

SMD ■ Side View LEDs EAPL4040YA0-AM

PRELIMINARY



Features

- P-LCC-4 package.
- Colorless clear resin.
- Wide viewing angle 120 °.
- Inner reflector and white package.
- Brightness: 180 to 355mcd at 20mA
- Precondition: Bases on JEDEC J-STD 020D Level 2
- Qualification according to AEC-Q101 rev C.
- Automotive reflow profile (IR reflow or wave soldering)

Applications

- Automotive backlighting or indicator: Dashboard, switch, audio and video equipments...etc.
- Backlight: LCD, switches, symbol, mobile phone and illuminated advertising.
- Display for indoor and outdoor application.
- Ideal for coupling into light guides.
- Substitution of traditional light.
- Optical indicator.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Yellow	Water Clear

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	12	V
Forward Current	I_F	30	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	100	mA
Power Dissipation	P_d	120	mW
Junction Temperature	T_j	125	°C
Operating Temperature	T_{opr}	-40 ~ +100	°C
Storage Temperature	T_{stg}	-40 ~ +110	°C
Thermal Resistance	$R_{th\ J-A}$	500	K/W
	$R_{th\ J-S}$	300	K/W
ESD	ESD_{HBM}	2000	V
(Classification acc. AEC Q101)	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	I _v	180	-----	355	mcd	I _F =20mA
Viewing Angle	2θ _{1/2}	-----	120	-----	deg	I _F =20mA
Peak Wavelength	λ _p	-----	589	-----	nm	I _F =20mA
Dominant Wavelength	λ _d	585.5	-----	594.5	nm	I _F =20mA
Spectrum Radiation Bandwidth	Δλ	-----	20	-----	nm	I _F =20mA
Forward Voltage	V _F	1.75	-----	2.35	V	I _F =20mA
Reverse Current	I _R	-----	-----	10	μA	V _R =12V

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
S1	180	224	mcd	I _F =20mA
S2	224	280		
T1	280	355		

Note:

Tolerance of Luminous Intensity: ±11%

Bin Range of Dominant Wavelength

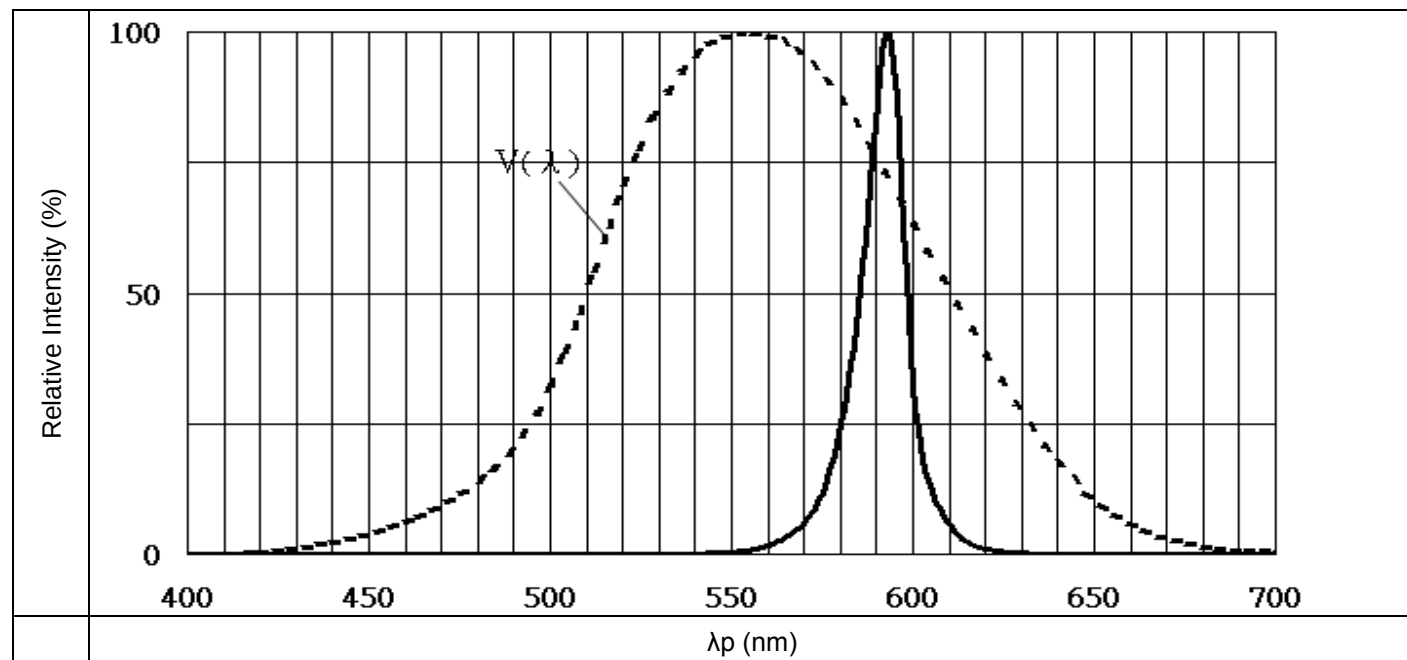
Bin Code	Min.	Max.	Unit	Condition
D3	585.5	588.5	nm	I _F =20mA
D4	588.5	591.5		
D5	591.5	594.5		

