



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



- ▶ PCB Side View
- ▶ 1204 Series
- ▶ Red (630nm) / Green (574nm)

NOD02S78SV



Release Date: 13 November 2015 Version: A1.2



Side View 1204

RoHS Compliant



FEATURES (*Red/Green):

- **Package:** Side View PCB SMT Package
- **Forward Current:** 20/20mA*
- **Forward Voltage (typ.):** 2.1/2.2V
- **Luminous Intensity (typ.):** 70/40mcd @20mA
- **Colour:** Red/Green
- **Wavelength:** 630/574nm
- **Viewing angle:** 120/120°
- **Materials:**
 - Die: AlGaInP/AlGaInP
 - Resin: Epoxy (Water Clear)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+90°C
- **ESD:** 2000V
- **Grouping parameters:**
 - Forward voltage
 - Luminous intensity
 - Dominant Wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 8mm tape with 3000/reel, ø180mm (7")

APPLICATIONS:

- Backlighting
- Indication Light
- Side view light strip
- Switch light
- Dashboard
- Keyboard

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	30/30*	mA
Peak Forward Current Duty 1/10@10KHz	I_{FP}	90/60	mA
Reverse Current @5V	I_R	10	μ A
Power Dissipation	PD	72/78	mW
Electrostatic Discharge	ESD	2000	V
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+90	°C

- * In the order of Red/Green.

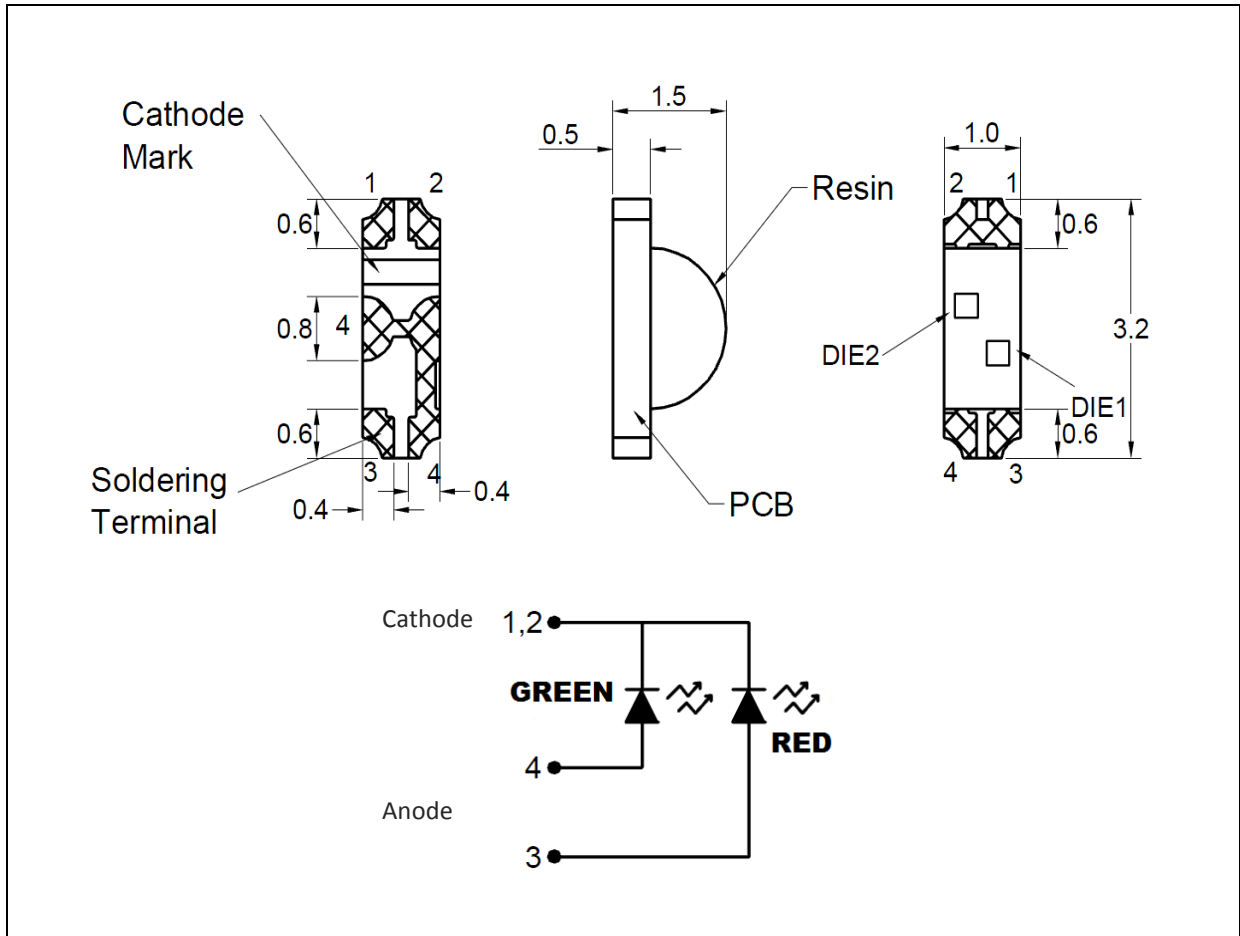
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	1.4/1.6	---	2.4/2.6	V	$I_F=20mA$
Luminous Intensity	I_V	32/20	70/40	---	mcd	$I_F=20mA$
Dominant Wavelength	λ_D	---	630/574	---	nm	$I_F=20mA$
Peak Wavelength	λ_P	---	642/575	---	nm	$I_F=20mA$
Spectral Line Half Bandwidth	$\Delta \lambda$	---	20/20	---	nm	$I_F=20mA$
Viewing Angle	$2\theta_{1/2}$	---	120/120	---	deg	$I_F=20mA$

