BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED !

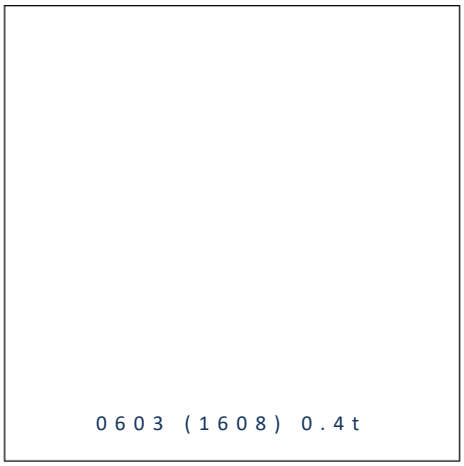
ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

PRODUCT DATASHEET

- ▶ PCB / Chip LED
- ▶ 0603 (1608) 0.4t
- ▶ Amber (605nm) / Green (574nm)

Release Date: 14 December 2022 Version: A1.1

N0D63S59



0603 (1608) 0.4t

RoHS Compliant

FEATURES (Amber/Green*):

- **Package:** PCB Top View SMT Package
- **Forward Current:** 20/20mA*
- **Forward Voltage (typ.):** 2.2/2.2V
- **Luminous Intensity (typ.):** 80/40mcd@20mA
- **Colour:** Amber/Green
- **Wavelength:** 605/574nm
- **Viewing angle:** 130/130°
- **Materials:**
  - Die: AlGaInP/AlGaInP
  - Resin: Epoxy (Water Clear)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **ESD:** 2000/2000V
- **Grouping parameters:**
  - Forward voltage
  - Luminous intensity
  - Dominant Wavelength
- **Soldering methods:** Reflow
- **MSL:** acc. to JEDEC Level 3
- **Packing:** 8mm tape with max.4000/reel, ø180mm (7'')

* In the order of Amber/Green.

APPLICATIONS:

- Indication Light
- Switch light
- Dashboard
- Keyboard
- 3C Consumer Goods

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	25/25*	mA
Peak Forward Current Duty 1/10@10KHz	I_{FP}	60/60	mA
Reverse Current @5V	I_R	10/10	μA
Power Dissipation	PD	65/65	mW
Electrostatic Discharge	ESD	2000/2000	V
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+100	°C

1. * In the order of Amber/Green.

