

ASMT-Ax3x

3W Power LED Light Source



Data Sheet



Lead (Pb) Free
RoHS 6 fully
compliant



Description

This 3W Power LED Light Source is a high performance energy efficient device which can handle high thermal and high driving current. The exposed pad design enables excellent heat transfer from the package to the motherboard. Option with electrically isolated metal slug is also available.

The White Power LED is available in the range of color temperature from 2700K to 10000K.

The low profile package design is suitable for a wide variety of applications especially where height is a constraint.

The package is compatible with reflow soldering process. This part has a foot print that is compatible to most of the high power LED in the market today.

Features

- Available in Red, Red Orange, Amber, Green, Blue, Royal Blue, Cool White, Neutral White and Warm White color
- Energy efficient
- Exposed metal slug for excellent heat transfer
- Compatible with reflow soldering process
- High current operation
- Long operation life
- Wide viewing angle at 140°
- Silicone encapsulation
- Non-ESD sensitive (threshold > 16 kV)
- MSL 2a products

Applications

- Architectural lighting
- Channel backlighting
- Contour lighting
- Retail Display lighting
- Decorative lighting
- Garden lighting
- Safety, exit and emergency signs lighting
- Specialty lighting
- Task lighting

Package Dimensions

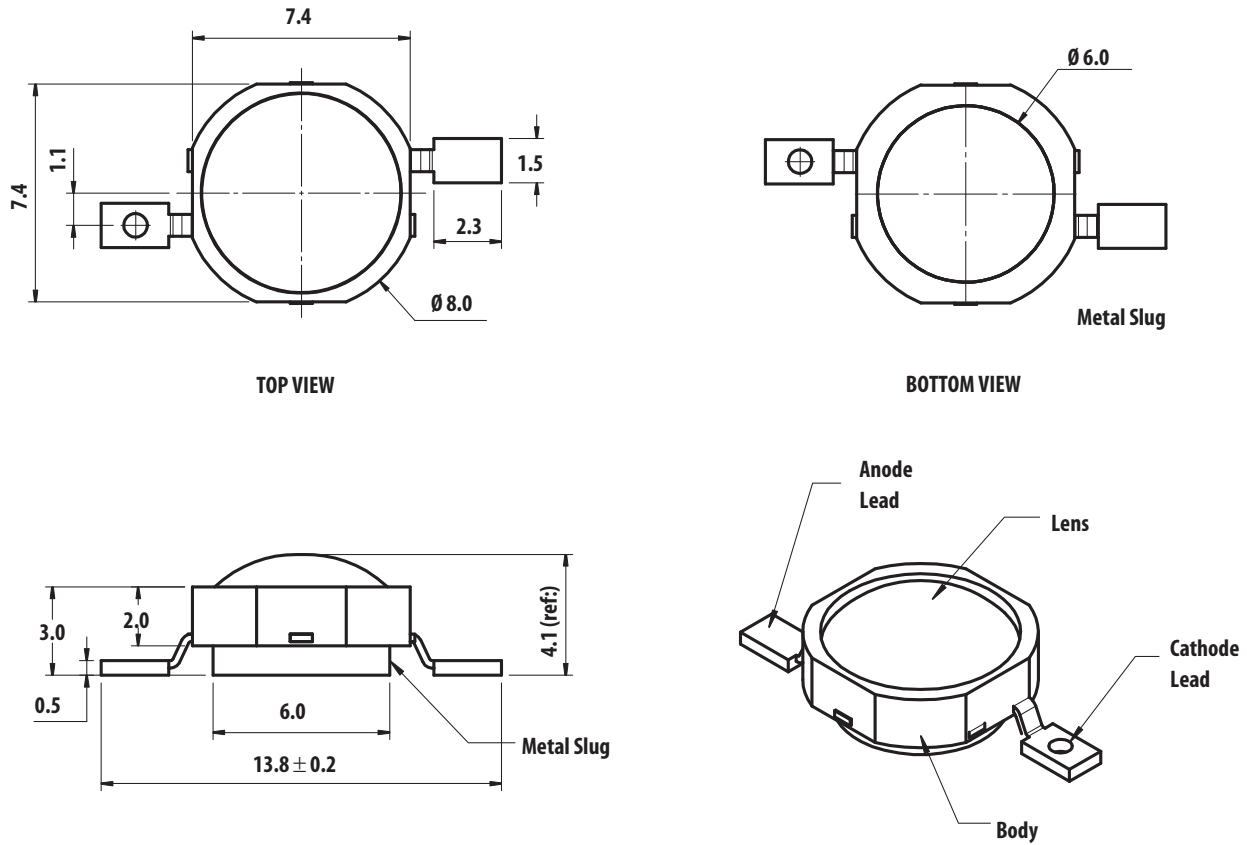
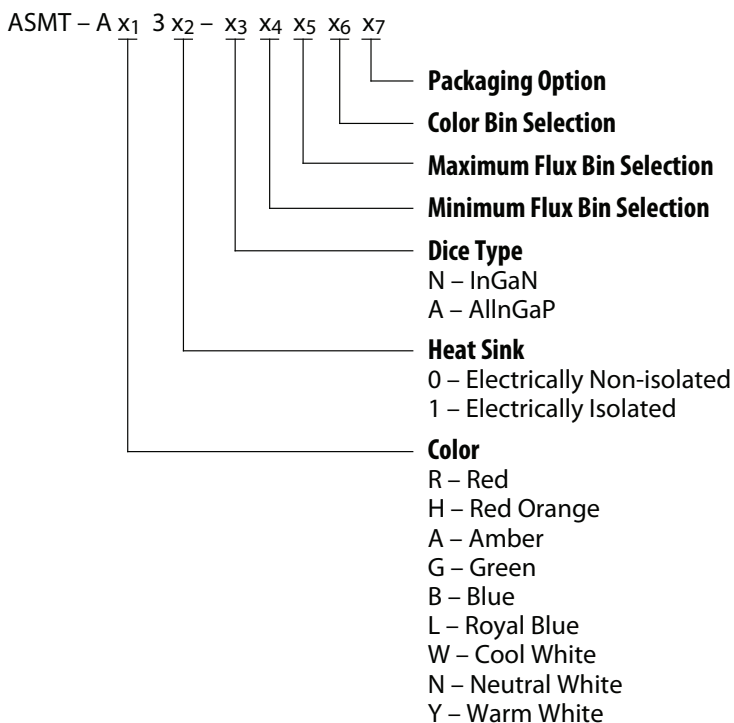


Figure 1. ASMT-Ax3x package outline drawing

Notes:

1. All dimensions in millimeters.
2. Metal slug is connected to anode for electrically non-isolated option.
3. Tolerance is ± 0.1 mm unless otherwise specified.
4. Terminal Finish: Ag plating

Part Numbering System



Note:

1. Please refer to Page 11 for selection details.

Device Selection Guide (T_j = 25°C)

| Part Number | Color | Luminous Flux (lm) / Radiometric Power (mW), Φ _v [1,2] | | | Test Current (mA) | Dice Technology | Electrically Isolated Metal Slug |
|-----------------|---------------|---|--------|--------|-------------------|-----------------|----------------------------------|
| | | Min. | Typ. | Max. | | | |
| ASMT-AR30-ARS00 | Red | 39.8 | 50.0 | 67.2 | 350 | AllInGaP | No [3] |
| ASMT-AH30-ARS00 | Red Orange | 39.8 | 50.0 | 67.2 | 350 | AllInGaP | No [3] |
| ASMT-AA30-ARS00 | Amber | 39.8 | 50.0 | 67.2 | 350 | AllInGaP | No [3] |
| ASMT-AG31-NTU00 | Green | 67.2 | 78.0 | 99.6 | 350 | InGaN | Yes |
| ASMT-AB31-NMP00 | Blue | 13.9 | 18.0 | 30.6 | 350 | InGaN | Yes |
| ASMT-AB31-NNP00 | | 18.1 | 23.0 | 30.6 | 350 | InGaN | Yes |
| ASMT-AL31-NPQ00 | Royal Blue | 355 mW | 460 mW | 515 mW | 350 | InGaN | Yes |
| ASMT-AW31-NUV00 | Cool White | 87.4 | 100.0 | 113.6 | 350 | InGaN | Yes |
| ASMT-AW31-NVW00 | | 99.6 | 115.0 | 129.5 | 350 | InGaN | Yes |
| ASMT-AN31-NUV00 | Neutral White | 87.4 | 100.0 | 113.6 | 350 | InGaN | Yes |
| ASMT-AN31-NVW00 | | 99.6 | 115.0 | 129.5 | 350 | InGaN | Yes |
| ASMT-AY31-NTU00 | Warm White | 67.2 | 90.0 | 99.6 | 350 | InGaN | Yes |

Notes:

1. Φ_v is the total luminous flux / radiometric power output as measured with an integrating sphere at 25ms mono pulse condition.
2. Flux and power tolerance is ±10 %
3. Electrically isolated metal slug option is also available. Please contact your Avago sale representative.

