



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



- ▶ PLCC4 SMD with IC
- ▶ 3535 IC 1.9t
- ▶ Red/Green/Blue

NOM59S09IC



Release Date: 26 April 2021 Version: A1.0



3 5 3 5 IC - I n t e g r a t e d

3535 IC-Integrated

RoHS
Compliant



FEATURES:

- **Package:** PLCC4 Top View Package with Integrated IC
- **Forward Current:** 20/20/20mA*
- **Forward Voltage (typ.):** +3.3~+5.5V
- **Luminous Intensity (typ.):** 820/1350/290mcd
- **Colour:** Red/Green/Blue
- **Wavelength:** 622/520/470nm
- **Viewing angle:** 120°
- **Materials:**
 - Resin: Silicone (Water Clear)
 - L/F Finish: Ag Plated
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **Pixel:** Each R/G/B chip is 8bit, total of 16M colours can be displayed
- **Soldering methods:** IR Reflow soldering
- **Preconditioning:** acc. to JEDEC Level 4
- **Packing:** 12mm tape with Max.500pcs/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 (Ta=25°C)

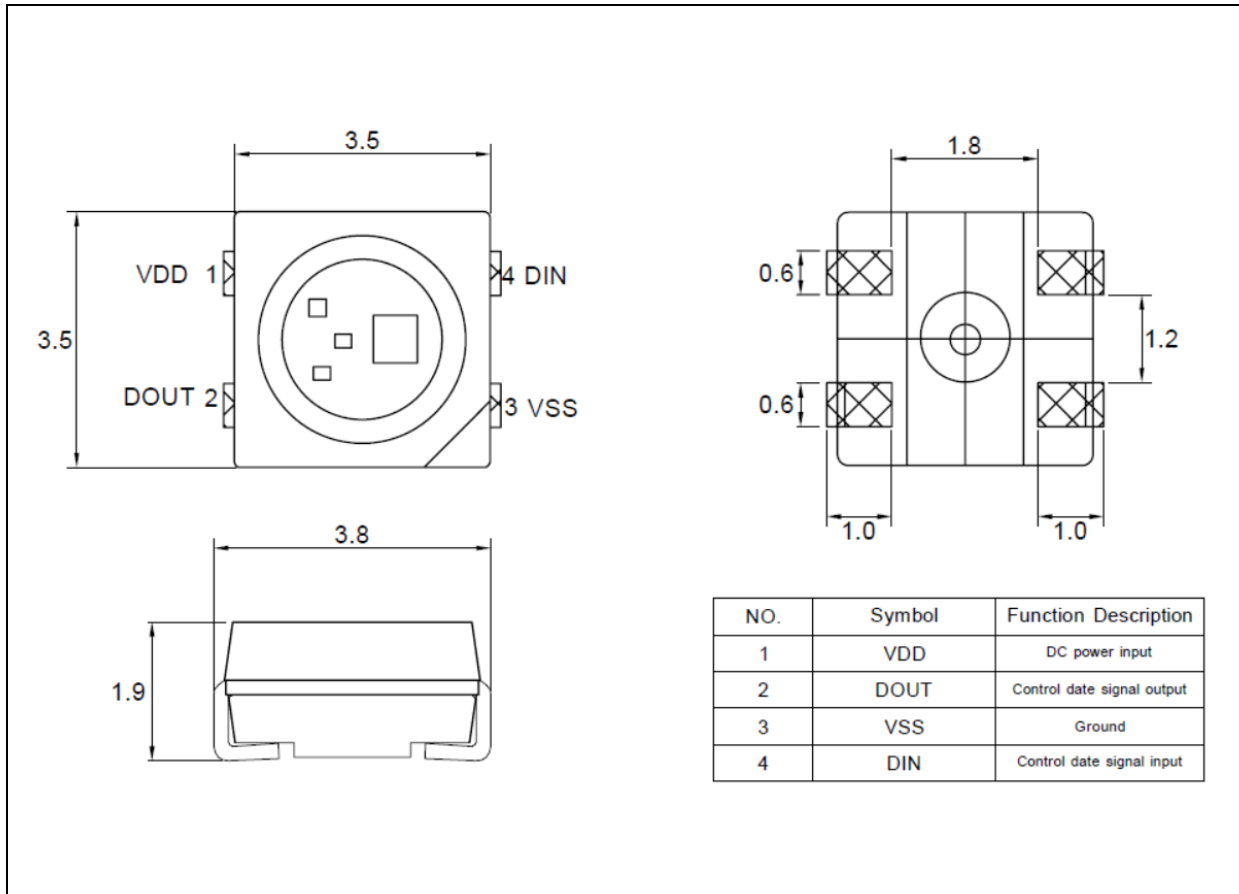
Parameter	Symbol	Ratings	Unit
LED Output Current	I _{OUT}	25	mA
Supply Voltage	V _{DD}	0 ~ +6.0	V
Power Dissipation	P _D	400	mW
Operating Temperature	T _{OPR}	-40~+85	°C
Storage Temperature	T _{STG}	-40~+100	°C

