



**BRIGHTTEK**  
**BRIGHTTEK (EUROPE) LIMITED**

*Brighten Up The World With LED!*



ISO/TS 16949:2009



BS EN ISO 14001:2004



QC 080000 IECQ HSPM

## PRODUCT DATASHEET

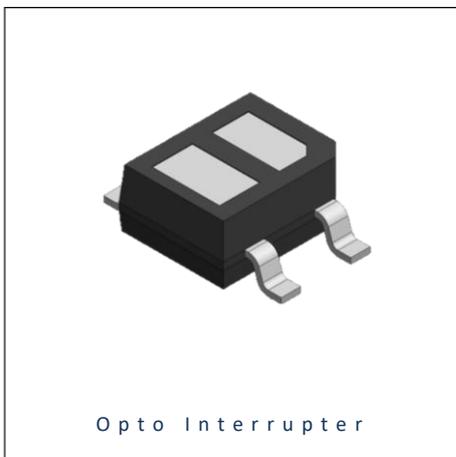


- ▶ Opto Interrupter
- ▶ 3427 1.50t
- ▶ Reflective Type

NOP67S67



Release Date: 01 June 2025 Version: A1.0



### Opto Interrupter



#### DESCRIPTION:

NOP67S67 is a light reflection switch which includes a GaAs IR-LED Transmitter and a NPN photo-transistor with a high photo-sensitive receiver for short distance, operating in the infrared range. Both components are mounted side-by-side in a plastic package with advantages:

- Fast response time
- High sensitivity
- Cut-off visible wavelength
- Thin and compact package

#### FEATURES:

- **Package:** Black Case Top View SMD Opto Interrupter
- **Material:**
  - IR: GaAs
  - PT: Silicon
- **Peak Wavelength (typ.):** 940nm
- **Operating Temperature:** -20~+85°C
- **Storage Temperature:** -40~+85°C
- **Packing:** 12mm tape with max.1000pcs/reel, ø178mm (7")

#### APPLICATIONS:

- Camera
- VCR
- Floppy Disk Driver
- Cassette Type Recorder
- Various Microcomputer Control Equipment

**CHARACTERISTICS:**


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 Absolute Maximum Characteristics ( $T_a=25^{\circ}\text{C}$ )

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at (or below) $25^{\circ}\text{C}$ free fir temperature	$P_d$	75	mW
	Reverse Voltage	$V_R$	5	V
	Forward Current	$I_F$	50	mA
Output	Collector Power Dissipation	$P_C$	75	mW
	Collector Current	$I_C$	50	mA
	Collector-Emitter Voltage	$BV_{CEO}$	70	V
	Emitter-Collector Voltage	$BV_{ECO}$	6	V
Operating Temperature		$T_{OPR}$	-20~+85	$^{\circ}\text{C}$
Storage Temperature		$T_{STG}$	-40~+85	$^{\circ}\text{C}$
Soldering Temperature		$T_{SOL}$	260 for 5sec	$^{\circ}\text{C}$

