AVAGO ASMT-CR00

AlInGaP Red
0.4mm Low Profile
Right Angle Surface Mount ChipLED

Datasheet

Description

The ASMT-CR00 of red 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.

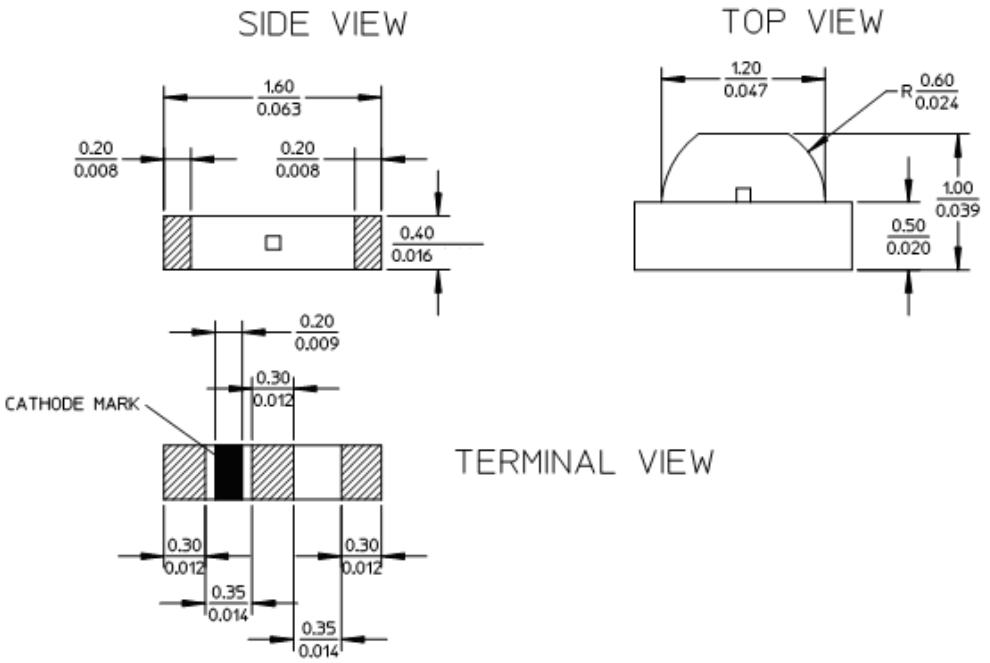
Features

- **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 IN MILLIMETERS (INCHES).
2. TOLERANCE IS ± 0.1 mm (± 0.004 IN.) UNLESS OTHERWISE SPECIFIED.

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

CAUTION: *ASMT-CR00 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.*

Absolute Maximum Ratings at T_A = 25°C

Parameter	ASMT-CR00	Unit
DC Forward Current [1]	25	mA
Power Dissipation	60	mW
Reverse Voltage (I_R = 100μA)	5	V
LED Junction Temperature	95	°C
Operating Temperature Range	-40 to +85	°C
Storage Temperature Range	-40 to +85	°C
Soldering Temperature	See reflow soldering profile (Figure 6 & 7)	

Note:

1. Derate linearly as shown in Figure 4.

Electrical Characteristics at T_A = 25°C

	Forward Voltage V_F (Volts) [1] @ I_F = 20mA		Reverse Breakdown V_R (Volts) @ I_R = 100μA	Thermal Resistance $R\theta_{J-PIN}$ (°C/W)
Part Number	Typ.	Max.	Min.	Typ.
ASMT-CR00	1.9	2.4	5	400

Notes:

1.Vf tolerance : ±0.1V

Optical Characteristics at T_A = 25°C

	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)
Part Number	Min.	Typ.	Typ.	Typ.	Typ.
ASMT-CR00	28.5	90.0	637.0	626.0	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 ½ the peak intensity.

