

AVAGO HSMW-C192

Surface Mount ChipLEDs

Datasheet



Device Selection Guide

Package Dimension (mm)	White	Description
1.6 (L) x 0.8 (W) x 0.6 (H)	HSMW-C192	Untinted, Diffused

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

Parameter	HSMW-C192	Units
DC Forward Current ^[1]	20	mA
Power Dissipation	78	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 6 & 7)	

Notes:

- Derate linearly as shown in Figure 4.

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

Part Number	Forward Voltage		Reverse Breakdown	Capacitance	Thermal Resistance
	Typical	Max.	Min.	Typ.	Typ.
HSMW-C192	3.6	3.9	5	55	450

V_F (Volts) ^[1]
 @ $I_F = 20\text{mA}$
 V_R (Volts)
 @ $I_R = 100\mu\text{A}$
 C(pF),
 @ $V_F = 0\text{V}$,
 $f = 1\text{MHz}$
 $R\theta_{J-PIN}$ ($^\circ\text{C}/\text{W}$)

Notes:

- V_f tolerance : $\pm 0.1\text{V}$

CAUTION: HSMW-C192 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.

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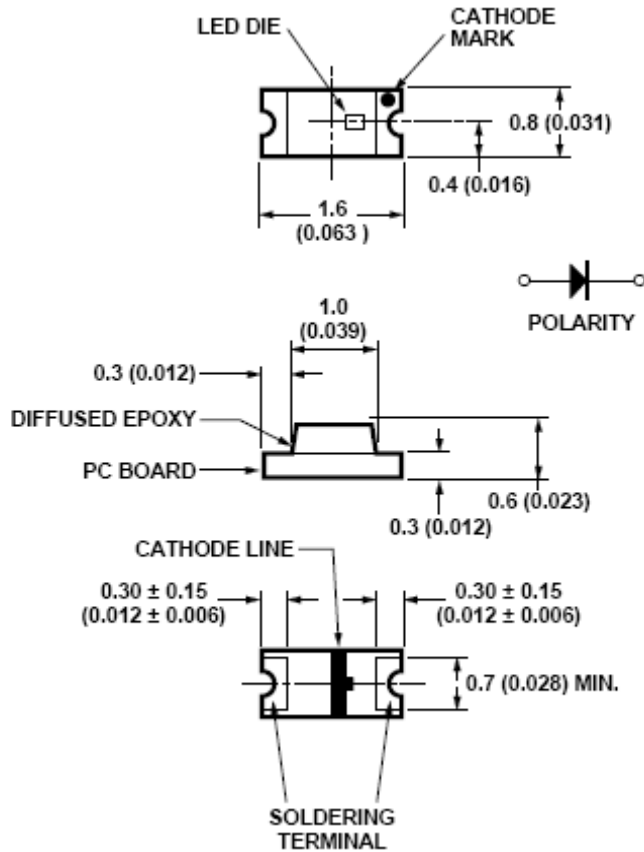
Optical Characteristics at $T_A = 25^\circ\text{C}$

Part Number	Luminous Intensity		Chromaticity Coordinates ^[2]		Viewing Angle	Luminous Efficacy
	I_v ^[1] (mcd)		Typ.		$2 \theta_{1/2}$ ^[3]	η_v (lm/W)
	Min.	Typ.	X	Y	(Degrees)	Typ.
HSMW-C192	71.5	200	0.29	0.27	140	240

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 chromaticity coordinates 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.

