



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



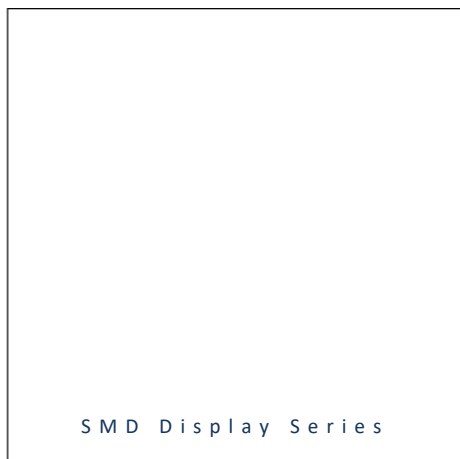
- ▶ SMD Display
- ▶ 0.39" (10mm) 8.8.
- ▶ Green 571nm

N0G39D13BS

N0G39D14BS



Release Date: 26 January 2017 Version: A1.1



APPLICATIONS:

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

SMD Display Series

RoHS Compliant



FEATURES:

- **Package:** SMD Numeral Double Digit Display
- **Forward Current:** 20mA per diode
- **Pulse Current:** 90mA per diode (Duty 1/10@1KHz)
- **Forward Voltage (typ.):** 2.1V per diode
- **Luminous Intensity (typ.):** 15mcd @20mA per diode
- **Colour:** Green
- **Wavelength:** 571nm
- **Materials:**
 - Die: GaP
 - 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 3
- **Packing:** 750/reel, ø381mm (15")

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current *	I_F	25	mA
Peak Forward Current Duty 1/10 @1KHz	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)

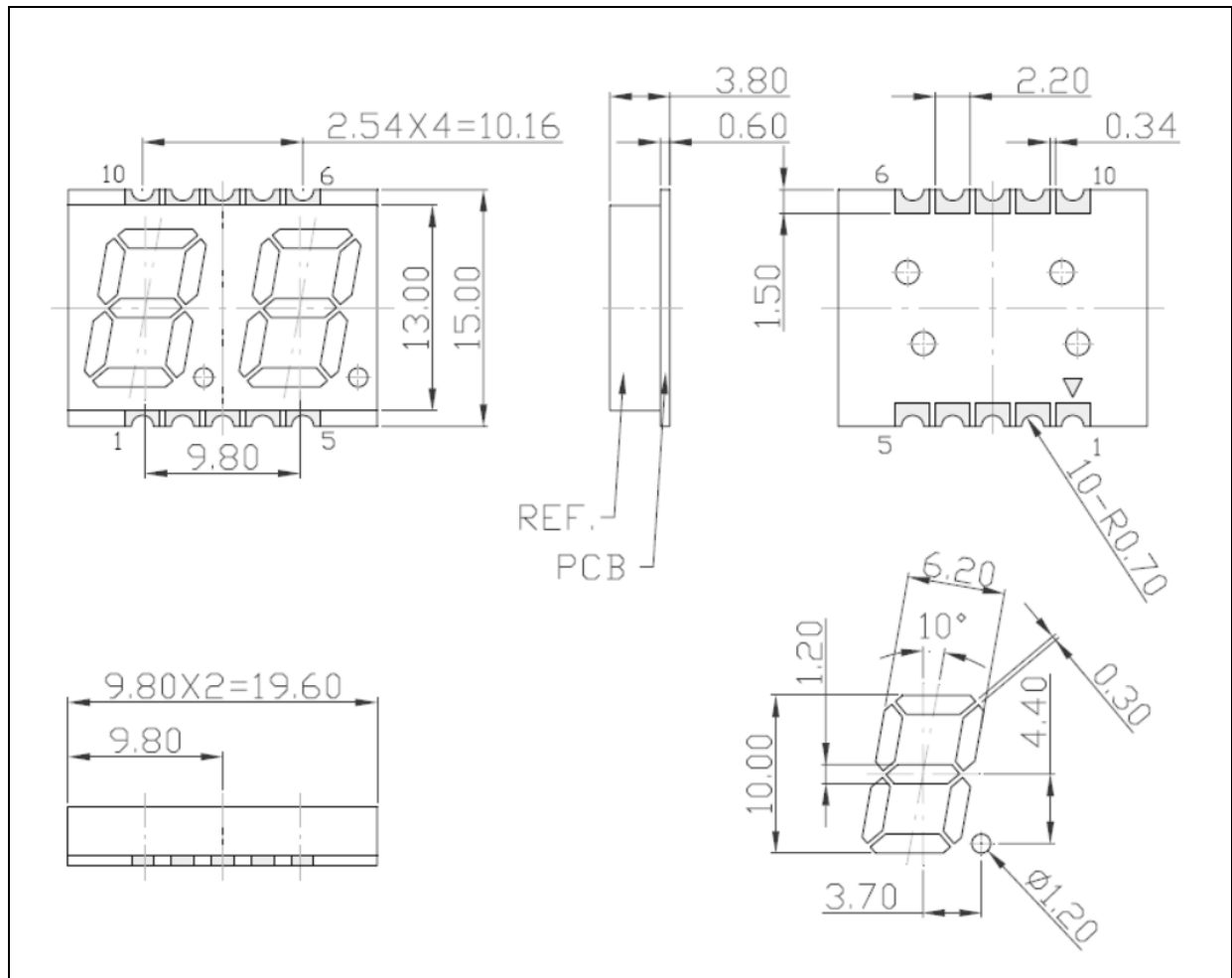
Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	1.6	2.1	2.6	V	$I_F=20mA$
Luminous Intensity	I_v	6	---	25	mcd	$I_F=20mA$
Dominant Wavelength	λ_D	566	---	576	nm	$I_F=20mA$
Spectral Line Half Bandwidth	$\Delta \lambda$	---	20	---	nm	$I_F=20mA$

