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

ATTENTION OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

► PCB / CHIP LED

► 0402 (1005) 0.5t

► Infrared (IR) 850nm

N0F46S52

0402 0.5t Series

0402 0.5t Series

RoHS Compliant

Pb

FEATURES:

- **Package:** PCB / CHIP LED Mono Colour Package
- **Forward Current:** 20mA
- **Forward Voltage (typ.):** 1.45V
- **Radiant Intensity (min.):** 2.8mW/sr@20mA
- **Colour:** Infrared
- **Wavelength:** 850nm
- **Viewing angle:** 140°
- **Materials:**
  - Die: AlGaAs/AlGaAs
  - Resin: Epoxy (Water Clear)
- **Operating Temperature:** -40~+80°C
- **Storage Temperature:** -40~+85°C
- **Grouping parameters:**
  - Forward voltage
  - Luminous intensity
  - Peak wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 8mm tape with max.5000/reel, ø180mm (7'')

APPLICATIONS:

- Sensor
- 3C Consumer Goods
- Detector

www.brightekeurope.com

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	50	mA
Peak Forward Current width 100µs duty cycle =1%	I_{FP}	1000	mA
Reverse Voltage	V_R	5	V
Reverse Current @5V	I_R	10	µA
Power Dissipation	P_D	77.5	mW
Operating Temperature	T_{OPR}	-40~+80	°C
Storage Temperature	T_{STG}	-40~+85	°C

Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	---	1.45	1.55	V	I_F=20mA
Radiant Intensity	I_e	2.8	---	---	mW/sr	I_F=20mA
Peak Wavelength	λ_P	---	850	---	nm	I_F=20mA
Spectral Line Half Bandwidth	$\Delta\lambda$	---	50	---	nm	I_F=20mA
Optical Rise Time	T_R	--	25	--	ns	I_F=20mA
Optical Fall Time	T_F	--	13	--	ns	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	---	140	---	deg	I_F=20mA

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

## OUTLINE DIMENSION:

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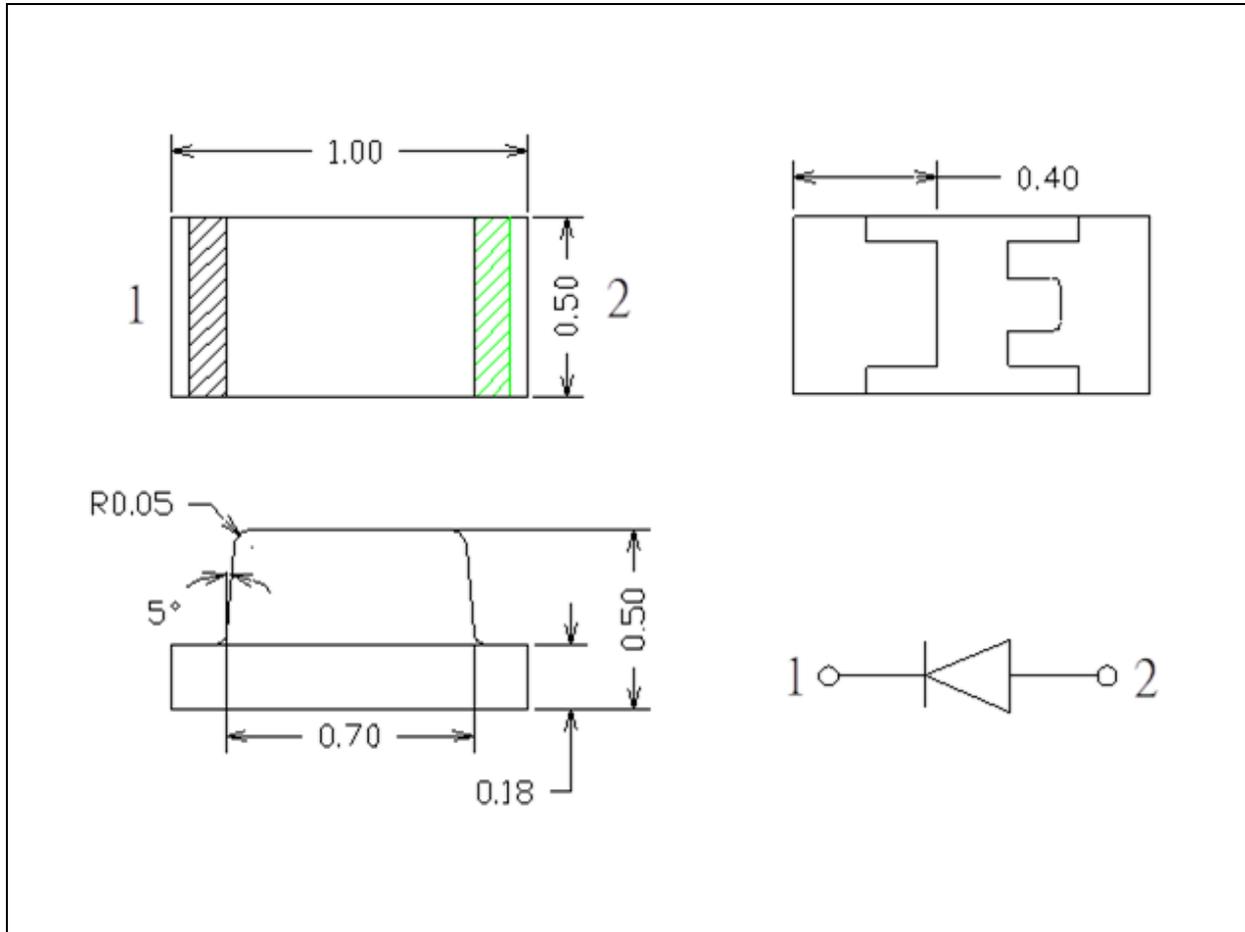
1. All dimensions are in millimetre (mm).
2. Tolerance ±0.2mm, unless otherwise noted.