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

Parameter	Symbol	Values			Unit	Test Condition	
		Min.	Typ.	Max.			
Forward Voltage	V _F	3.3	5.0	5.5	V	---	
Each R/G/B Current	I _{OL}	---	20	---	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	
Operation Current	I _{DD}	---	---	2	mA	B, G, R no load	
Pull Down Resistance	R _{PD}	---	500K	---	Ω	D _{IN} , D _{OUT} (V _{DD} =5V)	
Luminous Intensity	R	I _V	---	820	---	mcd	I _F =20mA
	G		---	1350	---		
	B		---	290	---		
Dominant Wavelength	R	λ _D	---	622	---	nm	I _F =20mA
	G		---	520	---		
	B		---	470	---		
Viewing Angle	2θ _{1/2}	---	120	---	deg	I _F =20mA	

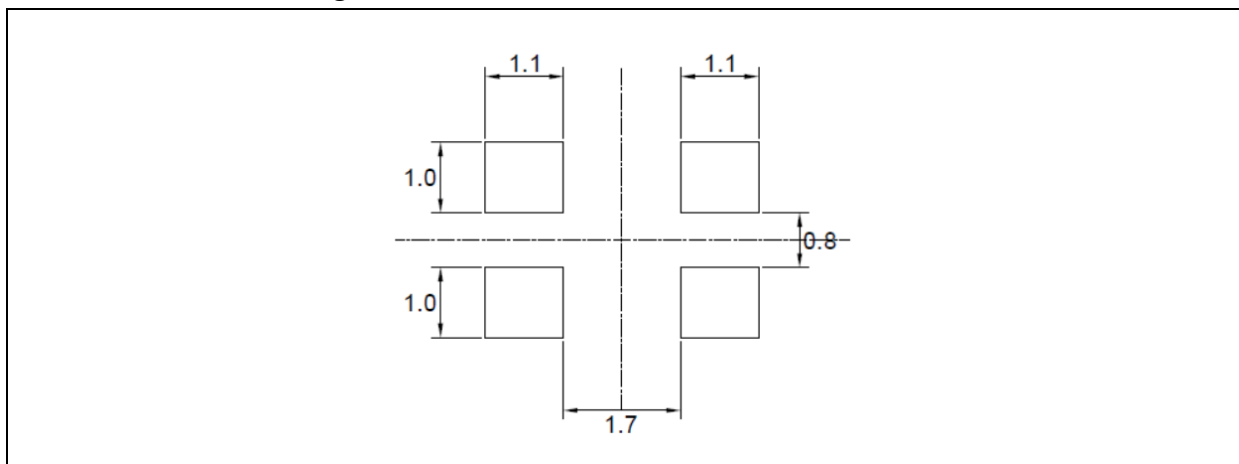
OUTLINE DIMENSION:

Package Dimension:

