BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED!

ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

PRODUCT DATASHEET

- ► SMD Display
- ► 0.39'' (10mm) 8.8.
- ► Red 625nm

Release Date: 13 February 2020 Version: A1.1

N0R46D37BS (LSDD3056F-XX)
N0R46D38BS (LSDD3066F-XX)

SMD Display Series

SMD Display Series

RoHS Compliant

APPLICATIONS:

- 7-Segment Display
- Signal Display
- Information Board
- Counter

FEATURES:

- **Package:** SMD Numeral Double-Digit Display
- **Forward Current:** 20mA per diode
- **Pulse Current:** 90mA per diode
- **Forward Voltage (typ.):** 2.0V per diode
- **Luminous Intensity (typ.):** 45mcd@20mA per diode
- **Colour:** Red
- **Wavelength:** 625nm
- **Materials:**
  - Die: AlInGaP
  - Resin: Epoxy (White Diffused)
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+105°C
- **Grouping parameters:**
  - Forward voltage
  - Luminous intensity
  - Dominant wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** acc. to JEDEC Level 2a
- **Packing:** 750pcs/reel

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current *	I_F	25	mA
Peak Forward Current Duty 1/10 @10KHz	I_{FP}	90	mA
Reverse Current @5V	I_R	10	μA
Power Dissipation	P_D	70	mW
Debating Liner per Segment (from 25°C)	---	0.28	mA/°C
Operating Temperature	T_{OPR}	-40~+105	°C
Storage Temperature	T_{STG}	-40~+105	°C

1. All parameters are per diode.

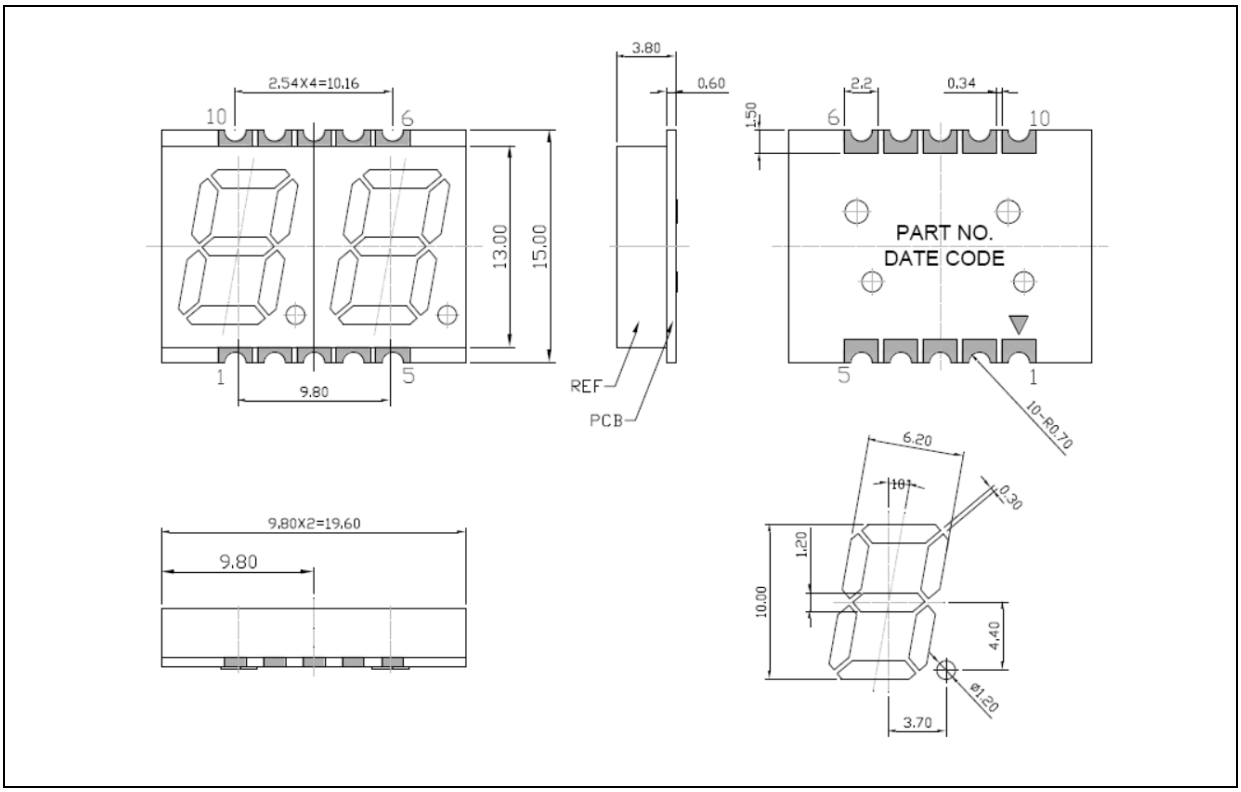
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	---	2.0	2.4	V	I_F=20mA
Luminous Intensity	I_V	12	---	70	mcd	I_F=20mA
Dominant Wavelength	λ_D	619	---	629	nm	I_F=20mA
Spectral Line Half Bandwidth	$\Delta\lambda$	---	20	---	nm	I_F=20mA

