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

- Subminiature SMD
- 2421 Series
- Sky White (9900K)

Release Date: 07 August 2014 Version: A1.0

N0W12S08

Subminiature 2421

2421 Series

RoHS Compliant

FEATURES:

- **Package:** Subminiature SMD
- **Forward Current:** 20mA
- **Forward Voltage (typ.):** 3.1V
- **Luminous Intensity (typ.):** 250mcd @20mA
- **Colour:** Sky White
- **CCT:** 9900K
- **Viewing angle:** 150°
- **Materials:**
  - Die: InGaN
  - Resin: Epoxy (White Diffused)
- **Operating Temperature:** -40~+80°C
- **Storage Temperature:** -40~+85°C
- **Grouping parameters:**
  - Forward voltage
  - Luminous intensity
  - CIE Chromaticity
- **Soldering methods:** Reflow soldering
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 12mm tape with 2000/reel, ø180mm (7'')

APPLICATIONS:

- LED Display
- Indicator
- Traffic Display
- Decoration Lighting

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	30	mA
Peak Forward Current Duty 1/8@1KHz	I_{FP}	125	mA
Reverse Current @5V	I_R	10	μA
Power Dissipation	P_D	108	mW
Operating Temperature	T_{OPR}	-40~+80	°C
Storage Temperature	T_{STG}	-40~+85	°C

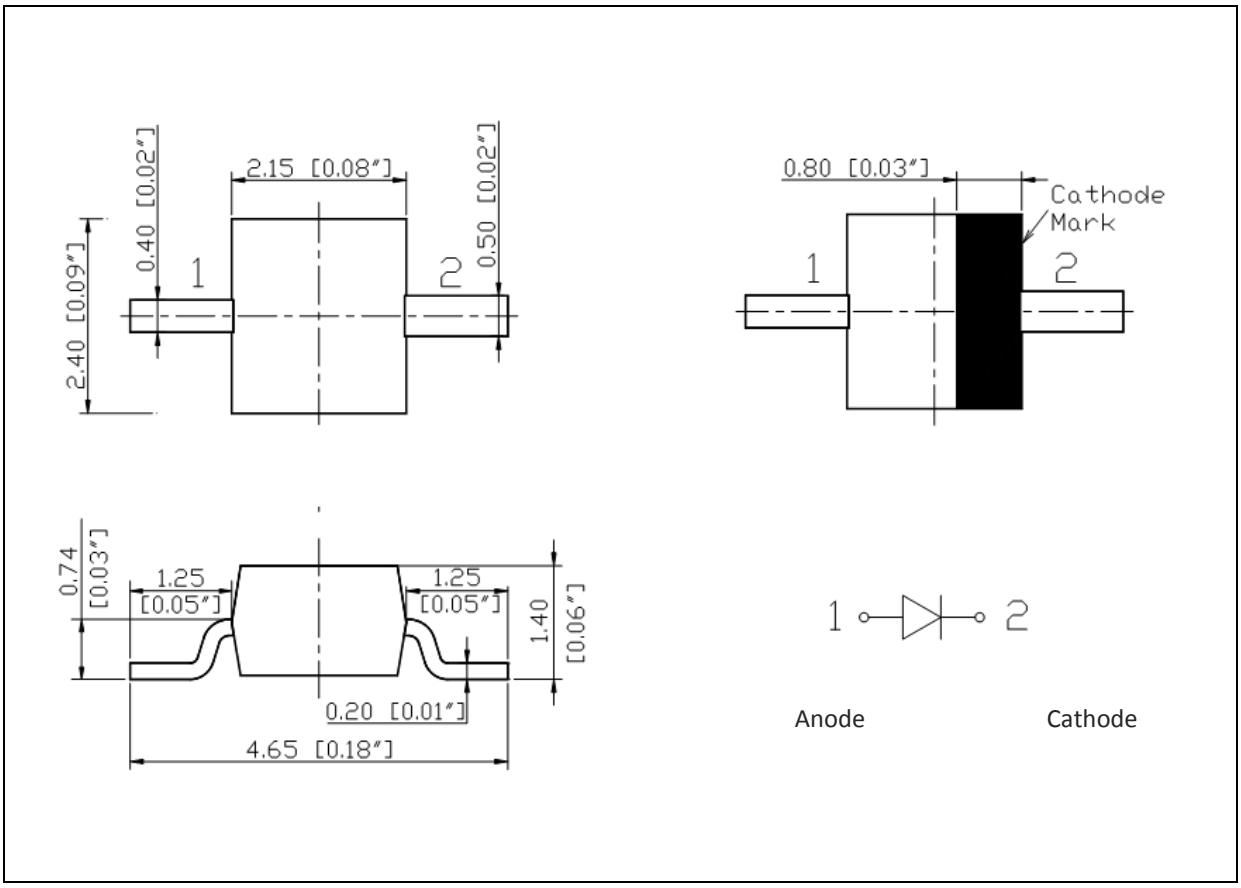
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.8	3.2	3.7	V	I_F=20mA
Luminous Intensity	I_V	125	250	400	mcd	I_F=20mA
Chromaticity Coordinates	X	0.2500	0.2800	0.3300	---	I_F=20mA
	Y	0.2400	0.2900	0.3400		
Colour Temperature	CCT	5600	9900	46500	K	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	---	150	---	deg	I_F=20mA

