

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.

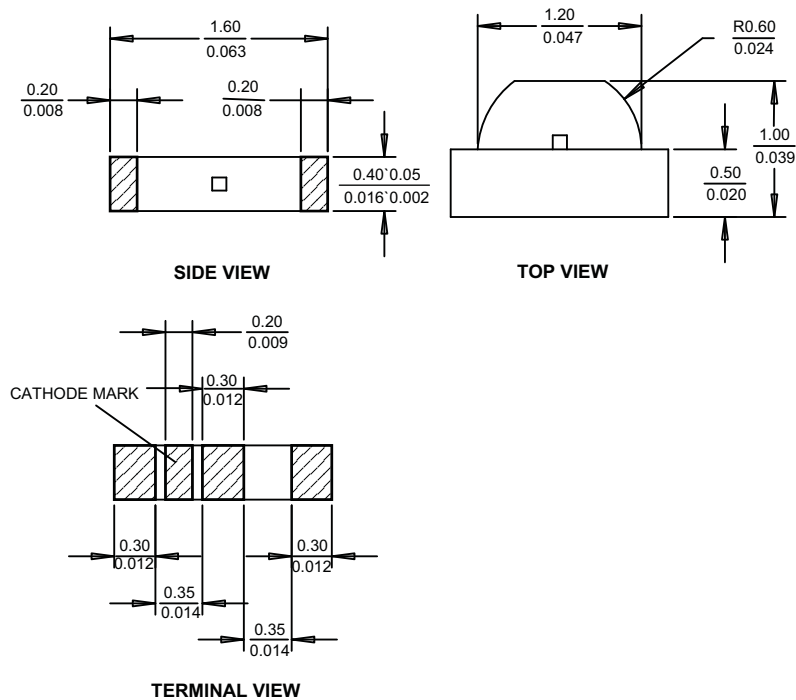
Features

- Small size right angle mount
- 0603 industry standard footprint
- 0.4 mm low profile type
- Operating temperature range of -40°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 ^[1] | 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 | -40 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) ^[1] @ $I_F = 5\text{mA}$ | | Reverse Breakdown V_R (Volts) @ $I_R = 100\mu\text{A}$ | Thermal Resistance $R_{\theta\text{J-PIN}}$ ($^\circ\text{C}/\text{W}$) |
|-------------|--|------|---|--|
| | 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 I_V ^[1] (mcd) @ 5mA | | Peak Wavelength λ_{peak} (nm) | Dominant Wavelength λ_d ^[2] (nm) | Viewing Angle $2\theta_{1/2}$ ^[3] (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, λ_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 : $\pm 1\text{nm}$