Note:

Tolerance of Dominant Wavelength: ±1nm

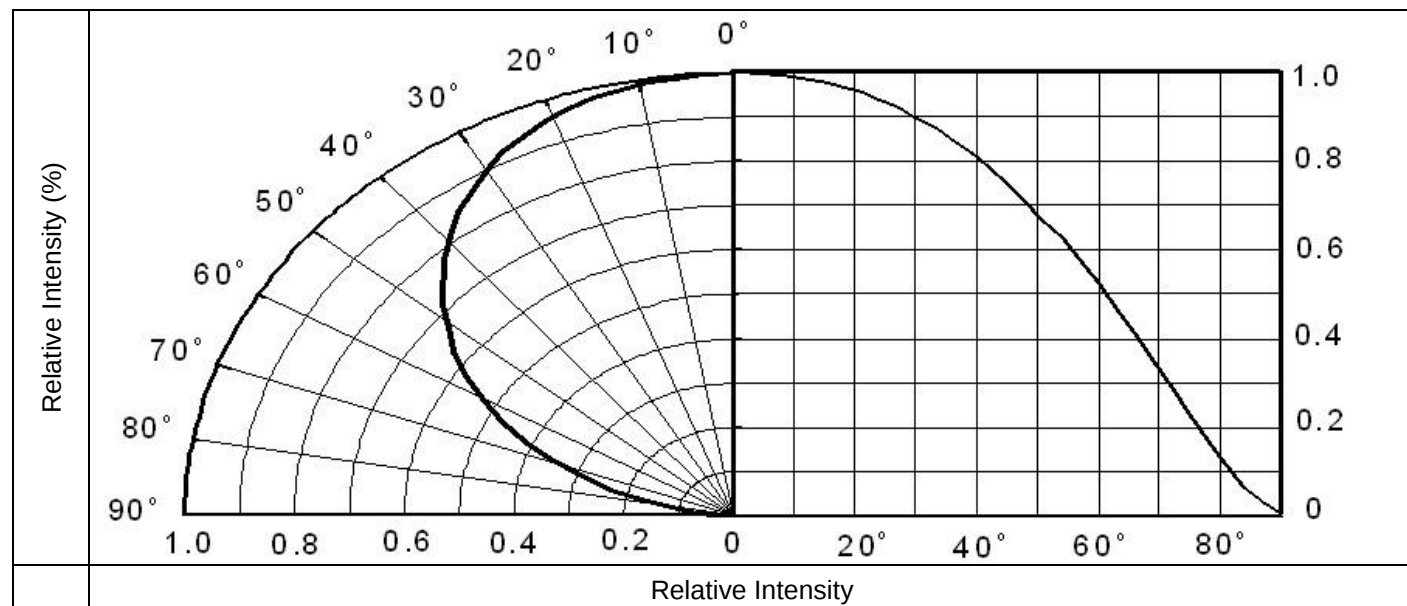
Typical Electro-Optical Characteristics Curves