**CHARACTERISTICS:**

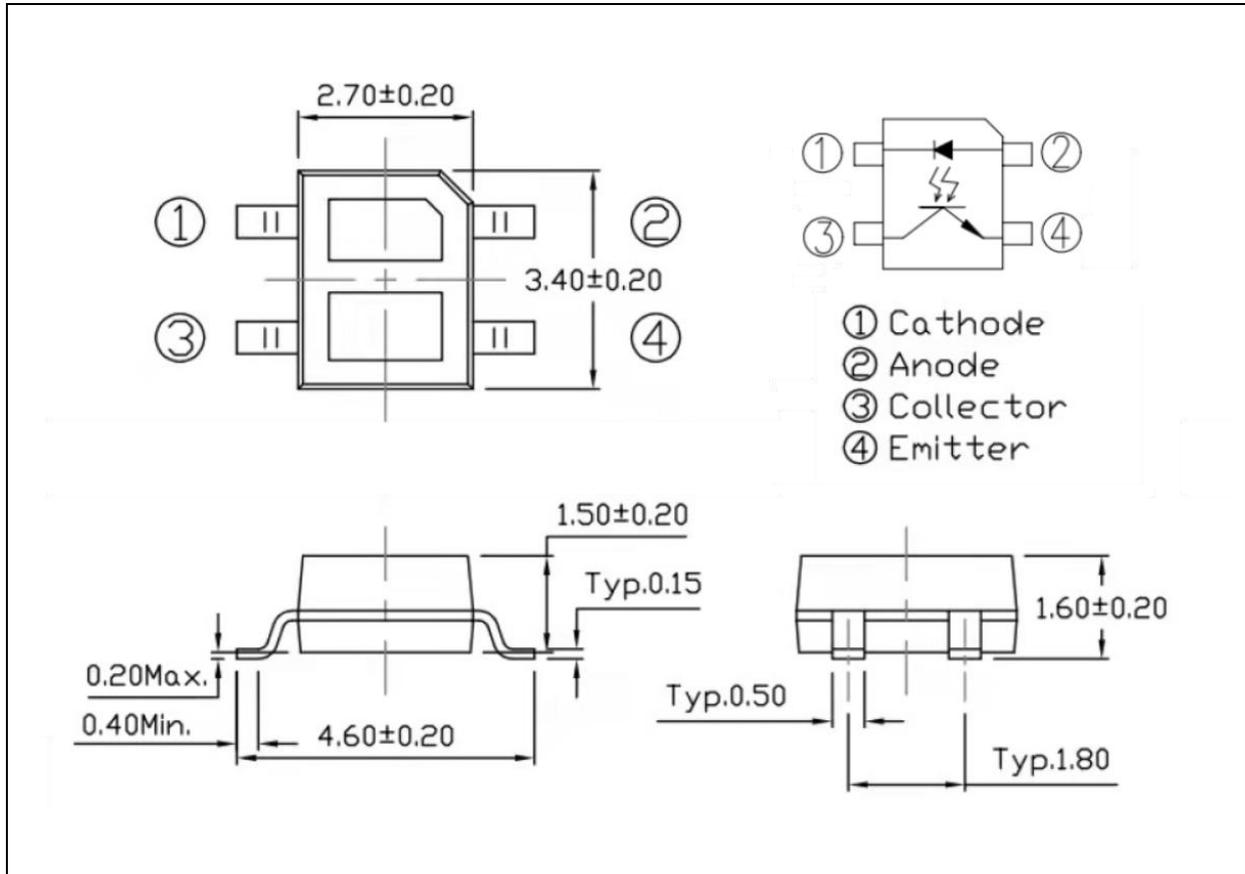
 Electrical & Optical Characteristics ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Values			Unit	Test Condition	
		Min.	Typ.	Max.			
Input							
Forward Voltage	$V_F$	---	1.2	1.6	V	$I_F=20\text{mA}$	
Reverse Current	$I_R$	---	---	10	$\mu\text{A}$	$V_R=5\text{V}$	
Peak Wavelength	$\lambda_P$	---	940	---	nm	---	
Output							
Dark Current	$I_{CEO}$	---	---	100	nA	$V_{CE}=10\text{V}$	
C-E Saturation Voltage	$V_{CE(sat)}$	---	---	0.4	V	$I_C=2\text{mA}$ $E_e=1\text{mW/cm}$	
Transfer Characteristics							
Light Current *	A1	$I_{C(ON)}$	110	---	140	$\mu\text{A}$	$V_{CE}=5\text{V}$ $I_F=10\text{mA}$
	A2		140	---	170		
	A3		170	---	200		
	B1		200	---	230		
	B2		230	---	300		
	C1		300	---	380		
	C2		380	---	440		
	C3		440	---	530		
Leakage Current	$I_{CEOD}$	---	---	1	$\mu\text{A}$	$V_{CE}=5\text{V}$ $I_F=10\text{mA}$	
Rise Time	$t_r$	---	20	---	$\mu\text{SEC}$	$V_{CE}=2\text{V}; R_L=1\text{K}\Omega$ $I_C=100\mu\text{A}$	
Fall Time	$t_f$	---	20	---	$\mu\text{SEC}$		

\* Test with a mirror distance of 1mm with 100% reflective index.

