

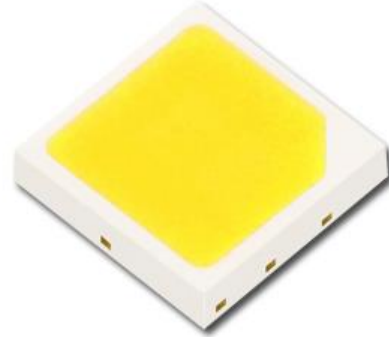


AMERICAN BRIGHT OPTOELECTRONICS CORP.

Specification for 3030EH Series

AB-3030EH-kkF80

High efficacy white LED



Features:

- Top view white LED
- Thermally enhanced package design
- High luminous flux output
- High current capability
- Compact Package Size
- Wide viewing angle
- Pb-free Reflow Soldering Application
- RoHS and REACH compliant

Applications:

- Retrofits (replacement)
- General lighting
- Indoor & Outdoor sign board back light
- Architectural / Decorative lighting



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Electro Optical Characteristics ($I_f=65\text{mA}$, $T_j=25^\circ\text{C}$)

CCT	CRI	Luminous Flux (lm)		Typ. Luminous Efficacy (lm/W)
	min.	min.	Typ.	
2700K	80	32	35.0	199
3000K	80	34	37.0	210
3500K	80	34	38.0	217
4000K	80	36	39.0	222
5000K	80	36	39.0	222
5700K	80	34	38.5	219
6500K	80	34	38.5	219

* Tolerance of measurements of the Luminous Flux is $\pm 7\%$

* The Typical Luminous Efficacy is only for reference

* Ra measurement tolerance is ± 2

Absolute Maximum Ratings ($T_j=25^\circ\text{C}$)

Item	Symbol	Absolute Max. Rating	Unit
Forward Current	I_f	400	mA
Pulse Forward Current	I_{FP}	600	mA
Power Dissipation	PD	1160	mW
Reverse Voltage	V_R	5	V
Operating Temperature	T_{opr}	-40~ +105	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40~ +105	$^\circ\text{C}$
Junction Temperature	T_j	120	$^\circ\text{C}$
Soldering Temperature	T_{sld}	Reflow soldering: 230°C or 260°C for 10 sec	

* IFP condition with Pulse: Width $\leq 100\mu\text{s}$, Duty cycle $\leq 1/10$

* LED's properties might be different from suggested values like above and below tables if operation condition will be exceeded our parameter range. Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product

* All measurements were made under the standardized environment of American Bright LED

Electrical/Optical Characteristics ($T_j=25^\circ\text{C}$)

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	V_f	2.5	2.7	2.9	V	$I_f = 65\text{mA}$
Reverse Current	I_R	-	-	10	mA	$V_R = 7\text{V}$
Viewing Angle	$2\theta_{1/2}$	-	120	-	$^\circ$	$I_f = 65\text{mA}$
Thermal Resistance	$R_{th\ j-sp}$	-	8	-	$^\circ\text{C/W}$	$I_f = 65\text{mA}$

* Tolerance of measurements of the Forward Voltage is $\pm 0.1\text{V}$

* $2\theta_{1/2}$ is the off-axis where the luminous intensity is 1/2 of the peak intensity

* $R_{th\ j-sp}$ is the thermal resistance from LED junction to solder point on MCPCB with electrical power

BIN Structure

Luminous Flux Ranks ($I_F = 65\text{mA}$, $T_j = 25^\circ\text{C}$)