- Luminous intensity (I_V) $\pm 15\%$, Forward Voltage (V_F) $\pm 0.1V$

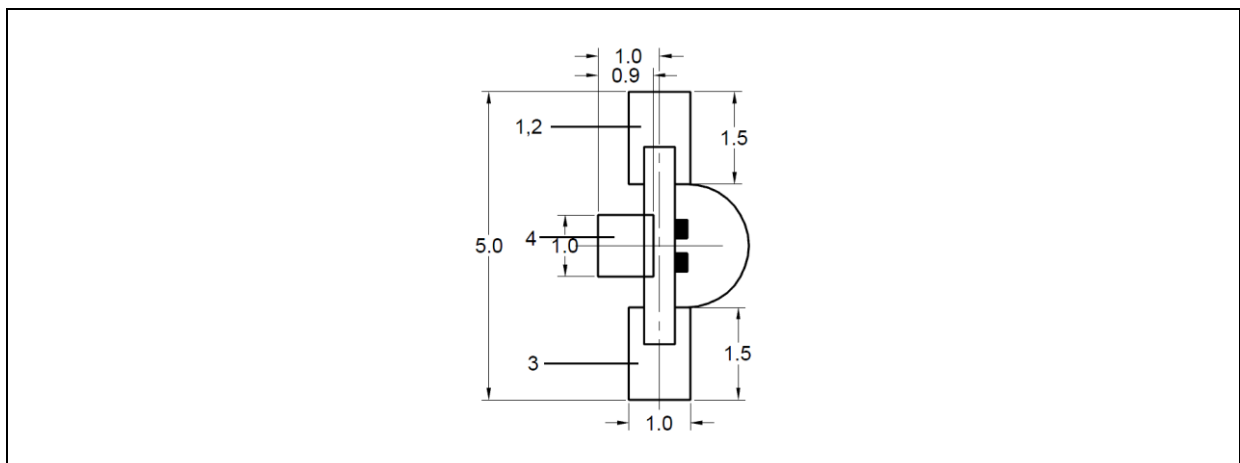
OUTLINE DIMENSION:

Package Dimension:



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

Recommended Soldering Pad Dimension:



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

BINNING GROUPS:

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

Code	Min.	Max.	Unit
1 (Red)	1.4	1.6	V
2 (Red and Green)	1.6	1.8	
3 (Red and Green)	1.8	2.0	
4 (Red and Green)	2.0	2.2	
5 (Red and Green)	2.2	2.4	
6 (Green)	2.4	2.6	

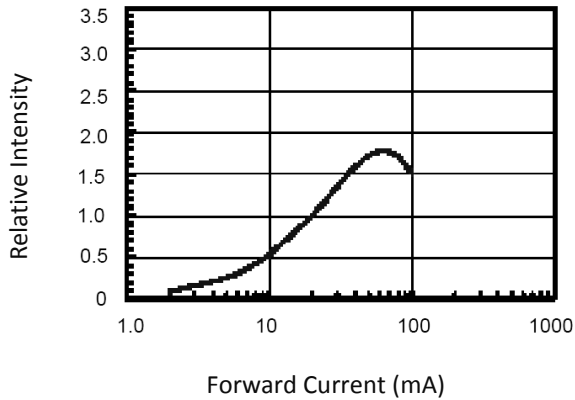
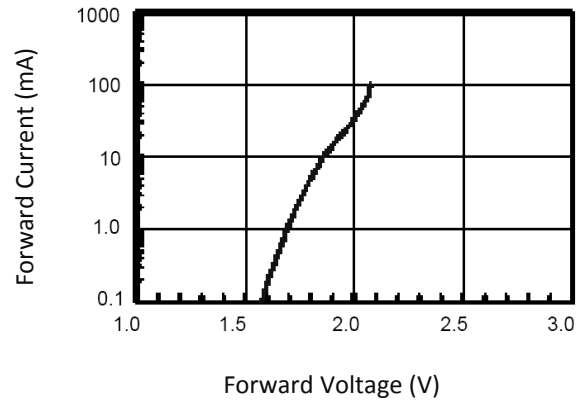
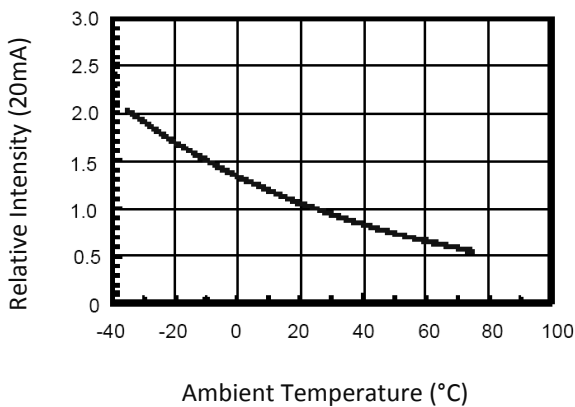
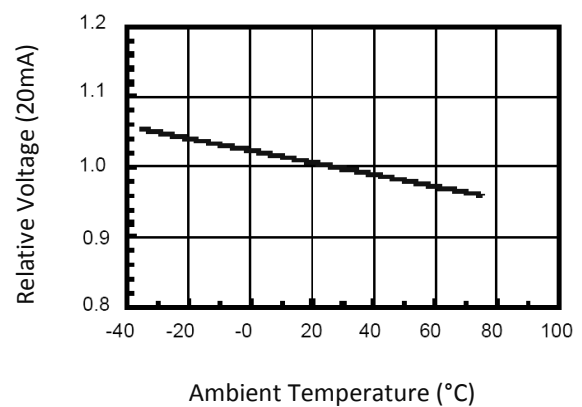
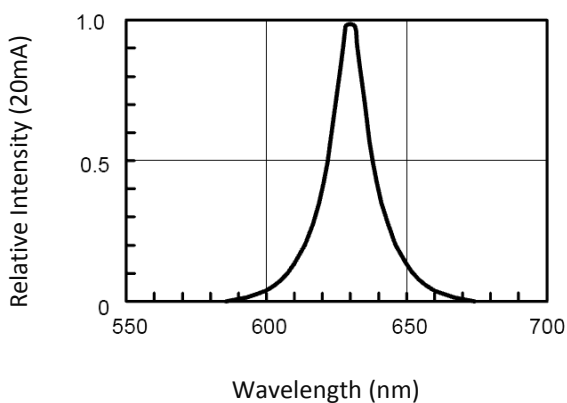
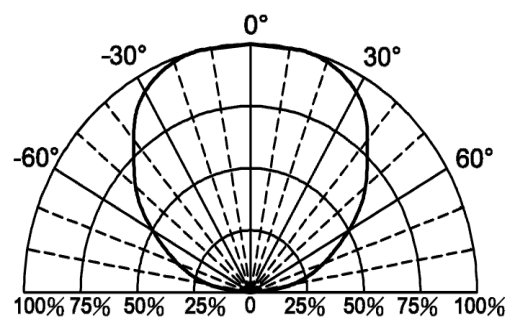
 Luminous Intensity Classifications ($I_F = 20\text{mA}$):

