

J Series® JE2835 Color LEDs



PRODUCT DESCRIPTION

J Series® LEDs extend Cree LED's industry leading portfolio of lighting class LEDs to a broader set of applications. With 14 available colors, the JE2835 N Class color LED family offers top performance and the broadest range of options available in a mid-power LED. JE2835 N Class color LEDs use a standard 2835 package, with most colors having the same polarity as Cree LED's numerous 2835 white LED options.

JE2835 N Class color LEDs are optimized for low-density and linear lighting applications, including architectural, horticulture and transportation.

FEATURES

- Industry-compatible size : 2.8 x 3.5 x 0.7 mm
- 3-V configuration
- Available in violet, royal blue, blue, cyan, green, PC lime, PC mint, amber, PC amber, red-orange, PC red-orange, red, photo red, far red, and PC purple
- RoHS and REACH compliant
- UL® recognized component (E495478)



J Series® Products are sold exclusively by Cree Venture LED Company Limited ("Cree Venture"), regardless of geography. Any orders for J Series Products that are submitted to Cree LED or any of its other subsidiaries will be directed to Cree Venture for acknowledgment and order fulfillment.

Cree LED / 4001 E. Hwy. 54, Suite 2000 / Durham, NC 27709 USA / +1.919.313.5330 / www.cree-led.com

PRODUCT SUMMARY - JE2835 3-V N CLASS COLOR LEDs

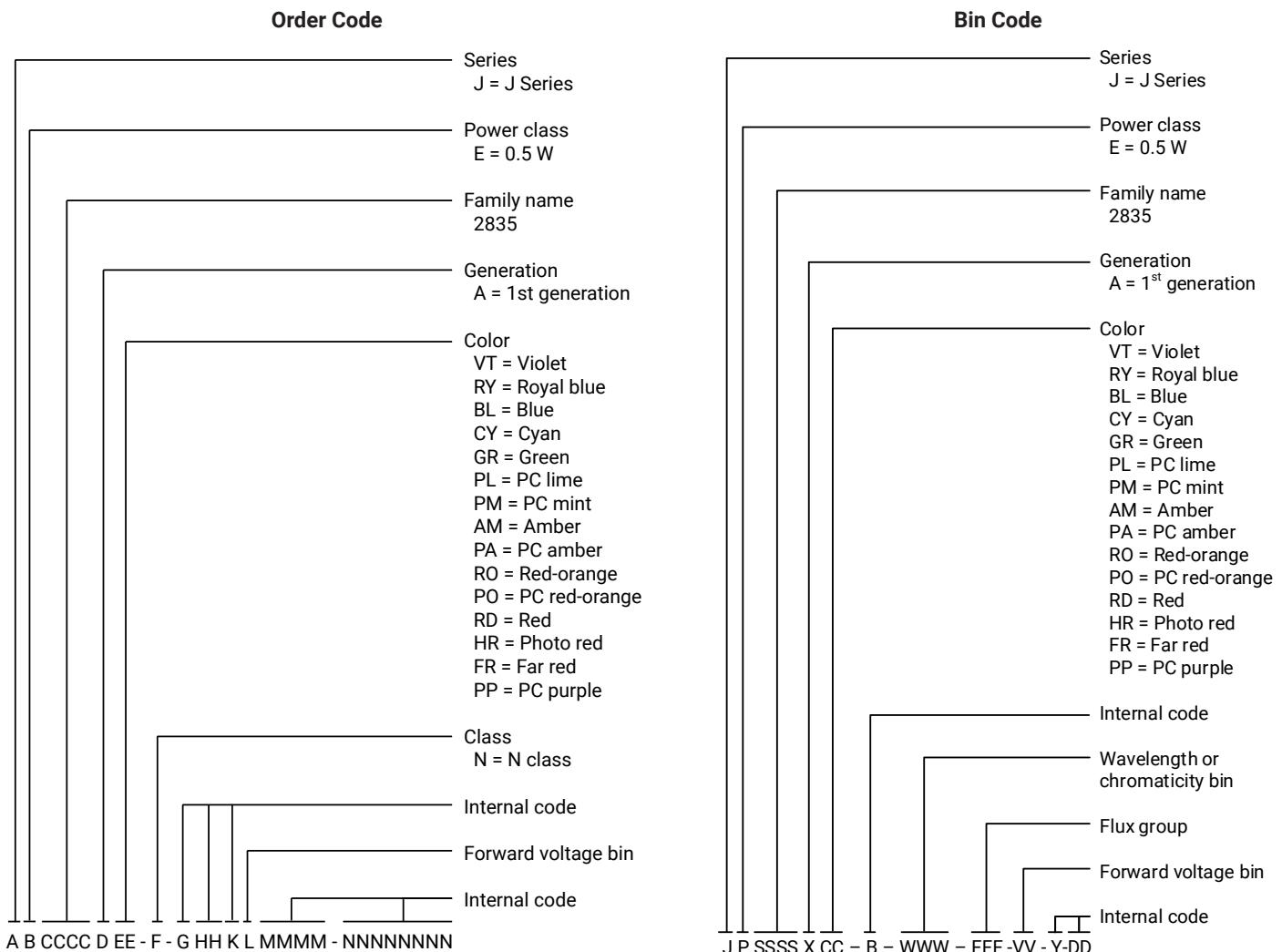
| Color | Power Class | Test Temperature | Test Current | Typical Forward Voltage | Typical Flux | Typical Efficacy | Maximum Current |
|---------------|-------------|------------------|--------------|-------------------------|--------------|------------------|-----------------|
| Violet | 0.5 W | 25 °C | 140 mA | 3.28 V | 218 mW | 47% WPE | 200 mA |
| Royal Blue | 0.5 W | 25 °C | 140 mA | 2.96 V | 272 mW | 66% WPE | 240 mA |
| Blue | 0.5 W | 25 °C | 140 mA | 2.95 V | 20.1 lm | 49 LPW | 240 mA |
| Cyan | 0.5 W | 25 °C | 140 mA | 3.26 V | 32 lm | 70 LPW | 240 mA |
| Green | 0.5 W | 25 °C | 140 mA | 2.8 V | 65.5 lm | 167 LPW | 240 mA |
| PC Lime | 0.5 W | 25 °C | 140 mA | 2.96 V | 98 lm | 236 LPW | 240 mA |
| PC Mint | 0.5 W | 25 °C | 140 mA | 2.96 V | 93 lm | 224 LPW | 240 mA |
| Amber | 0.5 W | 25 °C | 140 mA | 2.3 V | 26.0 lm | 81 LPW | 240 mA |
| PC Amber | 0.5 W | 25 °C | 140 mA | 2.96 V | 61 lm | 147 LPW | 240 mA |
| Red-Orange | 0.5 W | 25 °C | 140 mA | 2.25 V | 34.0 lm | 108 LPW | 240 mA |
| PC Red-Orange | 0.5 W | 25 °C | 140 mA | 2.96 V | 30.2 lm | 73 LPW | 240 mA |
| Red | 0.5 W | 25 °C | 140 mA | 2.25 V | 27.2 lm | 86 LPW | 250 mA |
| Photo Red | 0.5 W | 25 °C | 140 mA | 2.15 V | 138 mW | 46% WPE | 250 mA |
| Far Red | 0.5 W | 25 °C | 140 mA | 2.15 V | 135 mW | 45% WPE | 250 mA |
| PC Purple | 0.5 W | 25 °C | 140 mA | 2.89 V | 192 mW | 47% WPE | 350 mA |

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ORDER CODE & BIN CODE FORMATS

Order codes and bin codes for J Series JE2835 color LEDs are configured in the following manner:



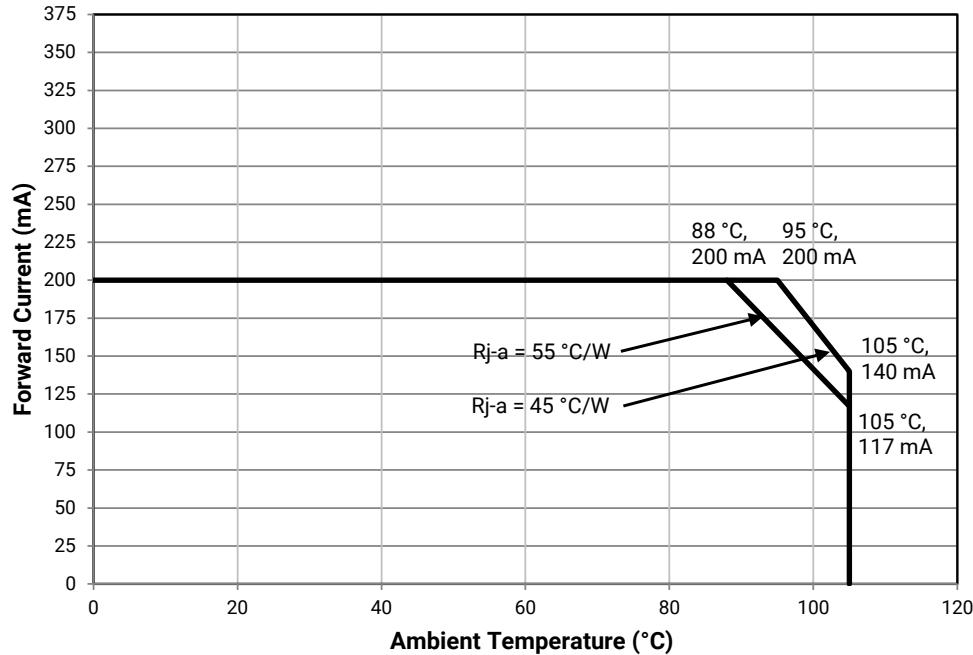
JE2835 VIOLET**CHARACTERISTICS - JE2835 VIOLET**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 18 | |
| Viewing angle (FWHM) | degrees | | 122 | |
| Temperature coefficient of voltage | mV/°C | | -1.3 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 200 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 3.28 | 3.5 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 VIOLET

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 VIOLET ($I_F = 140 \text{ mA}$, $T_j = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 violet LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4). For definitions of the chromaticity kits, please see the Chromaticity Color Coordinates section (page 14).

| Minimum Flux | | Typical Radiant Flux (mW) | Peak Wavelength | | | | Order Code | | |
|--------------|-----------|---------------------------|-----------------|---------|---------|---------|--------------------------------|--|--|
| Group | Flux (mW) | | Minimum | | Maximum | | | | |
| | | | Group | WL (nm) | Group | WL (nm) | | | |
| 36 | 190 | 218 | V8 | 400 | V9 | 420 | JE2835AVT-N-0001A0000-N0000001 | | |

PERFORMANCE GROUPS - RADIANT FLUX - JE2835 VIOLET ($T_j = 25^\circ\text{C}$)

J Series JE2835 violet LEDs are tested for radiant flux at 140 mA and placed into one of the following radiant-flux groups.

| Color | Code | Minimum Radiant Flux (mW) | Maximum Radiant Flux (mW) |
|--------|------|---------------------------|---------------------------|
| Violet | 36 | 190 | 200 |
| | 37 | 200 | 210 |
| | 38 | 210 | 220 |
| | 39 | 220 | 230 |
| | 40 | 230 | 240 |
| | 41 | 240 | 250 |
| | 42 | 250 | 260 |
| | 43 | 260 | 270 |

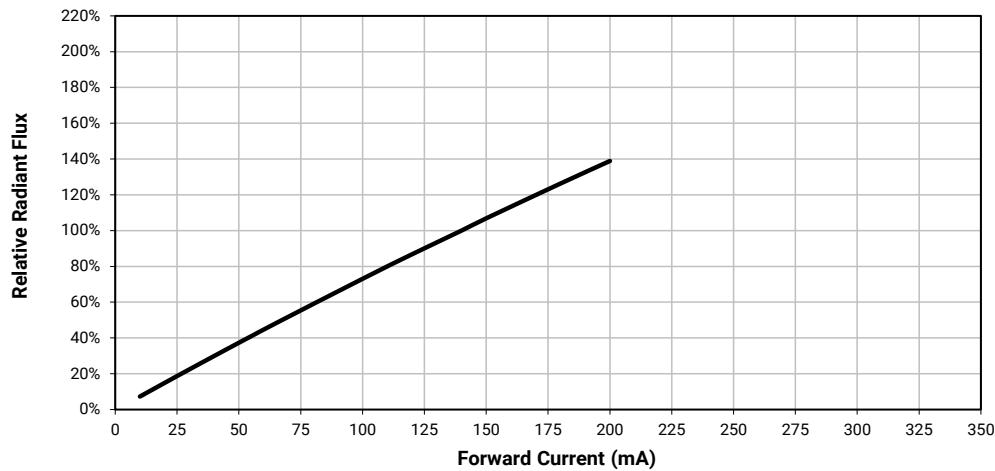
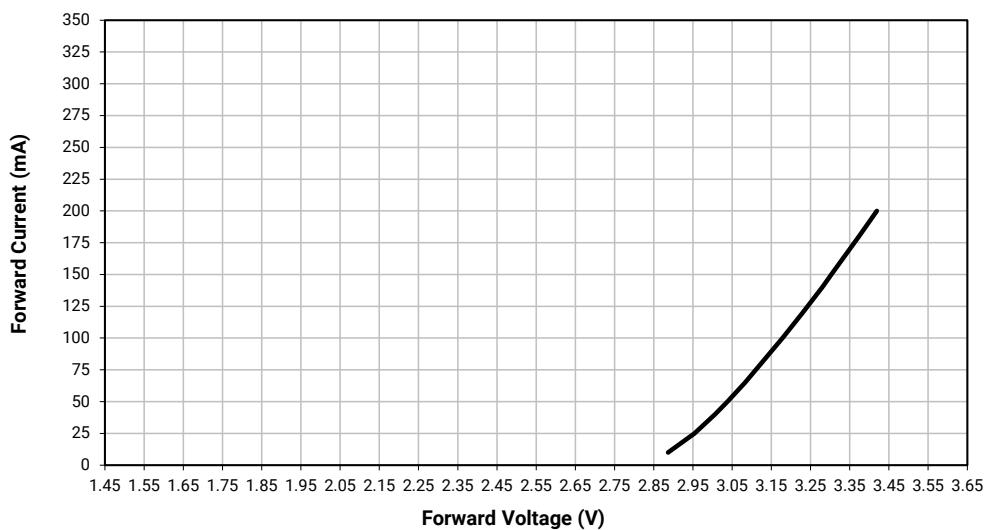
PERFORMANCE GROUPS - PEAK WAVELENGTH - JE2835 VIOLET

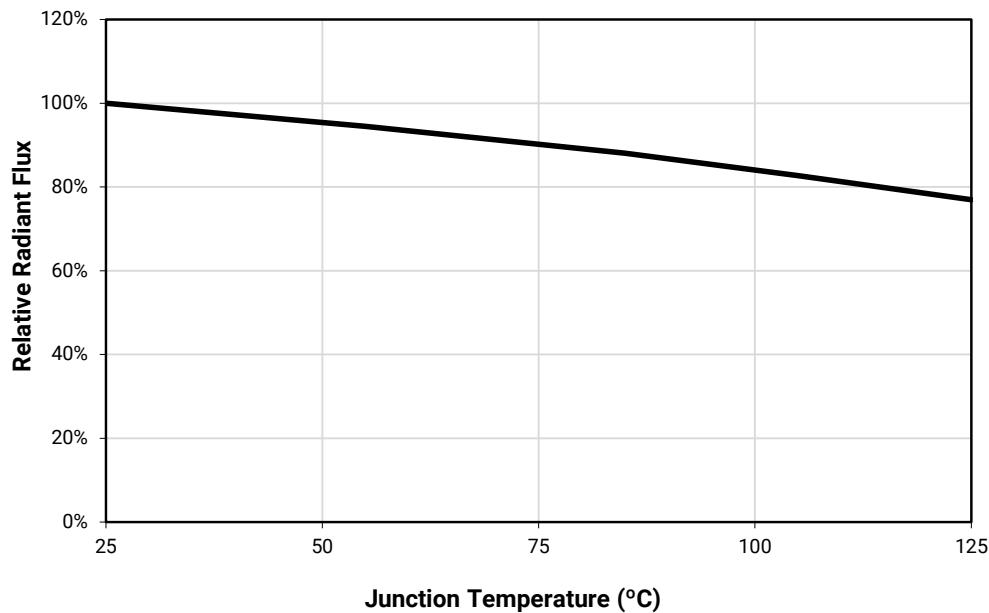
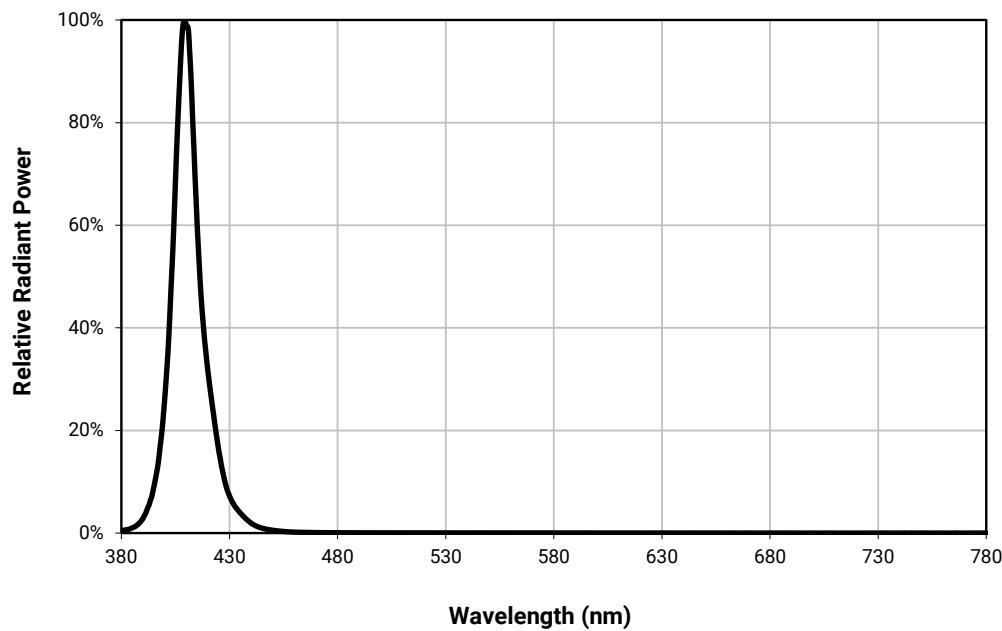
J Series JE2835 violet LEDs are tested for peak wavelength (PWL) and sorted into one of the PWL bins defined below.

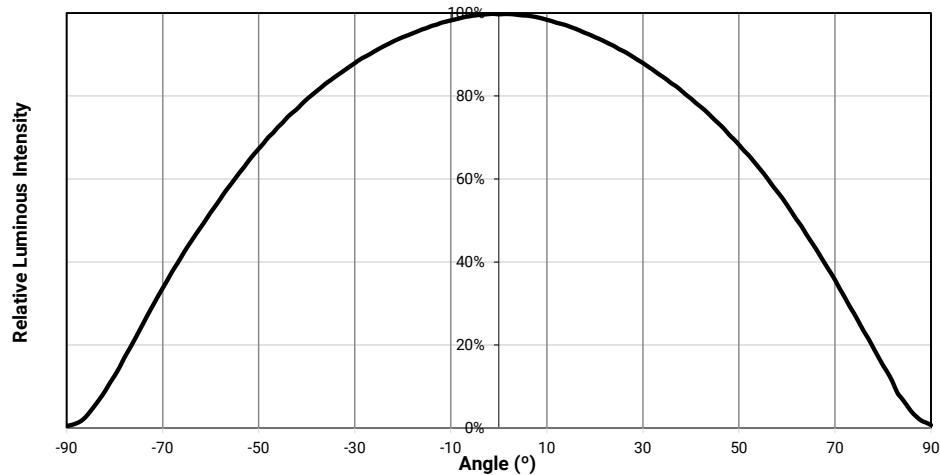
| Color | PWL Group | Minimum PWL (nm) @ 140 mA | Maximum PWL (nm) @ 140 mA |
|--------|-----------|---------------------------|---------------------------|
| Violet | V8 | 400 | 410 |
| | V9 | 410 | 420 |

Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE RADIANT FLUX VS. CURRENT - JE2835 VIOLET**ELECTRICAL CHARACTERISTICS - JE2835 VIOLET**

RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE - JE2835 VIOLET**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 VIOLET**

TYPICAL SPATIAL DISTRIBUTION - JE2835 VIOLET

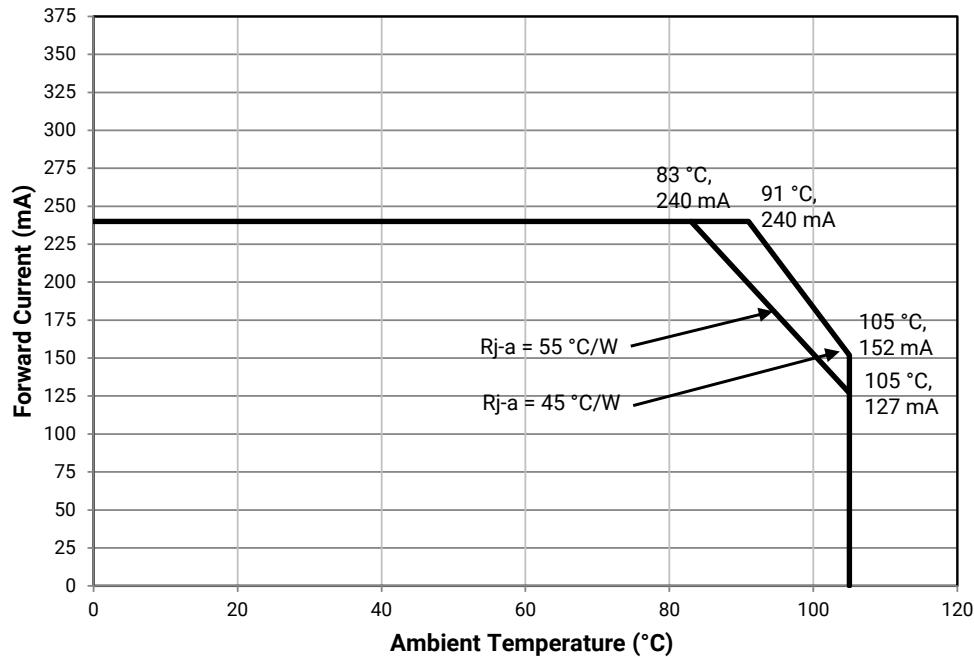
JE2835 ROYAL BLUE**CHARACTERISTICS - JE2835 ROYAL BLUE**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 10 | |
| Viewing angle (FWHM) | degrees | | 124 | |
| Temperature coefficient of voltage | mV/°C | | -1.0 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 240 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.96 | 3.1 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 ROYAL BLUE

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 ROYAL BLUE ($I_F = 140 \text{ mA}$, $T_j = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 royal blue LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4). For definitions of the chromaticity kits, please see the Chromaticity Color Coordinates section (page 14).

| Minimum Flux | | Typical Radiant Flux (mW) | Dominant Wavelength | | | | Order Code | | |
|--------------|-----------|---------------------------|---------------------|---------|---------|---------|--------------------------------|--|--|
| Group | Flux (mW) | | Minimum | | Maximum | | | | |
| | | | Group | WL (nm) | Group | WL (nm) | | | |
| 43 | 260 | 272 | D3 | 450 | D4 | 460 | JE2835ARY-N-0002A0000-N0000001 | | |

PERFORMANCE GROUPS - RADIANT FLUX - JE2835 ROYAL BLUE ($T_j = 25^\circ\text{C}$)

J Series JE2835 royal blue LEDs are tested for radiant flux at 140 mA and placed into one of the following radiant-flux groups.

| Color | Code | Minimum Radiant Flux (mW) | Maximum Radiant Flux (mW) |
|------------|------|---------------------------|---------------------------|
| Royal Blue | 43 | 260 | 270 |
| | 44 | 270 | 280 |
| | 45 | 280 | 290 |