Typical Curve of Spectral Distribution

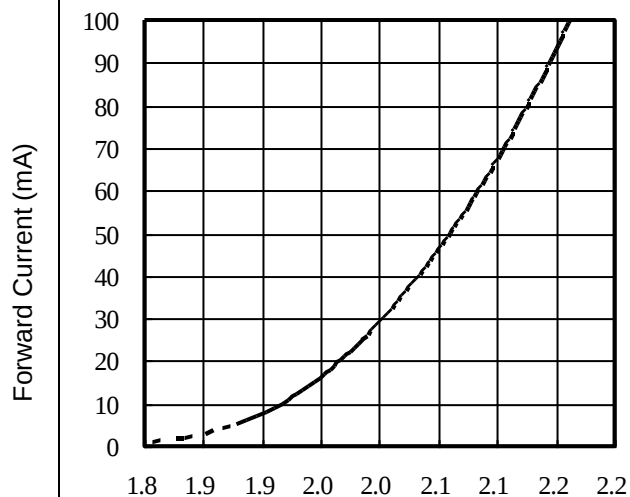


Note: $V(\lambda)$ =Standard eye response curve; $I_F = 20\text{mA}$

Diagram Characteristics of Radiation

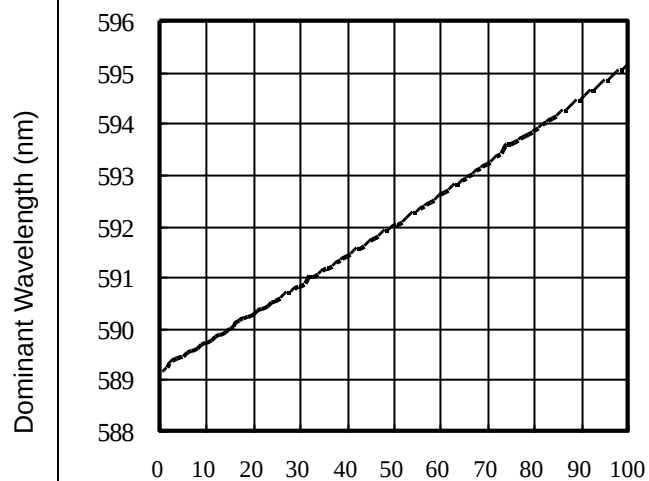


Forward Current vs. Forward Voltage (Ta=25°C)



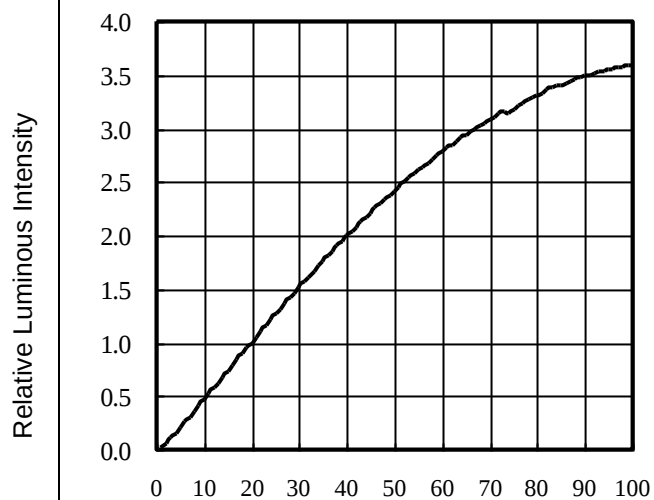
Forward Voltage (V)

Dominant Wavelength vs. Forward Current (Ta=25°C)



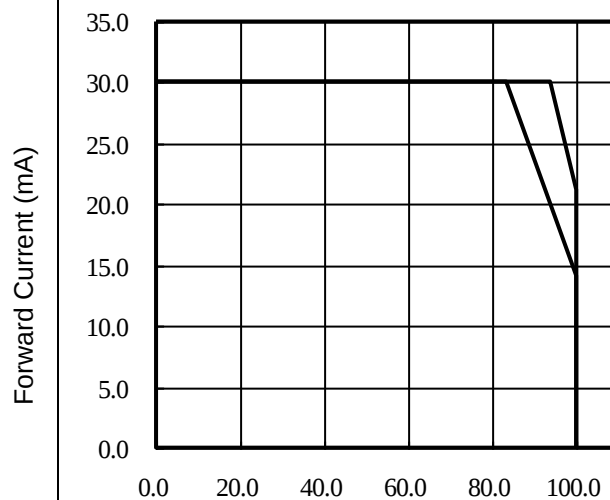
Forward Current (mA)

