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BRIGHTTEK (EUROPE) LIMITED

Brighten up The World With LED!



ISO/TS 16949:2009



BS EN ISO 14001:2004



QC 080000 IECQ HSPM

PRODUCT DATASHEET

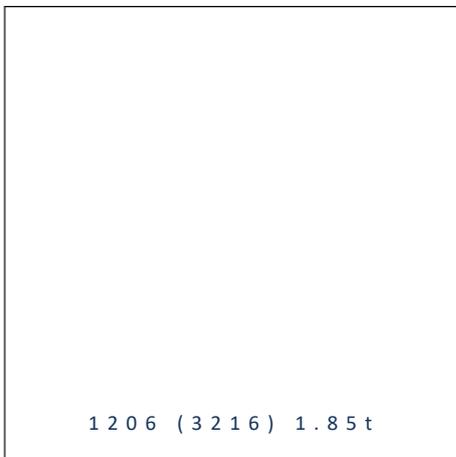


- ▶ PCB / CHIP PT
- ▶ 1206 (3216) 1.85t
- ▶ Phototransistor

NOP57S91



Release Date: 02 December 2022 Version: A1.2



1206 (3216) 1.85t

1206 (3216) 1.85t

RoHS
Compliant



FEATURES:

- **Package:** PCB / CHIP LED Top View with Black Lens
- **Collector-Emitter Sustain Voltage (min.):** 30V
- **Collector-Emitter Saturation Voltage (max.):** 0.4V
- **Emitter-Collector Breakdown Voltage (min.):** 5V
- **Wavelength on Max. Sensitivity:** 940nm
- **Rise Time (10% to 90%):** 15uS
- **Fall Time (90% to 10%):** 15uS
- **Materials:**
 - Die: Silicone
 - Resin: Epoxy (Black Diffused)
- **Operating Temperature:** -25~+85°C
- **Storage Temperature:** -40~+85°C
- **Soldering methods:** Reflow
- **MSL Level:** 3 acc. to JEDEC
- **Packing:** 8mm tape with max.2000/reel, ø180mm (7")

Features:

A phototransistor in miniature SMD package which is moulded in a black spherical top view lens. The device is spectrally matched to visible and infrared emitting diode with below advantages:

1. Wide range of collector currents.
2. Lens for high sensitivity.
3. Low-cost plastic package.
4. Stable characteristic

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

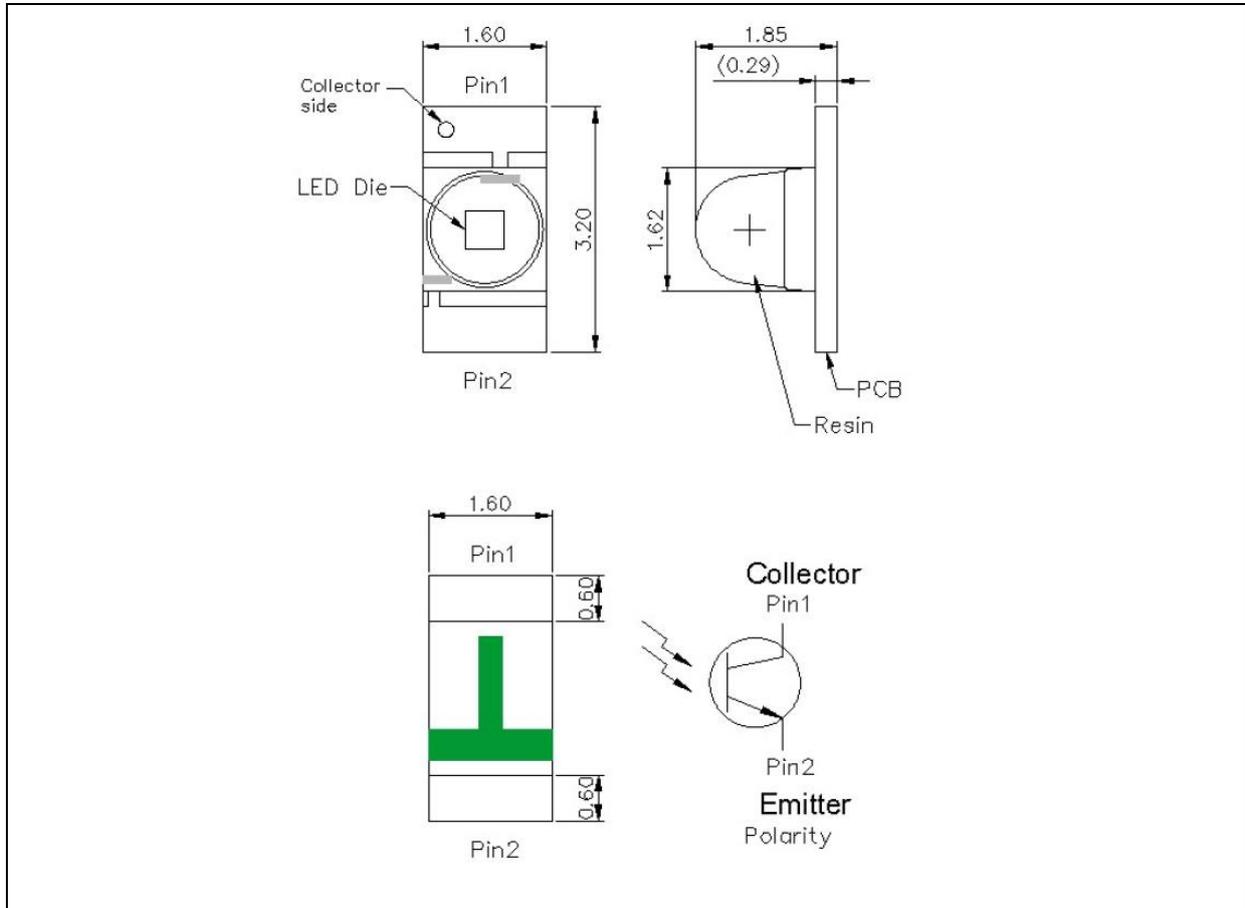
Parameter	Symbol	Ratings	Unit
Power Dissipation	P _D	75	mW
Emitter-Collector Breakdown Voltage	BV _{ECO}	5	V
Collector-Emitter Sustaining Voltage	V _{CE}	30	V
Relative Humidity at 85 °C	HR	85	%
Operating Temperature	T _{OPR}	-25~+85	°C
Storage Temperature	T _{STG}	-45~+85	°C

Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Collector-Emitter Sustaining Voltage	V _{CE}	30	---	---	V	I _C =0.5mA E _e =0mW/cm ²
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	---	---	0.4	V	I _C =100uA E _e =0.6mW/cm ²
Emitter-Collector Breakdown Voltage	BV _{ECO}	5	---	---	V	I _e =100uA E _e =0mW/cm ²
Dark Current	I _D	---	---	100	nA	V _{CE} =10V E _e =0mW/cm ²
On State Collector Current	I _{ON}	---	2	---	Ma	V _{CE} =5V E _e =1.0Mw/cm ²
Rise Time (10%~90%)	T _R	---	15	---	Us	V _{CC} =5V I _L =800Ua R _L =1KΩ
Fall Time (90%~10%)	T _F	---	15	---	Us	