Package Dimensions



NOTES:

1. DIMENSIONS ARE IN MILLIMETERS (INCHES).
2. TOLERANCE ± 0.1 mm UNLESS OTHERWISE NOTED.

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Light Intensity (I_v) Bin Limits

Bin ID	Intensity (mcd)	
	Minimum	Maximum
A	0.11	0.18
B	0.18	0.29
C	0.29	0.45
D	0.45	0.72
E	0.72	1.10
F	1.10	1.80
G	1.80	2.80
H	2.80	4.50
J	4.50	7.20
K	7.20	11.20
L	11.20	18.00
M	18.00	28.50

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
S	180.00	285.00
T	285.00	450.00
U	450.00	715.00
V	715.00	1125.00
W	1125.00	1800.00
X	1800.00	2850.00
Y	2850.00	4500.00

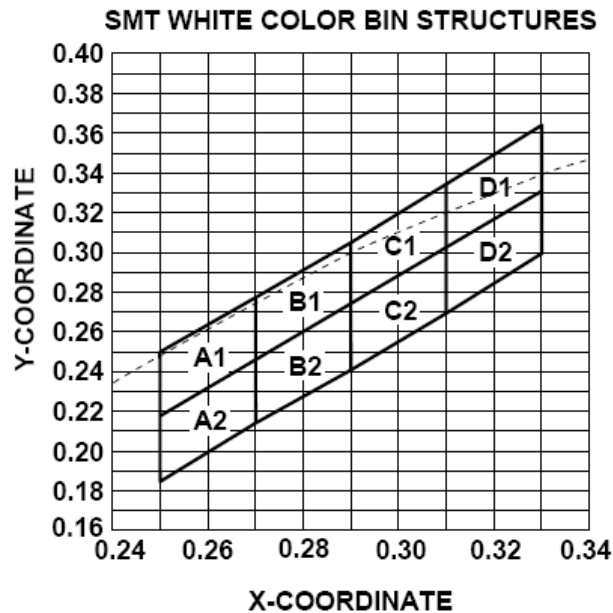


Figure 1. Color bin limits (CIE 1931 Chromaticity Diagram) [Tolerance: ± 0.02].

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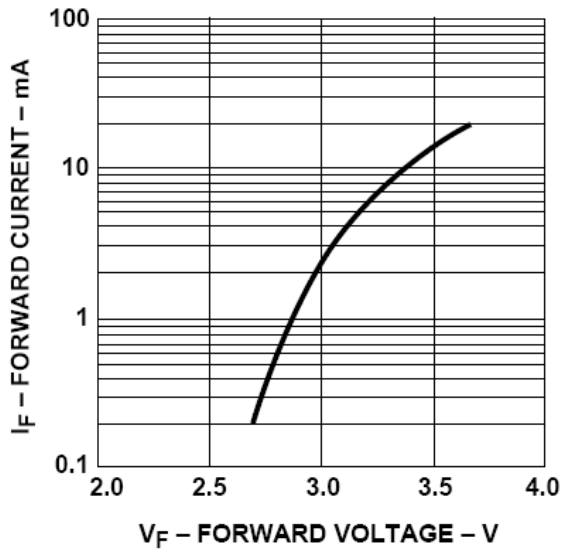


Figure 2. Forward current vs. forward voltage.

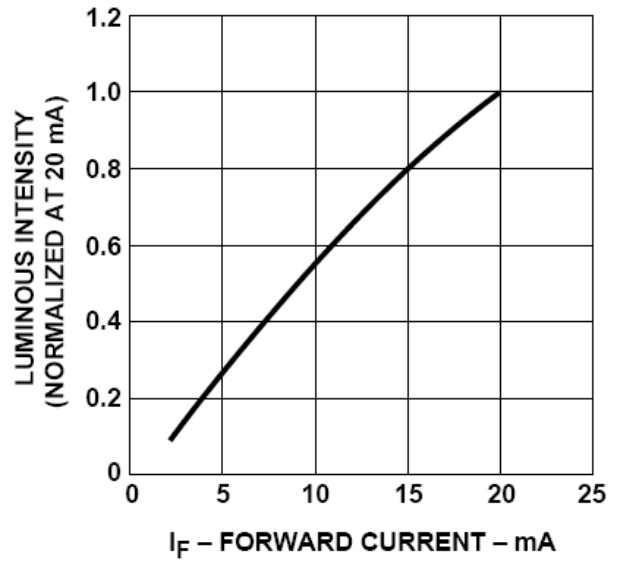


Figure 3. Luminous intensity vs. forward current.