Code	Min.	Max.	Unit
NG (Green)	20	32	mcd
TR/TG (Red and Green)	32	50	
PR (Red)	50	80	

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

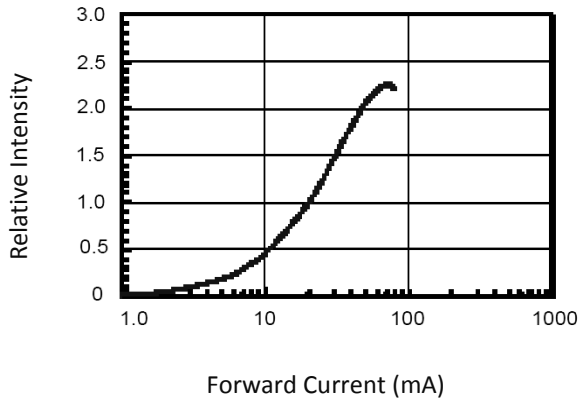
Code	Min.	Max.	Unit
29R (Red)	624	627	nm
30R (Red)	627	630	
31R (Red)	630	633	
32R (Red)	633	636	

7G (Green)	568	570	nm
8G (Green)	570	572	
9G (Green)	572	574	
10G (Green)	574	576	
11G (Green)	576	578	

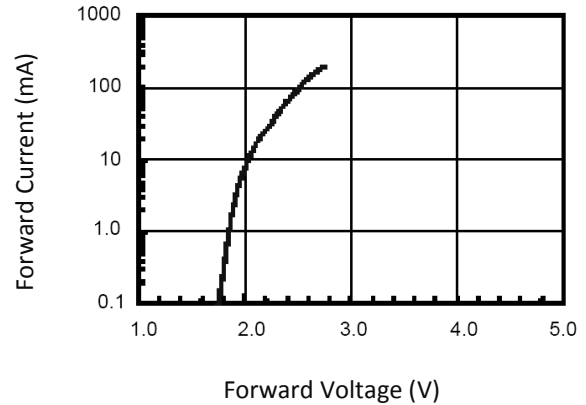
ELECTRO-OPTICAL CHARACTERISTICS (RED):
Relative Intensity v.s. Forward Current

Forward Current v.s. Forward Voltage

Relative Intensity v.s. Temperature

Relative Forward Voltage v.s. Temperature

Relative Intensity v.s. Wavelength

Directive Radiation


ELECTRO-OPTICAL CHARACTERISTICS (GREEN):