Relative Luminous Intensity vs. Forward Current (Ta=25°C)



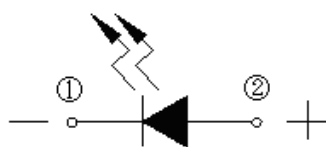
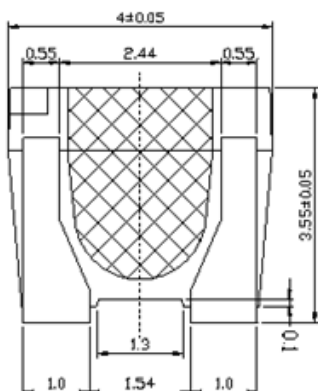
Forward Current (mA)

Max. Permissible Forwarded Current(Ta=25°C)

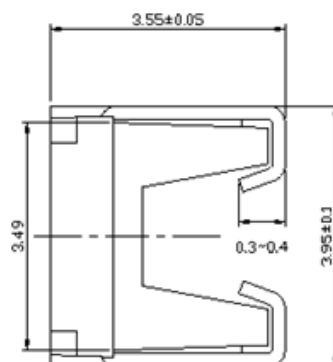
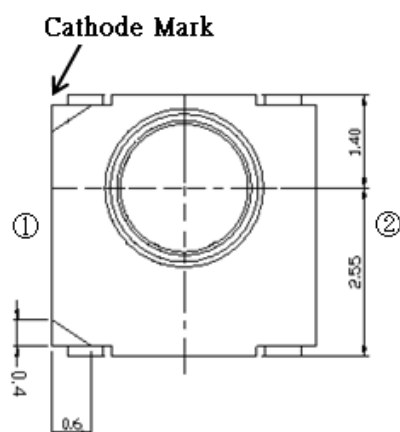


Temperature (°C)

