

# ASMT-CB00

## InGaN Blue, 0.4mm Low Profile Right Angle Surface Mount ChipLED



### Data Sheet

#### Description

The ASMT-CB00 of blue color chip-type LEDs is designed with the smallest footprint to achieve high density of components on board. They have the industry standard footprint 1.6 mm x 1.0 mm and a height of only 0.4 mm. This makes them very suitable for cellular phone and mobile equipment backlighting and indication application where space is a constraint. In order to facilitate automated pick and place operation, these ChipLEDs are shipped in conductive tape and reel, with 4000 units per reel. These part are compatible with IR soldering.

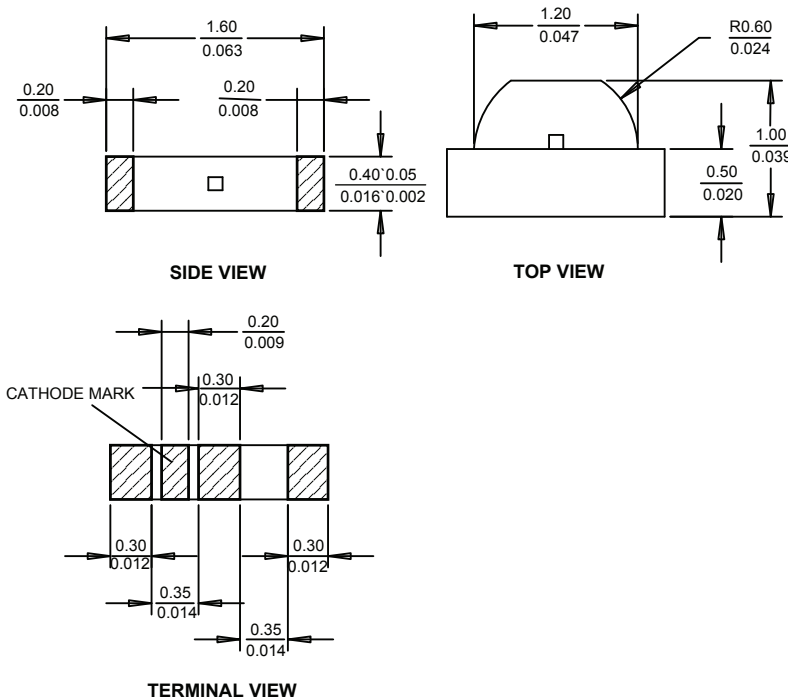
#### Features

- Small size right angle mount
- 0603 industry standard footprint
- 0.4 mm low profile type
- Operating temperature range of -30°C to +85 °C
- Compatible with IR reflow soldering process
- Available in 8mm tape on 178mm (7') diameter reels
- Reel sealed in zip locked moisture barrier bags

#### Applications

- LCD Backlighting
- Keypad Side / Backlighting
- Pushbutton backlighting
- Symbol Indicator

#### Package Dimension



#### Notes:

1. All dimensions will be in millimeters (inches)
2. Tolerance is ±0.1mm (±0.004 in) unless otherwise stated

**CAUTION:** ASMT-CB00 LEDs are Class 1A ESD sensitive per JESD22-A114C.01. Please observe appropriate precautions during handling and processing. Refer to Application Note AN-1142 for additional details.

## Device Selection Guide

Package Dimension (mm)	Parts per Reel	Package Description
1.6 (L) x 1.0 (W) x 0.4 (H)	4000	Untinted, Non-diffused

### Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$

Parameter	ASMT-CB00	Unit
DC Forward Current <sup>[1]</sup>	10	mA
Power Dissipation	32	mW
Reverse Voltage ( $I_R = 100\mu\text{A}$ )	5	V
LED Junction Temperature	95	$^\circ\text{C}$
Operating Temperature Range	-30 to +85	$^\circ\text{C}$
Storage Temperature Range	-40 to +85	$^\circ\text{C}$
Soldering Temperature	See reflow soldering profile (Figure 7 & 8)	

Note:

1. Derate linearly as shown in Figure 4.

### Electrical Characteristics at $T_A = 25^\circ\text{C}$

Part Number	Forward Voltage $V_F$ (Volts) <sup>[1]</sup> @ $I_F = 5\text{mA}$		Reverse Breakdown $V_R$ (Volts) @ $I_R = 100\mu\text{A}$	Thermal Resistance $R_{\theta J-PIN}$ ( $^\circ\text{C}/\text{W}$ )
	Typ.	Max.	Min.	Typ.
ASMT-CB00	2.85	3.15	5	450

Notes:

1.  $V_F$  tolerance :  $\pm 0.1\text{V}$

### Optical Characteristics at $T_A = 25^\circ\text{C}$

Part Number	Luminous Intensity $I_V$ <sup>[1]</sup> (mcd) @ 5mA		Peak Wavelength $\lambda_{\text{peak}}$ (nm)	Dominant Wavelength $\lambda_d$ <sup>[2]</sup> (nm)	Viewing Angle $2\theta_{1/2}$ <sup>[3]</sup> (Degrees)
	Min.	Typ.	Typ.	Typ.	Typ.
ASMT-CB00	7.2	18	469	473	150

Notes:

1. The luminous intensity  $I_V$  is measured at the peak of the spatial radiation pattern which may not be aligned with the mechanical axis of the LED package.
2. The dominant wavelength,  $\lambda_d$ , is derived from the CIE Chromaticity Diagram and represents the perceived color of the device.
3.  $\theta_{1/2}$  is the off-axis angle where the luminous intensity is  $1/2$  the peak intensity.

### Light Intensity ( $I_V$ ) Bin Limits

Bin ID	Intensity (mcd)	
	Minimum	Maximum
K	7.20	11.20
L	11.20	18.00
M	18.00	28.50

Tolerance :  $\pm 15\%$

Notes:

1. Bin categories are established for classification of products. Products may not be available in all categories. Please contact your Avago representative for information on current available bins.

### Color Bin Limits

Bin ID	Dominant Wavelength (nm)	
	Minimum	Maximum
A	460.0	465.0
B	465.0	470.0
C	470.0	475.0
D	475.0	480.0