Code	Min.	Max.	Unit
D9	32	34	lm
E1	34	36	lm
E2	36	38	lm
G1	38	40	lm
G2	40	42	lm

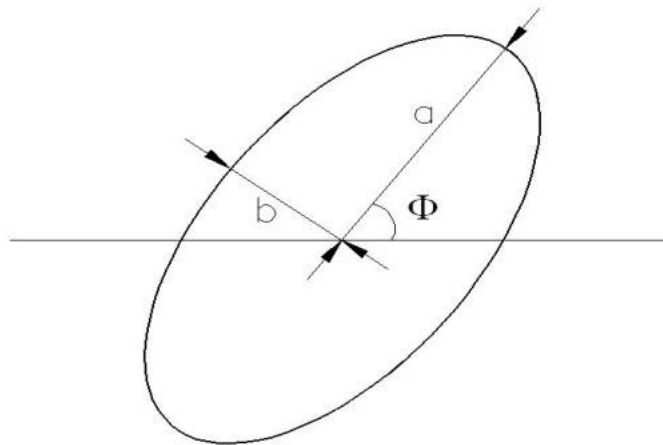
* Tolerance of measurements of the Luminous Flux is $\pm 7\%$

Forward Voltage Ranks ($I_F = 65\text{mA}$, $T_j = 25^\circ\text{C}$)

Code	Min.	Max.	Unit
Y1	2.5	2.6	V
Z1	2.6	2.7	V
A1	2.7	2.8	V
B1	2.8	2.9	V

* Tolerance of measurements of the Forward Voltage is $\pm 0.1\text{V}$

CIE Chromaticity Diagram ($I_F = 65\text{mA}$, $T_j = 25^\circ\text{C}$)



The color ranks have chromaticity ranges within 5-step MacAdam ellipse

Color Code	Center		Radius		Angle
	x	y	a	b	Φ
27M5	0.4582	0.4099	0.013500	0.00700	53.42
30M5	0.4342	0.4028	0.013900	0.00680	53.13
35M5	0.4080	0.3916	0.015450	0.00690	54.00
40M5	0.3825	0.3798	0.015650	0.00670	53.43
50M5	0.3451	0.3554	0.013700	0.00590	59.37
57M5	0.3290	0.3417	0.011175	0.00550	58.35
65M5	0.3130	0.3290	0.011150	0.00475	58.34

* Tolerance of measurements of the chromaticity Coordinate is ± 0.005

Fig 1. Color Spectrum ($T_j=25^\circ\text{C}$)

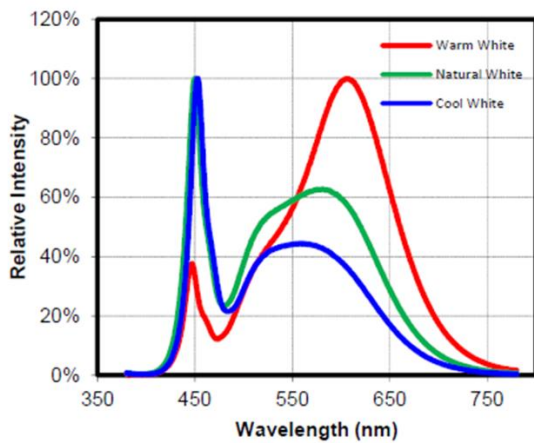


Fig 2. Viewing Angle Distribution ($T_j=25^\circ\text{C}$)