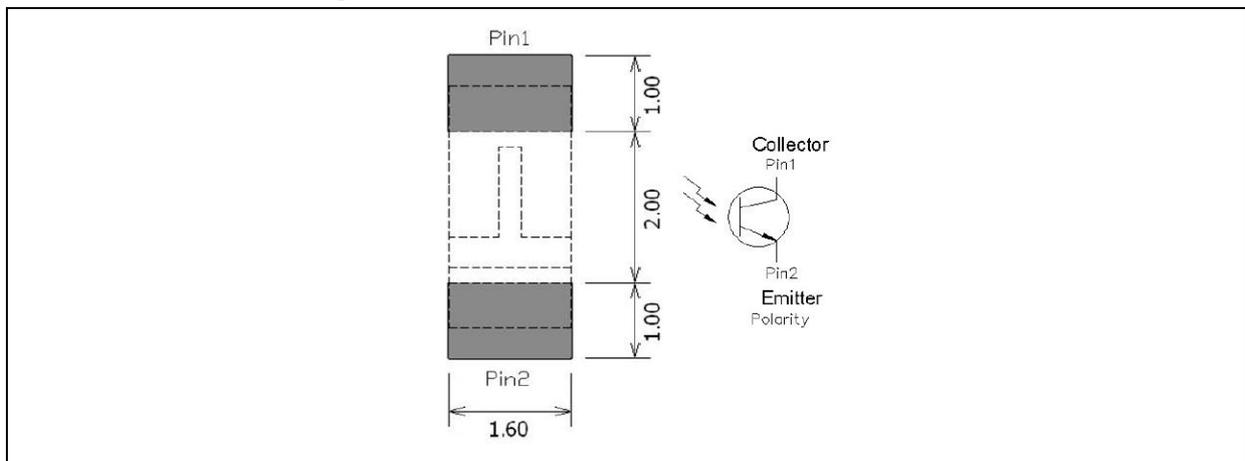
OUTLINE DIMENSION:

Package Dimension:

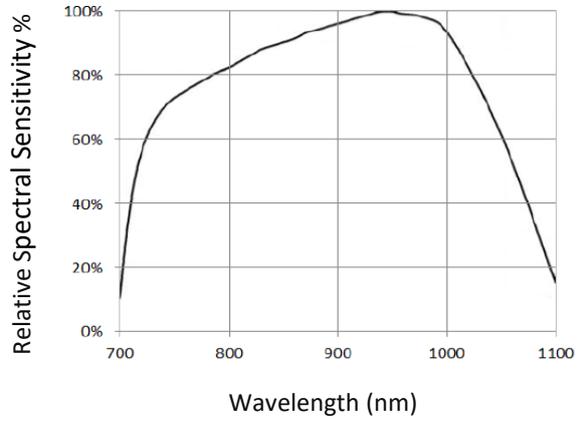
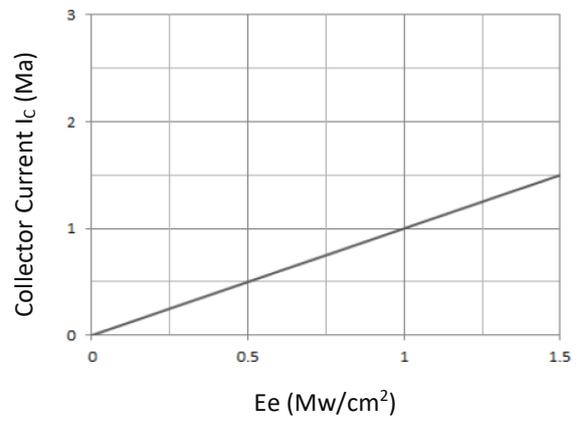
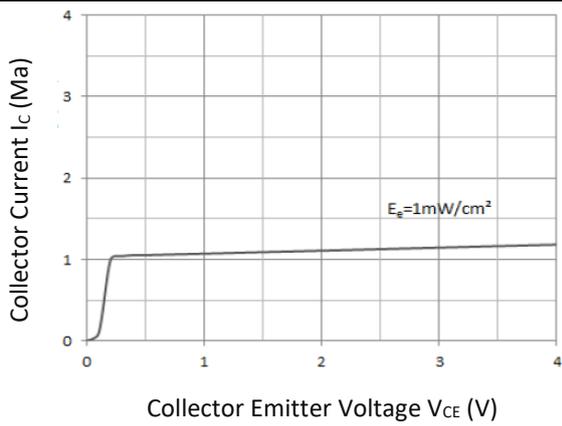


1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.2\text{mm}$, unless otherwise noted.