Absolute Maximum Ratings

| Parameter | AllInGaP | InGaN | Units |
|--|--------------------|-------------|-------|
| DC Forward Current ^[1] | 700 | 700 | mA |
| Peak Pulsing Current | 1500 | 2400 | mA |
| Power Dissipation | 1820 | 2730 | mW |
| LED Junction Temperature | 125 | 135 | °C |
| Operating Metal Slug Temperature Range at 350 mA | -40 to +115 | -40 to +120 | °C |
| Operating Metal Slug Temperature Range at 700 mA | -40 to +100 | -40 to +105 | °C |
| Storage Temperature Range | -40 to +120 | -40 to +120 | °C |
| Soldering Temperature | Refer to Figure 26 | | |
| Reverse Voltage ^[2] | Not recommended | | |

Note:

1. Derate linearly based on Figure 10 for AllInGaP and Figure 22 for InGaN.
2. Not recommended for reverse bias operation.

Optical Characteristics at 350 mA (T_J = 25 °C)

| Part Number | Color | Peak Wavelength, λ_{PEAK} (nm) | Dominant Wavelength, λ_D ^[1] (nm) | Viewing Angle, $2\theta_{1/2}$ ^[2] (°) | Luminous Efficiency (lm/W) |
|-----------------|------------|---|--|--|-------------------------------|
| | | Typ. | Typ. | Typ. | Typ. |
| ASMT-AR30-ARS00 | Red | 635 | 625 | 140 | 68 |
| ASMT-AH30-ARS00 | Red Orange | 625 | 615 | 140 | 68 |
| ASMT-AA30-ARS00 | Amber | 598 | 590 | 140 | 68 |
| ASMT-AG31-NTU00 | Green | 519 | 525 | 140 | 70 |
| ASMT-AB31-NMP00 | Blue | 454 | 460 | 140 | 16 |
| ASMT-AB31-NNP00 | | 454 | 460 | 140 | 21 |
| ASMT-AL31-NPQ00 | Royal Blue | 450 | 455 | 140 | Not applicable |

| Part Number | Color | Correlated Color Temperature, CCT (Kelvin) | | Viewing Angle, $2\theta_{1/2}$ ^[2] (°) | Luminous Efficiency (lm/W) |
|-----------------|---------------|---|-------|--|-------------------------------|
| | | Min. | Max. | Typ. | Typ. |
| ASMT-AW31-NUV00 | Cool White | 4500 | 10000 | 140 | 89 |
| ASMT-AW31-NVW00 | | 4500 | 10000 | 140 | 103 |
| ASMT-AN31-NUV00 | Neutral White | 3500 | 4500 | 140 | 89 |
| ASMT-AN31-NVW00 | | 3500 | 4500 | 140 | 103 |
| ASMT-AY31-NTU00 | Warm White | 2700 | 3500 | 140 | 80 |

Notes:

1. The dominant wavelength, λ_D , is derived from the CIE Chromaticity Diagram and represents the color of the device.
2. $\theta_{1/2}$ is the off-axis angle where the luminous intensity is 1/2 the peak intensity.

Electrical Characteristic at 350 mA (T_J = 25°C)

| Dice Type | Forward Voltage, V _F (Volts) | | | Thermal Resistance, R _{θj-ms} (°C/W) ^[1] |
|-----------|---|-----|------|--|
| | Min. | Typ | Max. | Typ. |
| AllnGaP | 1.7 | 2.1 | 2.3 | 10 |
| InGaN | 2.8 | 3.2 | 3.5 | 10 |

Notes:

1. R_{θj-ms} is Thermal Resistance from LED junction to metal slug.

Optical and Electrical Characteristic at 700 mA (T_J = 25°C)

| Part Number | Color | Luminous Flux (lm) / Radiometric Power (mW), Φ _v | Forward Voltage, V _F (Volts) |
|-----------------|---------------|---|--|
| | | Typ. | Typ. |
| ASMT-AR30-ARS00 | Red | 94 | 2.4 |
| ASMT-AH30-ARS00 | Red Orange | 94 | 2.4 |
| ASMT-AA30-ARS00 | Amber | 94 | 2.4 |
| ASMT-AG31-NTU00 | Green | 125 | 3.6 |
| ASMT-AB31-NMP00 | Blue | 30.0 | 3.6 |
| ASMT-AB31-NNP00 | | 39.0 | 3.6 |
| ASMT-AL31-NPQ00 | Royal Blue | 782 mW | 3.6 |
| ASMT-AW31-NUV00 | Cool White | 175.0 | 3.6 |
| ASMT-AW31-NVW00 | | 196.0 | 3.6 |
| ASMT-AN31-NUV00 | Neutral White | 175.0 | 3.6 |
| ASMT-AN31-NVW00 | | 196.0 | 3.6 |
| ASMT-AY31-NTU00 | Warm White | 153.0 | 3.6 |

AlInGaP

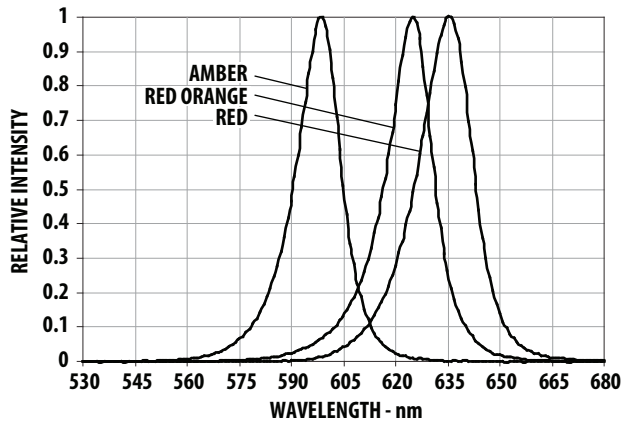


Figure 2. Relative Intensity vs. Wavelength for Red, Red Orange and Amber.

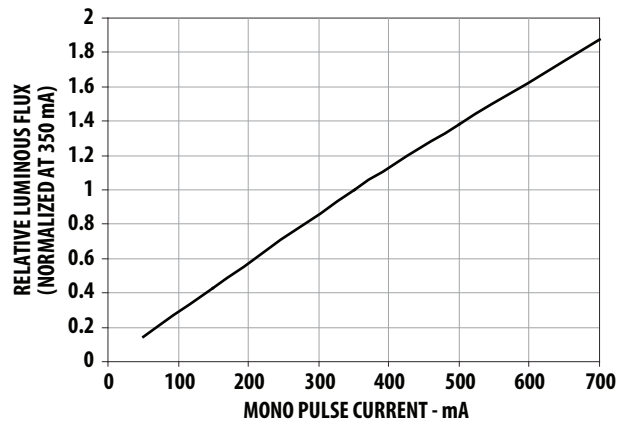


Figure 3. Relative Luminous Flux vs. Mono Pulse Current.

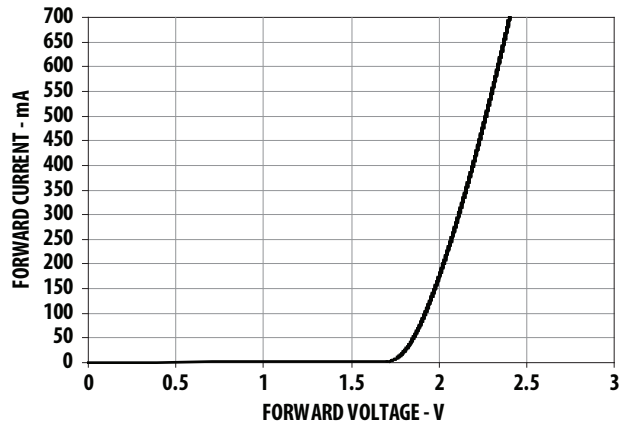


Figure 4. Forward Current vs. Forward Voltage.