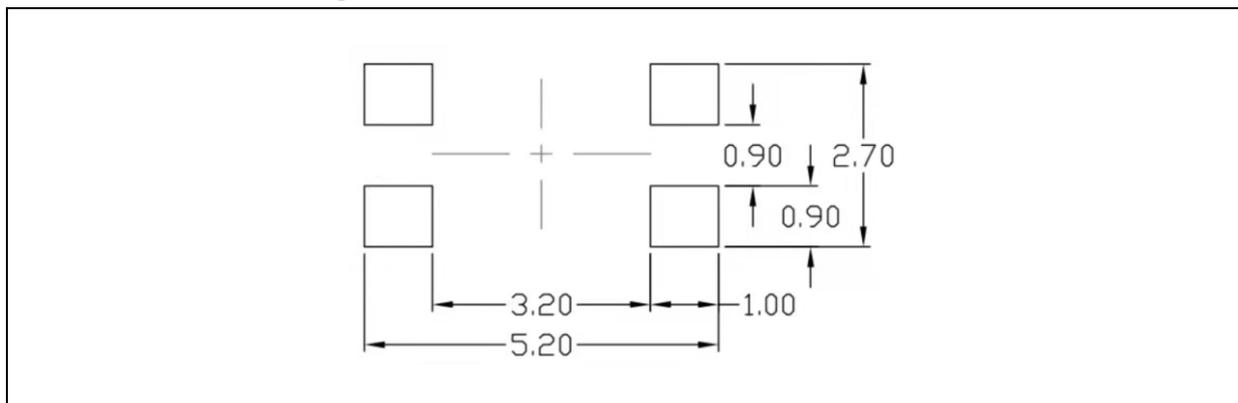
## OUTLINE DIMENSION:

Package Dimension:



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

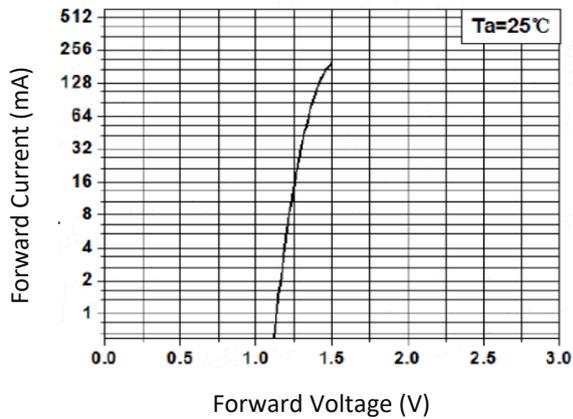
Recommended Soldering Pad Dimension:



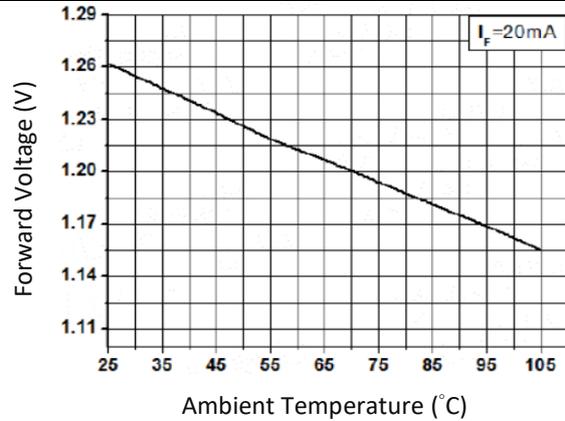
1. Dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.1$ mm with angle tolerance  $\pm 0.5^\circ$ .

