



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

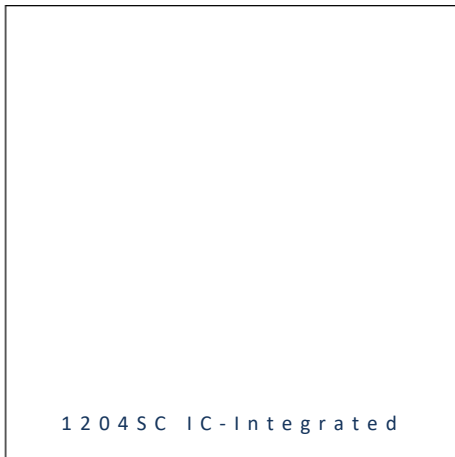


- ▶ Chip Side View with IC
- ▶ 1204SV (3210) IC 1.5t
- ▶ Sky White/Red/Green /Blue

NOM65S99ICSV



Release Date: 25 October 2023 Version: A1.0



1204SV IC-Integrated

1204SV IC-LED



FEATURES (White/Red/Green/Blue*):

- **Package:** CHIP Side View Package with Integrated IC
- **Forward Current:** 12/12/12/12mA*
- **Forward Voltage (typ.):** +3.0~+5.5V
- **Luminous Intensity (typ.):** 430/280/490/100mcd
- **Colour:** Sky White/Red/Green/Blue
- **CCT/Dominant Wavelength (typ.):** 12000K/622/522/467nm
- **Viewing Angle:** 120°
- **Materials:**
 - Die: InGaN/AlGaInP/InGaN/InGaN
 - 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.
- **Soldering Methods:** IR Reflow soldering
- **MSL Level:** acc. to JEDEC Level 3
- **Packing:** 8mm tape with max.3000pcs/reel, ø180mm (7")

* in order of White/White/Red/Green/Blue

APPLICATIONS:

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

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

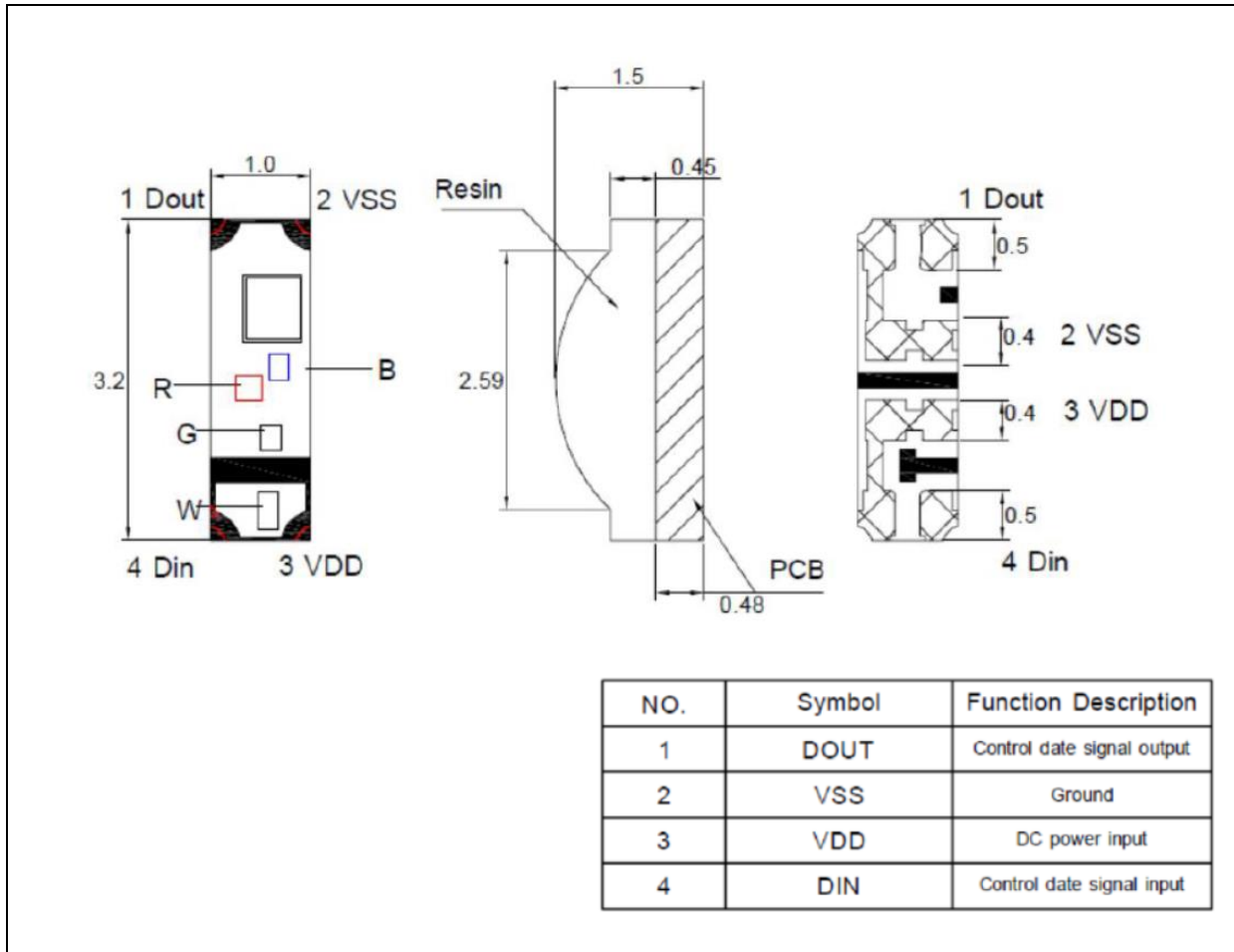
Parameter	Symbol	Ratings	Unit
LED Output Current	I _{OUT}	25	mA
Supply Voltage	V _{DD}	6.5	V
Power Dissipation	P _D	400	mW
Operating Temperature	T _{OPR}	-40~+85	°C
Storage Temperature	T _{STG}	-40~+100	°C

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

Parameter	Symbol	Values			Unit	Test Condition	
		Min.	Typ.	Max.			
Forward Voltage	V _F	3.0	5.0	5.5	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	---	1.0	V	DI	
Output High Voltage	V _{OH}	4.5	---	---	V	I _{OH} =4mA	
Output Low Voltage	V _{OL}	---	---	0.4 V _{DD}	V	I _{OL} =4mA	
Pull Down Resistance	R _{PD}	---	500K	---	Ω	D _{IN} , D _{OUT} (V _{DD} =5V)	
Luminous Intensity	R	I _v	125	280	500	mcd	V _{DD} =5V
	G		200	490	800		
	B		50	100	200		
	W		200	430	800		
Dominant Wavelength	R	λ _D	615	---	630	nm	V _{DD} =5V
	G		515	---	530		
	B		460	---	475		
Viewing Angle	2θ _{1/2}	---	120	---	deg	I _F =12mA	

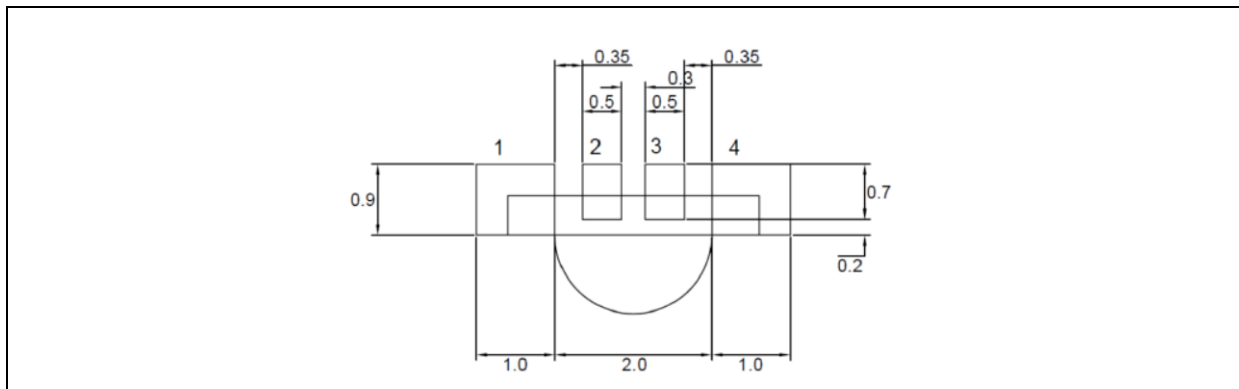
OUTLINE DIMENSION:

Package Dimension:



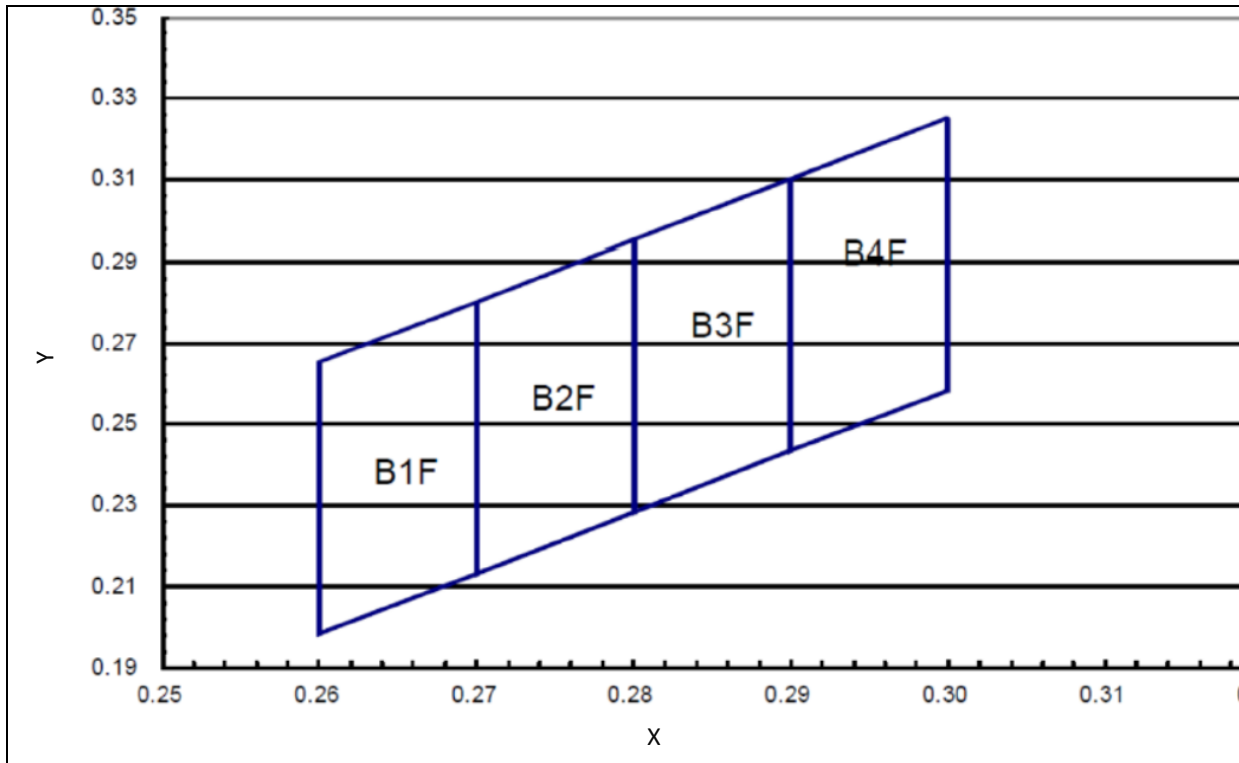
1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.2\text{mm}$, unless otherwise noted.