Tolerance :  $\pm 1\text{nm}$

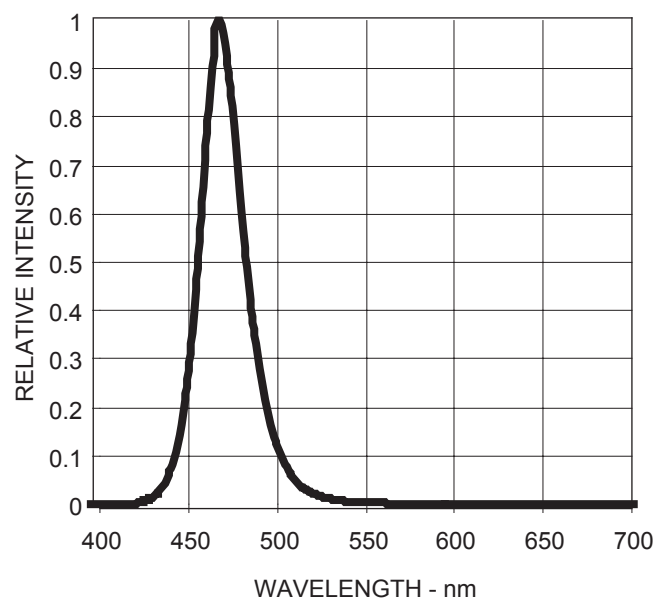


Figure 1. Relative intensity vs. wavelength

### Forward Voltage ( $V_F$ ) Bin Limits

Bin ID	Forward Voltage (V)	
	Minimum	Maximum
1	2.55	2.75
2	2.75	2.95
3	2.95	3.15

Tolerance :  $\pm 0.1\text{V}$

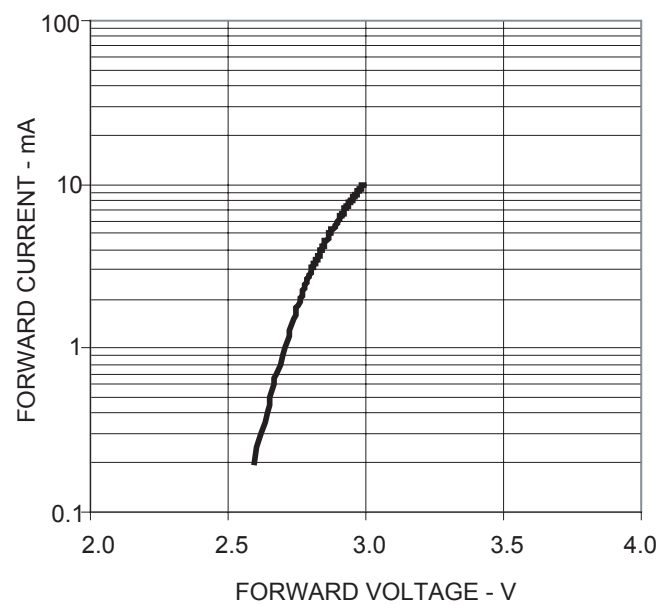


Figure 2. Forward current vs. forward voltage

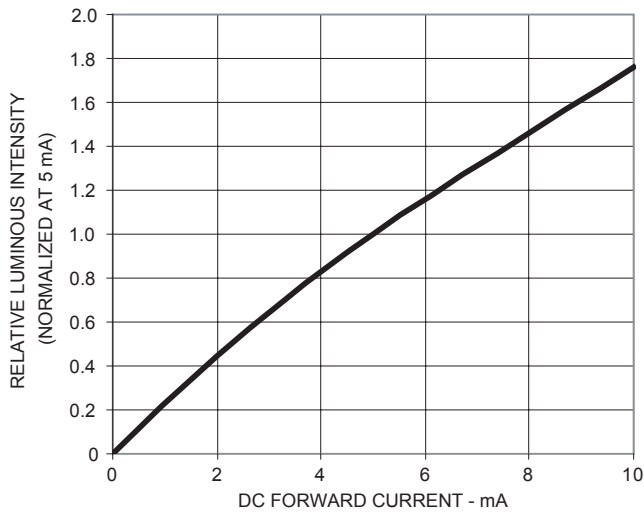


Figure 3. Luminous intensity vs. forward current

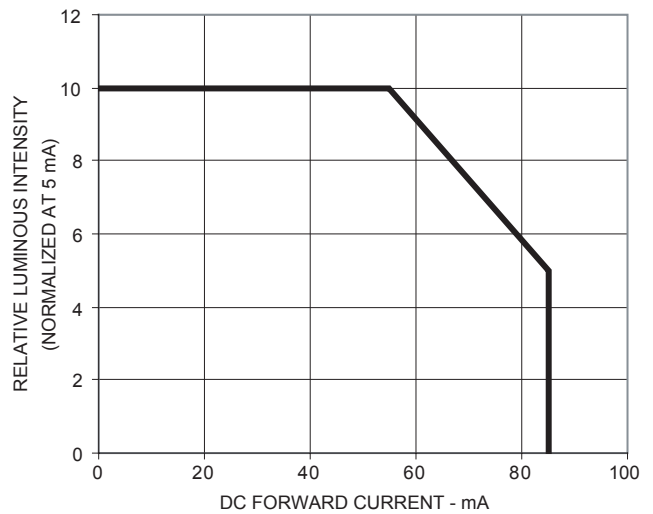


Figure 4. Maximum forward current vs. ambient temperature

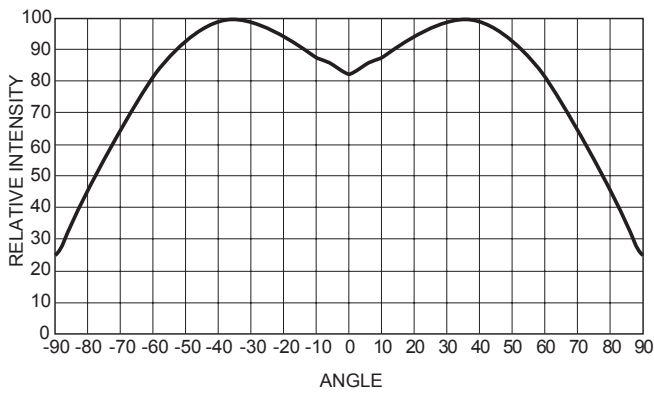
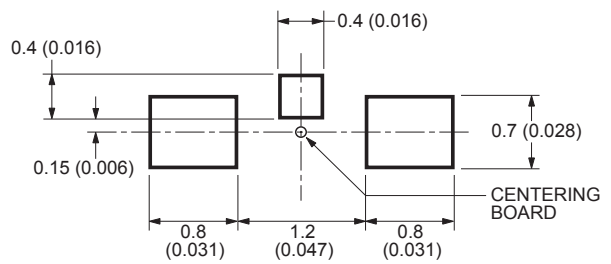


Figure 5. Radiation pattern



- Notes:  
 1. All dimensions are in millimeters (inches).  
 2. Tolerance is  $\pm 0.1\text{mm}$  ( $\pm 0.004\text{in.}$ ) unless otherwise specified