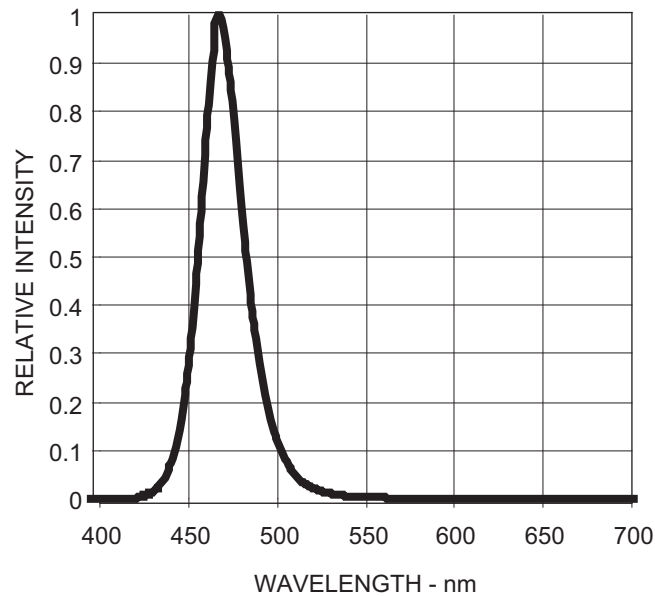


Figure 1. Relative intensity vs. wavelength

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 : $\pm 0.1\text{V}$

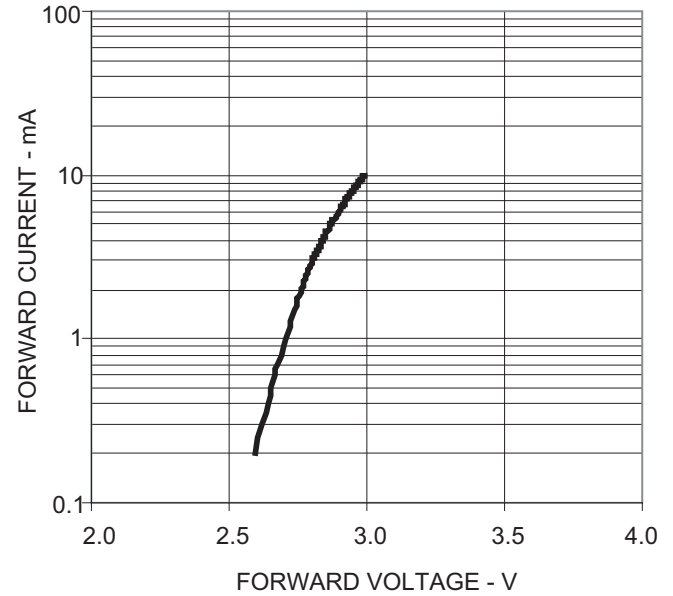


Figure 2. Forward current vs. forward voltage

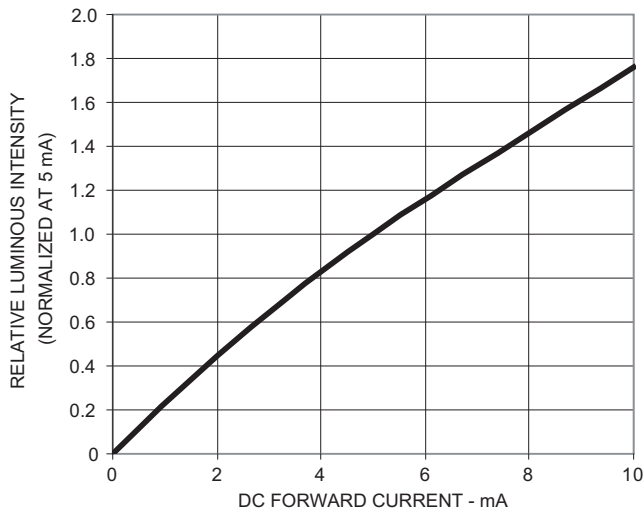


Figure 3. Luminous intensity vs. forward current

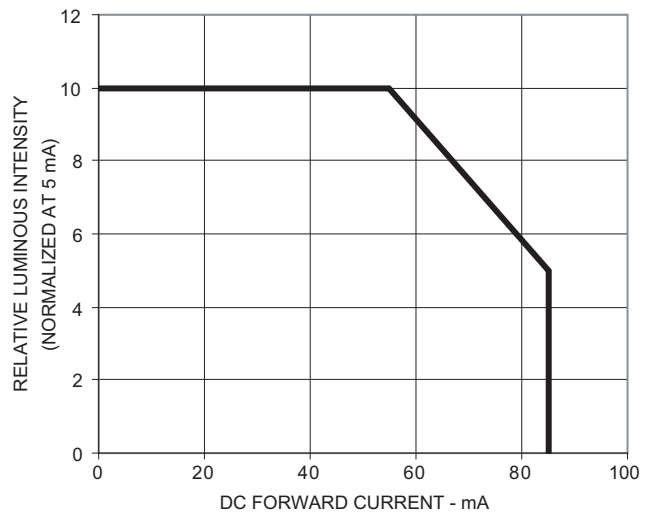


Figure 4. Maximum forward current vs. ambient temperature

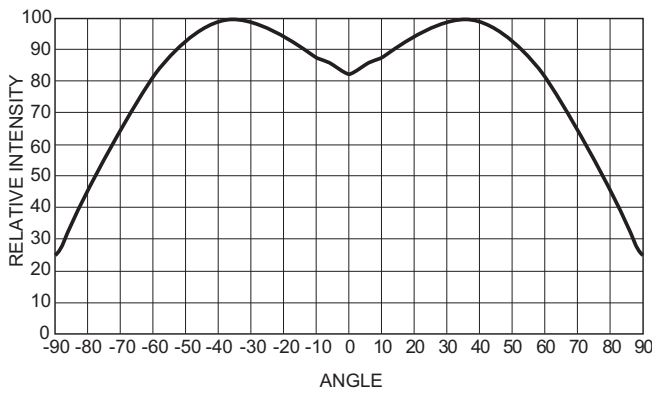
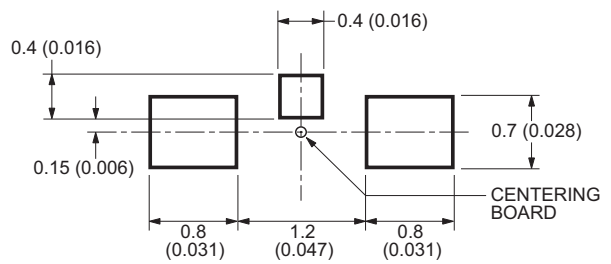


