BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED !

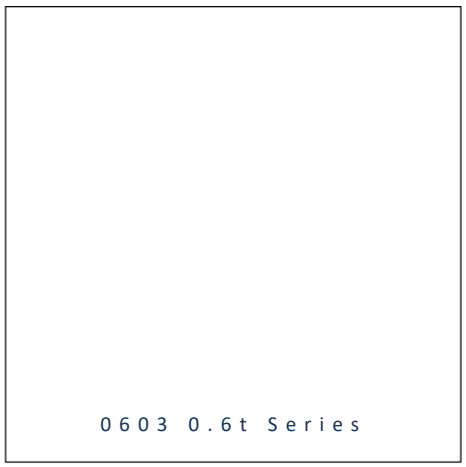
ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

PRODUCT DATASHEET

- ▶ PCB / CHIP LED
- ▶ 0603 (1608) 0.6t
- ▶ Infrared (850nm)

Release Date: 23 May 2018 Version: A1.0

N0F46S07



0603 0.6t Series

RoHS Compliant

FEATURES:

- **Package:** PCB / CHIP LED Top View
- **Forward Current:** 20mA
- **Forward Voltage (typ.):** 1.4V
- **Radiant Intensity (typ.):** 1mW/sr@20mA
- **Colour:** Infrared (IR)
- **Wavelength:** 850nm
- **Viewing angle:** 140°
- **Materials:**
  - Die: AlGaAs
  - Resin: Epoxy (Water Clear)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **ESD (HBM):** 1KV
- **Grouping parameters:**
  - Forward voltage
  - Radiant intensity
  - Peak wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** acc. to JEDEC Level 2a
- **Packing:** 8mm tape with Max.4000/reel, ø180mm (7'')

APPLICATIONS:

- Sensor
- 3C Consumer Goods
- Communication Device

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	30	mA
Peak Forward Current Duty 1/10; width 0.01mS	I_{FP}	150	mA
Reverse Voltage	V_R	5	V
Reverse Current @5V	I_R	10	μA
Junction Temperature	T_j	110	°C
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+100	°C

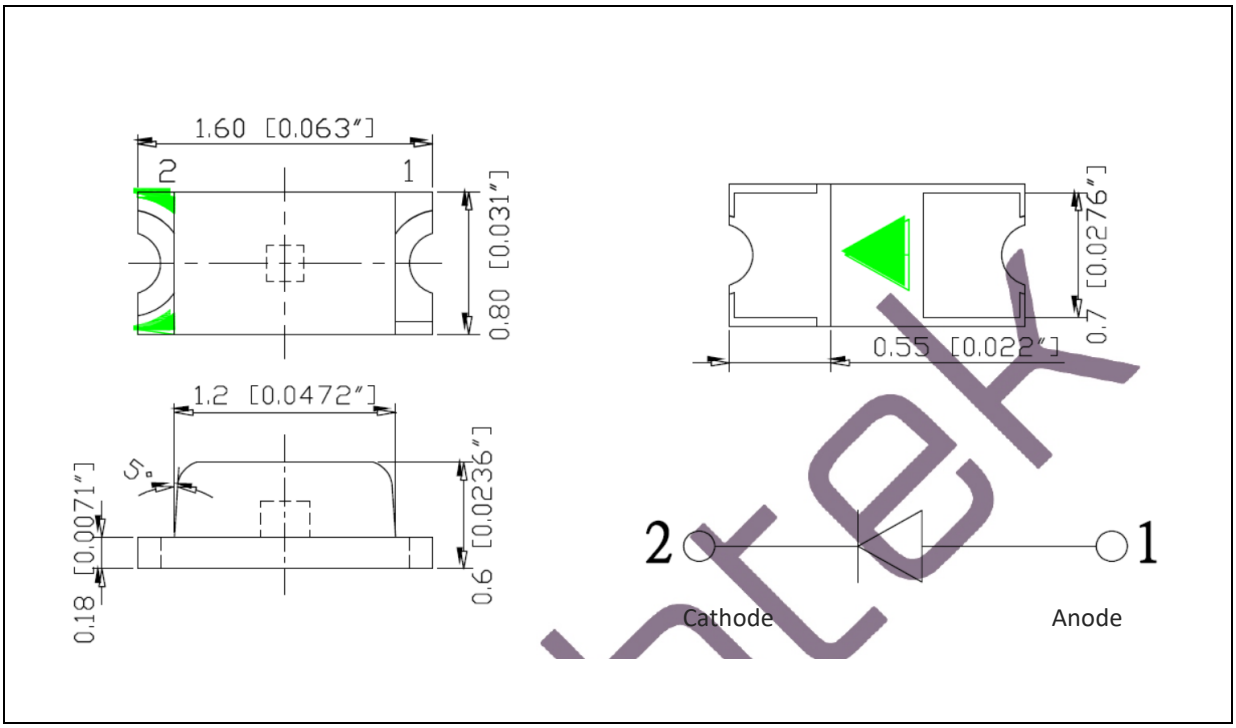
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	1.0	1.4	1.8	V	I_F=20mA
Radiant Intensity	I_V	---	1	---	mW/sr	I_F=20mA
Radiant Power	P_O	---	7.5	---	mW	I_F=20mA
Peak Wavelength	Λ_P	840	850	860	nm	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	---	140	---	deg	I_F=20mA

