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

- ► EMC SMD
- ► 3030 0.65t Series
- ► Red (622nm)/Green (527nm)/Blue (460nm)

Release Date: 22 September 2020 Version: A1.2

N0M45S71

3030 0.65t Series

3030 0.65t Series

RoHS Compliant

FEATURES:

- **Package:** TOP View EMC White SMT Package
- **Forward Current:** 150/150/150mA*
- **Forward Voltage (typ.):** 2.1/3.0/3.0V
- **Luminous Flux (typ.):** 25/48/10lm@150mA
- **Colour:** Red/Green/Blue
- **Wavelength:** 622/527/460nm
- **Viewing angle:** 120°
- **Materials:**
  - Die: AlGaInP/InGaN/InGaN
  - Resin: Silicon (White Diffused)
  - L/T Finish: Ag plated
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+105°C
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Flux
  - Dominant Wavelength
- **Soldering methods:** Reflow
- **Preconditioning:** MSL3 according to J-STD020
- **Packing:** 8mm tape with max.5000/reel, ø178mm (7'')

* in order of Red/Green/Blue

APPLICATIONS:

- Decorative Lighting
- Portable Lighting
- Outdoor Lighting
- Commercial Lighting
- Architectural Lighting
- Home Appliance
- Led Torch
- Mini Projector

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I_F	180/180/180*	mA
Pulse Forward Current (width≤100μS; duty≤1/10)	I_{FP}	250/250/250	mA
Power Dissipation	P_D	468/648/648	mW
Reverse Voltage	V_R	5	V
Reverse Current @5V	I_R	10	μA
Junction Temperature	T_j	110/120/120	°C
Thermal Resistance	$R_{th(j-sp)}$	10/80/60	°C/W
Electrostatic Discharge (HBM: Class 1C)	ESD	1000	V
Operating Temperature	T_{OPR}	-40~+105	°C
Storage Temperature	T_{STG}	-40~+105	°C
Soldering Temperature	T_{SOL}	230 or 260 for 10S	°C

* in order of Red/Green/Blue

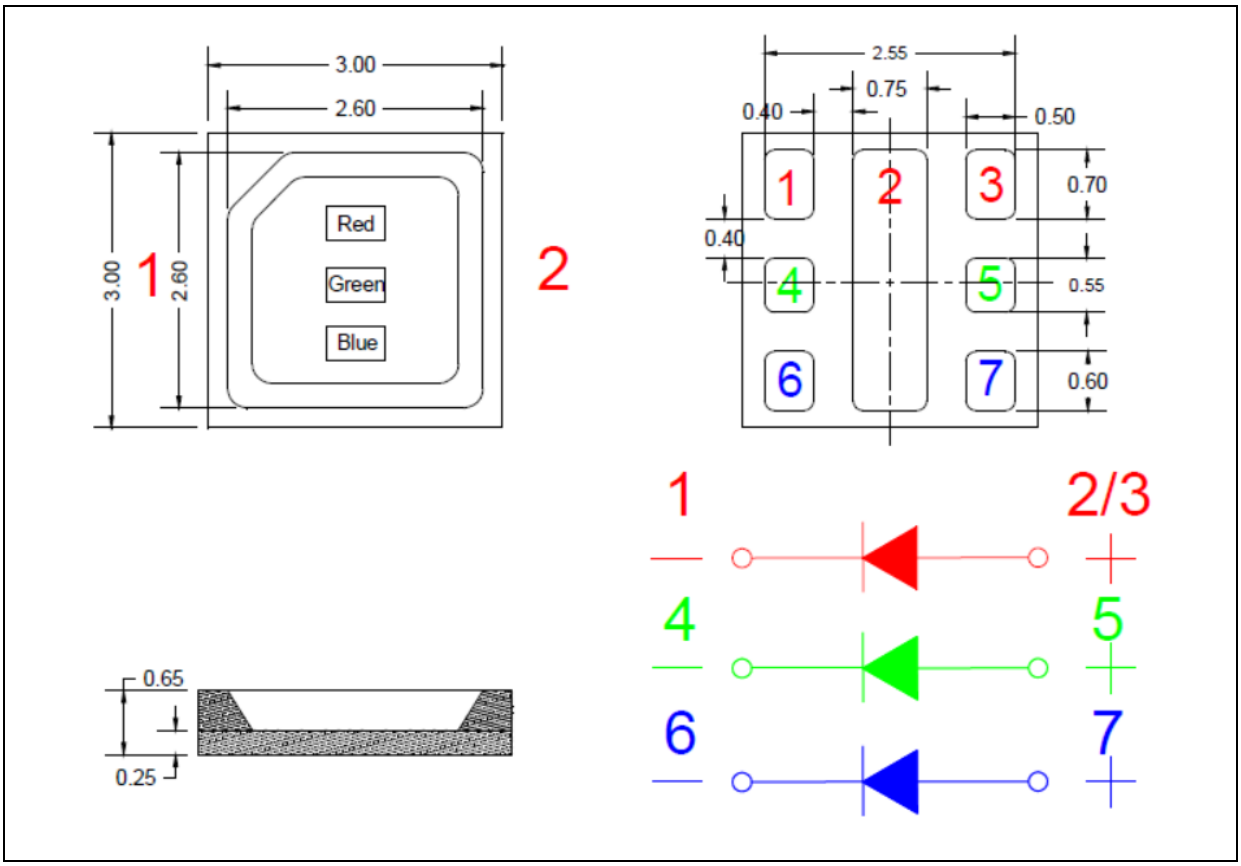
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	1.6/2.6/2.6*	---	2.6/3.4/3.4	V	I_F=150mA
Luminous Flux	Φ_V	22/44/7	---	28/51/12	lm	I_F=150mA
Dominant Wavelength	λ_D	615/520/450	---	630/535/470	nm	I_F=150mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	I_F=150mA