Recommended Soldering Pad Dimension:
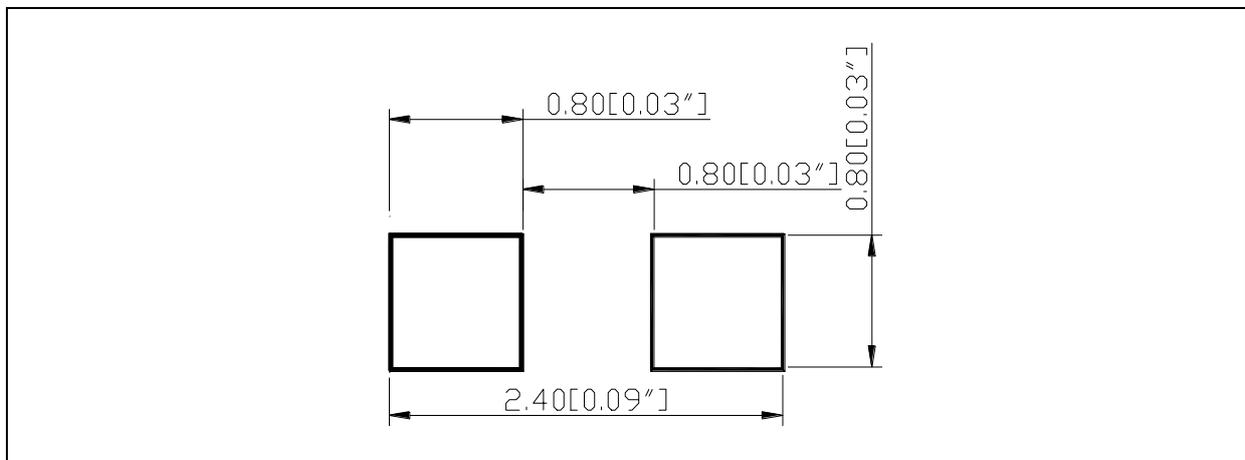
1. Dimensions are in millimetre (mm).
2. Tolerance ±0.1mm with angle tolerance ±0.5°.

www.brightekeurope.com

BINNING GROUPS:

Forward Voltage Classifications (I_F = 20mA):

Code	Min.	Max.	Unit
☐	1.30	1.55	V

Radiant Intensity Classifications (I_F = 20mA):

Code	Min.	Max.	Unit
☐	2.8	6.4	mW/sr

Peak Wavelength Classifications (I_F = 20mA):

| Code	Min.	Max.	Unit
☐	840	860	nm

RECOMMENDED SOLDERING PROFILE:

Reflow solder:
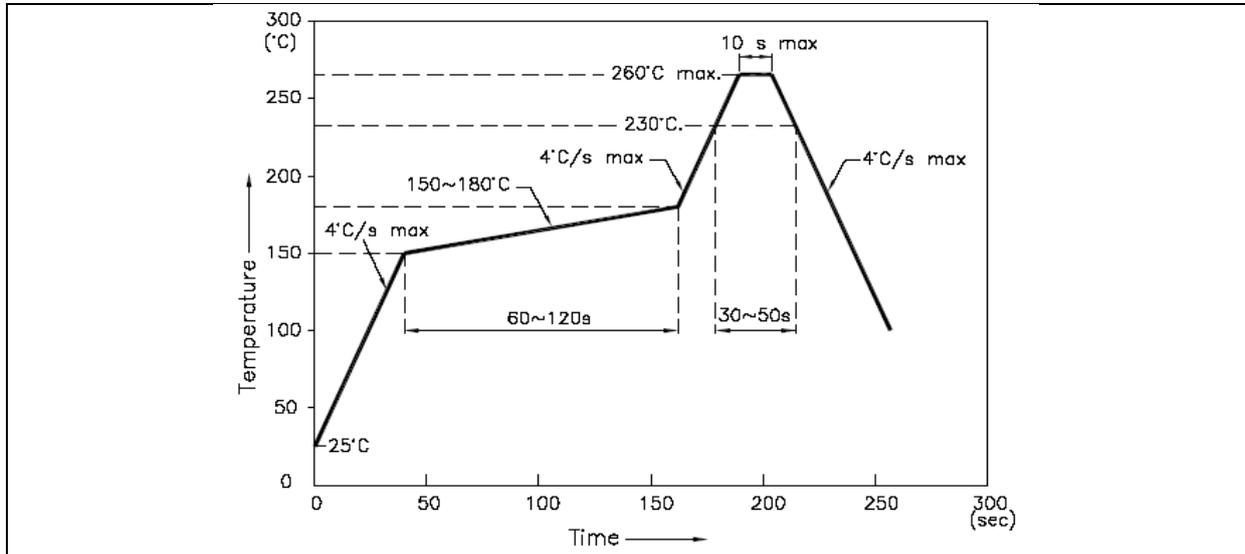
Note:

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

www.brightekeurope.com

PACKING SPECIFICATION:

Reel Dimension:

Max.5000pcs/reel
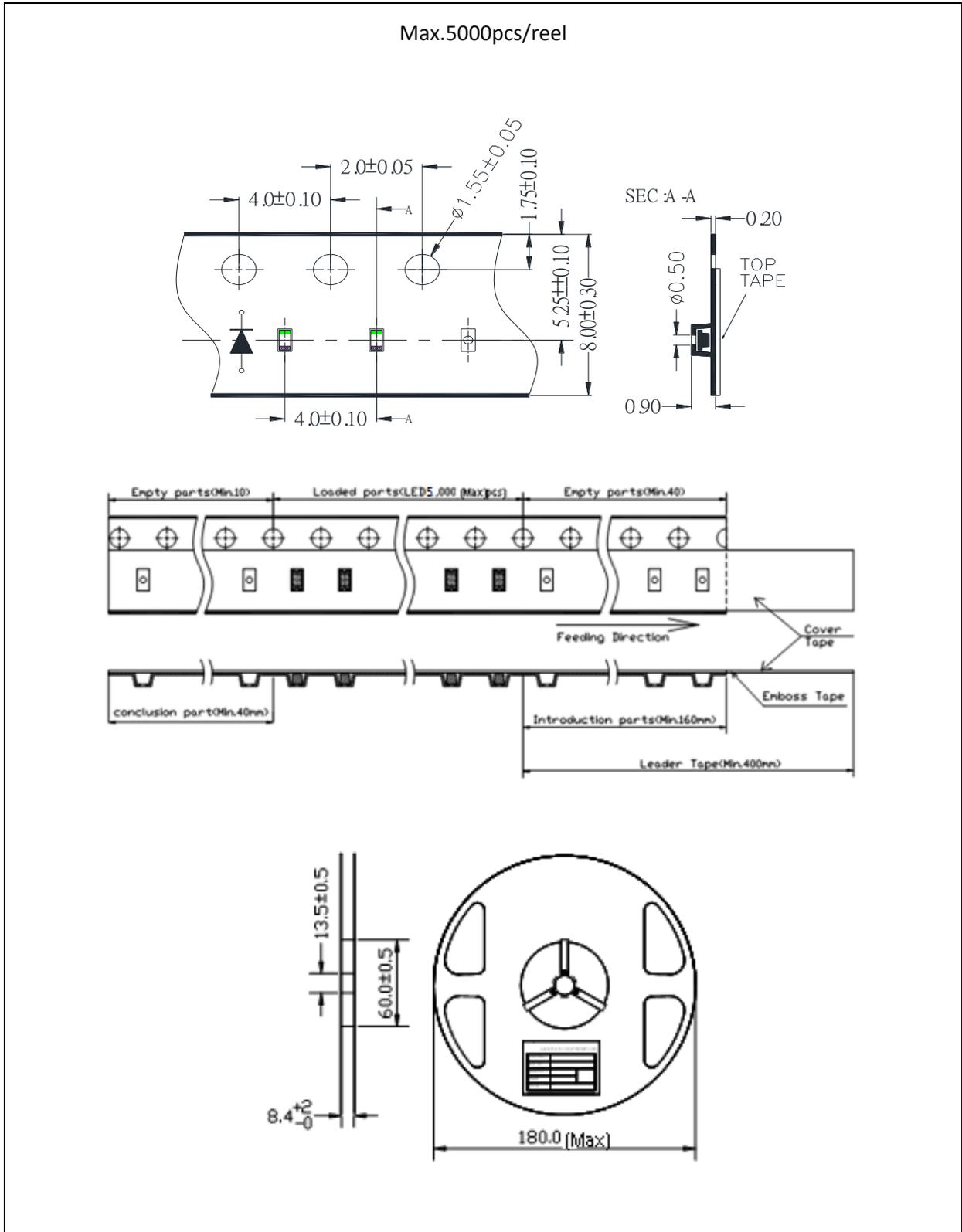
PRECAUTIONS OF USE:

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 and apply baking before use.

Baking:

It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24 hours. The suggested baking conditions are as followings:
- 60±3°C x 24-48hrs 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.

www.brightekeurope.com

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	25/08/2018	Datasheet set-up.
A1.1	12/12/2019	Revise bin coding.