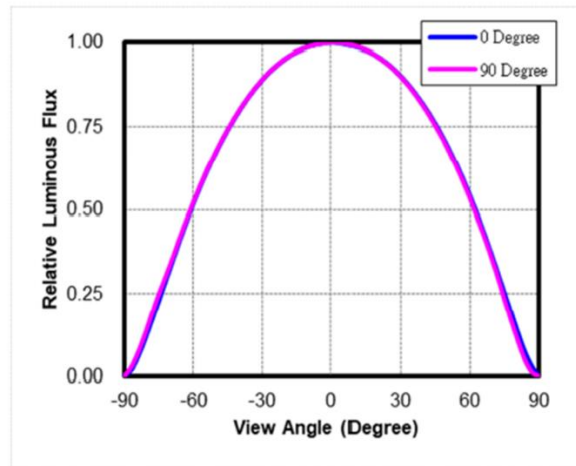


Fig 3. Forward Current vs. Relative Intensity

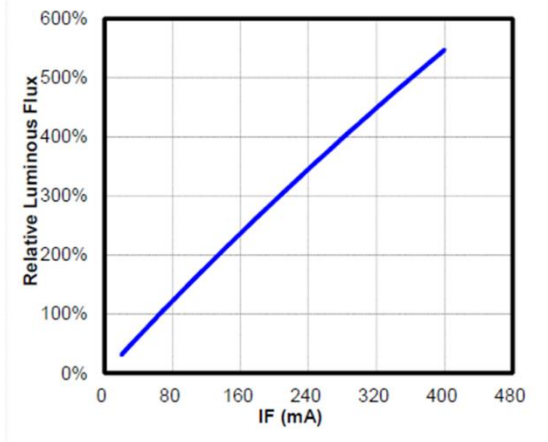
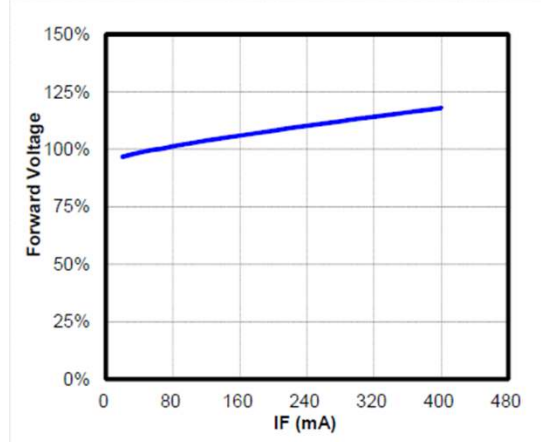


Fig 4. Forward Current vs. Forward Voltage





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Fig 5. Soldering Temperature vs. Relative Luminous flux ($I_F=65\text{mA}$)

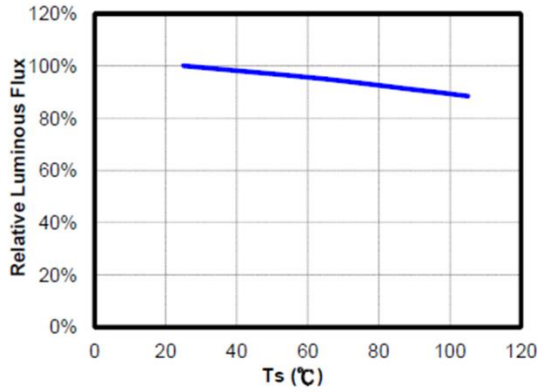


Fig 6. Soldering Temperature vs. Relative Forward Voltage ($I_F=65\text{mA}$)