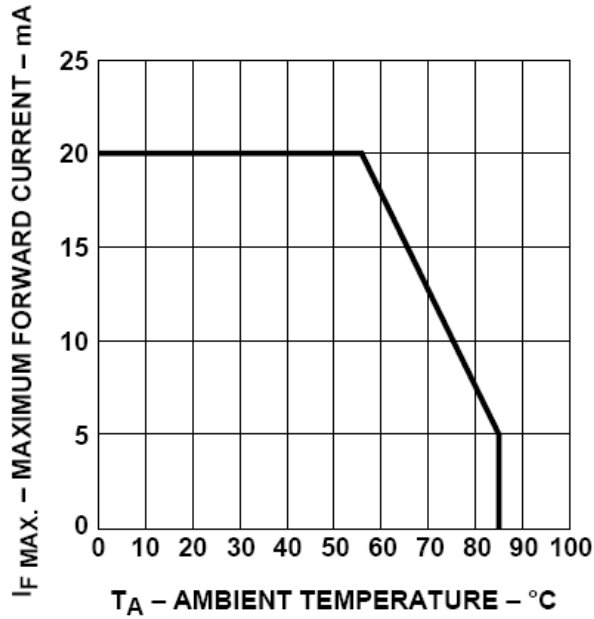


Figure 4. Maximum forward current vs. ambient temperature.

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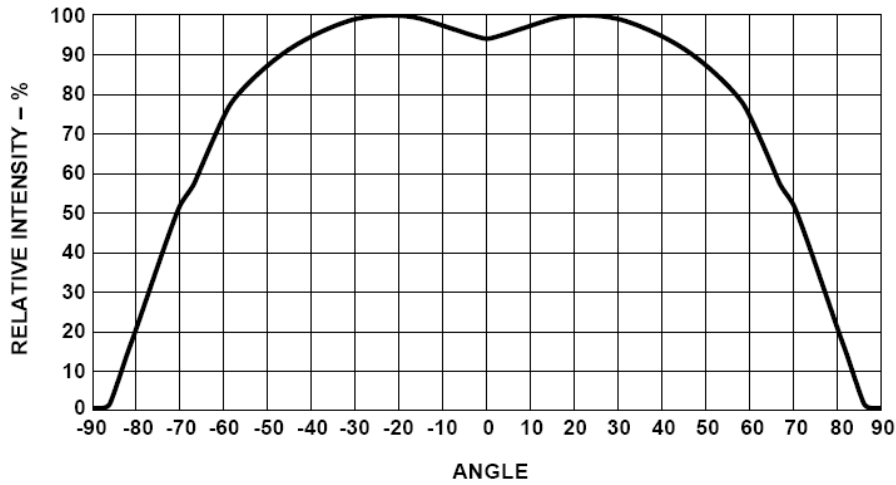


Figure 5. Relative intensity vs. angle

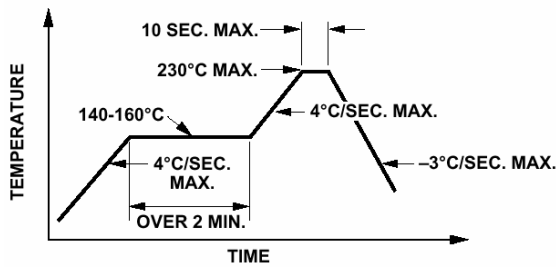


Figure 6. Recommended reflow soldering profile.

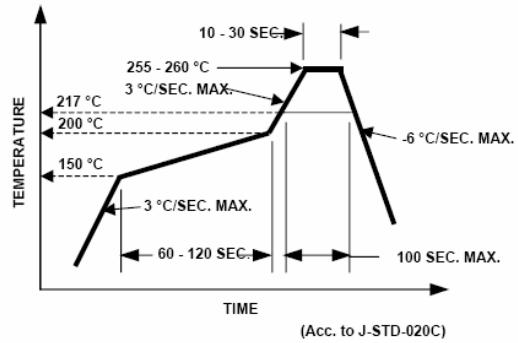


Figure 7. Recommended Pb-free reflow soldering profile.

