

ASMT-CA00

AllnGaP Amber, 0.4mm Low Profile
Right Angle Surface Mount ChipLED



Data Sheet

Description

The ASMT-CA00 of amber 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.

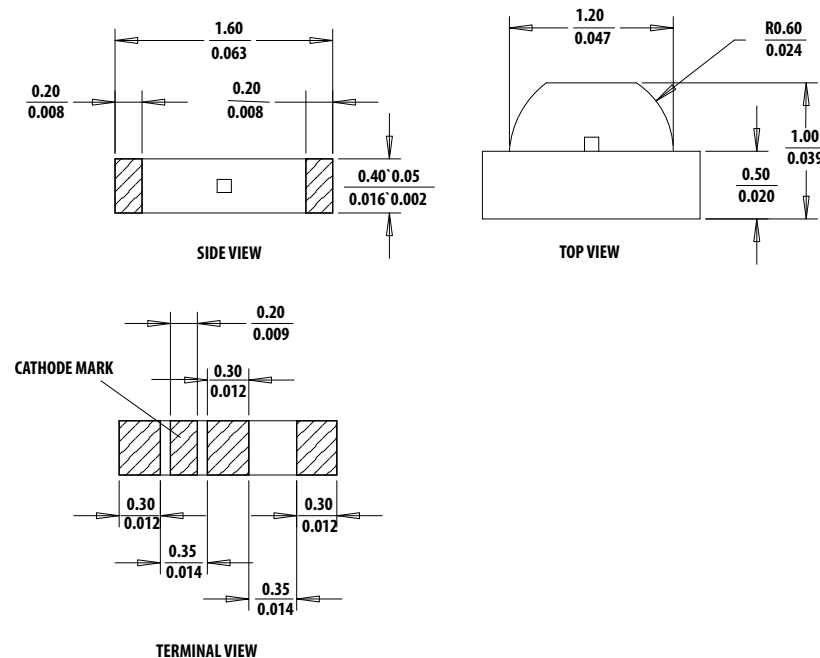
Features

- 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 ± 0.1 mm (± 0.004 in) unless otherwise stated

CAUTION: ASMT-CA00 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-CA00	Unit
DC Forward Current ^[1]	25	mA
Power Dissipation	60	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] @ $I_F = 20\text{mA}$		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-CA00	1.9	2.4	5	400

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) @ 20mA		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-CA00	28.5	90	595	592	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
N	28.50	45.00
P	45.00	71.50
Q	71.50	112.50
R	112.50	180.00

Tolerance : ±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.
2. The I_v binning specification set-up is for lowest allowable I_v binning only. There is no upper I_v bin limits.

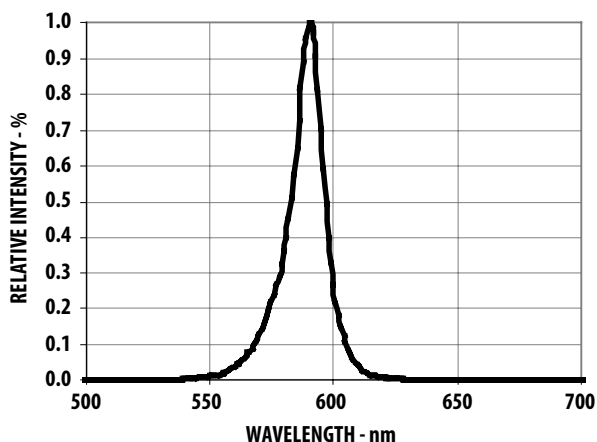


Figure 1. Relative intensity vs. wavelength

Color Bin Limits

Bin ID	Dominant Wavelength (nm)	
	Minimum	Maximum
A	582.0	584.5
B	584.5	587.0
C	587.0	589.5
D	589.5	592.0
E	592.0	594.5