1. Luminous intensity (I_v) $\pm 15\%$, Forward Voltage (V_F) $\pm 0.1V$



OUTLINE DIMENSION:

Package Dimension:

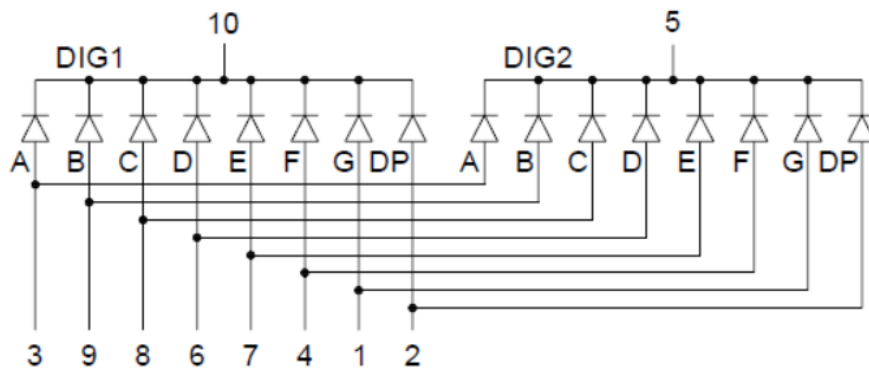
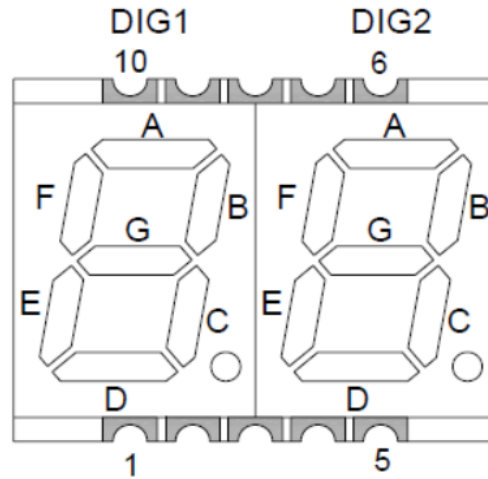


1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.25\text{mm}$, unless otherwise noted.

