BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED!

PRODUCT DATASHEET

- ► PCB / CHIP LED
- ► 0805 0.8t Series
- ► Red (630nm) / Green (525nm) / Blue (470nm)

Release Date: 23 February 2016 Version: A1.0

N0M25S67

0805 0.8t Series

RoHS Compliant

FEATURES:

- **Package:** PCB SMT Package Top View Multi Colours
- **Forward Current:** 20/20/20mA*
- **Forward Voltage (typ.):** 1.9/3.2/3.2V
- **Luminous Intensity (typ.):** 100/500/125mcd @20mA
- **Colour:** Red/Green/Blue
- **Wavelength:** 630/525/470nm
- **Viewing angle:** 140/140/140°
- **Materials:**
  - Die: AlGaInP/InGaN/InGaN
  - Resin: Epoxy (Water Clear)
- **Operating Temperature:** -20~+80°C
- **Storage Temperature:** -30~+100°C
- **ESD:** 2000/500/500V
- **Grouping parameters:**
  - Forward voltage
  - Luminous intensity
  - Dominant Wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 8mm tape with 4000/reel, ø180mm (7'')

* in the order of Red/Green/Blue

APPLICATIONS:

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

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	50/30/30*	mA
Peak Forward Current Duty 1/10@10KHz	I_{FP}	130/100/100	mA
Reverse Current @5V	I_R	10/50/50	μA
Power Dissipation	PD	120/108/108	mW
Electrostatic Discharge	ESD	2000/500/500	V
Operating Temperature	T_{OPR}	-20~+80	°C
Storage Temperature	T_{STG}	-30~+100	°C

* in the order of Red/Green/Blue

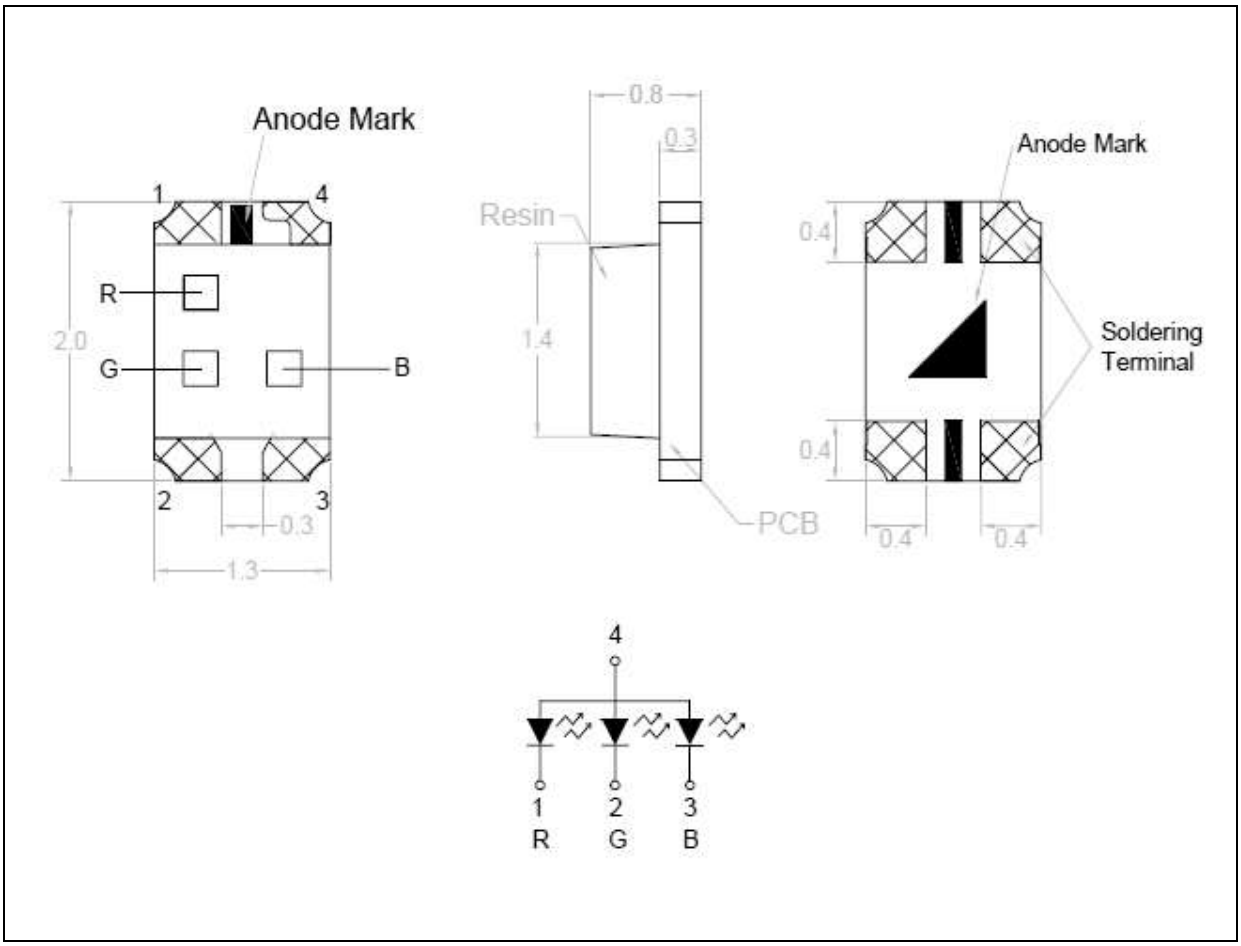
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	1.5/2.8/2.8	---	2.4/3.6/3.6	V	I_F=20mA
Luminous Intensity	I_V	32/200/50	100/500/125	125/1250/200	mcd	I_F=20mA
Dominant Wavelength	λ_D	---	630/525/470	---	nm	I_F=20mA
Spectral Line Half Bandwidth	$\Delta\lambda$	---	20/36/30	---	nm	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	---	140/140/140	---	deg	I_F=20mA

