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

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

- ► PLCC6 SMD Top View
- ► 2727 2.45t Series
- ► Red / Green / Blue

Release Date: 16 December 2024 Version: A1.0

N0M68S45BF

2727 2.45t Series

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RoHS Compliant

FEATURES (Red/Green/Blue):

- **Package:** PLCC6 Top View SMD Package
- **Forward Current:** 20/15/10mA*
- **Forward Voltage (typ.):** 2.0/2.8/2.8V
- **Luminous Intensity (typ.):** 860/1800/300mcd@20/15/10mA
- **Colour:** Red/Green/Blue
- **Dominant Wavelength (typ.):** 622/525/470nm
- **Viewing Angle:** 120°
- **Materials:**
  - Resin: Epoxy (White Diffused)
- **Operating Temperature:** -30~+85°C
- **Storage Temperature:** -40~+85°C
- **ESD:** 2000/400/400V (HBM)
- **Grouping Parameters:**
  - Forward Voltage
  - Luminous Intensity
  - Dominant Wavelength
- **Soldering Methods:** IR Reflow soldering
- **MSL:** Level 5a according to J-STD020
- **Packing:** 8mm tape with max.7,000pcs/reel, ø328mm (13'')

* In the order of Red/Green/Blue

APPLICATIONS:

- Decoration Lighting
- Dashboards Backlight
- Indicator
- Light Pipe Application
- 3C Consumer Goods
- RGB LED Display
- Gaming Devices

CHARACTERISTICS:

Absolute Maximum Characteristics (T_a=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	25/25/20 [1]	mA
Peak Forward Current (duty factor 10%, 1kHz) [2]	I_{FP}	50/50/50	mA
Power Dissipation	PD	60/82.5/65	mW
Reverse Voltage	V_R	5/5/5	V
Reverse Current @5V	I_R	10/10/10	μA
Electrostatic Discharge (HBM)	ESD	2000/400/400	V
Operating Temperature	T_{OPR}	-30~+85	°C
Storage Temperature	T_{STG}	-40~+85	°C