Figure 5. Radiation pattern



- 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

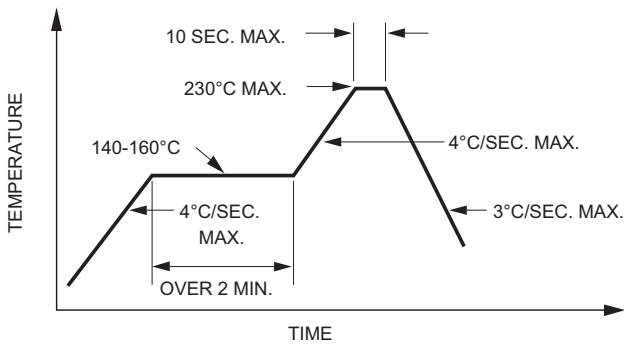


Figure 7. Recommended reflow soldering profile

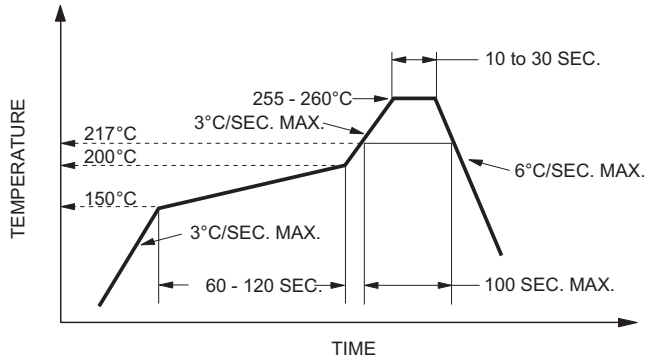


Figure 8. Recommended Pb-free reflow soldering profile

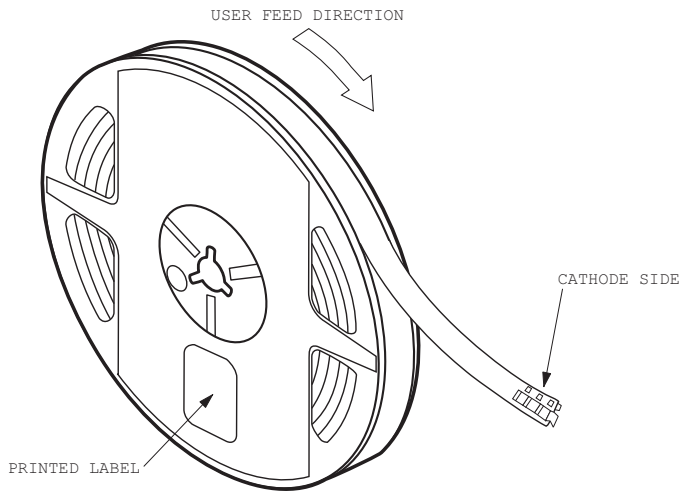


Figure 9. Reeling orientation

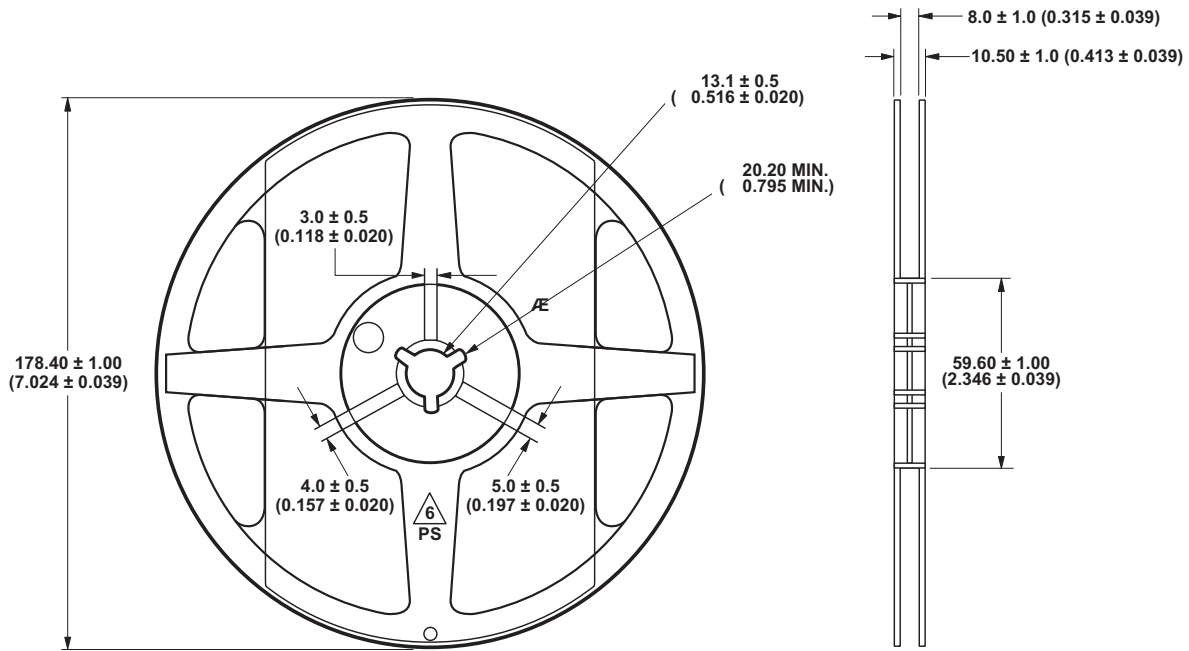
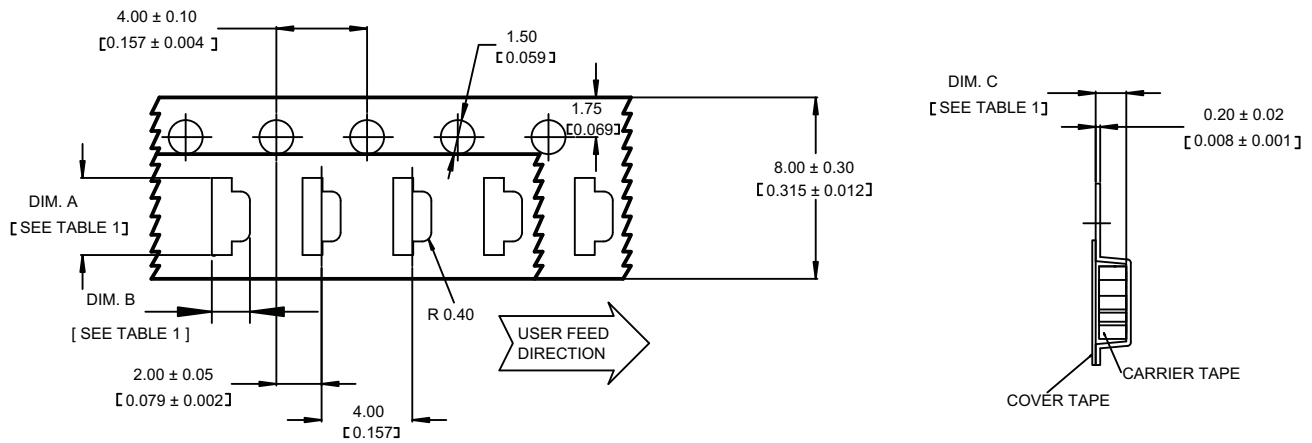


Figure 10. Reel dimensions

Notes:

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