1. Luminous intensity (I_V) ±15%, Forward Voltage (V_F) ±0.1V

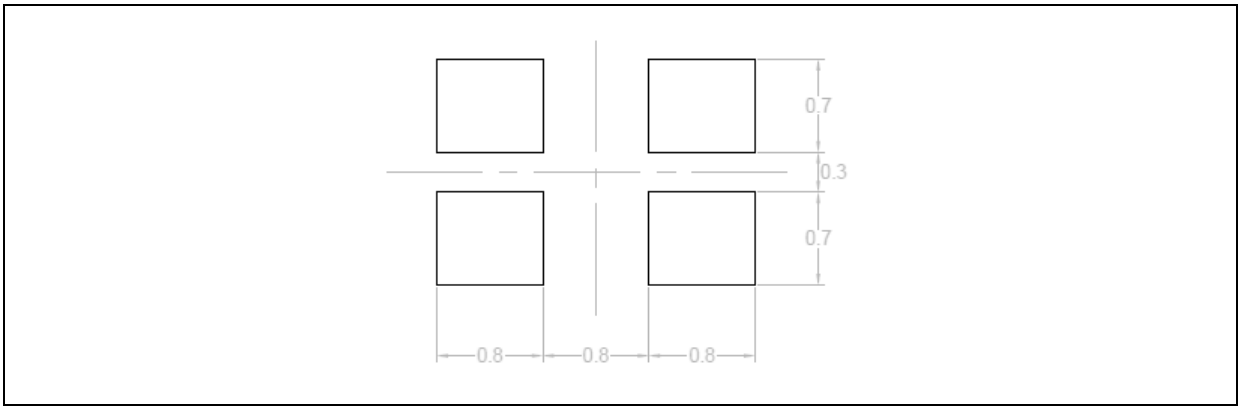
OUTLINE DIMENSION:

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
Red	1.5	2.4	V
Green	2.8	3.6	
Blue	2.8	3.6	

Luminous Intensity Classifications (I_F = 20mA):

