

### Mini Top View LEDs EAPL2214GA0

PRELIMINARY



#### Features

- White SMT package.
- Optical indicator.
- Wide viewing angle.
- Soldering methods: reflow soldering
- Available on tape and reel
- Pb-free
- The product itself will remain within RoHS compliant version.

#### Applications

- Optical indicators.
- Coupling into light guides.
- Backlighting (LCD, cellular phones, switches, keys, displays, illuminated advertising, and general lighting).
- Coupling into light guides; Interior automotive lighting (e.g. dashboard backlighting, etc.).

## Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Yellow Green	Water Clear

## Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	$V_R$	12	V
Forward Current	$I_F$	30	mA
Power Dissipation	$P_d$	84	mW
Junction Temperature	$T_j$	125	°C
Operating Temperature	$T_{opr}$	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +80	°C
Thermal Resistance	$R_{th\ J-A}$	500	K/W
	$R_{th\ J-S}$	300	K/W
ESD (Classification acc. AEC Q101)	$ESD_{HBM}$	500	V
	$ESD_{MM}$	200	V
Soldering Temperature	$T_{sol}$	Reflow Soldering : 260 °C for 30 sec. Hand Soldering : 350 °C for 3 sec.	

## Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	35.5	-----	90	mcd	I <sub>F</sub> =20mA
Viewing Angle	2θ <sub>1/2</sub>	-----	120	-----	deg	I <sub>F</sub> =20mA
Peak Wavelength	λ <sub>p</sub>	-----	575	-----	nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>	-----	----	-----	nm	I <sub>F</sub> =20mA
Spectrum Radiation Bandwidth	Δλ	-----	15	-----	nm	I <sub>F</sub> =20mA
Forward Voltage	V <sub>F</sub>	1.75	----	2.8	V	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	-----	-----	10	μA	V <sub>R</sub> =12V
Temperature coefficient of λ <sub>p</sub>	TC <sub>λ<sub>p</sub></sub>	---	0.06	---	nm/K	I <sub>F</sub> =20mA
Temperature coefficient of λ <sub>d</sub>	TC <sub>λ<sub>d</sub></sub>	---	0.4	---	nm/K	I <sub>F</sub> =20mA
Temperature coefficient of VF	TC <sub>V</sub>	---	-2.3	---	mV/K	I <sub>F</sub> =20mA

Note:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

## Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
N2	35.5	45	mcd	I <sub>F</sub> =20mA
P1	45	57		
P2	57	72		
Q1	72	90		

