BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED !

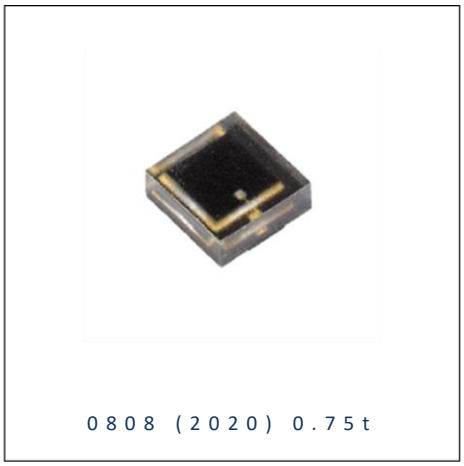
ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

PRODUCT DATASHEET

- ► Photodiode
- ► 0808 (2020) 0.75t
- ► Broadband Silicon PIN

Release Date: 04 June 2022 Version: A1.0

N0P60S85



0 8 0 8 (2 0 2 0) 0 . 7 5 t

0808 (2020) 0.75t

RoHS Compliant

FEATURES:

- **Package:** CHIP Top View Broadband Silicon Pin Photodiode
- **Lens Colour:** Clear Epoxy
- **ESD:** 2KV (HBM, acc. To ANSI/ESDA/JEDEC JS-001)
- **Soldering:** Suitable for reflow
- **Spectral Range of Sensitivity:** 400~1100nm
- **Wavelength of max. Sensitivity:** 900nm
- **Viewing angle:** 120°
- **Radiant Sensitive Area:** 1.49mm^2
- **Active Chip Area:** 1.22mm^2
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+85°C
- **Packing:** 8mm tape with min.100pcs/reel, ø180mm (7'')

APPLICATIONS:

- Health Monitor
- Heart Rate Monitor
- Pulse Oximetry

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

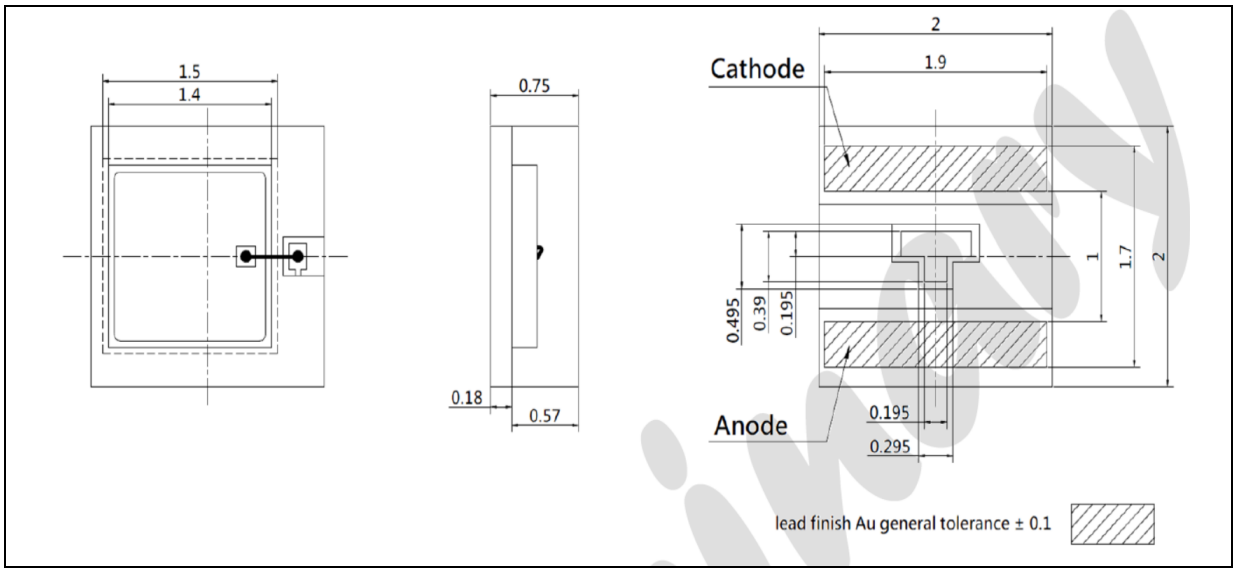
Parameter	Symbol	Ratings	Unit
Reverse Voltage	V_R	-6	V
ESD Withstand Voltage	V_{ESD}	2	kV
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+85	°C

Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Wavelength of Max. Sensitivity	λ_{smax}	---	900	---	nm	---
Spectral Range of Sensitivity	$\Lambda_{10\%}$	400	---	1100	nm	---
Photocurrent	I_P	---	0.69	---	µA	E_e=0.1mW/cm^2; λ=530nm; V_R=5V
		---	1.19	---		E_e=0.1mW/cm^2; λ=940nm; V_R=5V
Radiant Sensitive Area	A	---	1.49	---	mm^2	---
Dimensions of Active Chip Area	LxW	---	1.22x1.22	---	mm^2	---
Half Angle	φ	---	60	---	deg	---
Dark Current	I_R	---	0.17	25	nA	V_R=5V
Rise Time	t_r	---	47	---	ns	V_R=5V; R_L=50Ω; λ=530nm; I_p=600µA
Fall Time	t_f	---	67	---	ns	V_R=5V; R_L=50Ω; λ=530nm; I_p=600µA
Forward Voltage	V_F	---	0.89	---	V	I_F=10mA; E=0
Capacitance	C	---	13.4	---	pF	V_R=0V; f=1MHz; E=0

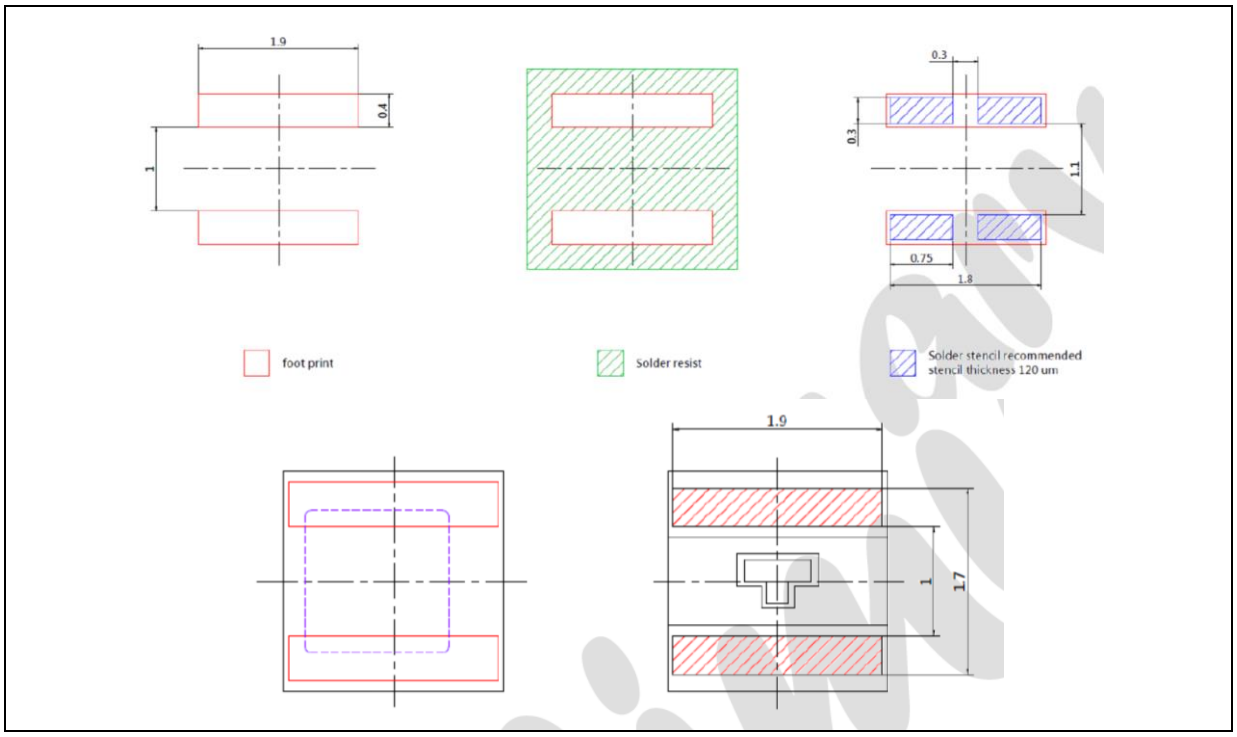
OUTLINE DIMENSION:

Package Dimension:



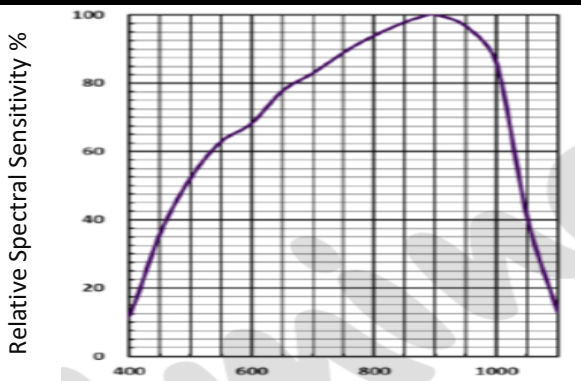
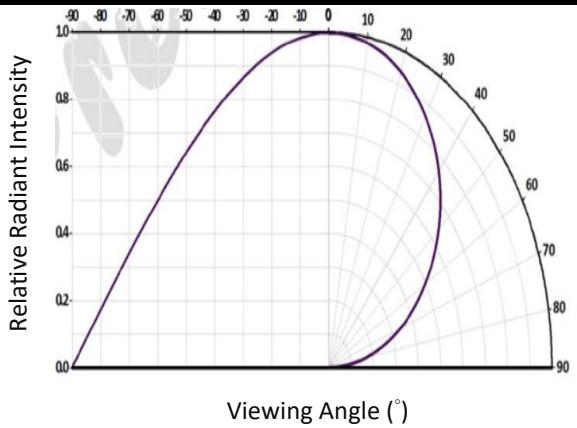
1. All dimensions are in millimetre (mm).
2. Tolerance ±0.2mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



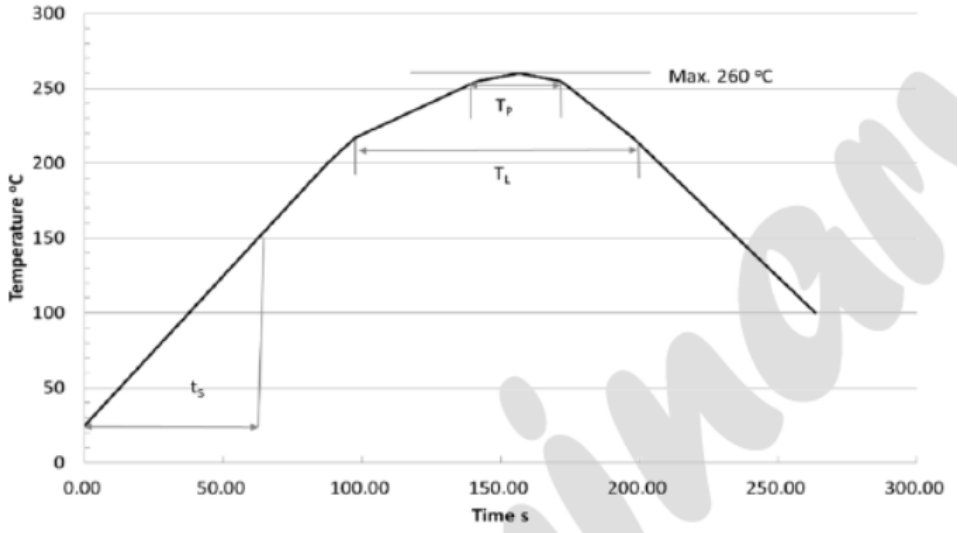
1. Dimensions are in millimetre (mm).
2. Tolerance ±0.1mm with angle tolerance ±0.5°.

ELECTRO-OPTICAL CHARACTERISTICS:

Relative Spectral Sensitivity	Directional Characteristics
	

RECOMMENDED SOLDERING PROFILE:

Lead-free Solder IR Reflow:



Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Minimum	Recommendation	Maximum	
Ramp-up rate to preheat 25 °C to 150 °C			2	3	K/s
Time t_S T_{Smin} to T_{Smax}	t_S	60	100	120	s
Ramp-up rate to peak T_{Smax} to T_P			2	3	K/s
Liquidus temperature	T_L		217		°C
Time above liquidus temperature	t_L		80	100	s
Peak temperature	T_P		245	260	°C
Time within 5 °C of the specified peak temperature TP - 5 K	T_P	10	20	30	s
Ramp-down Rate T_P to 100 °C			3	4	K/s
Time 25 °C to T_P				480	s

Note:

1. We recommend the reflow temperature 245°C (±5°C). The maximum soldering temperature should be limited to 260°C.
2. Maxima reflow soldering: 2 times.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

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 24 hours. Otherwise, they should be kept in a damp-proof box with descanting agent <10% R.H. and apply baking.

Over-Current Proof:

Must apply resistors for protection otherwise slight voltage shift will cause big current change and burn-out will happen.

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.

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.

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	04/06/2022	Datasheet set-up.