ø330mm (13")

### APPLICATIONS:

- Backlighting
- Indication Light
- Switch light
- Dashboard

## CHARACTERISTICS:

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

Parameter	Symbol	Ratings	Unit
Forward Current	I <sub>F</sub>	50	mA
Peak Forward Current width 100μS, duty 1%	I <sub>FP</sub>	1000	mA
Reverse Voltage	V <sub>R</sub>	5	V
Reverse Current @5V	I <sub>R</sub>	10	μA
Power Dissipation	P <sub>D</sub>	80	mW
Operating Temperature	T <sub>OPR</sub>	-40~+80	°C
Storage Temperature	T <sub>STG</sub>	-40~+85	°C

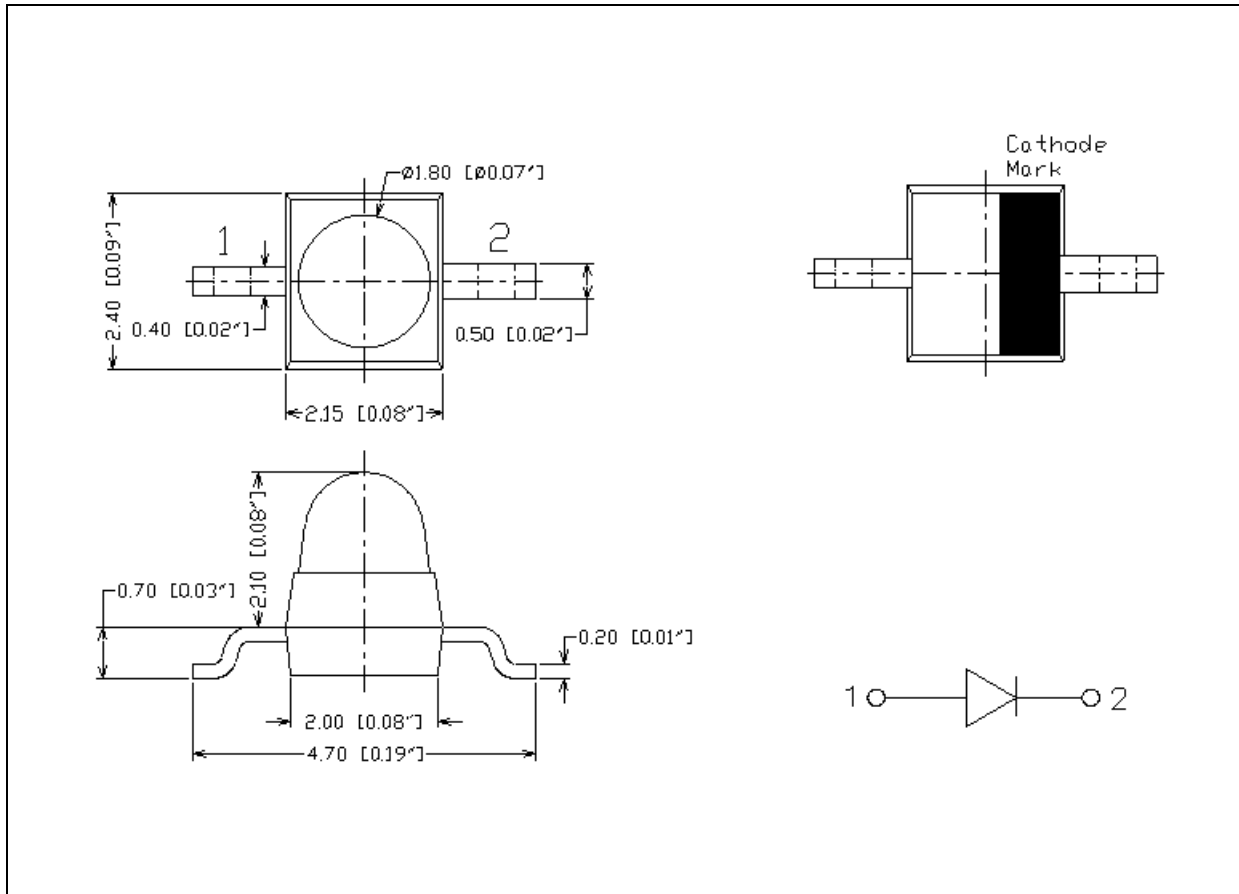
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>F</sub>	0.8	1.2	1.6	V	I <sub>F</sub> =20mA
Radiant Intensity	E <sub>e</sub>	2.1	2.9	3.6	mW/sr	I <sub>F</sub> =20mA
Peak Wavelength	λ <sub>P</sub>	930	940	950	nm	I <sub>F</sub> =20mA
Spectral Line Half Bandwidth	Δλ	---	47	---	nm	I <sub>F</sub> =20mA
Viewing Angle	2θ <sub>1/2</sub>	---	20	---	deg	I <sub>F</sub> =20mA