1. In the order of Red/Green/Blue.
2. Derate linearly as shown in derating curve.

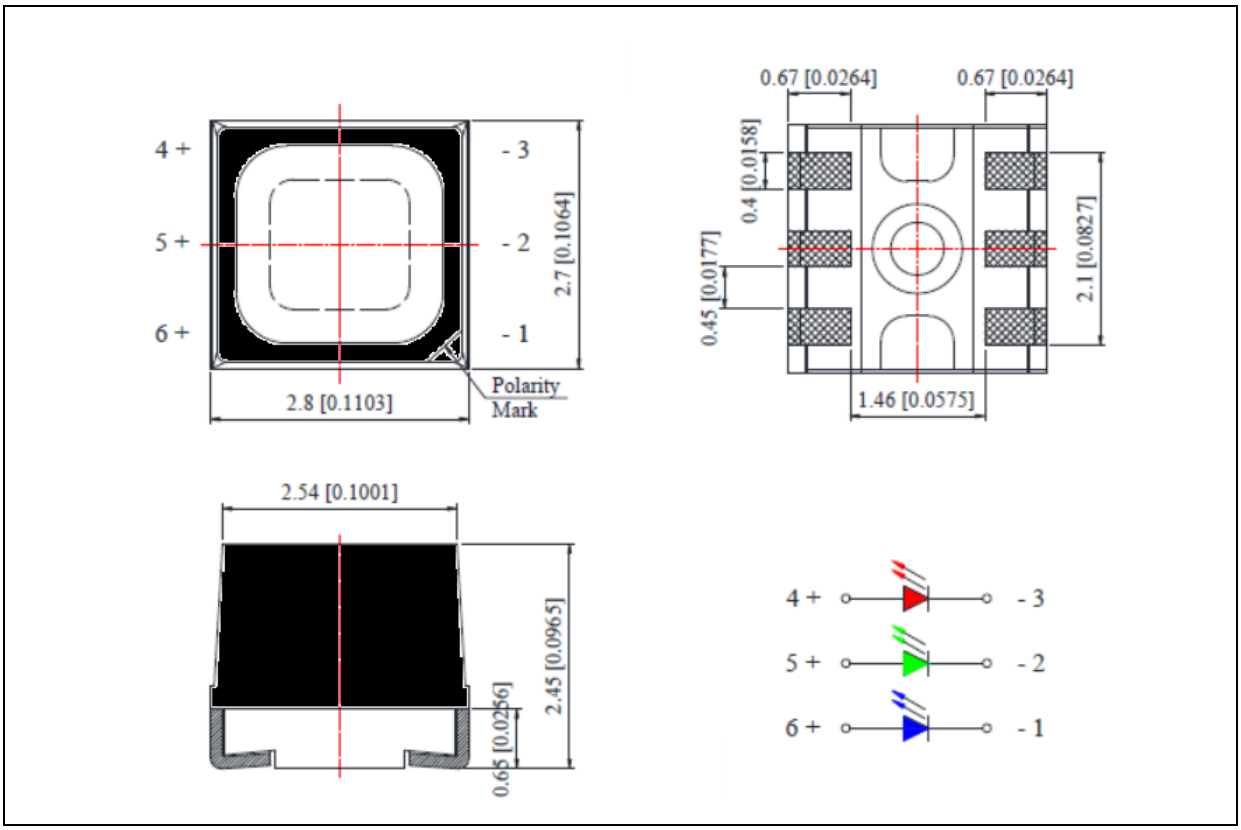
Electrical & Optical Characteristics (T_a=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Red - Forward Voltage	V_F	1.6	2.0	2.4	V	I_F=20mA
Red - Luminous Intensity [1]	I_V	600	860	---	mcd	
Red - Peak Wavelength	λ_P	---	632	---	nm	
Red - Dominant Wavelength [2]	λ_D	---	622	---	nm	
Red - Spectral Line Half Width	$\Delta\lambda$	---	15	---	nm	
Green - Forward Voltage	V_F	2.4	2.8	3.3	V	I_F=15mA
Green - Luminous Intensity	I_V	1300	1800	---	mcd	
Green - Peak Wavelength	W_P	---	520	---	nm	
Green - Dominant Wavelength	λ_D	---	525	---	nm	
Green - Spectral Line Half Width	$\Delta\lambda$	---	27	---	nm	
Blue - Forward Voltage	V_F	2.4	2.8	3.3	V	I_F=10mA
Blue - Luminous Intensity	I_V	200	300	---	mcd	
Blue - Peak Wavelength	W_P	---	468	---	nm	
Blue - Dominant Wavelength	λ_D	---	470	---	nm	
Blue - Spectral Line Half Width	$\Delta\lambda$	---	21	---	nm	
Viewing Angle [3]	$2\theta_{1/2}$	---	120	---	deg	I_F= 20/15/10mA

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2. The dominant wavelength (λ_d) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the colour of the device.
3. $2\theta_{1/2}$ is the o-axis angle where the luminous intensity is 1⁄2 the peak intensity.

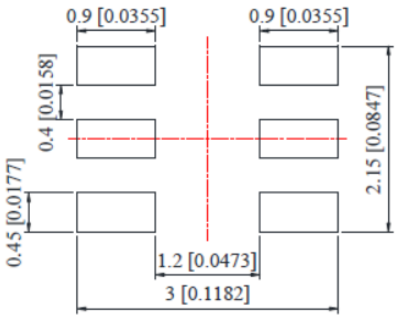
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance ±0.25mm, unless otherwise noted.
3. Protruded resin under flange is 1.00mm max.

Recommended Soldering Pad Dimension:

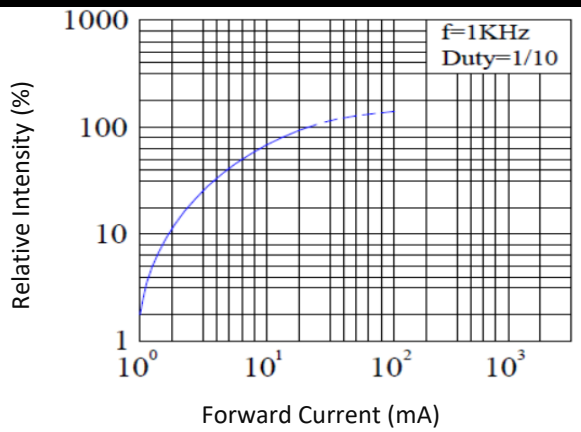


Recommended PCB Solder Pad

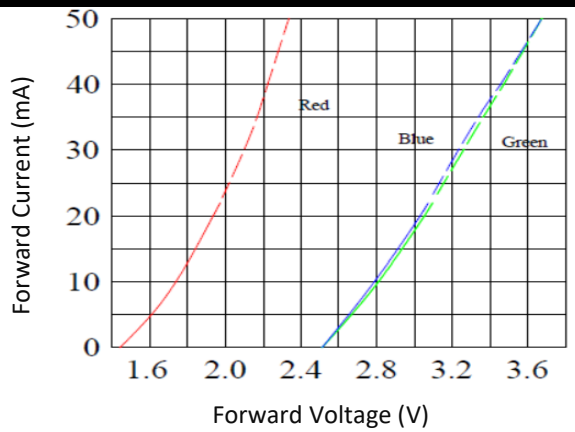
1. Dimensions are in millimetre (mm).
2. Tolerance ±0.1mm with angle tolerance ±0.5°.
3. Suggested stencil t=0.12mm.

ELECTRO-OPTICAL CHARACTERISTICS:

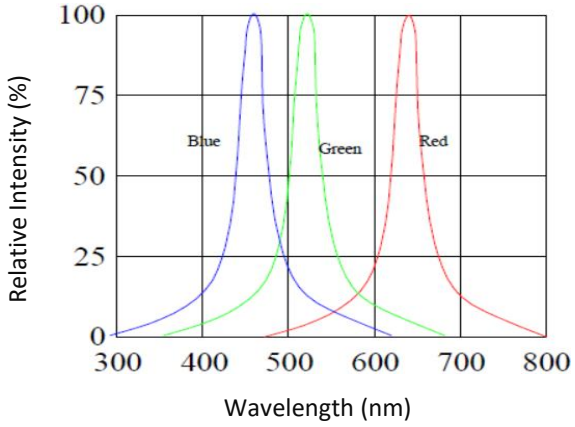
Relative Intensity v.s. Forward Current



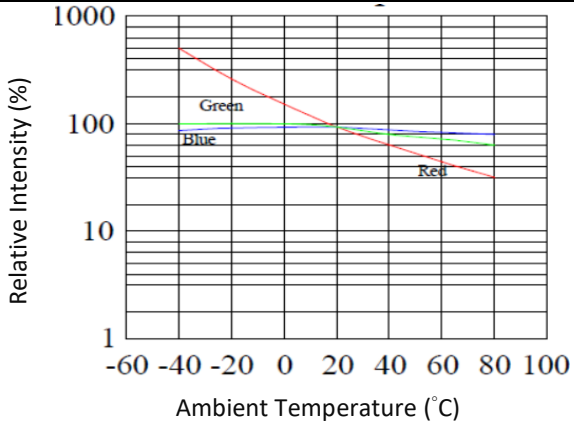
Forward Current v.s. Forward Voltage



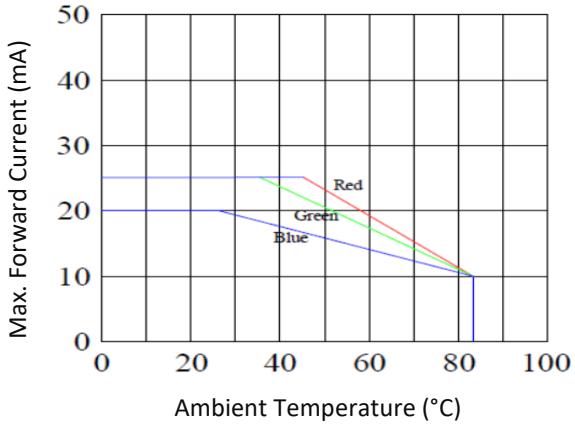
Relative Spectral Distribution



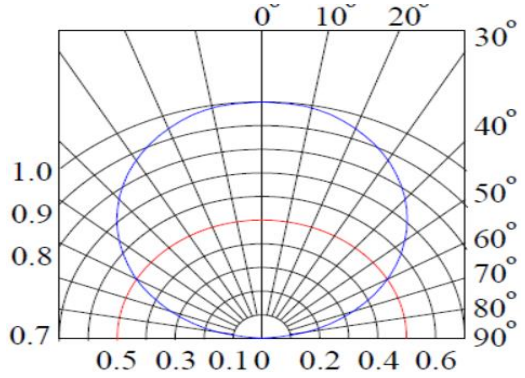
Relative Intensity v.s. Ambient Temperature