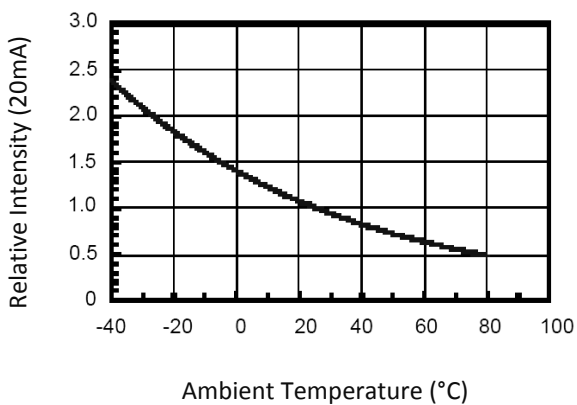
Relative Intensity v.s. Forward Current



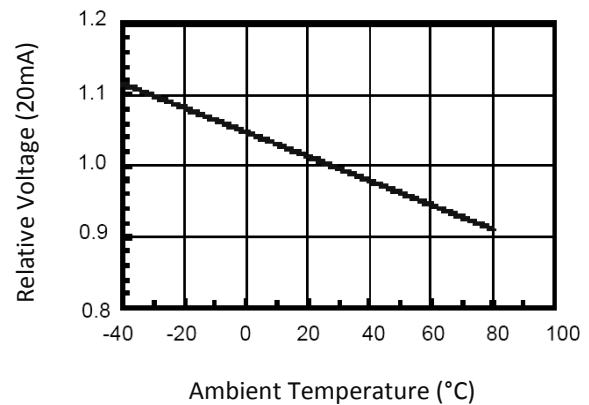
Forward Current v.s. Forward Voltage



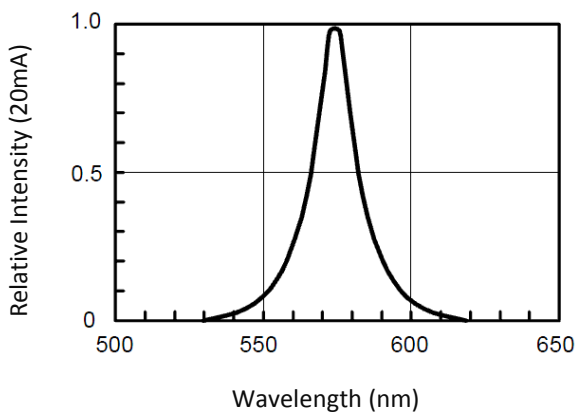
Relative Intensity v.s. Temperature



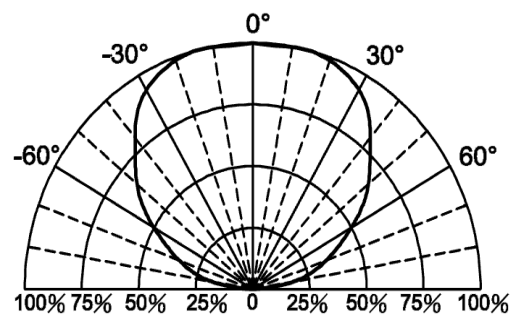
Relative Forward Voltage v.s. Temperature