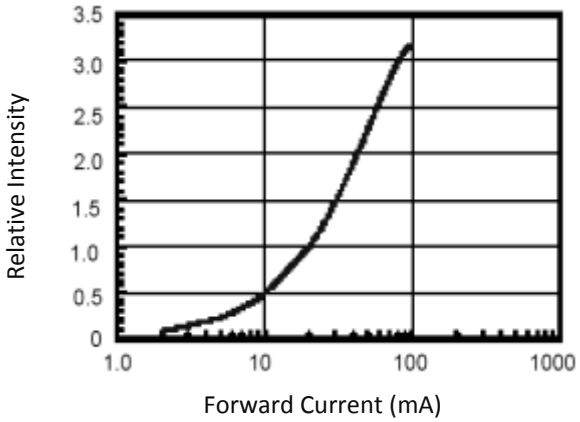
Code		Min.	Max.	Unit
Red	N	32	50	mcd
	P	50	80	
	Q	80	125	
Green	S	200	320	mcd
	T	320	500	
	U	500	800	
	V-1	800	1250	
	V-2	1000	1250	
Blue	P	50	80	mcd
	Q	80	125	
	R	125	200	

Dominant Wavelength Classifications (I_F = 20mA):

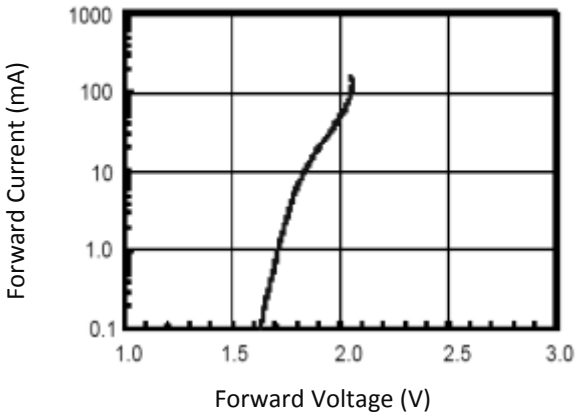
Code	Min.	Max.	Unit
Red	620	640	nm
Green	520	530	
Blue	465	475	

ELECTRO-OPTICAL CHARACTERISTICS (RED):