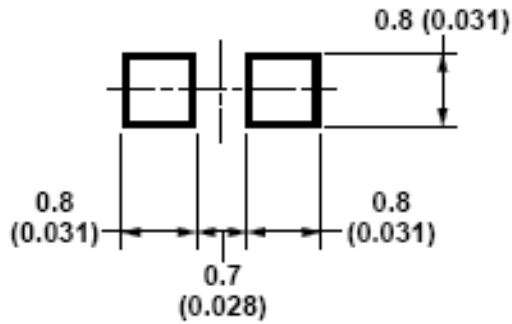


Figure 8. Recommended soldering pattern.

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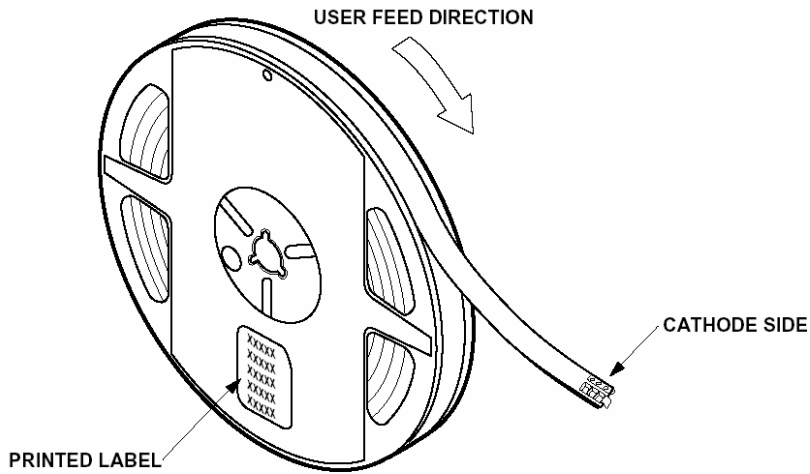
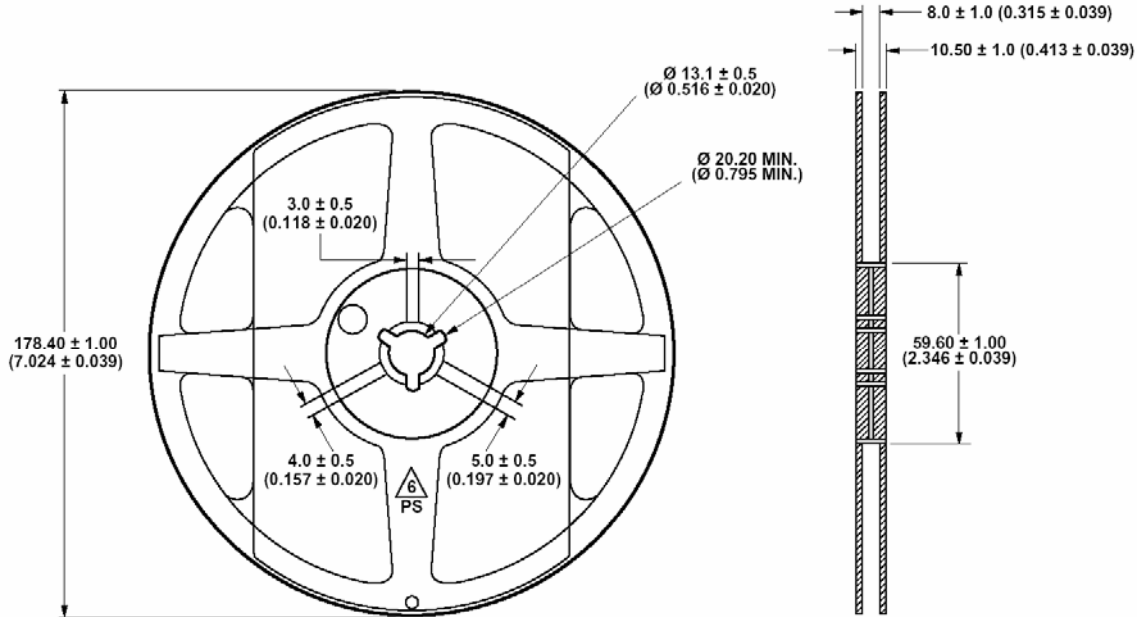


Figure 9. Reeling orientation.



