

# 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.

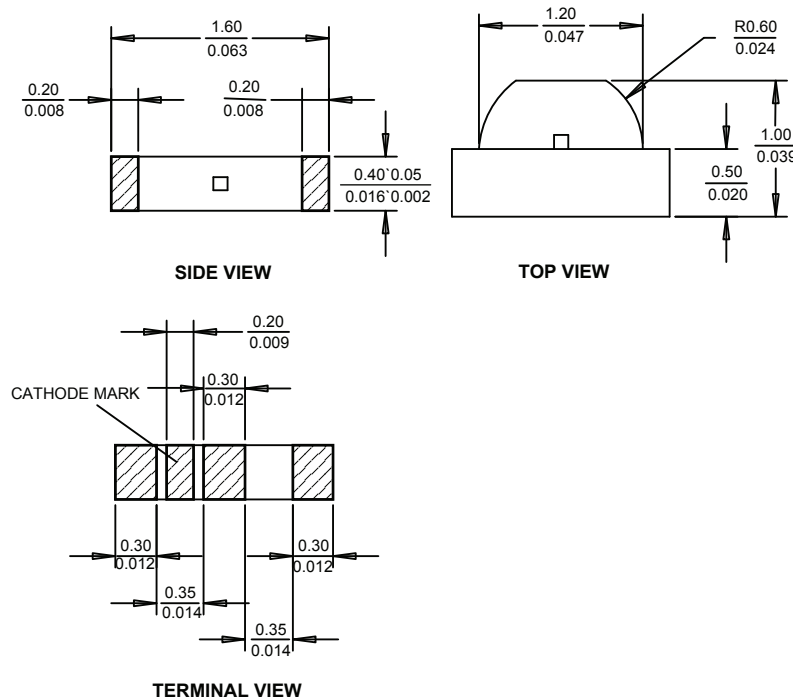
#### Features

- 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<br>$V_F$ (Volts) <sup>[1]</sup> @ $I_F = 5\text{mA}$ |      | Reverse Breakdown<br>$V_R$ (Volts) @ $I_R = 100\mu\text{A}$ | Thermal Resistance<br>$R_{\theta\text{J-PIN}}$ ( $^\circ\text{C}/\text{W}$ ) |
|-------------|--|------|---|--|
|             | 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<br>$I_V$ <sup>[1]</sup> (mcd) @ 5mA |      | Peak Wavelength<br>$\lambda_{\text{peak}}$ (nm) | Dominant Wavelength<br>$\lambda_d$ <sup>[2]</sup> (nm) | Viewing Angle<br>$2\theta_{1/2}$ <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 :  $\pm 1\text{nm}$