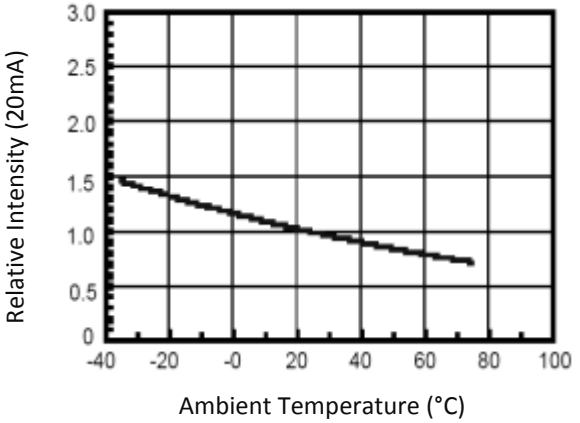
Relative Intensity v.s. Forward Current



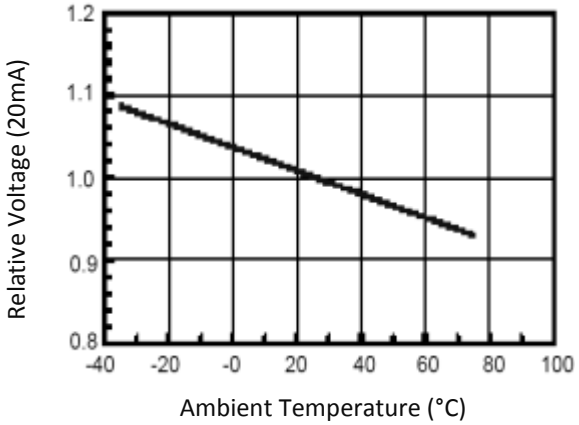
Forward Current v.s. Forward Voltage



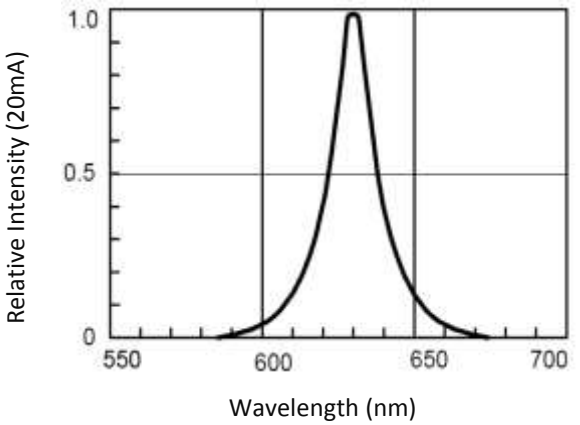
Relative Intensity v.s. Temperature



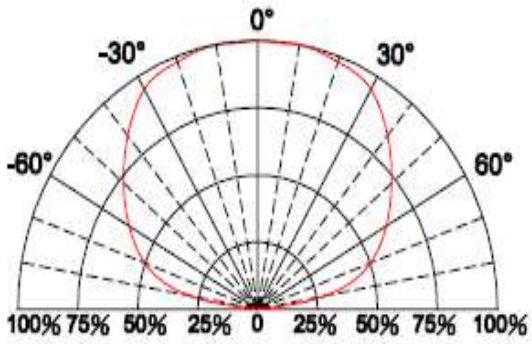
Relative Forward Voltage v.s. Temperature



Relative Intensity v.s. Wavelength

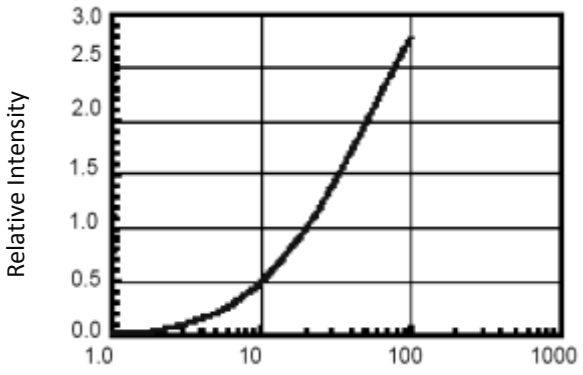


Directive Radiation

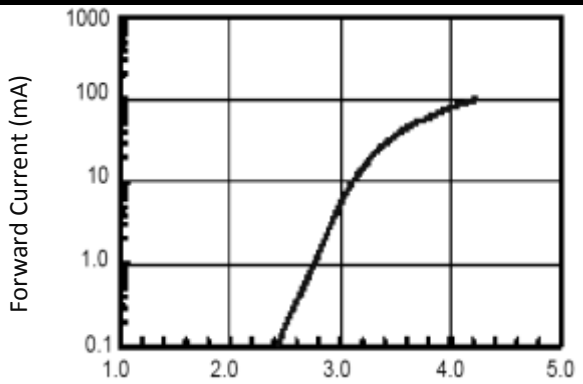


ELECTRO-OPTICAL CHARACTERISTICS (GREEN):