1. Luminous flux (Φ_V) ±10%, Forward Voltage (V_F) ±0.1V
2. * in order of Red/Green/Blue

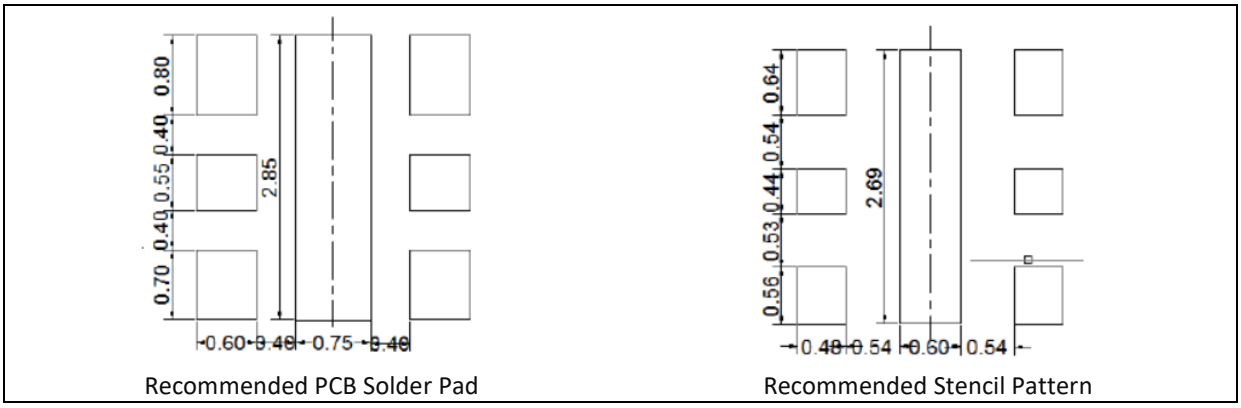
OUTLINE DIMENSION:

Package Dimension:



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

Recommended Soldering Pad Dimension:



Recommended PCB Solder Pad

Recommended Stencil Pattern

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

BINNING GROUPS:

Forward Voltage Classifications (I_F = 150mA):

Code		Min.	Max.	Unit
Red	AB1	1.6	1.8	V
	AB2	1.8	2.0	
	AC1	2.0	2.2	
	AC2	2.2	2.4	
	AD1	2.4	2.6	
Green & Blue	AD2	2.6	2.8	V
	AE1	2.8	3.0	
	AE2	3.0	3.2	
	AF1	3.2	3.4	

Luminous Flux Classifications (I_F = 150mA):

Code		Min.	Max.	Unit
Red	DR0	22	28	lm
Green	DG0	44	51	lm
Blue	DB0	7	12	lm

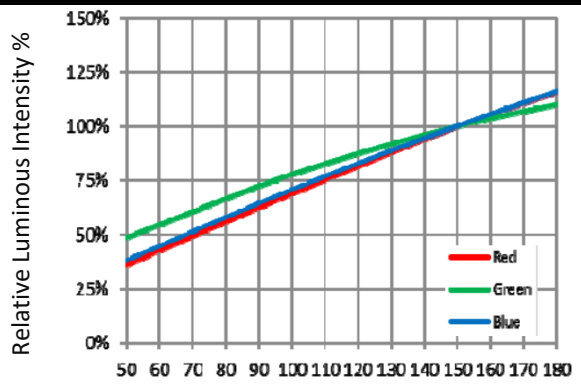
BINNING GROUPS:

Dominant Wavelength Classifications (I_F = 150mA):

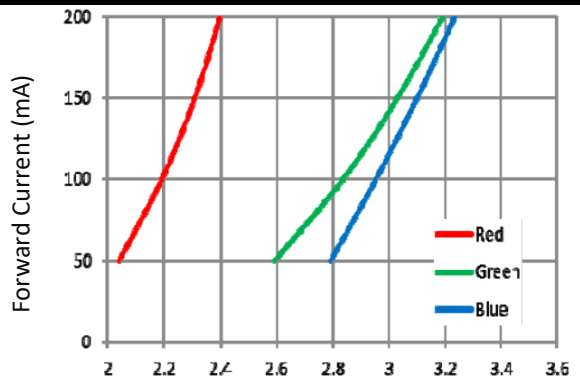
Code		Min.	Max.	Unit
Red	RB2	615	620	nm
	RC1	620	625	
	RC2	625	630	
Green	GC3	520	522.5	nm
	GC4	522.5	525	
	GC5	525	527.5	
	GC6	527.5	530	
	GD3	530	532.5	
	GD4	532.5	535	
Blue	BB3	450	452.5	nm
	BB4	452.5	455	
	BB5	455	457.5	
	BB6	457.5	460	
	BC3	460	462.5	
	BC4	462.5	465	
	BC5	465	467.5	
	BC6	467.5	470	

ELECTRO-OPTICAL CHARACTERISTICS:

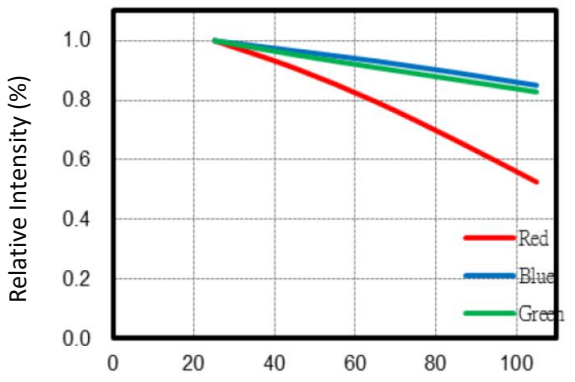
Relative Luminous Intensity v.s. Forward Current



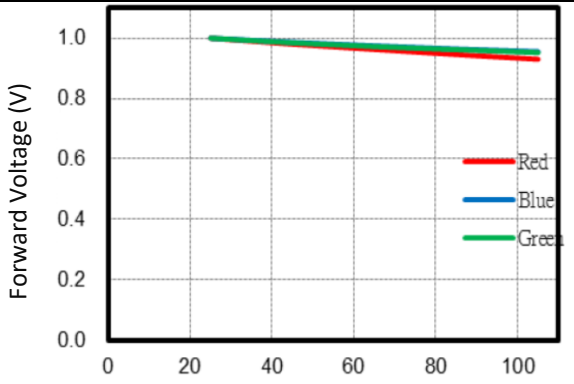
Forward Current v.s. Forward Voltage



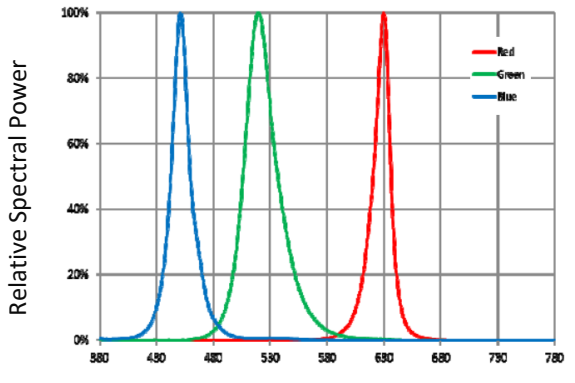
Relative Intensity v.s. Ambient Temperature



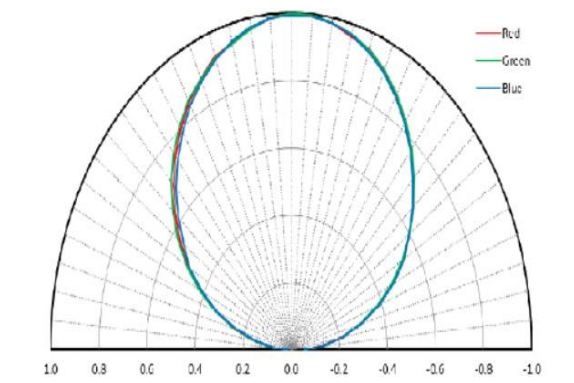
Forward Voltage v.s. Ambient Temperature



