

Specification for 3030EH Series

AB-3030EC-kkF80

High efficacy 3030 EMC 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
- Interior Lighting



AMERICAN BRIGHT OPTOELECTRONICS CORP.

Product Selection Table (I_F= 350mA)

Model No.	Color	CCT (K)		
		Min.	Typ.	Max.
AB-3030EC-65F80	Cool White	6020	6530	7040
AB-3030EC-57F80	Cool White	5310	5665	6020
AB-3030EC-50F80	Neutral White	4745	5028	5311
AB-3030EC-40F80	Neutral White	3710	3985	4260
AB-3030EC-30F80	Warm White	2870	3045	3220
AB-3030EC-27F80	Warm White	2580	2725	2870

* The correlated color temperature is based on T_s at 85°C

Electro Optical Characteristics (I_F= 350 mA, T_J=25°C)

CCT	CRI	Luminous Flux (lm)	
	min.	Min.	Typ.
2700K	80	122	136
3000K	80	130	140
4000K	80	139	148
5000K	80	139	148
5700K	80	139	148
6500K	80	139	148

* Tolerance of measurements of the Luminous Flux is ±7%

* Ra measurement tolerance is ±2

Absolute Maximum Ratings (T_J=25°C)

Item	Symbol	Absolute Max. Rating	Unit
Forward Current	I _F	400	mA
Pulse Forward Current	I _{FP}	600	mA
Power Dissipation	PD	1360	mW
Reverse Voltage	V _R	5	V
Operating Temperature	T _{opr}	-40~ +105	°C
Storage Temperature	T _{stg}	-40~ +85	°C
Junction Temperature	T _J	120	°C
Soldering Temperature	T _{sld}	Reflow soldering: 230°C or 260°C for 10 sec	

* IFP condition with Pulse: Width≤100μs, Duty cycle≤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



AMERICAN BRIGHT OPTOELECTRONICS CORP.

Electrical/Optical Characteristics (T_j=25°C)

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	V _F	-	3.2	3.4	V	I _f = 350mA
Reverse Current	I _R	-	-	10	μA	V _R = 7V
Viewing Angle	2θ _{1/2}	-	120	-	°	I _f = 350mA
Thermal Resistance	R _{th j-sp}	-	18	-	°C/W	I _f = 350mA
Electrostatic Discharge	ESD	1000	-	-	V	HBM

* Tolerance of measurements of the Forward Voltage is ±0.1V

* 2θ_{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 = 65mA, T_j = 25°C)

CCT	CRI		Luminous Flux		
	Min.	Typ.	Code	Min.	Max
2700K	80	82	2E	122	130
			2F	130	139
			2G	139	148
3000K	80	82	2F	130	139
			2G	139	148
			2H	148	156
4000K	80	82	2G	139	148
			2H	148	156
			2J	156	164
5000K	80	82	2G	139	148
			2H	148	156
			2J	156	164
5700K	80	82	2G	139	148
			2H	148	156
			2J	156	164
6500K	80	82	2G	139	148
			2H	148	156
			2J	156	164

* Tolerance of measurements of the Luminous Flux is ±7%

* Ra measurement has a tolerance of ±2%

Forward Voltage Ranks (I_f = 65mA, T_j = 25°C)

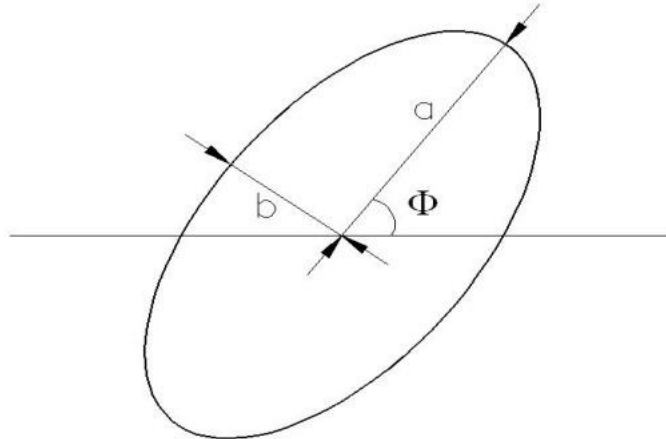
Code	Min.	Max.	Unit
H3	2.8	3.0	V
J3	3.0	3.2	V
K3	3.2	3.4	V

* Tolerance of measurements of the Forward Voltage is ±0.1V



AMERICAN BRIGHT OPTOELECTRONICS CORP.