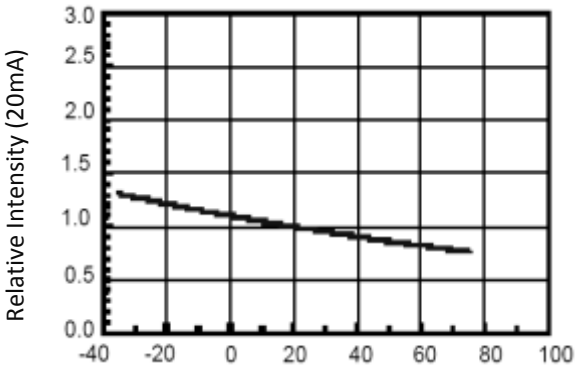
Relative Intensity v.s. Forward Current



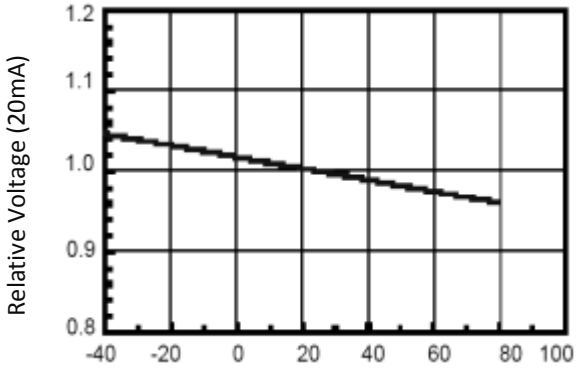
Forward Current v.s. Forward Voltage



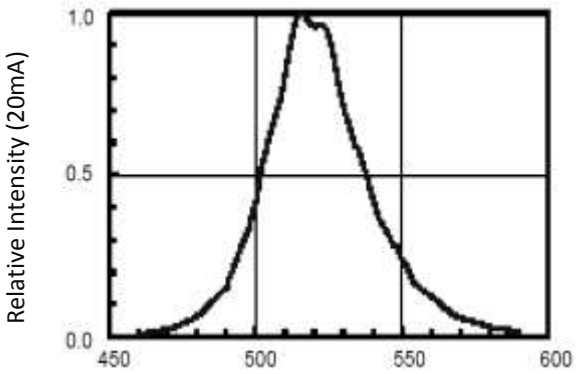
Relative Intensity v.s. Temperature



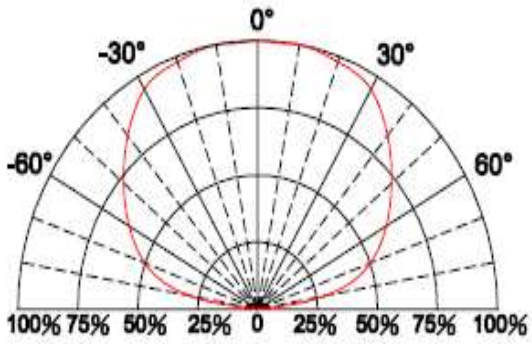
Relative Forward Voltage v.s. Temperature



Relative Intensity v.s. Wavelength

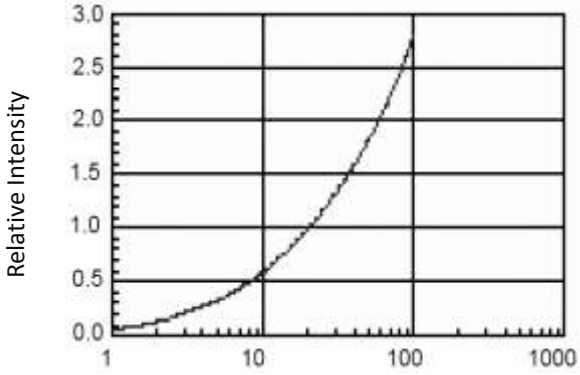


Directive Radiation

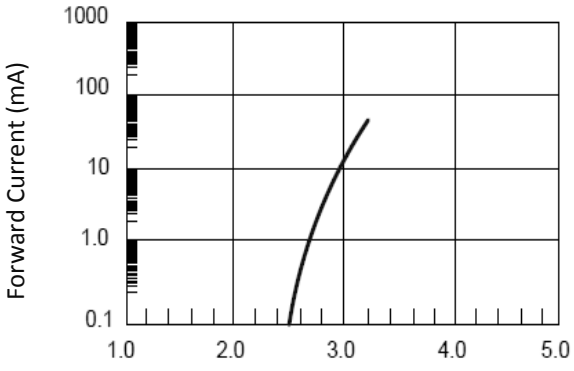


ELECTRO-OPTICAL CHARACTERISTICS (BLUE):