Tolerance : ±1nm

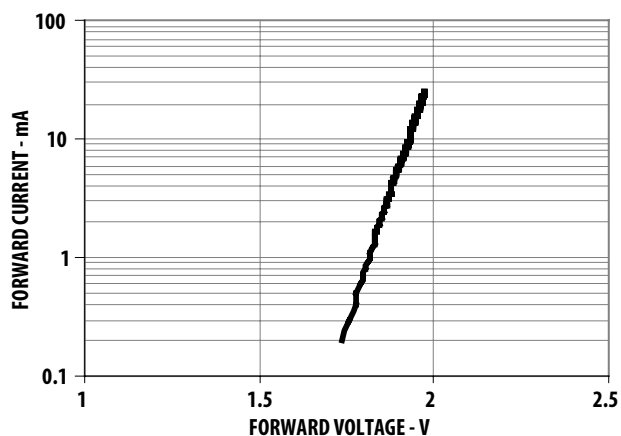


Figure 2. Forward current vs. forward voltage

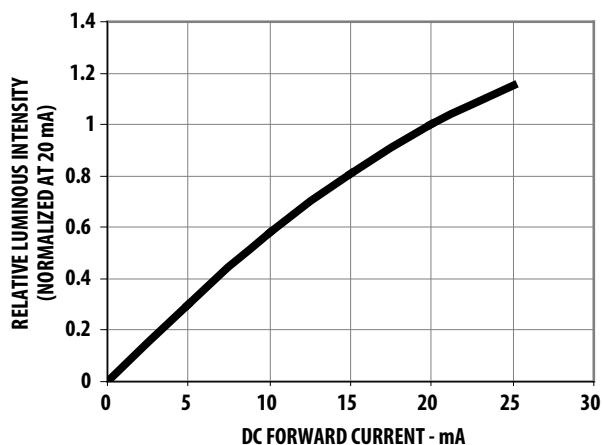


Figure 3. Luminous intensity vs. forward current

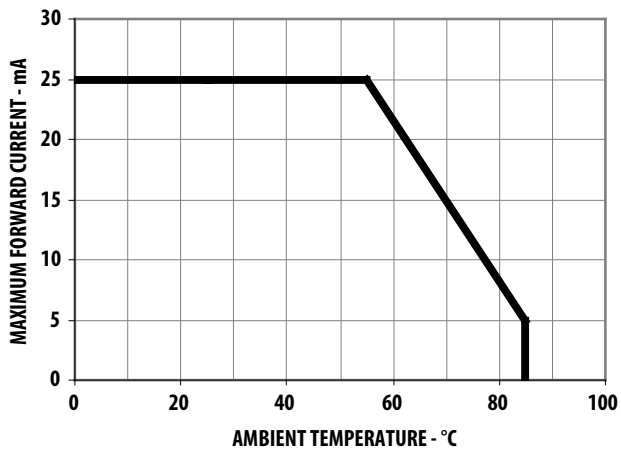
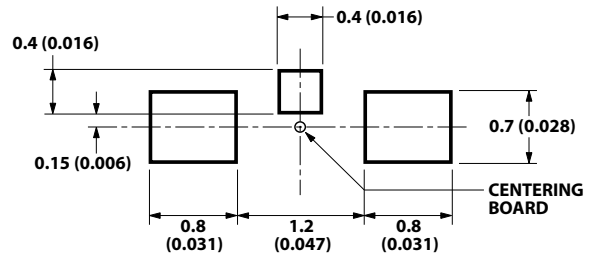