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
27R5	0.4620	0.4145	0.013500	0.00700	53.42
30R5	0.4383	0.4081	0.013900	0.00680	53.13
40R5	0.3875	0.3868	0.015650	0.00670	53.43
50R5	0.3507	0.3635	0.013700	0.00590	59.37
57R5	0.3348	0.3491	0.011175	0.00550	58.35
65R5	0.3187	0.3363	0.011150	0.00475	58.34

* Tolerance of measurements of the chromaticity Coordinate is ± 0.005

* Energy Star binning applied to all 2600-7000K.

Naming System:

AB-3030EC-kkF80-yy

kk: Color temperature

yy: bin code



AMERICAN BRIGHT OPTOELECTRONICS CORP.

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

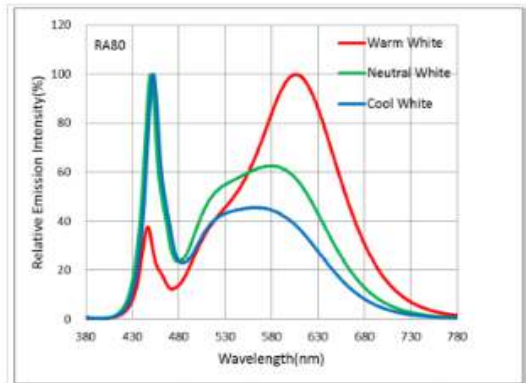


Fig 2. Viewing Angle Distribution, $T_j = 25^\circ\text{C}$

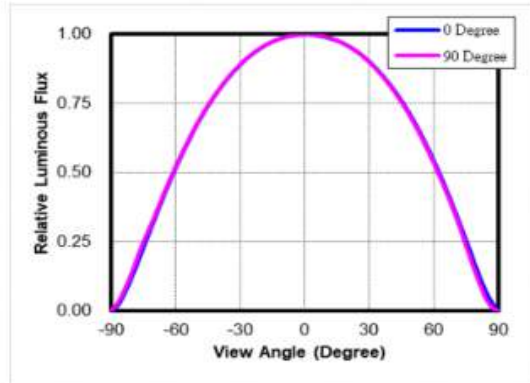


Fig 3. Forward Current vs. Relative Intensity, $T_j = 25^\circ\text{C}$

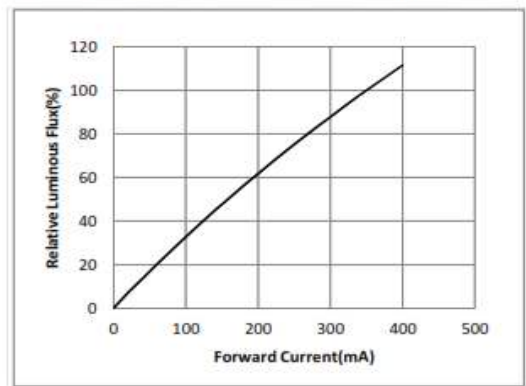


Fig 4. Forward Current vs. Forward Voltage, $T_j = 25^\circ\text{C}$

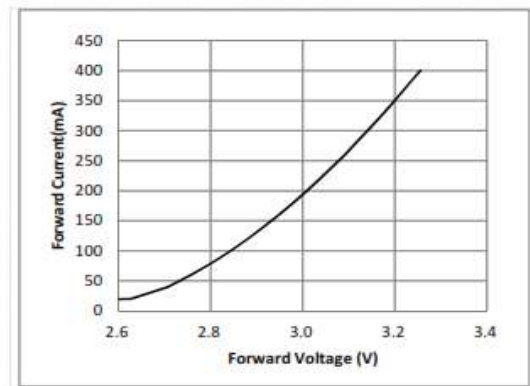


Fig 5. Soldering Temperature vs. Relative Luminous flux ($I_F=350\text{mA}$)

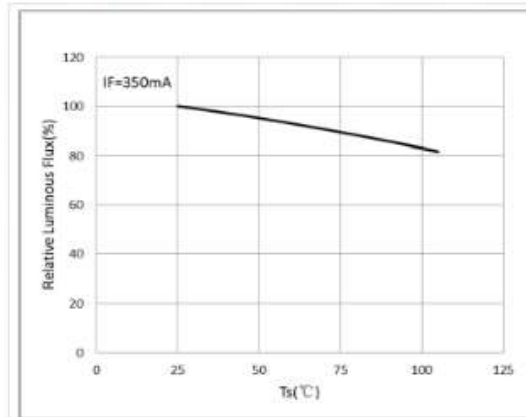


Fig 6. Soldering Temperature vs. Relative Forward Voltage ($I_F=350\text{mA}$)