1. Luminous intensity (I_V) ±10%, Forward Voltage (V_F) ±0.1V, Peak Wavelength (Λ_P) ±0.5nm

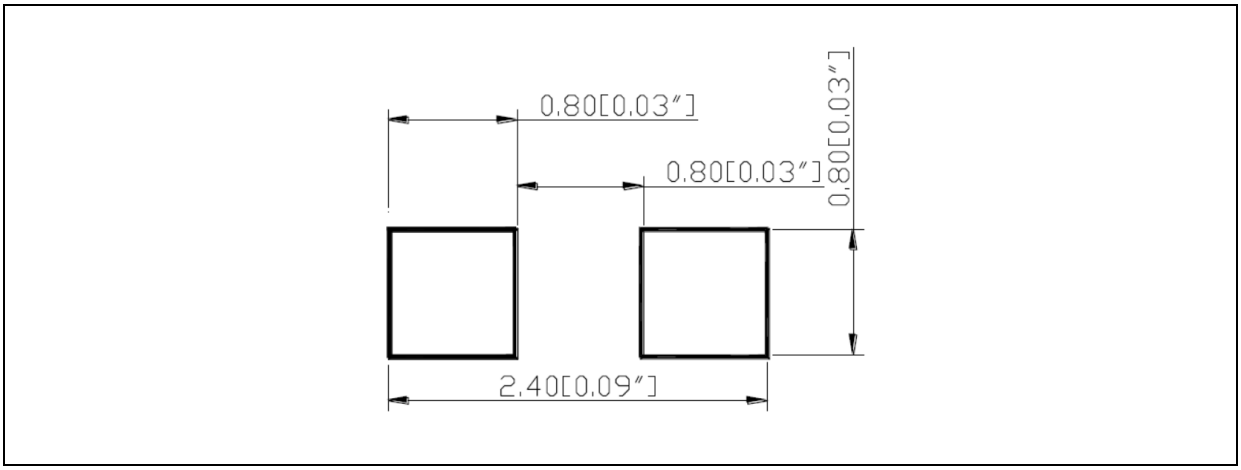
OUTLINE DIMENSION:

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
V	1.0	1.8	V

Radiant Intensity Classifications (I_F = 20mA):

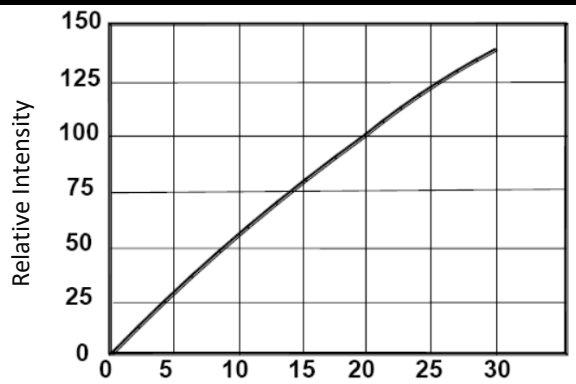
Code	Min.	Max.	Unit
I	0.1	2.1	mW/sr

Peak Wavelength Classifications (I_F = 20mA):

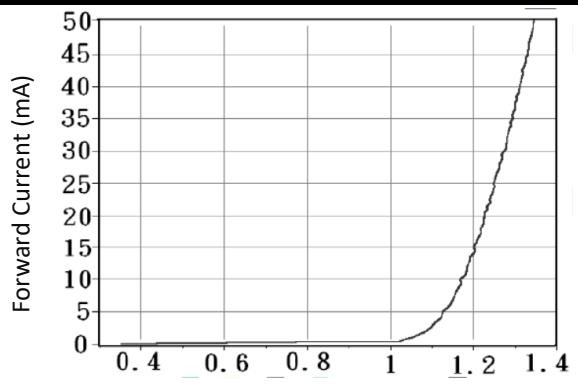
Code	Min.	Max.	Unit
WL	840	860	nm

ELECTRO-OPTICAL CHARACTERISTICS:

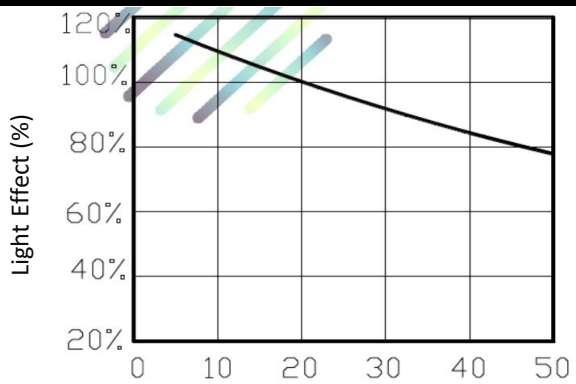
Relative Intensity v.s. Forward Current



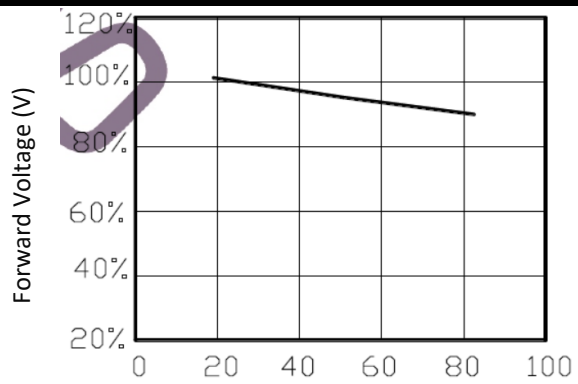
Forward Current v.s. Forward Voltage



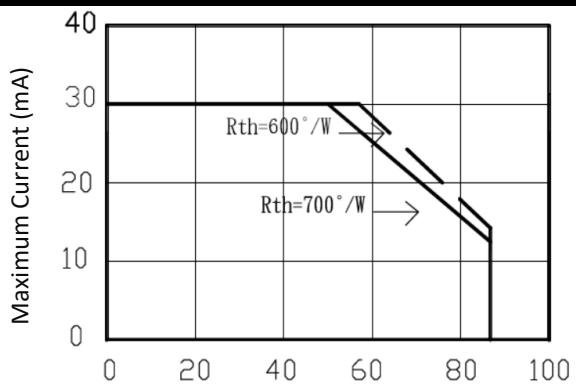
Light Efficiency v.s. Temperature



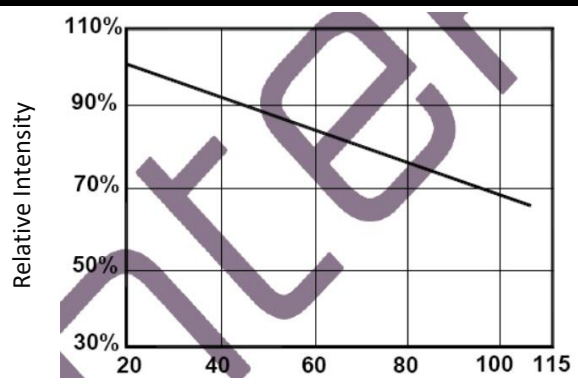
Forward Voltage v.s. Temperature

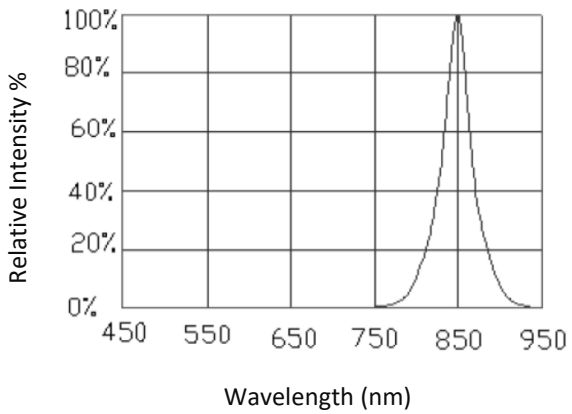
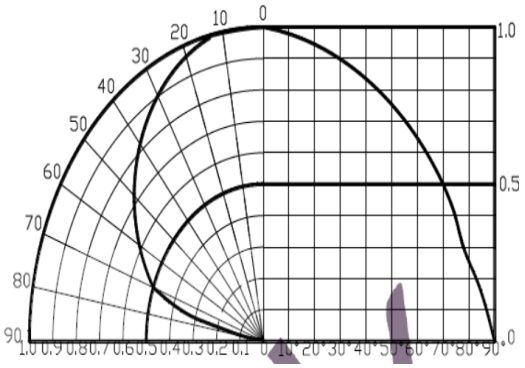