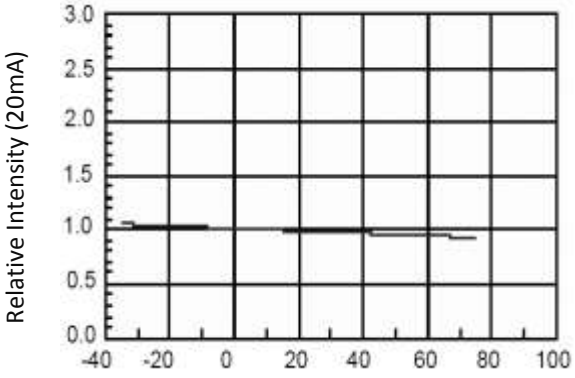
Relative Intensity v.s. Forward Current



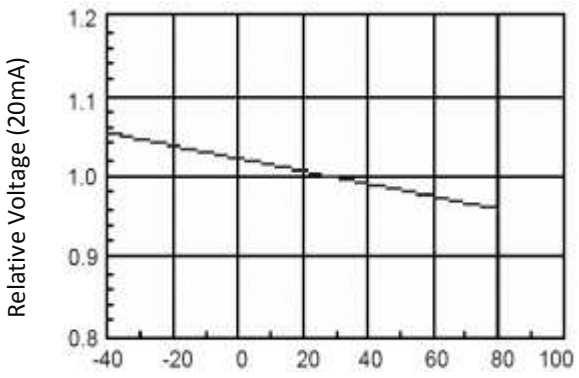
Forward Current v.s. Forward Voltage



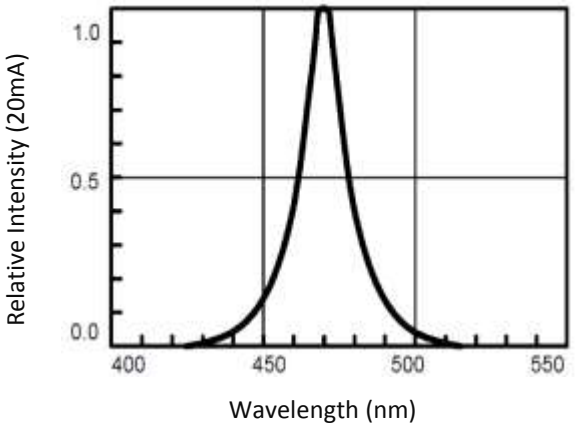
Relative Intensity v.s. Temperature



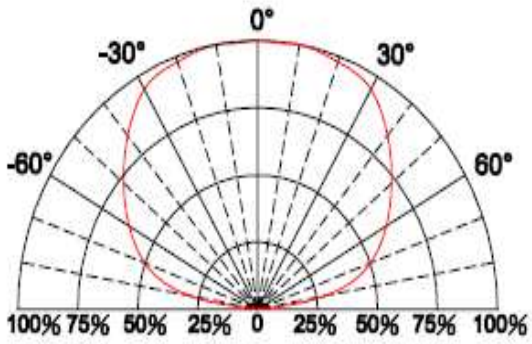
Relative Forward Voltage v.s. Temperature