1. Luminous intensity (I_V) ±15%, Forward Voltage (V_F) ±0.1V, Viewing angle($2\theta_{1/2}$) ±5%
2. IS standard testing

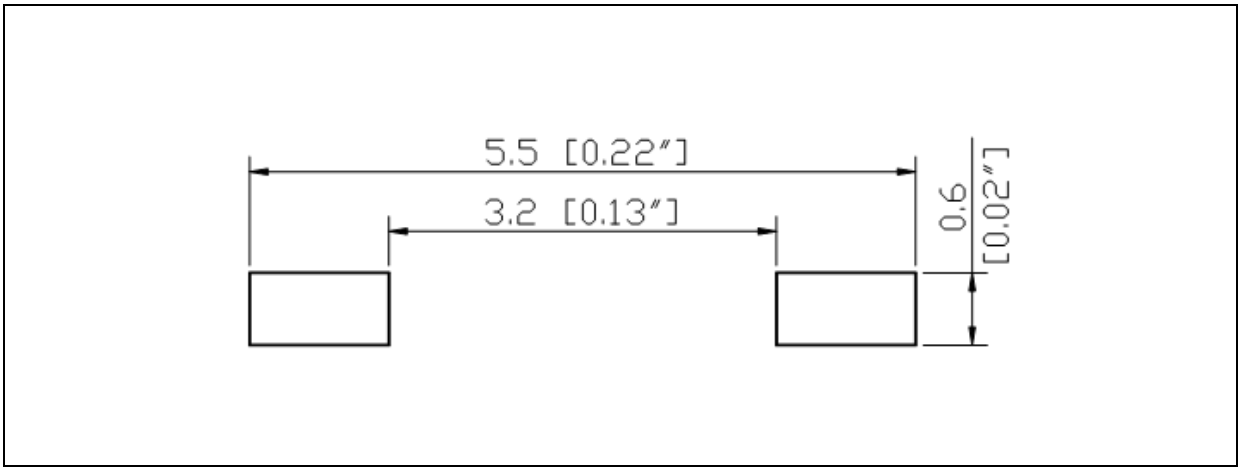
OUTLINE DIMENSION:

Package Dimension:



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

Recommended Soldering Pad Dimension:



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

BINNING GROUPS:

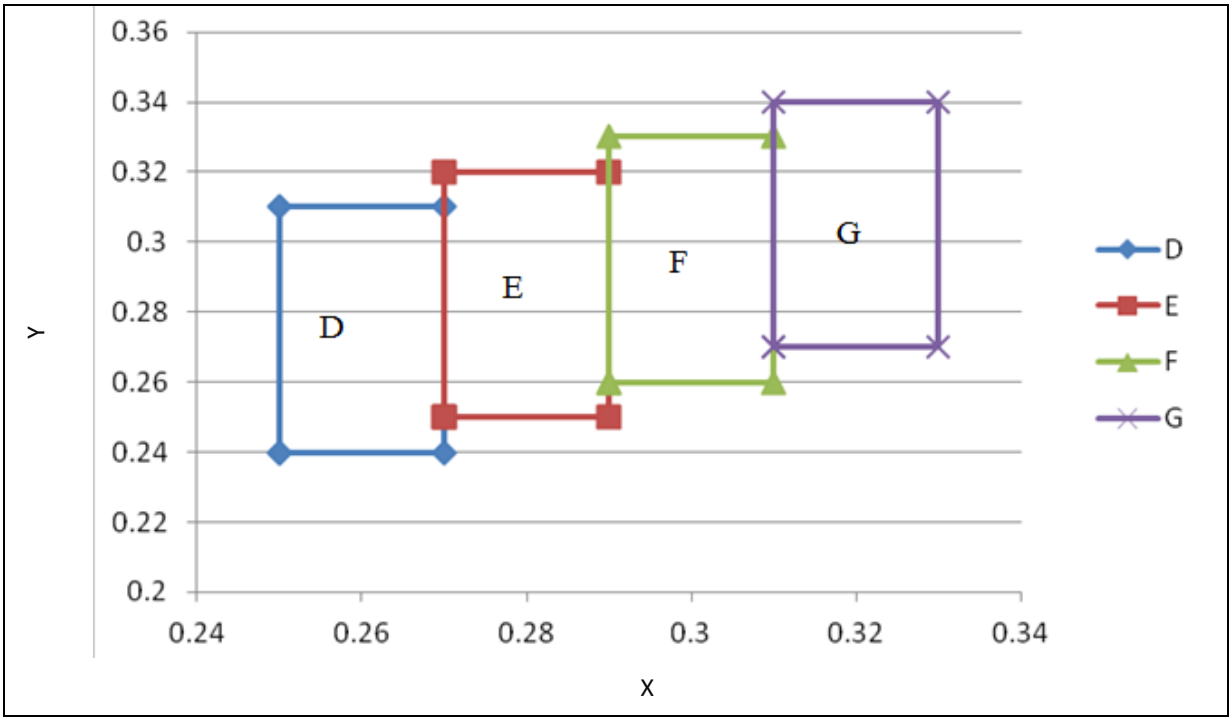
Forward Voltage Classifications (I_F = 20mA):

Code	Min.	Max.	Unit
F	2.8	3.1	V
G	3.1	3.4	
H	3.4	3.7	

Luminous Intensity Classifications (I_F = 20mA):

Code	Min.	Max.	Unit
I	125	160	mcd
J	160	200	
K	200	250	
L	250	320	
M	320	400	

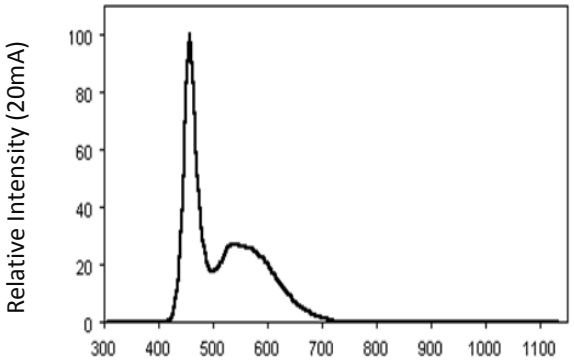
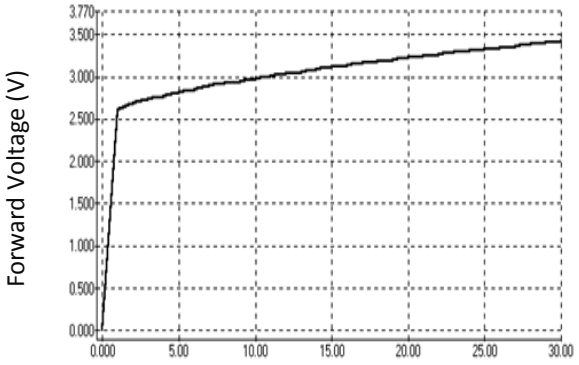
CIE CHROMATICITY DIAGRAM:

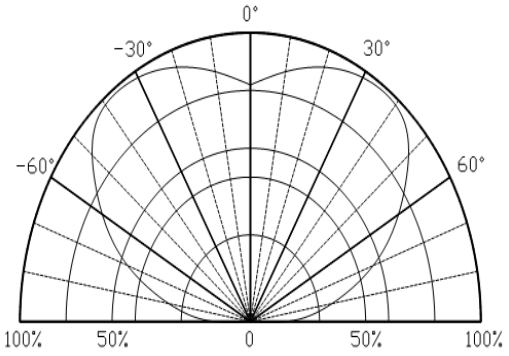


Chromaticity Coordinates Classifications (I_F = 300mA):