Figure 6. Recommended soldering land pattern

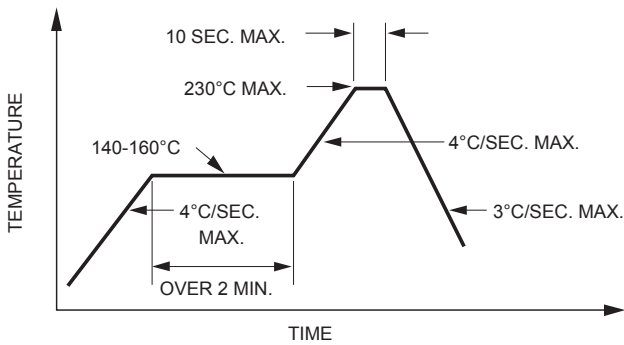


Figure 7. Recommended reflow soldering profile

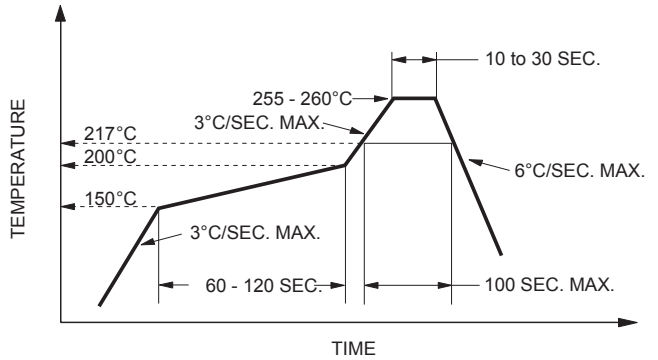
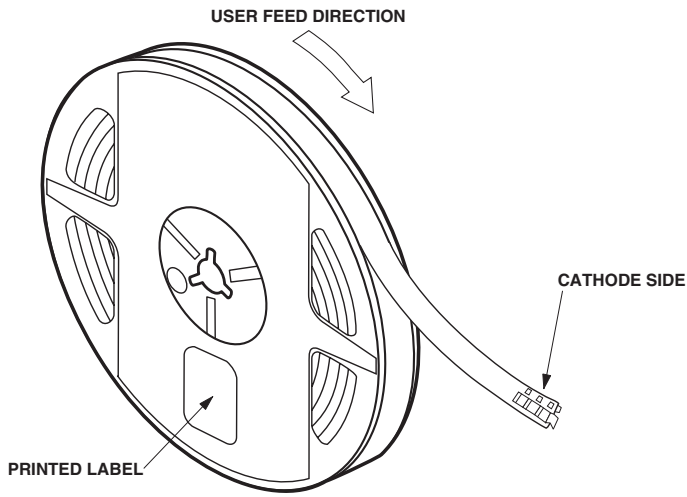
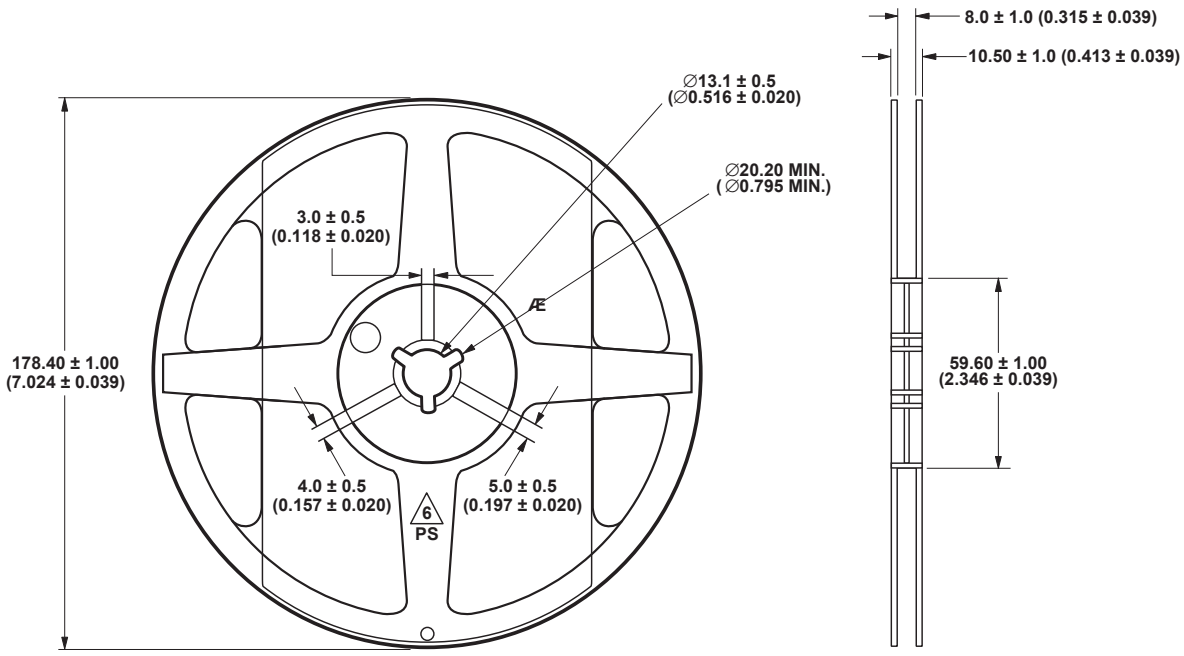