Note: Tolerance of Luminous Intensity: ±11%

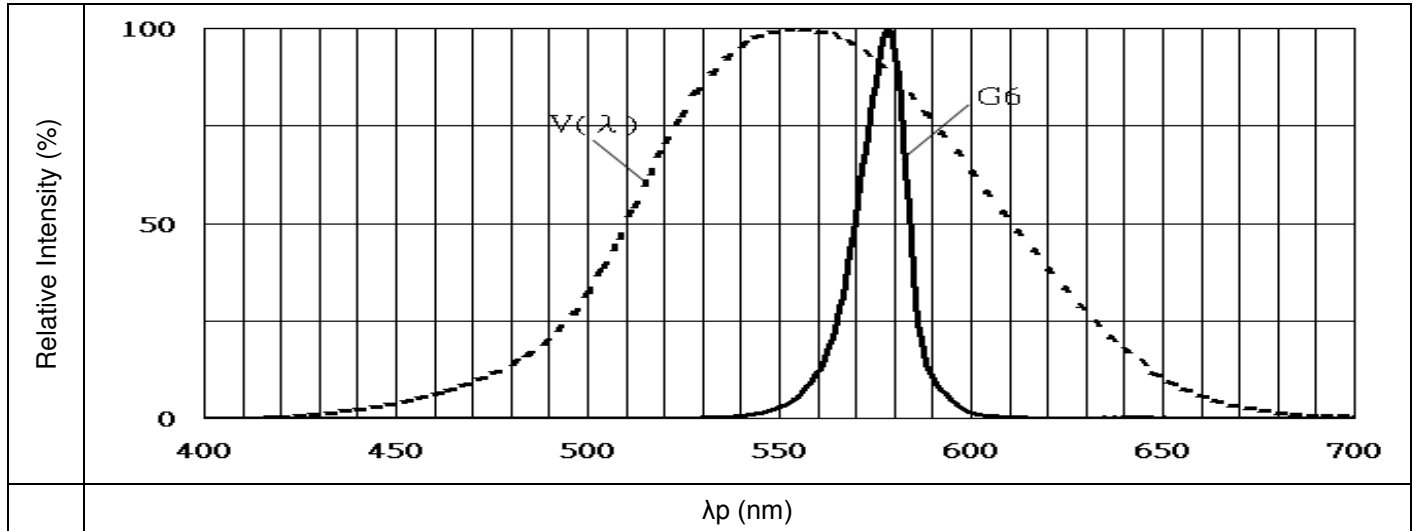
## Bin Range of Dominant Wavelength

Group	Bin Code	Min.	Max.	Unit	Condition
A	C16	569.5	571.5	nm	I <sub>F</sub> =20mA
	C17	571.5	573.5		
	C18	573.5	575.5		
	C19	575.5	577.5		

Note: Tolerance of Dominant Wavelength: ±1nm

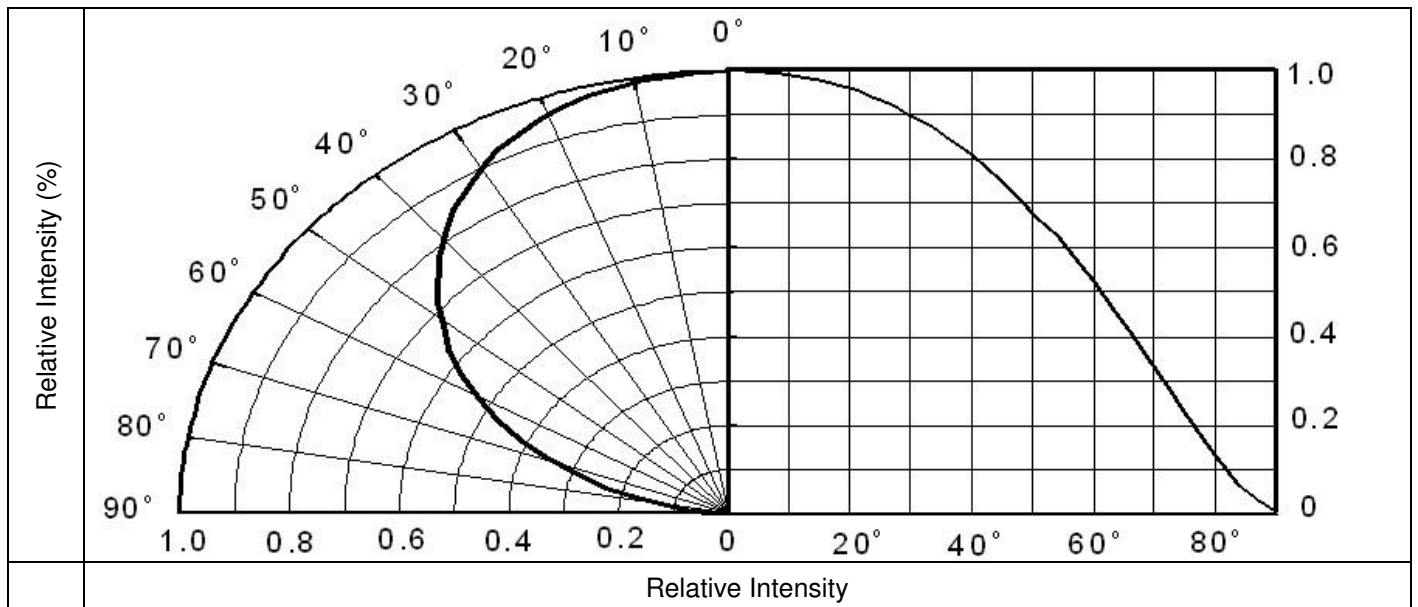
## Typical Electro-Optical Characteristics Curves

### Typical Curve of Spectral Distribution

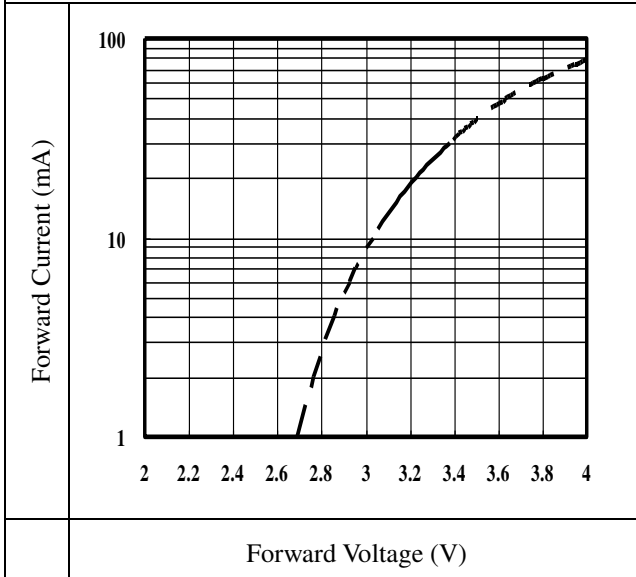


Note:  $V(\lambda)$ =Standard eye response curve;