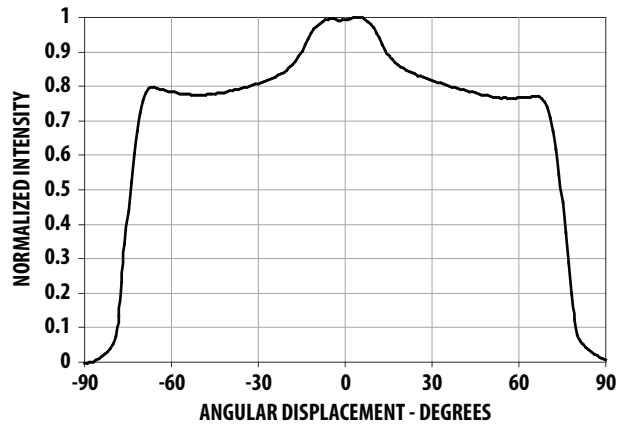


Figure 5. Radiation Pattern Red, Red Orange and Amber.

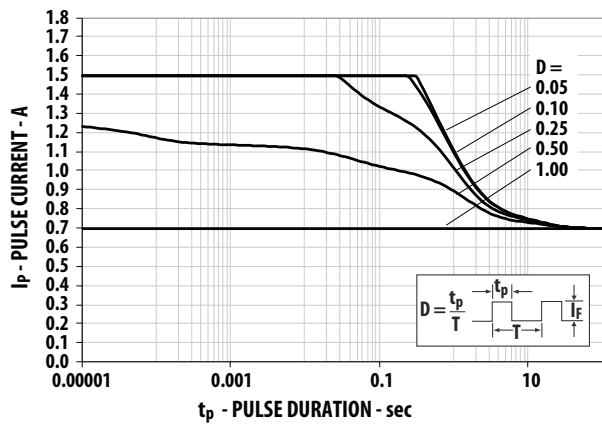


Figure 6. Maximum pulse current vs. pulse duration. Derated based on $T_A = 25^\circ\text{C}$, $R\theta_{J-A} = 30^\circ\text{C/W}$.

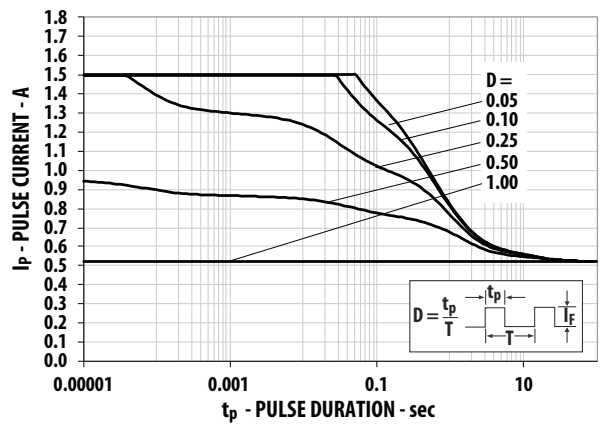


Figure 7. Maximum pulse current vs. pulse duration. Derated based on $T_A = 85^\circ\text{C}$, $R\theta_{J-A} = 30^\circ\text{C/W}$.

AlInGaP

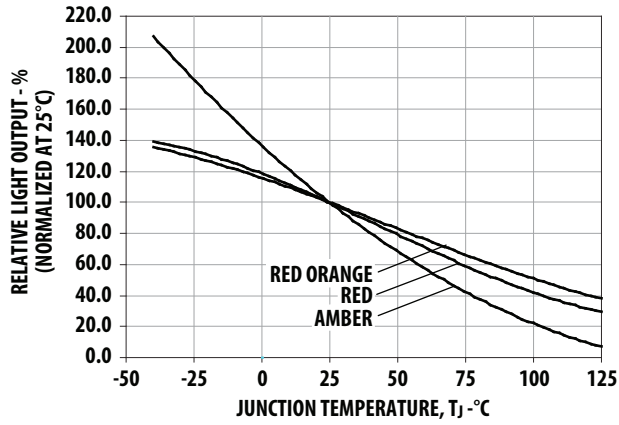


Figure 8. Relative Light Output vs. Junction Temperature.

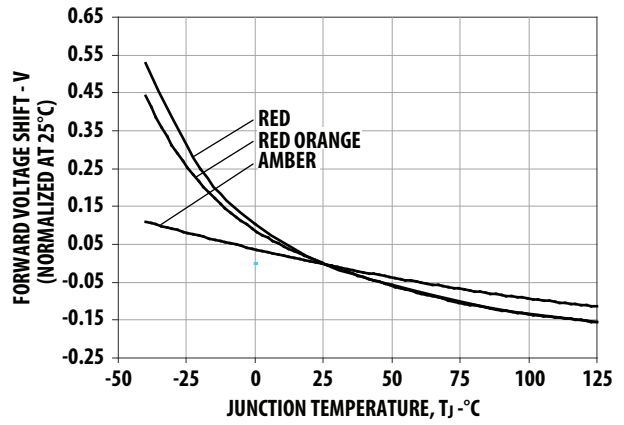


Figure 9. Forward Voltage Shift vs. Junction Temperature.

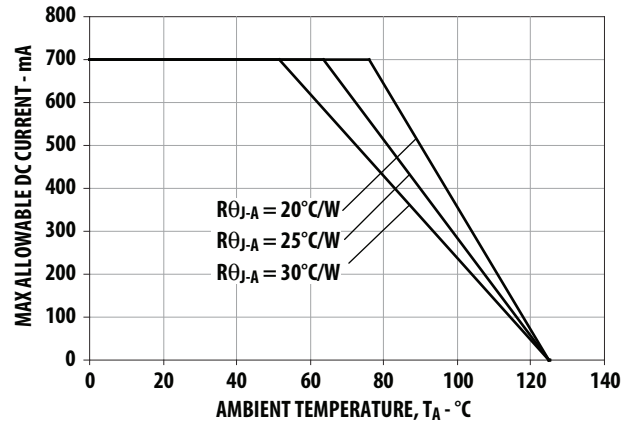


Figure 10. Maximum Forward Current vs. Ambient Temperature. Derated based on $T_{JMAX} = 125^{\circ}C$, $R_{\theta j-a} = 20^{\circ}C/W$, $25^{\circ}C/W$ and $30^{\circ}C/W$.

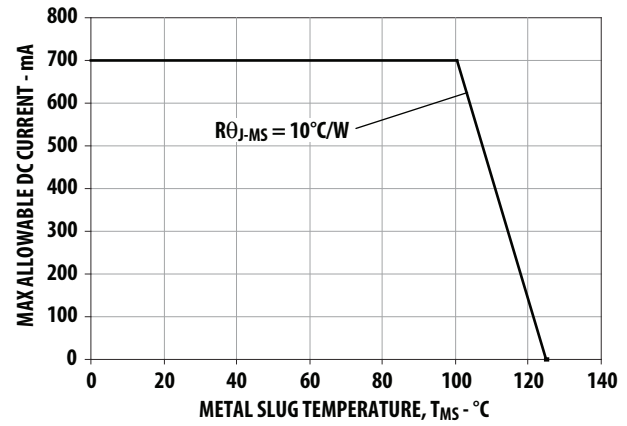


Figure 11. Maximum Forward Current vs. Metal Slug Temperature. Derated based on $T_{JMAX} = 125^{\circ}C$, $R_{\theta j-ms} = 10^{\circ}C/W$.