Light Intensity (I_V) Bin Limits

	Intensity (mcd)	
Bin ID	**Minimum**	**Minimum**
N	28.50	45.00
P	45.00	71.50
Q	71.50	112.50
R	112.50	180.0

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 Iv binning specification set-up is for lowest allowable Iv binning only. There is no upper Iv bin limits.**

Color Bin Limits

	Dominant Wavelength (nm)	
Bin ID	**Minimum**	**Maximum**
-	620.0	635.0

Tolerance : ±1nm

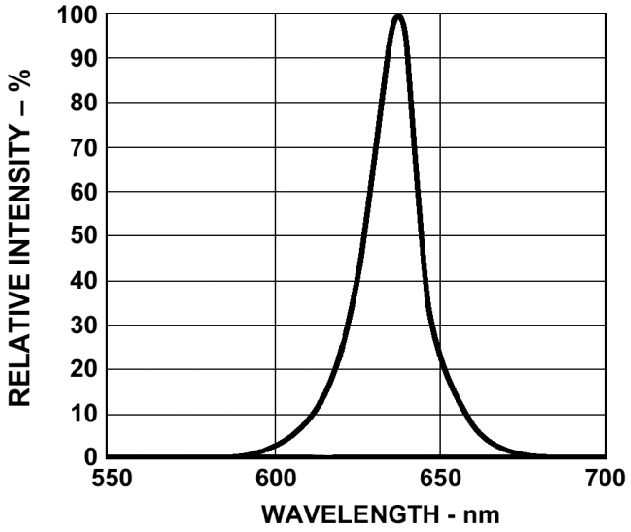


Figure 1. Relative intensity vs. wavelength

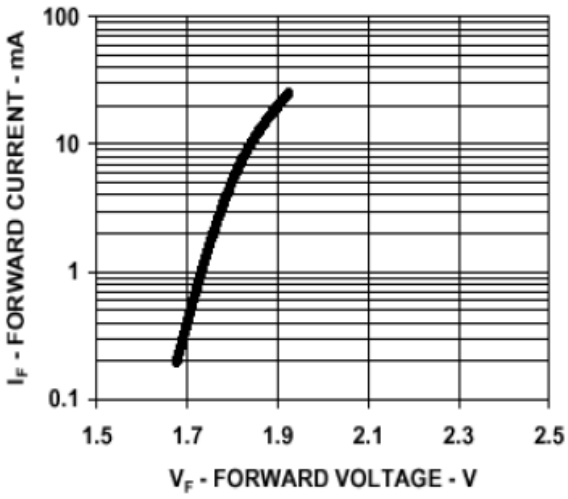


Figure 2. Forward current vs. forward voltage