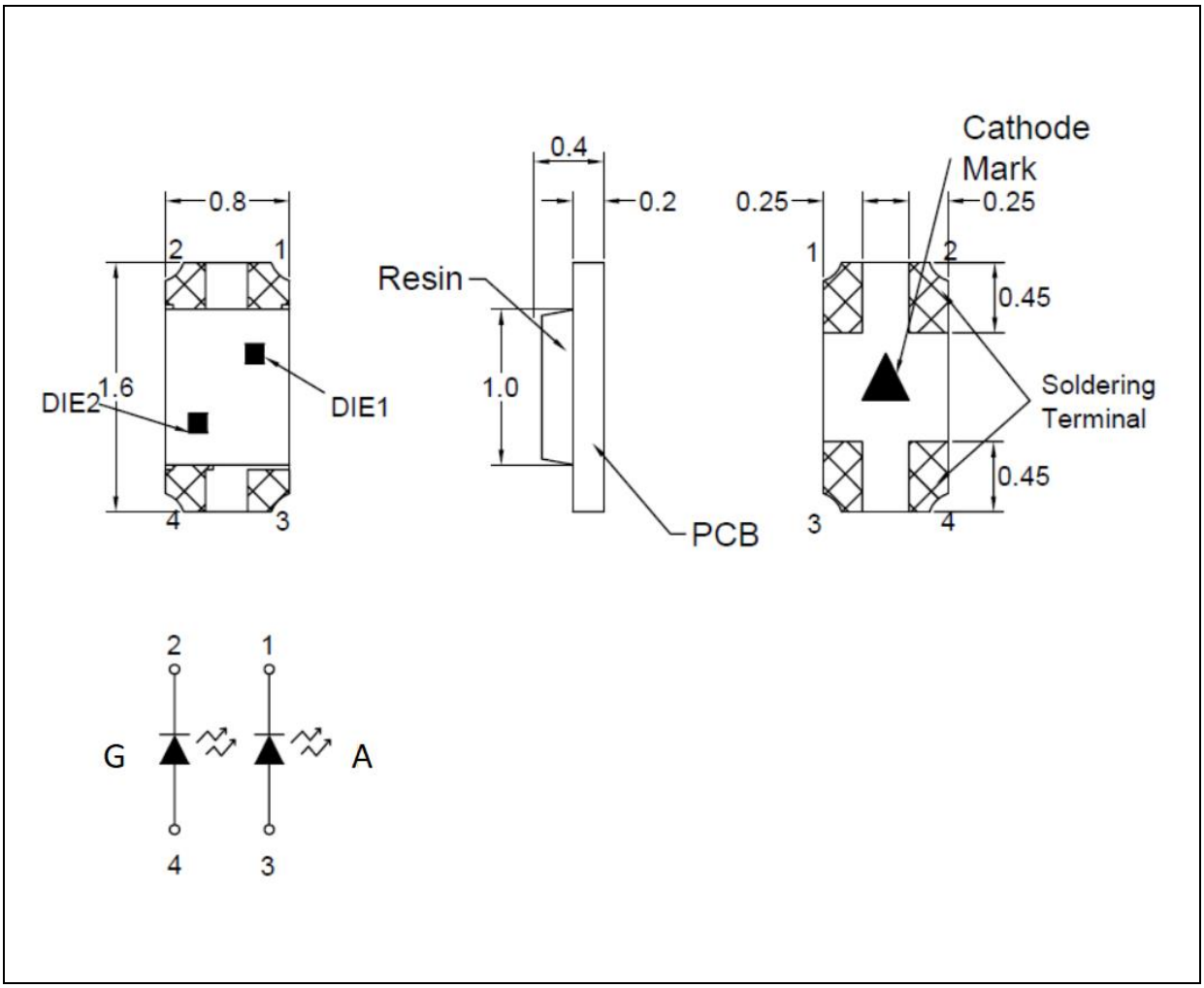
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	1.7/1.7	---	2.6/2.6*	V	I_F=20mA
Luminous Intensity	I_V	50/20	80/40	---	mcd	I_F=20mA
Dominant Wavelength	λ_D	---	605/574	---	nm	I_F=20mA
Spectral Line Half Bandwidth	$\Delta\lambda$	---	17/20	---	nm	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	---	130/130	---	deg	I_F=20mA

1. * In the order of Amber/Green.
2. Luminous intensity (I_V) ±15%, Forward Voltage (V_F) ±0.1V

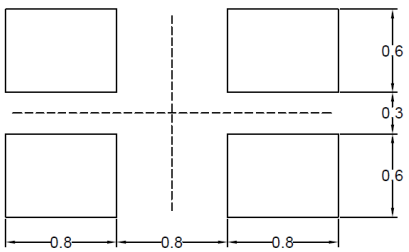
OUTLINE DIMENSION:

Package Dimension:



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

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance ±0.1mm with angle tolerance ±0.5°.

BINNING GROUPS:

Forward Voltage Classifications (I_F = 20mA):

Code	Min.	Max.	Unit
Amber	1.7	2.6	V
Green	1.7	2.6	V

Luminous Intensity Classifications (I_F = 20mA):

Code		Min.	Max.	Unit
Amber	P	50	80	mcd
	Q	80	125	
	R	125	200	
	S	200	320	

Code		Min.	Max.	Unit
Green	M	20	32	mcd
	N	32	50	
	P	50	80	
	Q	80	125	

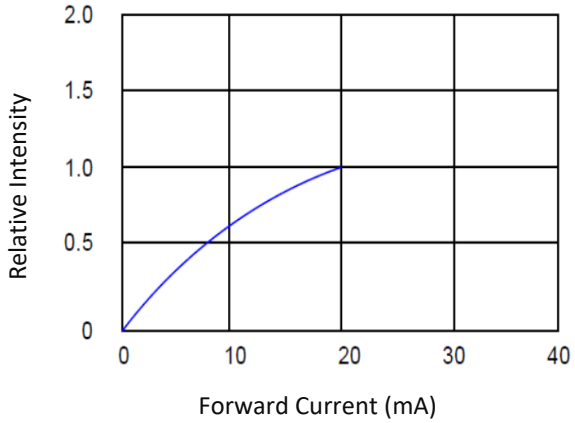
Dominant Wavelength Classifications (I_F = 20mA):

