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

- ▶ PLCC4 SMD Side View
- ▶ 4311SV 0.9t Series
- ▶ Red / Green / Blue

Release Date: 15 October 2024 Version: A1.0

N0M67S71SV

4311SV 0.9t Series

RoHS Compliant

FEATURES (Red/Green/Blue*):

- **Package:** PLCC4 RGB Side View SMD Package
- **Forward Current:** 20/20/20mA
- **Forward Voltage (typ.):** 2.0/3.0/3.0V
- **Luminous Flux (typ.):** 800/1600/400mcd@20mA
- **Colour:** Red/Green/Blue
- **Dominant Wavelength (typ.):** 622/527/467nm
- **Viewing angle:** 120/120/120°
- **Materials:**
  - Die: AlGaInP/InGaN/InGaN
  - Resin: Silicon (Water Clear)
- **Operating Temperature:** -40~+80°C
- **Storage Temperature:** -40~+85°C
- **Grouping Parameters:**
  - Forward voltage
  - Luminous intensity
  - Dominant wavelength
- **Soldering Methods:** IR Reflow soldering
- **MSL Level:** 3 according to JEDEC
- **Packing:** 12mm tape with max.4000pcs/reel, ø179mm (7'')

APPLICATIONS:

- 3C Application
- Decoration Lighting
- Side View Light Strip
- Indication Lamp

CHARACTERISTICS:

Absolute Maximum Characteristics (T_a=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	25/25/25*	mA
Pulse Forward Current (duty 1/10; width 0.1ms)	I_{MAX}	60/60/60	mA
Power Dissipation	P_o	100/100/100	mW
Reverse Voltage	V_R	5/5/5	V
Reverse Current @5V	I_R	10/10/10	μA
Operating Temperature	T_{OPR}	-40~+80	°C
Storage Temperature	T_{STG}	-40~+85	°C

1. * In the order of Red/Green/Blue.

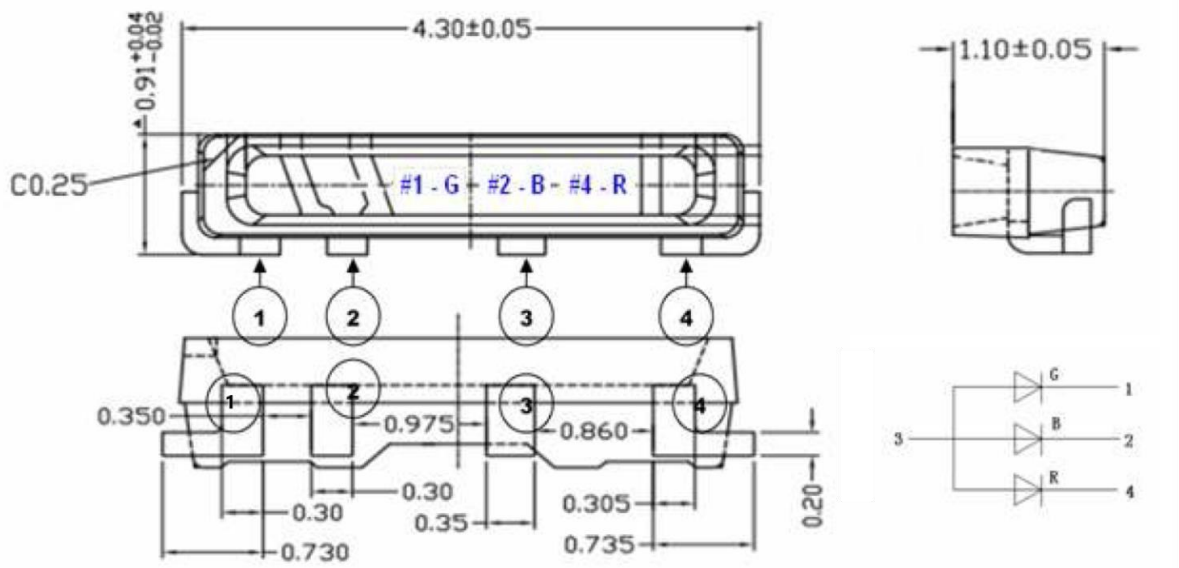
Electrical & Optical Characteristics (T_a=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Red - Forward Voltage	V_F	1.8	---	2.2	V	I_F=20mA
Red - Luminous Intensity	I_V	600	800	1200	mcd	I_F=20mA
Red - Wavelength	W_P	615	---	630	nm	I_F=20mA
Green - Forward Voltage	V_F	2.8	---	3.3	V	I_F=20mA
Green - Luminous Intensity	I_V	1400	1600	2000	mcd	I_F=20mA
Green - Wavelength	W_P	515	---	530	nm	I_F=20mA
Blue - Forward Voltage	V_F	2.8	---	3.3	V	I_F=20mA
Blue - Luminous Intensity	I_V	300	400	700	mcd	I_F=20mA
Blue - Wavelength	W_P	460	---	475	nm	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	I_F=20mA