## ELECTRO-OPTICAL CHARACTERISTICS (IR):

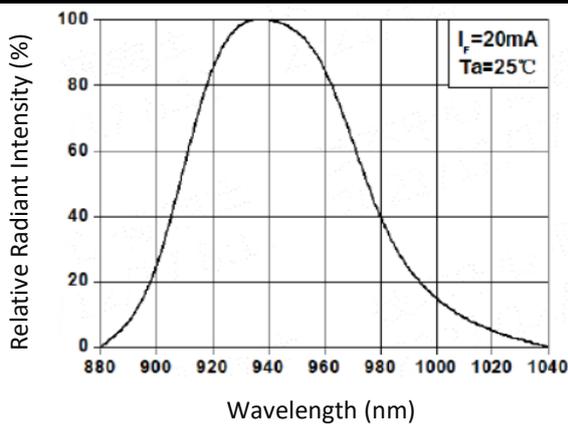
Forward Current v.s. Forward Voltage



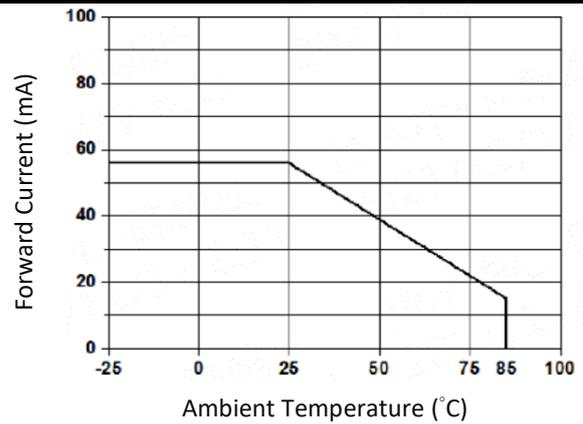
Forward Voltage v.s. Ambient Temperature



