BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED !

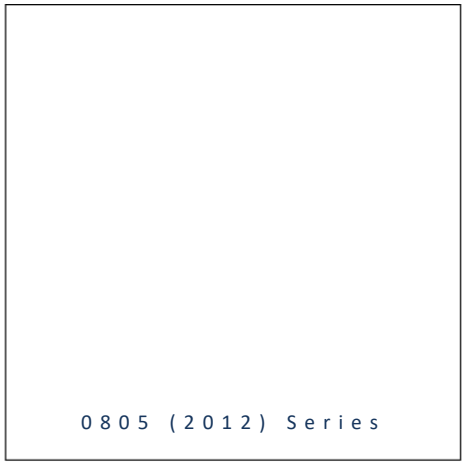
ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

PRODUCT DATASHEET

- ▶ PCB / CHIP LED
- ▶ 0805 (2012) 0.8t
- ▶ Infrared IR (850nm)

Release Date: 31 August 2021 Version: A1.1

N0F40S42



0805 (2012) Series

RoHS Compliant

FEATURES:

- **Package:** PCB / CHIP Top View SMT Package
- **Forward Current:** 100mA
- **Forward Voltage (typ.):** 1.8V
- **Radiant Intensity (typ.):** 12mW/sr@100mA
- **Colour:** Infrared
- **Peak Wavelength:** 845nm
- **Viewing angle:** 140°
- **Materials:**
  - Die: AlGaInP
  - Resin: Epoxy (Water Clear)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **Grouping parameters:**
  - Forward Voltage
  - Radiant Intensity
  - Peak Wavelength
- **Soldering methods:** IR Reflow Soldering
- **Preconditioning:** MSL3 according to J-STD020
- **Packing:** 8mm tape with max.4000/reel, ø180mm (7'')

APPLICATIONS:

- Sensors
- Telecommunications
- 3C Consumer Goods
- Security Device

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I_F	100	mA
Pulse Forward Current (Duty 1/10 @1KHz)	I_{PF}	150	mA
Reverse Voltage	V_R	5	V
Reverse Current	I_R	100	μA
Power Dissipation	P_D	220	mW
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+100	°C

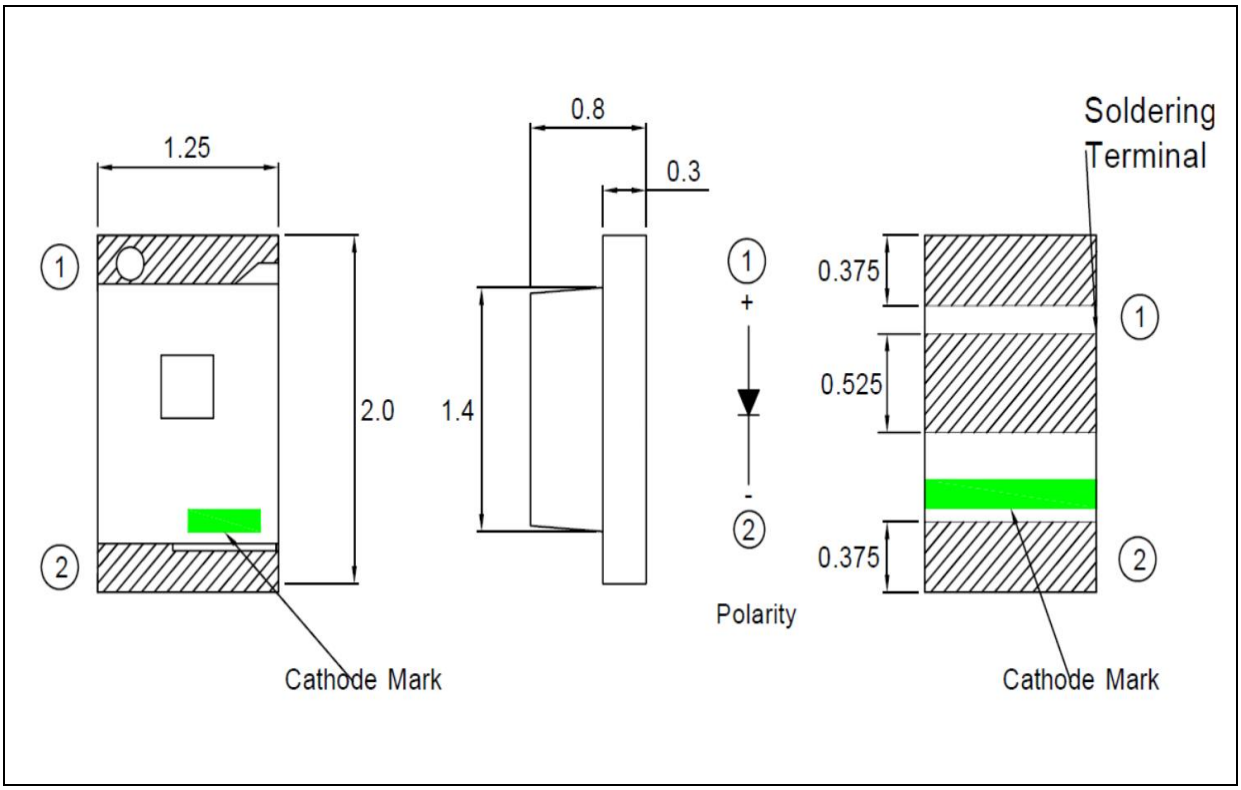
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	1.4	---	2.2	V	I_F=100mA
Radiant Intensity	I_e	5.5	12	---	mW/sr	I_F=100mA
Peak Wavelength	λ_P	---	845	---	nm	I_F=100mA
Spectral Line Half Bandwidth	$\Delta\lambda$	---	50	---	nm	I_F=100mA
Viewing Angle	$2\theta_{1/2}$	---	140	---	deg	I_F=100mA