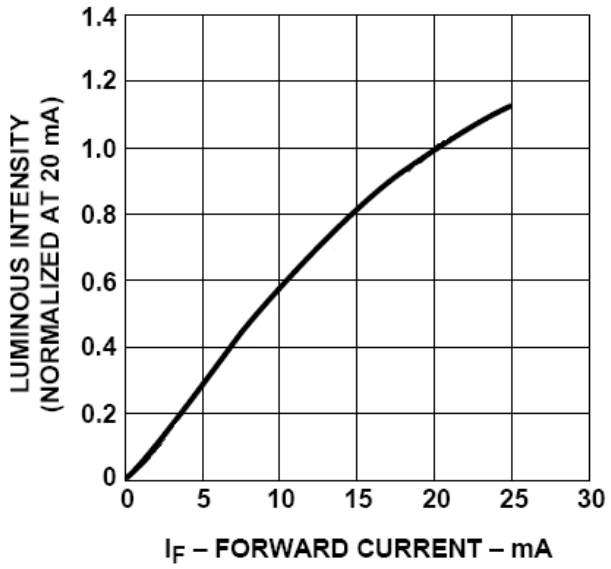


Figure 3. Luminous intensity vs. forward current

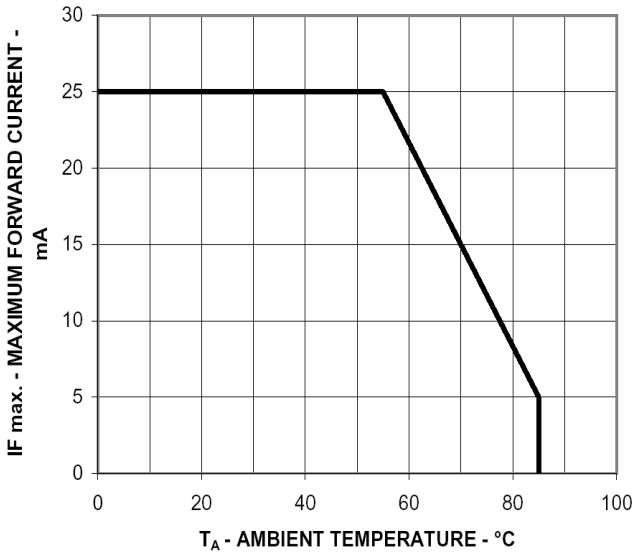


Figure 4. Maximum forward current vs. ambient temperature

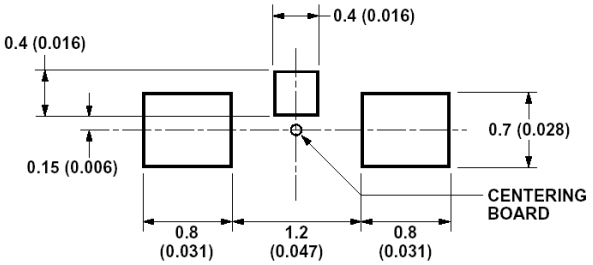
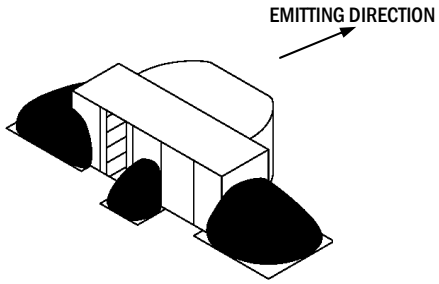


Figure 5. Recommended soldering land pattern.



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

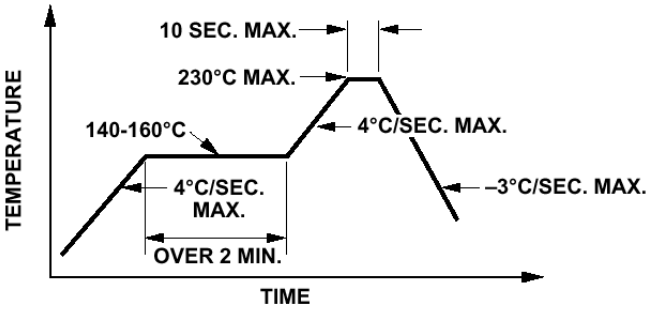


Figure 6. Recommended reflow soldering profile.

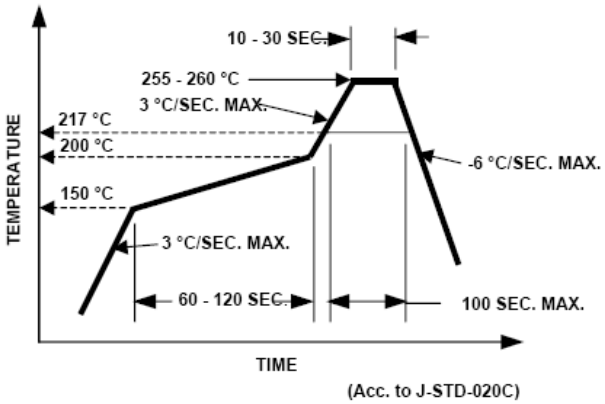


Figure 7. Recommended Pb-free reflow soldering profile.