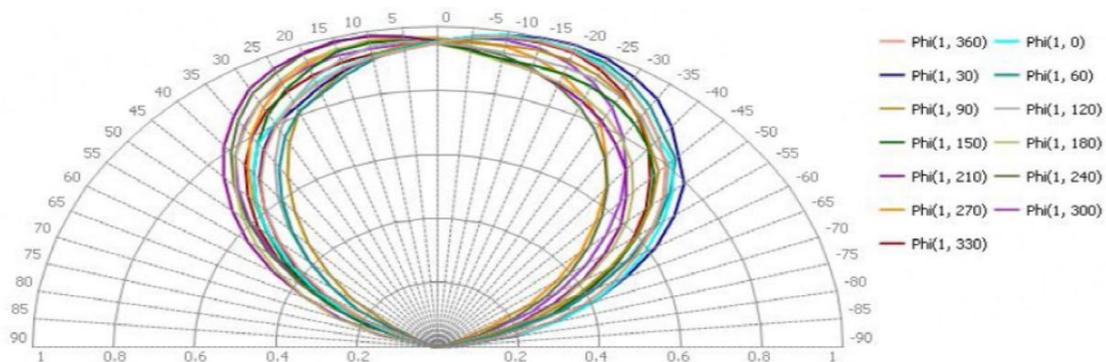
Spectral Distribution



Forward Current v.s. Ambient Temperature

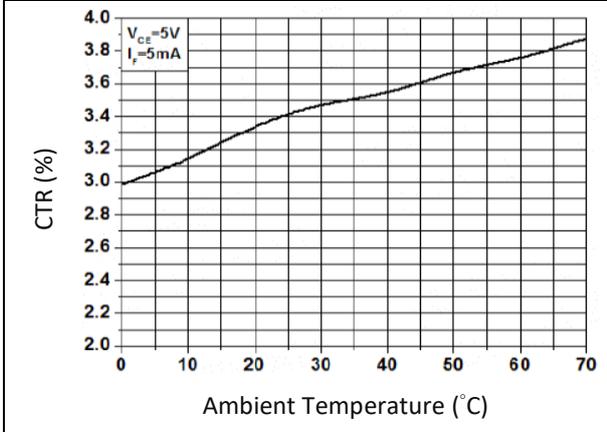


Relative Radiant Intensity v.s. Angular Displacement

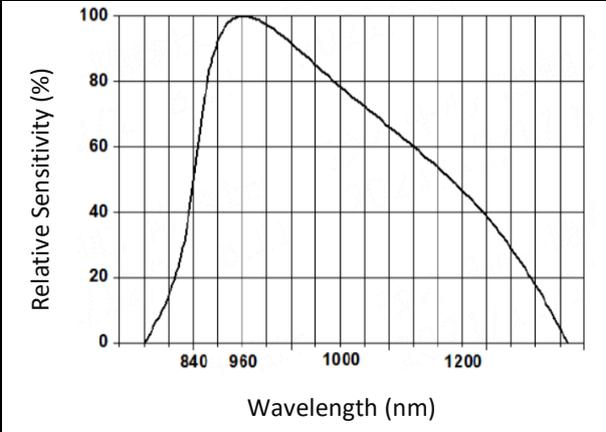


**ELECTRO-OPTICAL CHARACTERISTICS (PT):**

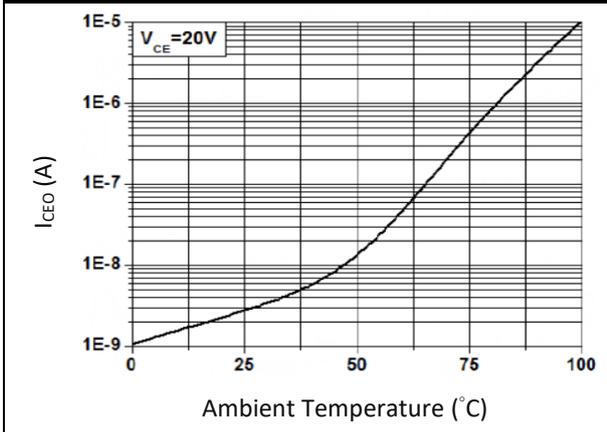
**Current Transfer Ratio v.s. Ambient Temperature**



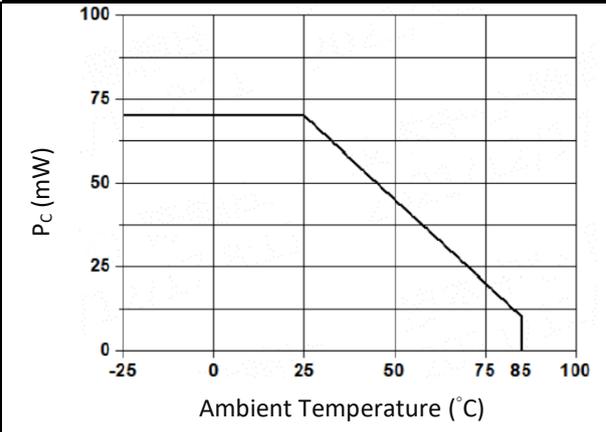
**Spectral Sensitivity**



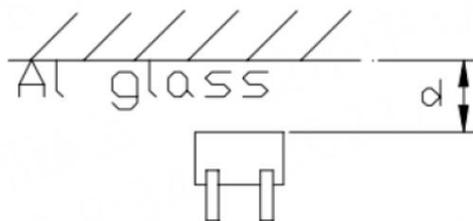
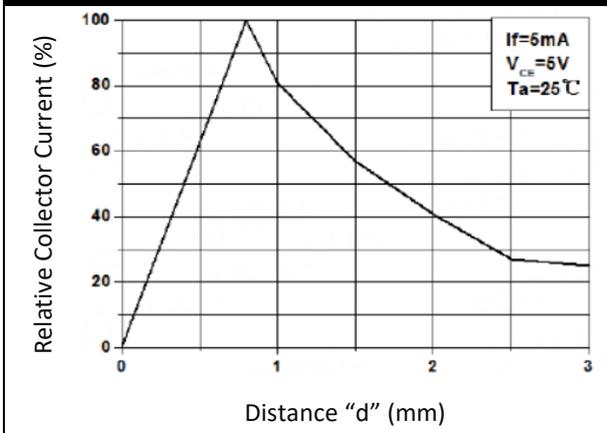
**Collector Dark Current v.s. Ambient Temperature**