1. Luminous intensity (I_V) ±15%, Forward Voltage (V_F) ±0.1V, Viewing angle($2\theta_{1/2}$) ±10°

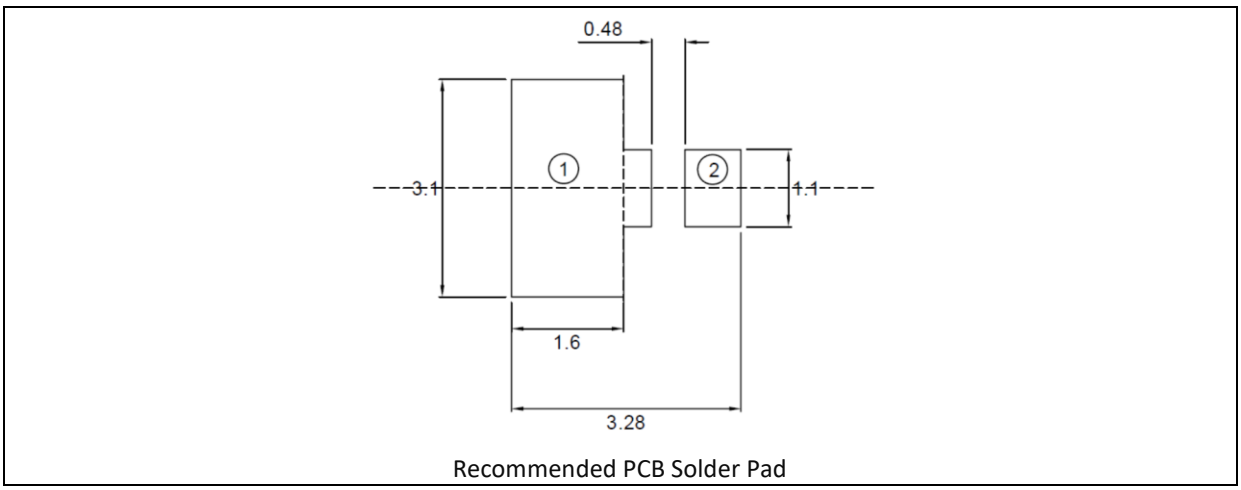
OUTLINE DIMENSION:

Package Dimension:



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

Recommended Soldering Pad Dimension:



Recommended PCB Solder Pad

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

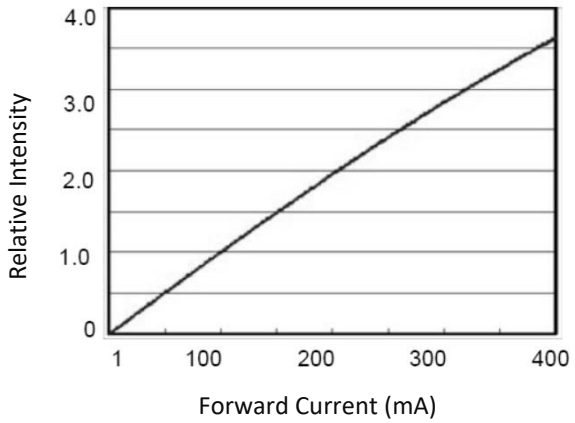
BINNING GROUPS:

Radiant Intensity Classifications (I_F = 100mA):

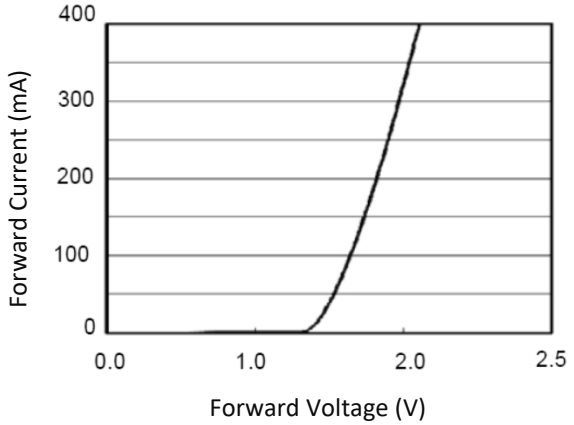
Code	Min.	Max.	Unit
R	5.5	7.2	mW/sr
S	7.2	9.4	
T	9.4	12.0	
U	12.0	16.0	

ELECTRO-OPTICAL CHARACTERISTICS:

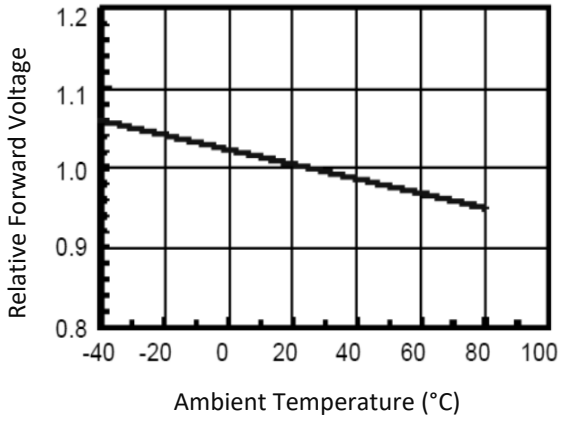
Relative Intensity v.s. Forward Current



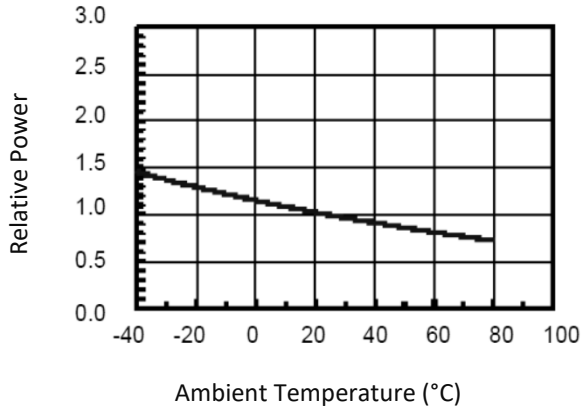
Forward Current v.s. Forward Voltage



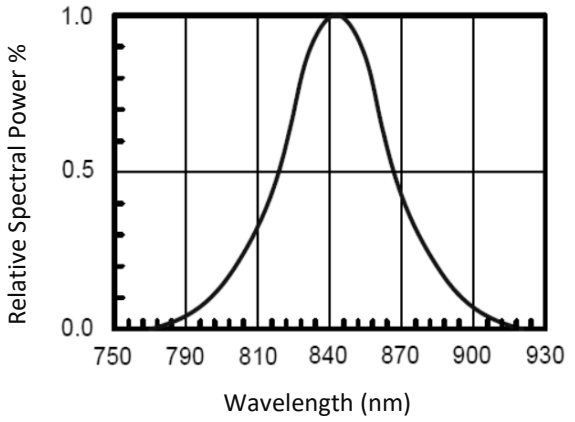
Relative Voltage v.s. Ambient Temperature