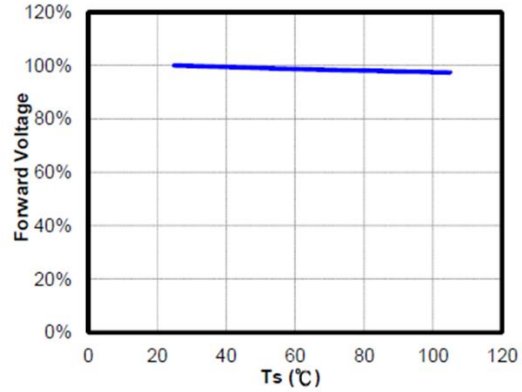
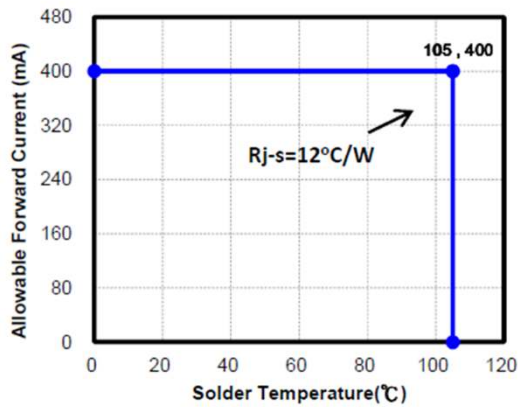
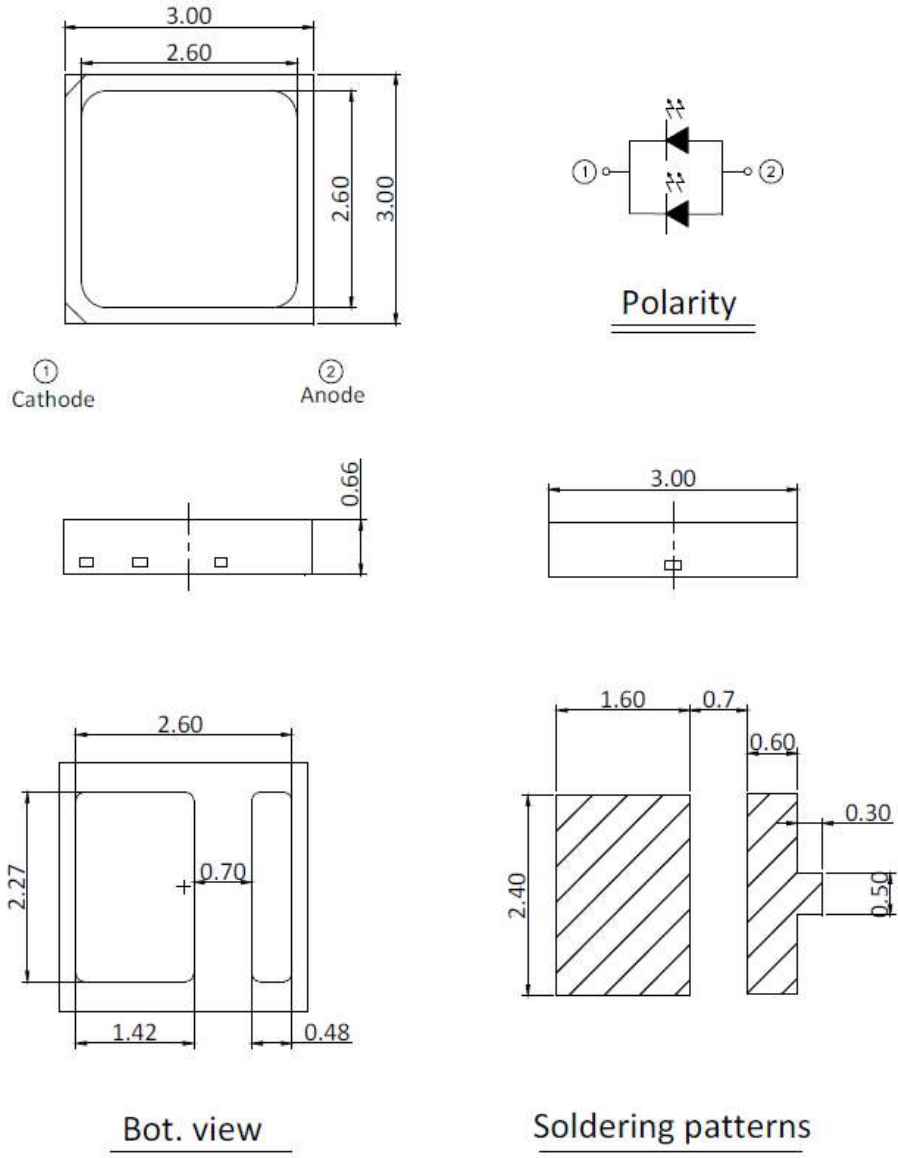