Code		Min.	Max.	Unit
Amber	20	598	600	nm
	21	600	603	
	22	603	606	
	23	606	609	
	24	609	612	

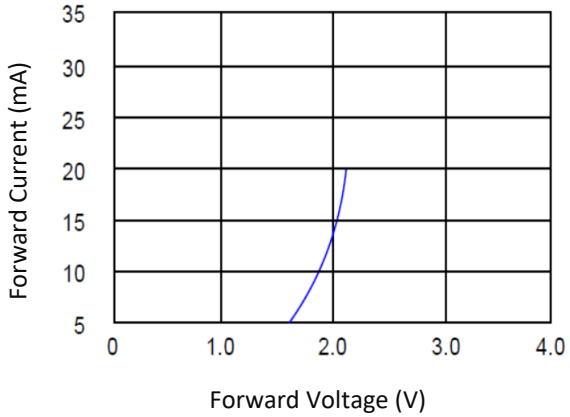
Green	6	566	568	nm
	7	568	570	
	8	570	572	
	9	572	574	
	10	574	576	

ELECTRO-OPTICAL CHARACTERISTICS (AMBER):

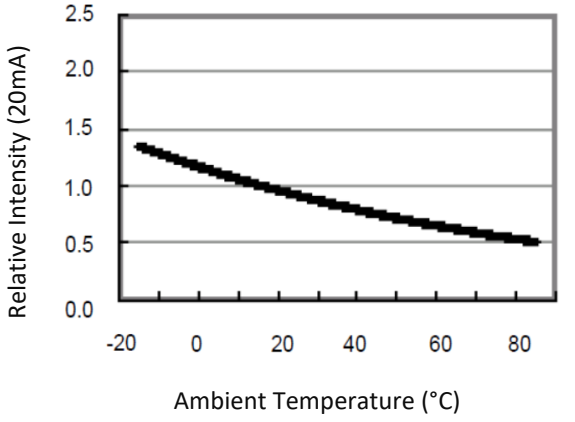
Relative Intensity v.s. Forward Current



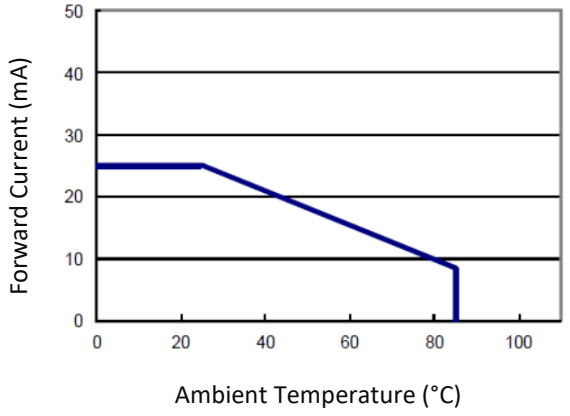
Forward Current v.s. Forward Voltage



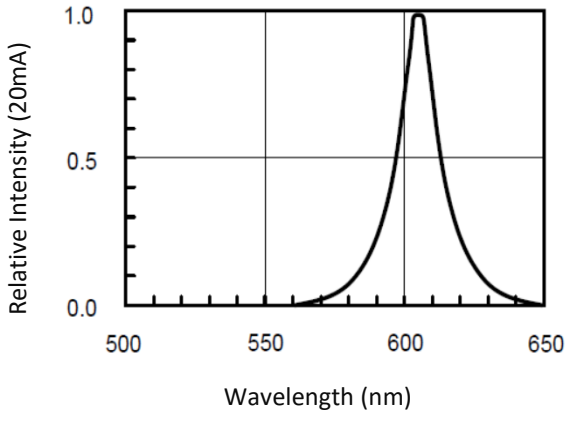
Relative Intensity v.s. Temperature



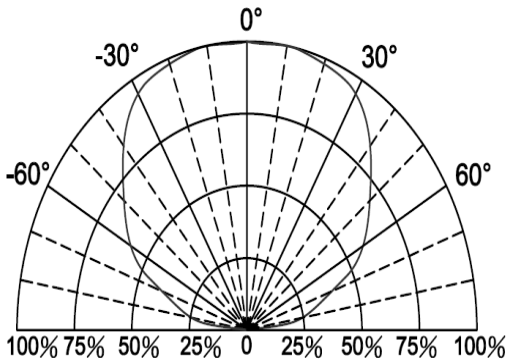
Maximum Current v.s. Temperature



Relative Intensity v.s. Wavelength

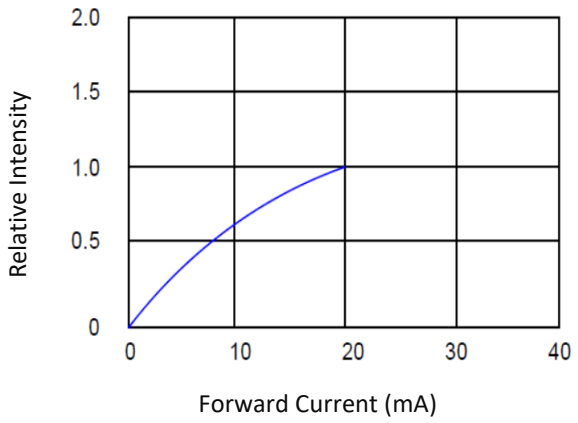


Directive Radiation

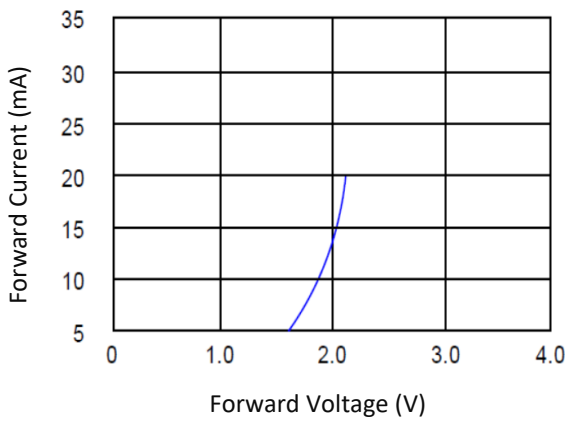


ELECTRO-OPTICAL CHARACTERISTICS (GREEN):