1. Luminous intensity (I_V) ±15%, Forward Voltage (V_F) ±0.1V, Viewing angle($2\theta_{1/2}$) ±5%

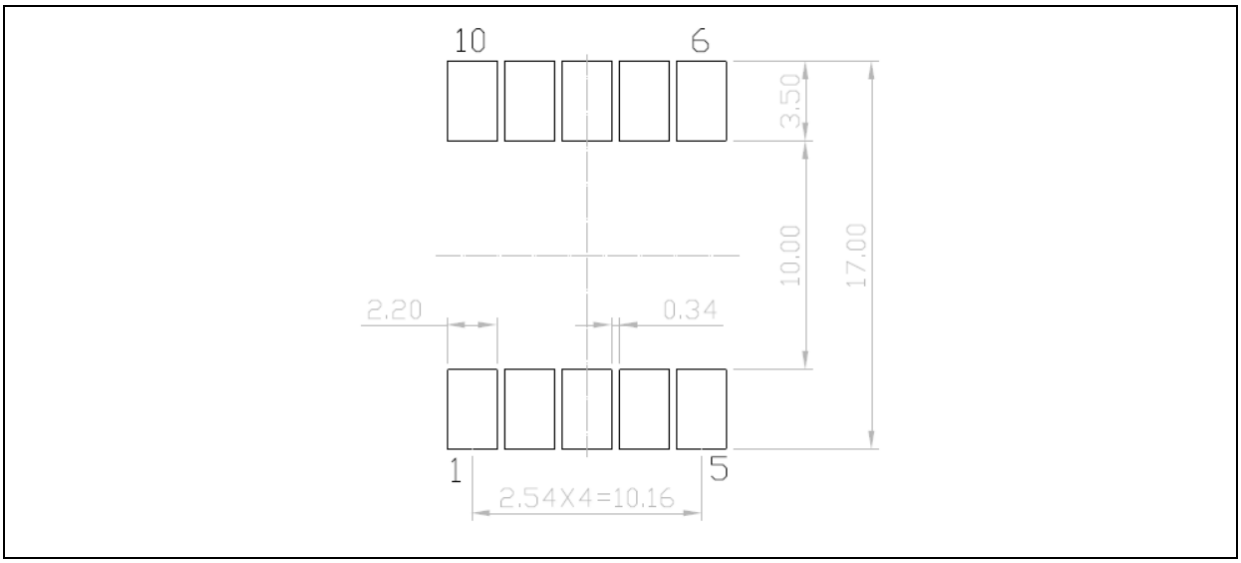
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance ±0.2mm, unless otherwise noted.

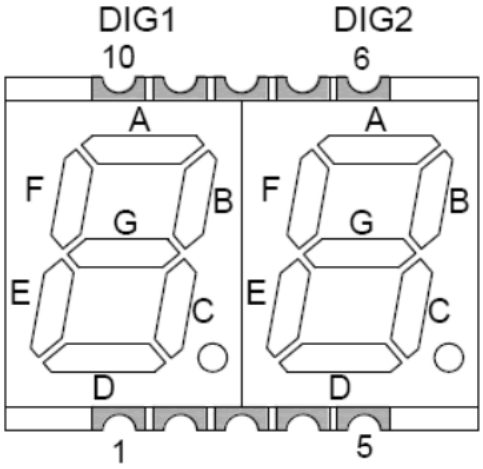
Recommended Solder Pad Design:

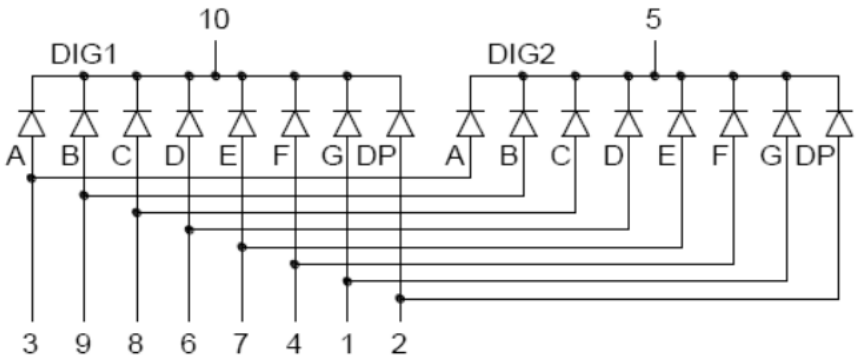


1. All dimensions are in millimetre (mm).
2. Tolerance ±0.2mm, unless otherwise noted.

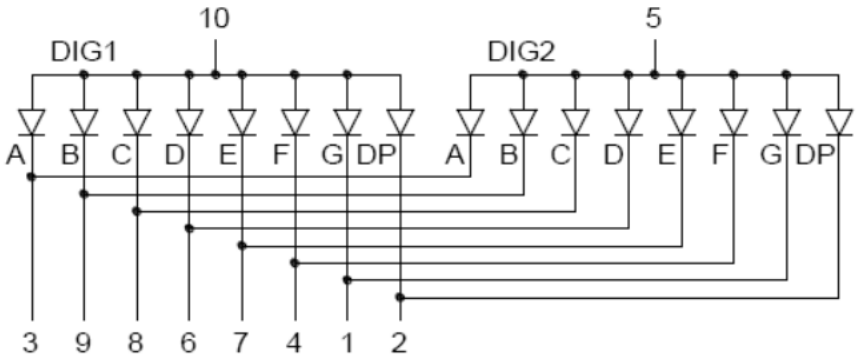
Circuit Diagram:

Internal Circuit:





N0R46D37BS (LSDD3056F-XX)
Common Cathode



N0R46D38BS (LSDD3066F-XX)
Common Anode

Electrical Connection:

N0R46D37BS (LSDD3056F-XX):

Pin no.	Function
1	Anode G
2	Anode DP
3	Anode A
4	Anode F
5	Common Cathode DIG 2
6	Anode D
7	Anode E
8	Anode C
9	Anode B
10	Common Cathode DIG 1

N0R46D38BS (LSDD3066F-XX):

Pin no.	Function
1	Cathode G
2	Cathode DP
3	Cathode A
4	Cathode F
5	Common Anode DIG 2
6	Cathode D
7	Cathode E
8	Cathode C
9	Cathode B
10	Common Anode DIG 1

BINNING GROUPS:

Forward Voltage Classifications (I_F = 20mA):

Code	Min.	Max.	Unit
D	1.4	2.4	V

Luminous Intensity Classifications (I_F = 20mA):

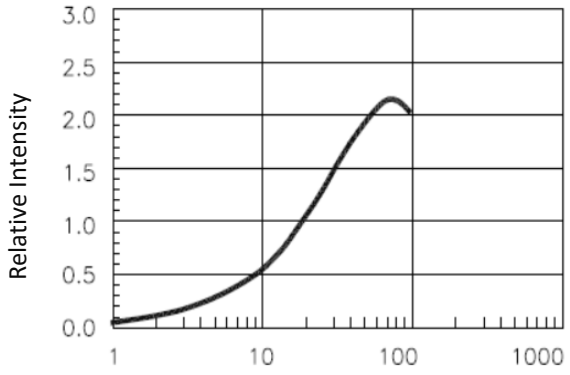
Code	Min.	Max.	Unit
M	12	30	mcd
N	30	50	
O	50	70	

Dominant Wavelength Classifications (I_F = 20mA):

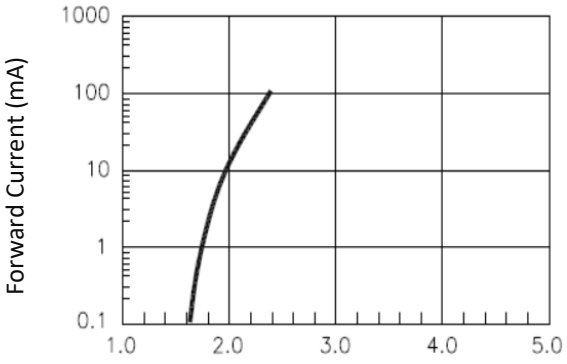
Code	Min.	Max.	Unit
1	619	622	nm
2	622	626	
3	626	629	