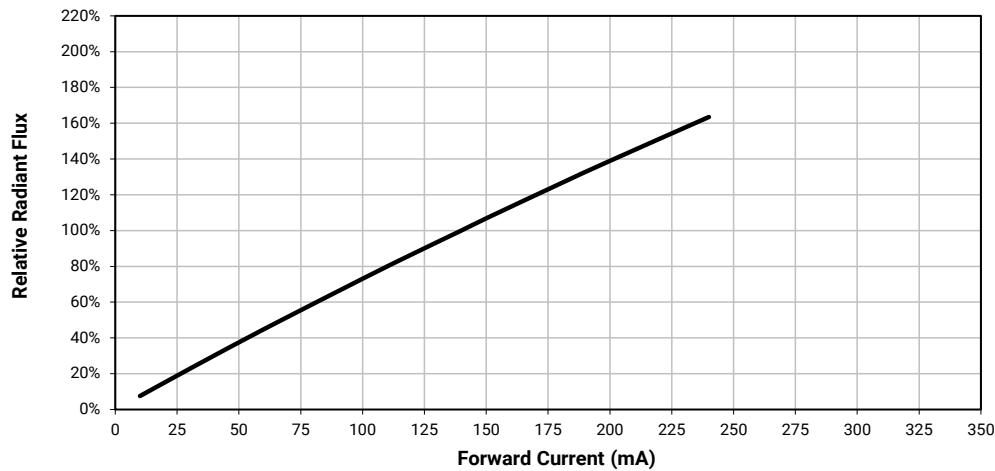
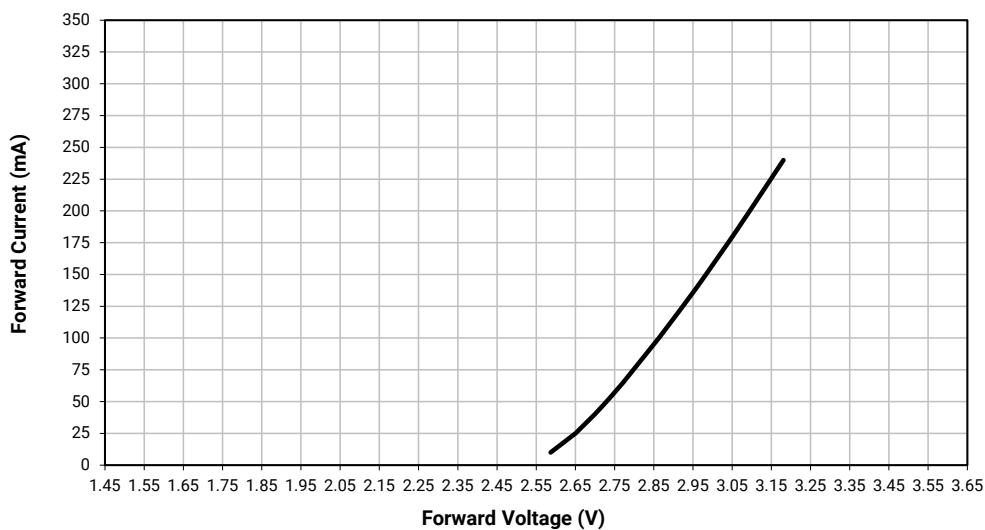
PERFORMANCE GROUPS - DOMINANT WAVELENGTH - JE2835 ROYAL BLUE

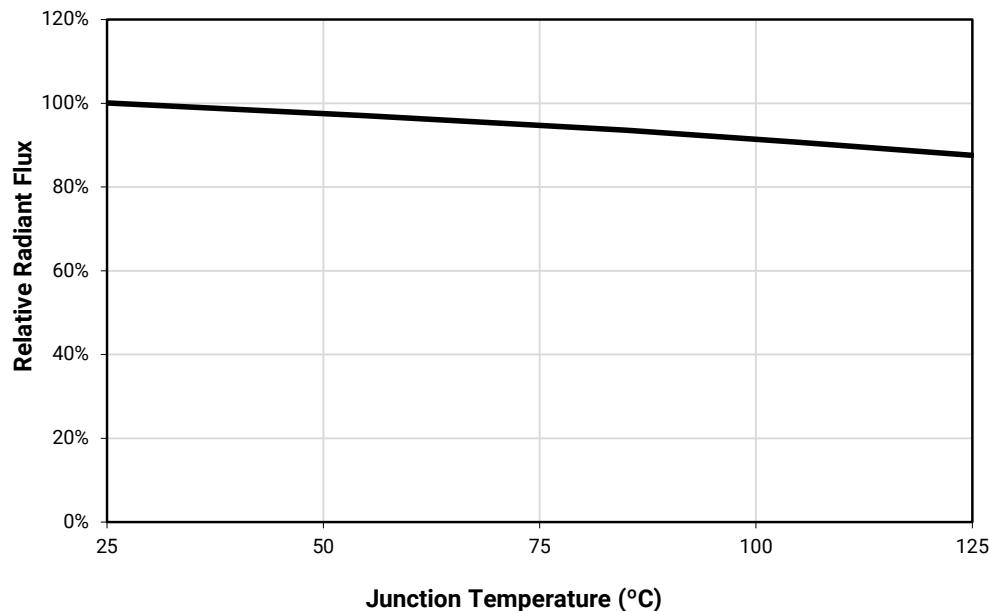
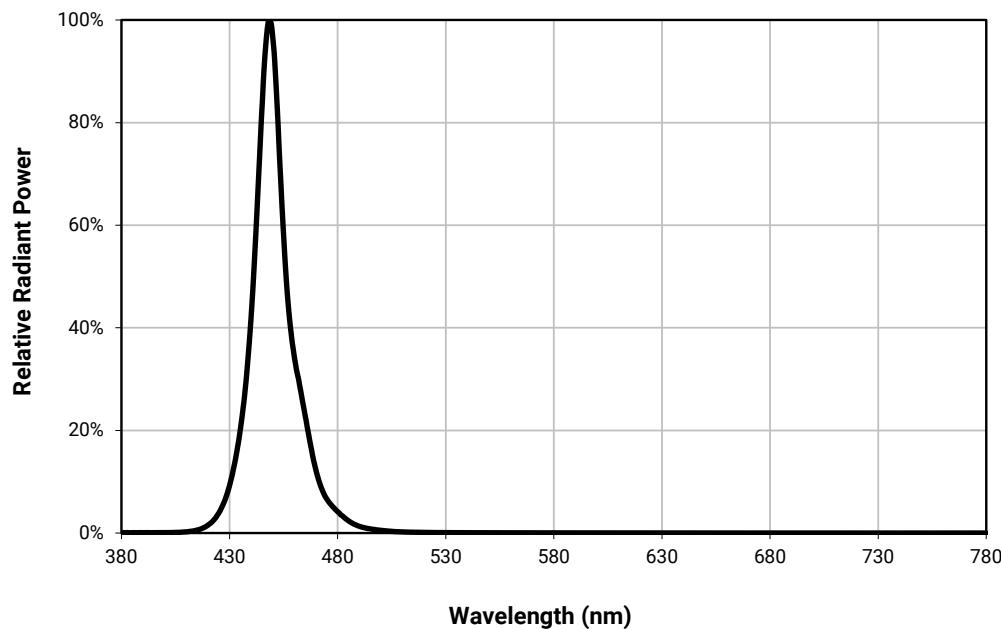
J Series JE2835 royal blue LEDs are tested for dominant wavelength (DWL) and sorted into one of the DWL bins defined below.

| Color | DWL Group | Minimum DWL (nm) @ 140 mA | Maximum DWL (nm) @ 140 mA |
|------------|-----------|---------------------------|---------------------------|
| Royal Blue | D3 | 450 | 455 |
| | D4 | 455 | 460 |

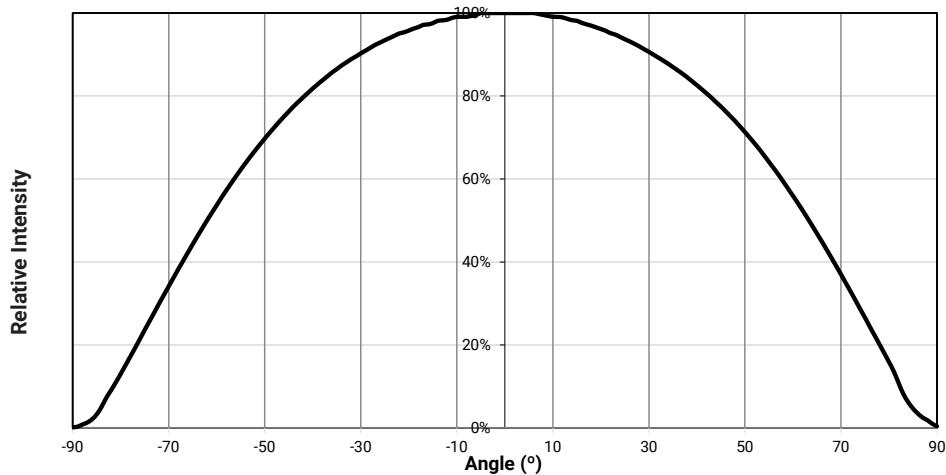
Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE RADIANT FLUX VS. CURRENT - JE2835 ROYAL BLUE**ELECTRICAL CHARACTERISTICS - JE2835 ROYAL BLUE**

RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE - JE2835 ROYAL BLUE**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 ROYAL BLUE**

TYPICAL SPATIAL DISTRIBUTION - JE2835 ROYAL BLUE



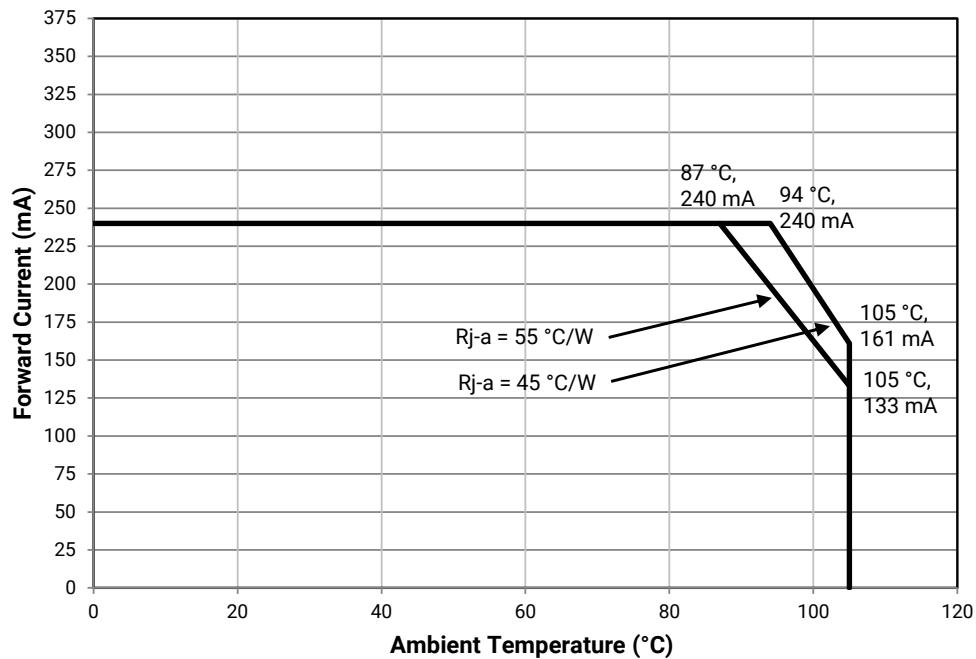
JE2835 BLUE**CHARACTERISTICS - JE2835 BLUE**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 14 | |
| Viewing angle (FWHM) | degrees | | 126 | |
| Temperature coefficient of voltage | mV/°C | | -1.0 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 240 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.95 | 3.1 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 BLUE

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 BLUE ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 blue LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4).

| Minimum Flux | | Typical Luminous Flux (lm) | Dominant Wavelength | | | | Order Code | | |
|--------------|-----------|----------------------------|---------------------|---------|---------|---------|--------------------------------|--|--|
| Group | Flux (lm) | | Minimum | | Maximum | | | | |
| | | | Group | WL (nm) | Group | WL (nm) | | | |
| B2 | 15.5 | 20.1 | B4 | 470 | B5 | 480 | JE2835ABL-N-0005A0000-N0000001 | | |

PERFORMANCE GROUPS - LUMINOUS FLUX - JE2835 BLUE ($T_J = 25^\circ\text{C}$)

J Series JE2835 blue LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

| Color | Code | Minimum Luminous Flux (lm) | Maximum Luminous Flux (lm) |
|-------|------|----------------------------|----------------------------|
| Blue | B2 | 15.5 | 17.0 |
| | B3 | 17.0 | 18.5 |
| | B4 | 18.5 | 20 |
| | B5 | 20 | 22 |
| | C2 | 22 | 24 |

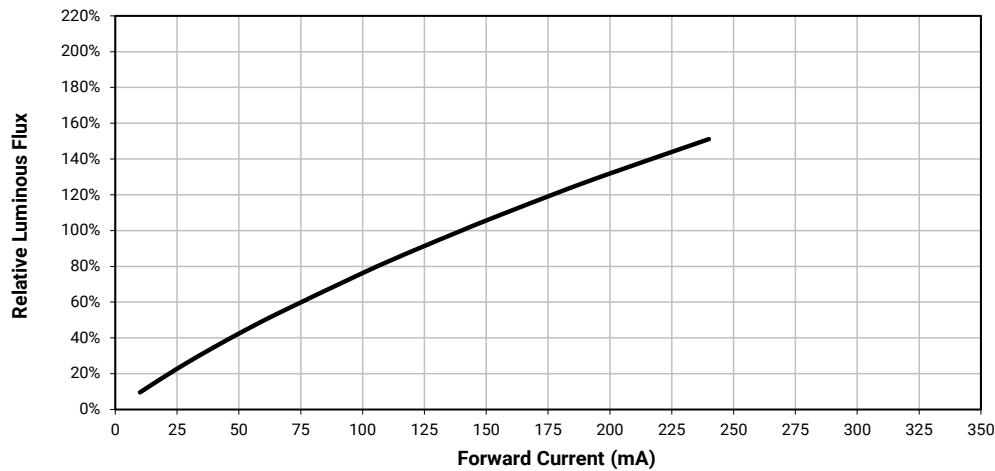
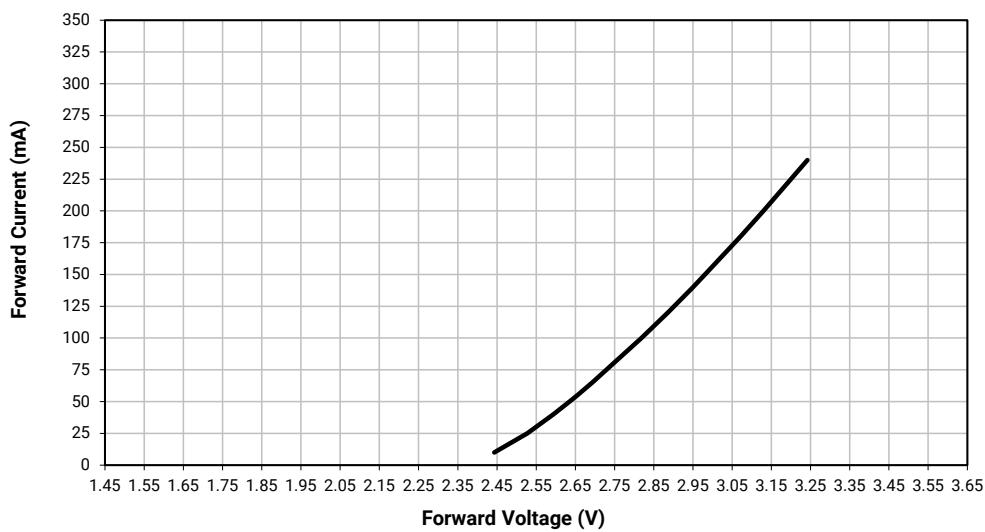
PERFORMANCE GROUPS - DOMINANT WAVELENGTH - JE2835 BLUE

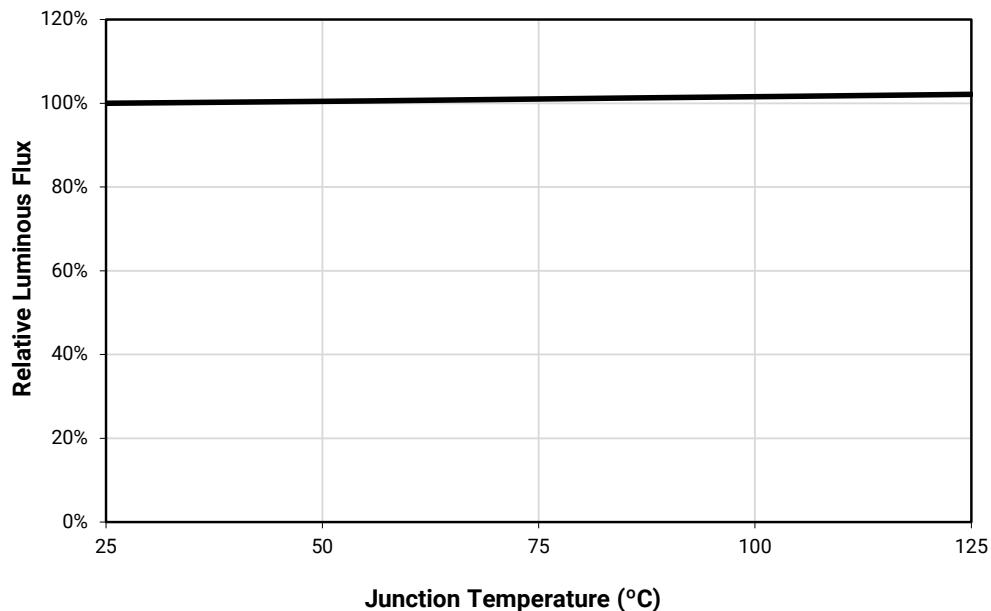
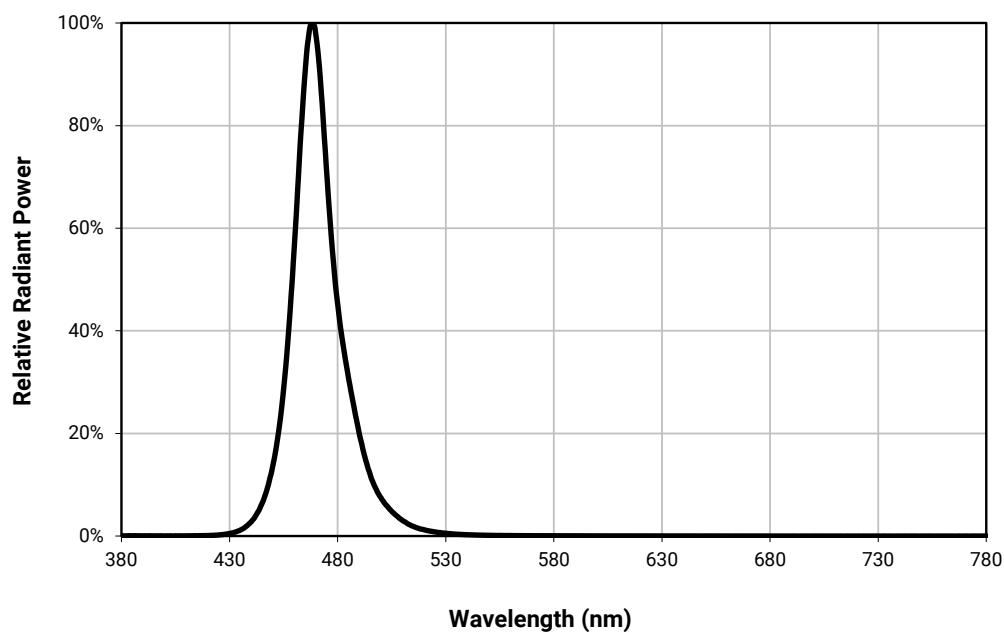
J Series JE2835 blue LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

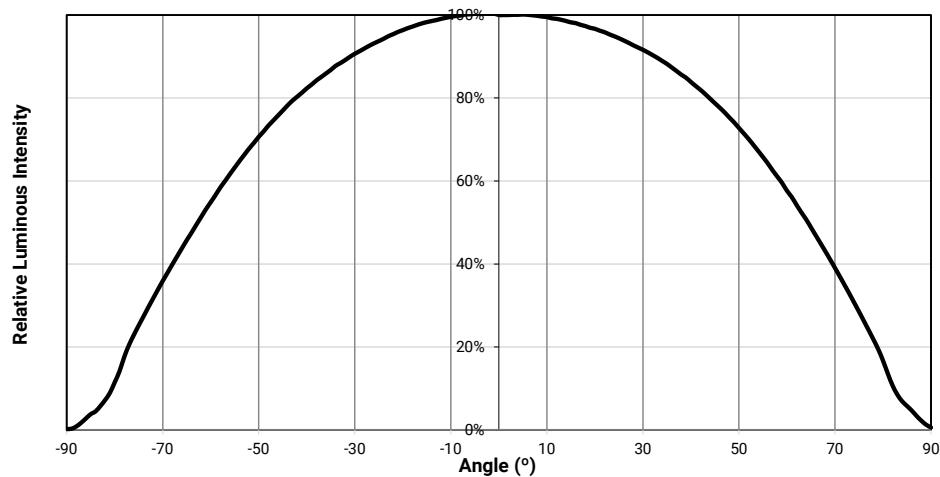
| Color | DWL Group | Minimum DWL (nm) @ 140 mA | Maximum DWL (nm) @ 140 mA |
|-------|-----------|---------------------------|---------------------------|
| Blue | B4 | 470 | 475 |
| | B5 | 475 | 480 |

Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 BLUE**ELECTRICAL CHARACTERISTICS - JE2835 BLUE**

RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 BLUE**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 BLUE**

TYPICAL SPATIAL DISTRIBUTION - JE2835 BLUE

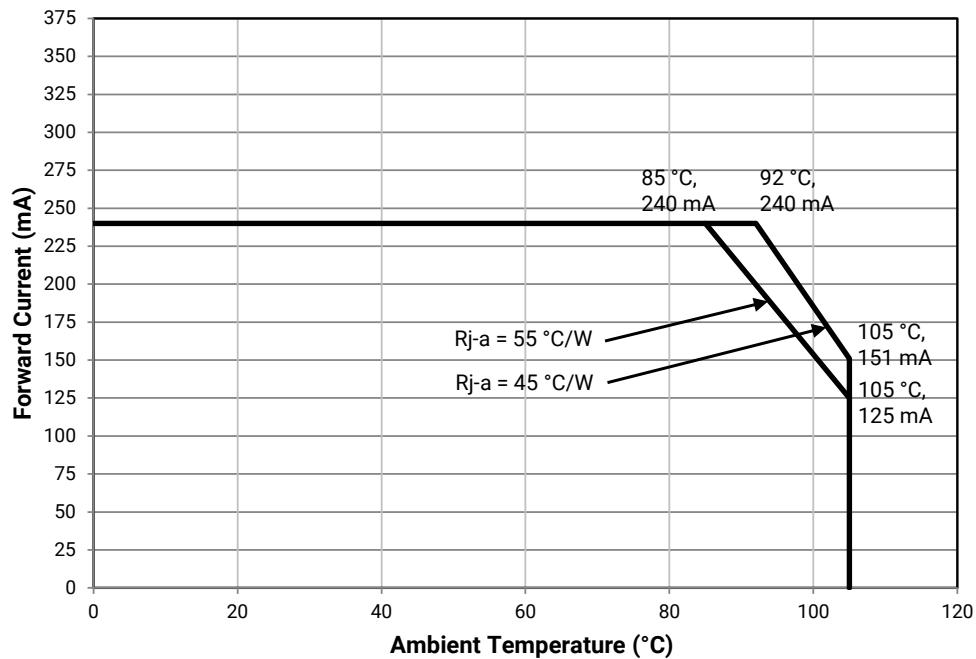
JE2835 CYAN**CHARACTERISTICS - JE2835 CYAN**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 38 | |
| Viewing angle (FWHM) | degrees | | 127 | |
| Temperature coefficient of voltage | mV/°C | | -0.9 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 240 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 3.26 | 3.4 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 CYAN

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 CYAN ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 cyan LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4).

| Minimum Flux | | Typical Luminous Flux (lm) | Dominant Wavelength | | | | Order Code | | |
|--------------|-----------|----------------------------|---------------------|---------|---------|---------|--------------------------------|--|--|
| Group | Flux (lm) | | Minimum | | Maximum | | | | |
| | | | Group | WL (nm) | Group | WL (nm) | | | |
| C5 | 28 | 32 | C3 | 495 | C5 | 510 | JE2835ACY-N-0003A0000-N0000001 | | |

PERFORMANCE GROUPS - LUMINOUS FLUX - JE2835 CYAN ($T_J = 25^\circ\text{C}$)

J Series JE2835 cyan LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

| Color | Code | Minimum Luminous Flux (lm) | Maximum Luminous Flux (lm) |
|-------|------|----------------------------|----------------------------|
| Cyan | C5 | 28.0 | 30.0 |
| | D2 | 30.0 | 32.0 |
| | D3 | 32.0 | 34.0 |
| | D4 | 34.0 | 36.0 |