1. Luminous intensity (I_V) ±10%, Forward Voltage (V_F) ±0.1V, Viewing angle($2\theta_{1/2}$) ±5%, Wavelength (λ) ±1nm.

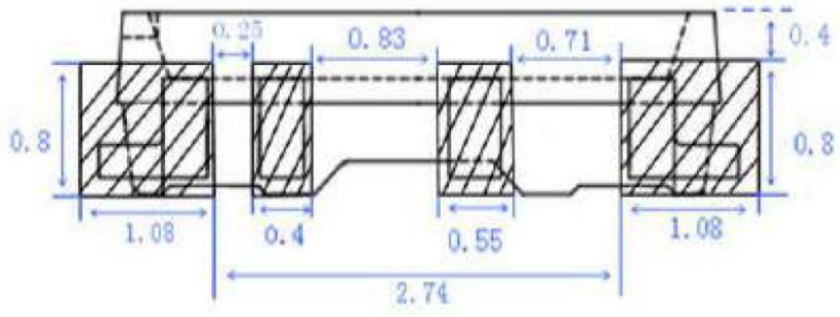
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance ±0.1mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



Recommended PCB Solder Pad

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

BINNING GROUPS (RED):

Forward Voltage Classifications (I_F = 20mA):

Code		Min.	Max.	Unit
Red	V17	1.7	1.8	V
	V18	1.8	1.9	
	V19	1.9	2.0	
	V20	2.0	2.1	
	V21	2.1	2.2	

Luminous Intensity Classifications (I_F = 20mA):

Code		Min.	Max.	Unit
Red	I04	400	600	mcd
	I06	600	800	
	I08	800	1000	
	I10	1000	1200	

Dominant Wavelength Classifications (I_F = 20mA):

Code		Min.	Max.	Unit
Red	W61	615	620	nm
	W62	620	625	
	W63	625	630	

BINNING GROUPS (GREEN):

Forward Voltage Classifications (I_F = 20mA):

Code		Min.	Max.	Unit
Green	V28	2.8	2.9	V
	V29	2.9	3.0	
	V30	3.0	3.1	
	V31	3.1	3.2	
	V32	3.2	3.3	

Luminous Intensity Classifications (I_F = 20mA):

Code		Min.	Max.	Unit
Green	I14	1400	1600	mcd
	I16	1600	1800	
	I18	1800	2000	
	I20	2000	2200	

Dominant Wavelength Classifications (I_F = 20mA):

Code		Min.	Max.	Unit
Green	G51	515	520	nm
	G52	520	525	
	G53	525	530	

BINNING GROUPS (BLUE):

Forward Voltage Classifications (I_F = 20mA):

Code		Min.	Max.	Unit
Blue	V28	2.8	2.9	V
	V29	2.9	3.0	
	V30	3.0	3.1	
	V31	3.1	3.2	
	V32	3.2	3.3	

Luminous Intensity Classifications (I_F = 20mA):

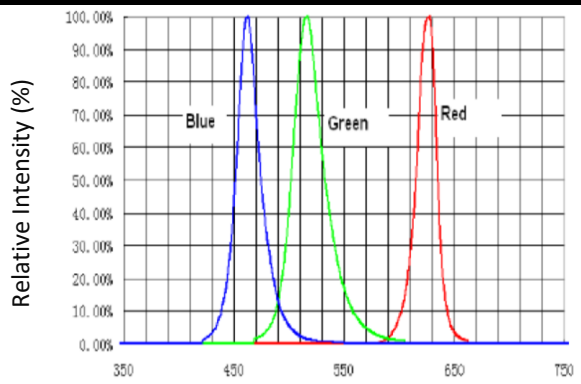
Code		Min.	Max.	Unit
Blue	I02	200	400	mcd
	I04	400	600	
	I06	600	800	
	I08	800	1000	