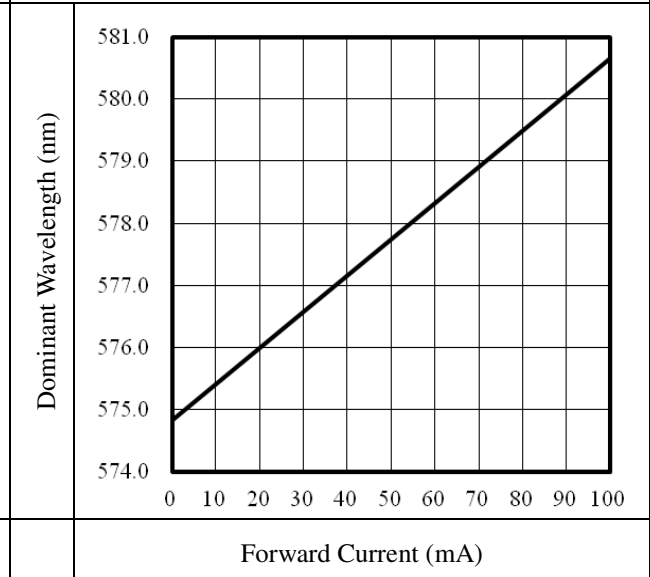
### Diagram Characteristics of Radiation



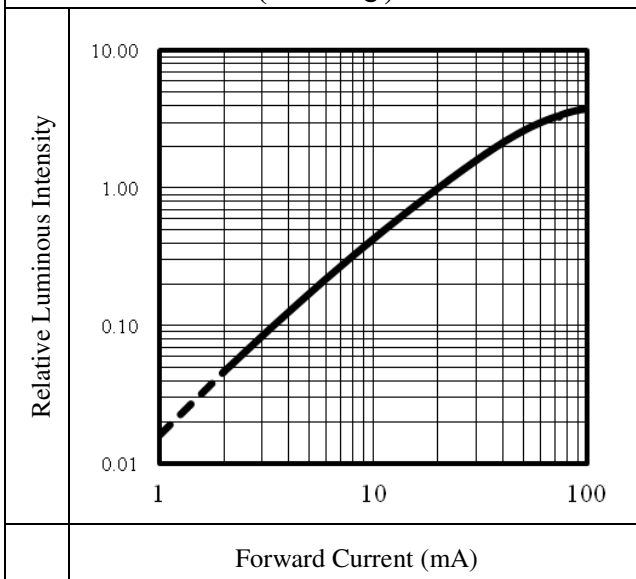
**Forward Current vs. Forward Voltage**  
( $T_a=25^\circ\text{C}$ )



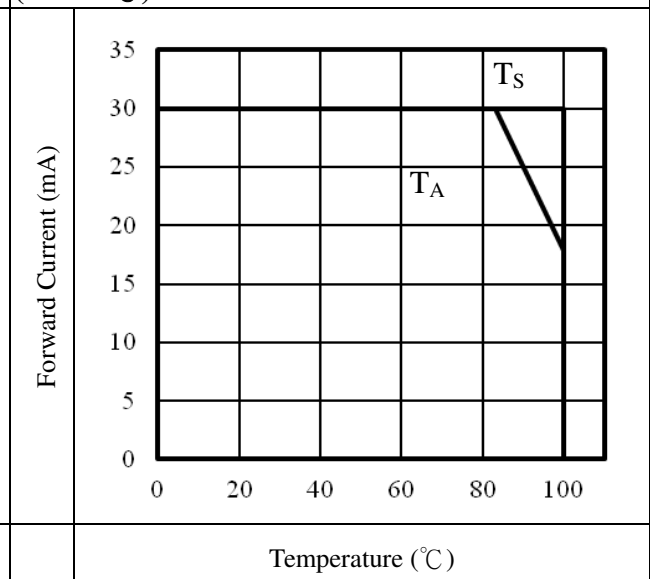
**Dominant Wavelength vs. Forward Current**  
( $T_a=25^\circ\text{C}$ )