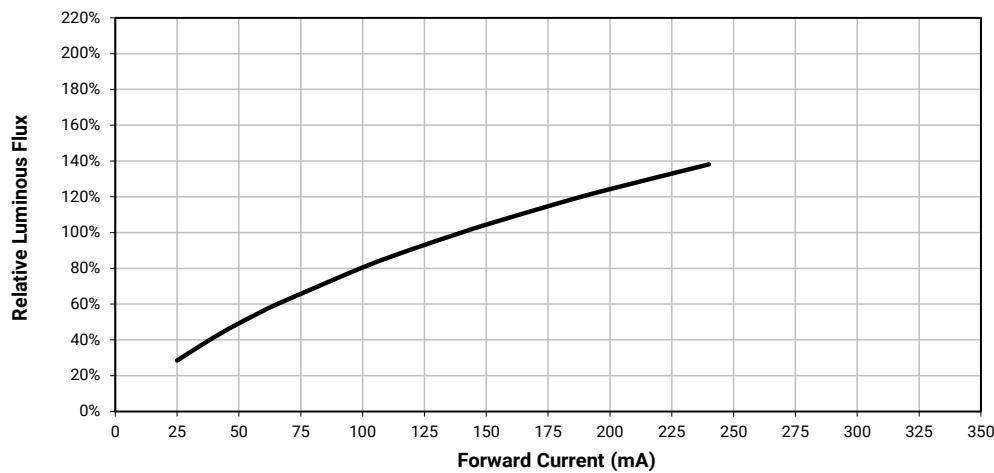
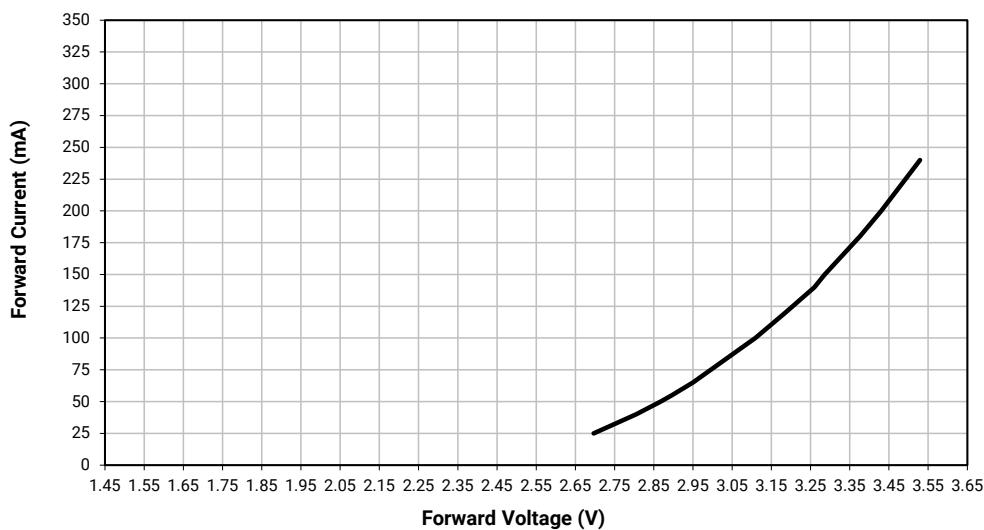
PERFORMANCE GROUPS - DOMINANT WAVELENGTH - JE2835 CYAN

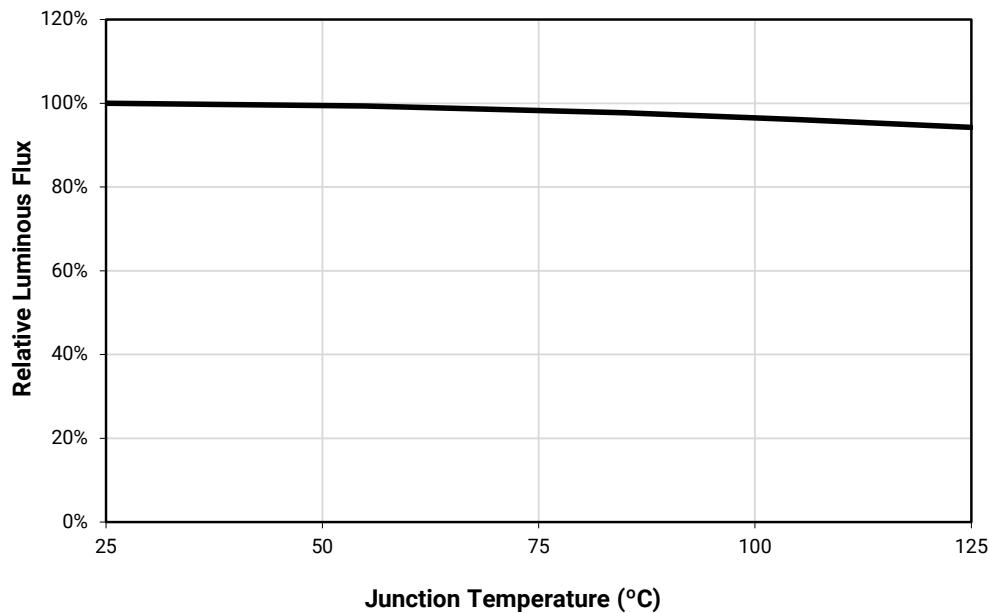
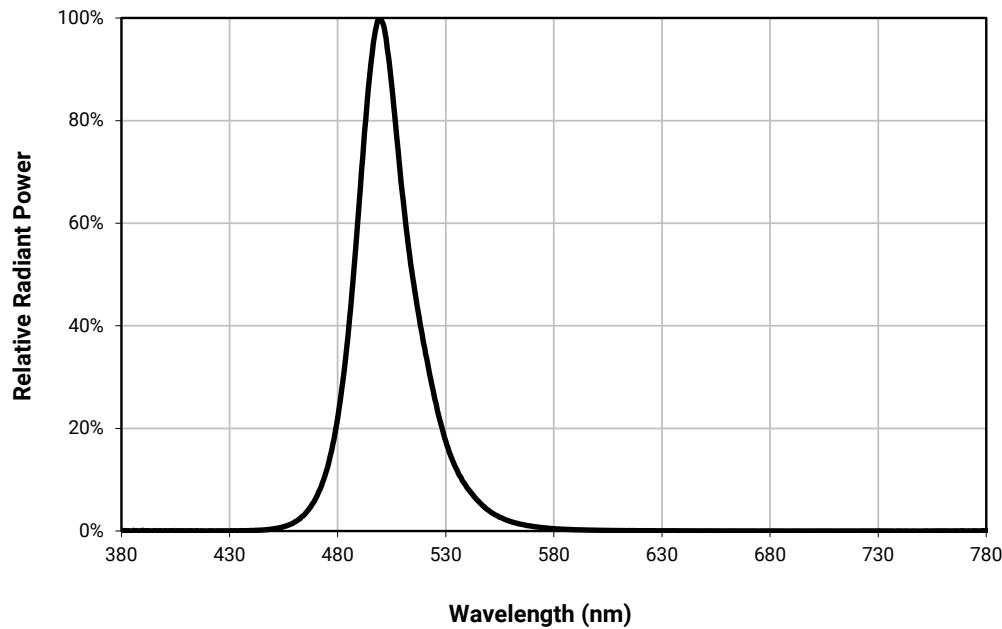
J Series JE2835 cyan LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

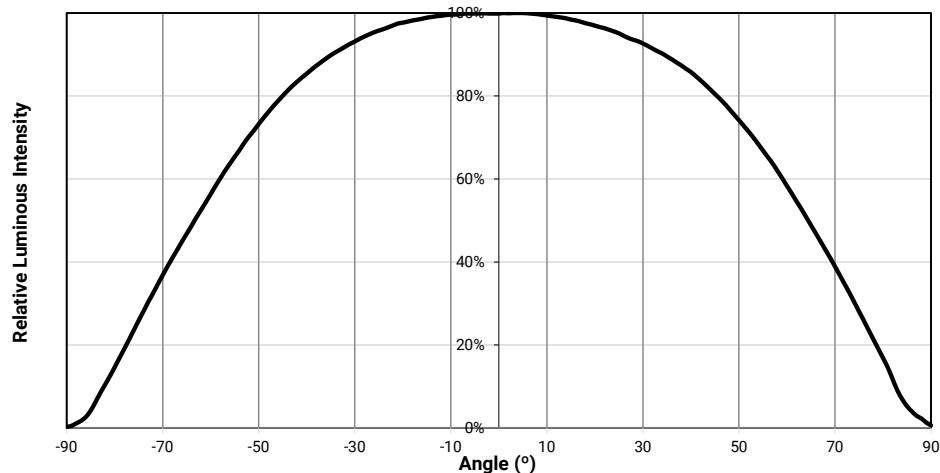
| Color | DWL Group | Minimum DWL (nm) @ 140 mA | Maximum DWL (nm) @ 140 mA |
|-------|-----------|---------------------------|---------------------------|
| Cyan | C3 | 495 | 500 |
| | C4 | 500 | 505 |
| | C5 | 505 | 510 |

Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 CYAN**ELECTRICAL CHARACTERISTICS - JE2835 CYAN**

RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 CYAN**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 CYAN**

TYPICAL SPATIAL DISTRIBUTION - JE2835 CYAN

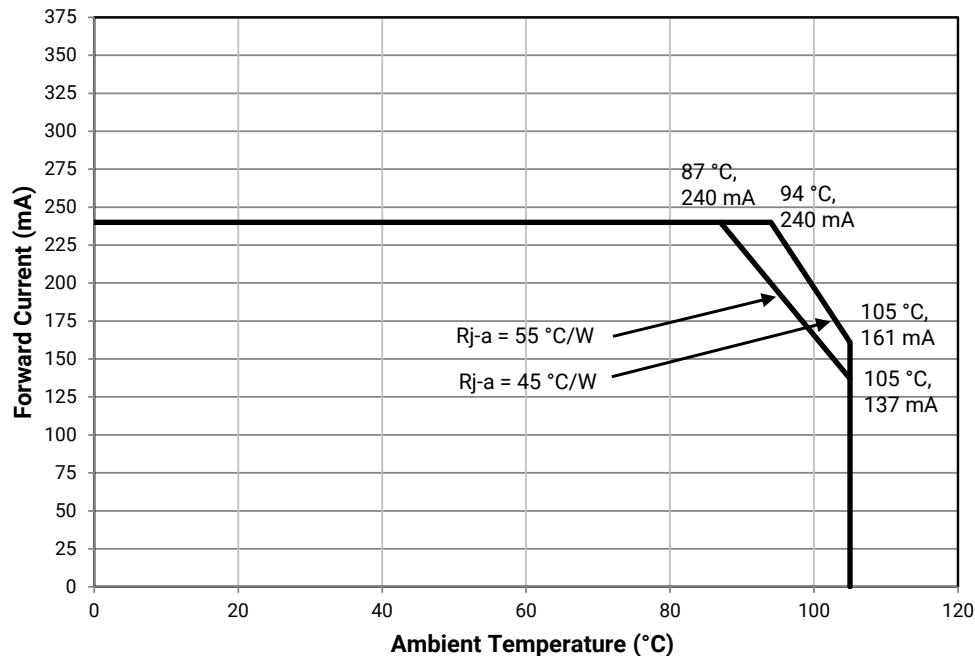
JE2835 GREEN**CHARACTERISTICS - JE2835 GREEN**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 22 | |
| Viewing angle (FWHM) | degrees | | 124 | |
| Temperature coefficient of voltage | mV/°C | | -0.9 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 240 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.8 | 3.0 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 GREEN

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 GREEN ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 green LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4).

| Minimum Flux | | Typical Luminous Flux (lm) | Dominant Wavelength | | | | Order Code | | |
|--------------|-----------|----------------------------|---------------------|---------|---------|---------|--------------------------------|--|--|
| Group | Flux (lm) | | Minimum | | Maximum | | | | |
| | | | Group | WL (nm) | Group | WL (nm) | | | |
| F3 | 60 | 65.5 | G2 | 520 | G3 | 530 | JE2835AGR-N-0002A0000-N0000001 | | |

PERFORMANCE GROUPS - LUMINOUS FLUX - JE2835 GREEN ($T_J = 25^\circ\text{C}$)

J Series JE2835 green LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

| Color | Code | Minimum Luminous Flux (lm) | Maximum Luminous Flux (lm) |
|-------|------|----------------------------|----------------------------|
| Green | F3 | 60.0 | 64.0 |
| | F4 | 64.0 | 68.0 |
| | F5 | 68.0 | 72.0 |

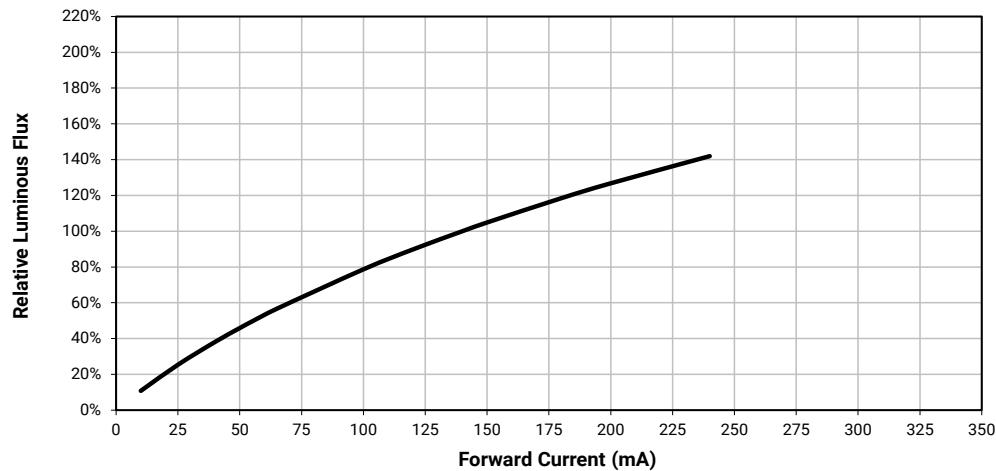
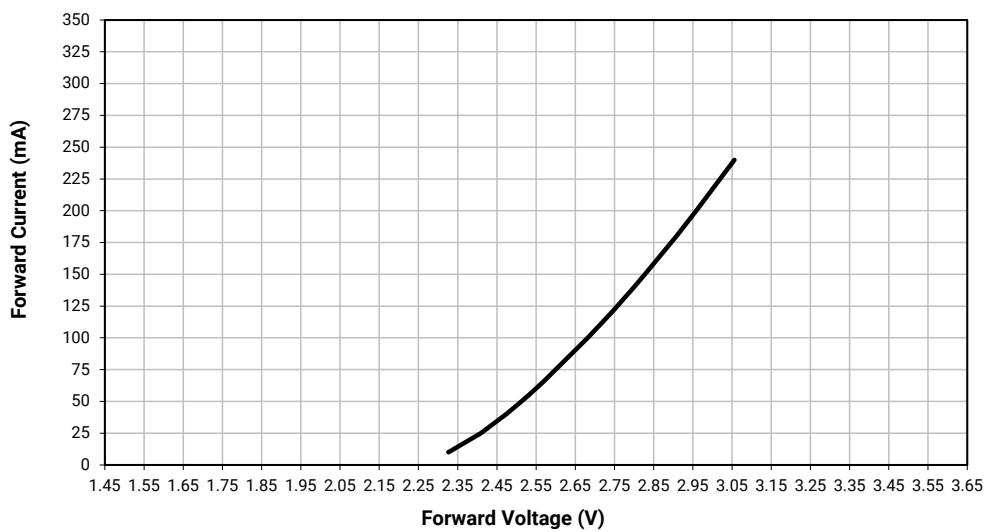
PERFORMANCE GROUPS - DOMINANT WAVELENGTH - JE2835 GREEN

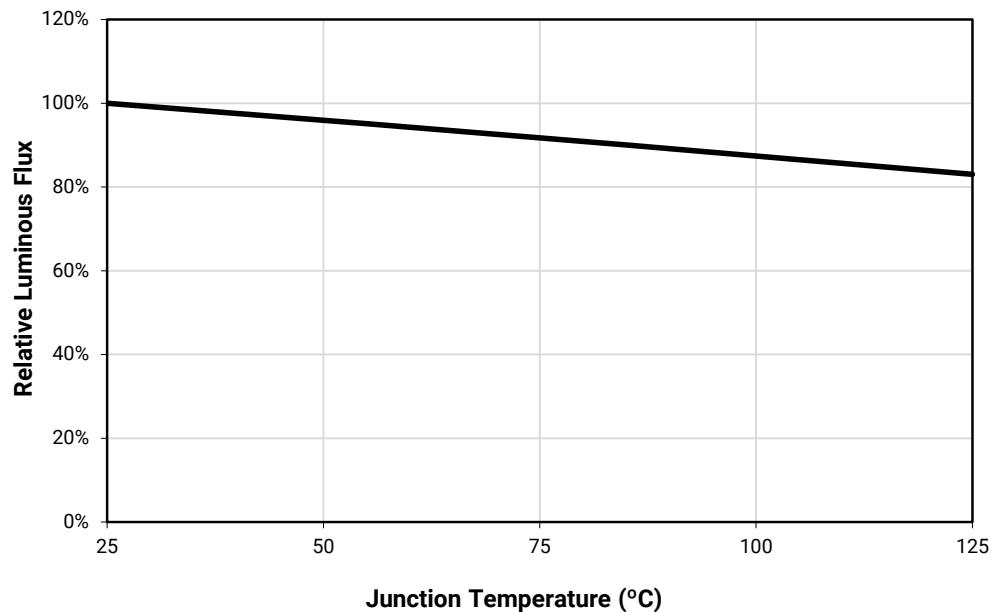
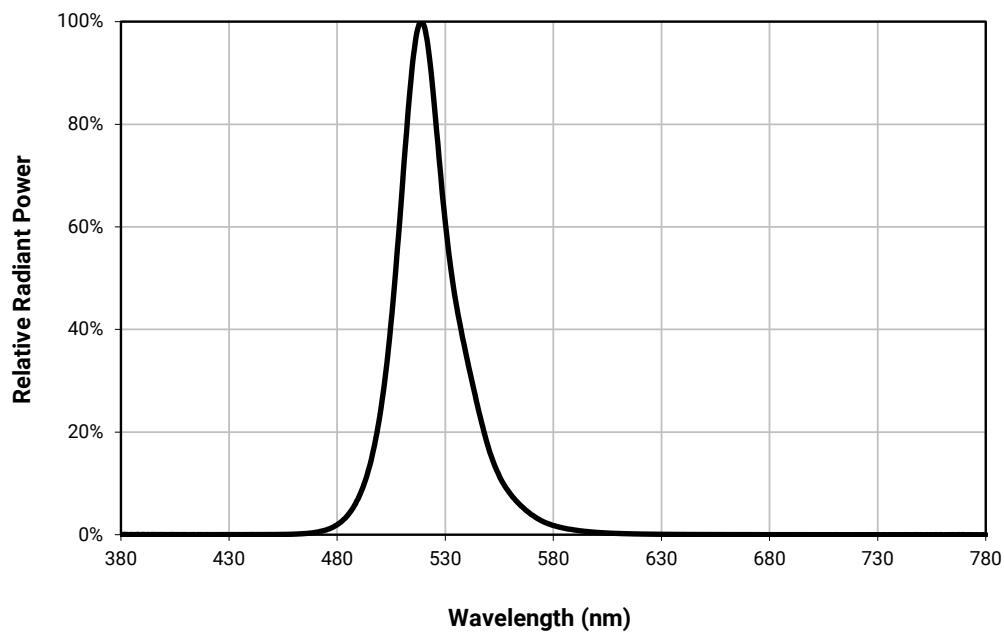
J Series JE2835 green LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

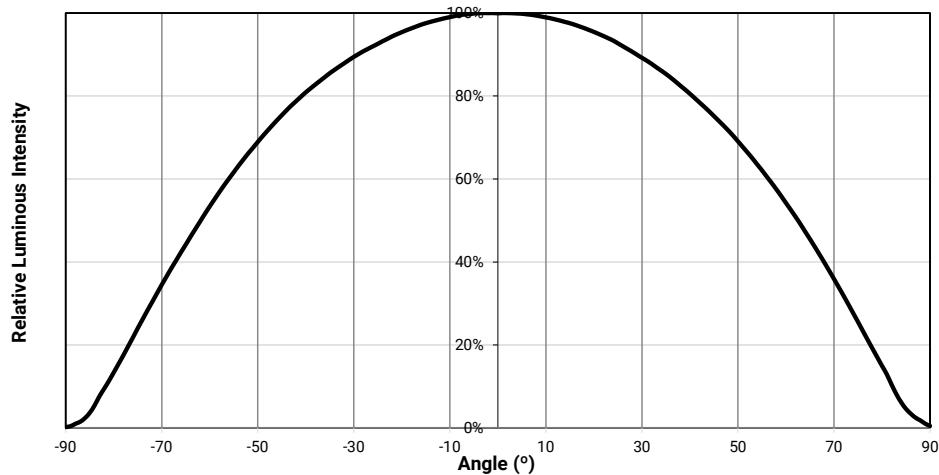
| Color | DWL Group | Minimum DWL (nm) @ 140 mA | Maximum DWL (nm) @ 140 mA |
|-------|-----------|---------------------------|---------------------------|
| Green | G2 | 520 | 525 |
| | G3 | 525 | 530 |

Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 GREEN**ELECTRICAL CHARACTERISTICS - JE2835 GREEN**

RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 GREEN**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 GREEN**

TYPICAL SPATIAL DISTRIBUTION - JE2835 GREEN

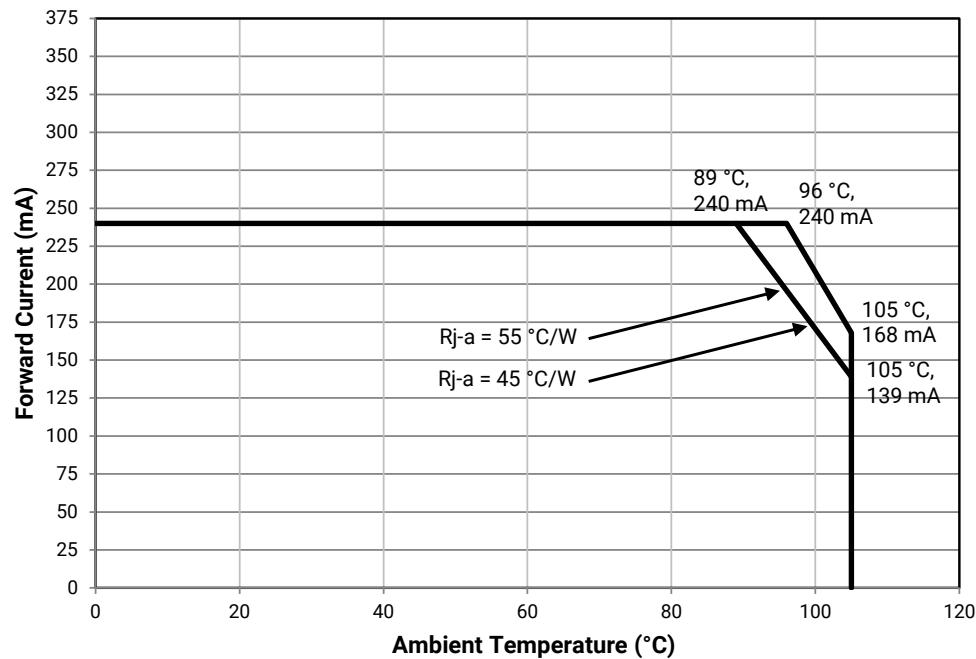
JE2835 PC LIME**CHARACTERISTICS - JE2835 PC LIME**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 15 | |
| Viewing angle (FWHM) | degrees | | 115 | |
| Temperature coefficient of voltage | mV/°C | | -1.0 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 240 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.96 | 3.1 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 PC LIME

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 PC LIME ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 PC lime LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4). For definitions of the chromaticity kits, please see the Chromaticity Color Coordinates section (page 34).

| Minimum Flux | | Typical Luminous Flux (lm) | Order Code |
|--------------|-----------|----------------------------|--------------------------------|
| Group | Flux (lm) | | |
| H2 | 90 | 98 | JE2835APL-N-0001A0000-N0000001 |