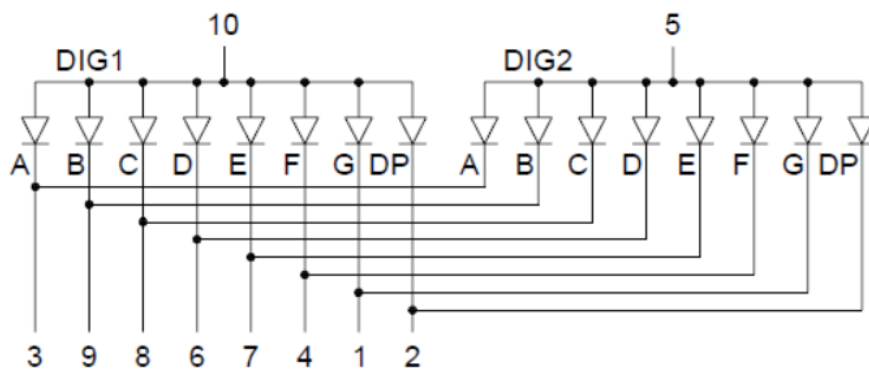


Circuit Diagram:

Internal Circuit:



N0G39D13BS



N0G39D14BS

Electrical Connection:

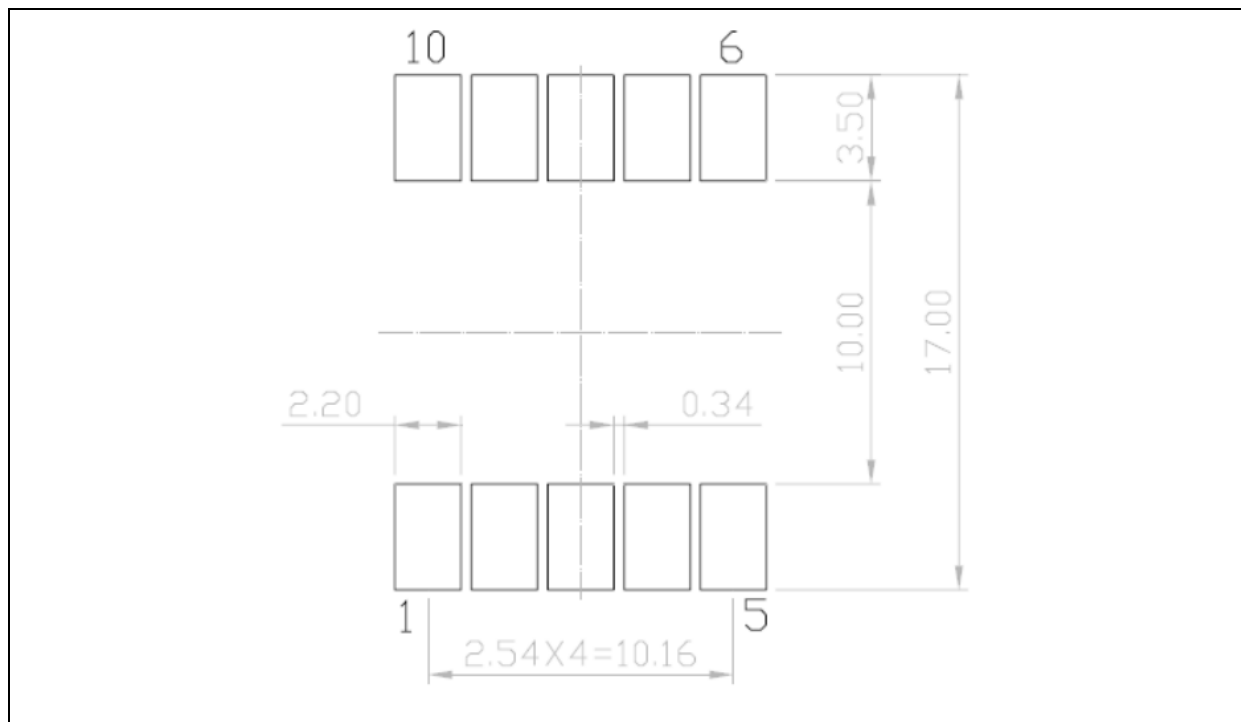
N0G39D13BS:

Pin no.	Function	Pin no.	Function
1	Anode G	6	Anode D
2	Anode DP	7	Anode E
3	Anode A	8	Anode C
4	Anode F	9	Anode B
5	Common Cathode DIG2	10	Common Cathode DIG1

N0G39D14BS:

Pin no.	Function	Pin no.	Function
1	Cathode G	6	Cathode D
2	Cathode DP	7	Cathode E
3	Cathode A	8	Cathode C
4	Cathode F	9	Cathode B
5	Common Anode DIG2	10	Common Anode DIG1

Recommended Soldering Pad:



BINNING GROUPS:

Forward Voltage Classifications ($I_F = 20\text{mA}$):