- Luminous intensity (I<sub>v</sub>) ±10%, Forward Voltage (V<sub>F</sub>) ±0.1V

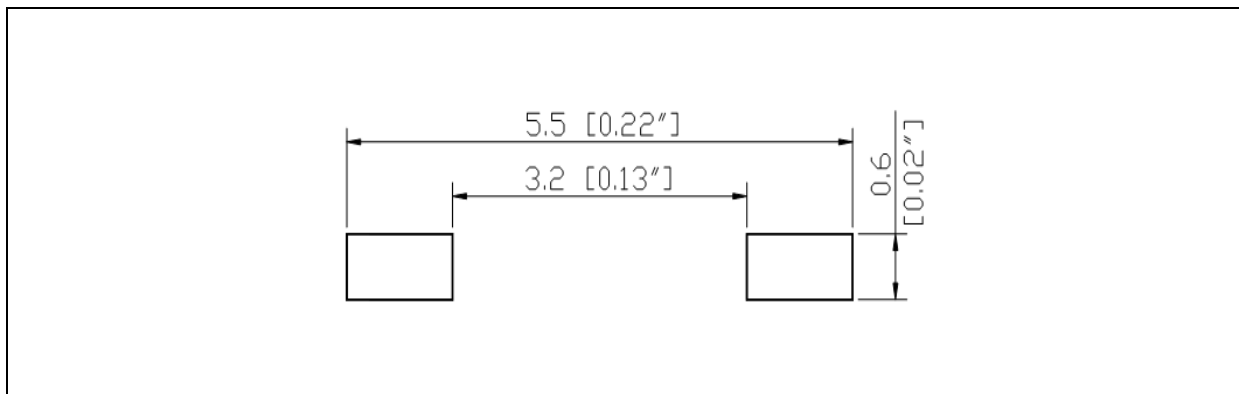
## OUTLINE DIMENSION:

### Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.2\text{mm}$ , unless otherwise noted.

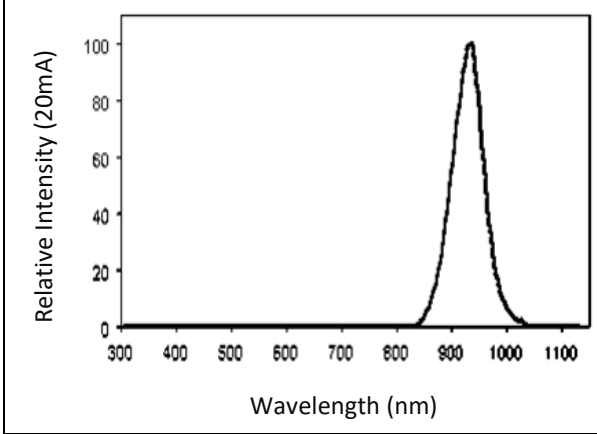
### Recommended Soldering Pad Dimension:



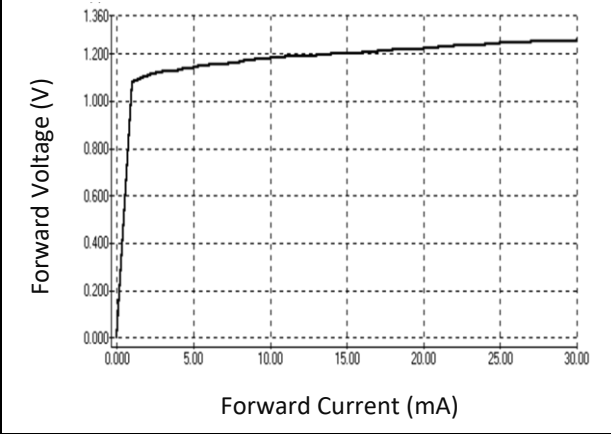
1. Dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.1\text{mm}$  with angle tolerance  $\pm 0.5^\circ$ .