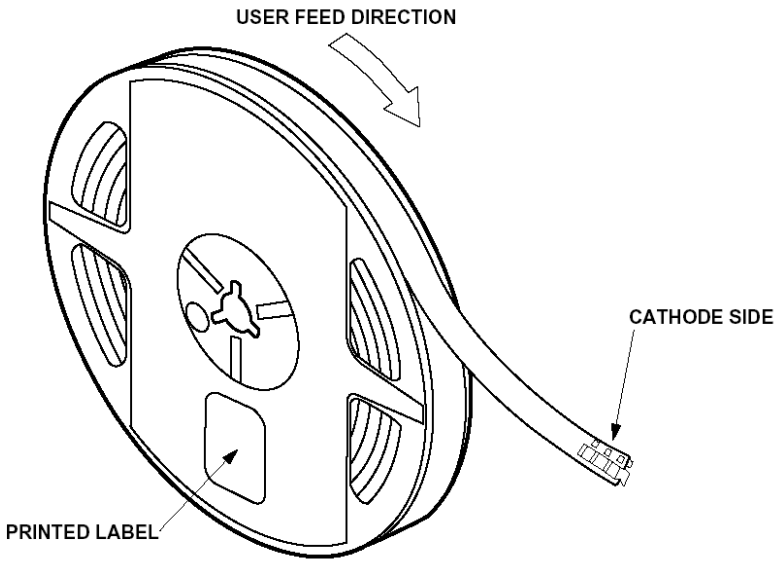


Figure 9. Reeling orientation.

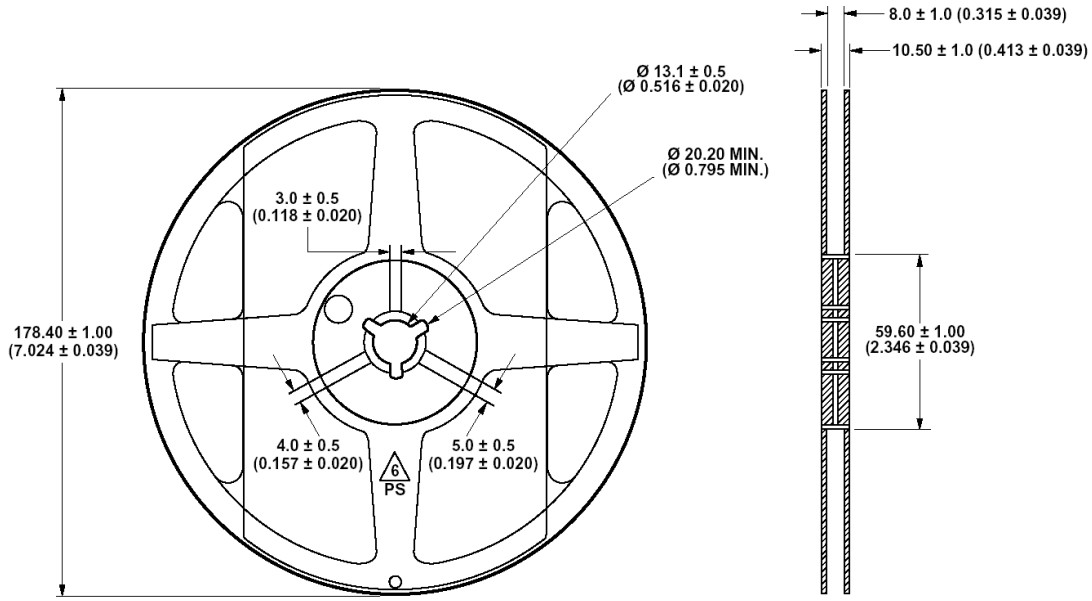


Figure 10. Reel dimensions.