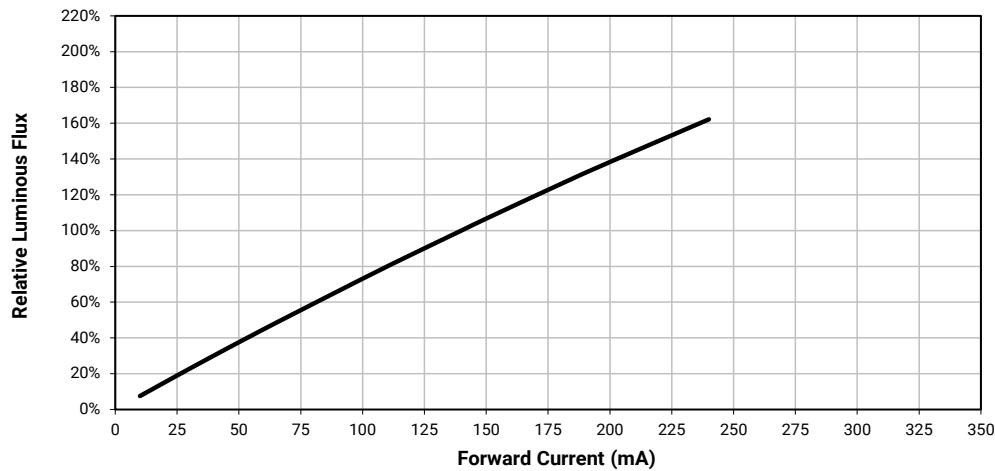
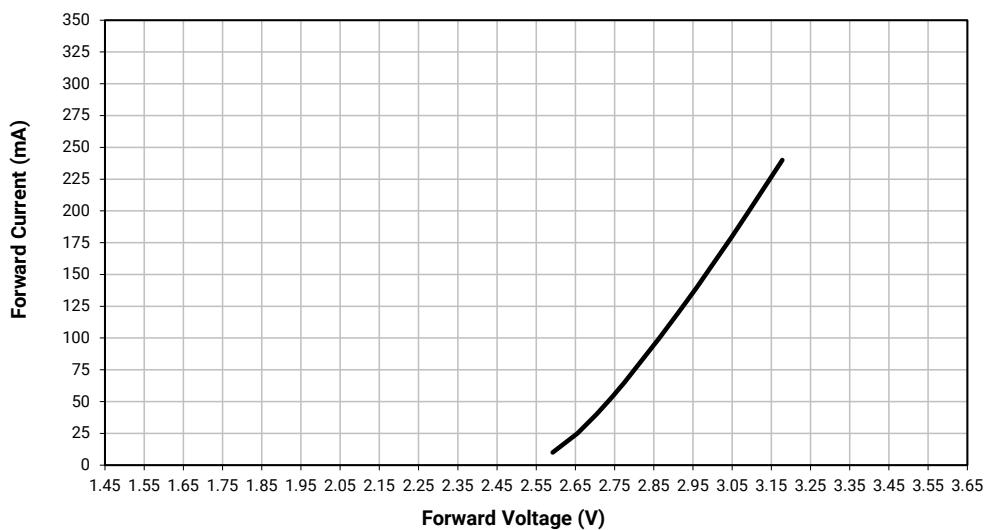
PERFORMANCE GROUPS - LUMINOUS FLUX - JE2835 PC LIME ($T_J = 25^\circ\text{C}$)

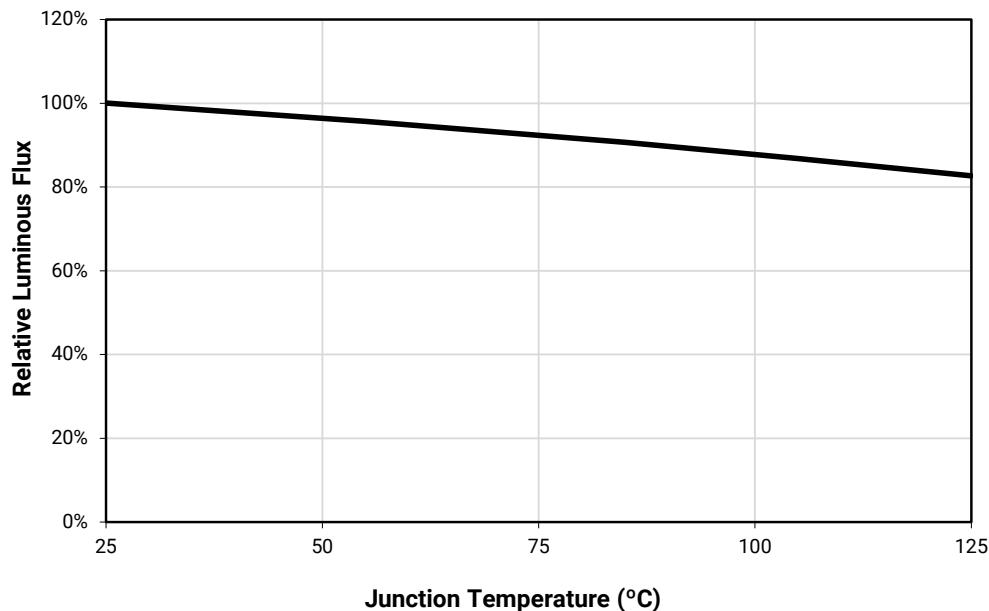
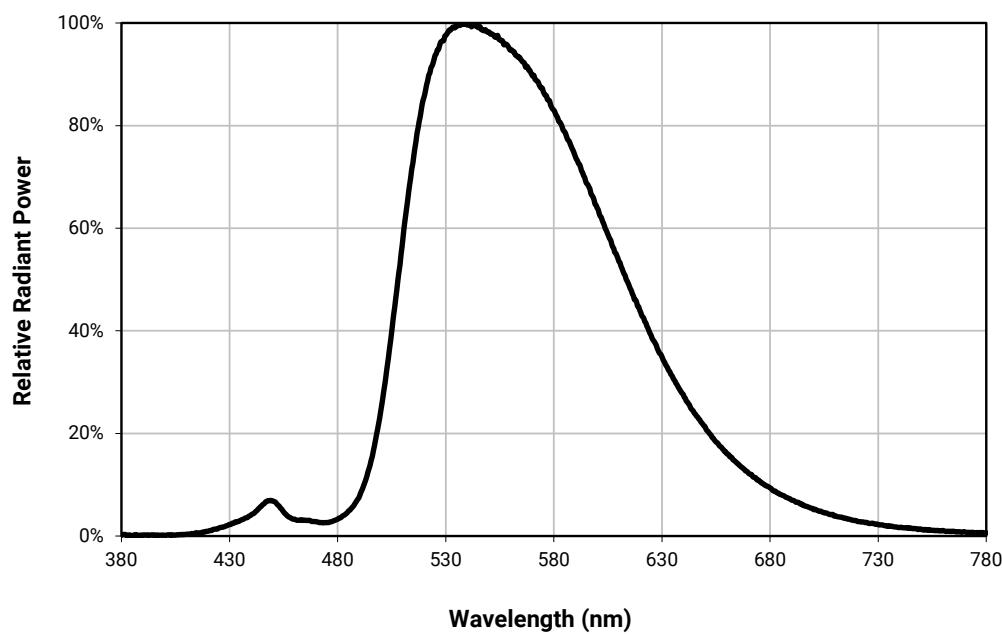
J Series JE2835 PC lime LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

| Color | Code | Minimum Luminous Flux (lm) | Maximum Luminous Flux (lm) |
|---------|------|----------------------------|----------------------------|
| PC Lime | H2 | 90.0 | 95.0 |
| | H3 | 95.0 | 100.0 |
| | H4 | 100.0 | 105.0 |

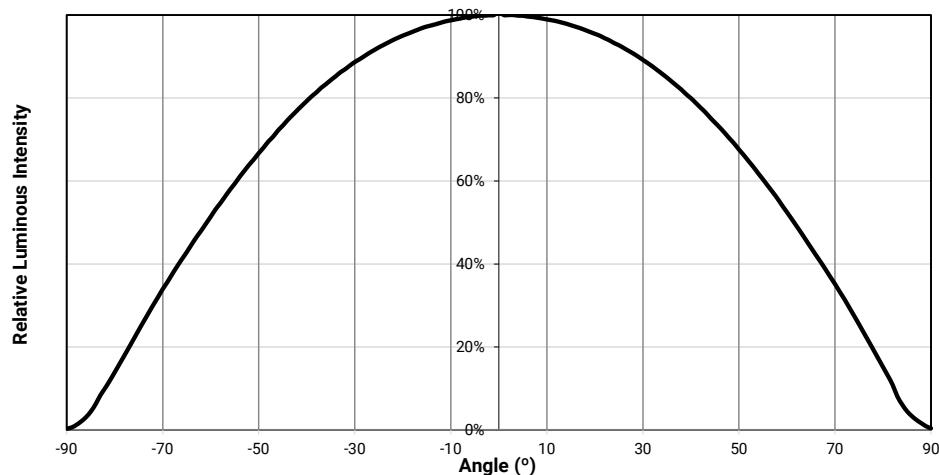
Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 PC LIME**ELECTRICAL CHARACTERISTICS - JE2835 PC LIME**

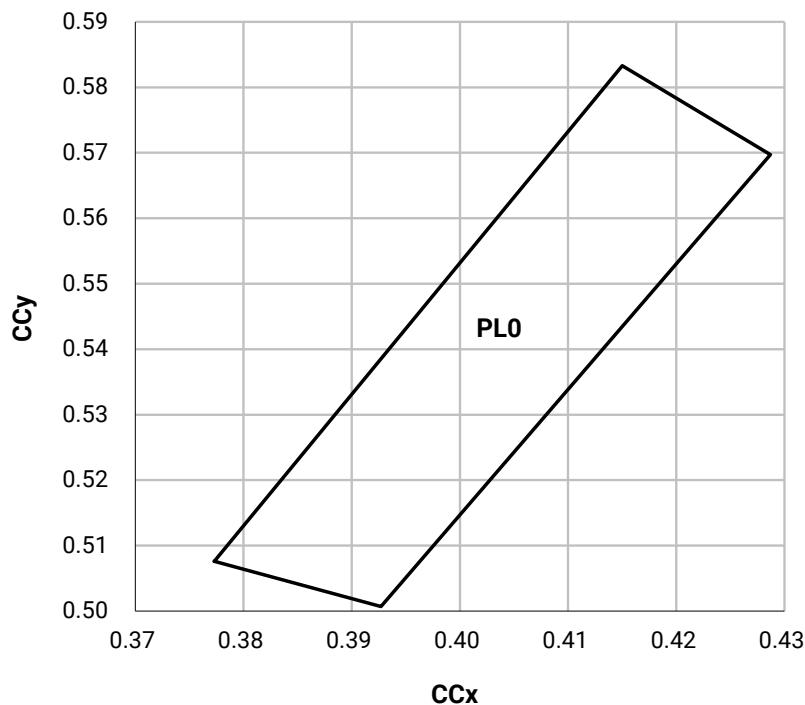
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 PC LIME**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PC LIME**

TYPICAL SPATIAL DISTRIBUTION - JE2835 PC LIME



CHROMATICITY COLOR COORDINATES - JE2835 PC LIME

J Series JE2835 PC lime LEDs are tested for chromaticity and placed into one of the regions defined by the following bounding coordinates.



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| PL0 | 0.3773 | 0.5076 |
| | 0.3927 | 0.5007 |
| | 0.4287 | 0.5697 |
| | 0.4150 | 0.5833 |

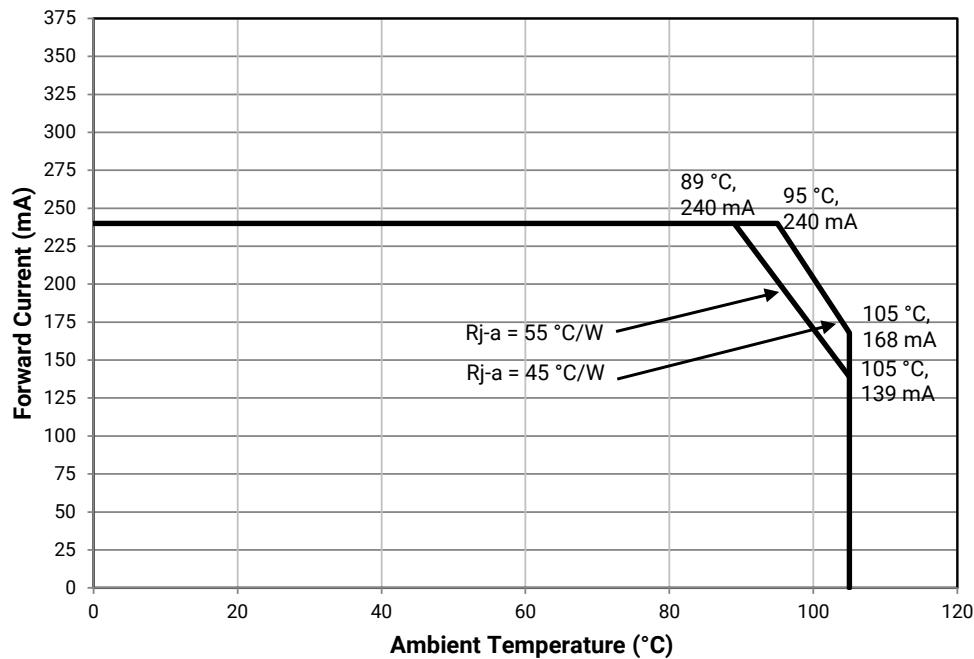
JE2835 PC MINT**CHARACTERISTICS - JE2835 PC MINT**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 14 | |
| Viewing angle (FWHM) | degrees | | 117 | |
| Temperature coefficient of voltage | mV/°C | | -1.0 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 240 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.96 | 3.1 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 PC MINT

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 PC MINT ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 PC mint LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4). For definitions of the chromaticity kits, please see the Chromaticity Color Coordinates section (page 39).

| Minimum Flux | | Typical Luminous Flux (lm) | Order Code |
|--------------|-----------|----------------------------|--------------------------------|
| Group | Flux (lm) | | |
| G5 | 85 | 93 | JE2835APM-N-0001A0000-N0000001 |

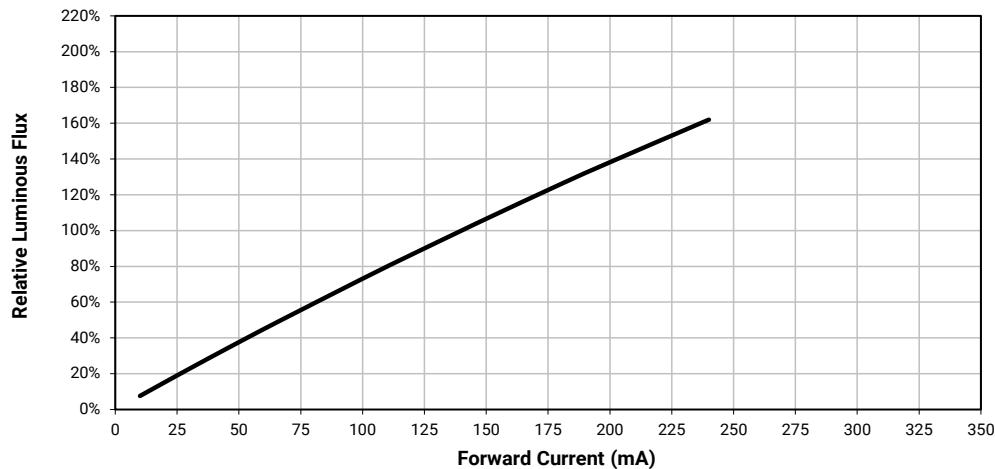
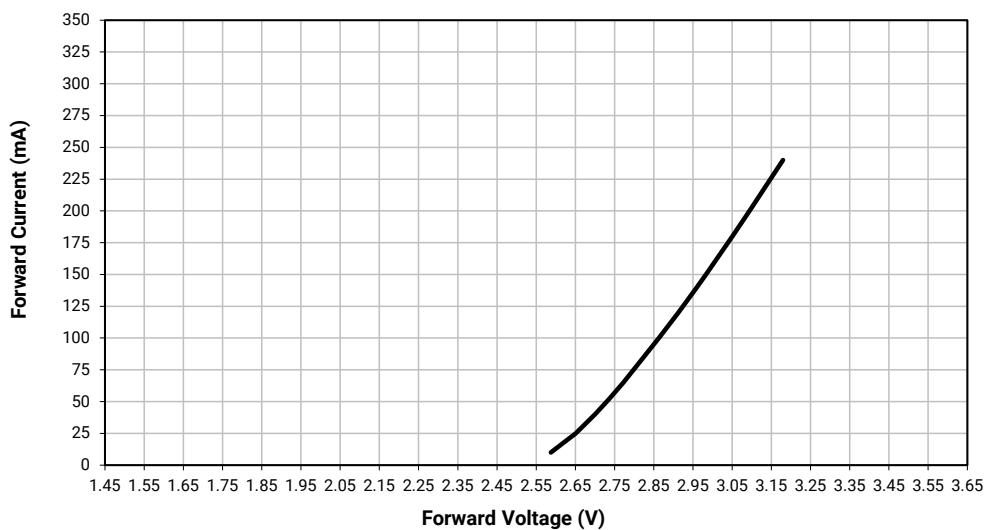
PERFORMANCE GROUPS - LUMINOUS FLUX - JE2835 PC MINT ($T_J = 25^\circ\text{C}$)

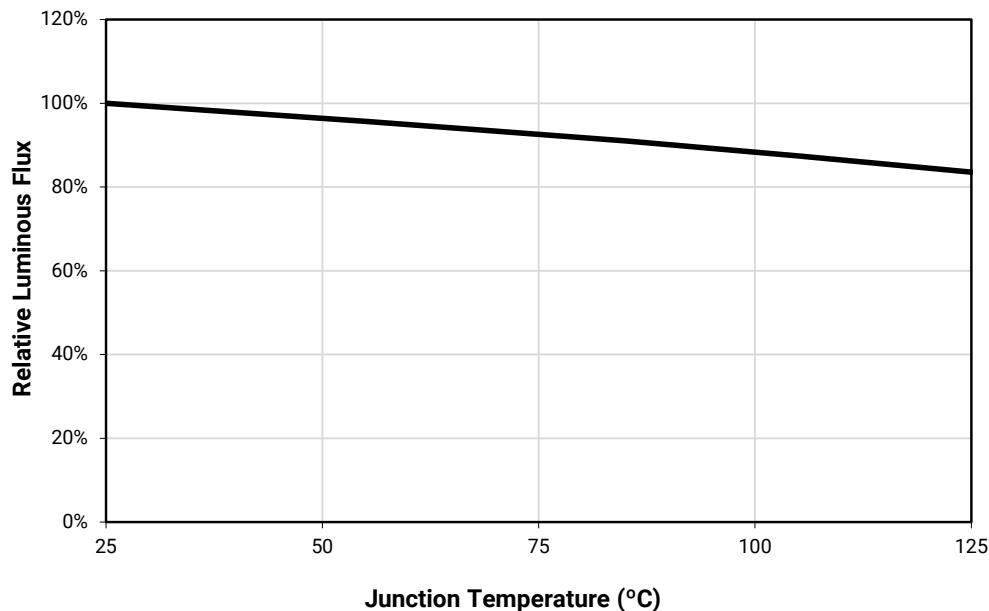
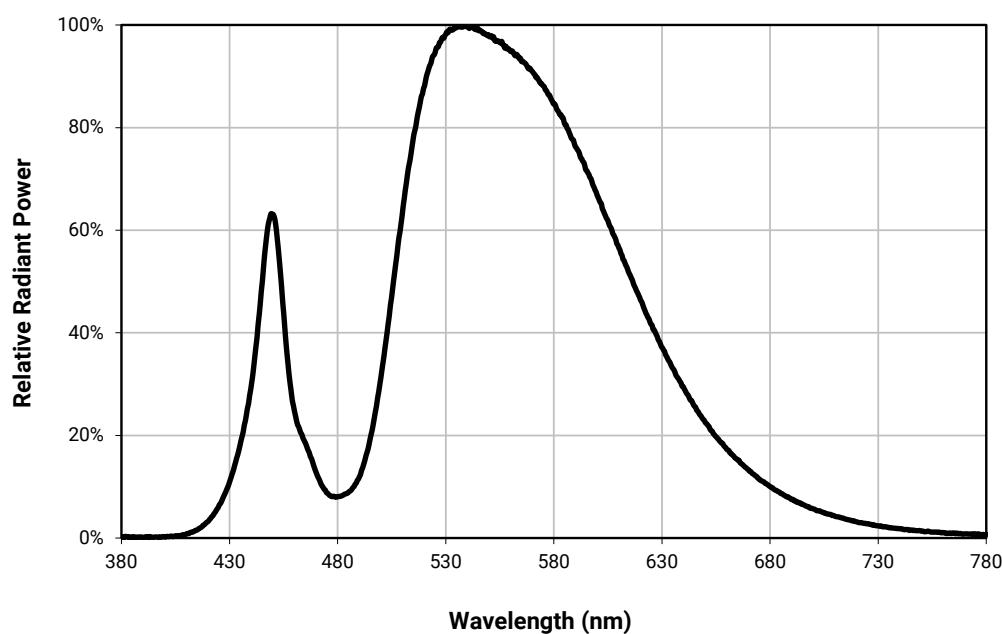
J Series JE2835 PC mint LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

| Color | Code | Minimum Luminous Flux (lm) | Maximum Luminous Flux (lm) |
|---------|------|----------------------------|----------------------------|
| PC Mint | G5 | 85.0 | 90.0 |
| | H2 | 90.0 | 95.0 |
| | H3 | 95.0 | 100.0 |

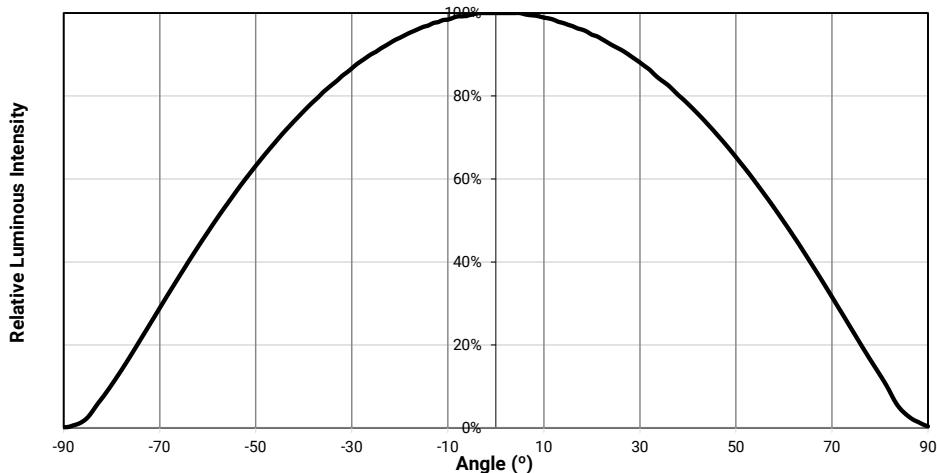
Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 PC MINT**ELECTRICAL CHARACTERISTICS - JE2835 PC MINT**

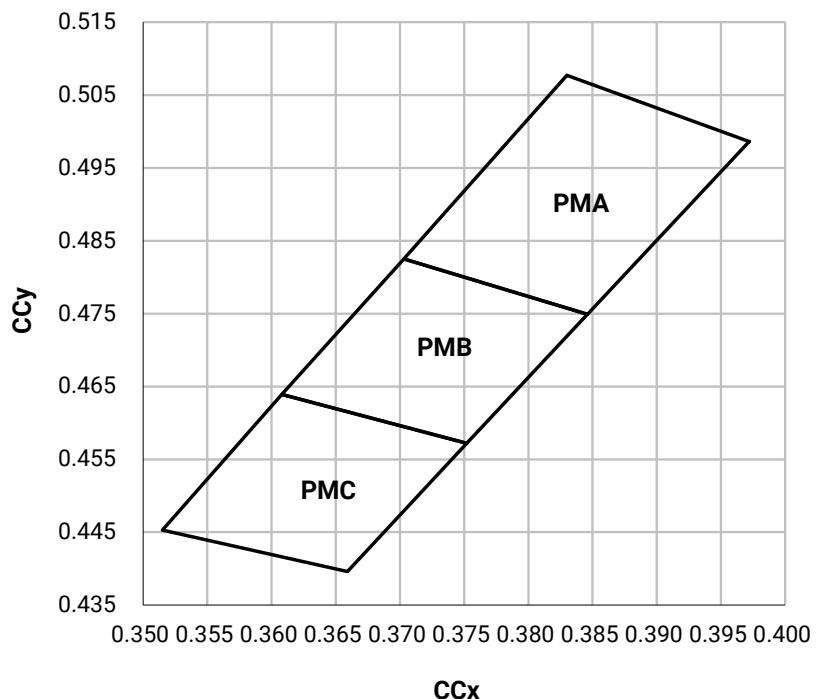
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 PC MINT**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PC MINT**

TYPICAL SPATIAL DISTRIBUTION - JE2835 PC MINT



CHROMATICITY COLOR COORDINATES - JE2835 PC MINT

J Series JE2835 PC mint LEDs are tested for chromaticity and placed into one of the regions defined by the following bounding coordinates.



