BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED!

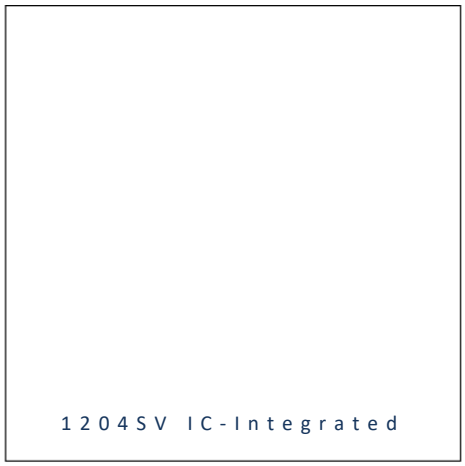
ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

PRODUCT DATASHEET

- ► Chip Side View with IC
- ► 1204SV (3215) IC 1.0t
- ► Red/Green/Blue

Release Date: 17 October 2024 Version: A1.1

N0M59S13ICSV



1204SV IC-LED

RoHS Compliant

FEATURES (Red/Green/Blue*):

- **Package:** CHIP Side View Package with Integrated IC
- **Forward Current:** 12/12/12mA*
- **Forward Voltage (typ.):** +3.7~+5.3V
- **Luminous Intensity (typ.):** 285/370/75mcd
- **Colour:** Red/Green/Blue
- **Dominant Wavelength (typ.):** 622/523/467nm
- **Viewing Angle:** 120°
- **Materials:**
  - Resin: Epoxy (White Diffused)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **IC Features:** This IC LED product is much smaller than PLCC type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- **Pixel:** Each RGB chip is 8bit control, total of 16M colours can be displayed.
- **Soldering Methods:** IR Reflow soldering
- **MSL Level:** acc. to JEDEC Level 3
- **Packing:** 8mm tape with max.3000pcs/reel, ø180mm (7'')

* in order of Red/Green/Blue

APPLICATIONS:

- Telecommunication
- Indicator
- Home Appliance
- Decoration Lighting
- Full Colour LED Strip
- Gaming Device
- Guardrail Tube

CHARACTERISTICS:

Absolute Maximum Characteristics (T_a=25°C)

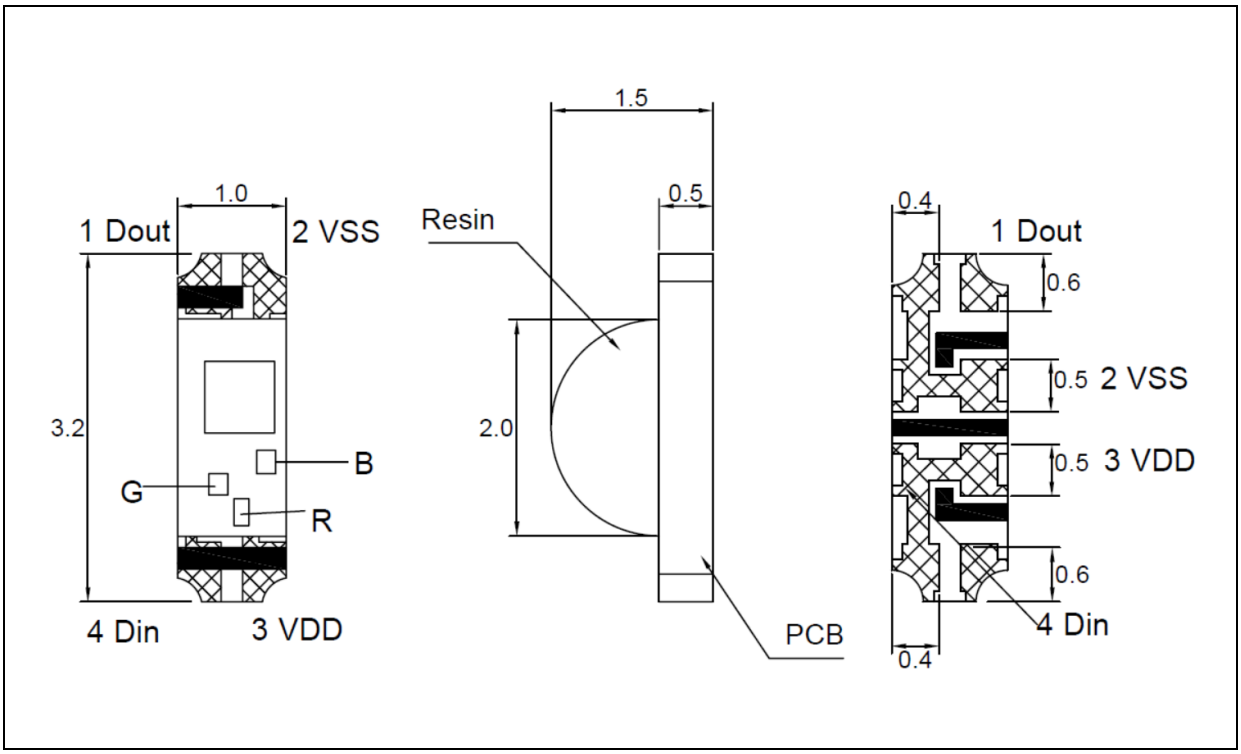
Parameter	Symbol	Ratings	Unit
LED Output Current	I_{OUT}	25	mA
Supply Voltage	V_{DD}	3.7~5.3	V
Power Dissipation	P_D	240	mW
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+100	°C