Dominant Wavelength Classifications (I_F = 20mA):

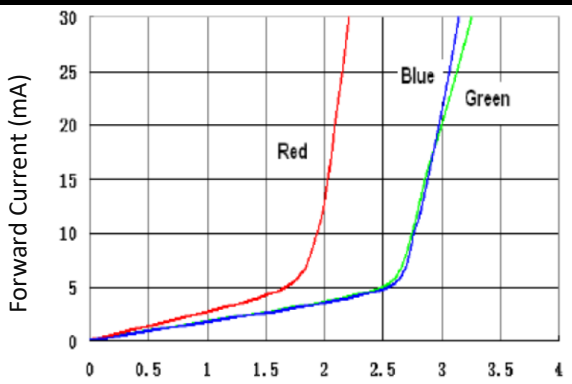
Code		Min.	Max.	Unit
Blue	B41	460	465	nm
	B42	465	470	
	B43	470	475	

ELECTRO-OPTICAL CHARACTERISTICS:

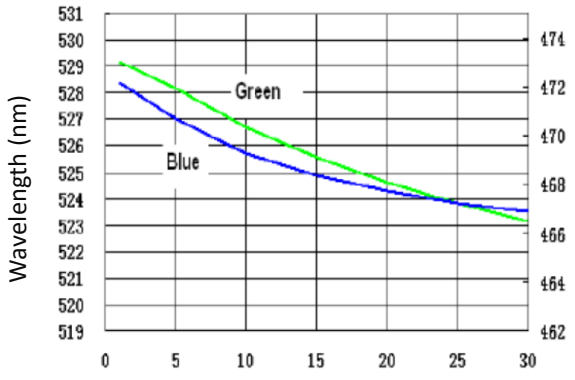
Relative Spectral Distribution

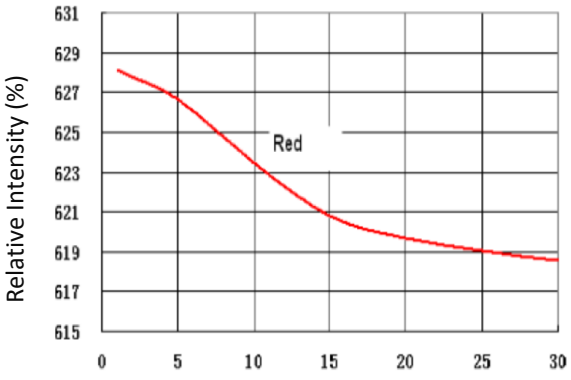