Fig 7. Allowable Forward Current vs. Soldering Temperature



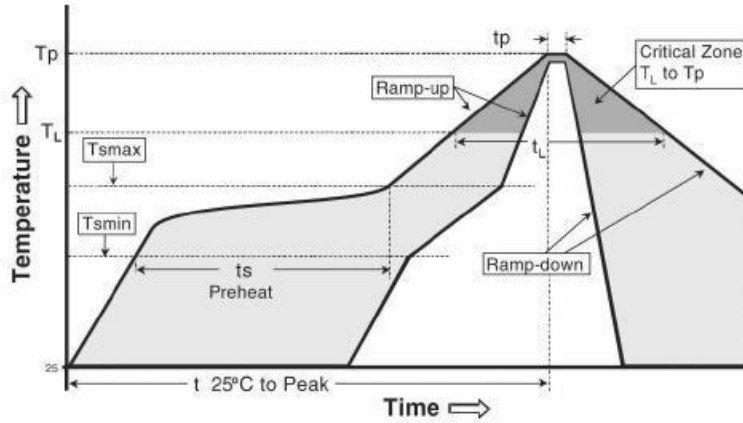
Package Dimensions



* The tolerance unless mentioned is $\pm 0.2\text{mm}$, unit = mm

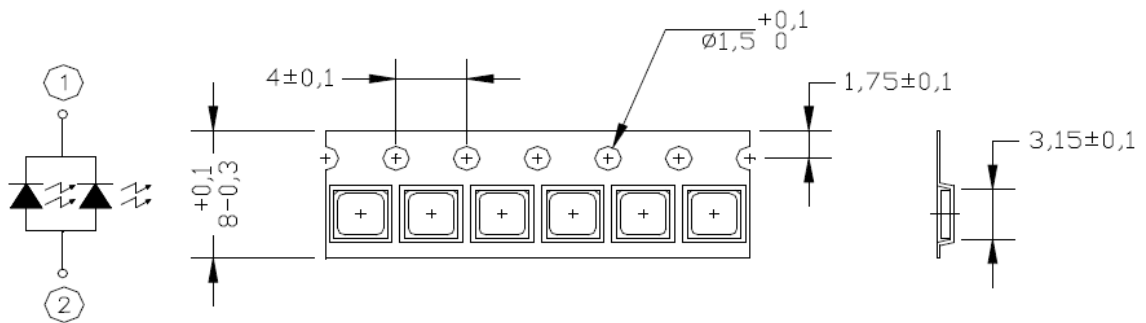
* The soldering pad pattern is only for reference and can be modified according to actual Requirements

Reflow Soldering Characteristics



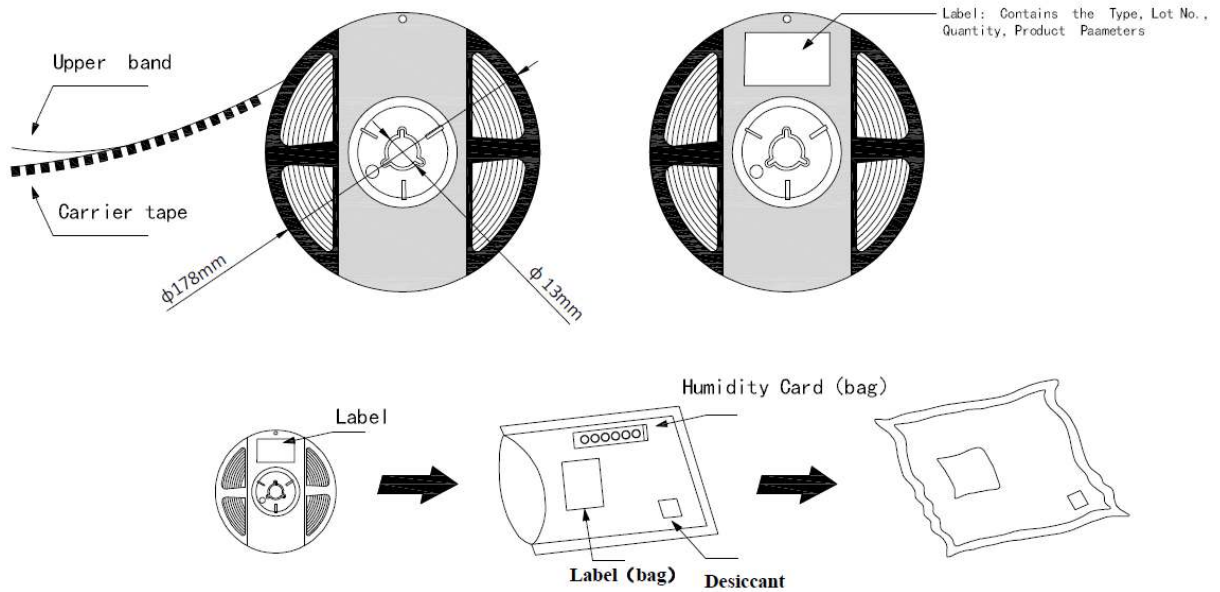
Reflow Soldering	
Temperature min (T _{s, min})	150°C
Temperature Max (T _{s, Max})	200°C
Time (t _s) from (T _{s, min} to T _{s, Max})	60-120 s
Ramp-up rate (T _L to T _p)	3°C/s Max
Liquidous temperature (T _L)	217°C
Time (T _L) maintained above T _L	60-150 s
Peak package body temperature	260°C Max
Time (T _p) within 5°C of the specified classification temperature (T _c)	30 s Max
Ramp-down rate (T _p to T _L)	6°C/s Max
Time 25°C to peak temperature	8 min. Max