Max. Forward Current De-Rating Chart

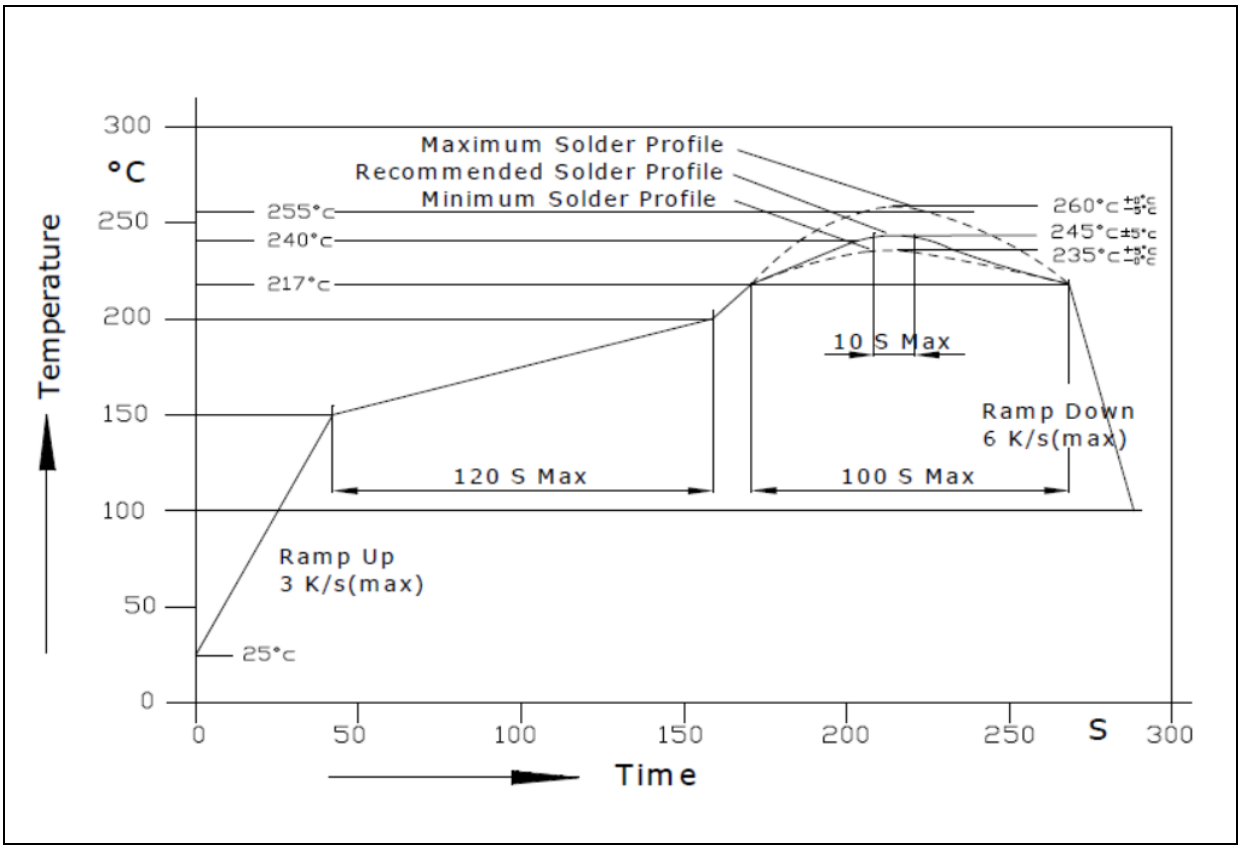


Directive Radiation



RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



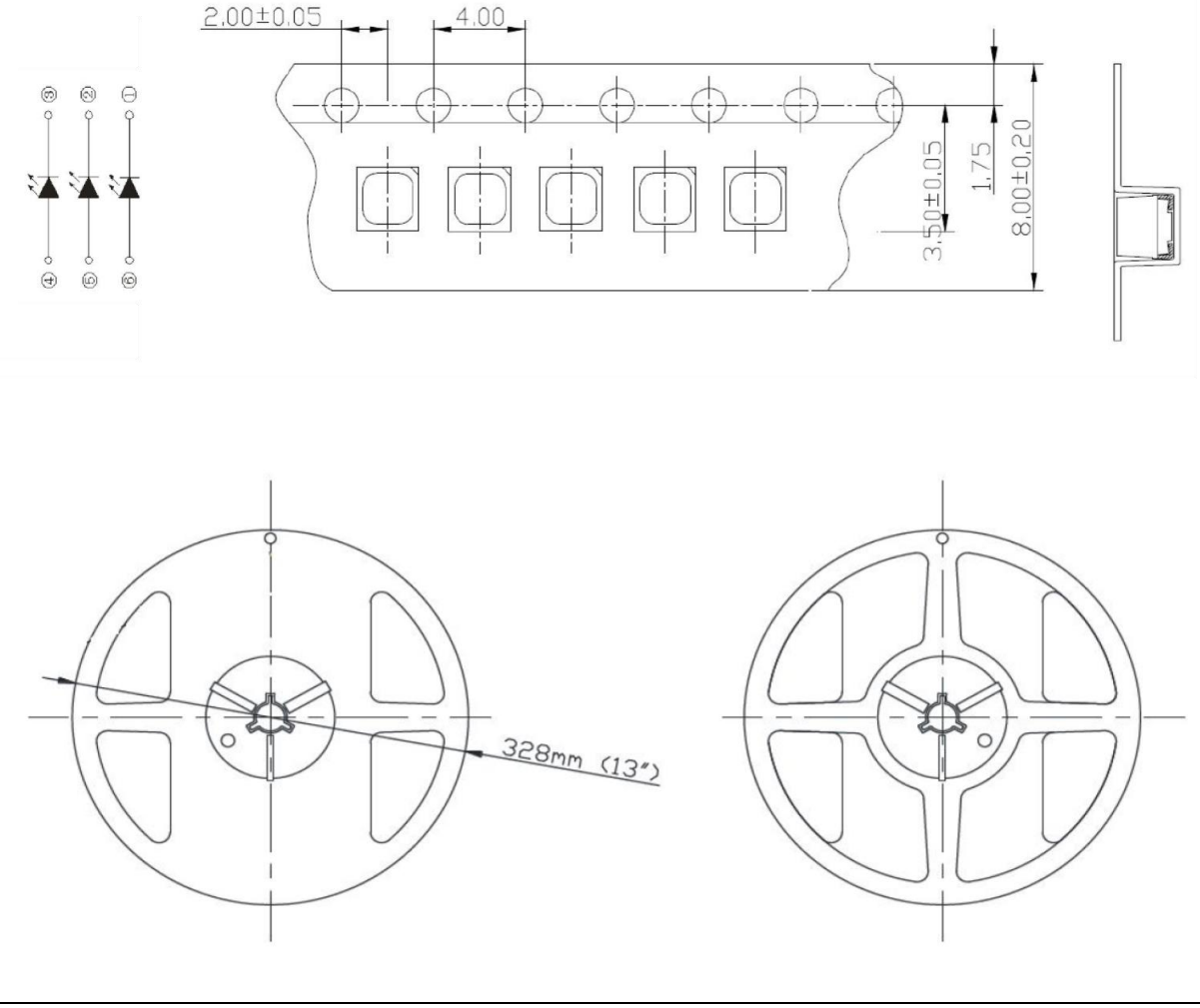
Note:

1. Maximum reflow soldering: 2 times.
2. Recommended reflow temperature is 240°C; the maximum soldering temperature should be limited to 250°C.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

PACKING SPECIFICATION:

Reel Dimension:

Max.7,000pcs/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 24 hours. Otherwise, they should be kept in a damp-proof box with descanting agent <10% R.H. and apply baking before use.

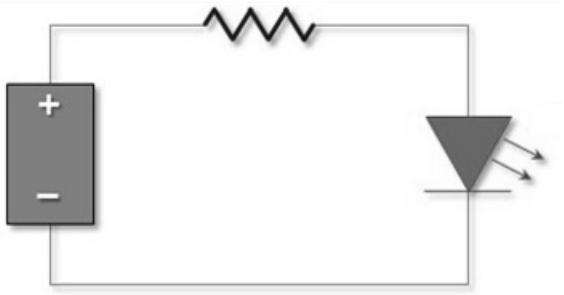
Baking:

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 24hrs 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	16/12/2024	Datasheet set-up.