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| PMA | 0.3927 | 0.4986 |
| | 0.3830 | 0.5077 |
| | 0.3703 | 0.4825 |
| | 0.3846 | 0.4749 |
| PMB | 0.3846 | 0.4749 |
| | 0.3703 | 0.4825 |
| | 0.3608 | 0.4639 |
| | 0.3752 | 0.4572 |
| PMC | 0.3752 | 0.4572 |
| | 0.3608 | 0.4639 |
| | 0.3515 | 0.4453 |
| | 0.3659 | 0.4396 |

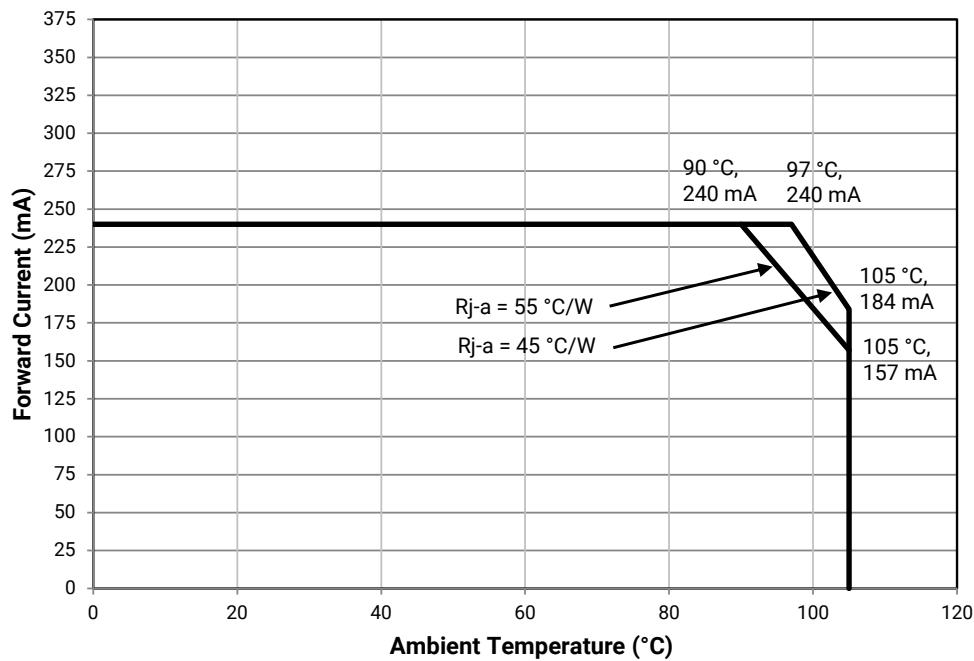
JE2835 AMBER**CHARACTERISTICS - JE2835 AMBER**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 21 | |
| Viewing angle (FWHM) | degrees | | 121 | |
| Temperature coefficient of voltage | mV/°C | | -1.8 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 240 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.3 | 2.5 |
| LED junction temperature | °C | | | 115 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 AMBER

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 AMBER ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 Amber LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4).

| Minimum Flux | | Typical Luminous Flux (lm) | Dominant Wavelength | | | | Order Code | | |
|--------------|-----------|----------------------------|---------------------|---------|---------|---------|--------------------------------|--|--|
| Group | Flux (lm) | | Minimum | | Maximum | | | | |
| | | | Group | WL (nm) | Group | WL (nm) | | | |
| C2 | 22 | 26.0 | A2 | 585 | A3 | 595 | JE2835AAM-N-0001A0000-N0000001 | | |

PERFORMANCE GROUPS - LUMINOUS FLUX - JE2835 AMBER ($T_J = 25^\circ\text{C}$)

J Series JE2835 amber LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

| Color | Code | Minimum Luminous Flux (lm) | Maximum Luminous Flux (lm) |
|-------|------|----------------------------|----------------------------|
| Amber | C2 | 22.0 | 24.0 |
| | C3 | 24.0 | 26.0 |
| | C4 | 26.0 | 28.0 |
| | C5 | 28.0 | 30.0 |

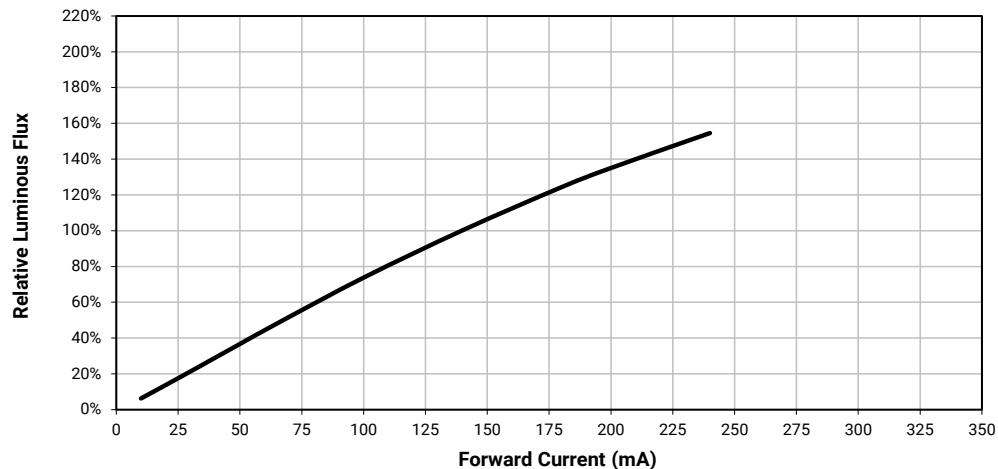
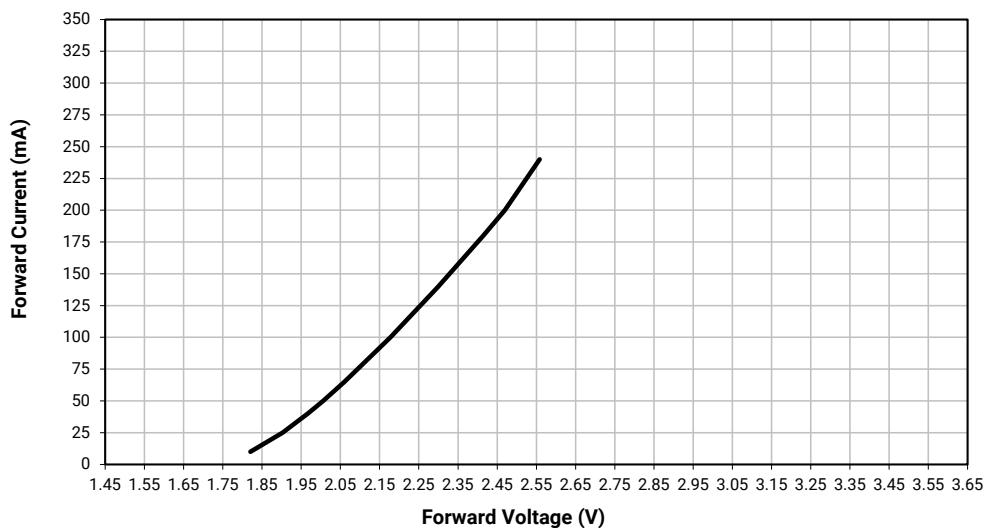
PERFORMANCE GROUPS - DOMINANT WAVELENGTH - JE2835 AMBER

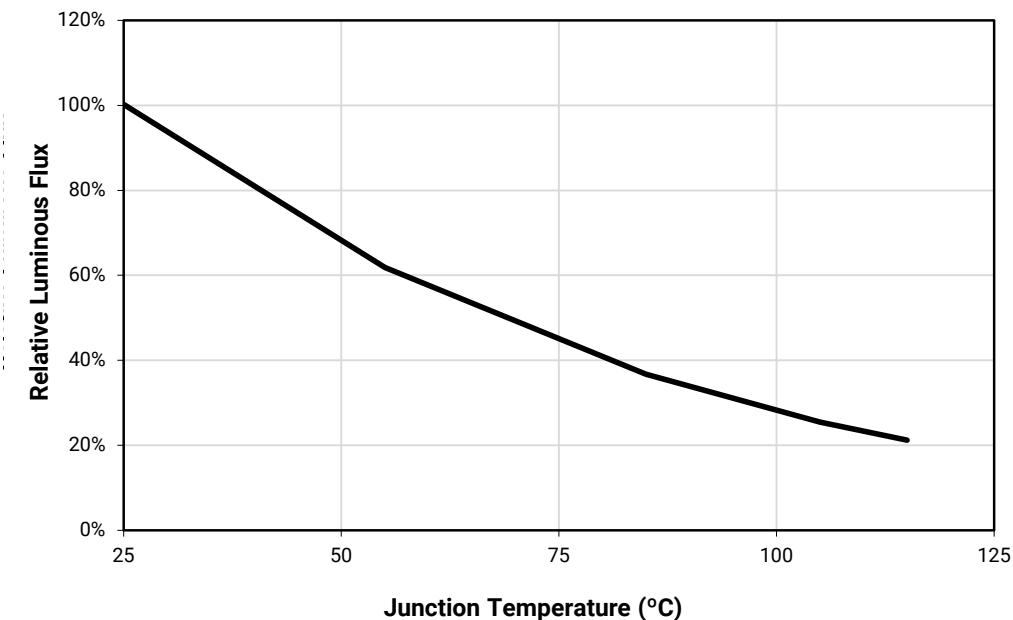
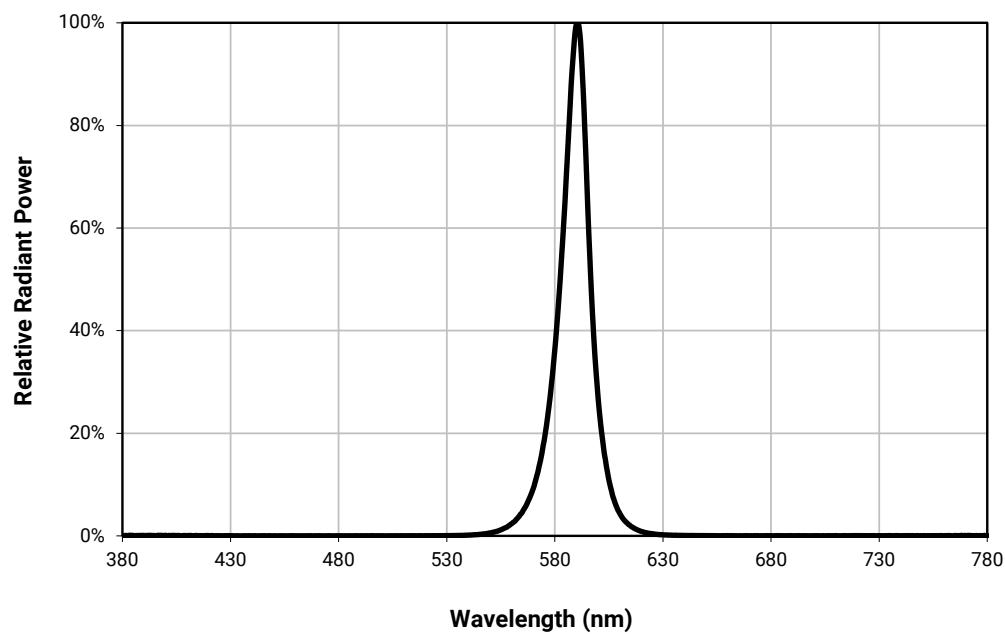
J Series JE2835 amber LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

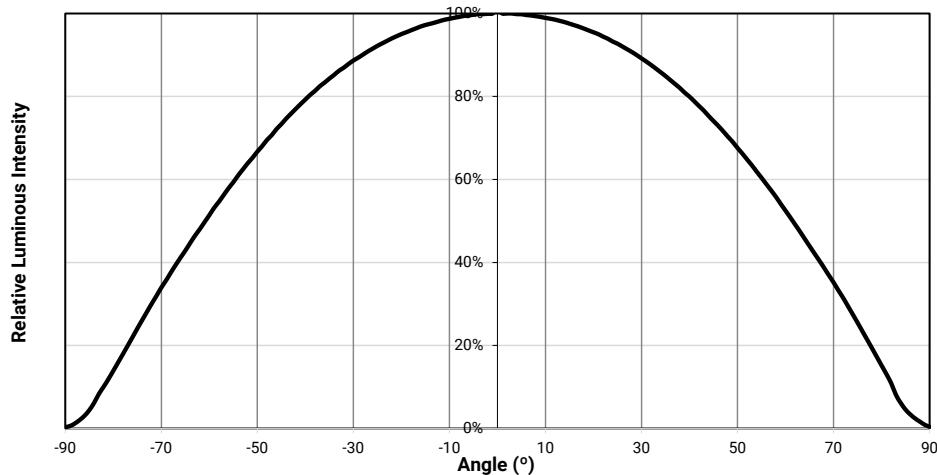
| Color | DWL Group | Minimum DWL (nm) @ 140 mA | Maximum DWL (nm) @ 140 mA |
|-------|-----------|---------------------------|---------------------------|
| Amber | A2 | 585 | 590 |
| | A3 | 590 | 595 |

Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 AMBER**ELECTRICAL CHARACTERISTICS - JE2835 AMBER**

RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 AMBER**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 AMBER**

TYPICAL SPATIAL DISTRIBUTION - JE2835 AMBER

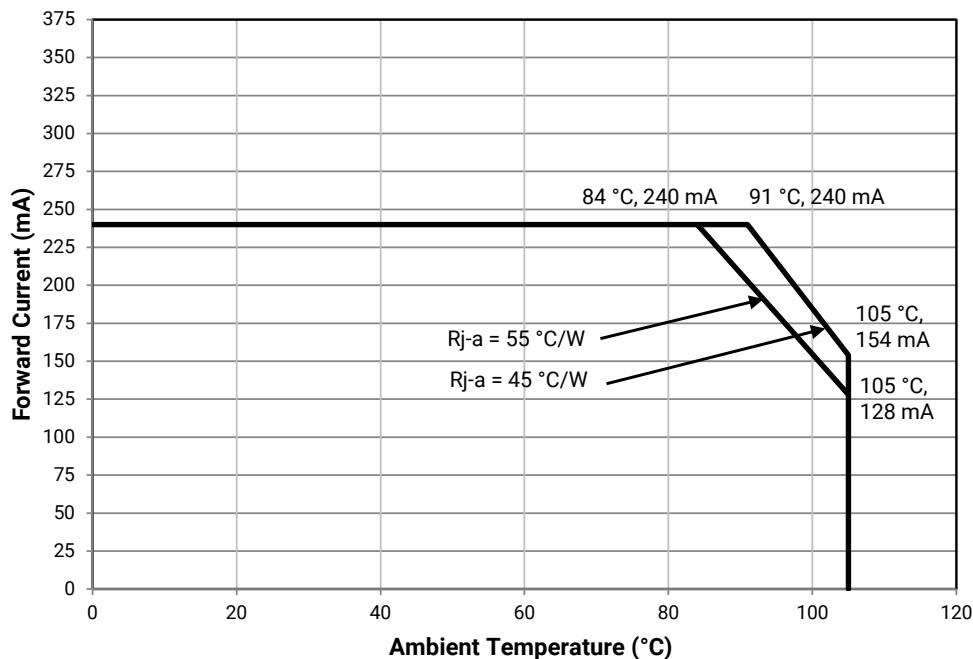
JE2835 PC AMBER**CHARACTERISTICS - JE2835 PC AMBER**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 15 | |
| Viewing angle (FWHM) | degrees | | 114 | |
| Temperature coefficient of voltage | mV/°C | | -1.0 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 240 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.96 | 3.1 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 PC AMBER

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 PC AMBER ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 PC amber LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4). For definitions of the chromaticity kits, please see the Chromaticity Color Coordinates section (page 49).

| Minimum Flux | | Typical Luminous Flux (lm) | Order Code |
|--------------|-----------|----------------------------|--------------------------------|
| Group | Flux (lm) | | |
| F2 | 56 | 61 | JE2835APA-N-0001A0000-N0000001 |

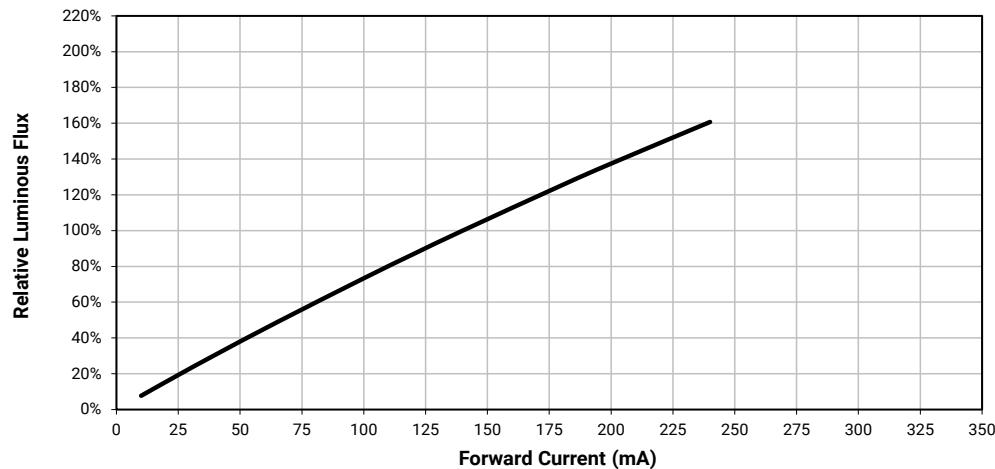
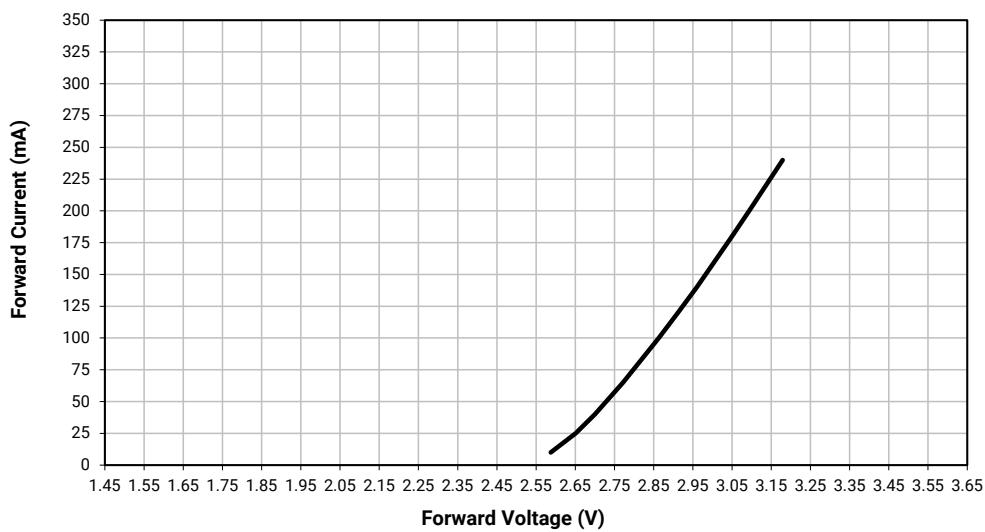
PERFORMANCE GROUPS - LUMINOUS FLUX - JE2835 PC AMBER ($T_J = 25^\circ\text{C}$)

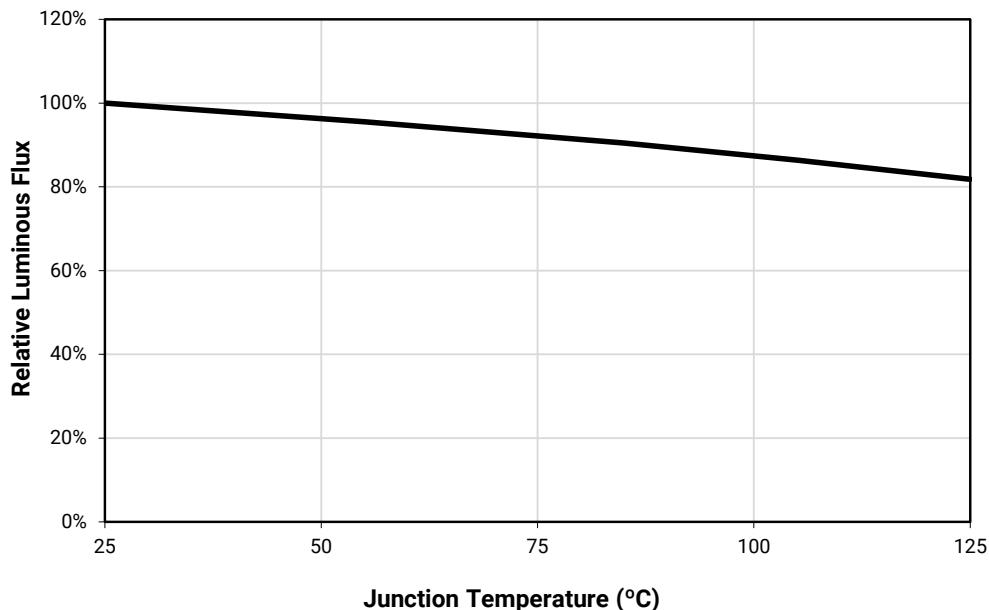
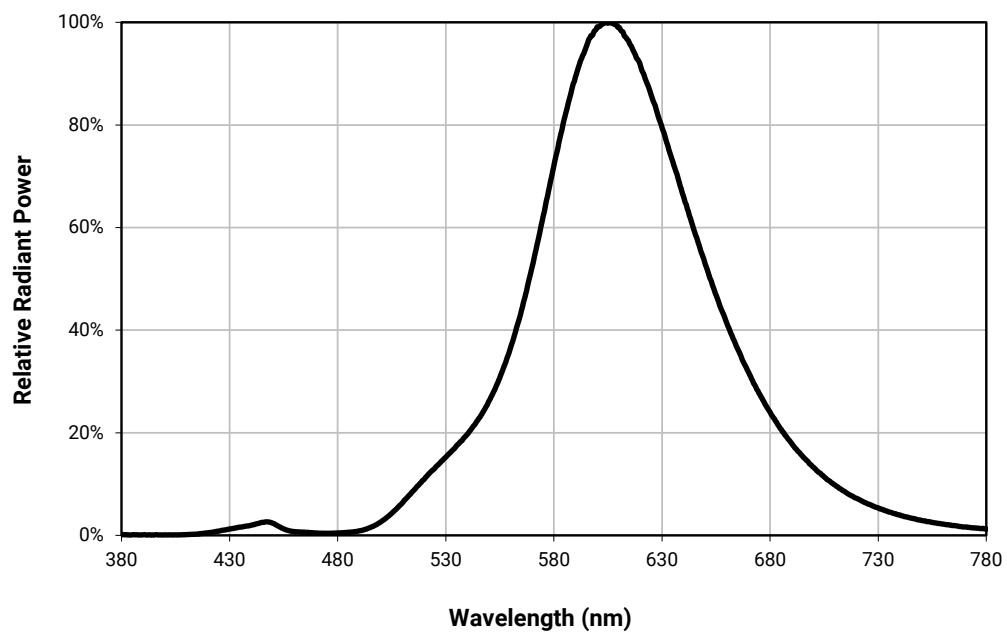
J Series JE2835 PC amber LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

| Color | Code | Minimum Luminous Flux (lm) | Maximum Luminous Flux (lm) |
|----------|------|----------------------------|----------------------------|
| PC Amber | F2 | 56.0 | 60.0 |
| | F3 | 60.0 | 64.0 |
| | F4 | 64.0 | 68.0 |

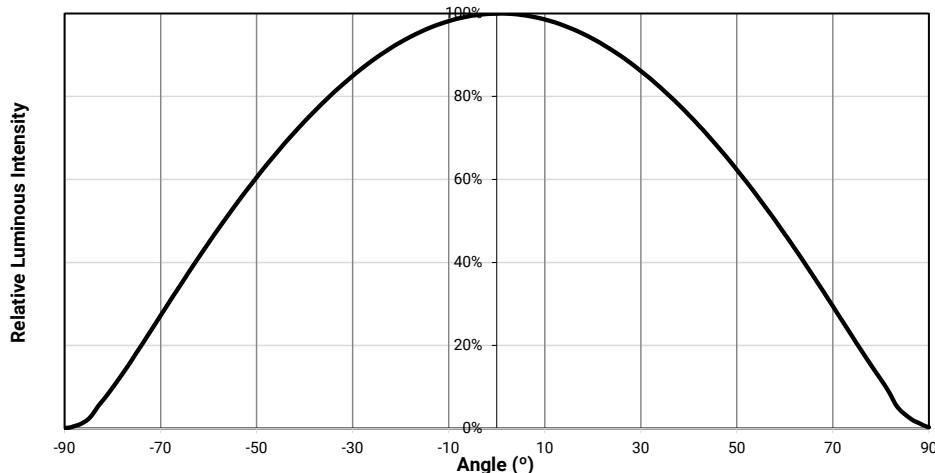
Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 PC AMBER**ELECTRICAL CHARACTERISTICS - JE2835 PC AMBER**

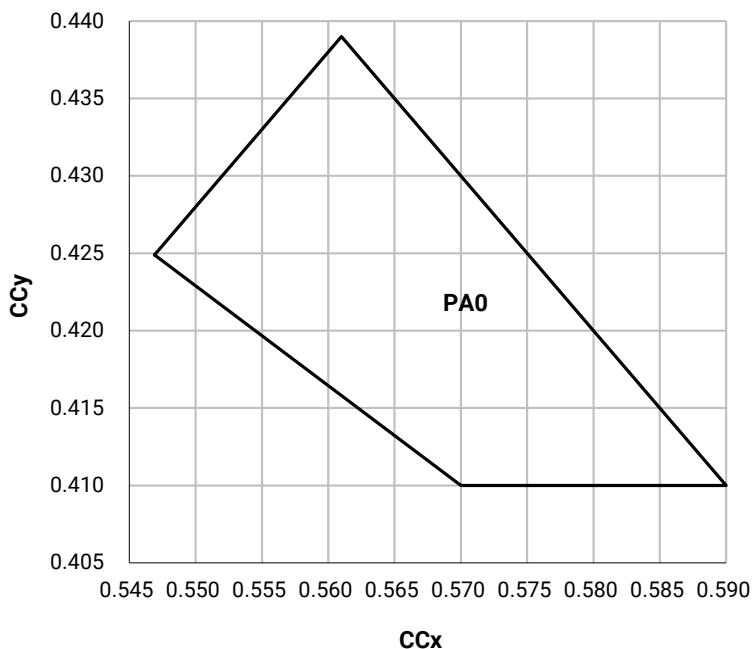
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 PC AMBER**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PC AMBER**

TYPICAL SPATIAL DISTRIBUTION - JE2835 PC AMBER



CHROMATICITY COLOR COORDINATES - JE2835 PC AMBER

J Series JE2835 PC amber LEDs are tested for chromaticity and placed into one of the regions defined by the following bounding coordinates.