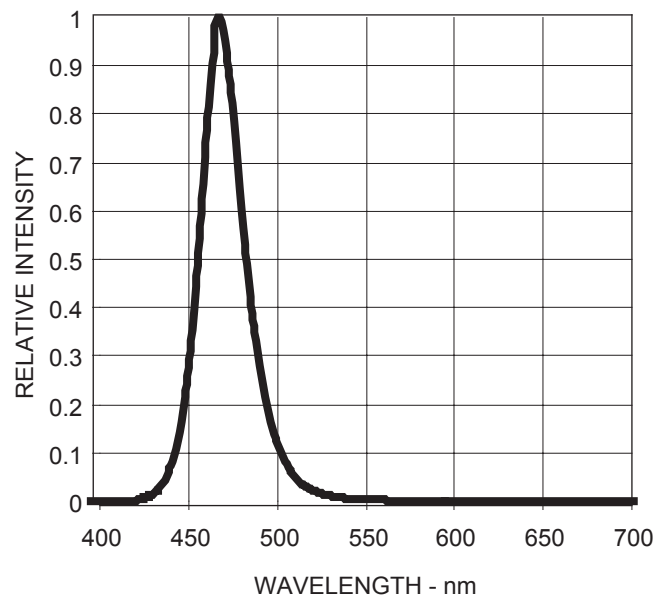


Figure 1. Relative intensity vs. wavelength

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

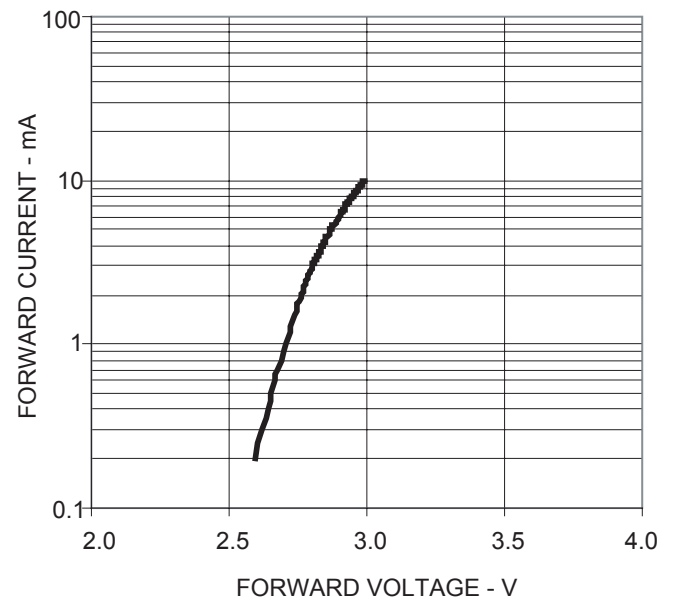


Figure 2. Forward current vs. forward voltage

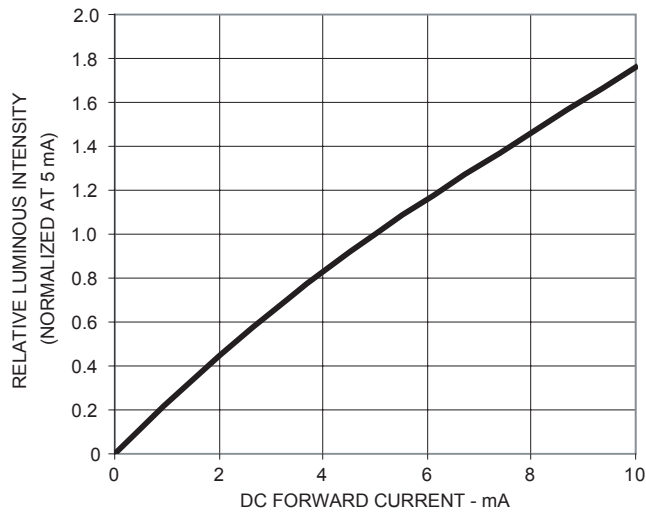


Figure 3. Luminous intensity vs. forward current

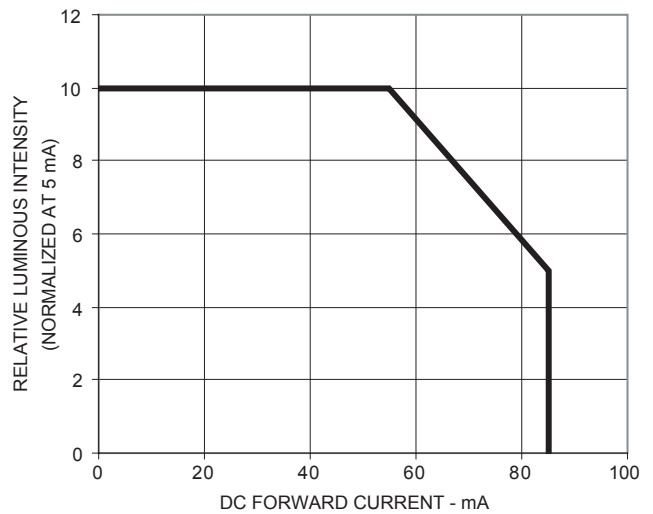


Figure 4. Maximum forward current vs. ambient temperature

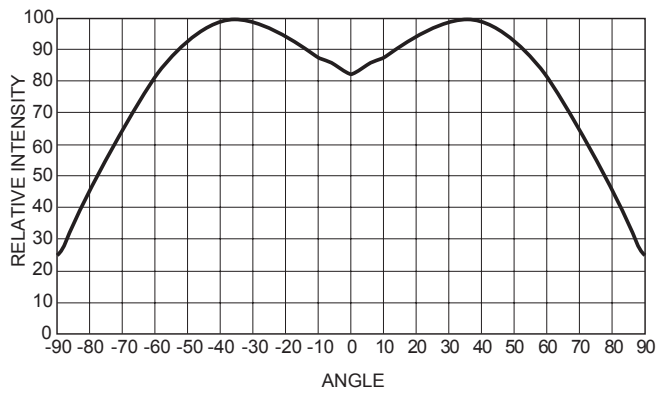
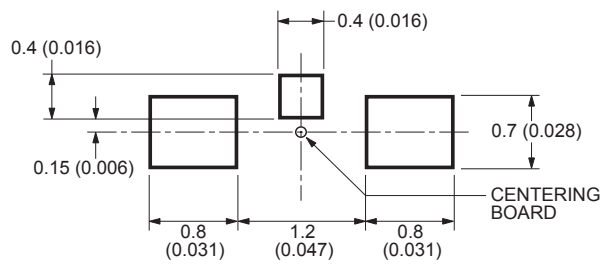