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2. Tolerance is $\pm 0.1\text{mm}$ ($\pm 0.004\text{in.}$) 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

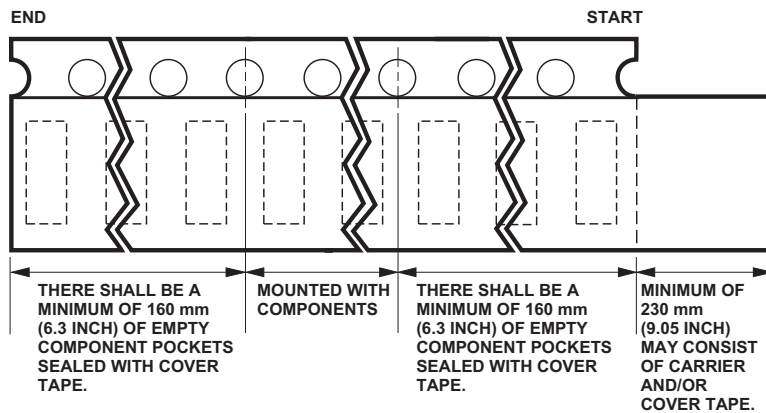


Figure 12. Tape leader and trailer dimensions

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 $23 \pm 5^\circ\text{C}$.
2. Device expose to factory conditions $< 30^\circ\text{C}/60\%RH$ more than 672 hours.

Recommended baking condition: $60 \pm 5^\circ\text{C}$ for 20 hours.

For product information and a complete list of distributors, please go to our web site: www.avagotech.com