InGaN

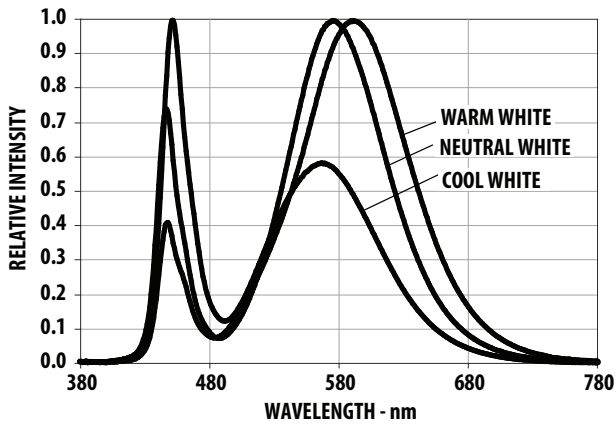


Figure 12. Relative Intensity vs. Wavelength for Warm White and Cool White.

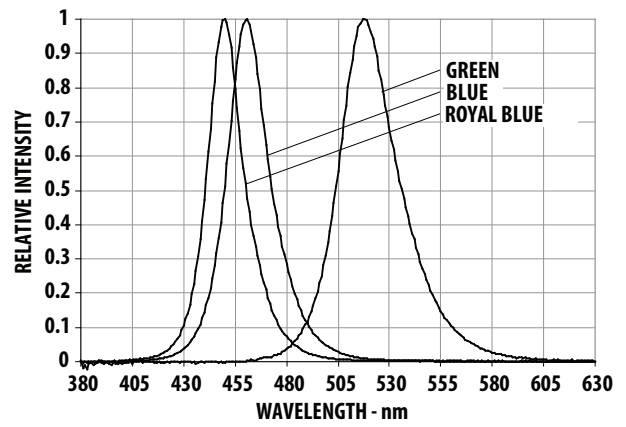


Figure 13. Relative Intensity vs. Wavelength for Blue, Royal Blue and Green.

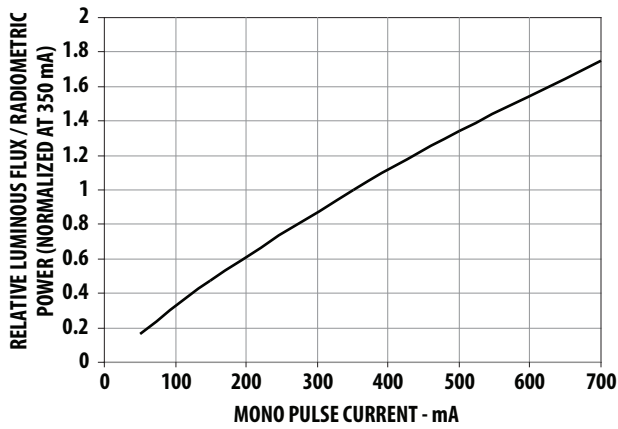


Figure 14. Relative Luminous Flux vs. Mono Pulse Current.

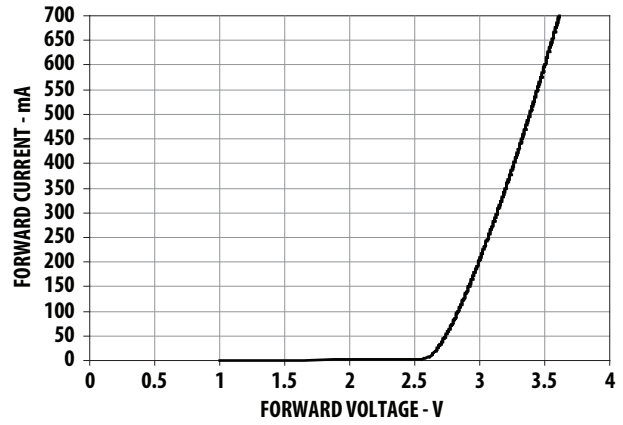


Figure 15. Forward Current vs. Forward Voltage.

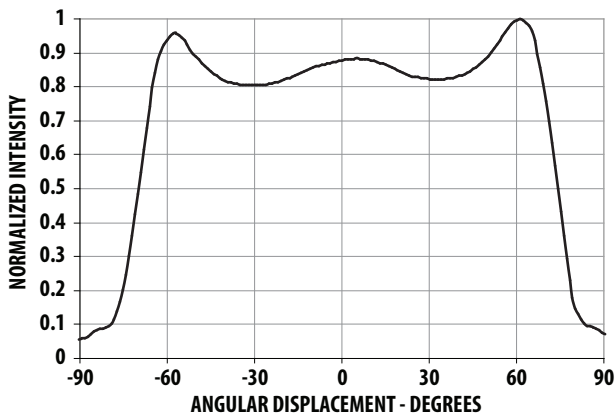


Figure 16. Radiation Pattern for Blue, Royal Blue and Green

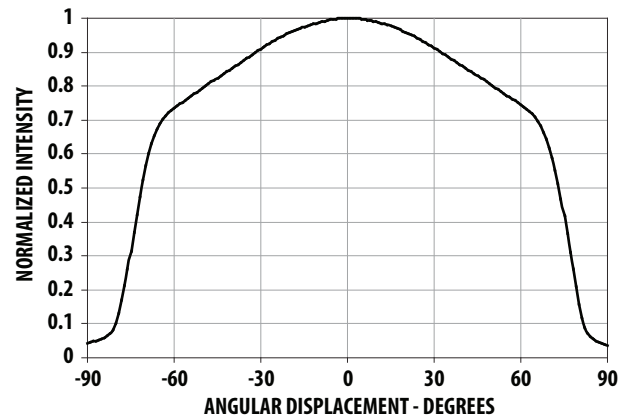


Figure 17. Radiation Pattern for Cool White, Neutral White and Warm White.

InGaN

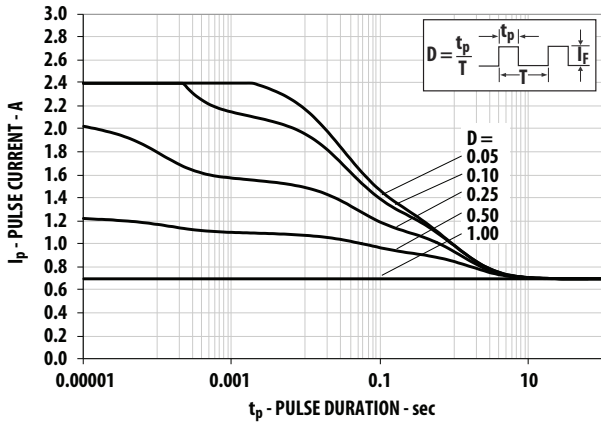


Figure 18. Maximum pulse current vs. pulse duration. Derated based on $T_A = 25^\circ\text{C}$, $R_{\theta JA} = 30^\circ\text{C/W}$.

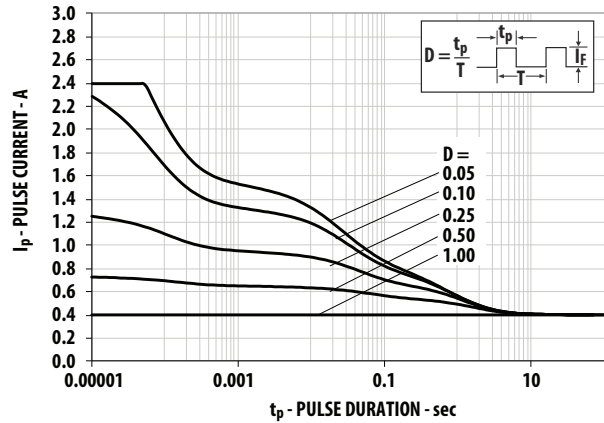


Figure 19. Maximum pulse current vs. pulse duration. Derated based on $T_A = 85^\circ\text{C}$, $R_{\theta JA} = 30^\circ\text{C/W}$.

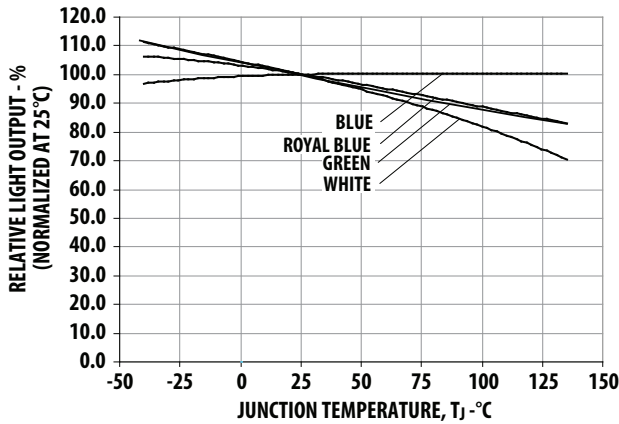


Figure 20. Relative Light Output vs. Junction Temperature.