Figure 4. Maximum forward current vs. ambient temperature



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

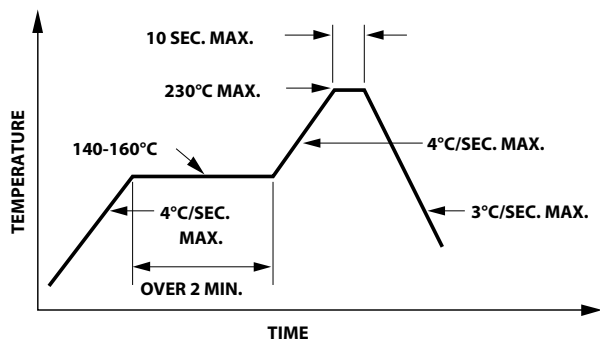


Figure 7. Recommended reflow soldering profile

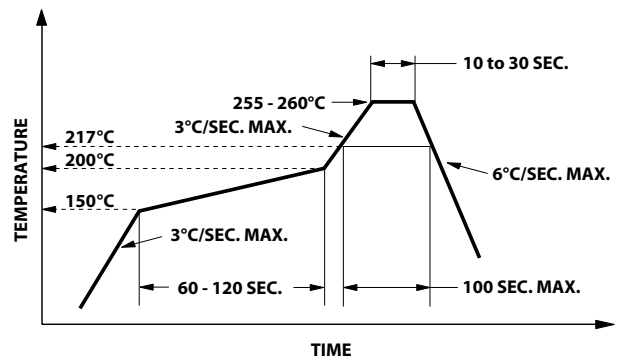


Figure 8. Recommended Pb-free reflow soldering profile

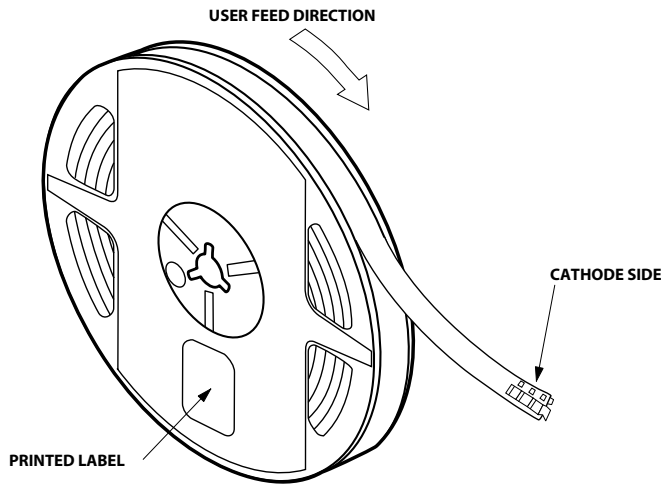


Figure 9. Reeling orientation

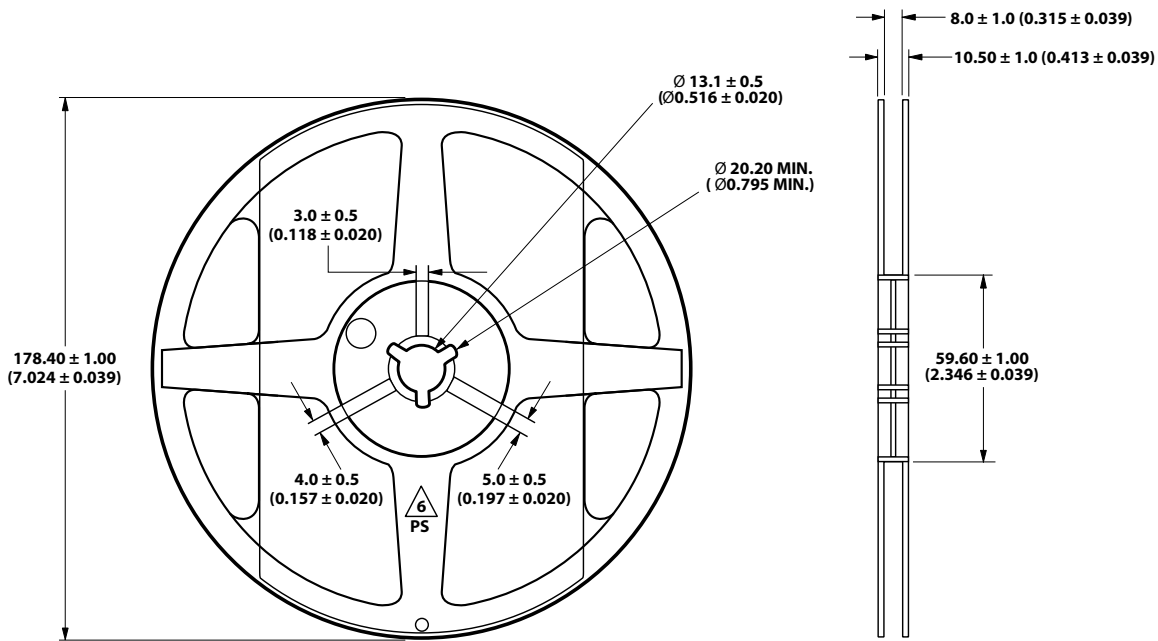


Figure 10. Reel dimensions

Notes:

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

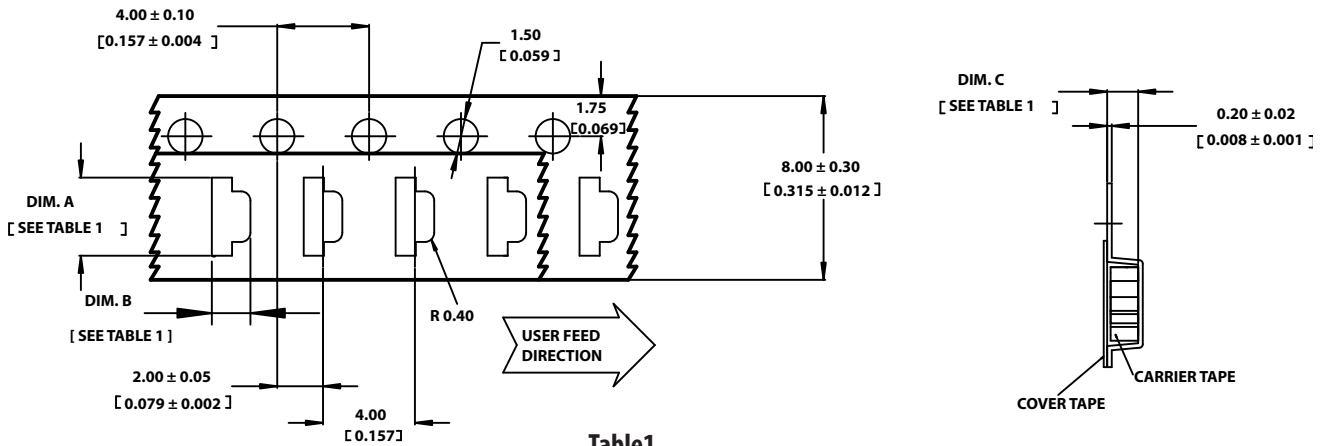


Table1.

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)

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 11. Tape dimensions

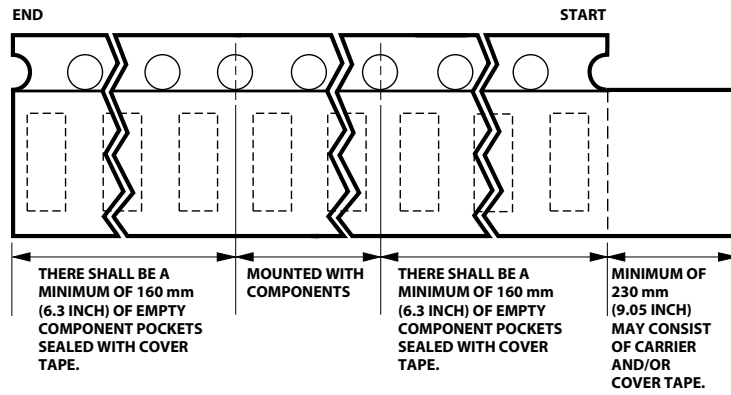


Figure 12. Tape leader and trailer dimensions

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 $30^{\circ}\text{C}/60\%\text{RH}$ 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

Avago, Avago Technologies, and the A logo are trademarks of Avago Technologies in the United States and other countries. Data subject to change. Copyright © 2005-2010 Avago Technologies. All rights reserved. AV02-0586EN - May 7, 2010

AVAGO
TECHNOLOGIES