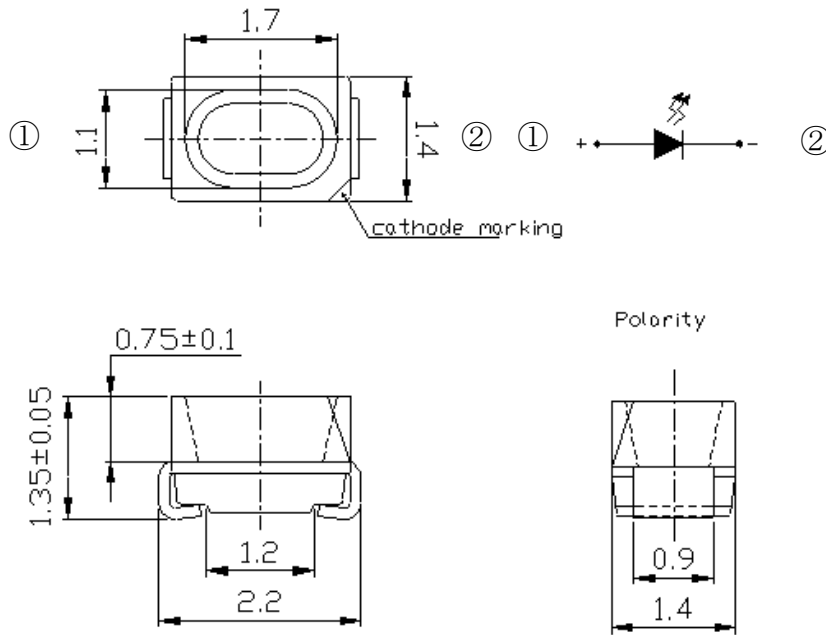
**Relative Luminous Intensity vs. Forward Current**  
( $T_a=25^\circ\text{C}$ )