Recommended Soldering Pad Dimension:



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

CIE CHROMATICITY DIAGRAM:

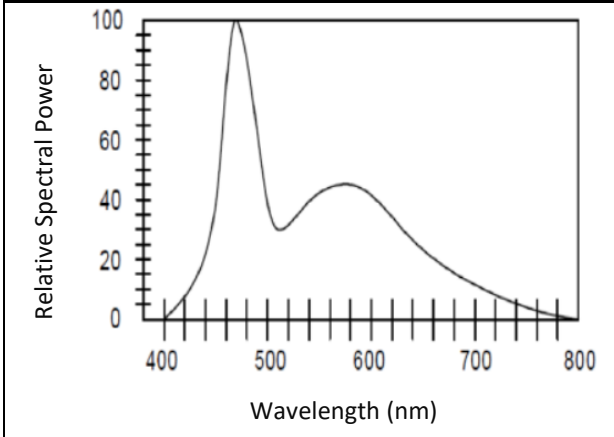


Chromaticity Coordinates Classifications:

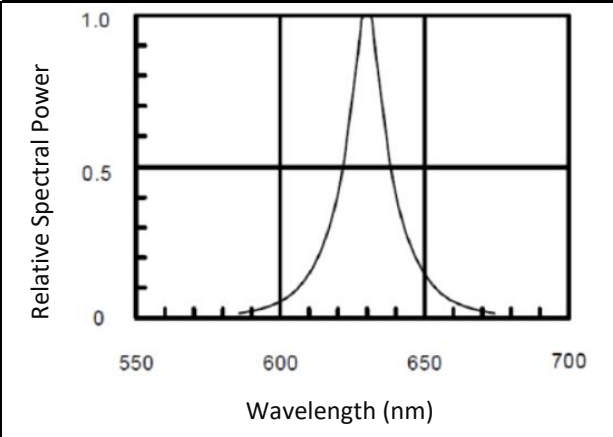
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
B1F	0.2600	0.2650	0.2600	0.1980	0.2700	0.2130	0.2700	0.2800
B2F	0.2700	0.2800	0.2700	0.2130	0.2800	0.2280	0.2800	0.2950
B3F	0.2800	0.2950	0.2800	0.2380	0.2900	0.2430	0.2900	0.3100
B4F	0.2900	0.3100	0.2900	0.2430	0.3000	0.2580	0.3000	0.3250

ELECTRO-OPTICAL CHARACTERISTICS:

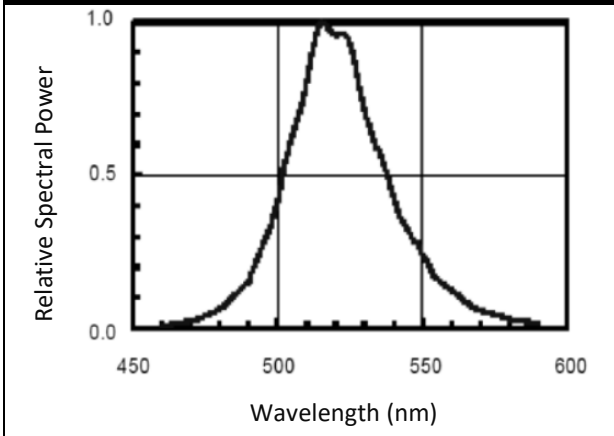
Luminous Spectrum - White



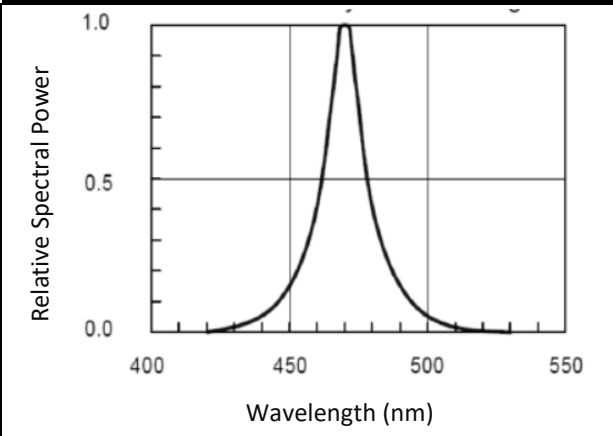
Luminous Spectrum - Red



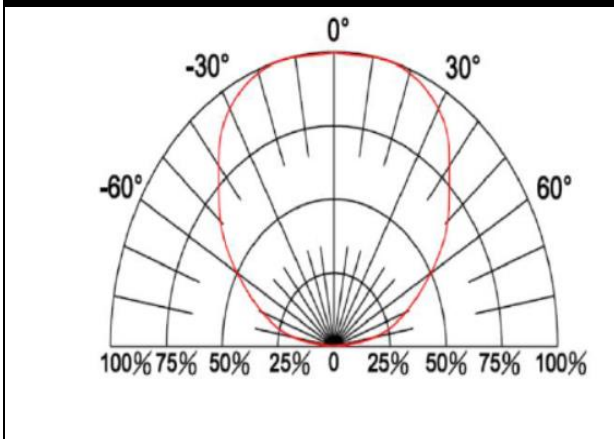
Luminous Spectrum - Green



Luminous Spectrum - Blue

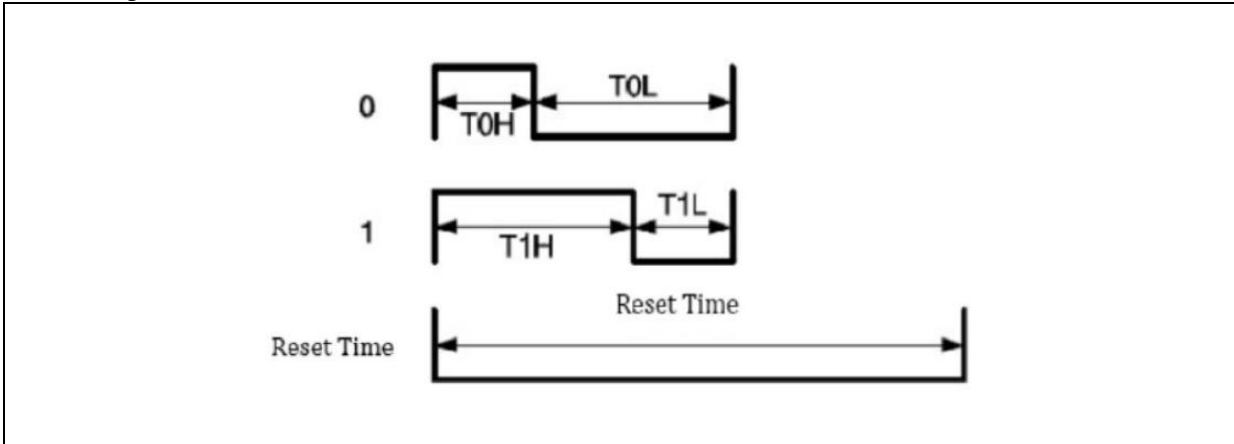


Directive Radiation



Function Description:

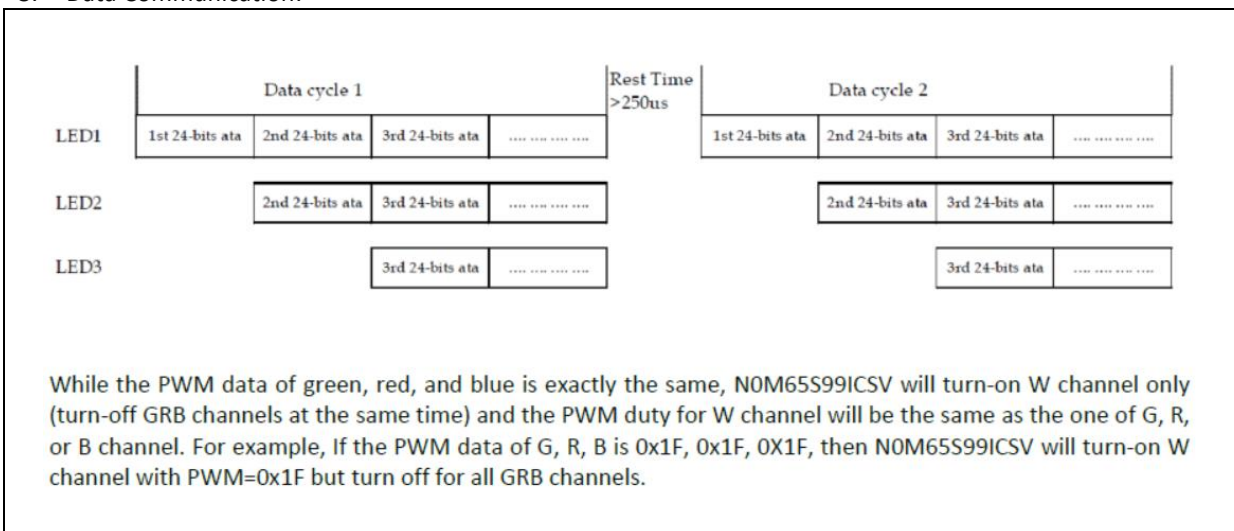
1. Timing Wave Form:



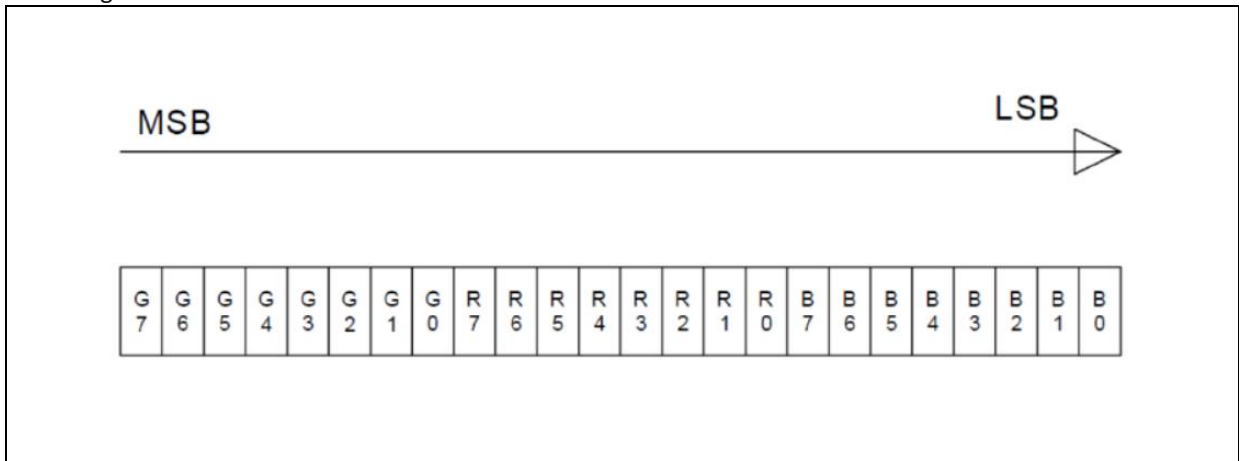
2. High Speed Mode:

Item	Description	min	Typical	Allowance	unit
T0H	0 code, High-level time		0.3	±0.15	us
T0L	0 code, Low-level time		0.9	±0.15	us
T1H	1 code, High-level time		0.9	±0.15	us
T1L	1 code, Low-level time		0.3	±0.15	us
Trst	Reset code, Low-level time	250			