Figure 5. Radiation pattern



- 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

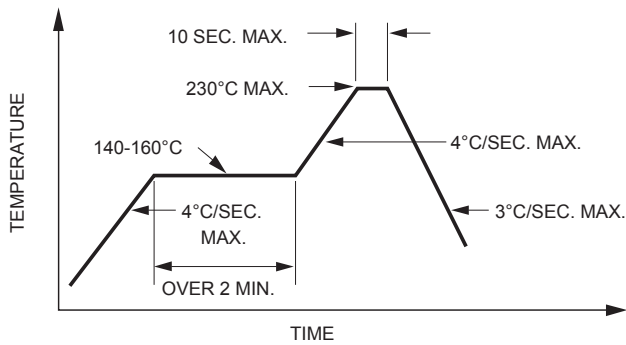


Figure 7. Recommended reflow soldering profile

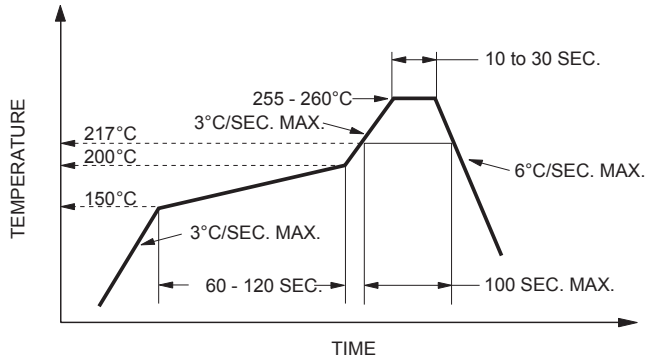
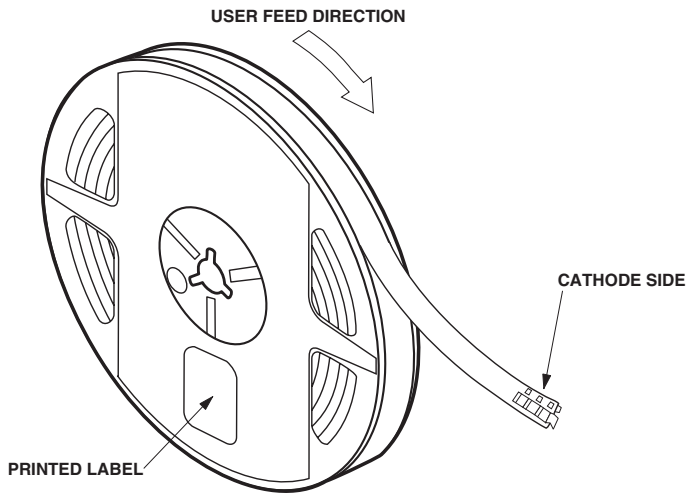
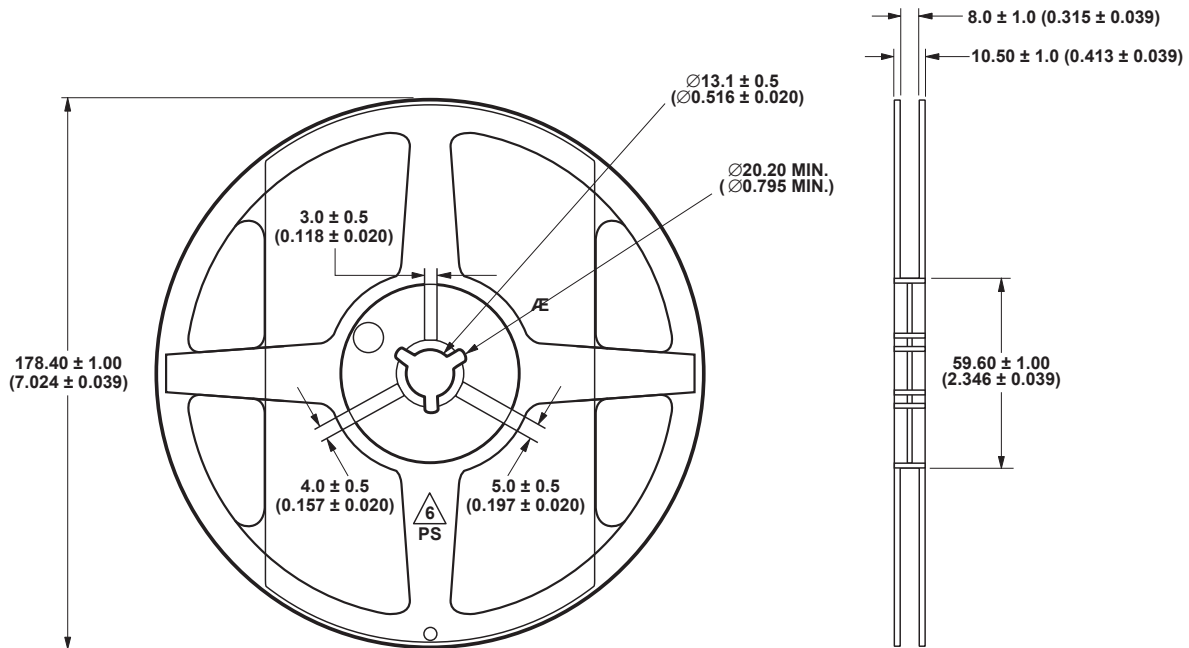