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| PA0 | 0.5469 | 0.4249 |
| | 0.5700 | 0.4100 |
| | 0.5900 | 0.4100 |
| | 0.5610 | 0.4390 |

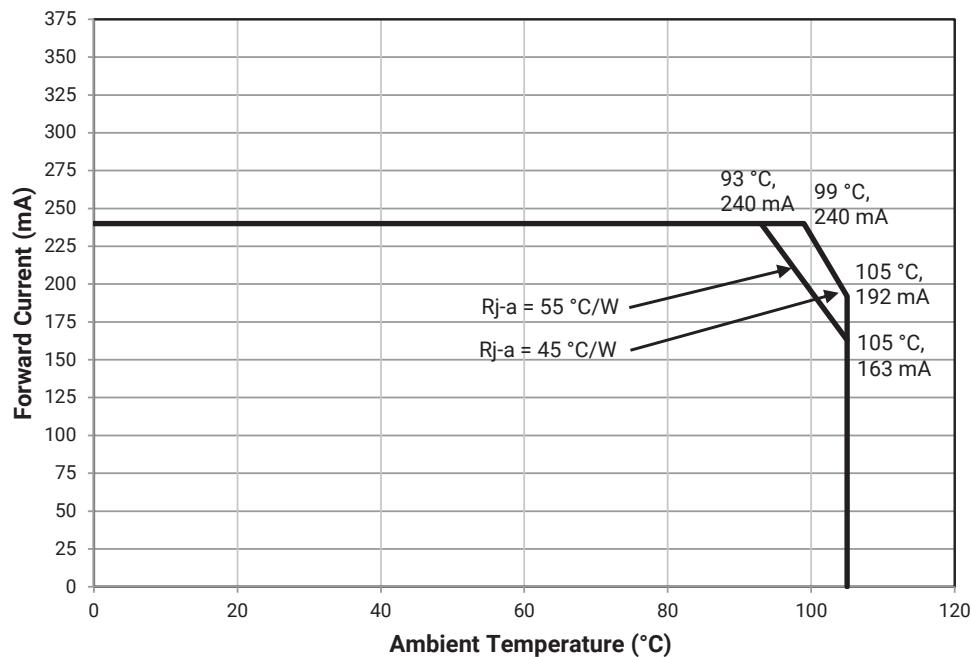
JE2835 RED-ORANGE**CHARACTERISTICS - JE2835 RED-ORANGE**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 12 | |
| Viewing angle (FWHM) | degrees | | 121 | |
| Temperature coefficient of voltage | mV/°C | | -1.4 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 240 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.25 | 2.4 |
| LED junction temperature | °C | | | 115 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 RED-ORANGE

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 RED-ORANGE ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 red-orange LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4).

| Minimum Flux | | Typical Luminous Flux (lm) | Dominant Wavelength | | | | Order Code | | |
|--------------|-----------|----------------------------|---------------------|---------|---------|---------|--------------------------------|--|--|
| Group | Flux (lm) | | Minimum | | Maximum | | | | |
| | | | Group | WL (nm) | Group | WL (nm) | | | |
| D2 | 30 | 34.0 | O3 | 610 | O4 | 620 | JE2835ARO-N-0001A0000-N0000001 | | |

PERFORMANCE GROUPS - LUMINOUS FLUX - JE2835 RED-ORANGE ($T_J = 25^\circ\text{C}$)

J Series JE2835 red-orange LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

| Color | Code | Minimum Luminous Flux (lm) | Maximum Luminous Flux (lm) |
|------------|------|----------------------------|----------------------------|
| Red-Orange | D2 | 30 | 32 |
| | D3 | 32 | 32 |
| | D4 | 34 | 36 |
| | D5 | 36 | 38 |

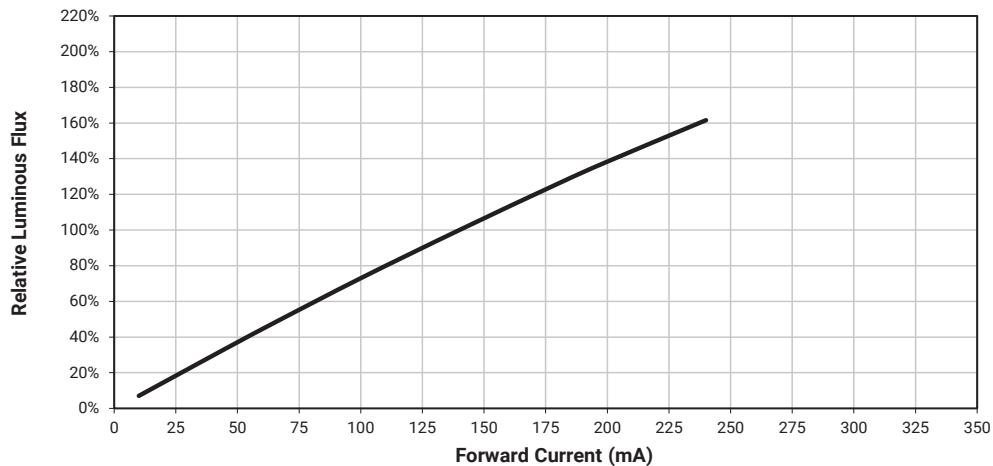
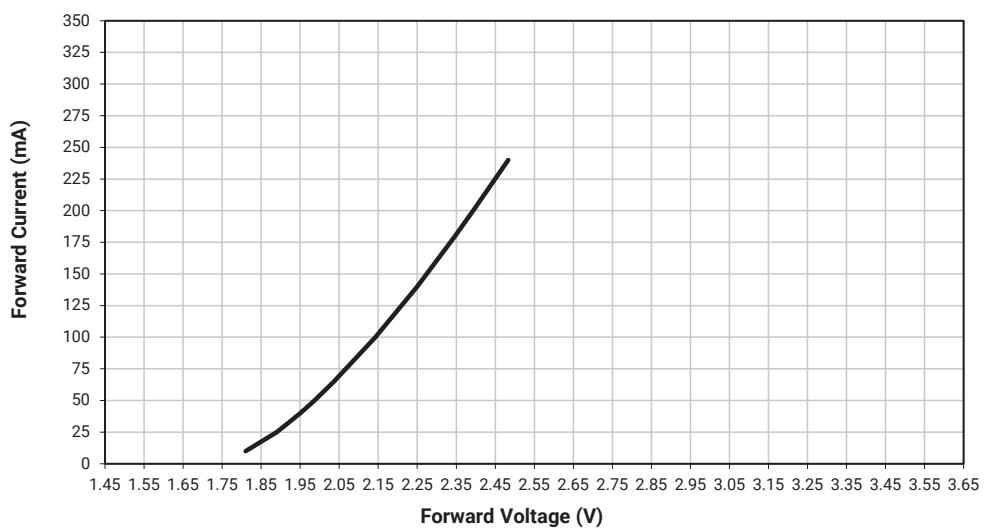
PERFORMANCE GROUPS - DOMINANT WAVELENGTH - JE2835 RED-ORANGE

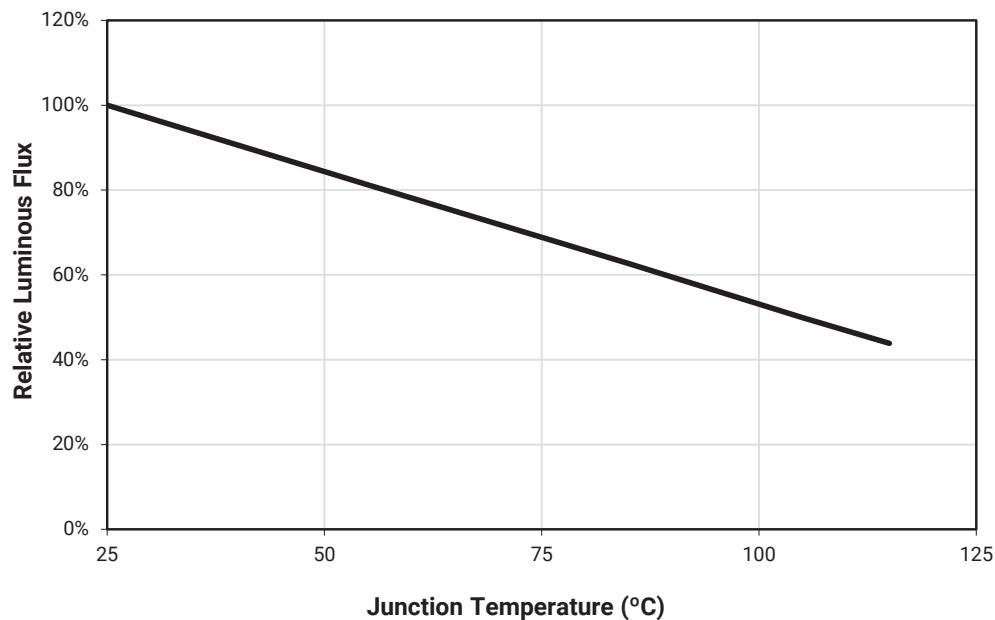
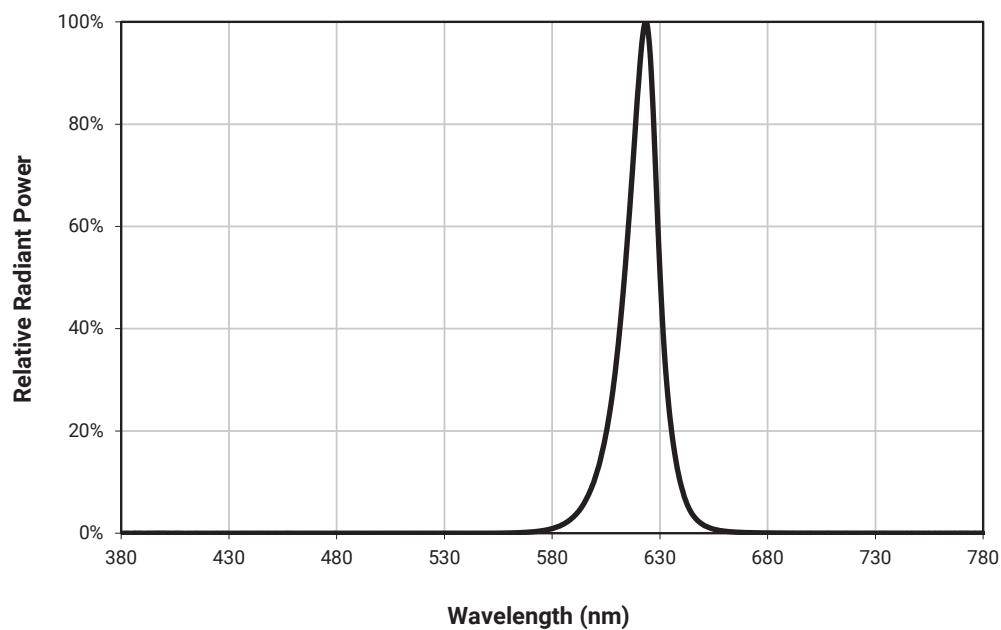
J Series JE2835 red-orange LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

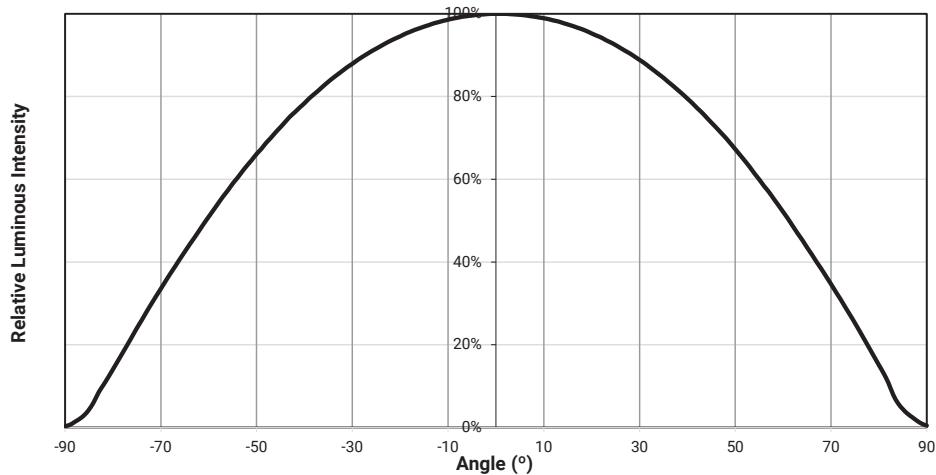
| Color | DWL Group | Minimum DWL (nm) @ 140 mA | Maximum DWL (nm) @ 140 mA |
|------------|-----------|---------------------------|---------------------------|
| Red-Orange | O3 | 610 | 615 |
| | O4 | 615 | 620 |

Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 RED-ORANGE**ELECTRICAL CHARACTERISTICS - JE2835 RED-ORANGE**

RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 RED-ORANGE**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 RED-ORANGE**

TYPICAL SPATIAL DISTRIBUTION - JE2835 RED-ORANGE

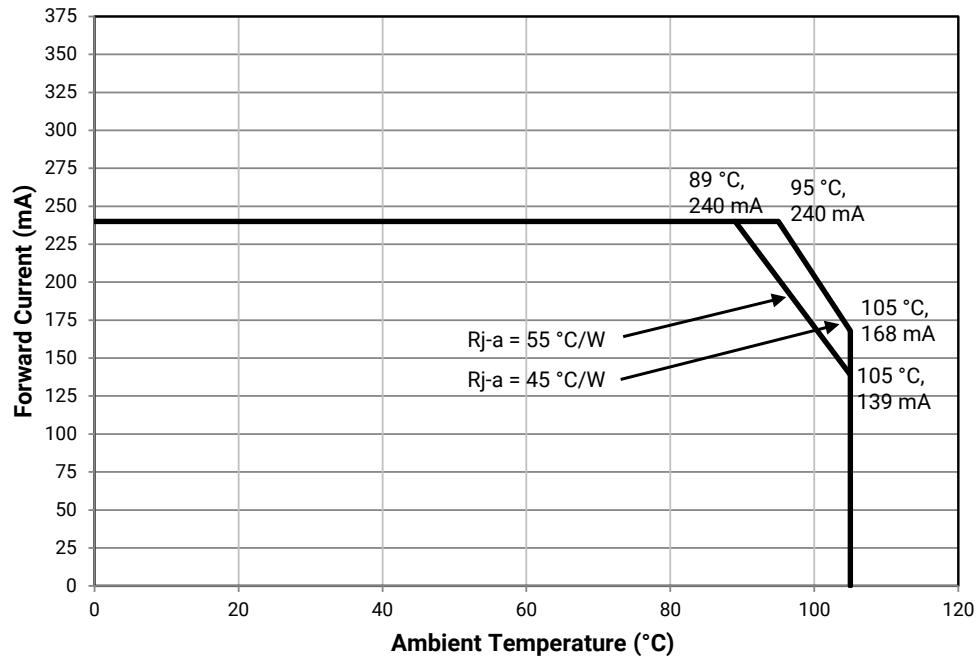
JE2835 PC RED-ORANGE**CHARACTERISTICS - JE2835 PC RED-ORANGE**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 18 | |
| Viewing angle (FWHM) | degrees | | 113 | |
| Temperature coefficient of voltage | mV/°C | | -1.0 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 240 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.96 | 3.1 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 PC RED-ORANGE

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 PC RED-ORANGE ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 PC red-orange LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4). For definitions of the chromaticity kits, please see the Chromaticity Color Coordinates section (page 59).

| Minimum Flux | | Typical Luminous Flux (lm) | Order Code |
|--------------|-----------|----------------------------|--------------------------------|
| Group | Flux (lm) | | |
| C5 | 28 | 30.2 | JE2835APO-N-0001A0000-N0000001 |

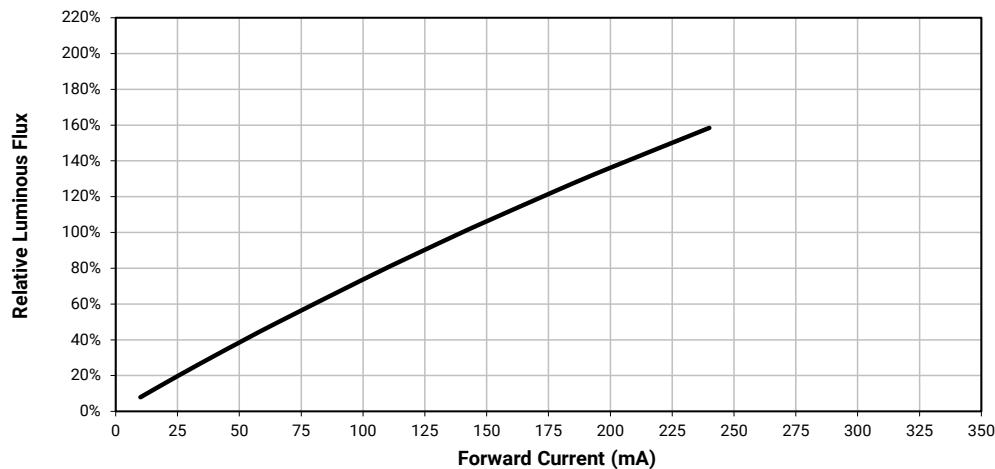
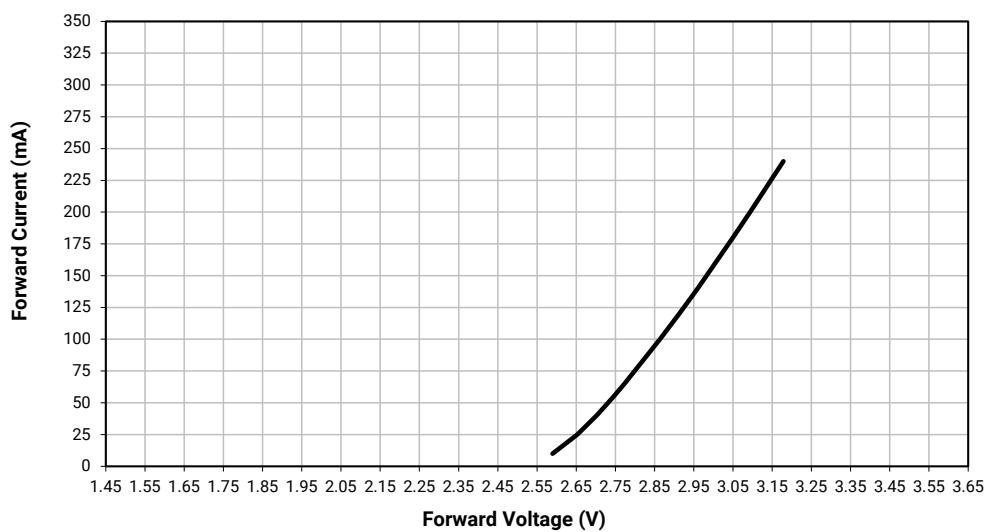
PERFORMANCE GROUPS - LUMINOUS FLUX - JE2835 PC RED-ORANGE ($T_J = 25^\circ\text{C}$)

J Series JE2835 PC red-orange LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

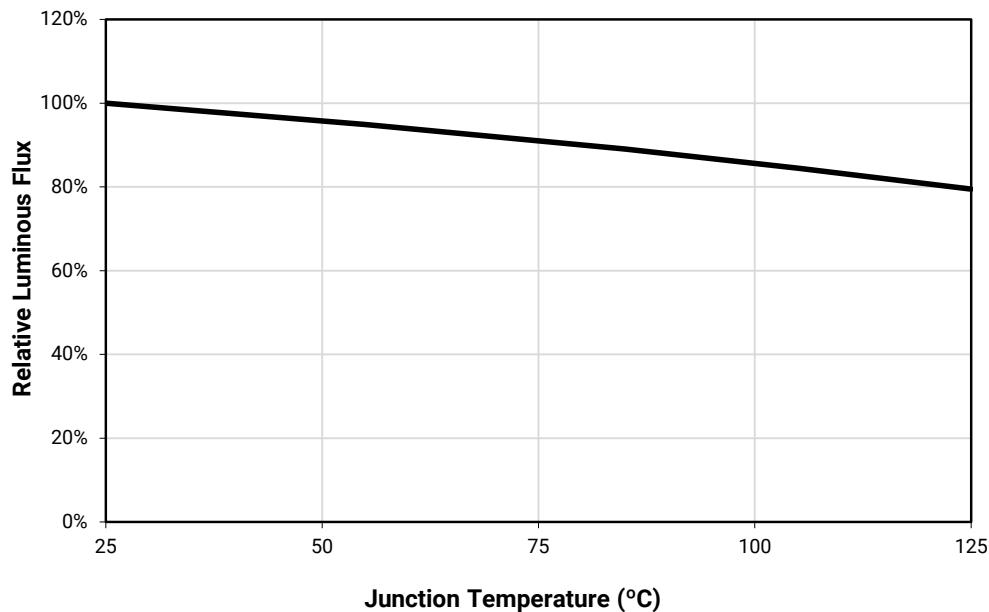
| Color | Code | Minimum Luminous Flux (lm) | Maximum Luminous Flux (lm) |
|---------------|------|----------------------------|----------------------------|
| PC Red-Orange | C5 | 28.0 | 30.0 |
| | D2 | 30.0 | 32.0 |
| | D3 | 32.0 | 34.0 |

Notes:

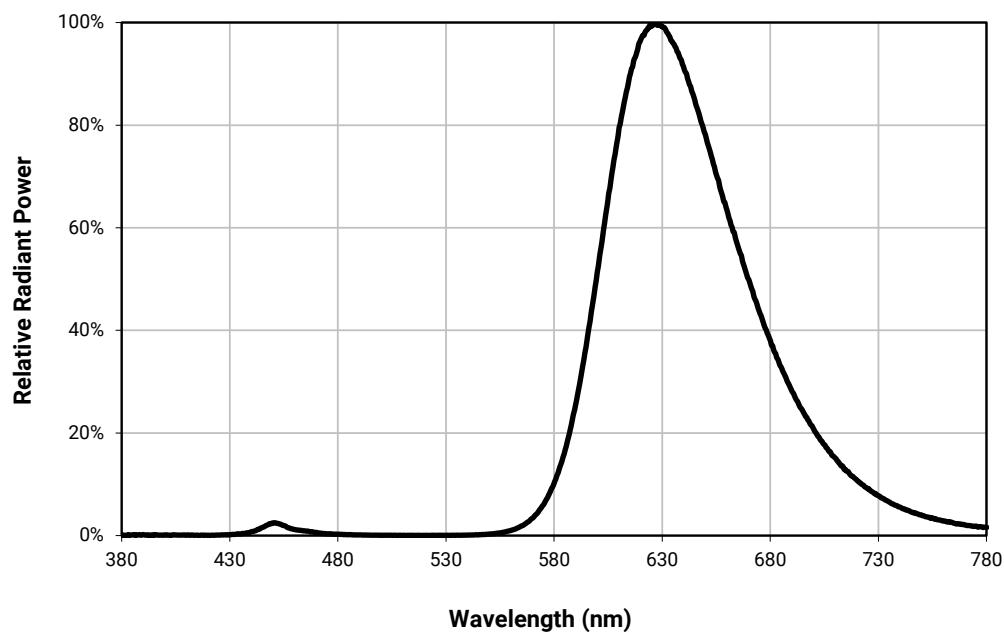
- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 PC RED-ORANGE**ELECTRICAL CHARACTERISTICS - JE2835 PC RED-ORANGE**

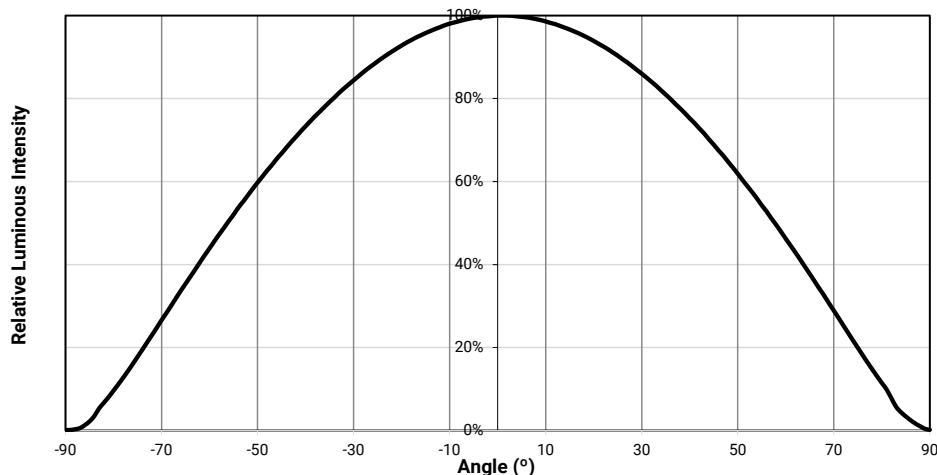
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 PC RED-ORANGE



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PC RED-ORANGE

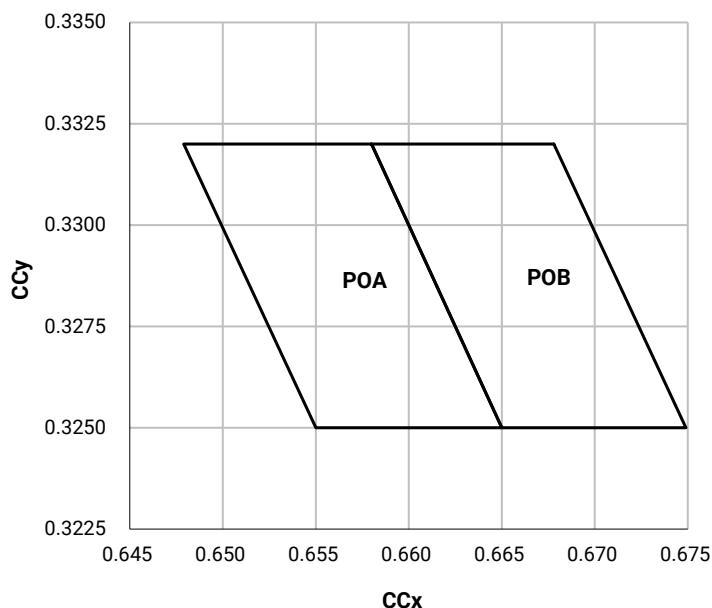


TYPICAL SPATIAL DISTRIBUTION - JE2835 PC RED-ORANGE



CHROMATICITY COLOR COORDINATES - JE2835 PC RED-ORANGE

J Series JE2835 PC red-orange LEDs are tested for chromaticity and placed into one of the regions defined by the following bounding coordinates.



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| POA | 0.6580 | 0.3320 |
| | 0.6479 | 0.3320 |
| | 0.6550 | 0.3250 |
| | 0.6650 | 0.3250 |
| POB | 0.6678 | 0.3320 |
| | 0.6580 | 0.3320 |
| | 0.6650 | 0.3250 |
| | 0.6749 | 0.3250 |

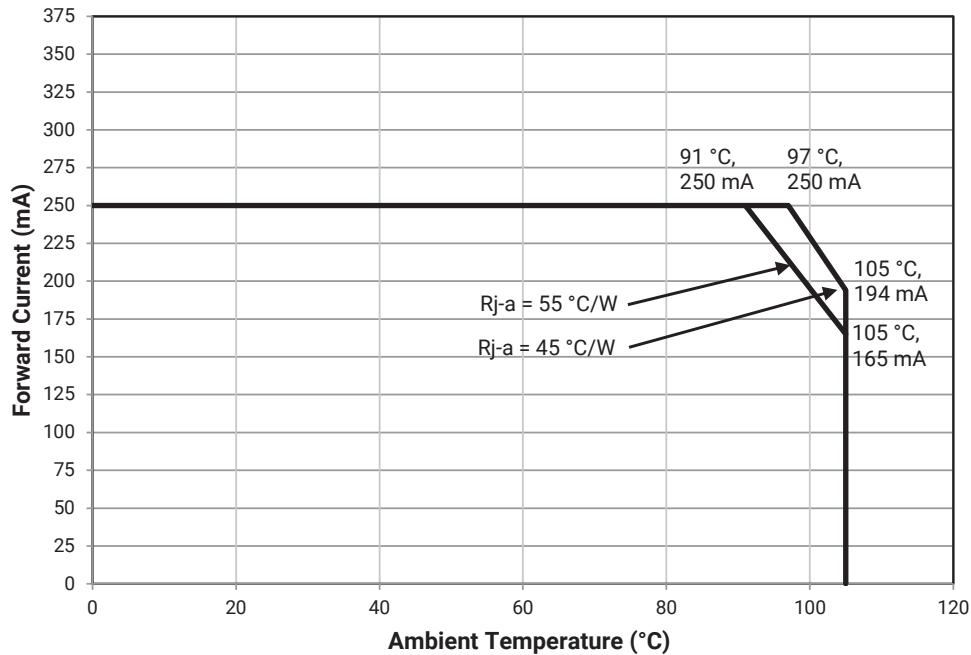
JE2835 RED**CHARACTERISTICS - JE2835 RED**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 11 | |
| Viewing angle (FWHM) | degrees | | 122 | |
| Temperature coefficient of voltage | mV/°C | | -1.4 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 250 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.25 | 2.4 |
| LED junction temperature | °C | | | 115 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 RED

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 RED ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 Red LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4).

| Minimum Flux | | Typical Luminous Flux (lm) | Dominant Wavelength | | | | Order Code | | |
|--------------|-----------|----------------------------|---------------------|---------|---------|---------|--------------------------------|--|--|
| Group | Flux (lm) | | Minimum | | Maximum | | | | |
| | | | Group | WL (nm) | Group | WL (nm) | | | |
| C3 | 24 | 27.2 | R2 | 620 | R3 | 630 | JE2835ARD-N-0001A0000-N0000001 | | |

PERFORMANCE GROUPS - LUMINOUS FLUX - JE2835 RED ($T_J = 25^\circ\text{C}$)

J Series JE2835 red LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

| Color | Code | Minimum Luminous Flux (lm) | Maximum Luminous Flux (lm) |
|-------|------|----------------------------|----------------------------|
| Red | C3 | 24.0 | 26.0 |
| | C4 | 26.0 | 28.0 |
| | C5 | 28.0 | 30.0 |
| | D2 | 30.0 | 32.0 |

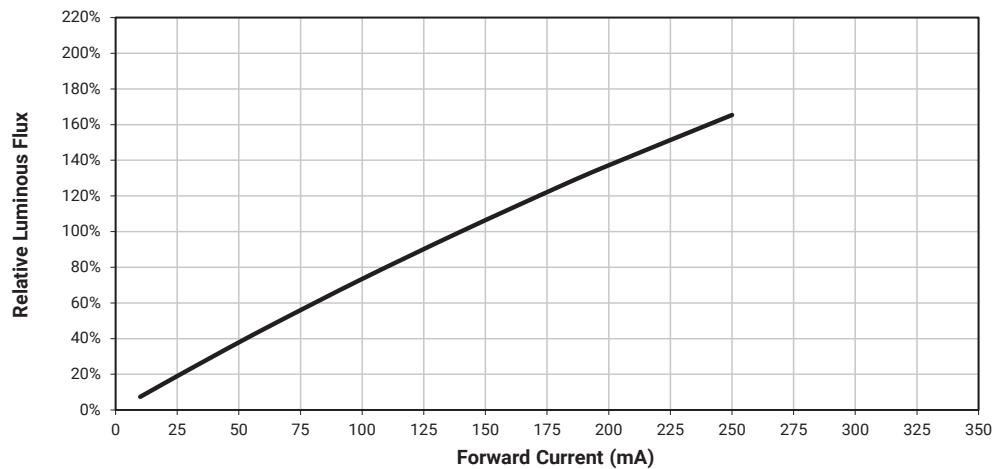
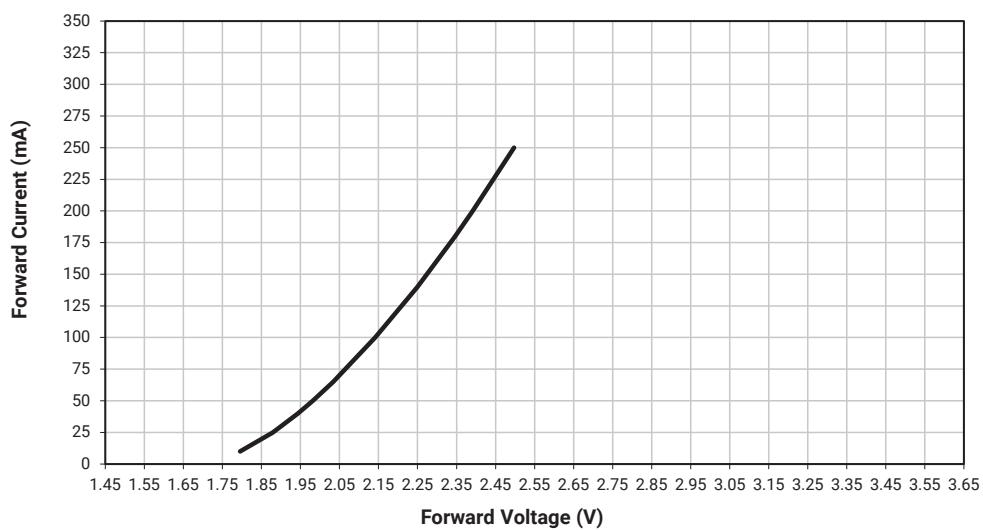
PERFORMANCE GROUPS - DOMINANT WAVELENGTH - JE2835 RED

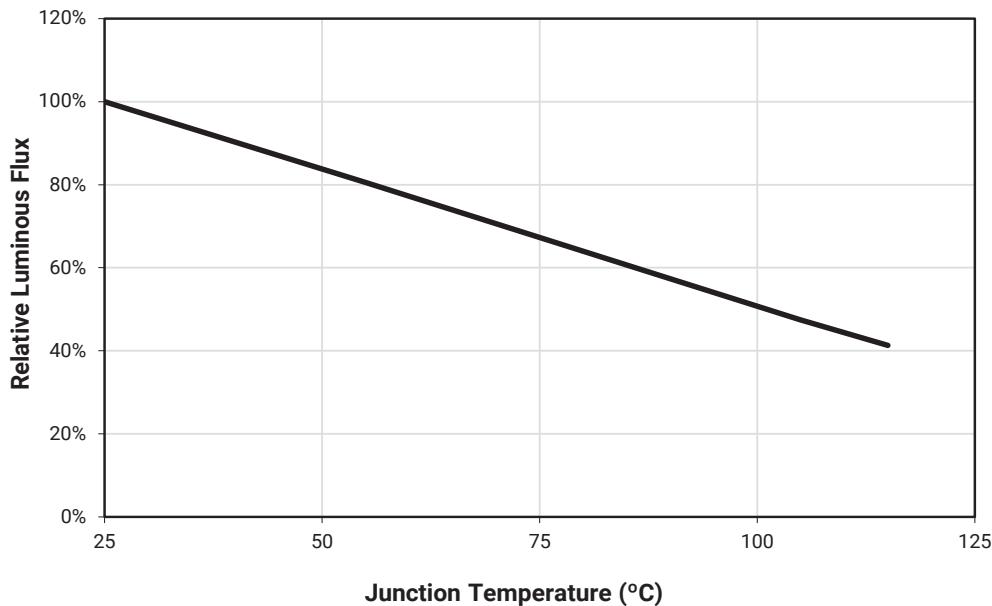
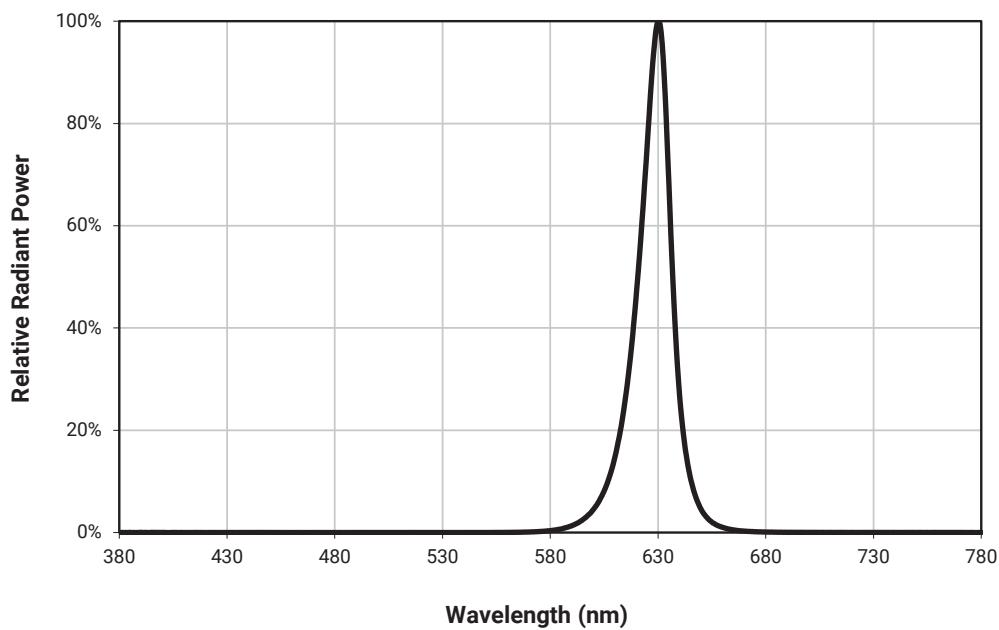
J Series JE2835 red LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

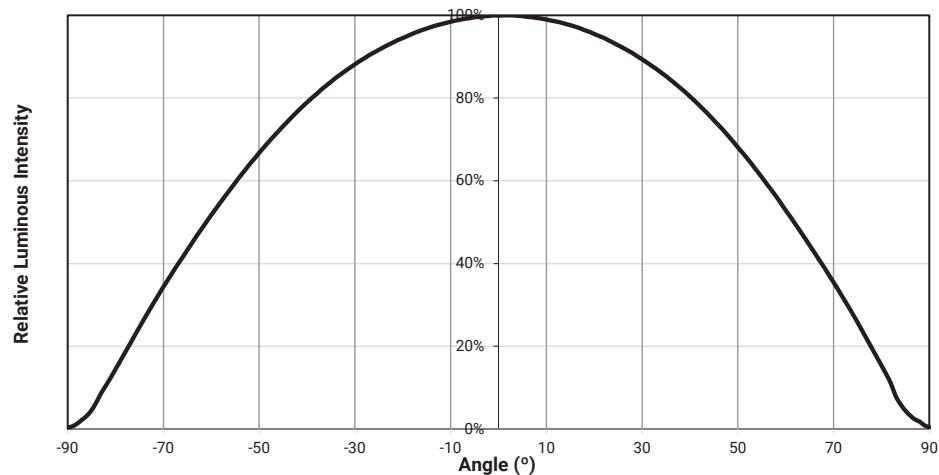
| Color | DWL Group | Minimum DWL (nm) @ 140 mA | Maximum DWL (nm) @ 140 mA |
|-------|-----------|---------------------------|---------------------------|
| Red | R2 | 620 | 625 |
| | R3 | 625 | 630 |

Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 RED**ELECTRICAL CHARACTERISTICS - JE2835 RED**

RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 RED**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 RED**

TYPICAL SPATIAL DISTRIBUTION - JE2835 RED

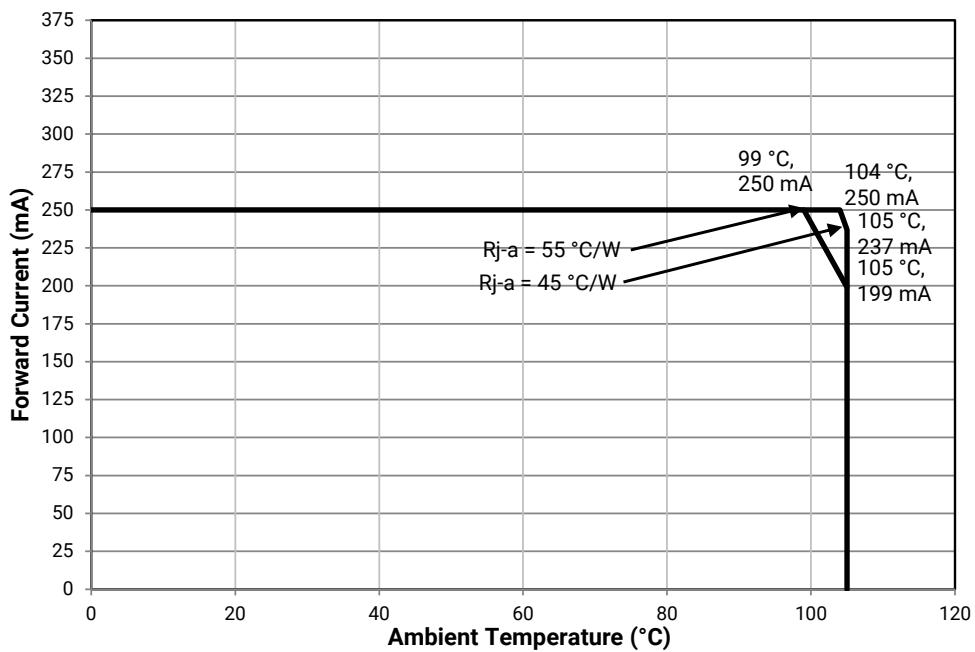
JE2835 PHOTO RED**CHARACTERISTICS - JE2835 PHOTO RED**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 9 | |
| Viewing angle (FWHM) | degrees | | 121 | |
| Temperature coefficient of voltage | mV/°C | | -1.2 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 250 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.15 | 2.3 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 PHOTO RED

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 PHOTO RED ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 photo red LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4).

| Minimum Flux | | Typical Radiant Flux (mW) | Peak Wavelength | | | | Order Code | | |
|--------------|-----------|---------------------------|-----------------|---------|---------|---------|--------------------------------|--|--|
| Group | Flux (mW) | | Minimum | | Maximum | | | | |
| | | | Group | WL (nm) | Group | WL (nm) | | | |
| 26 | 130 | 138 | H0 | 650 | H0 | 670 | JE2835AHR-N-0001A0000-N0000001 | | |

PERFORMANCE GROUPS - RADIANT FLUX - JE2835 PHOTO RED ($T_J = 25^\circ\text{C}$)

J Series JE2835 photo red LEDs are tested for radiant flux at 140 mA and placed into one of the following radiant-flux groups.

| Color | Code | Minimum Radiant Flux (mW) | Maximum Radiant Flux (mW) |
|-----------|------|---------------------------|---------------------------|
| Photo Red | 26 | 130 | 135 |
| | 27 | 135 | 140 |
| | 28 | 140 | 145 |
| | 29 | 145 | 150 |

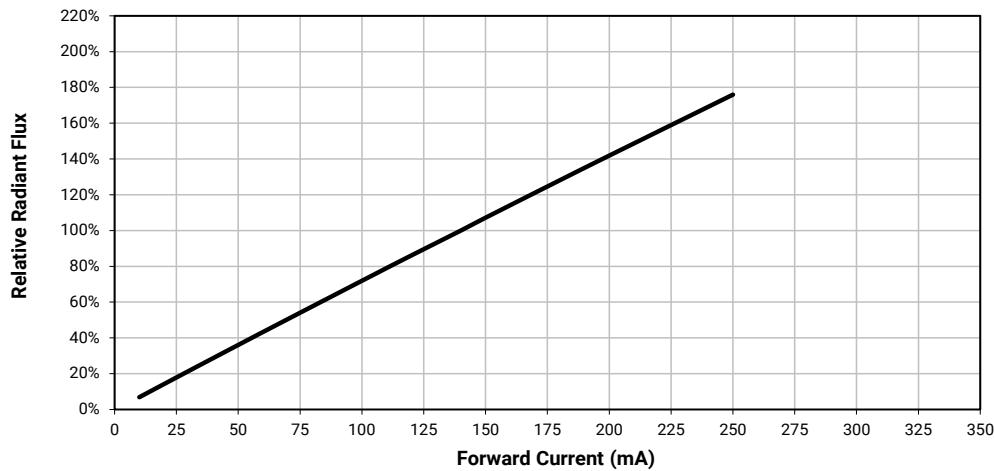
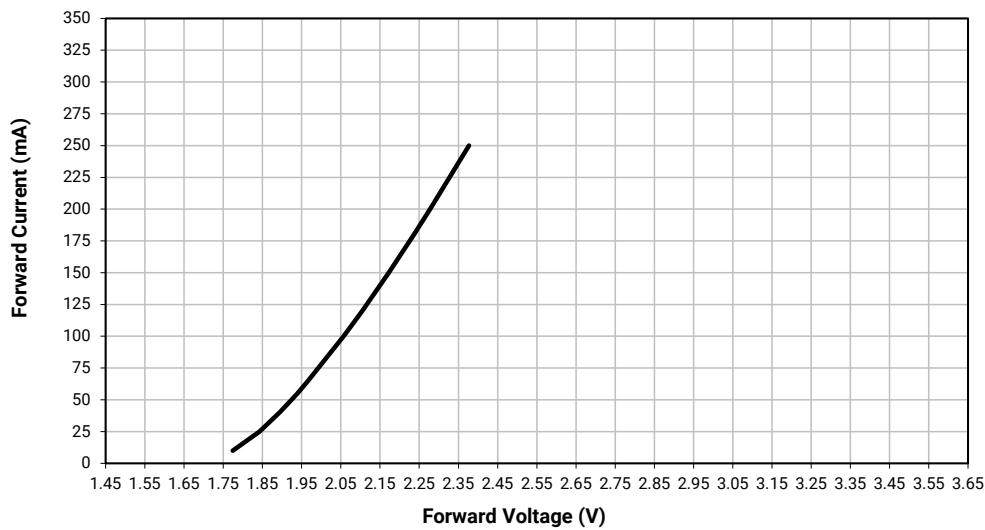
PERFORMANCE GROUPS - PEAK WAVELENGTH - JE2835 PHOTO RED

J Series JE2835 photo red LEDs are tested for peak wavelength (PWL) and sorted into one of the PWL bins defined below.