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

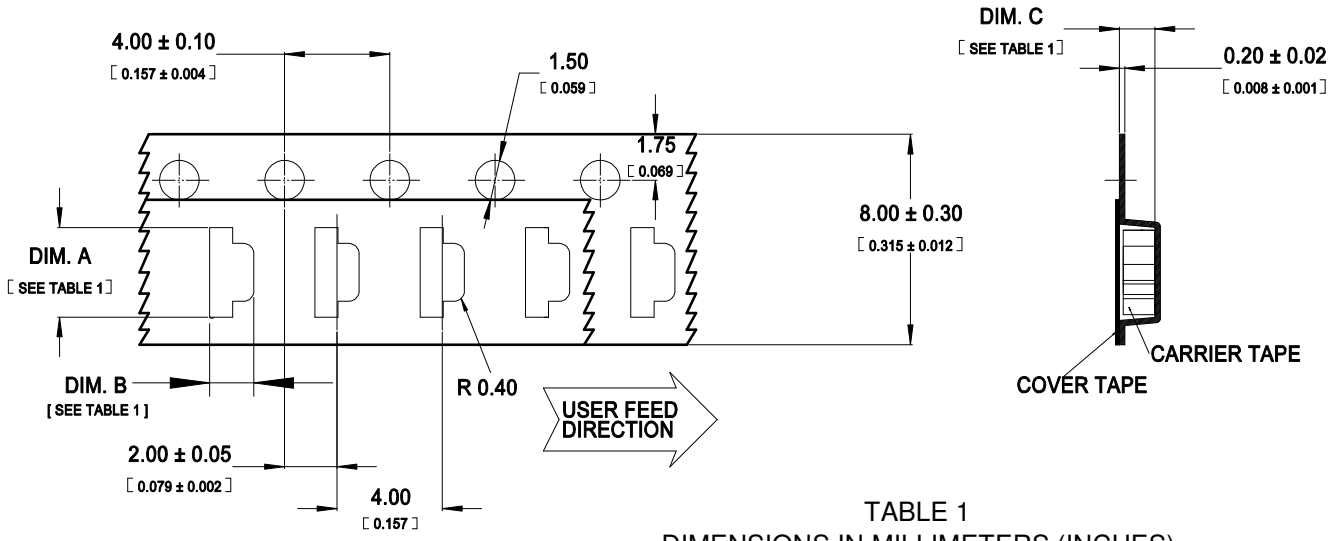


TABLE 1
DIMENSIONS IN MILLIMETERS (INCHES)

PART NUMBER	DIM.A ± 0.10 (0.004)	DIM.B ± 0.10 (0.004)	DIM.C ± 0.10 (0.004)
ASMT-CR00	1.75 (0.069)	1.10 (0.043)	0.60 (0.024)

Figure 11. Tape dimensions.

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

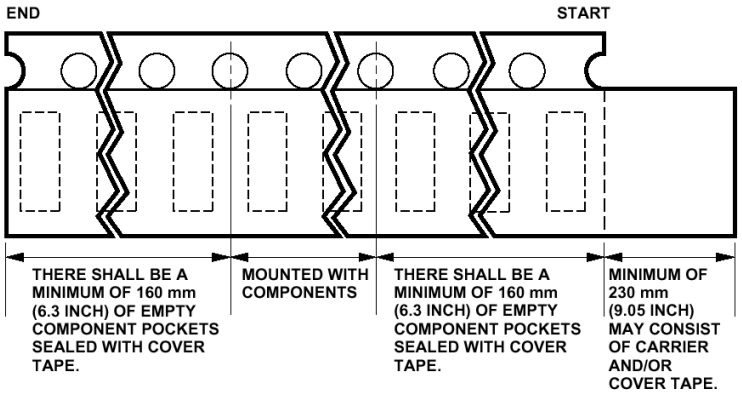


Figure 12. Tape leader and trailer dimensions.

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.

Handling Precaution

Customer are advised to implement proper handling precaution as the thin package of 0.4mm will have high potential of crack epoxy during application. Stacking the PCBA is strictly prohibited.