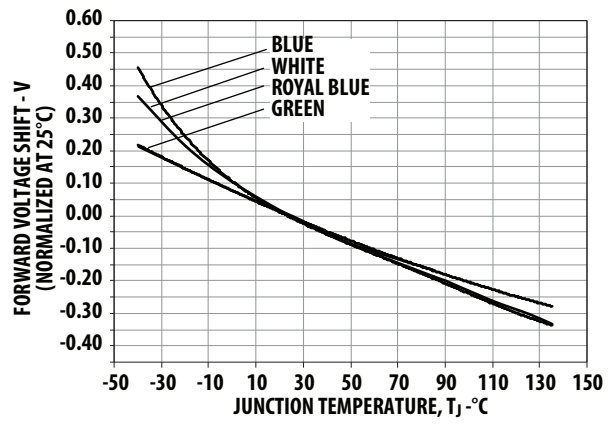


Figure 21. Forward Voltage Shift vs. Junction Temperature.

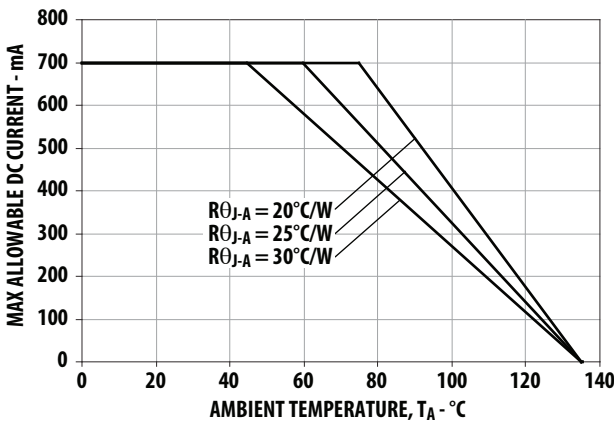


Figure 22. Maximum Forward Current vs. Ambient Temperature. Derated based on $T_{JMAX} = 135^\circ\text{C}$, $R_{\theta JA} = 20^\circ\text{C/W}$, 25°C/W and 30°C/W .

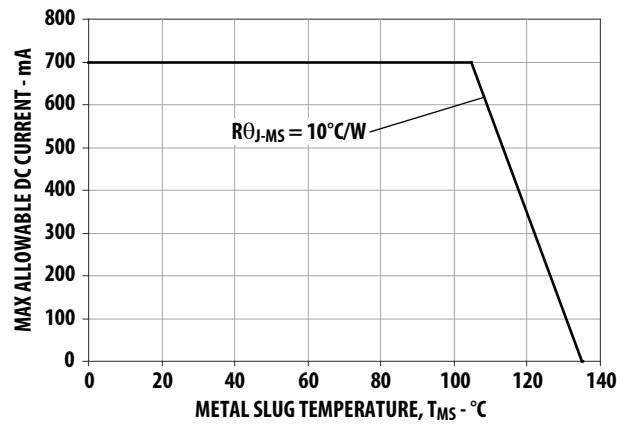


Figure 23. Maximum Forward Current vs. Metal Slug Temperature. Derated based on $T_{JMAX} = 135^\circ\text{C}$, $R_{\theta MS} = 10^\circ\text{C/W}$.

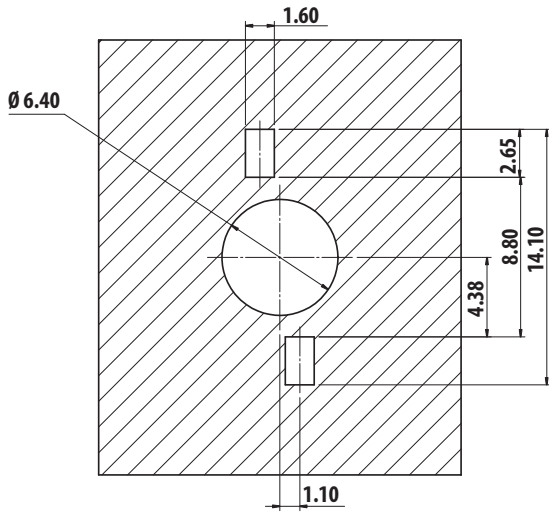


Figure 24. Recommended soldering land pattern.

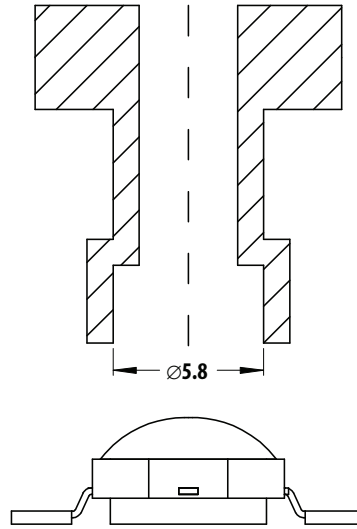
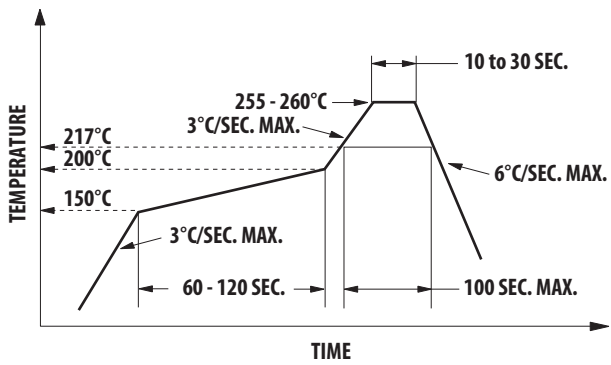


Figure 25. Recommended pick and place nozzle tip.
Inner diameter = 5.8 mm



(Acc. to J-STD-020C)

Figure 26. Recommended Reflow Soldering.

Note:

For detail information on reflow soldering of Avago surface mount LEDs, do refer to Avago Application Note AN1060 Surface Mounting SMT LED Indicator Components.

Option Selection Details

ASMT-A x₁3 x₂ – x₃ x₄ x₅ x₆ x₇

x₄ – Minimum Flux Bin Selection

x₅ – Maximum Flux Bin Selection

x₆ – Color Bin Selection

x₇ – Packaging Option

Flux / Power Bin Limit [x₄, x₅]

| Color | Bin ID | Luminous Flux (lm) / Radiometric Power (mW) at 350 mA | |
|--------------|--------|---|-------|
| | | Min. | Max. |
| Blue | M | 13.9 | 18.1 |
| | N | 18.1 | 23.5 |
| | P | 23.5 | 30.6 |
| Other Colors | R | 39.8 | 51.7 |
| | S | 51.7 | 67.2 |
| | T | 67.2 | 87.4 |
| | U | 87.4 | 99.6 |
| | V | 99.6 | 113.6 |
| | W | 113.6 | 129.5 |
| Royal Blue | M | 225.0 | 275.0 |
| | N | 275.0 | 355.0 |
| | P | 355.0 | 435.0 |
| | Q | 435.0 | 515.0 |

Tolerance for each bin limits is ±10 %

Color Bin Selection [x₆]

Individual reel or tube will contain parts from one color bin selection only.