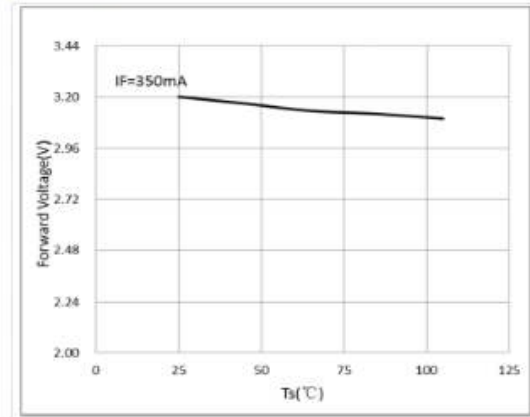


Fig 7 . Soldering Temperature vs. CIE x, y

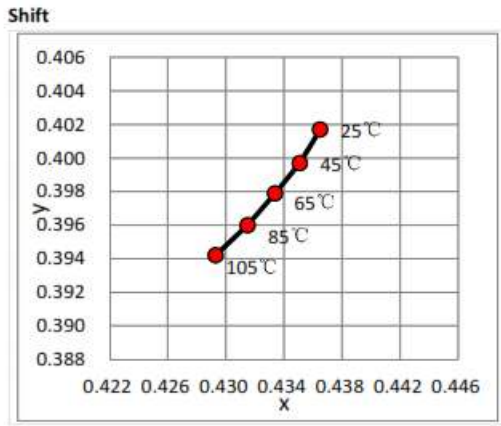
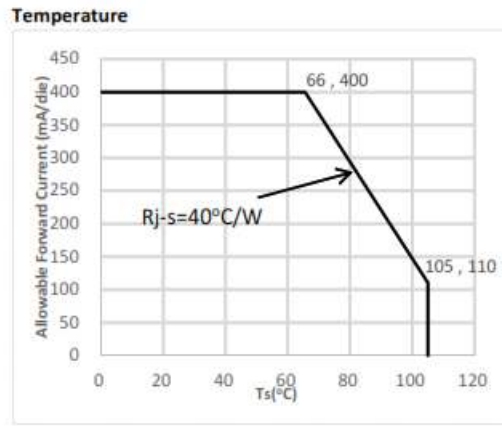
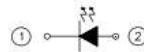
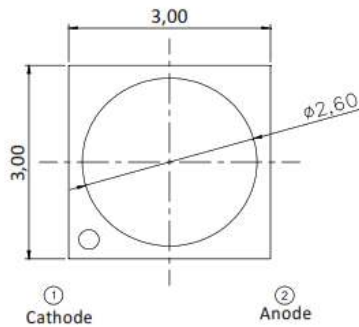


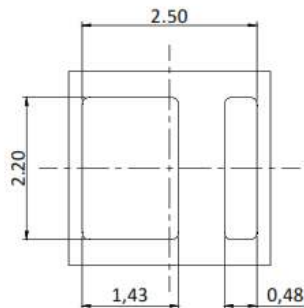
Fig 8. Maximum Forward Current vs. Soldering Temperature



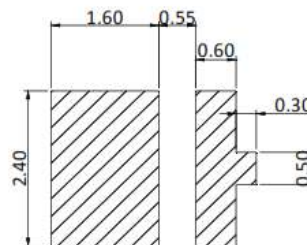
Package Dimensions



Polarity



Bot. view



Soldering Patterns

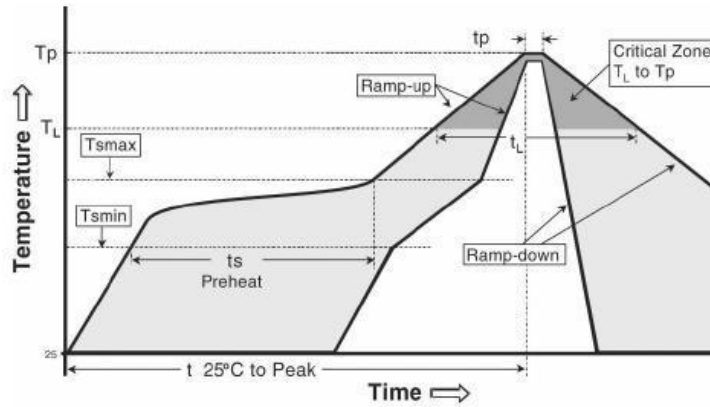
* The tolerance unless mentioned is $\pm 0.2\text{mm}$, unit = mm