Package Dimensions of Tape

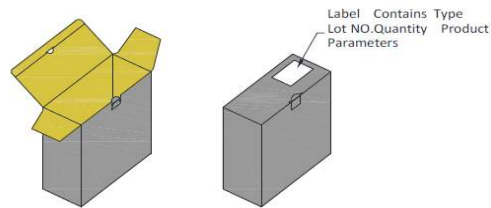


- * Quantity: Max 5000pcs/Reel
- * Cumulative Tolerance: Cumulative Tolerance/10 pitches to be ±0.2mm
- * Package: P/N, Manufacturing data Code No. and Quantity to be indicated on a waterproof Package.
- * unit = mm

Package Dimensions of Reel

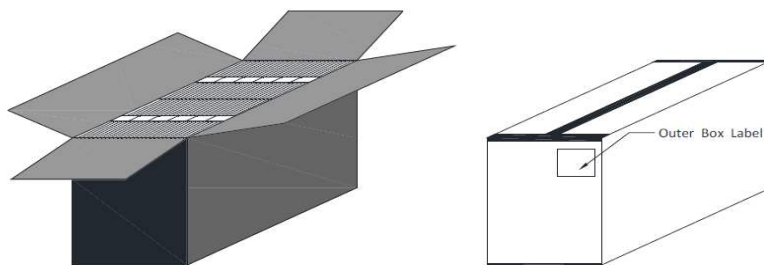


Packaging



* Capacity 10 reels per box.

Outer Box



* Capacity 30 or 60 reels per box.



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Caution

1. Reflow soldering is recommended not to be done more than two times. In the case of more than 24 hours passed soldering after first, LEDs will be damaged.
2. Repairs should not be done after the LEDs have been soldered. When repair is unavoidable, suitable tools must be used.
3. Die slug is to be soldered.
4. When soldering, do not put stress on the LEDs during heating.
5. After soldering, do not warp the circuit board.

Notes on American Bright EMC Series soldering:

1. Recommend to use reflow machine.
2. Recommend to use heating plate soldering.
3. Manual soldering is not recommended.

Notes on reflow process:

1. To confirm whether the actual temperature curve in the reflow soldering conditions comply with recommended conditions. LEDs are guaranteed for one time reflow.
2. During reflow process do not apply force on LED active area.
3. After reflow process, PCB board should be cooled down before packing or storage.

Precaution for use

Storage

1. Before opening the package: The LED should be kept at 5°C~30°C and 60%RH or less.
2. After opening the package: The LED's lifetime is 168Hrs @30°C or 60%RH. If unused LED remain, it should be stored in moisture proof packages JEDEC (MSL 3).
3. If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions: baking treatment: 60±5°C for 24 hours.