**Max. Permissible Forwarded Current**  
( $T_a=25^\circ\text{C}$ )



### Package Dimension



Note: Tolerances unless mentioned ±0.1mm. Unit = mm

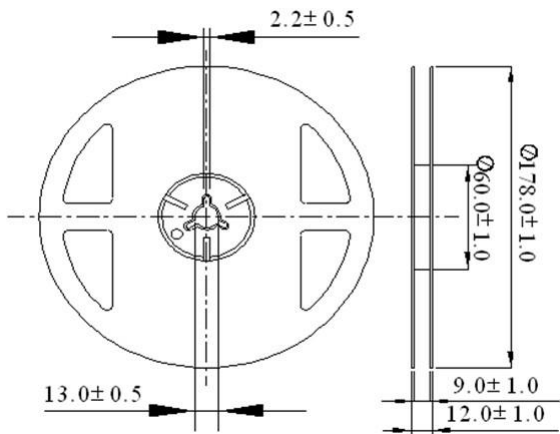
## Moisture Resistant Packing Materials

### Label Explanation

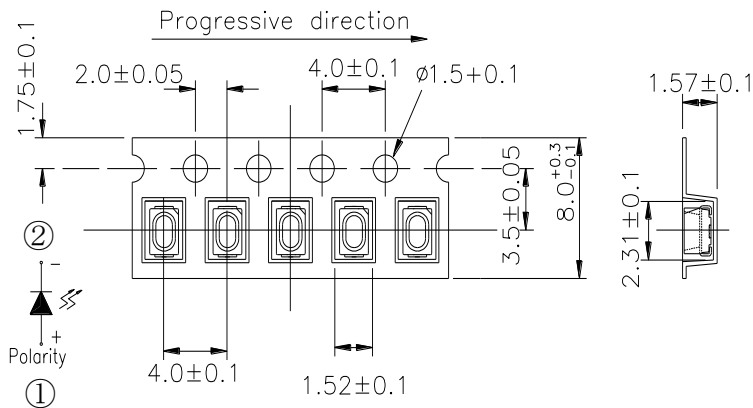


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

### Reel Dimensions

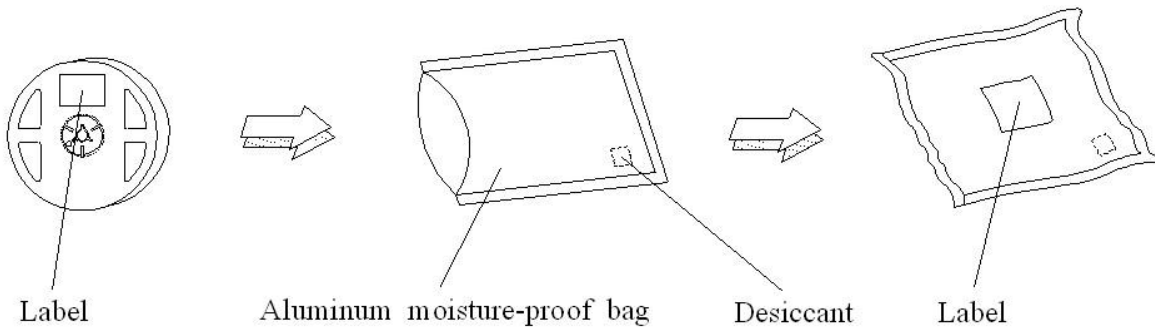


### Carrier Tape Dimensions: Loaded Quantity 3000 pcs Per Reel



Note: Tolerances unless mentioned  $\pm 0.1$ mm. Unit = mm

### Moisture Resistant Packing Process

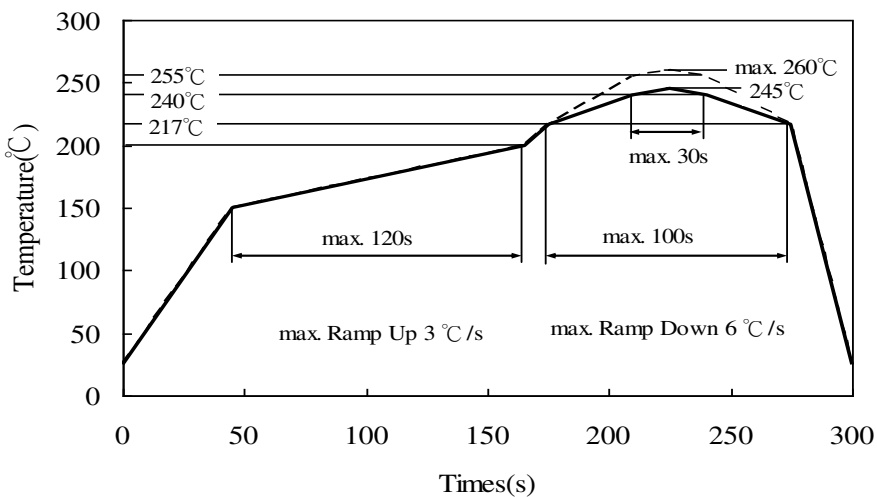


Note: Tolerances unless mentioned  $\pm 0.1\text{mm}$ . Unit = mm

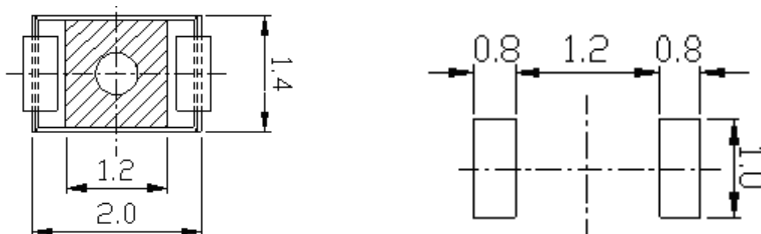
### Precautions for Use

#### 1. Soldering Condition

##### 1.1 (A) Maximum Body Case Temperature Profile for evaluation of Reflow Profile



##### 1.2 (B) Recommend soldering pad



Note: Tolerances unless mentioned  $\pm 0.1\text{mm}$ . Unit = mm



## 2. Current limiting

A resistor should be used to limit current spikes that can be caused by voltage fluctuations. Otherwise damage could occur.

## 3. Storage

3.1 Moisture proof bag should only be opened immediately prior to usage.

3.2 Environment should be less than 30°C and 60% RH when moisture proof bag is opened.

3.3 After opening the package MSL Conditions stated on page 1 of this spec should not be exceeded.

3.4 If the moisture sensitivity card indicates higher than acceptable moisture, the component should be baked at min. 60deg +/-5deg for 24 hours.

## 4. Iron Soldering

Hand soldering is not recommended for regular production. These guidelines are for rework only. Soldering iron tip should contact each terminal no more than 3 sec at 350°C, using soldering iron with nominal power less than 25W. Allow min. 2 sec. between soldering intervals.

## 5. Usage

Do not exceed the values given in this specification.