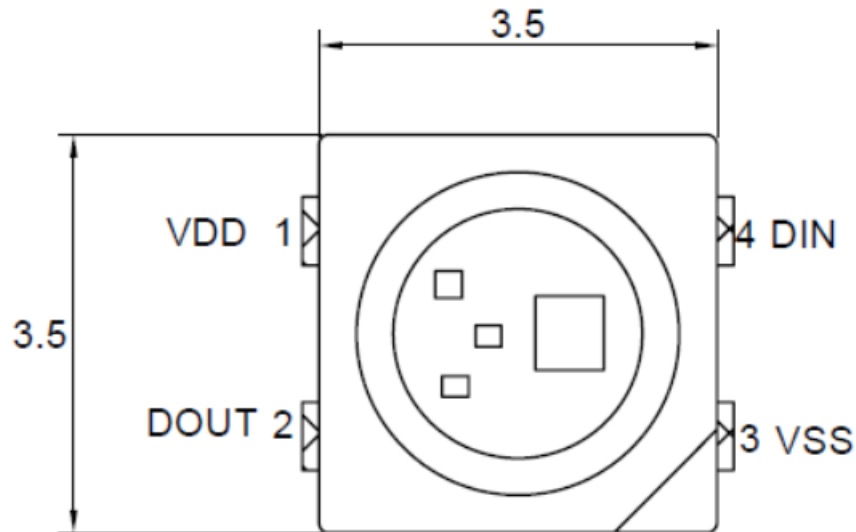


1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.2\text{mm}$, unless otherwise noted.

Recommended Soldering Pad Dimension:



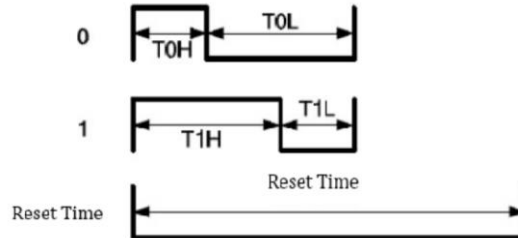
1. Dimensions are in millimetre (mm).
2. Tolerance $\pm 0.1\text{mm}$ with angle tolerance $\pm 0.5^\circ$.

PIN CONFIGURATION:


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

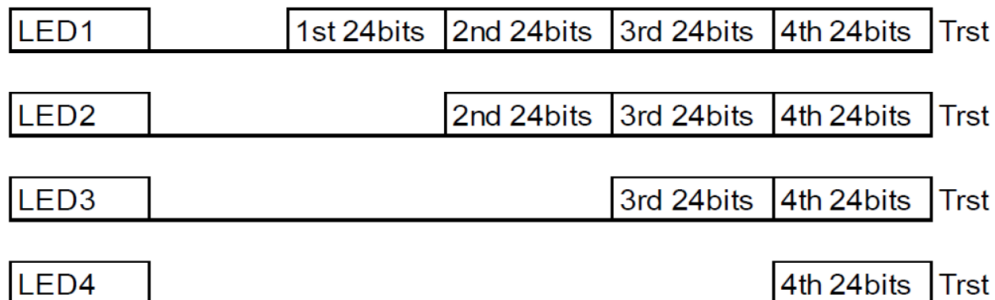
Function Description:

1. Timing Wave Form:

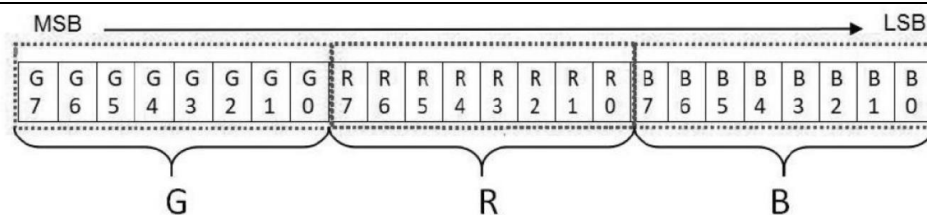


Item	Description	min	Typical	Allowance	unit
T0H	0 code, High-level time		0.3	± 0.15	us
T0L	0 code, Low-level time		0.9	± 0.15	us
T1H	1 code, High-level time		0.9	± 0.15	us
T1L	1 code, Low-level time		0.3	± 0.15	us
Trst	Reset code, Low-level time	250			us