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



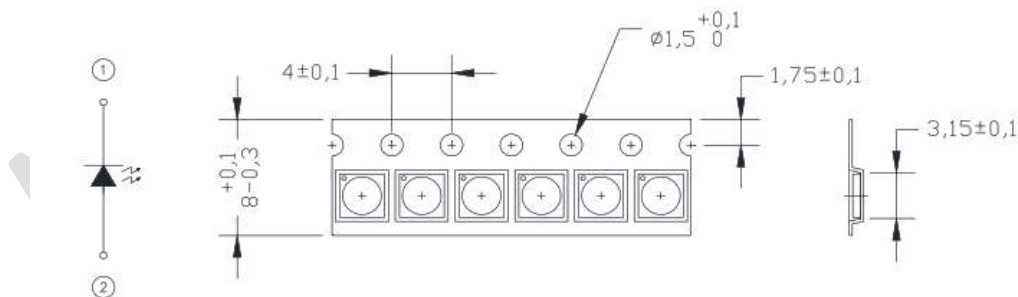
AMERICAN BRIGHT OPTOELECTRONICS CORP.

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 ± 0.2 mm

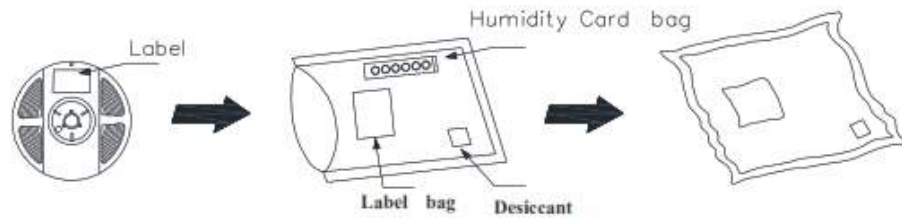
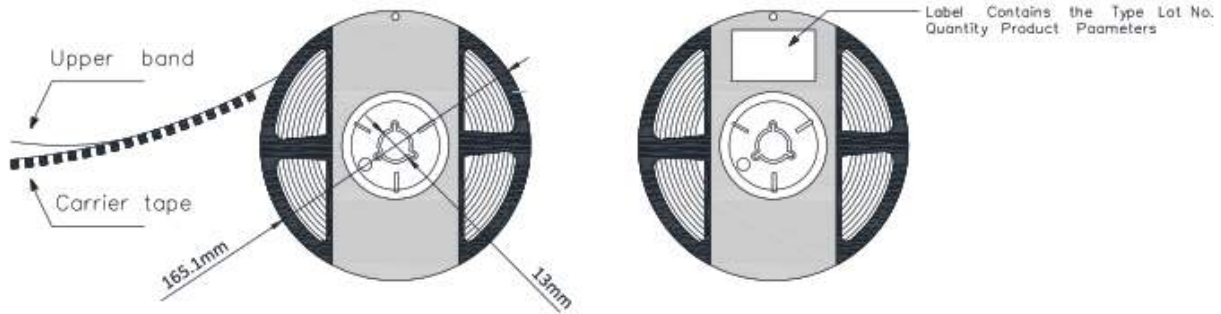
* Package: P/N, Manufacturing data Code No. and Quantity to be indicated on a waterproof Package.

* Adhesion strength of Cover Tape 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.

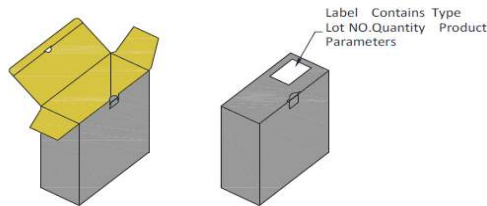


AMERICAN BRIGHT OPTOELECTRONICS CORP.

Package Dimensions of Reel

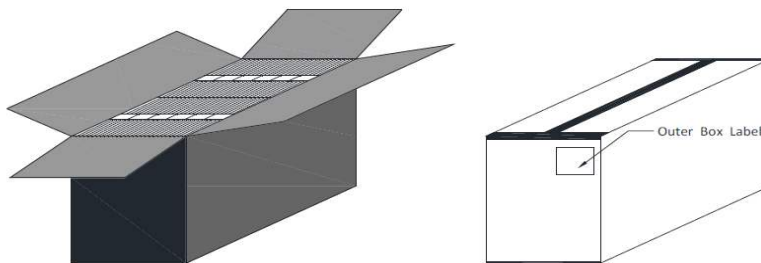


Packaging



* Capacity 10 reels per box.

Outer Box



* Capacity 30 or 60 reels per box.



AMERICAN BRIGHT OPTOELECTRONICS CORP.

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.