Luminous Spectrum

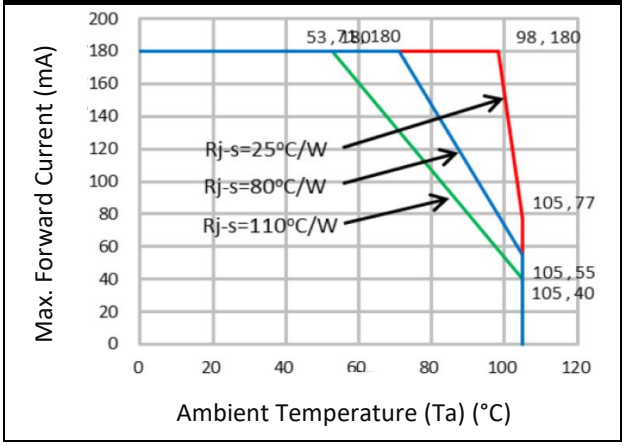


Directive Radiation



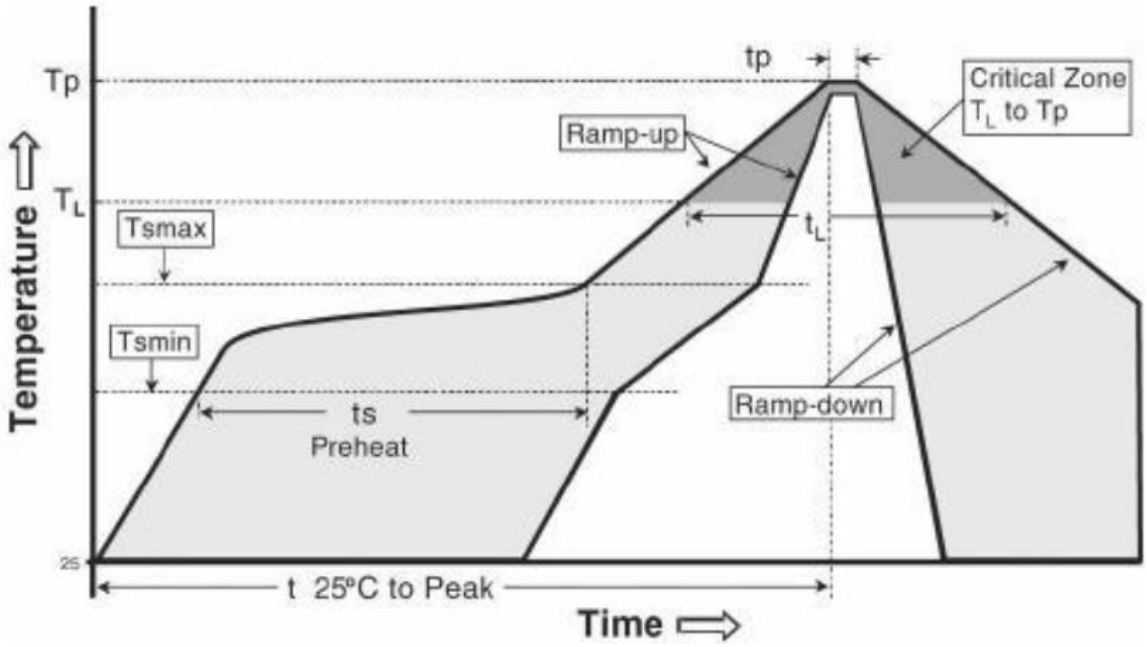
ELECTRO-OPTICAL CHARACTERISTICS:

Ambient Temperature v.s. Max. Forward Current



RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



Temperature Min. (T_{smin})	150°C
Temperature Max. (T_{smax})	200°C
Period from T_{smin} to T_{smax}	60-120 seconds
Ramp-up Rate (T_L to T_P)	Max. 3°C/second
Liquidous Temperature (T_L)	217°C
Time Maintained above T_L	60-150 seconds
Peak Package Temperature (T_P)	Max. 260°C
Time within 5°C of the Specified Classification Temperature T_C	Max. 30 seconds
Ramp-down Rate (T_P to T_L)	Max. 6°C/second
Time from 25°C to Peak Temperature	Max. 8 mins