Cool White

| Selection | Bin ID |
|-----------|-----------------------|
| 0 | Full Distribution |
| E | VM, UM, VN and UN |
| F | WM, VM, WN and VN |
| G | XM, WM, XN and WN |
| H | UN, VN, U0 and V0 |
| J | WN, VN, W0 and V0 |
| K | XN, WN, X0 and W0 |
| L | V0, U0, VP and UP |
| M | W0, V0, WP, VP and WQ |
| N | X0, W0, XP, WP and WQ |
| P | Y0 |
| Q | YA |

Neutral White

| Selection | Bin ID |
|-----------|-------------------|
| 0 | Full Distribution |
| E | SM, RM, S1 and R1 |
| F | TM, SM, TN and S1 |
| G | S1, R1, S0 and R0 |
| H | TN, S1, T0 and S0 |
| J | S0, R0, SA and RA |
| K | T0, S0, TP and SA |

Warm White

| Selection | Bin ID |
|-----------|-------------------|
| 0 | Full Distribution |
| E | NM, MM, N1 and M1 |
| F | PM, NM, P1 and N1 |
| G | QM, PM, Q1 and P1 |
| H | M1, N1, M0 and N0 |
| J | P1, N1, P0 and N0 |
| K | Q1, P1, Q0 and P0 |
| L | N0, M0, NA and MA |
| M | P0, N0, PA and NA |
| N | Q0, P0, QA and PA |

Other Colors

| Selection | Bin ID |
|-----------|-------------------|
| 0 | Full Distribution |
| Z | A and B |
| Y | B and C |
| W | C and D |
| V | D and E |
| Q | A, B and C |
| P | B, C and D |
| N | C, D and E |
| M | D, E and F |

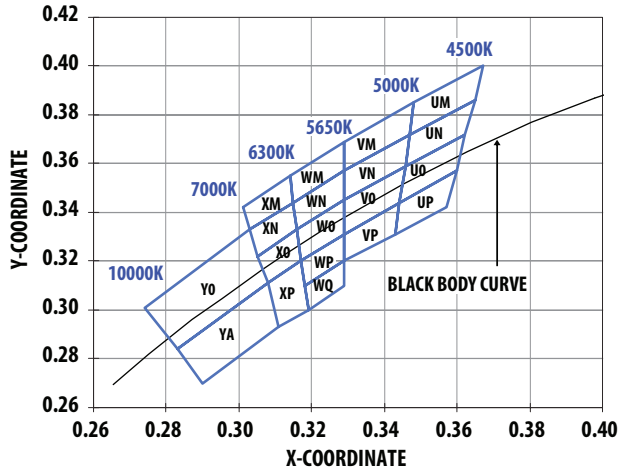


Figure 27. Color bin structure for Cool White.

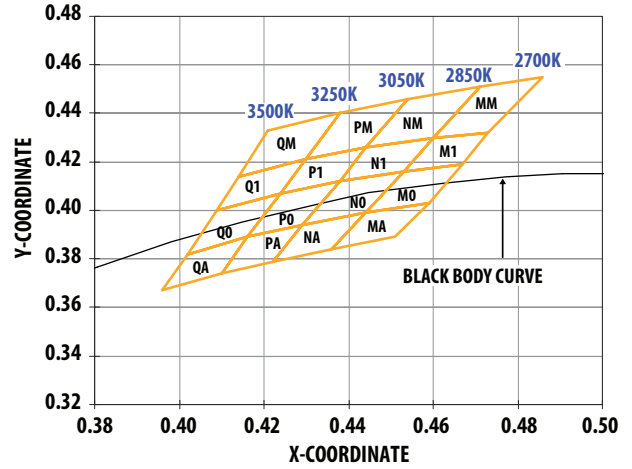


Figure 28. Color bin structure for Warm White.

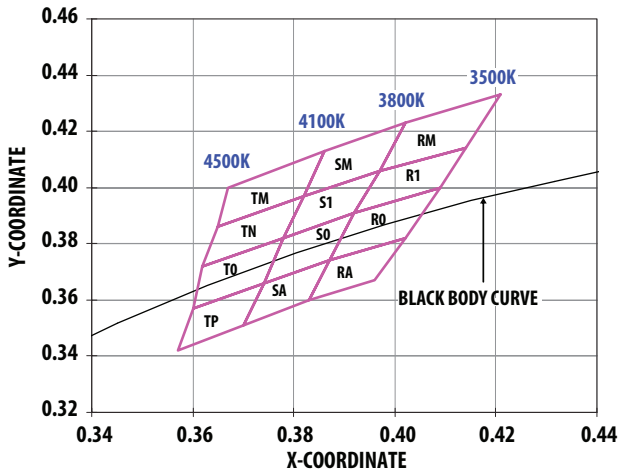


Figure 29. Color bin structure for Neutral White.

Color Bin Limit

| Cool White | | Color Limits (Chromaticity Coordinates) | | | |
|------------|---|---|-------|-------|-------|
| | | x | y | z | u |
| Bin UM | x | 0.365 | 0.367 | 0.348 | 0.347 |
| | y | 0.386 | 0.400 | 0.385 | 0.372 |
| Bin UN | x | 0.365 | 0.362 | 0.346 | 0.347 |
| | y | 0.386 | 0.372 | 0.359 | 0.372 |
| Bin UO | x | 0.362 | 0.360 | 0.344 | 0.346 |
| | y | 0.372 | 0.357 | 0.344 | 0.359 |
| Bin UP | x | 0.360 | 0.357 | 0.343 | 0.344 |
| | y | 0.357 | 0.342 | 0.311 | 0.344 |
| Bin VM | x | 0.329 | 0.329 | 0.348 | 0.347 |
| | y | 0.357 | 0.369 | 0.385 | 0.372 |
| Bin VN | x | 0.329 | 0.329 | 0.347 | 0.346 |
| | y | 0.345 | 0.357 | 0.372 | 0.359 |
| Bin VO | x | 0.329 | 0.329 | 0.346 | 0.344 |
| | y | 0.311 | 0.345 | 0.359 | 0.344 |
| Bin VP | x | 0.329 | 0.344 | 0.343 | 0.329 |
| | y | 0.331 | 0.344 | 0.331 | 0.320 |
| Bin WM | x | 0.329 | 0.329 | 0.315 | 0.314 |
| | y | 0.369 | 0.357 | 0.344 | 0.355 |
| Bin WN | x | 0.329 | 0.316 | 0.315 | 0.329 |
| | y | 0.345 | 0.333 | 0.344 | 0.357 |
| Bin WO | x | 0.329 | 0.329 | 0.317 | 0.316 |
| | y | 0.345 | 0.331 | 0.320 | 0.333 |
| Bin WP | x | 0.329 | 0.329 | 0.318 | 0.317 |
| | y | 0.331 | 0.320 | 0.310 | 0.320 |
| Bin WQ | x | 0.329 | 0.329 | 0.319 | 0.318 |
| | y | 0.320 | 0.310 | 0.300 | 0.310 |
| Bin XM | x | 0.301 | 0.314 | 0.315 | 0.303 |
| | y | 0.342 | 0.355 | 0.344 | 0.333 |
| Bin XN | x | 0.305 | 0.303 | 0.315 | 0.316 |
| | y | 0.322 | 0.333 | 0.344 | 0.333 |
| Bin XO | x | 0.308 | 0.305 | 0.316 | 0.317 |
| | y | 0.311 | 0.322 | 0.333 | 0.320 |
| Bin XP | x | 0.308 | 0.317 | 0.319 | 0.311 |
| | y | 0.311 | 0.320 | 0.300 | 0.293 |
| Bin YO | x | 0.308 | 0.283 | 0.274 | 0.303 |
| | y | 0.311 | 0.284 | 0.301 | 0.333 |
| Bin YA | x | 0.308 | 0.311 | 0.290 | 0.283 |
| | y | 0.311 | 0.293 | 0.270 | 0.284 |