Recommended Soldering Pad Dimension:

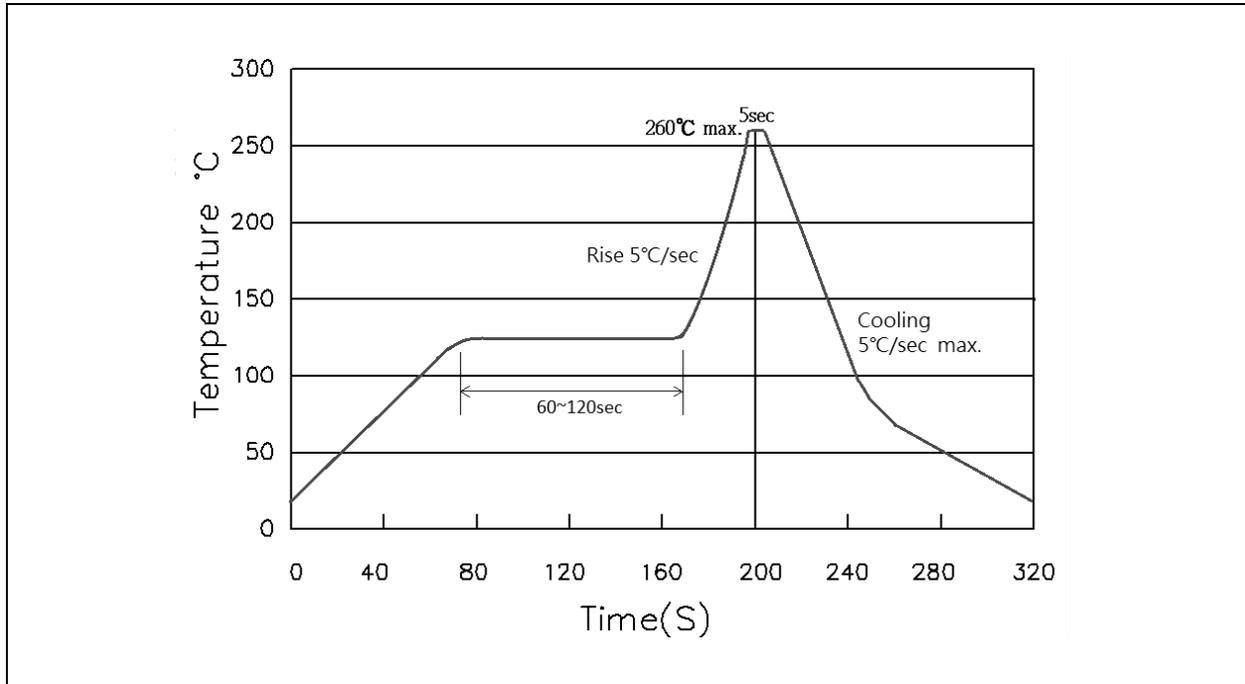


1. Dimensions are in millimetre (mm).
2. Tolerance $\pm 0.1\text{mm}$ with angle tolerance $\pm 0.5^\circ$.

ELECTRO-OPTICAL CHARACTERISTICS:
Spectral Sensitivity

Collector Current v.s. Ee

Collector Current v.s. Collector-Emitter Voltage


RECOMMENDED SOLDERING PROFILE:

Reflow Solder:

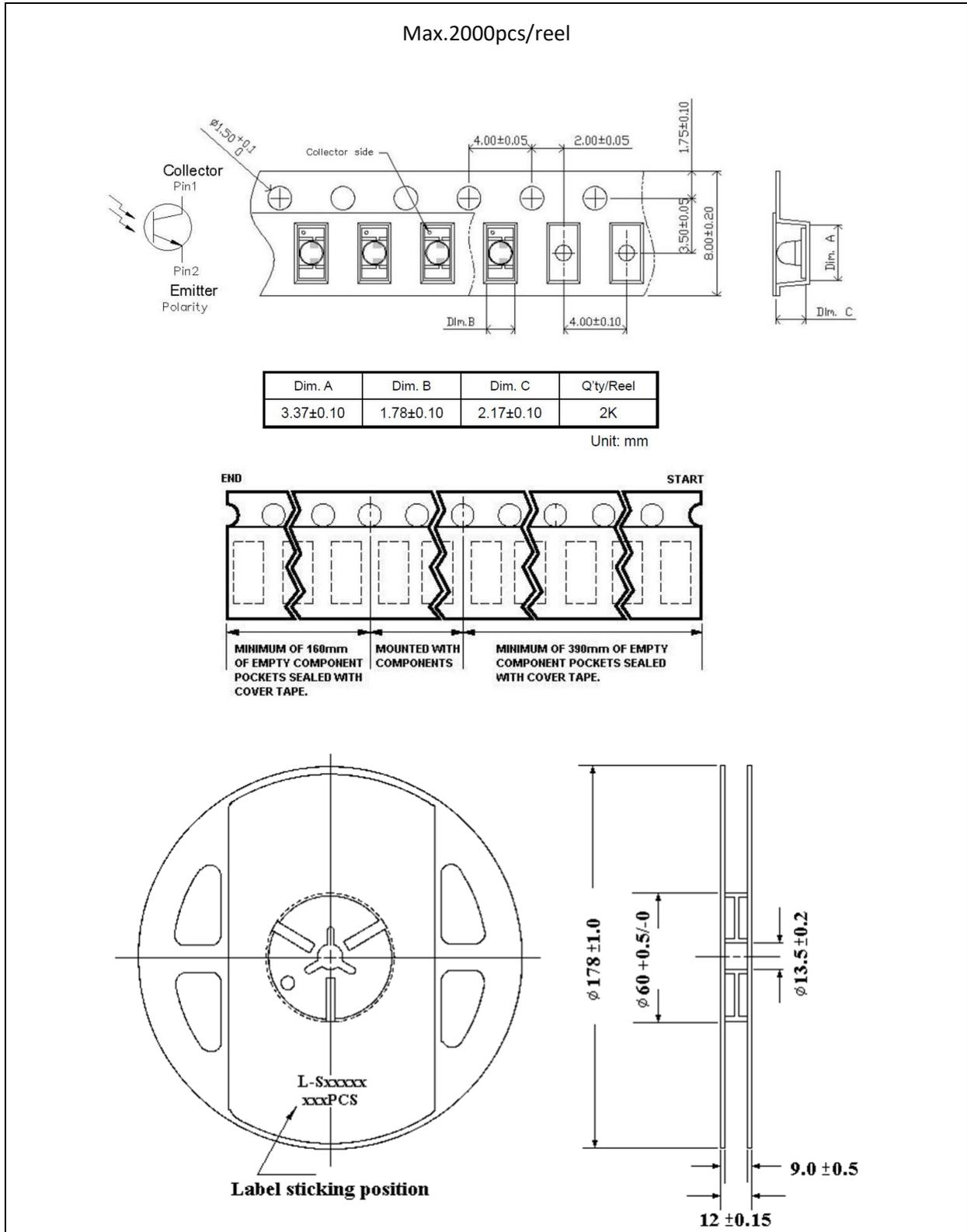


Note:

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

PACKING SPECIFICATION:

Reel Dimension:



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 desiccating 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 24hrs 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 handling 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	21/12/2020	Datasheet set-up.
A1.1	02/03/2022	New datasheet format.
A1.2	02/12/2022	Revise I_{ON} and BV_{ECO} value.