Figure 8. Recommended Pb-free reflow soldering profile



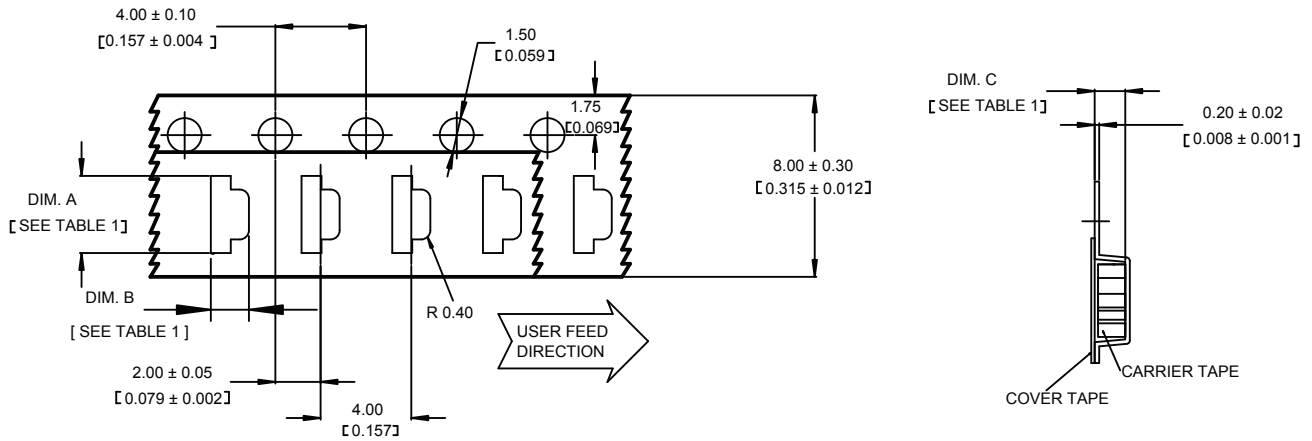
**Figure 9. Reeling orientation**



**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:**

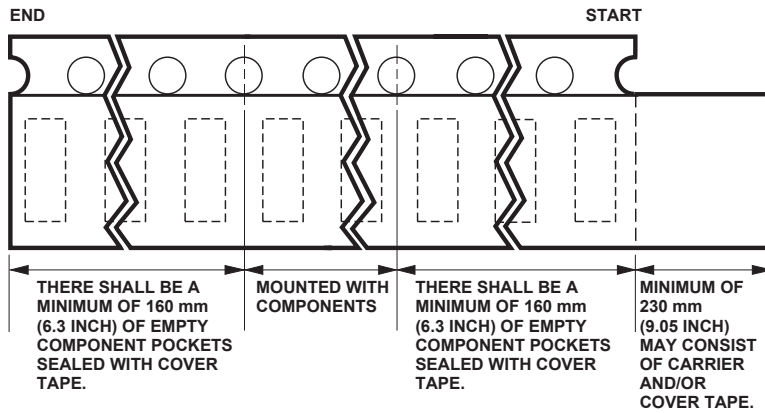
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.1mm (±0.004in.) unless otherwise specified.

**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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