Code	Min.	Max.	Unit
D	1.6	2.6	V

Luminous Intensity Classifications ($I_F = 20\text{mA}$):

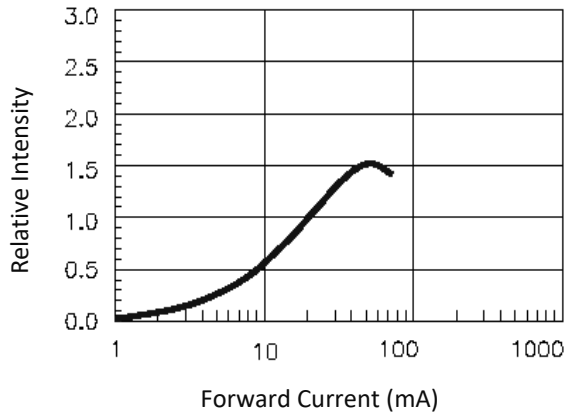
Code	Min.	Max.	Unit
J	8	12	mcd
K	12	18	
L	18	25	

Dominant Wavelength Classifications ($I_F = 20\text{mA}$):

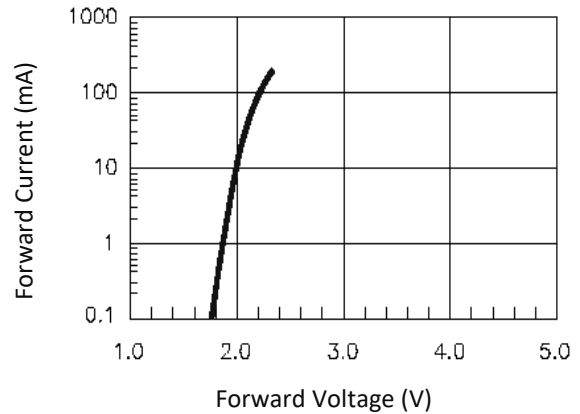
Code	Min.	Max.	Unit
1	566	569	nm
2	569	572	
3	572	576	

ELECTRO-OPTICAL CHARACTERISTICS:

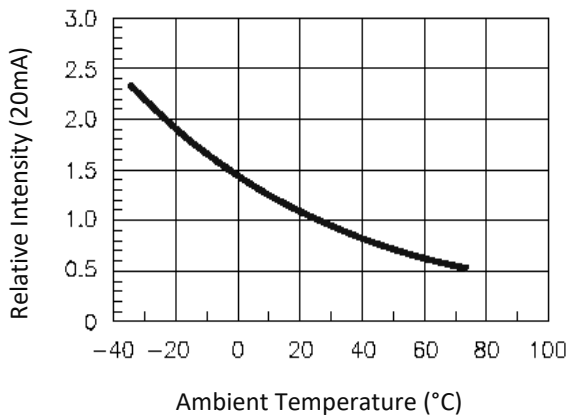
Relative Intensity v.s. Forward Current



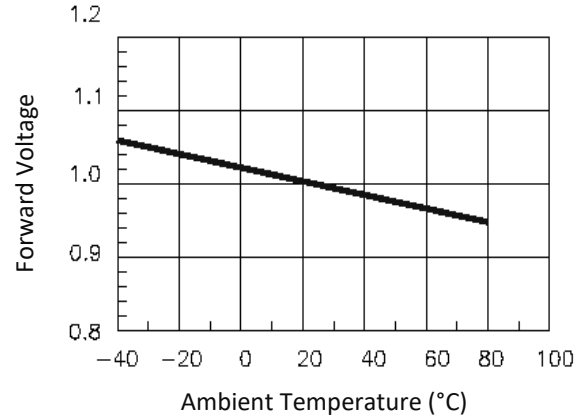
Forward Current v.s. Forward Voltage



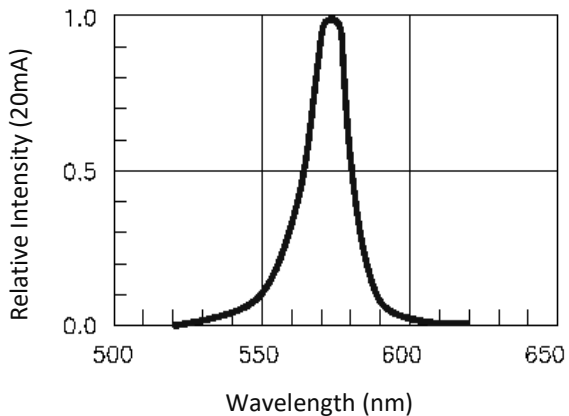
Relative Intensity v.s. Temperature



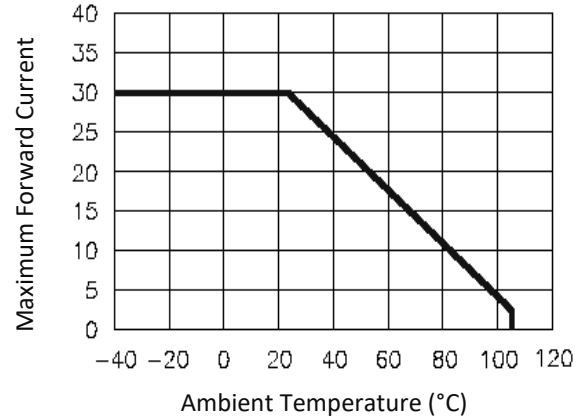
Forward Voltage v.s. Temperature



Relative Spectral Distribution



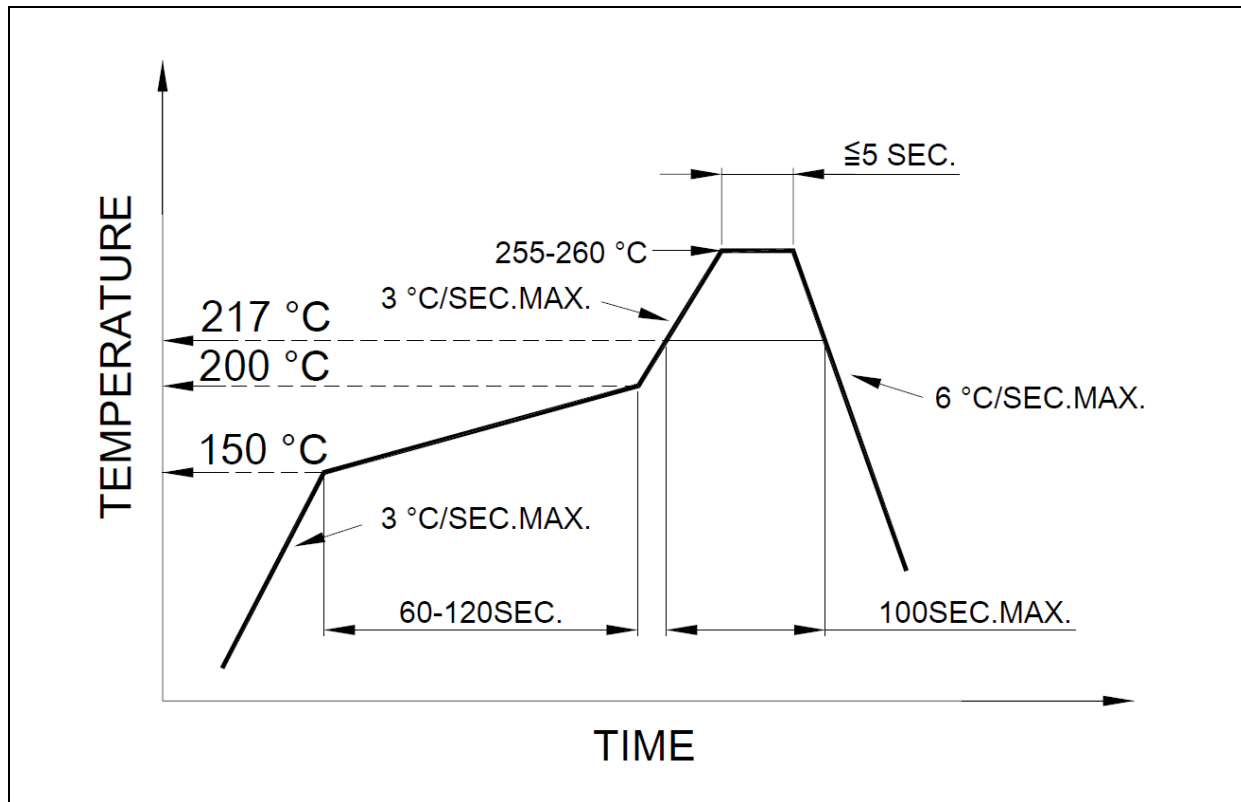
Max. Forward Current v.s. Temperature





RECOMMENDED SOLDERING PROFILE:

Reflow Solder:

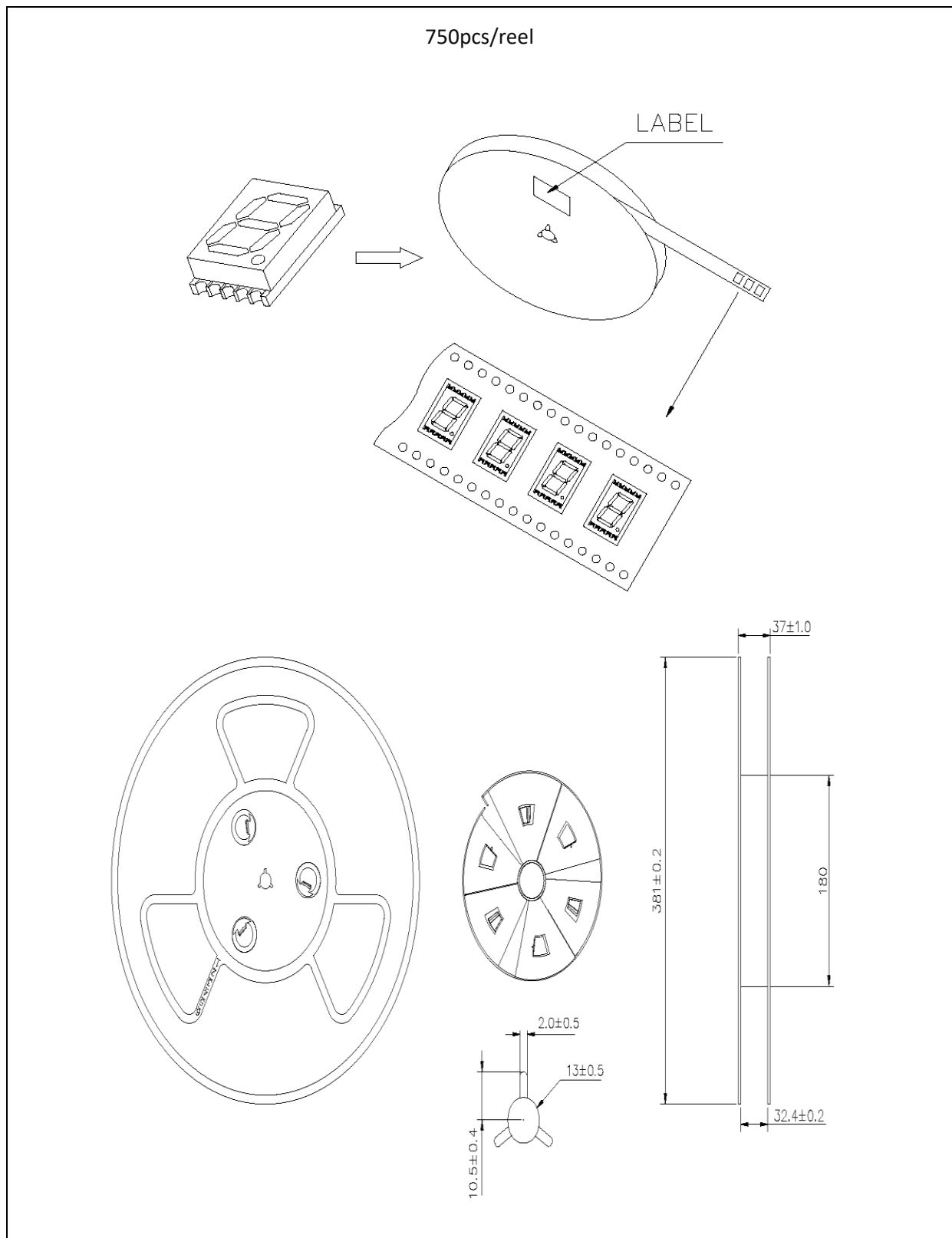


Note:

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



PACKING SPECIFICATION:



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 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.

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:

Version	Date	Summary of Revision
A1.0	26/01/2017	Datasheet set-up.
A1.1	26/01/2017	Revised maximum intensity value.