**ELECTRO-OPTICAL CHARACTERISTICS:**

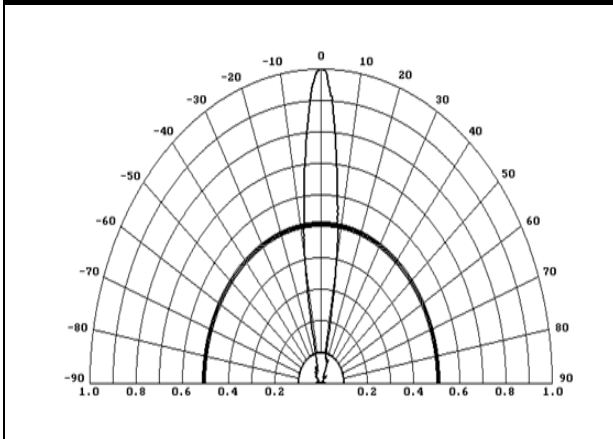
Relative Spectral Distribution



Forward Current v.s. Forward Voltage

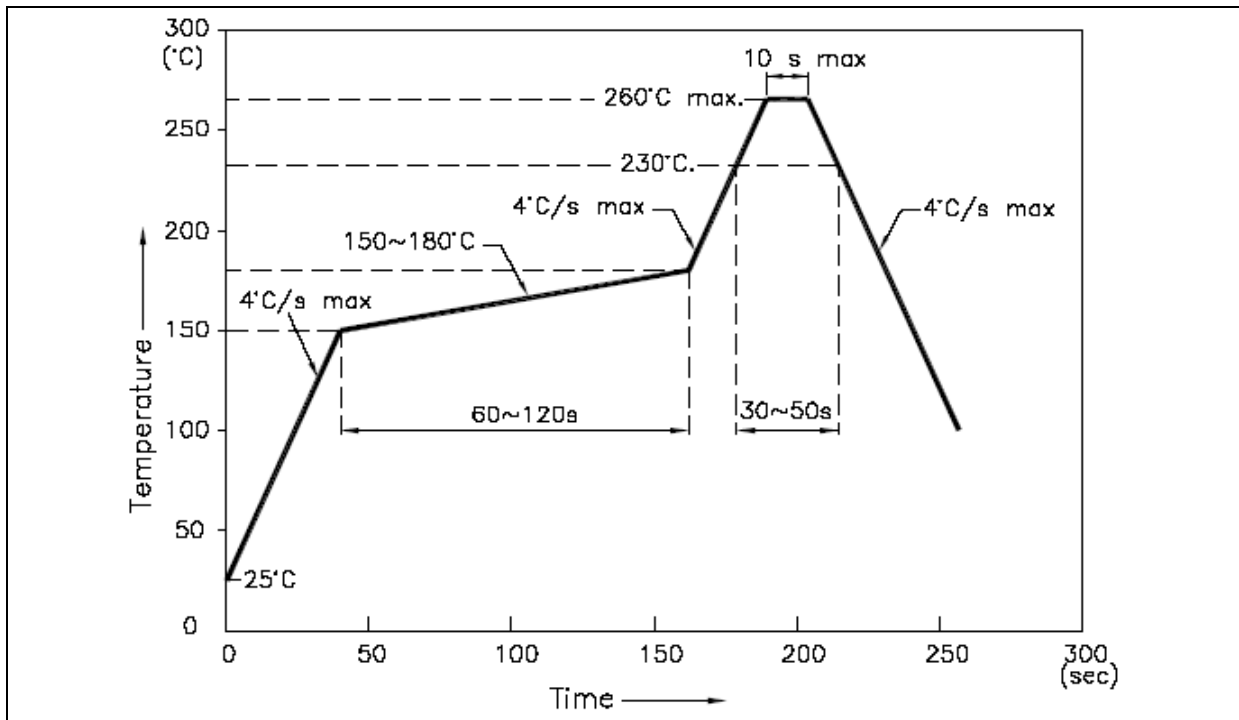


Directive Radiation



## RECOMMENDED SOLDERING PROFILE:

### Reflow