ELECTRO-OPTICAL CHARACTERISTICS:

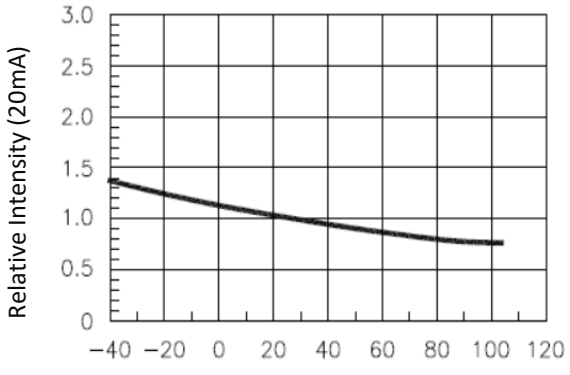
Relative Intensity v.s. Forward Current



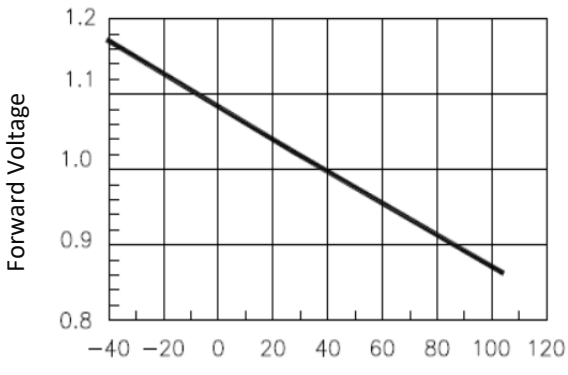
Forward Current v.s. Forward Voltage



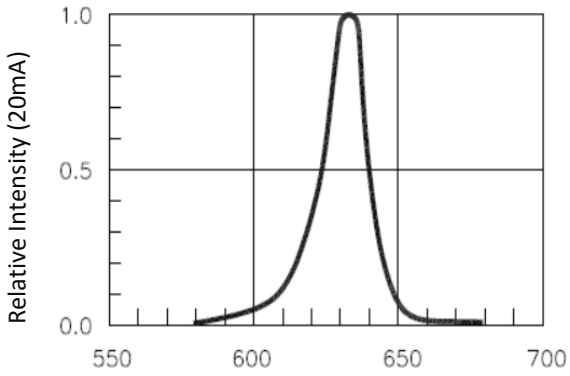
Relative Intensity v.s. Temperature