Electrical & Optical Characteristics (T_a=25°C, V_{DD}=5V, V_{SS}=0)

Parameter		Symbol	Values			Unit	Test Condition
			Min.	Typ.	Max.		
Forward Voltage		V_F	3.7	5.0	5.3	V	---
Each R/G/B Current		I_{OL}	---	12	---	mA	V_{DD}=5V
Input High Voltage		V_{IH}	2.7	---	V_{DD}	V	DI
Input Low Voltage		V_{IL}	0	---	0.7	V	DI
Luminous Intensity	R	I_V	125	285	500	mcd	V_{DD}=5V
	G		200	370	800		
	B		50	75	200		
Dominant Wavelength	R	λ_D	615	622	630	nm	V_{DD}=5V
	G		515	523	535		
	B		460	467	475		
Viewing Angle		$2\theta_{1/2}$	---	120	---	deg	I_F=12mA

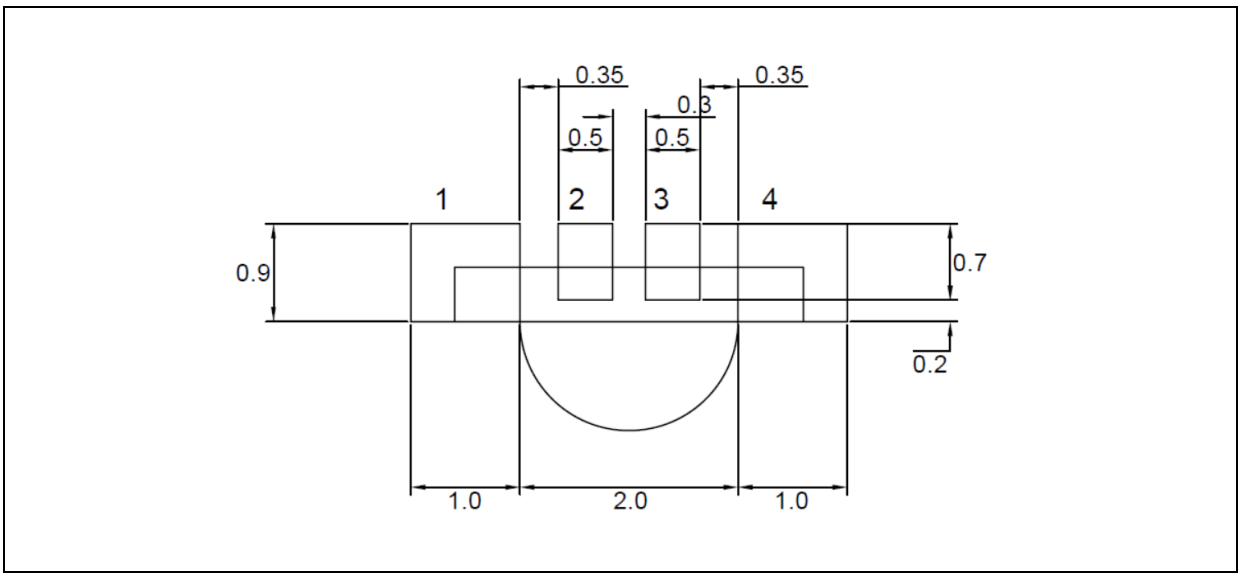
OUTLINE DIMENSION:

Package Dimension:



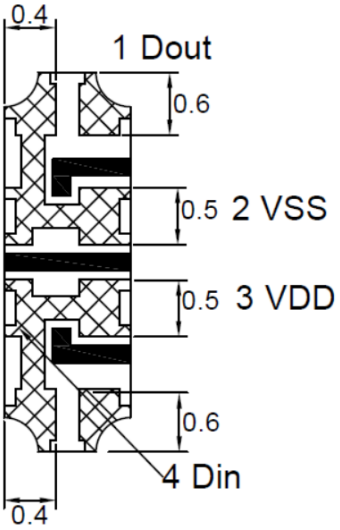
1. All dimensions are in millimetre (mm).
2. Tolerance ±0.2mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



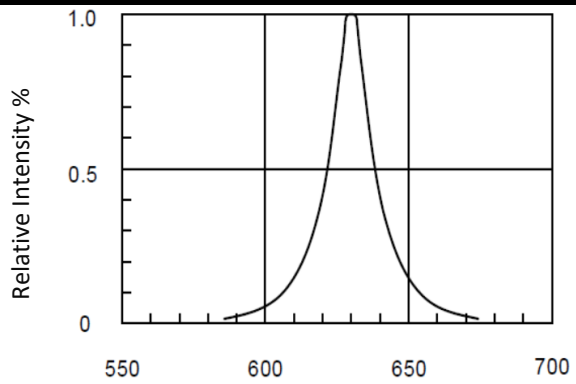
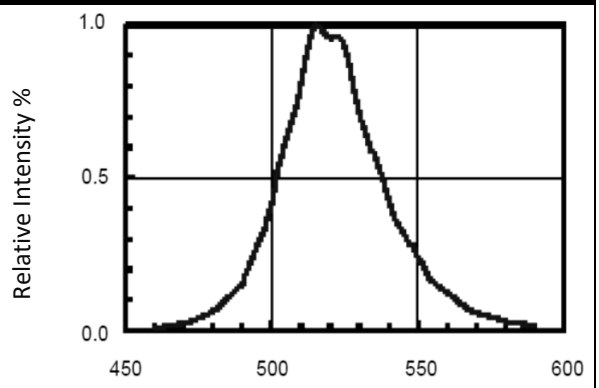
1. Dimensions are in millimetre (mm).
2. Tolerance ±0.1mm with angle tolerance ±0.5°.

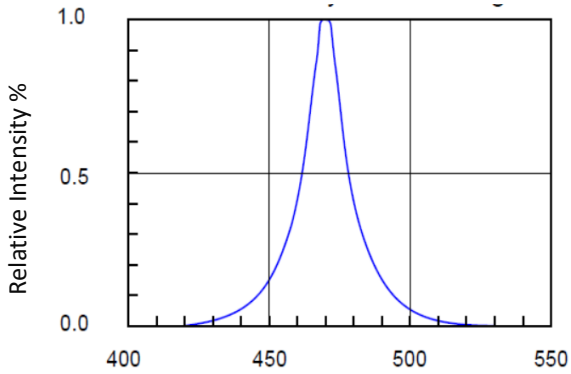
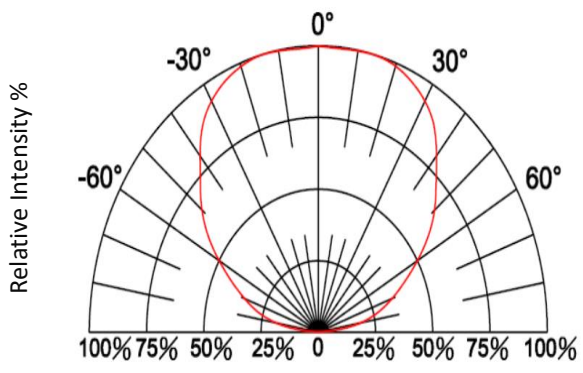
PIN CONFIGURATION:



No.	Symbol	Function Description
1	DOUT	Control Data Signal Output
2	VSS	Ground
3	VDD	DC Power Input
4	DIN	Control Data Signal Input

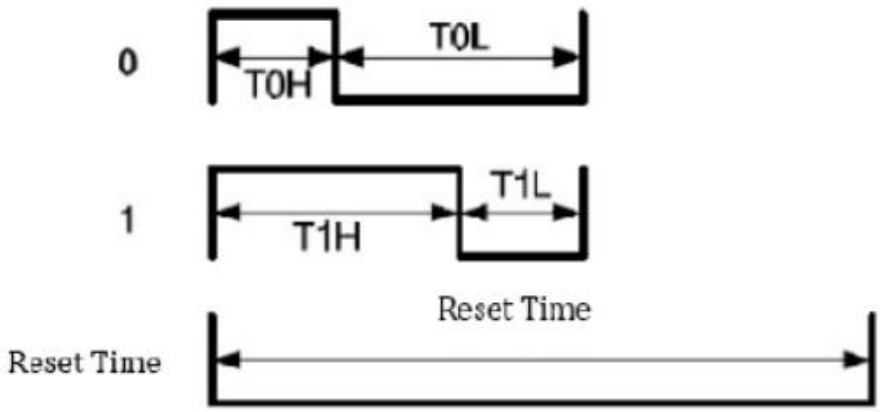
ELECTRO-OPTICAL CHARACTERISTICS:

Relative Intensity v.s. Wavelength (RED)	Relative Intensity v.s. Wavelength (GREEN)
	

Relative Intensity v.s. Wavelength (BLUE)	Relative Intensity v.s. Angular Displacement
	

Function Description:

1. Timing Wave Form:

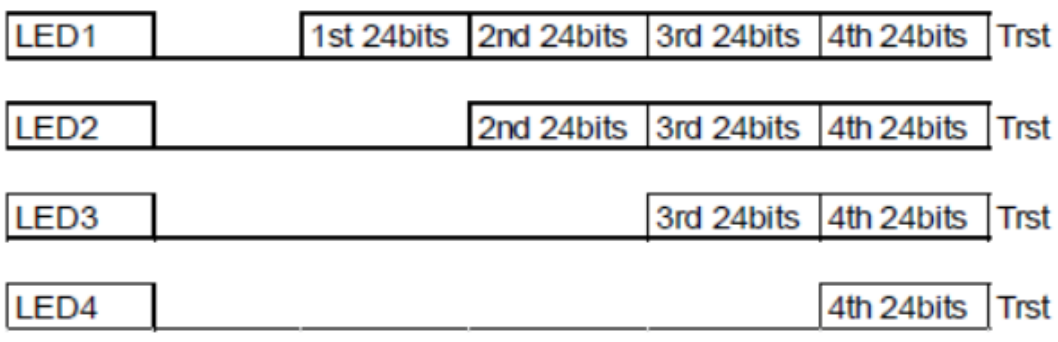


2. High Speed Mode:

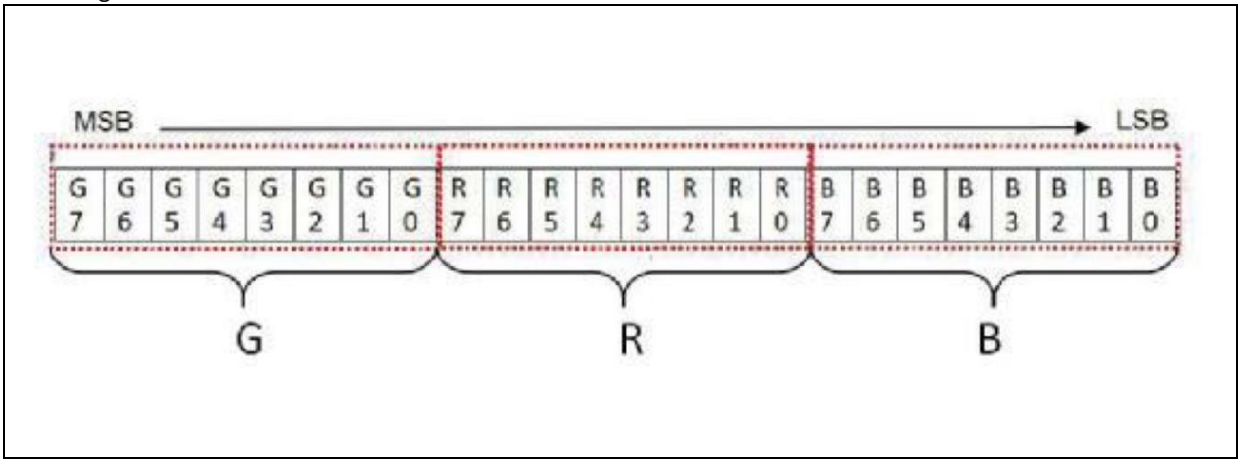
Item	Description	min	max	unit
T0H	0 code, High-level time	0.22	0.38	us
T0L	0 code, Low-level time	0.58	1	us
T1H	1 code, High-level time	0.58	1	us
T1L	1 code, Low-level time	0.22	1	us
Trst	Reset code,Low-level time	280	----	us