Figure 8. Recommended Pb-free reflow soldering profile



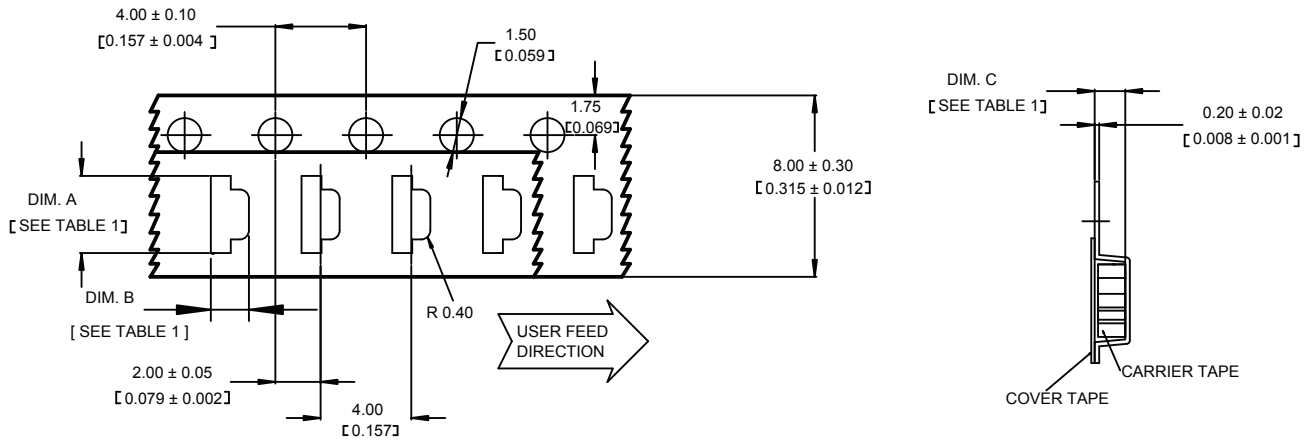
**Figure 9. Reeling orientation**



**Figure 10. Reel dimensions**

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.1\text{mm}$  ( $\pm 0.004\text{in.}$ ) unless otherwise specified.



**Notes:**

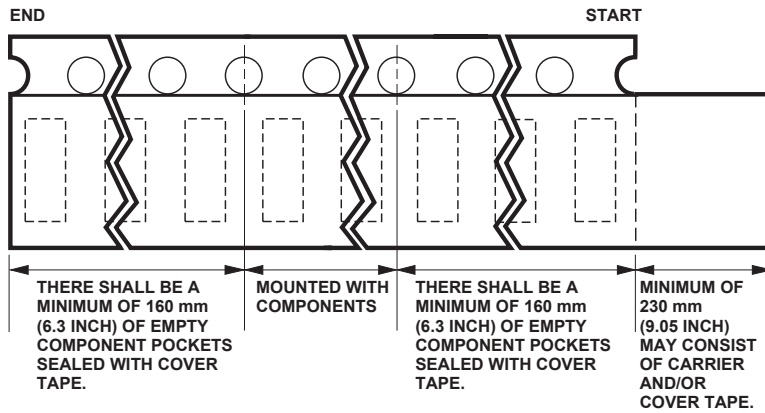
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.1mm (±0.004in.) unless otherwise specified.

**Table1.**

PART NUMBER	DIM.A ± 0.10 (0.004)	DIM.B ± 0.10 (0.004)	DIM.C ± 0.10 (0.004)
ASMT-CA00	1.75 (0.069)	1.10 (0.043)	0.60 (0.024)

Dimensions In Millimeters (Inches)

**Figure 11. Tape dimensions**



**Figure 12. Tape leader and trailer dimensions**

**Reflow Soldering**

For more information on reflow soldering, refer to Application Note AN-1060, Surface Mounting SMT LED Indicator Components.

**Storage Condition**

5 to 30°C @ 60%RH max. Baking is required before mounting, if

1. Humidity Indicator Card is > 10% when read at 23 ± 5°C.
2. Device expose to factory conditions <30°C/60%RH more than 672 hours.

Recommended baking condition: 60±5°C for 20 hours.

For product information and a complete list of distributors, please go to our web site: [www.avagotech.com](http://www.avagotech.com)

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