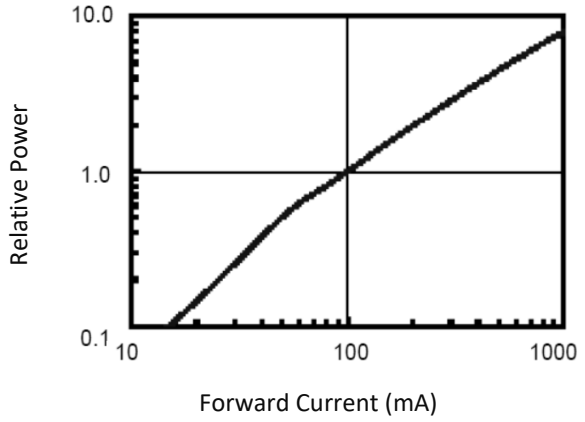
Relative Power v.s. Ambient Temperature



Relative Spectral Power v.s. Wavelength

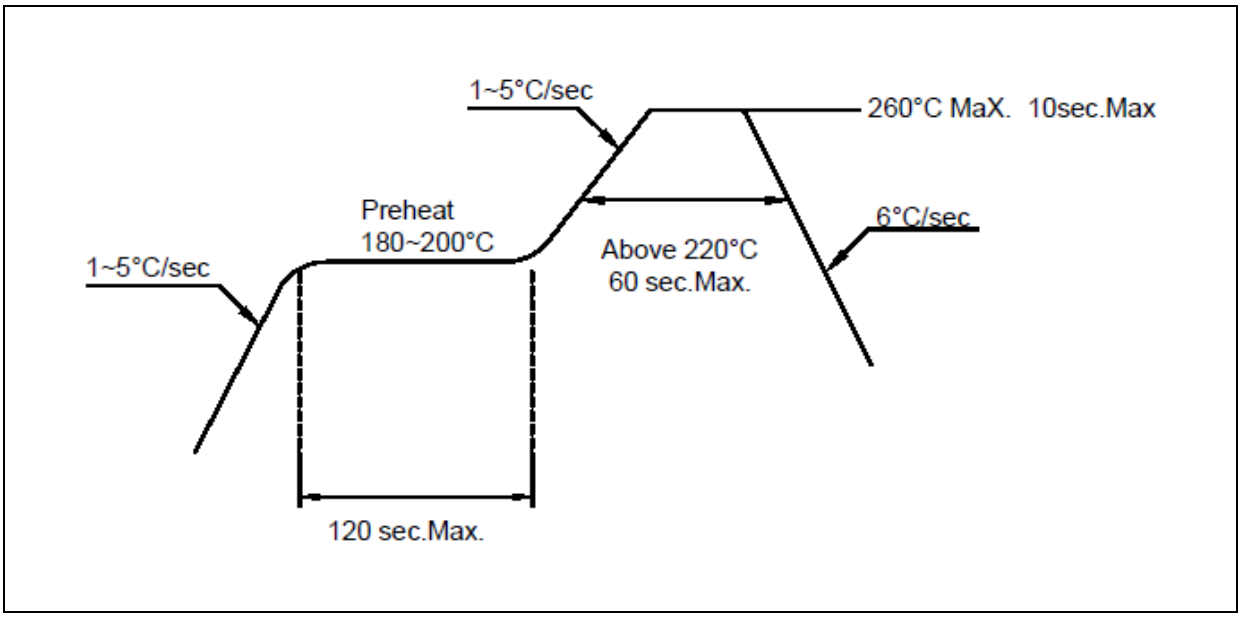


Relative Power v.s. Forward Peak Current



RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



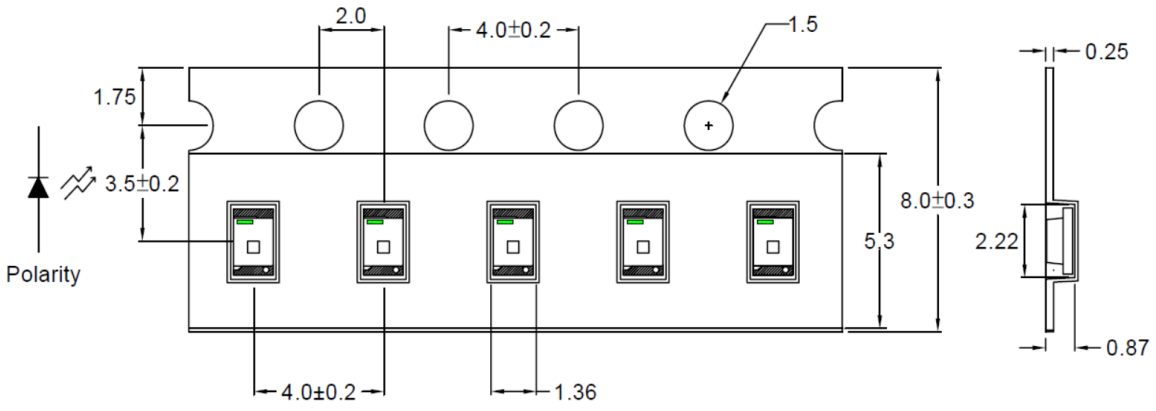
Note:

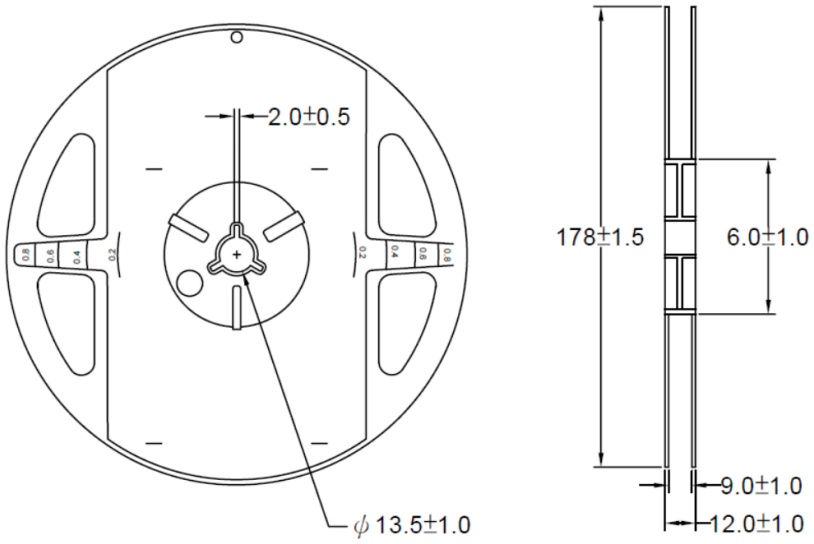
1. Maximum reflow soldering: 2 times.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.

PACKING SPECIFICATION:

Reel Dimension:

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 months 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.

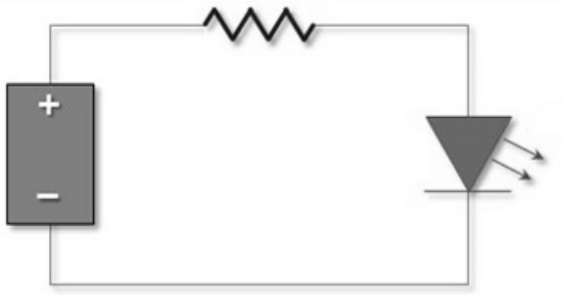
Baking:

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	11/05/2017	Datasheet set-up.
A1.1	31/08/2021	New datasheet format.