**Collector Power Dissipation v.s. Ambient Temp.**

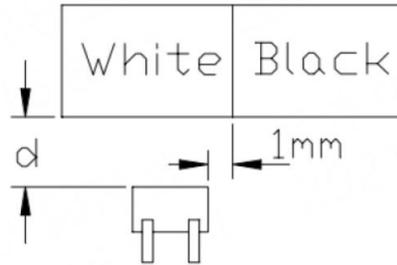
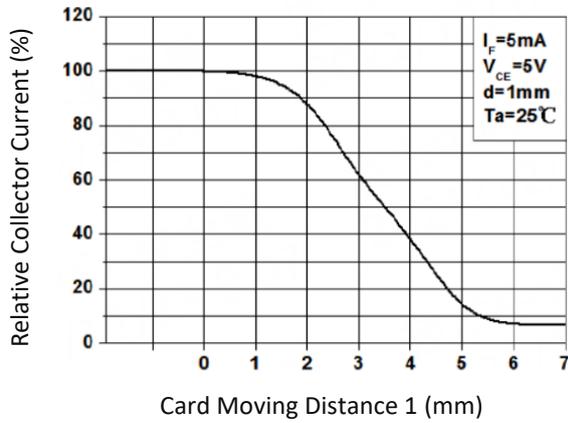


**Relative Collector Current v.s. Distance between Sensor and AL Evaporation Glass**

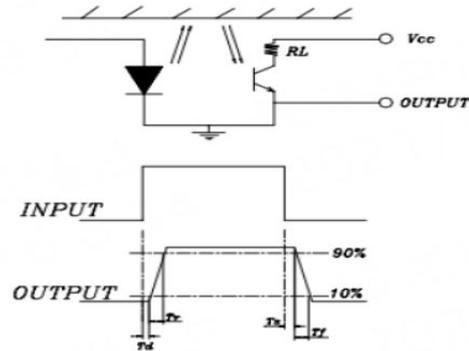
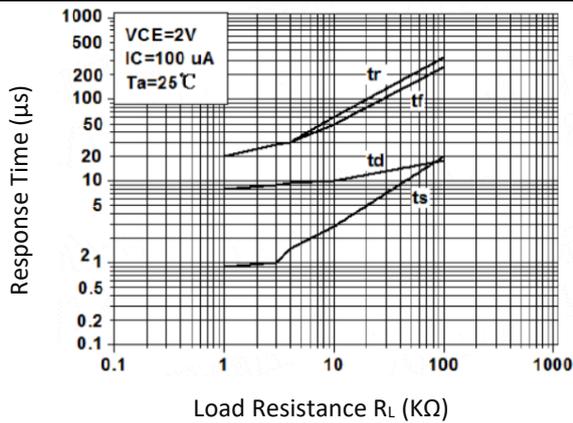