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
D	0.2500	0.2400	0.2500	0.3100	0.2700	0.3100	0.2700	0.2400
E	0.2700	0.2500	0.2700	0.3200	0.2900	0.3200	0.2900	0.2500
F	0.2900	0.2600	0.2900	0.3300	0.3100	0.3300	0.3100	0.2600
G	0.3100	0.2700	0.3100	0.3400	0.3300	0.3400	0.3300	0.2700

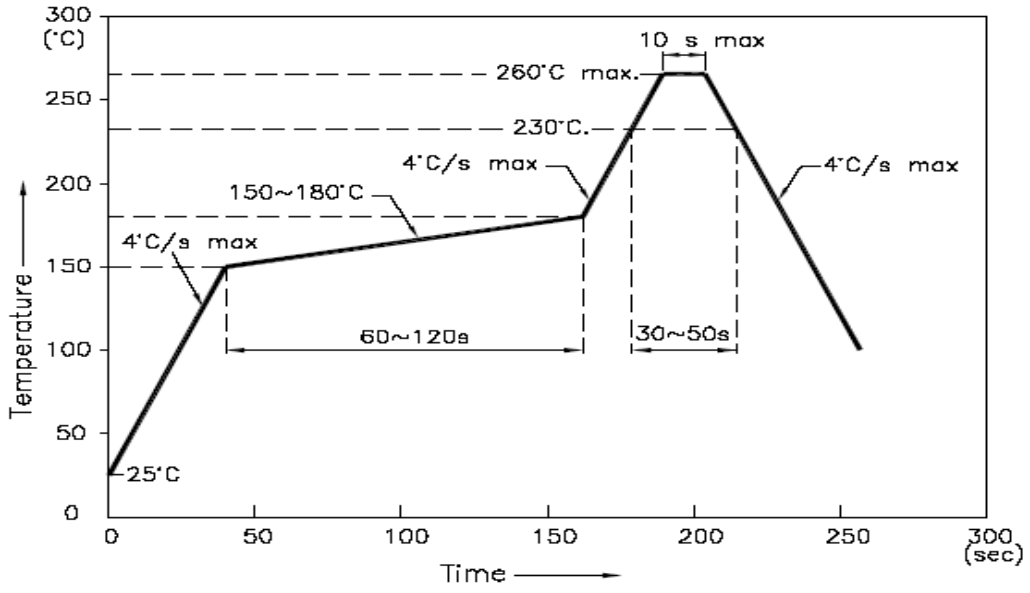
ELECTRO-OPTICAL CHARACTERISTICS:

Relative Spectral Distribution	Forward Current v.s. Forward Voltage
	

Directive Radiation


RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



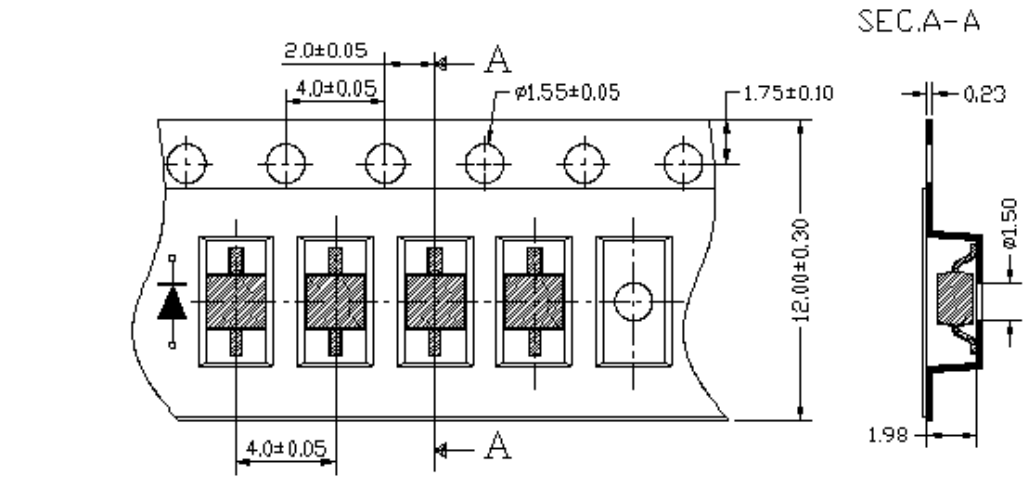
Note:

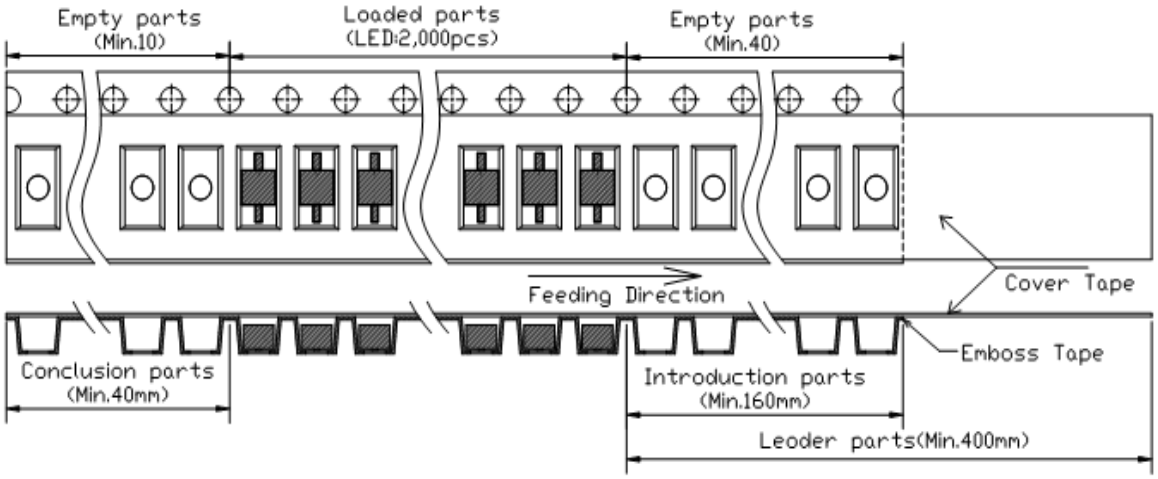
1. Recommend reflow temperature 245°C.
2. Maximum reflow soldering: 2 times.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

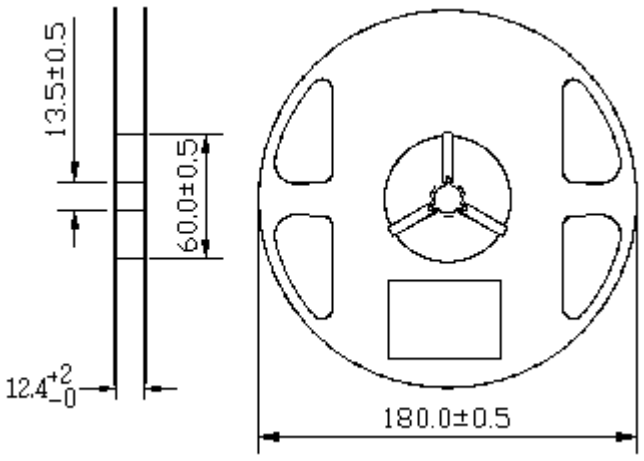
PACKING SPECIFICATION:

Reel Dimension:

2000pcs/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 month 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 and apply baking at 60°C±5°C for 15hrs before use.

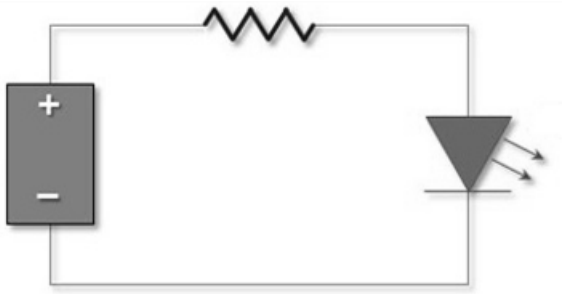
Baking:

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:

- 70±3°C x 24hrs and <5%RH, taped / reel package.
- 100±3°C x 2hrs, bulk (loose) package.
- 130±3°C x 30min, bulk (loose) 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	07/08/2014	Datasheet set-up.