Note:TH+TL>1.2us

3. Data Communication:

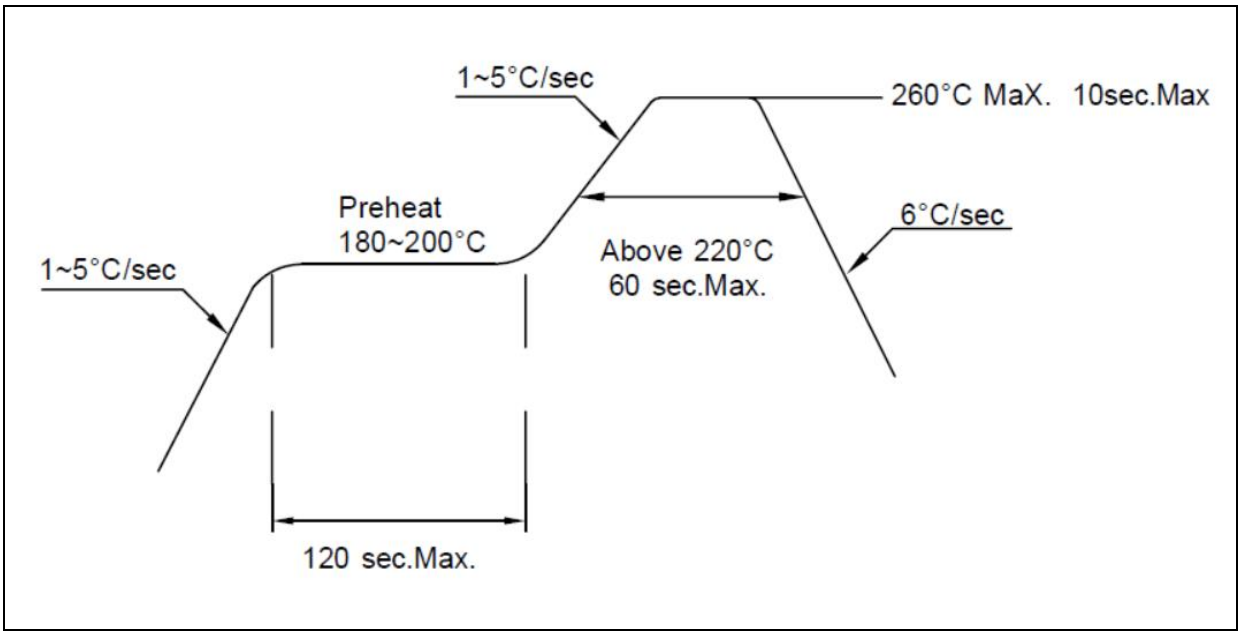


4. Single Data in 24bit for RGB:



RECOMMENDED SOLDERING PROFILE:

Lead-free Solder IR Reflow:



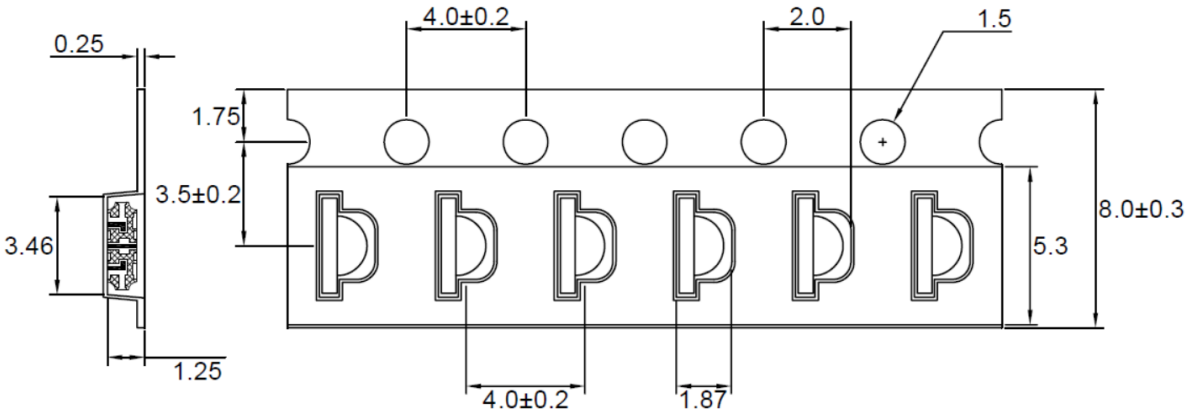
Note:

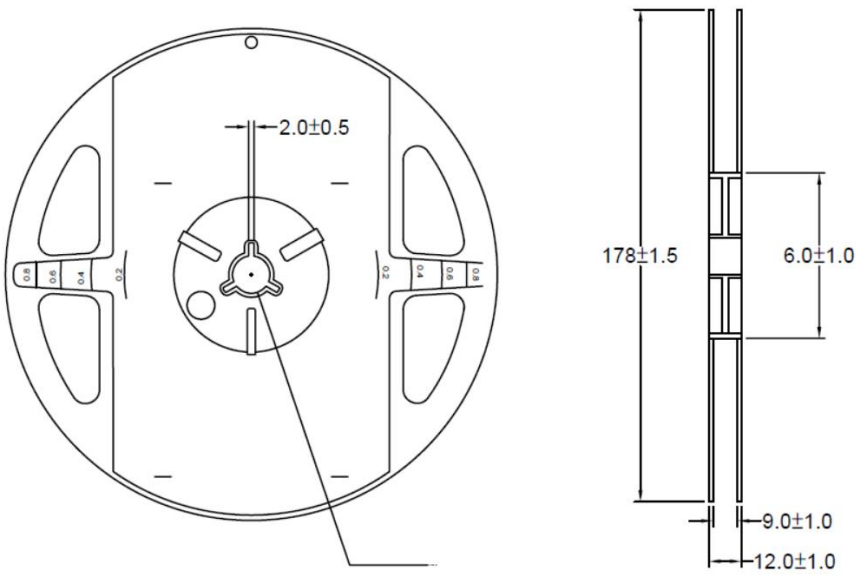
1. We recommend the reflow temperature 240°C (±5°C). The maximum soldering temperature should be limited to 260°C.
2. Maxima reflow soldering: 2 times.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

PACKING SPECIFICATION:

Reel Dimension:

Max.3000pcs/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 168 hours. Otherwise, they should be kept in a damp-proof box with descanting agent stored at R.H.<10% and apply baking before use.

Over-Current Proof:

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

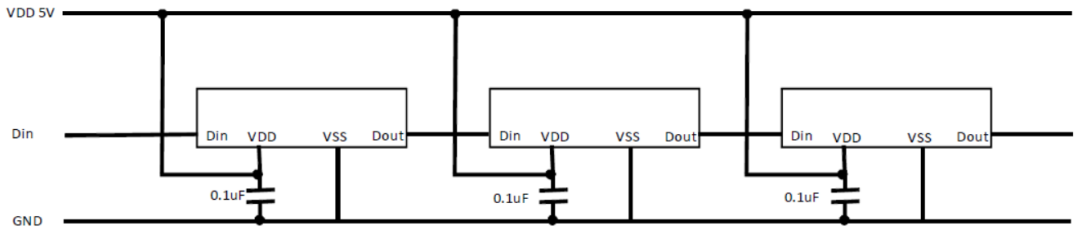
Baking:

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±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.

Recommended Route:



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	05/10/2020	Datasheet set-up.
A1.1	17/10/2024	New datasheet format.