Tolerance: ± 0.01

| Warm White | | Color Limits (Chromaticity Coordinates) | | | |
|------------|---|---|-------|-------|-------|
| | | x | y | z | u |
| Bin MM | x | 0.471 | 0.460 | 0.473 | 0.486 |
| | y | 0.451 | 0.430 | 0.432 | 0.455 |
| Bin M1 | x | 0.460 | 0.453 | 0.467 | 0.473 |
| | y | 0.430 | 0.416 | 0.419 | 0.432 |
| Bin M0 | x | 0.453 | 0.444 | 0.459 | 0.467 |
| | y | 0.416 | 0.399 | 0.403 | 0.419 |
| Bin MA | x | 0.459 | 0.444 | 0.436 | 0.451 |
| | y | 0.403 | 0.399 | 0.384 | 0.389 |
| Bin NM | x | 0.454 | 0.444 | 0.460 | 0.471 |
| | y | 0.446 | 0.426 | 0.430 | 0.451 |
| Bin N1 | x | 0.444 | 0.438 | 0.453 | 0.460 |
| | y | 0.426 | 0.412 | 0.416 | 0.430 |
| Bin N0 | x | 0.438 | 0.429 | 0.444 | 0.453 |
| | y | 0.412 | 0.394 | 0.399 | 0.416 |
| Bin NA | x | 0.444 | 0.429 | 0.422 | 0.436 |
| | y | 0.399 | 0.394 | 0.379 | 0.384 |
| Bin PM | x | 0.438 | 0.430 | 0.444 | 0.454 |
| | y | 0.440 | 0.421 | 0.426 | 0.446 |
| Bin P1 | x | 0.430 | 0.424 | 0.438 | 0.444 |
| | y | 0.421 | 0.407 | 0.412 | 0.426 |
| Bin P0 | x | 0.424 | 0.416 | 0.429 | 0.438 |
| | y | 0.407 | 0.389 | 0.394 | 0.412 |
| Bin PA | x | 0.429 | 0.416 | 0.410 | 0.422 |
| | y | 0.394 | 0.389 | 0.374 | 0.379 |
| Bin QM | x | 0.421 | 0.414 | 0.430 | 0.438 |
| | y | 0.433 | 0.414 | 0.421 | 0.440 |
| Bin Q1 | x | 0.414 | 0.409 | 0.424 | 0.430 |
| | y | 0.414 | 0.400 | 0.407 | 0.421 |
| Bin Q0 | x | 0.409 | 0.402 | 0.416 | 0.424 |
| | y | 0.400 | 0.382 | 0.389 | 0.407 |
| Bin QA | x | 0.416 | 0.402 | 0.396 | 0.410 |
| | y | 0.389 | 0.382 | 0.367 | 0.374 |

Tolerance: ± 0.01

| Neutral White | | Color Limits (Chromaticity Coordinates) | | | |
|---------------|---|---|-------|-------|-------|
| | | x | y | z | w |
| Bin RM | x | 0.421 | 0.414 | 0.397 | 0.402 |
| | y | 0.433 | 0.414 | 0.406 | 0.423 |
| Bin R1 | x | 0.414 | 0.409 | 0.392 | 0.397 |
| | y | 0.414 | 0.400 | 0.391 | 0.406 |
| Bin R0 | x | 0.392 | 0.387 | 0.402 | 0.409 |
| | y | 0.391 | 0.374 | 0.382 | 0.400 |
| Bin RA | x | 0.387 | 0.383 | 0.396 | 0.402 |
| | y | 0.374 | 0.360 | 0.367 | 0.382 |
| Bin SM | x | 0.402 | 0.397 | 0.382 | 0.386 |
| | y | 0.423 | 0.406 | 0.397 | 0.413 |
| Bin S1 | x | 0.397 | 0.392 | 0.378 | 0.382 |
| | y | 0.406 | 0.391 | 0.382 | 0.397 |
| Bin S0 | x | 0.392 | 0.387 | 0.374 | 0.378 |
| | y | 0.391 | 0.374 | 0.366 | 0.382 |
| Bin SA | x | 0.387 | 0.383 | 0.370 | 0.374 |
| | y | 0.374 | 0.360 | 0.351 | 0.366 |
| Bin TM | x | 0.386 | 0.382 | 0.365 | 0.367 |
| | y | 0.413 | 0.397 | 0.386 | 0.400 |
| Bin TN | x | 0.382 | 0.378 | 0.362 | 0.365 |
| | y | 0.397 | 0.382 | 0.372 | 0.386 |
| Bin T0 | x | 0.378 | 0.374 | 0.360 | 0.362 |
| | y | 0.382 | 0.366 | 0.357 | 0.372 |
| Bin TP | x | 0.374 | 0.370 | 0.357 | 0.360 |
| | y | 0.366 | 0.351 | 0.342 | 0.357 |

Tolerance: ± 0.01

Packaging Option [x₇]

| Selection | Option |
|-----------|---------------|
| 0 | Tube |
| 1 | Tape and Reel |

| Color | Bin ID | Dominant Wavelength (nm) at 350 mA | |
|------------|--------|------------------------------------|-------|
| | | Min. | Max. |
| Red | – | 620.0 | 635.0 |
| Red Orange | – | 610.0 | 620.0 |
| Amber | B | 587.0 | 589.5 |
| | C | 589.5 | 592.0 |
| | D | 592.0 | 594.5 |
| | E | 594.5 | 597.0 |
| Green | A | 515.0 | 520.0 |
| | B | 520.0 | 525.0 |
| | C | 525.0 | 530.0 |
| | D | 530.0 | 535.0 |
| Blue | A | 455.0 | 460.0 |
| | B | 460.0 | 465.0 |
| | C | 465.0 | 470.0 |
| | D | 470.0 | 475.0 |

Tolerance: ± 1 nm

| Color | Bin ID | Peak Wavelength (nm) at 350 mA | |
|------------|--------|--------------------------------|-------|
| | | Min. | Max. |
| Royal Blue | C | 440.0 | 445.0 |
| | D | 445.0 | 450.0 |
| | E | 450.0 | 455.0 |
| | F | 455.0 | 460.0 |

Tolerance: ± 2 nm

Example

ASMT-AW31-NUV00

ASMT-AW31-Nxxxx – Cool White, InGaN, Electrically isolated Heat Sink

- x₄ = U – Minimum Flux Bin U
- x₅ = V – Maximum Flux Bin V
- x₆ = 0 – Full Distribution
- x₇ = 0 – Tube Option

Packing Tube – Option 0

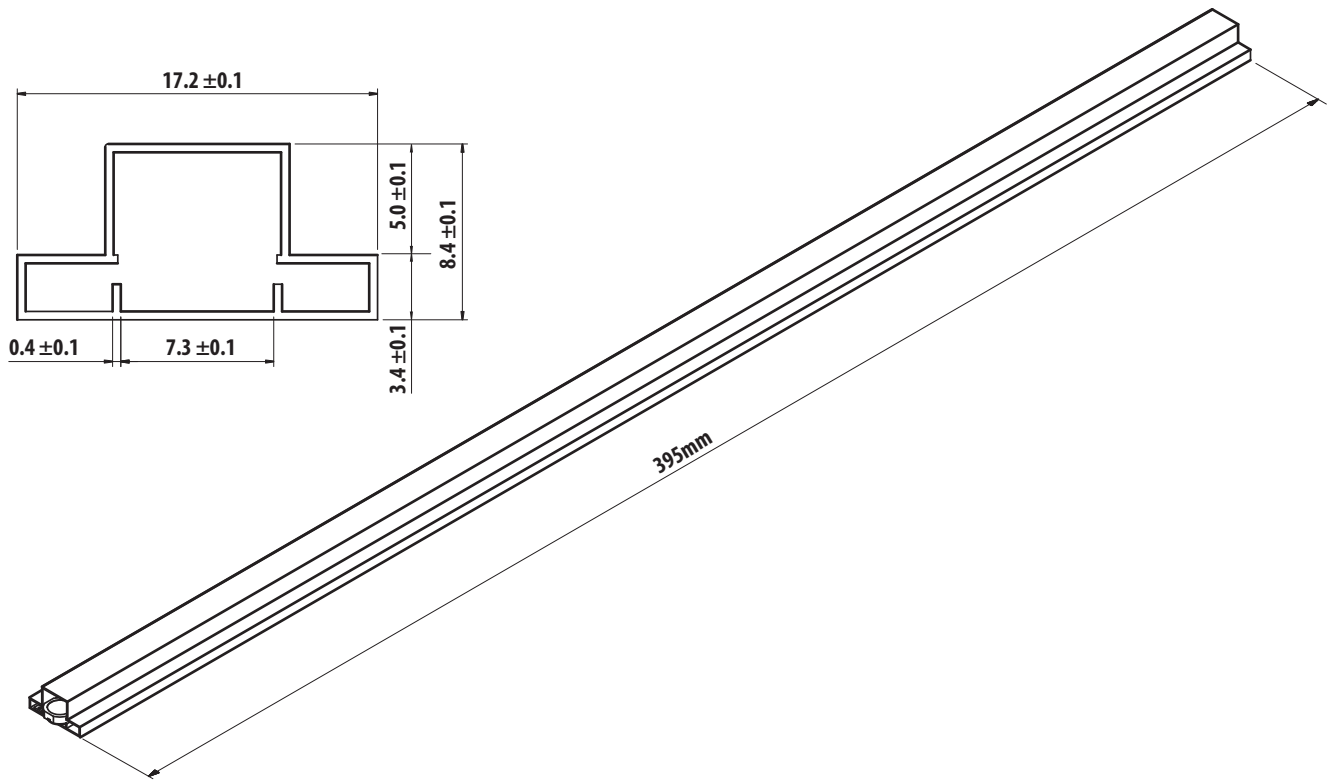


Figure 30. Package tube dimensions.