Solder:



### Note:

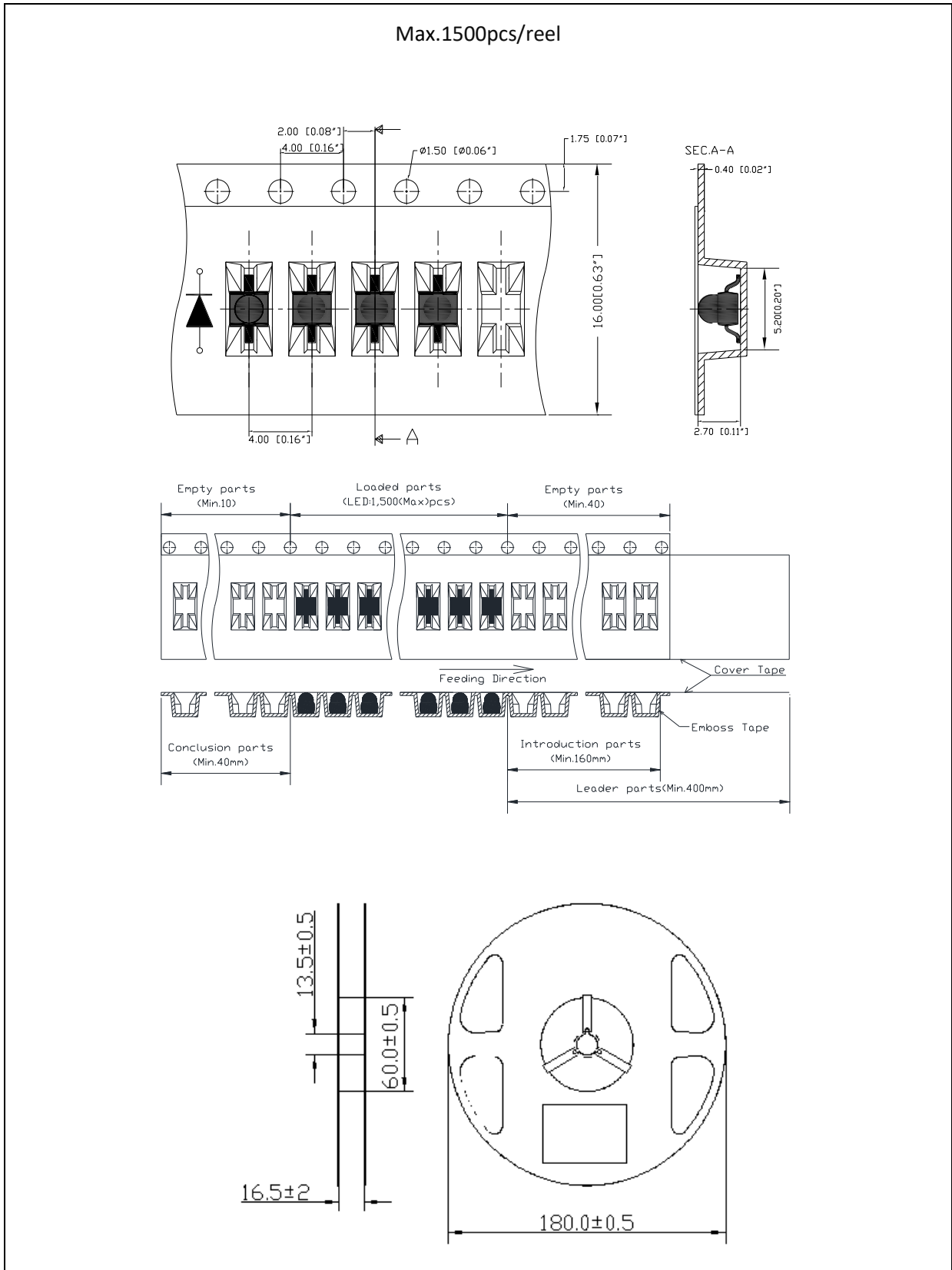
1. Recommend reflow temperature 245°C. The maximum soldering temperature should be limited to 260°C.
2. Maximum reflow soldering: 2 times.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