Relative Intensity v.s. Wavelength

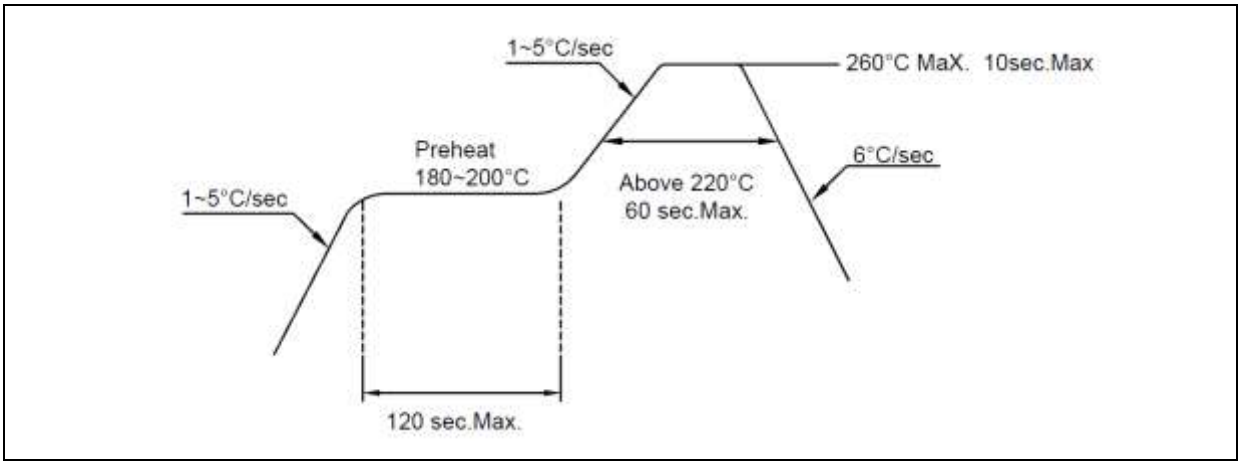


Directive Radiation



RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



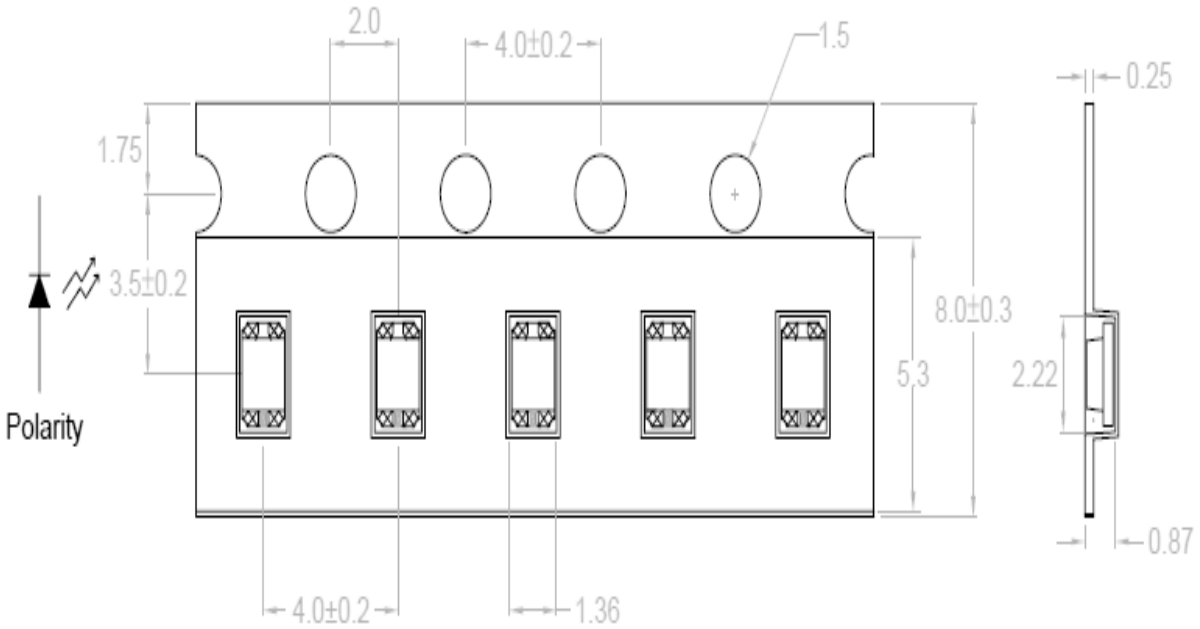
Note:

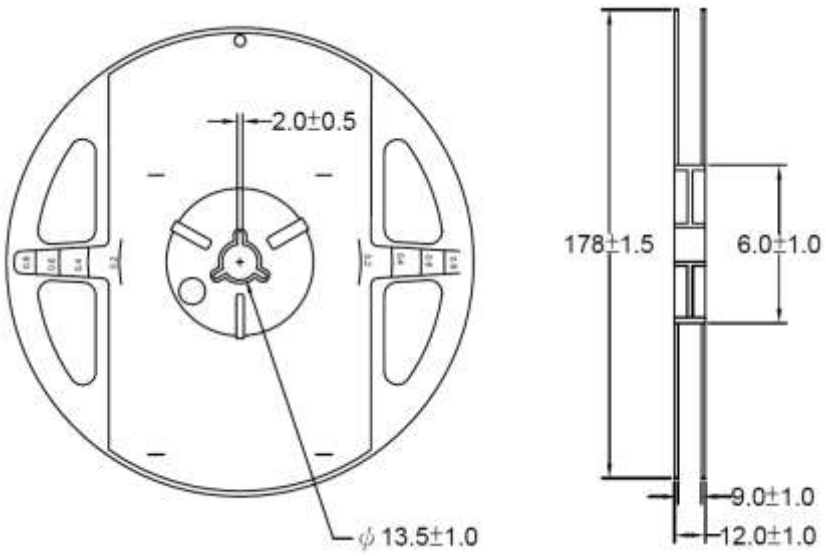
1. Maximum reflow soldering: 2 times.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.

PACKING SPECIFICATION:

Reel Dimension:

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 and apply baking at 60°C±5°C for 15hrs before use.

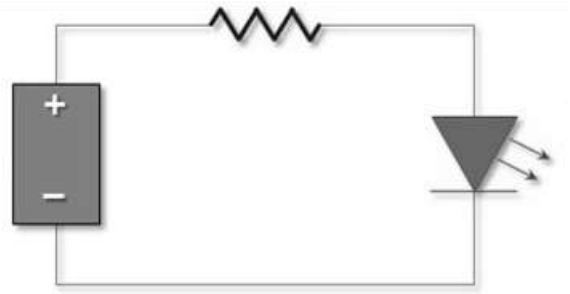
Baking:

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-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	23/02/2016	Datasheet set-up.