3. Data Communication:

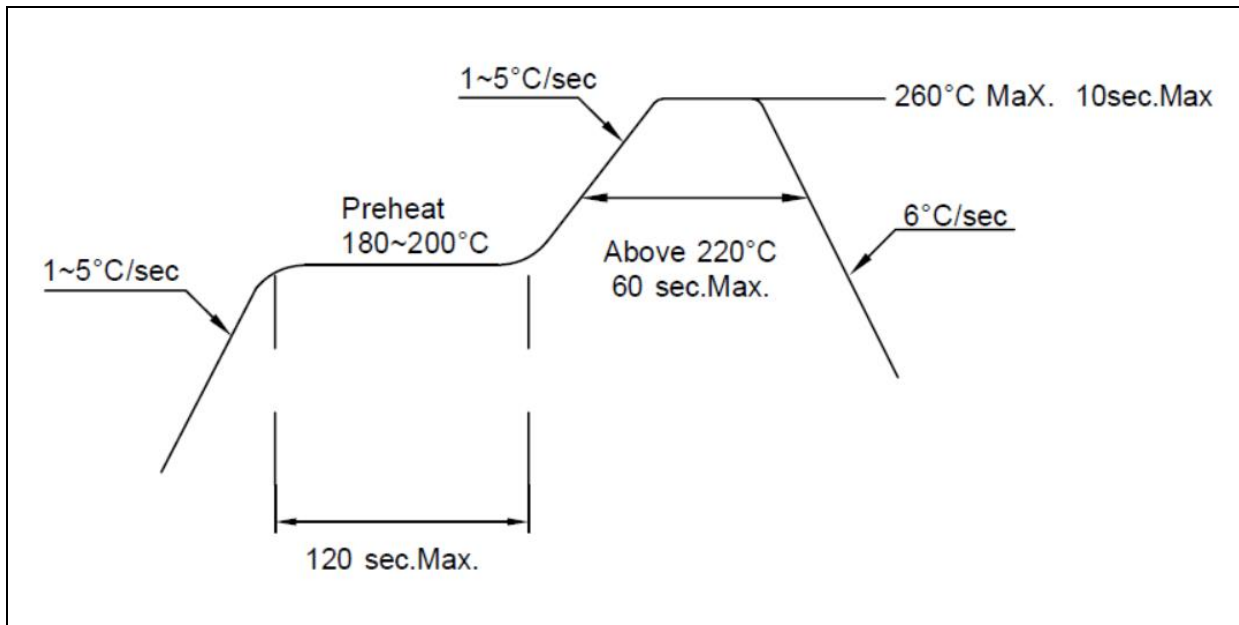


4. Single Data in 32bit for RGBW:



RECOMMENDED SOLDERING PROFILE:

Lead-free Solder IR Reflow:

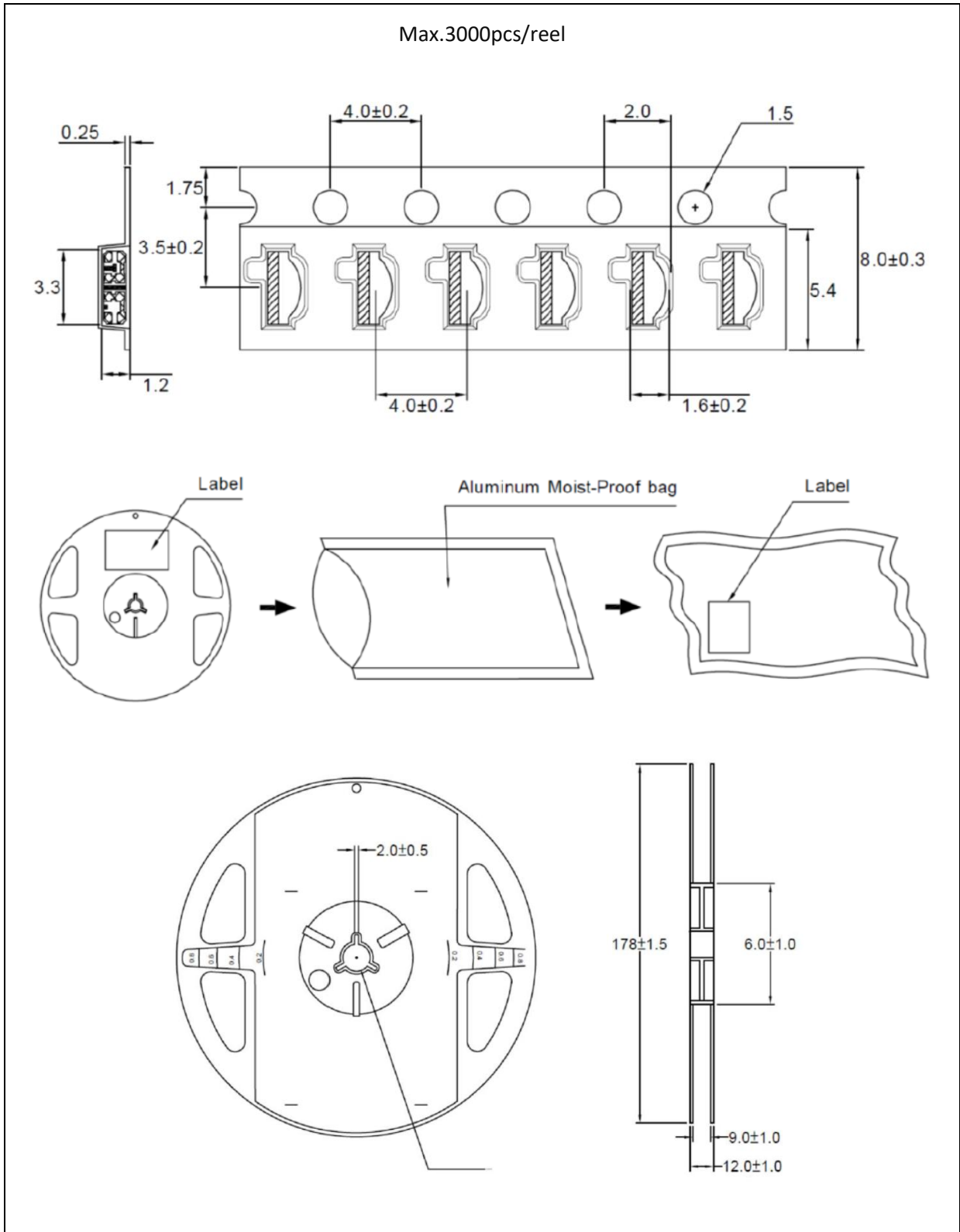


Note:

1. We recommend the reflow temperature 240°C ($\pm 5^\circ\text{C}$). 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:



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 desiccating 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.

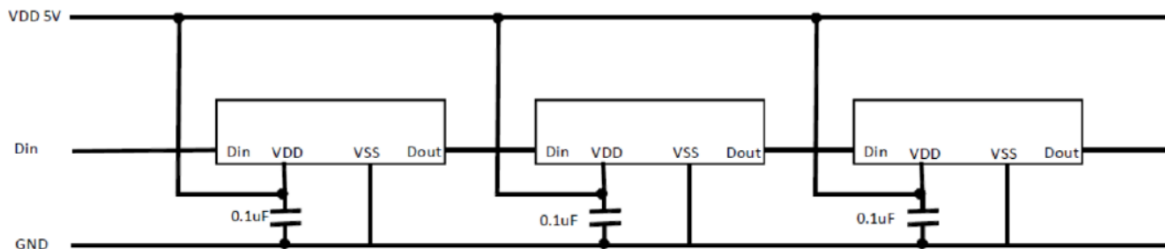
Baking:

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 handling 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	25/10/2023	Datasheet set-up.