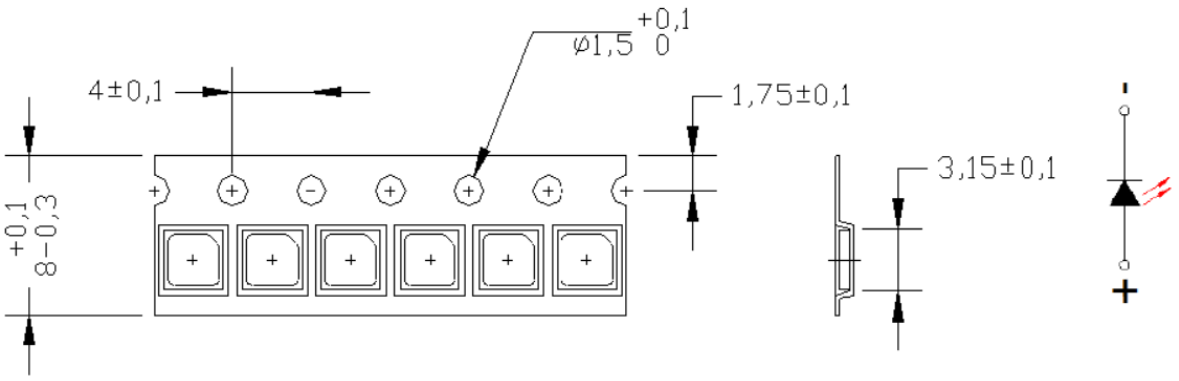
Note:

1. Maximum reflow soldering: 2 times. Between two soldering it should not be longer than 24 hours.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.
3. Recommended soldering temperature: 230°C. The maximum soldering temperature should be limited to 260°C for max. 10seconds.

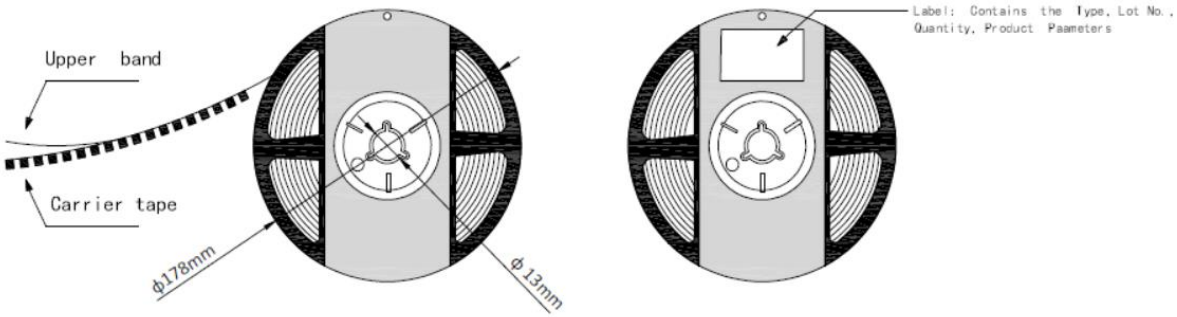
PACKING SPECIFICATION:

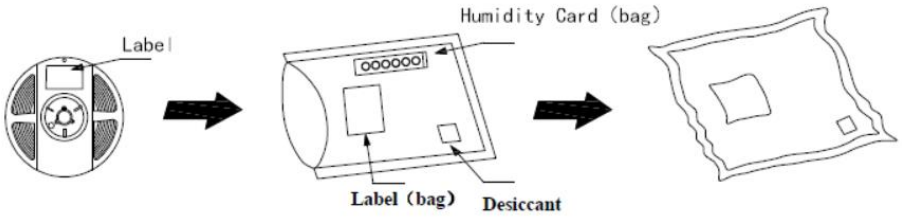
Reel Dimension:

Max.5000pcs/reel



1. Cumulative Tolerance: Cumulative Tolerance/10 pitches to be ±0.2mm
2. Adhesion Strength of Cover Tape Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10˚ to the carrier tape.
3.





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.

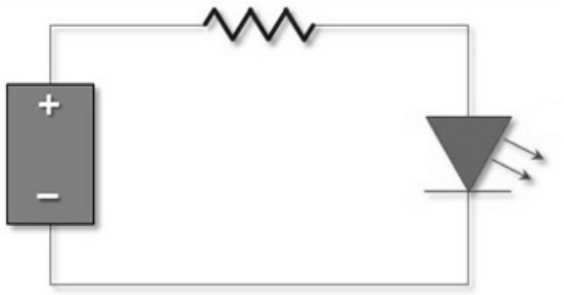
Baking:

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:

- 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.

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	31/08/2017	Datasheet set-up.
A1.1	07/04/2018	New datasheet format.
A1.2	22/09/2020	Revise binning and charactistics information.