### Soldering Iron:

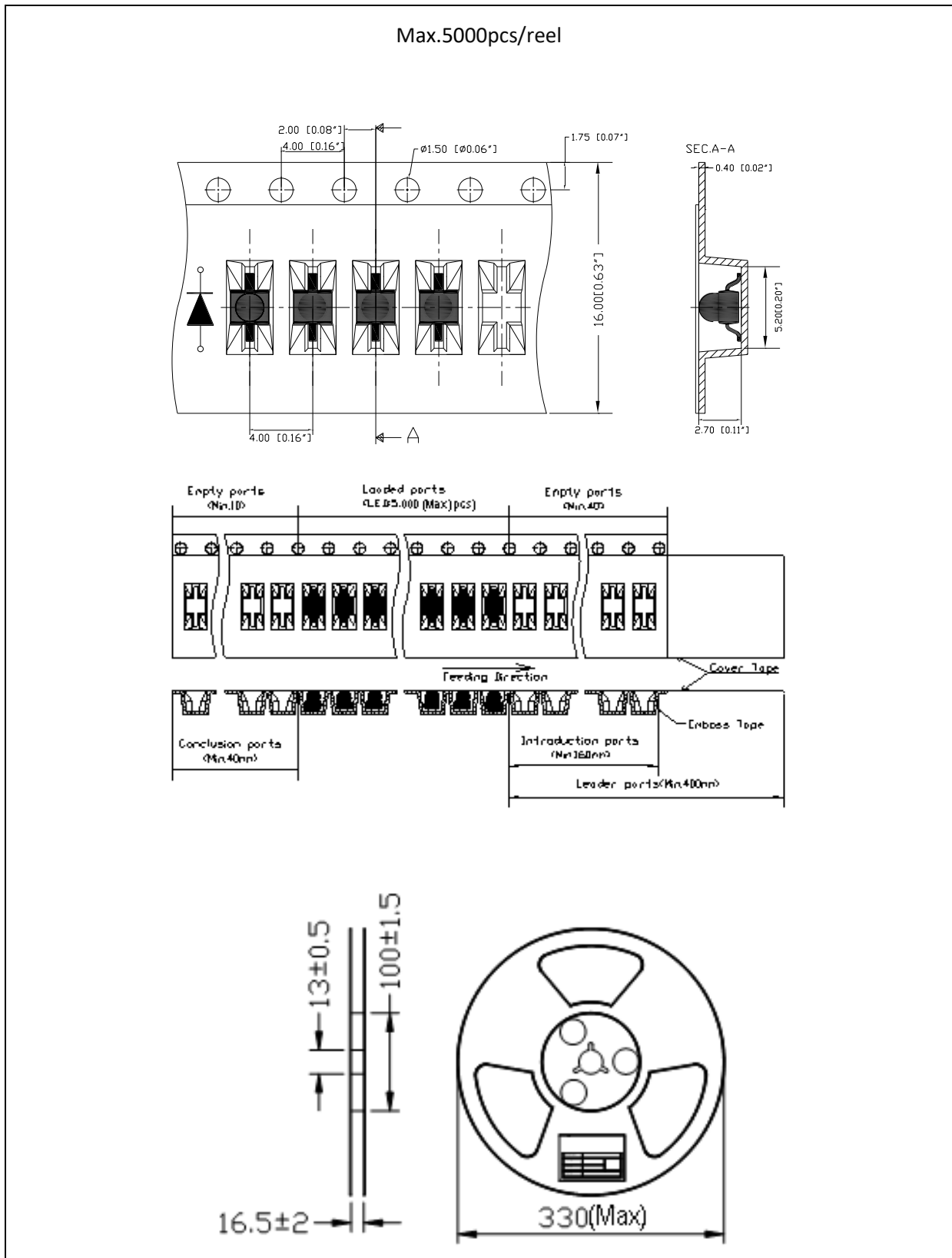
- Hand soldering should be limited to 260°C less than 5 seconds. Power dissipation of iron should be smaller than 20W.

**PACKING SPECIFICATION:**

N0F28S60 Reel Dimension:



NOF28S60SR 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 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 <10% R.H. and apply baking 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-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	17/03/2016	Datasheet set-up.
A.1.1	14/10/2021	Add 13" reel packing.