Package Dimension



Polarity



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

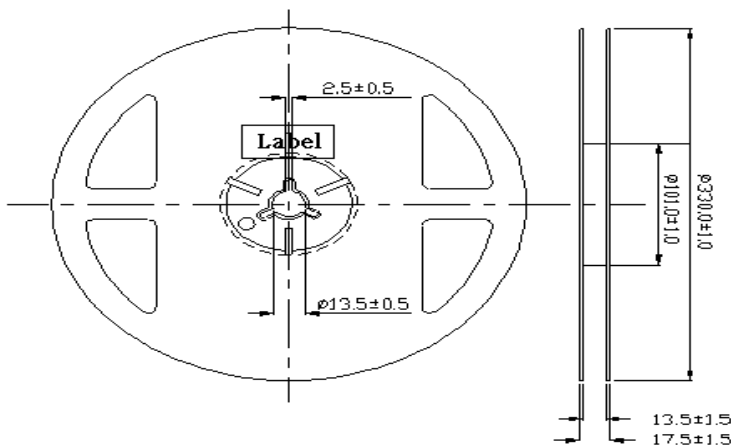
Moisture Resistant Packing Materials

Label Explanation

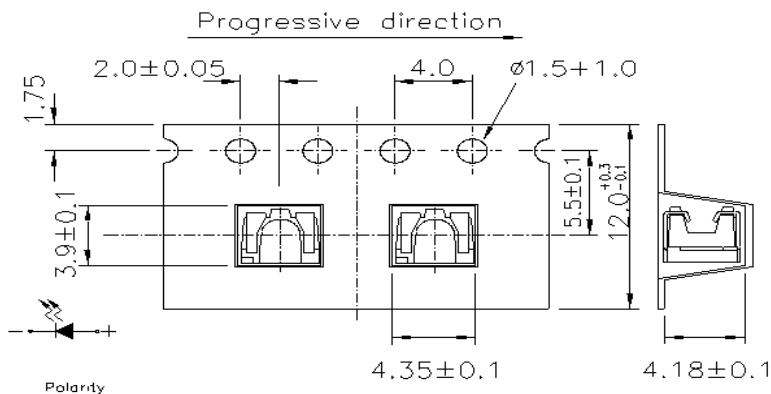


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions

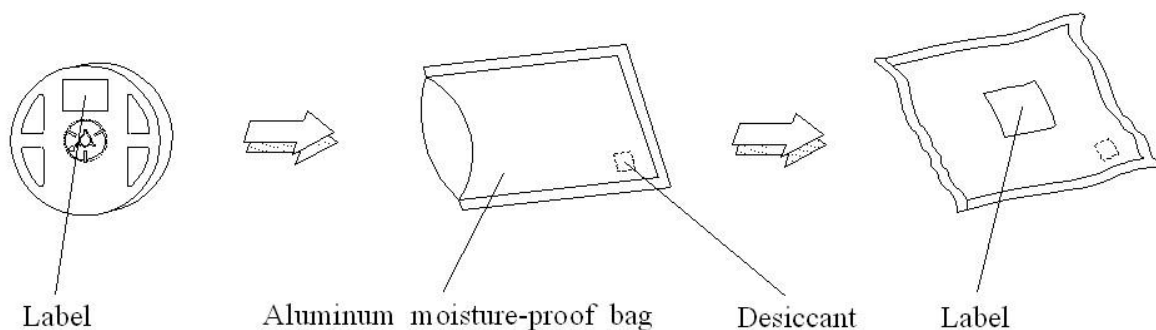


Carrier Tape Dimensions: Loaded Quantity 500 pcs Per Reel



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

Moisture Resistant Packing Process

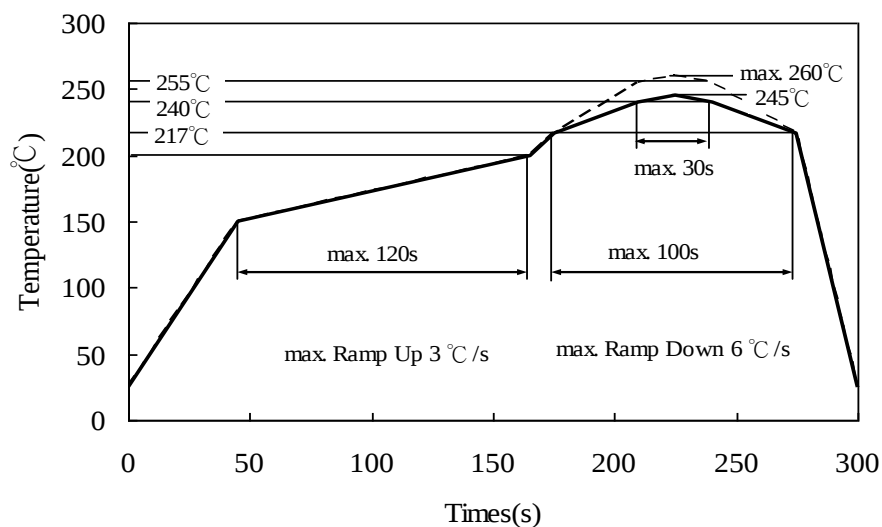


Note: Tolerances unless mentioned $\pm 0.1\text{mm}$. Unit = mm

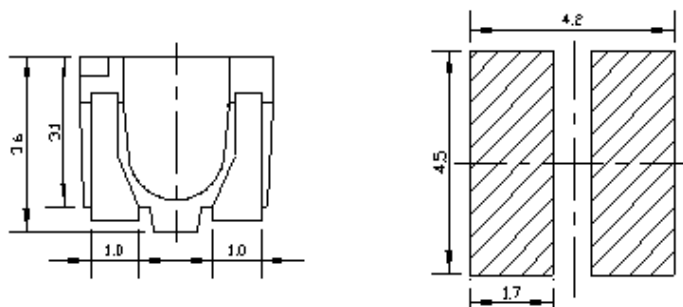
Precautions for Use

1. Soldering Condition (Reference: IPC/JEDEC J-STD-020D)

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



(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.