Relative Intensity v.s. Wavelength

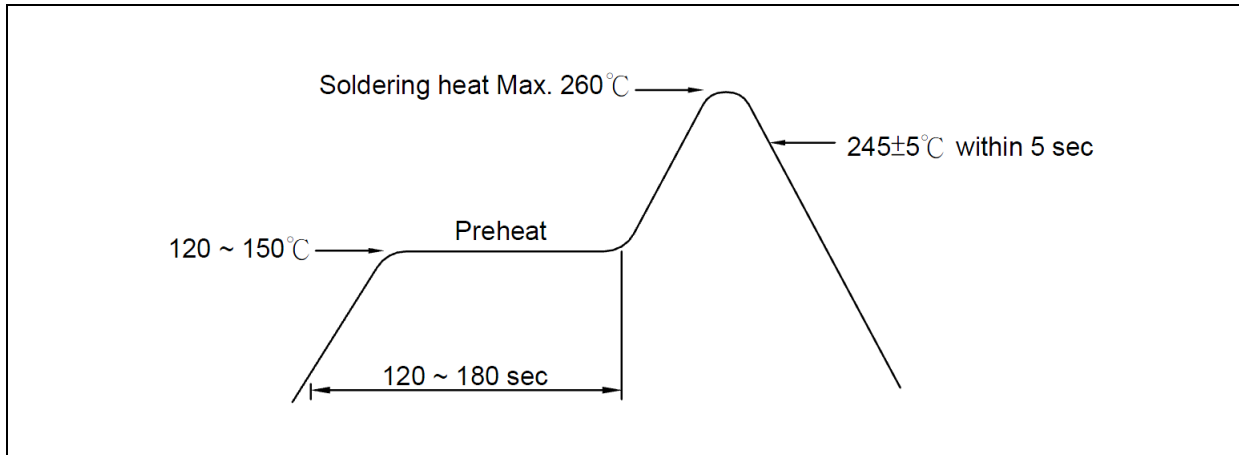


Directive Radiation

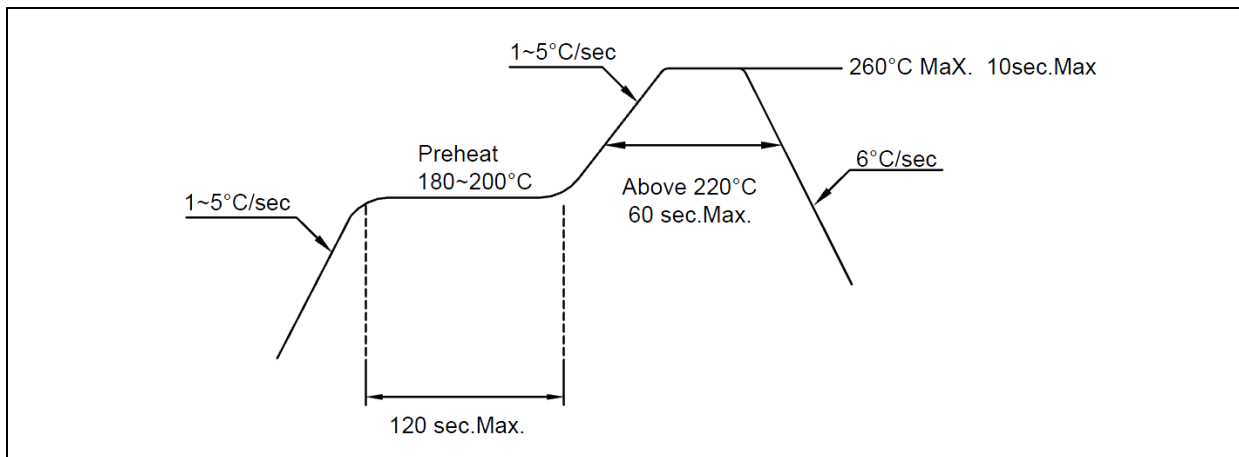


RECOMMENDED SOLDERING PROFILE:

Wave Solder:



Lead-free Solder:

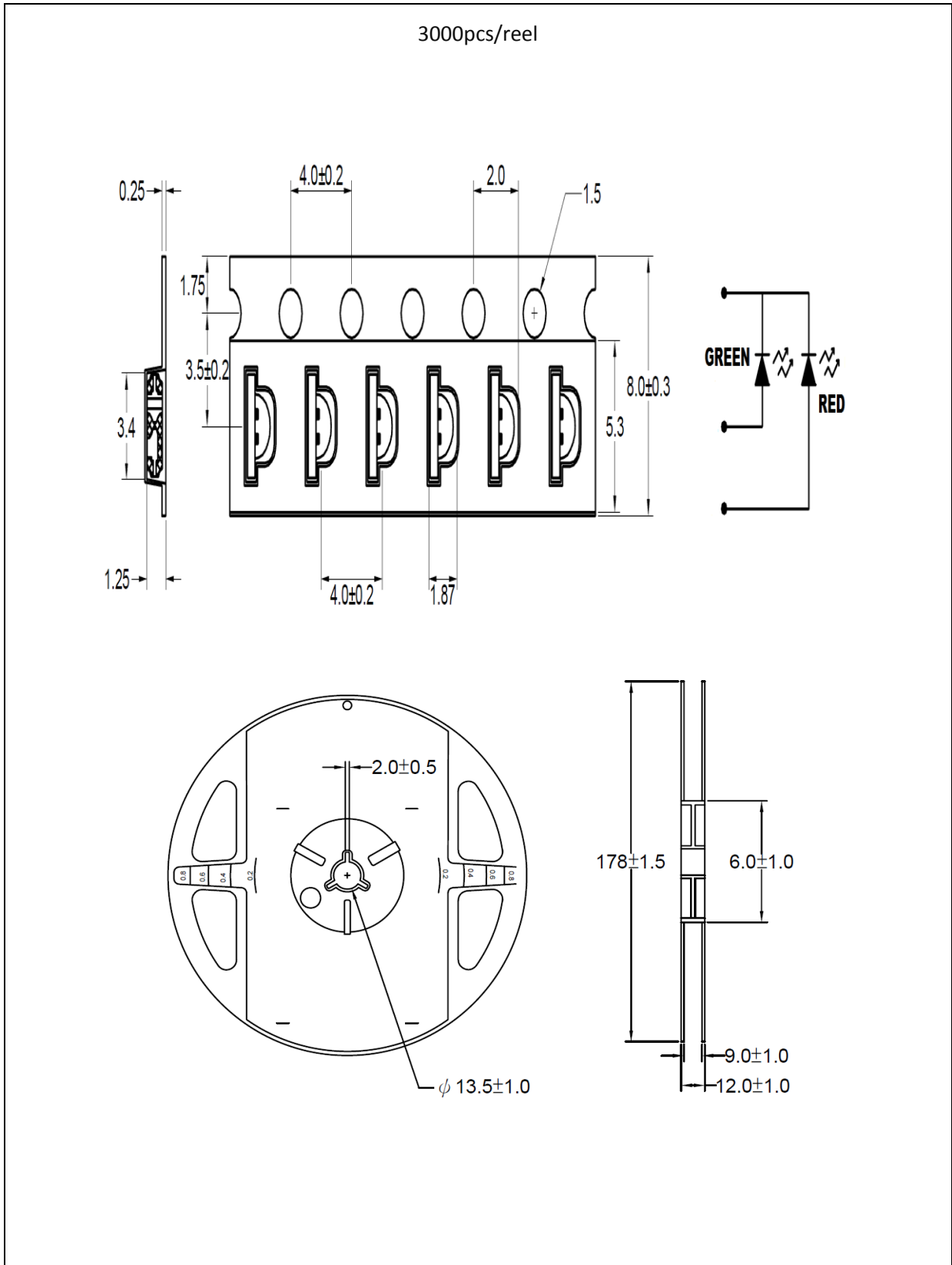


Note:

1. Maximum reflow soldering: 2 times.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.

PACKING SPECIFICATION:

Reel Dimension:



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:

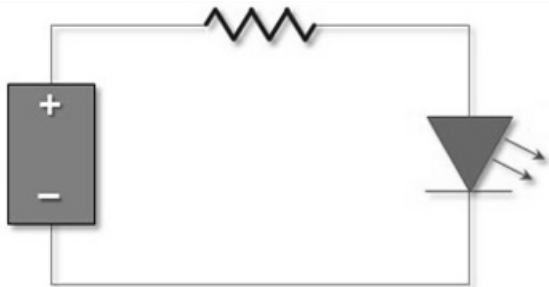
It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs.

The suggested baking conditions are as followings:

- 70±3°C x 24hrs and <5%RH, taped / reel package.
- 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-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	20/12/2013	Datasheet set-up.
A1.1	17/10/2014	Update series name.
A1.2	13/11/2015	Part number adds -SV for side view.