Temperature Derating Chart



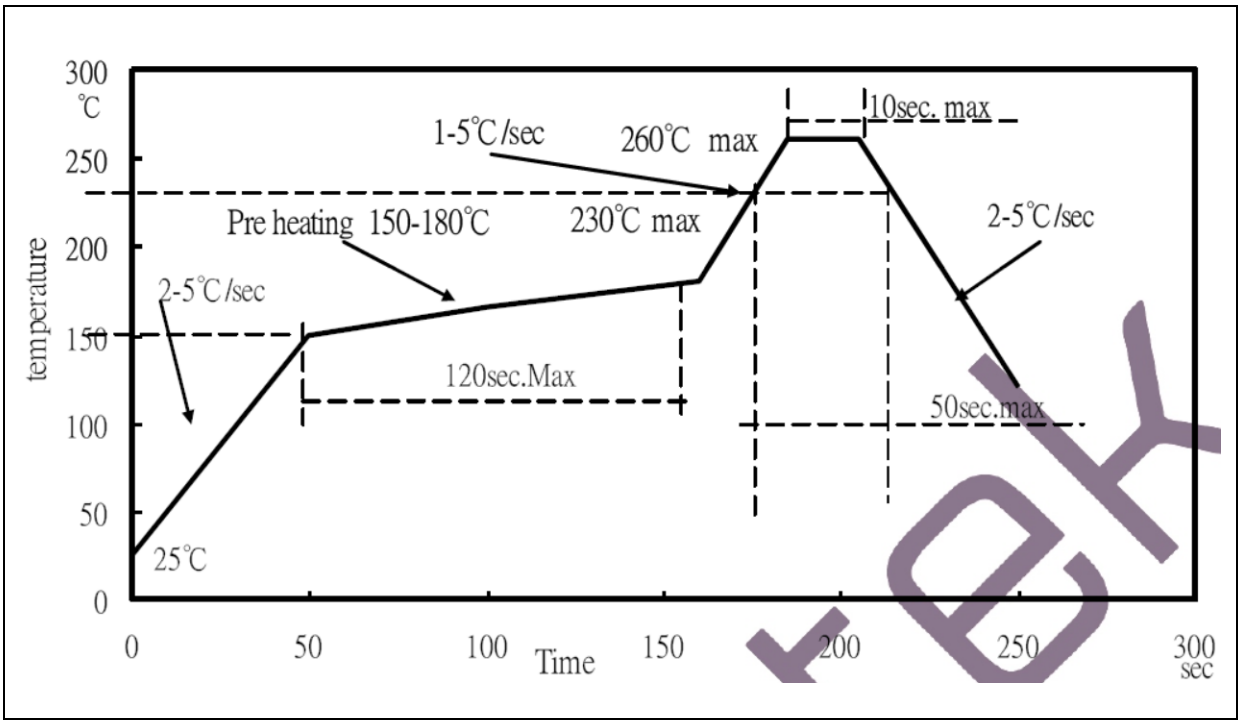
Relative Intensity Flux v.s. Junction Temperature



Relative Intensity v.s. Wavelength	Relative Intensity v.s. Angular Displacement
	

RECOMMENDED SOLDERING PROFILE:

Reflow solder:



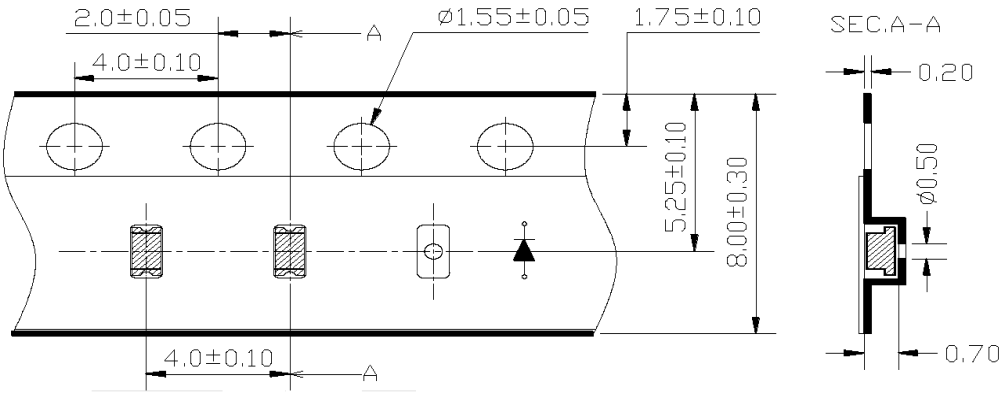
Note:

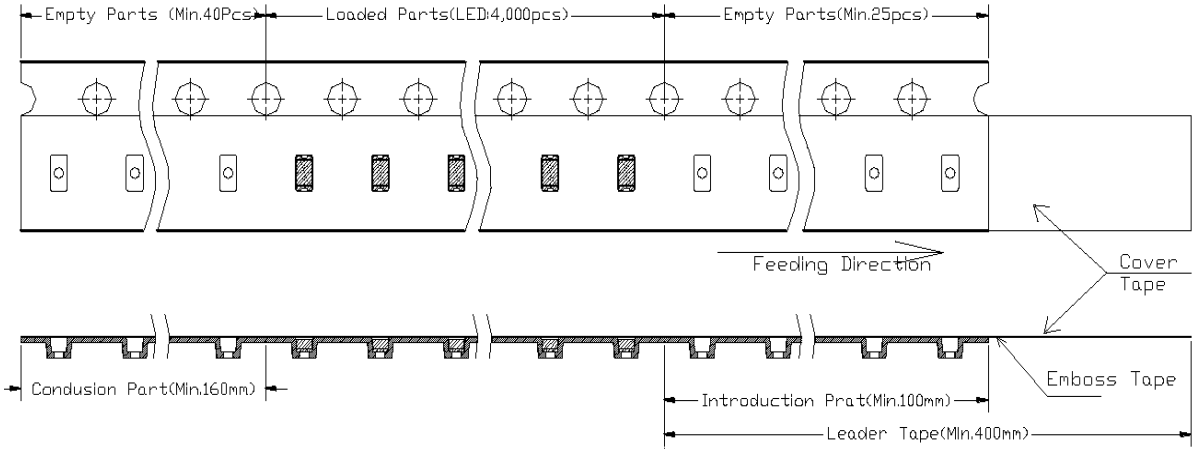
1. Recommend reflow temperature 240°C. The maximum soldering temperature should be limited to 260°C.
2. Maximum reflow soldering: 3 times.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

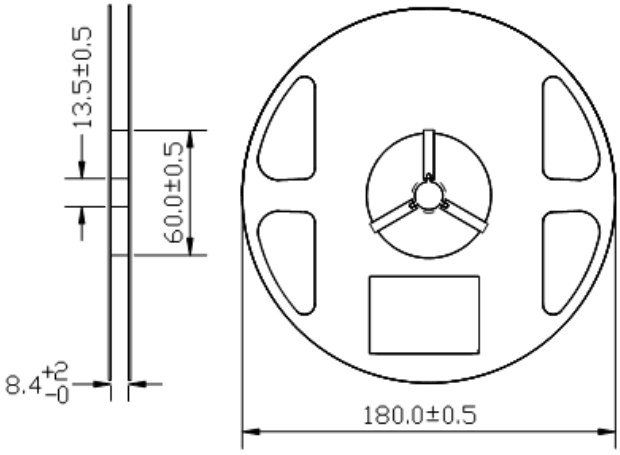
PACKING SPECIFICATION:

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

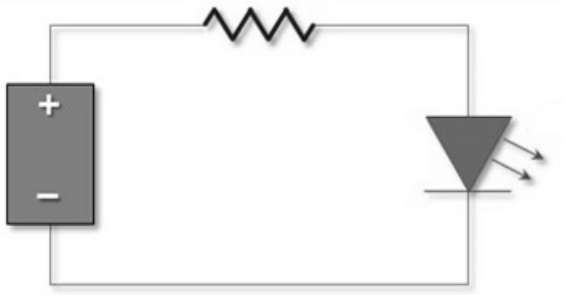
Baking:

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 6hrs 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	23/05/2018	Datasheet set-up.