NOTE:
1. ALL DIMENSIONS IN MILLIMETERS (INCHES).

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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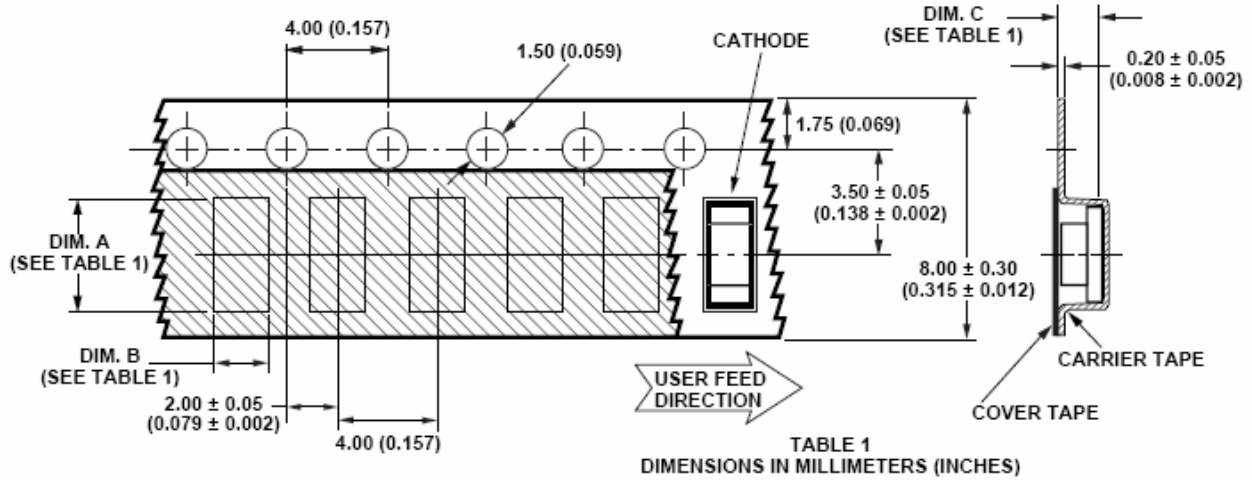


TABLE 1
DIMENSIONS IN MILLIMETERS (INCHES)

PART NUMBER	DIM. A ± 0.10 (0.004)	DIM. B ± 0.10 (0.004)	DIM. C ± 0.10 (0.004)
HSMW-C192	1.86 (0.073)	0.89 (0.035)	0.87 (0.034)

Figure 11. Tape 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.

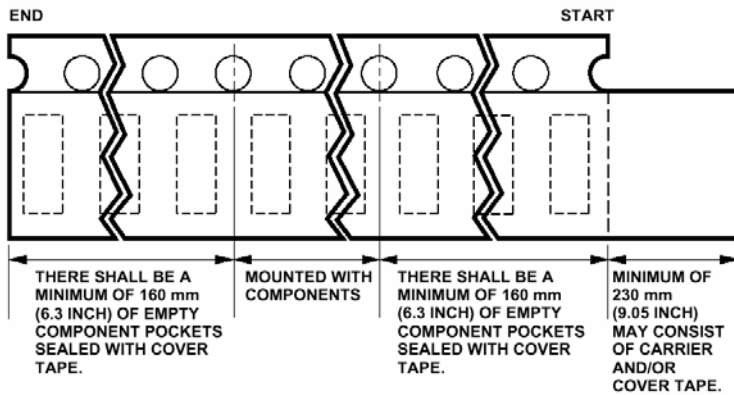


Figure 12. Tape leader and trailer dimensions.

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.

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