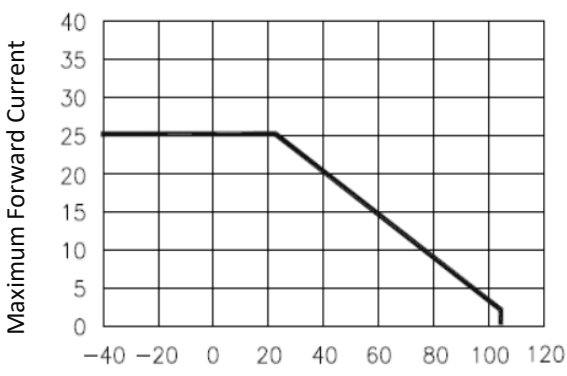
Forward Voltage v.s. Temperature



Relative Spectral Distribution

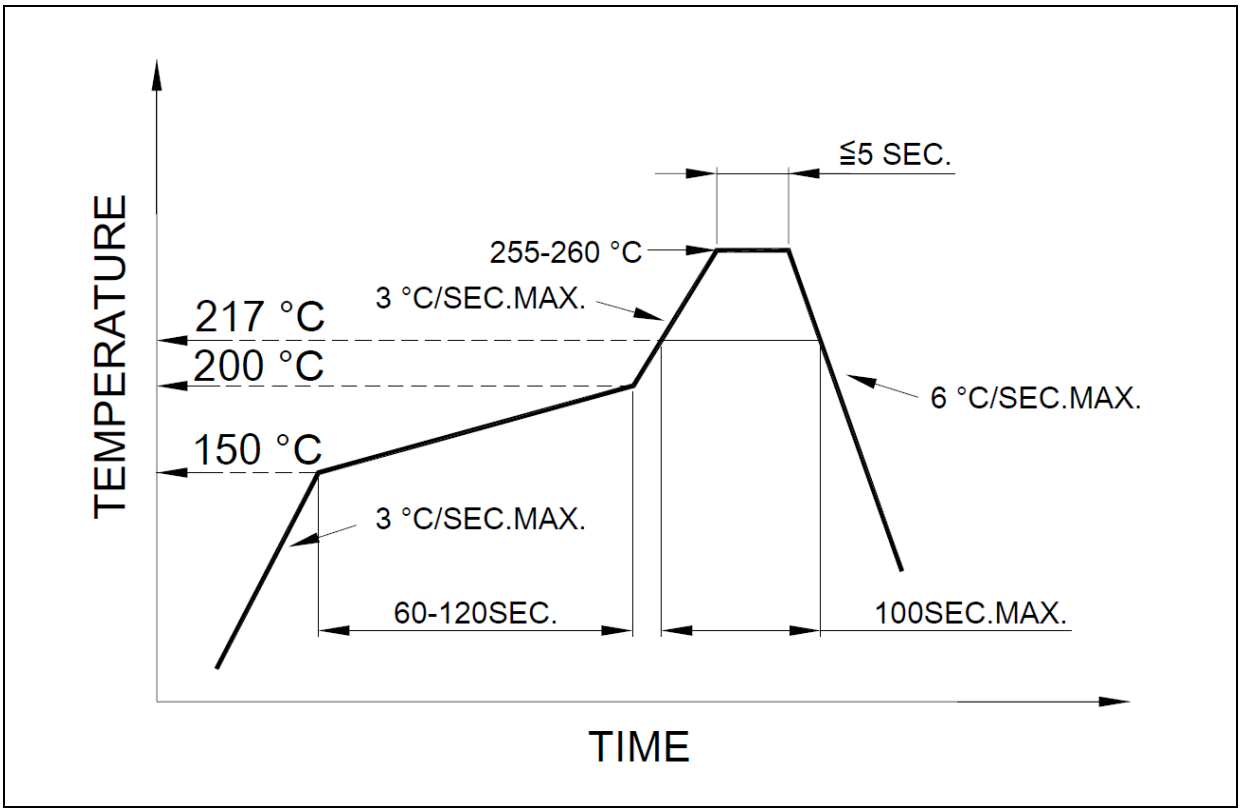


Max. Forward Current v.s. Temperature



RECOMMENDED SOLDERING PROFILE:

Reflow Solder:

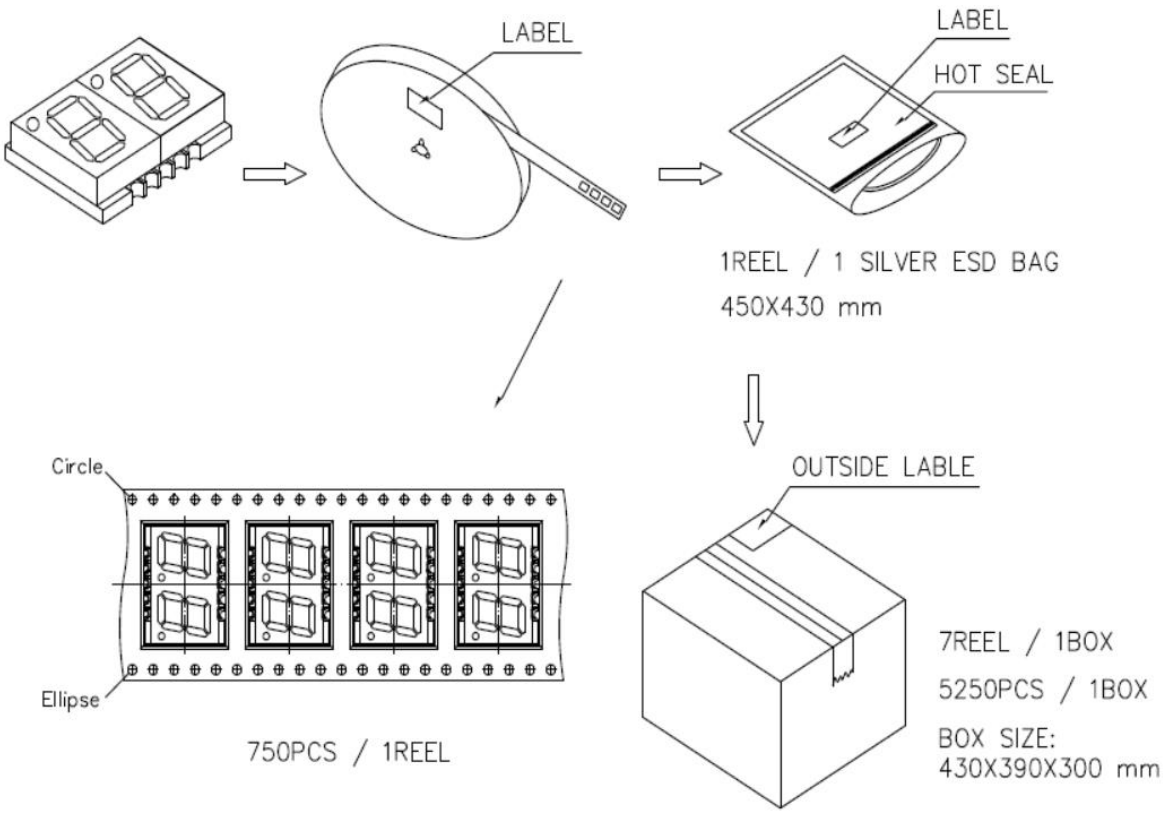


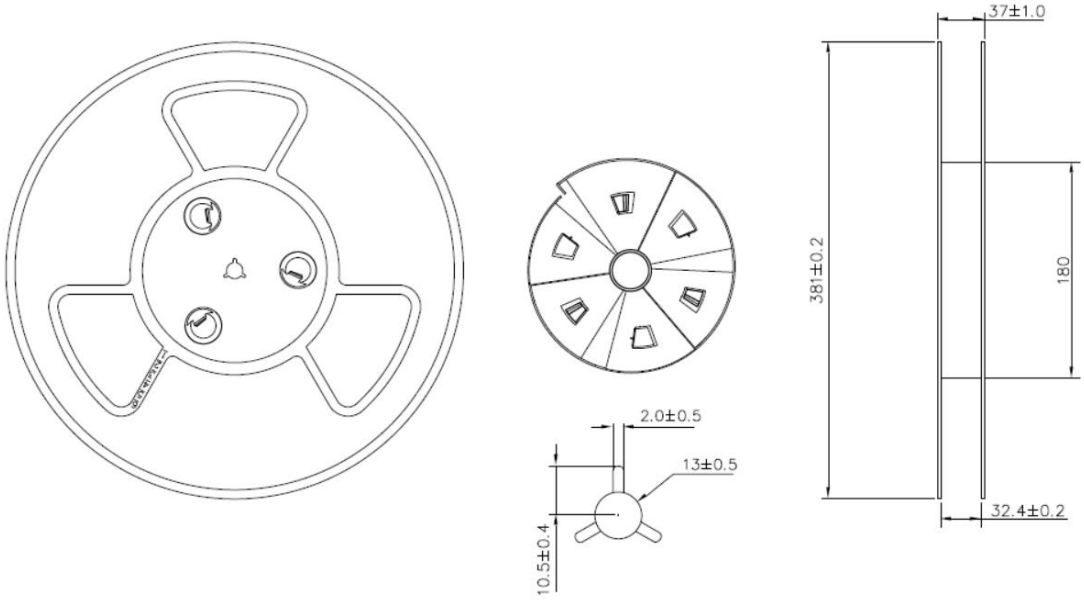
Note:

1. Recommend reflow temperature 245°C. Maximum soldering temperature should be limited to 260°C. Surface temperature of the device should be limited under 230°C.
2. Maximum reflow soldering: 1 time.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

PACKING SPECIFICATION:

750pcs/reel





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 months at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within 4 weeks at 5°C~30°C and <60% R.H. 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.

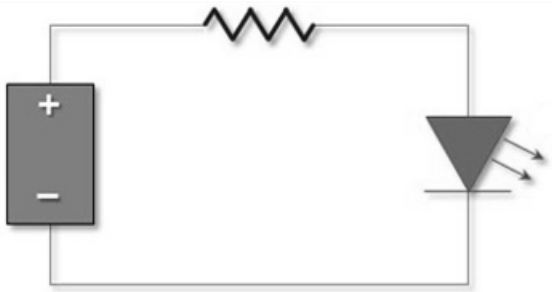
Baking:

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:

- 60±3°C x 15hrs 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 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	13/07/2018	Datasheet set-up.
A1.1	13/02/2020	Update intensity bin.