2. Data Communication:

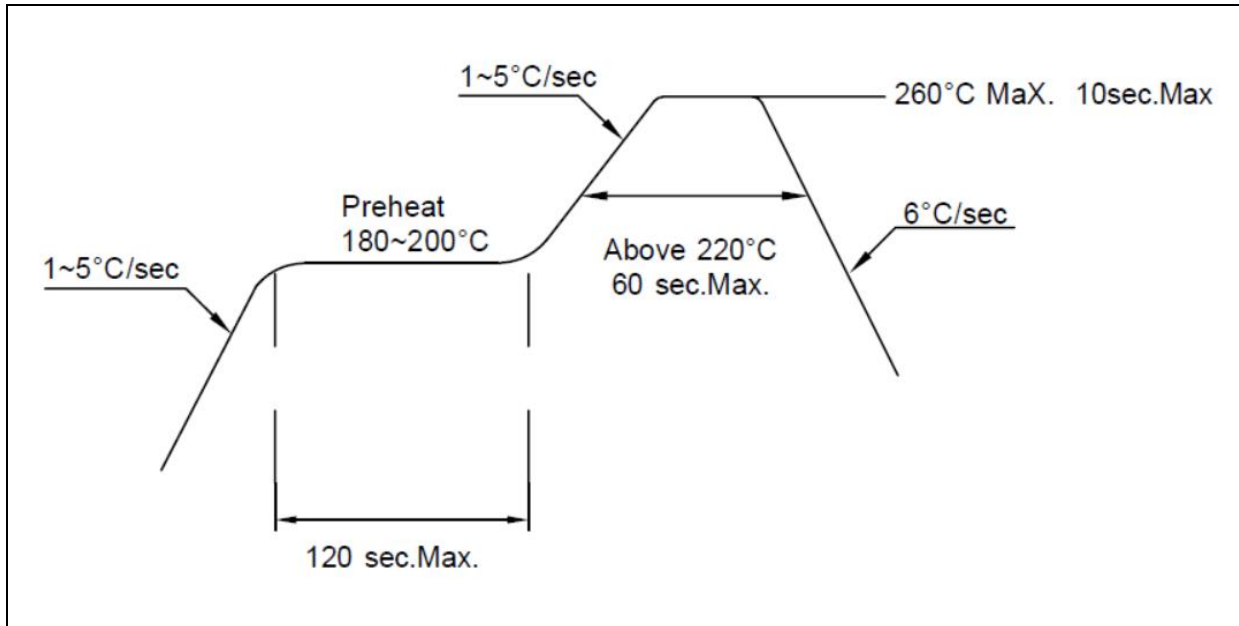


3. Single Data in 24bit for RGB:



RECOMMENDED SOLDERING PROFILE:

Lead-free Solder IR Reflow:

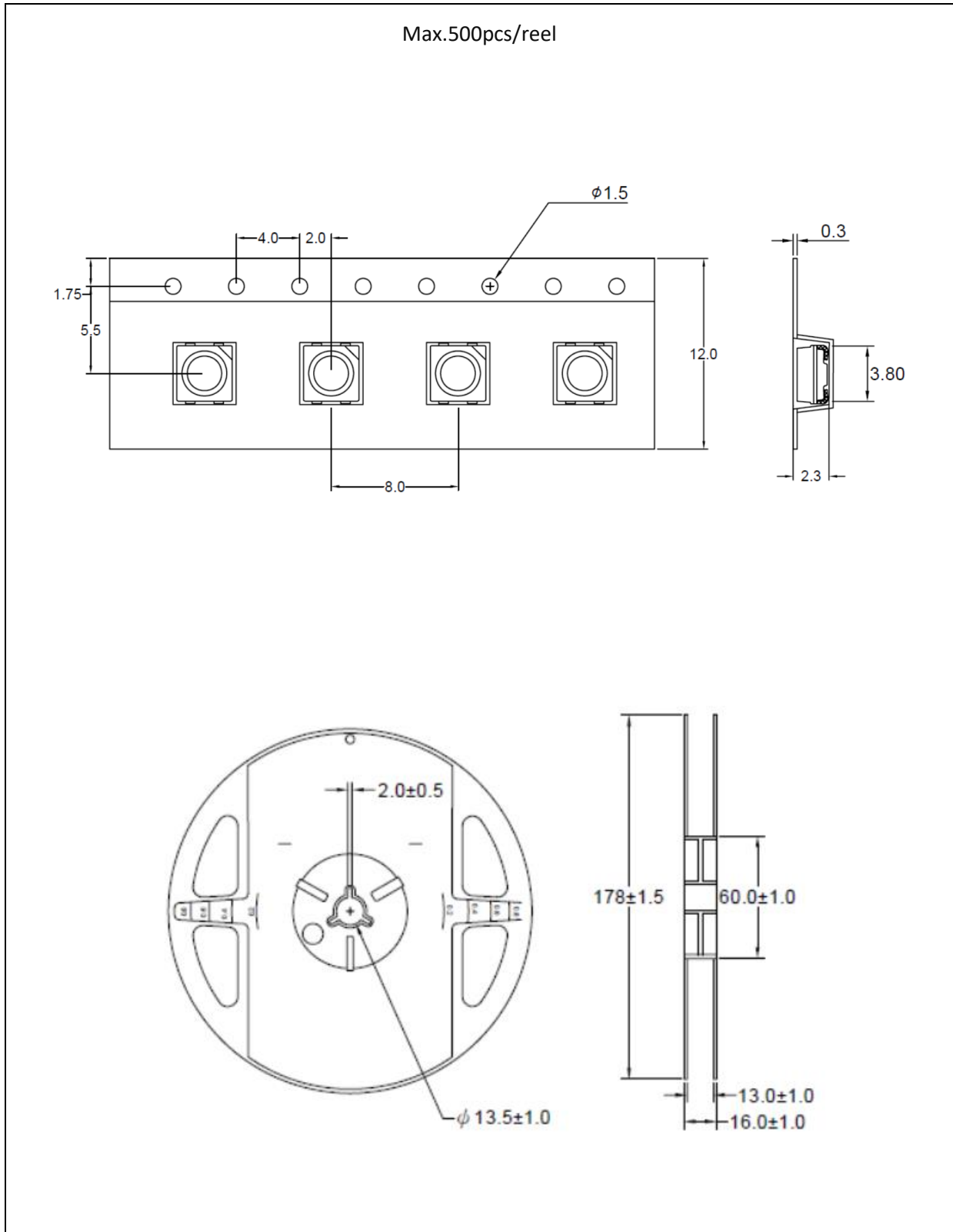


Note:

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 72 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.

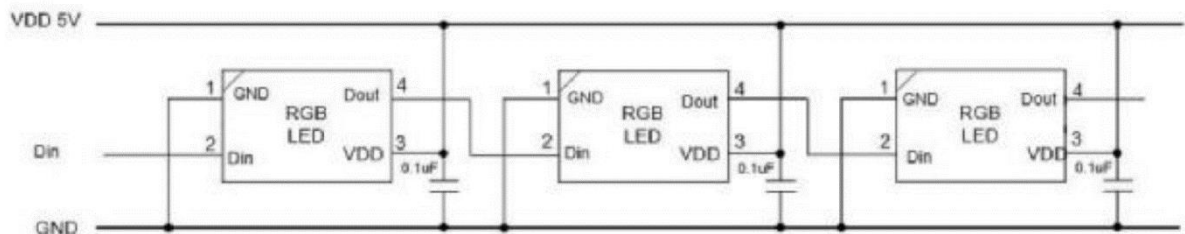
Baking:

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-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:

Version	Date	Summary of Revision
A1.0	26/04/2021	Datasheet set-up.