## TEST CIRCUITS FOR ITR:

### Relative Collector Current v.s. Card Moving Distance

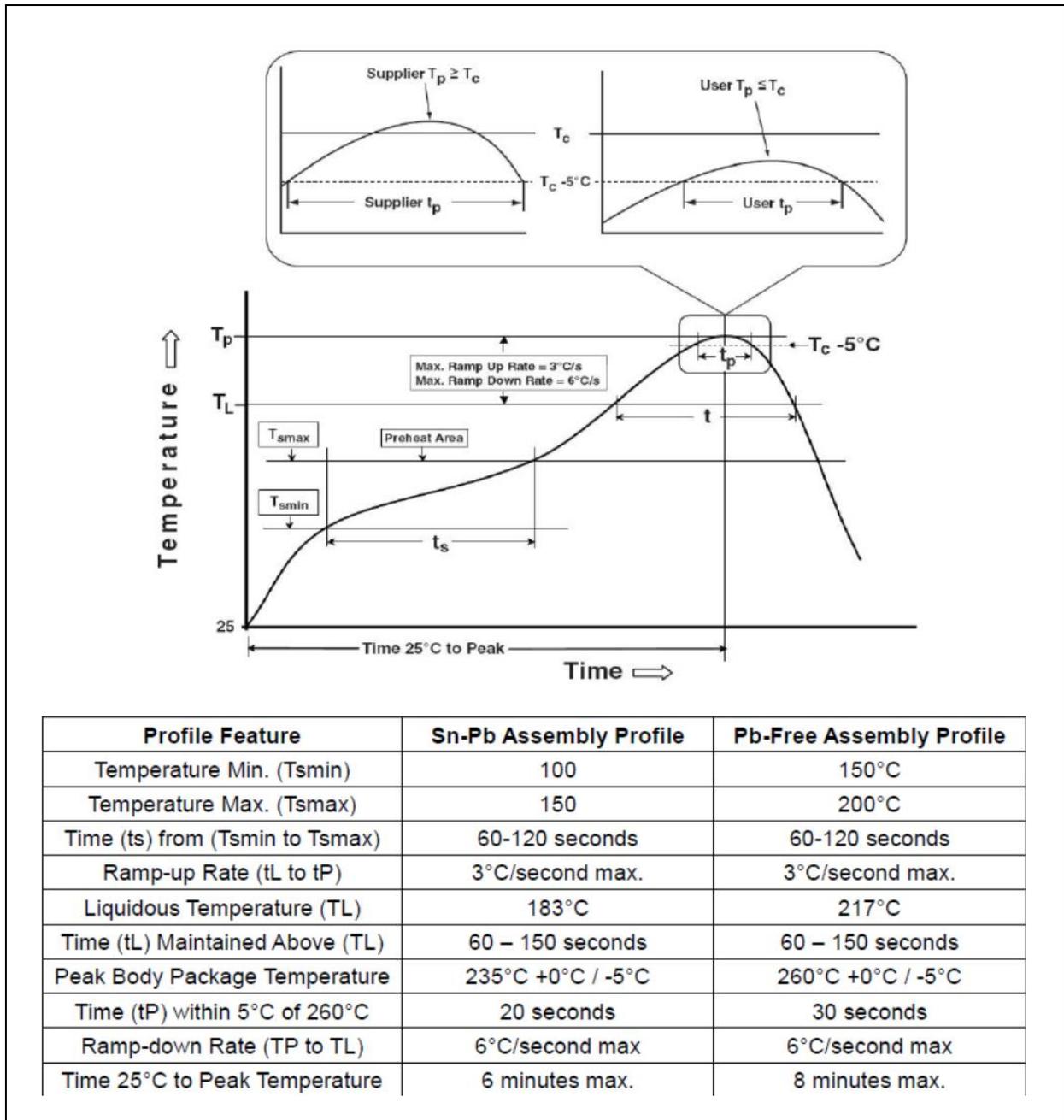


### Response Time v.s. Load Resistance



## RECOMMENDED SOLDERING PROFILE:

Lead-free Solder IR Reflow:

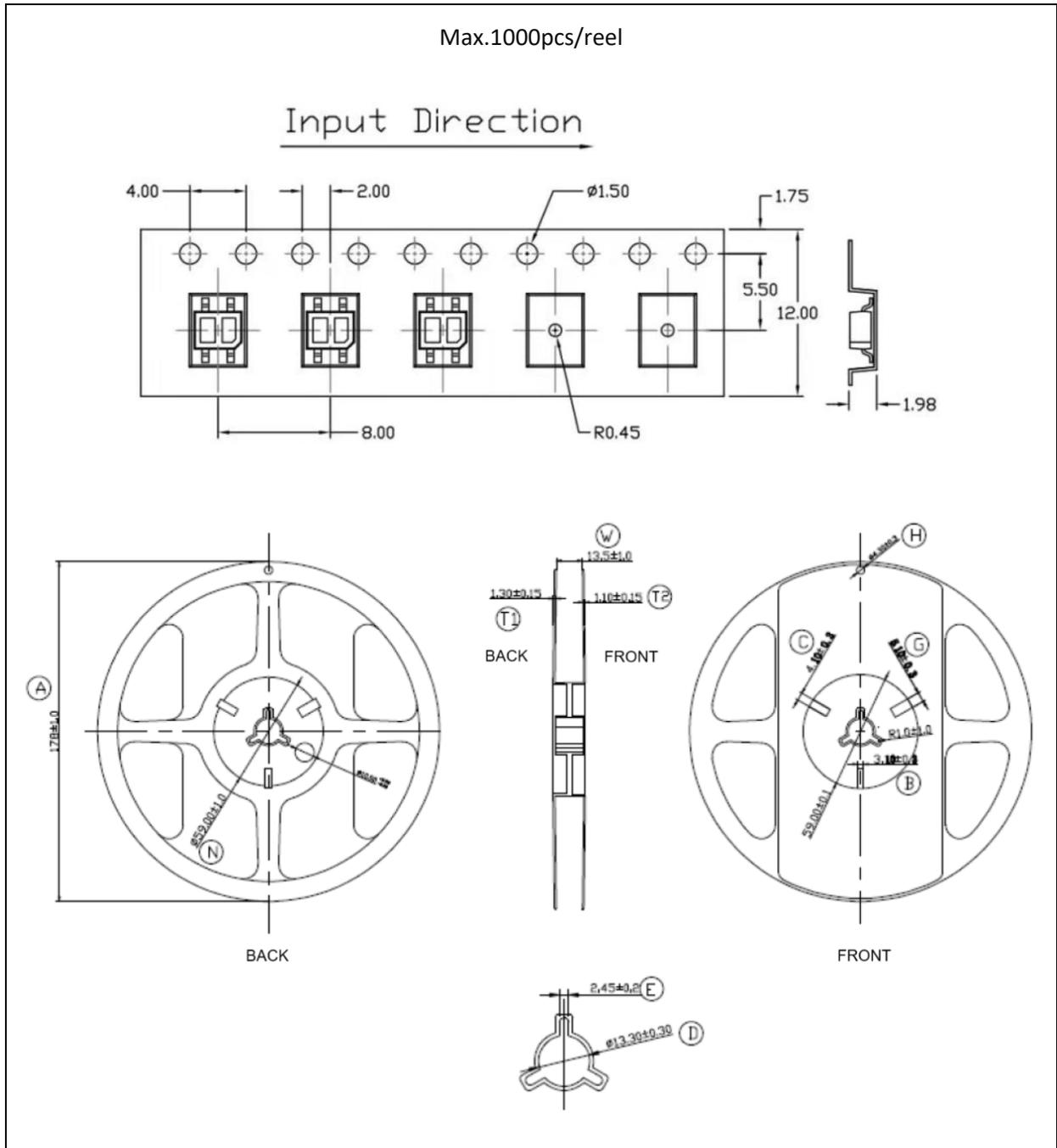


Note:

1. Recommended reflow temperature is 245°C (±5°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:

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### 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.

### Over-Current Proof:

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

### 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-electrostatic glove is recommended when handling the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

**REVISION RECORD:**

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Version	Date	Summary of Revision
A1.0	01/06/2025	Datasheet set-up.