Tape and Reel – Option 1

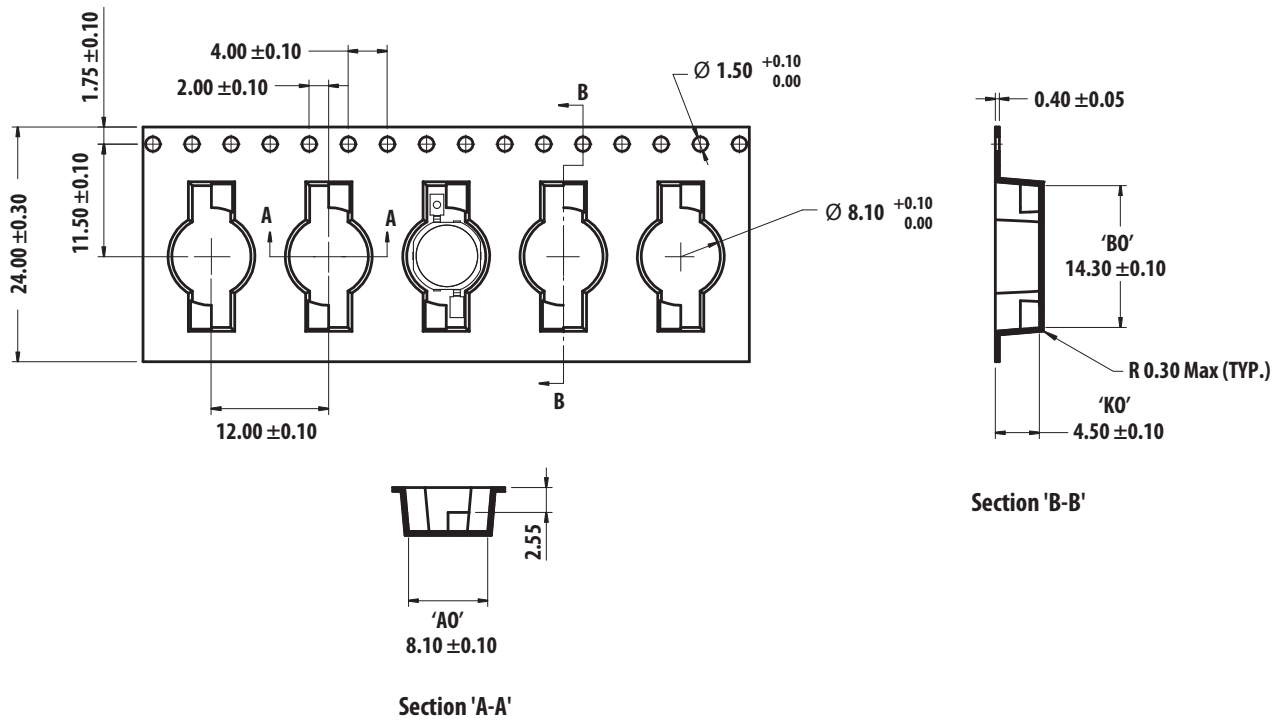


Figure 31. Carrier tape dimensions.

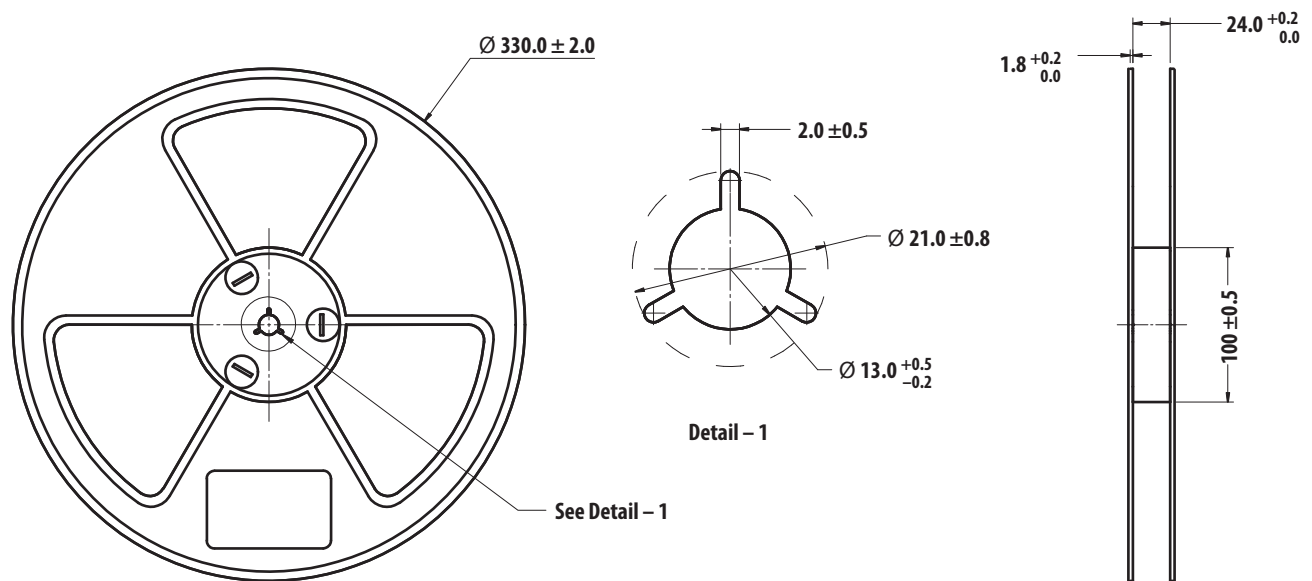


Figure 32. Reel dimensions.

Handling Precaution

The encapsulation material of the product is made of silicone for better reliability of the product. As silicone is a soft material, please do not press on the silicone or poke a sharp object onto the silicone. These might damage the product and cause premature failure. During assembly of handling, the unit should be held on the body only. Please refer to Avago Application Note AN 5288 for detail information.

Moisture Sensitivity

This product is qualified as Moisture Sensitive Level 2a per Jedec J-STD-020. Precautions when handling this moisture sensitive product is important to ensure the reliability of the product. Do refer to Avago Application Note AN5305 Handling of Moisture Sensitive Surface Mount Devices for details.

A. Storage before use

- Unopen moisture barrier bag (MBB) can be stored at < 40°C/90%RH for 12 months. If the actual shelf life has exceeded 12 months and the humidity indicator card (HIC) indicates that baking is not required, then it is safe to reflow the LEDs per the original MSL rating.
- It is not recommended to open the MBB prior to assembly (e.g. for IQC).

B. Control after opening the MBB

- The humidity indicator card (HIC) shall be read immediately upon opening of MBB.
- The LEDs must be kept at < 30°C/60%RH at all time and all high temperature related process including soldering, curing or rework need to be completed within 672 hours.

C. Control for unfinished reel

- For any unused LEDs, they need to be stored in sealed MBB with desiccant or desiccator at < 5%RH.

D. Control of assembled boards

- If the PCB soldered with the LEDs is to be subjected to other high temperature processes, the PCB need to be stored in sealed MBB with desiccant or desiccator at < 5%RH to ensure no LEDs have exceeded their floor life of 672 hours.

E. Baking is required if:

- HIC "10%" indicator is NOT Brown and "5%" indicator is Azure.
- The LEDs are exposed to condition of > 30°C/60%RH at any time.
- The LED floor life exceeded 672 hrs.

Recommended baking condition: 60±5°C for 20 hrs.

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