Forward Current v.s. Forward Voltage

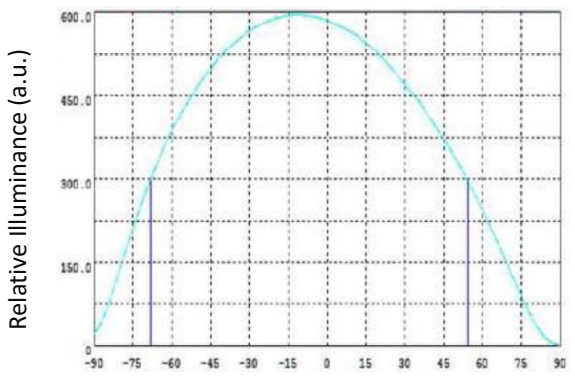


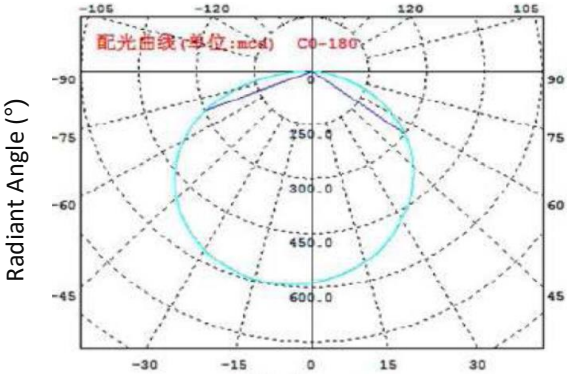
Wavelength Shift v.s. Forward Current





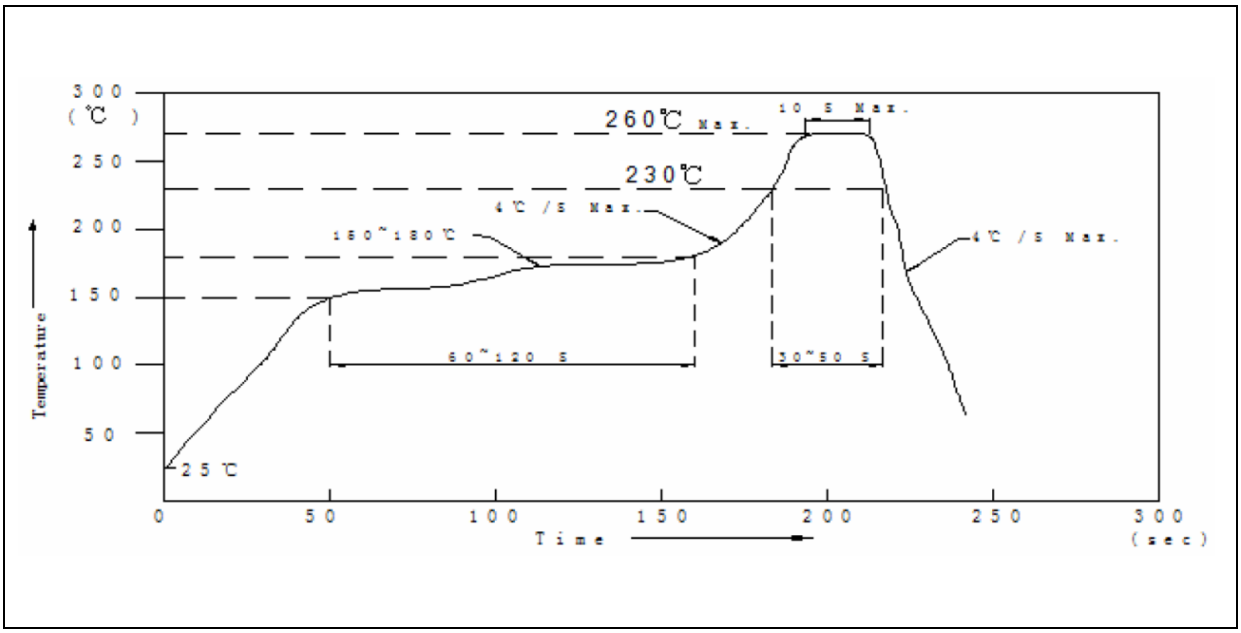
Relative Radiation





RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



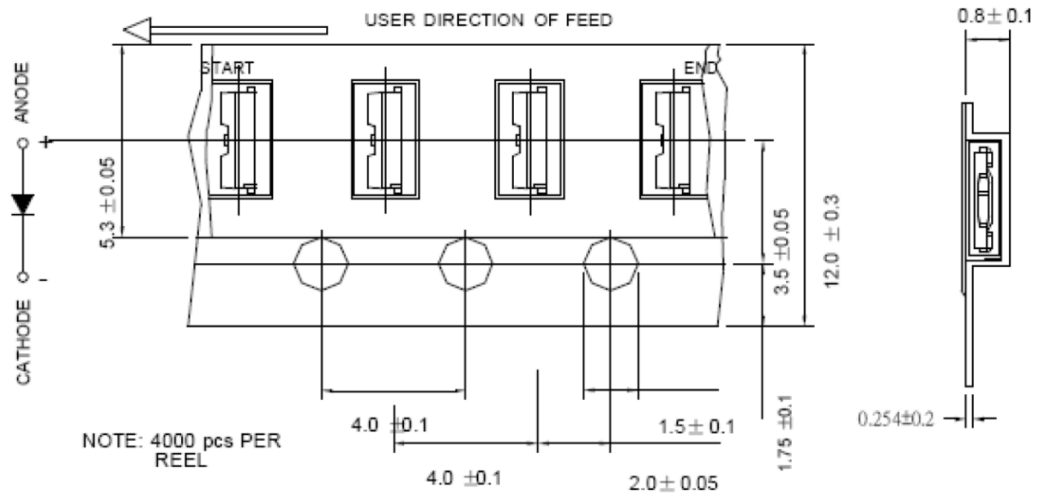
Note:

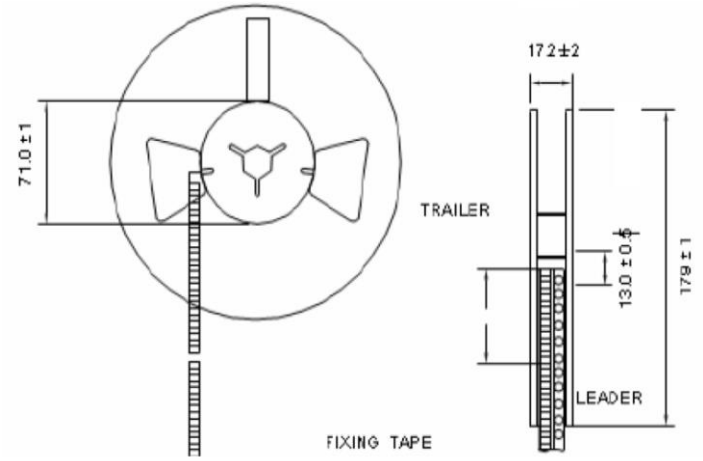
1. Maximum reflow soldering: 2 times.
2. Recommended reflow temperature is 245°C; the maximum soldering temperature should be limited to 260°C.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

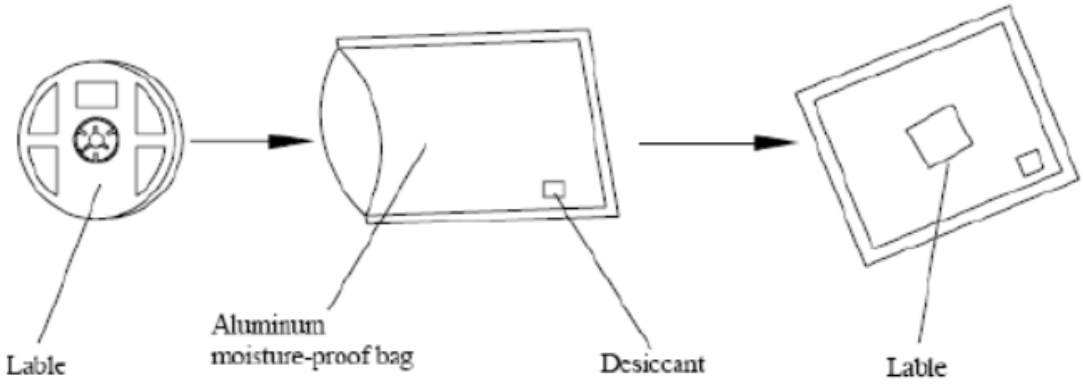
PACKING SPECIFICATION:

Reel Dimension:

Max.4000pcs/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 a week. Otherwise, they should be kept in a damp-proof box with descanting agent <10% R.H. and apply baking before use.

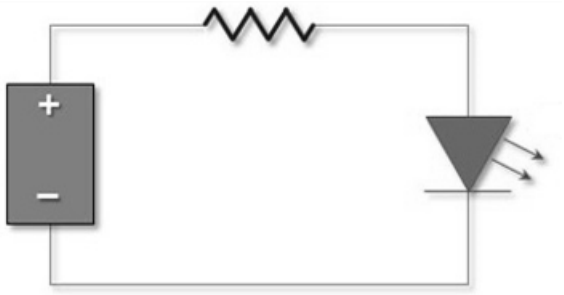
Baking:

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:

- 65±5°C x 48hrs and <5%RH, taped / reel package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

Testing Circuit:



Must apply resistor(s) for protection (over current proof).

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.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	15/10/2024	Datasheet set-up.