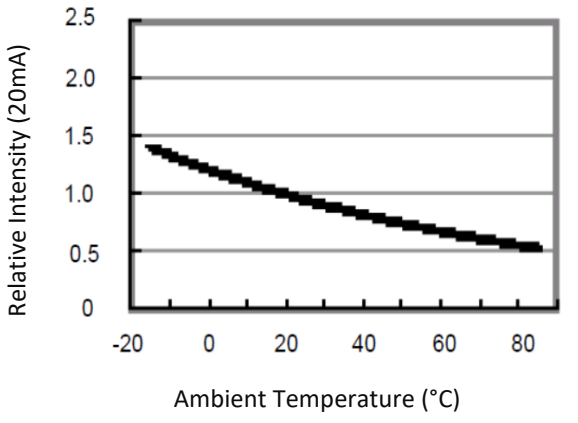
Relative Intensity v.s. Forward Current



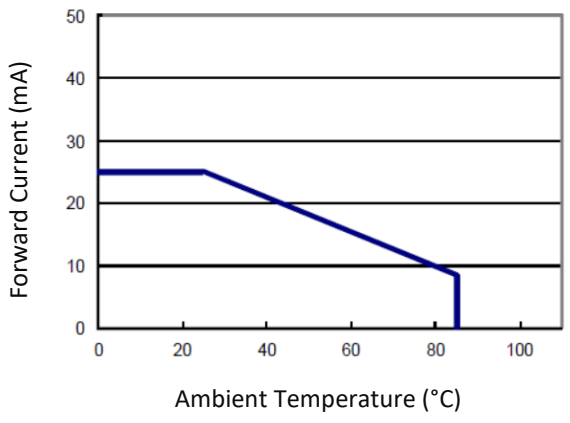
Forward Current v.s. Forward Voltage



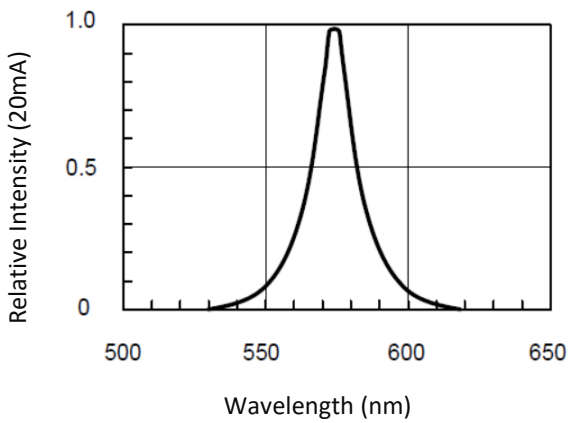
Relative Intensity v.s. Temperature



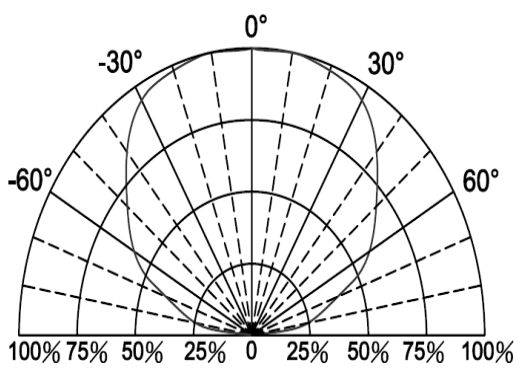
Maximum Current v.s. Temperature



Relative Intensity v.s. Wavelength

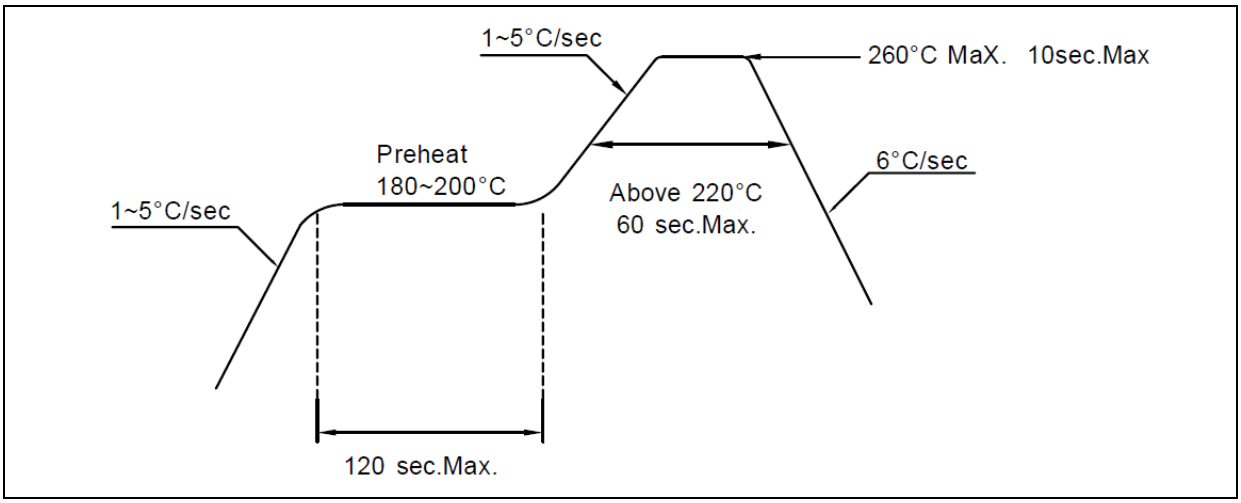


Directive Radiation



RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



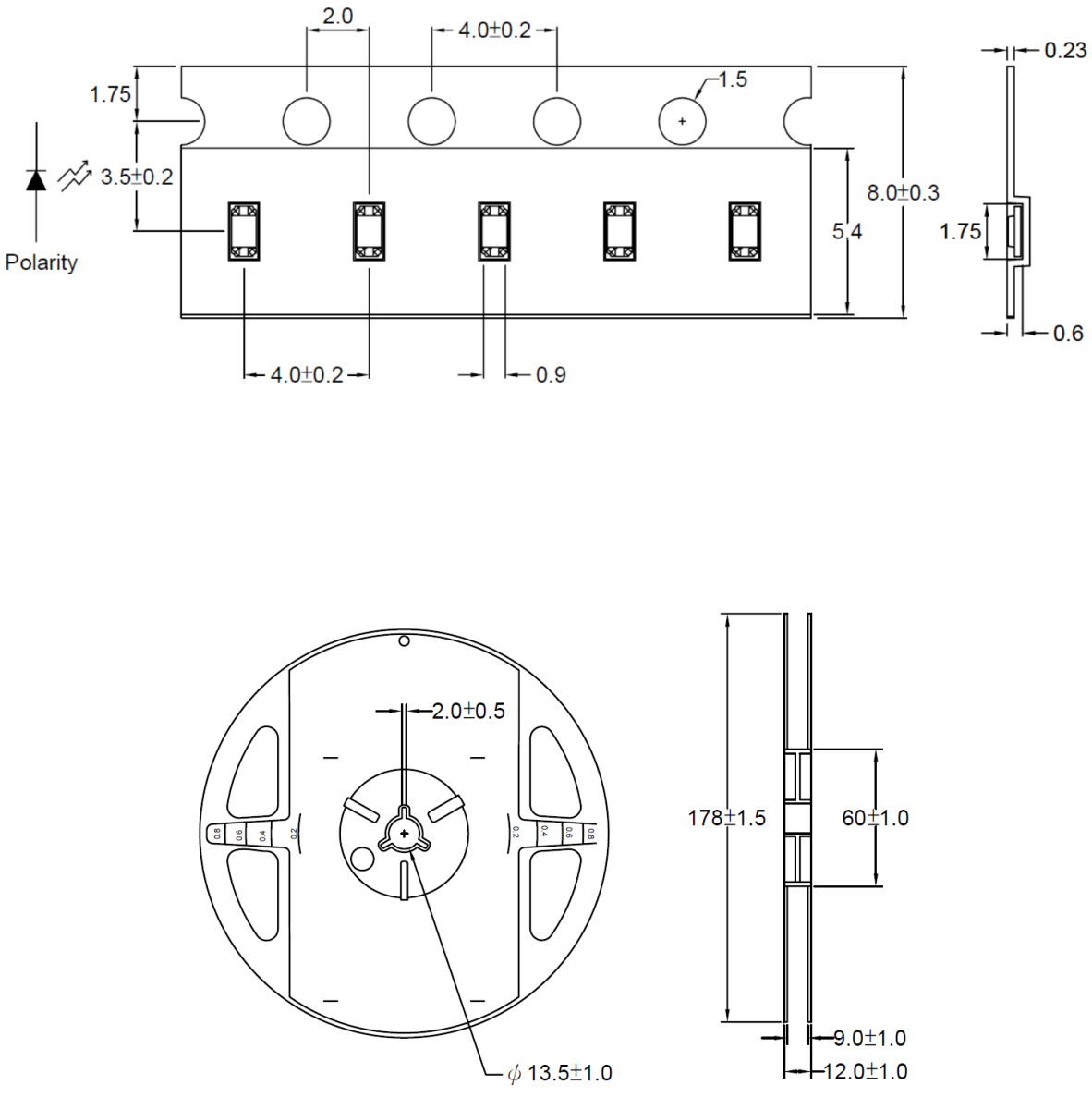
Note:

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

PACKING SPECIFICATION:

Reel Dimension:

Max.4000pcs/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 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 <10% R.H. and apply baking before use.

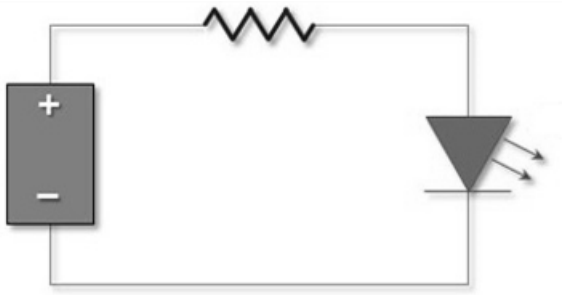
Baking:

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±5°C x 72hrs 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	01/12/2021	Datasheet set-up.
A1.1	14/12/2022	New datasheet format.