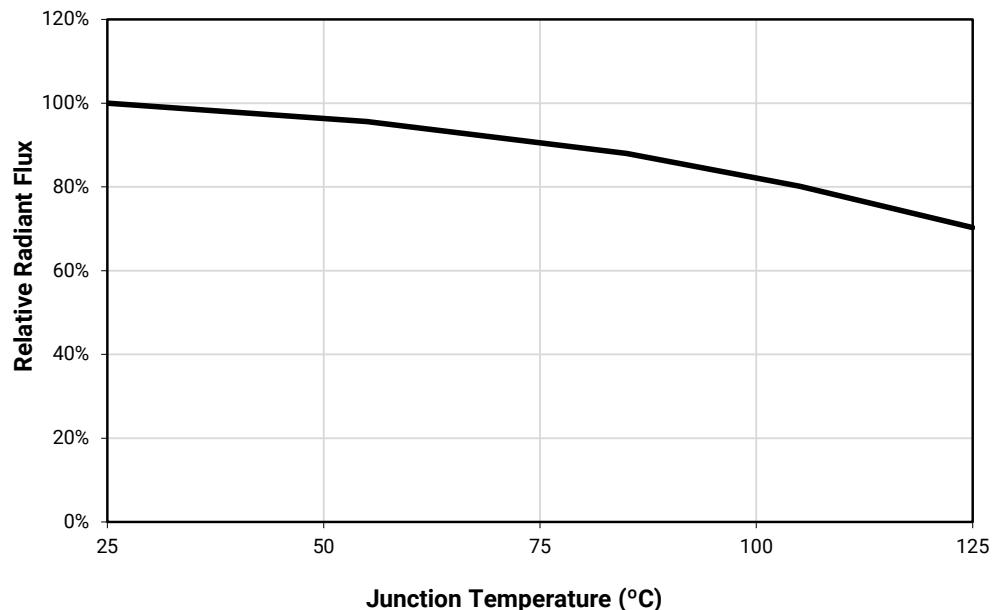
| Color | PWL Group | Minimum PWL (nm) @ 140 mA | Maximum PWL (nm) @ 140 mA |
|-----------|-----------|---------------------------|---------------------------|
| Photo Red | H0 | 650 | 670 |

Notes:

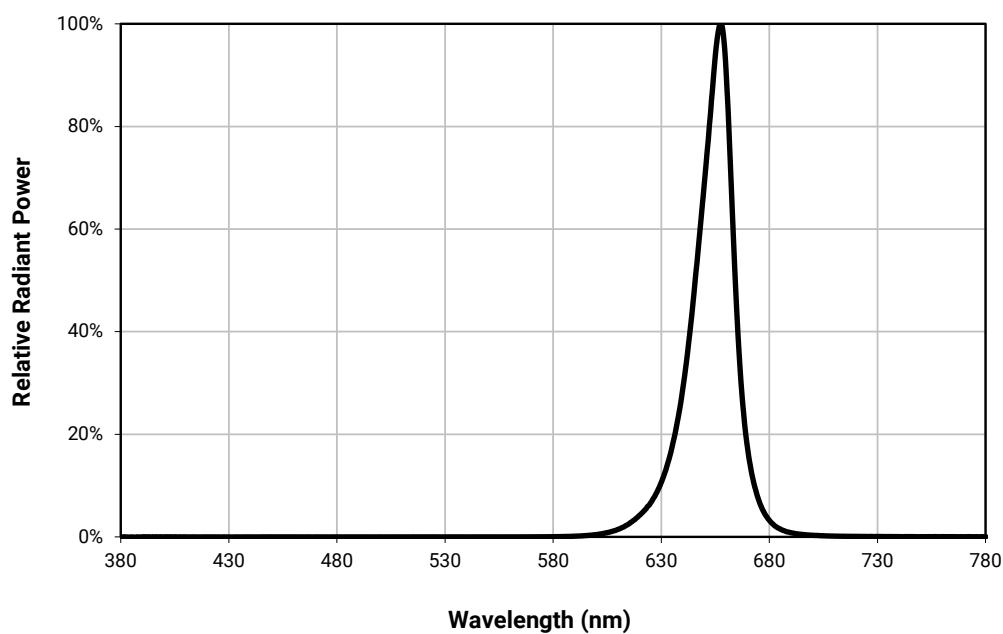
- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

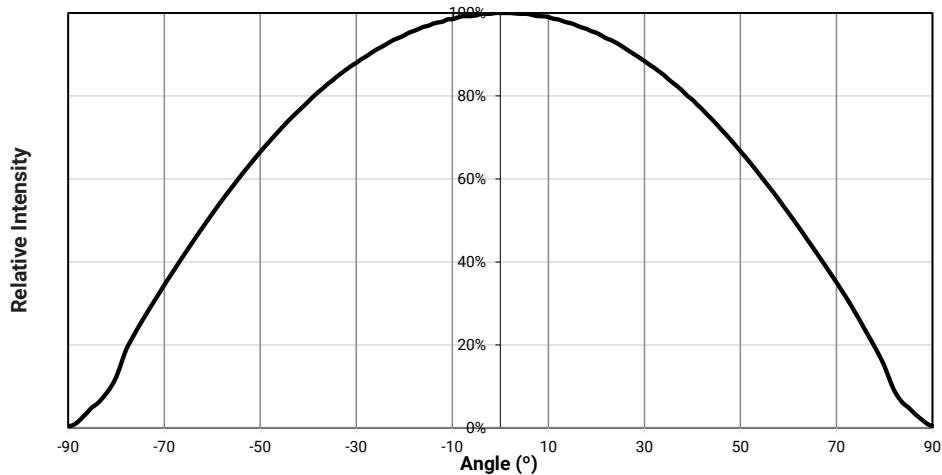
RELATIVE RADIANT FLUX VS. CURRENT - JE2835 PHOTO RED**ELECTRICAL CHARACTERISTICS - JE2835 PHOTO RED**

RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE - JE2835 PHOTO RED



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PHOTO RED



TYPICAL SPATIAL DISTRIBUTION - JE2835 PHOTO RED

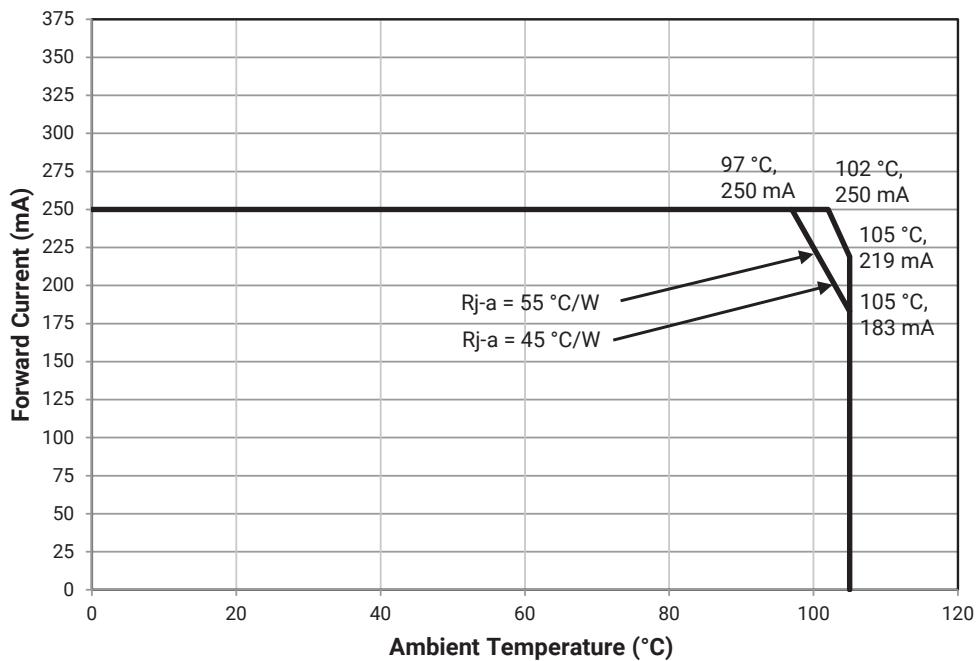
JE2835 FAR RED**CHARACTERISTICS - JE2835 FAR RED**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 15 | |
| Viewing angle (FWHM) | degrees | | 121 | |
| Temperature coefficient of voltage | mV/°C | | -1.8 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 250 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.15 | 2.2 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 FAR RED

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 FAR RED ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 far red LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4).

| Minimum Flux | | Typical Radiant Flux (mW) | Peak Wavelength | | | | Order Code | | |
|--------------|-----------|---------------------------|-----------------|---------|---------|---------|--------------------------------|--|--|
| Group | Flux (mW) | | Minimum | | Maximum | | | | |
| | | | Group | WL (nm) | Group | WL (nm) | | | |
| 26 | 130 | 135 | F0 | 720 | F0 | 740 | JE2835AFR-N-0001A0000-N0000001 | | |

PERFORMANCE GROUPS - RADIANT FLUX - JE2835 FAR RED ($T_J = 25^\circ\text{C}$)

J Series JE2835 far red LEDs are tested for radiant flux at 140 mA and placed into one of the following radiant-flux groups.

| Color | Code | Minimum Radiant Flux (mW) | Maximum Radiant Flux (mW) |
|---------|------|---------------------------|---------------------------|
| Far Red | 26 | 130 | 135 |
| | 27 | 135 | 140 |
| | 28 | 140 | 145 |
| | 29 | 145 | 150 |

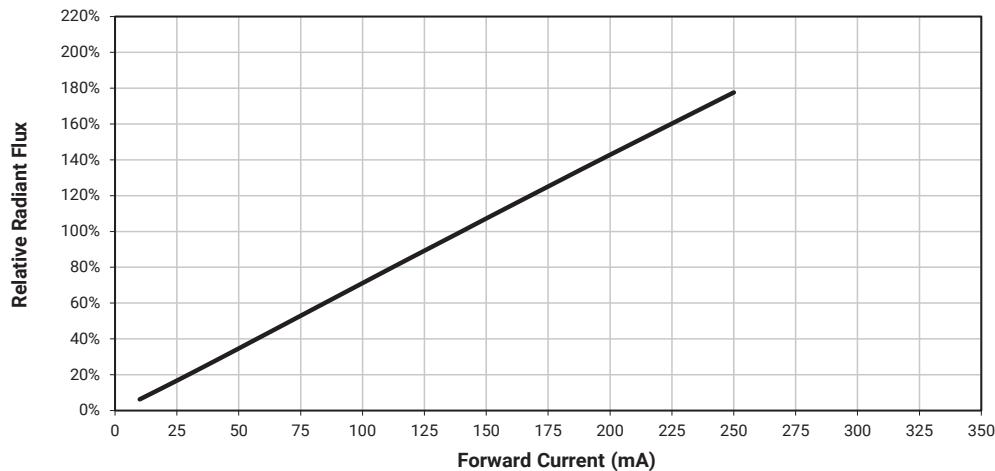
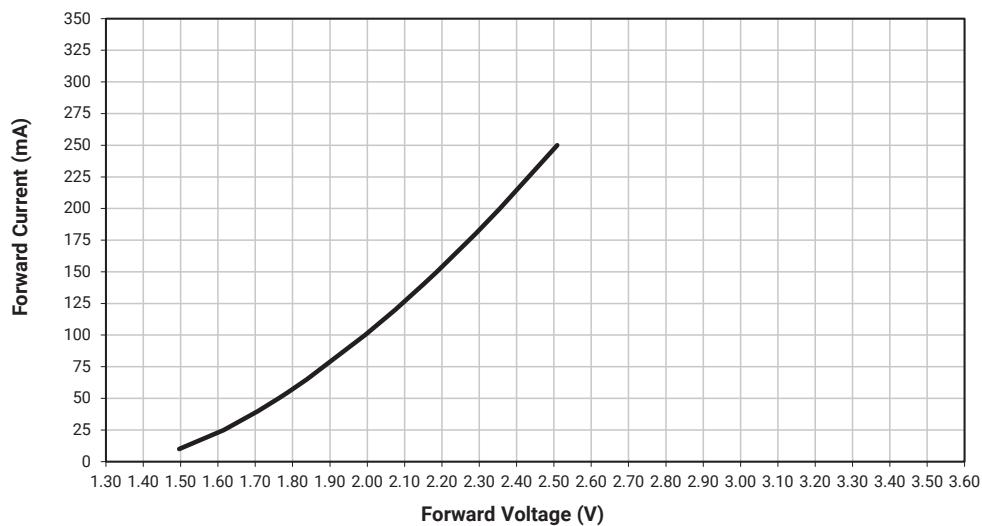
PERFORMANCE GROUPS - PEAK WAVELENGTH - JE2835 FAR RED

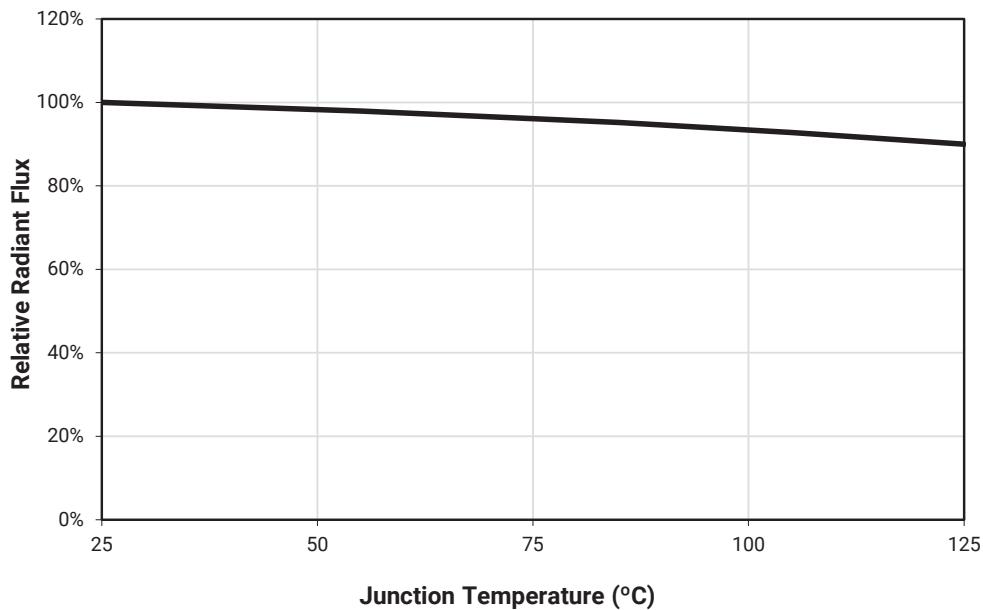
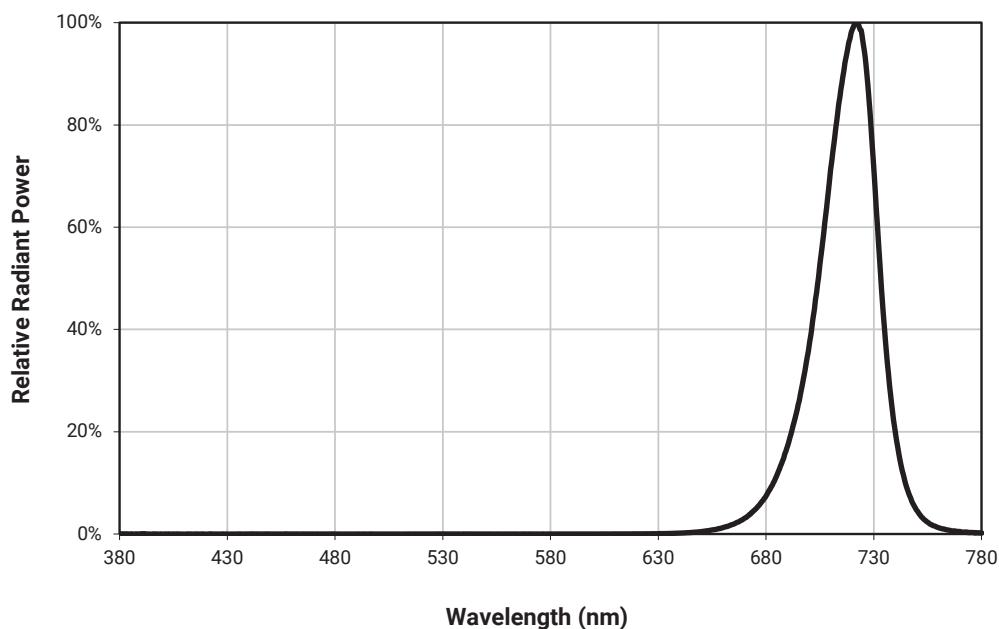
J Series JE2835 far red LEDs are tested for peak wavelength and sorted into one of the PWL bins defined below.

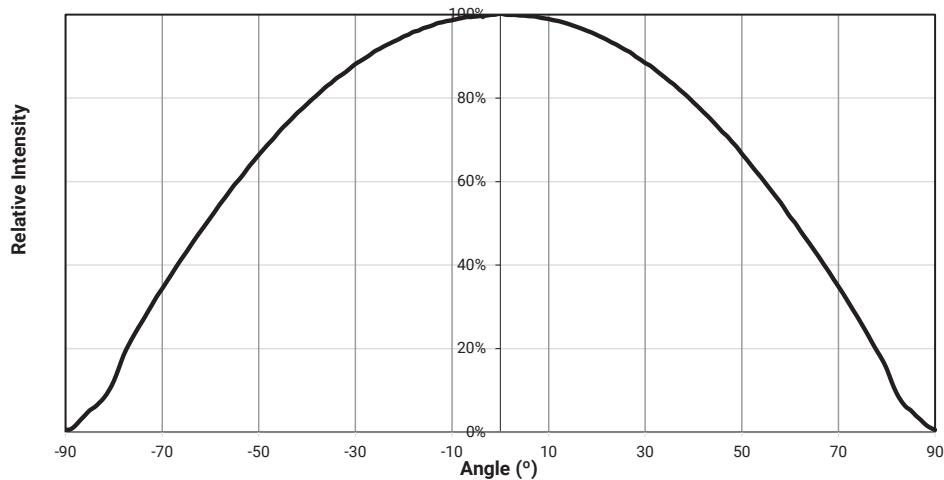
| Color | PWL Group | Minimum PWL (nm) @ 140 mA | Maximum PWL (nm) @ 140 mA |
|---------|-----------|---------------------------|---------------------------|
| Far Red | F0 | 720 | 740 |

Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE RADIANT FLUX VS. CURRENT - JE2835 FAR RED**ELECTRICAL CHARACTERISTICS - JE2835 FAR RED**

RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE - JE2835 FAR RED**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 FAR RED**

TYPICAL SPATIAL DISTRIBUTION - JE2835 FAR RED

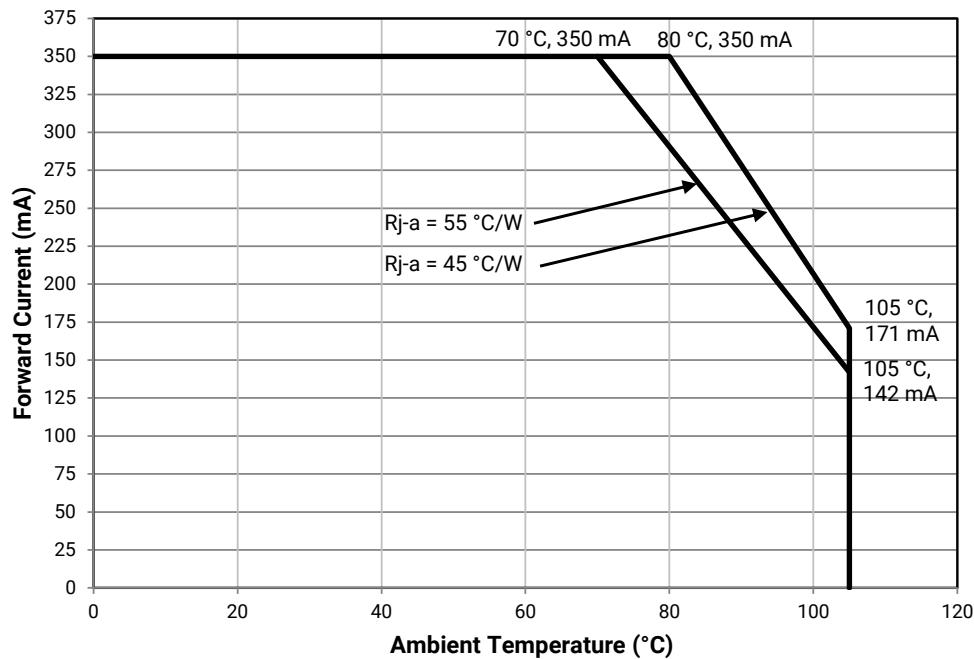
JE2835 PC PURPLE**CHARACTERISTICS - JE2835 PC PURPLE**

| Characteristics | Unit | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Thermal resistance, junction to solder point | °C/W | | 14 | |
| Viewing angle (FWHM) | degrees | | 118 | |
| Temperature coefficient of voltage | mV/°C | | -1.0 | |
| ESD withstand voltage (HBM per Mil-Std-883L) | | | Class 2 | |
| DC forward current | mA | | | 350 |
| Reverse voltage | V | | | 5 |
| Forward voltage (@ 140 mA, 25 °C) | V | | 2.89 | 3.1 |
| LED junction temperature | °C | | | 125 |
| Operating temperature | °C | -40 | | 105 |

- Continuous reverse voltage can cause LED damage.

OPERATING LIMITS - JE2835 PC PURPLE

The maximum forward current is determined by the thermal resistance between the LED junction and ambient.



FLUX CHARACTERISTICS, ORDER CODES AND BINS - JE2835 PC PURPLE ($I_F = 140 \text{ mA}$, $T_J = 25^\circ\text{C}$)

The following table provides order codes for J Series JE2835 PC purple LEDs. For a complete description of the order code nomenclature, please see the Order Code and Bin Code Formats section (page 4). For definitions of the chromaticity kits, please see the Chromaticity Color Coordinates section (page 79).

| Minimum Flux | | Typical Radiant Flux (mW) | Order Code |
|--------------|-----------|---------------------------|--------------------------------|
| Group | Flux (mW) | | |
| 35 | 180 | 192 | JE2835APP-N-0001A0000-N0000001 |

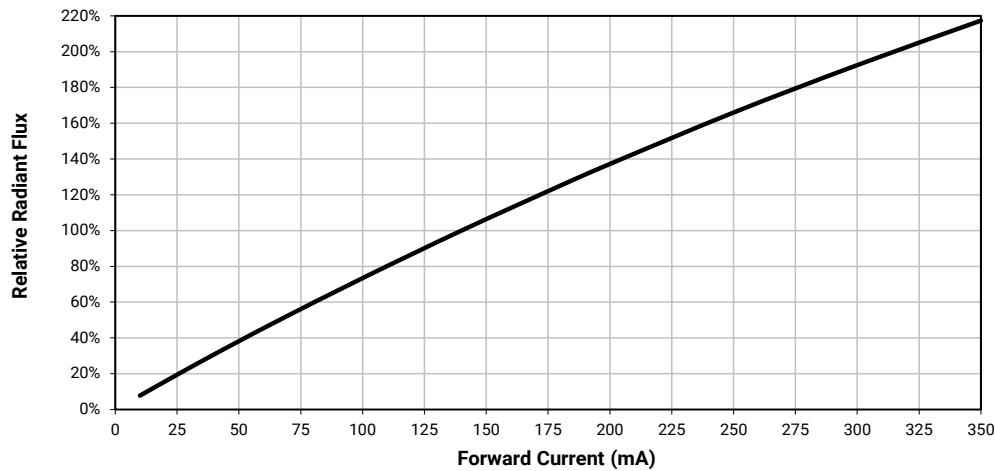
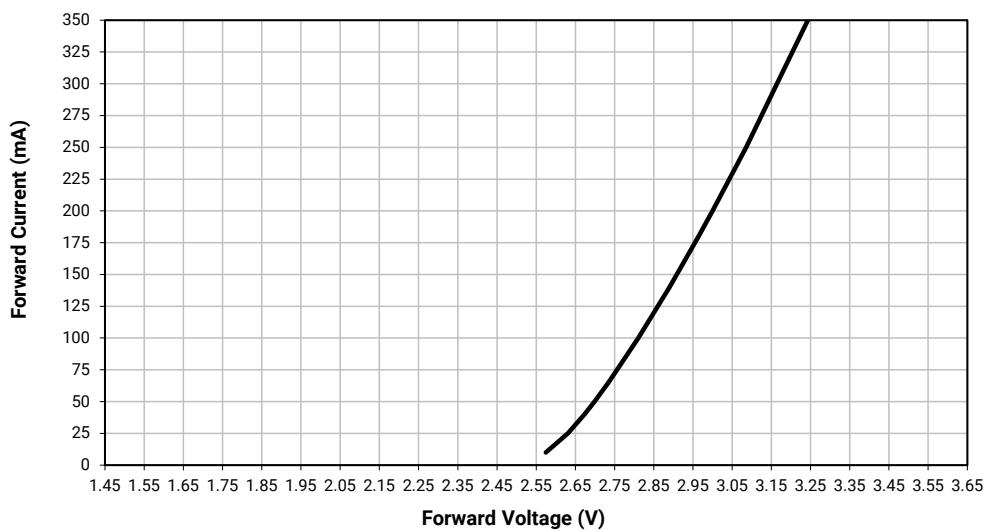
PERFORMANCE GROUPS - RADIANT FLUX - JE2835 PC PURPLE ($T_J = 25^\circ\text{C}$)

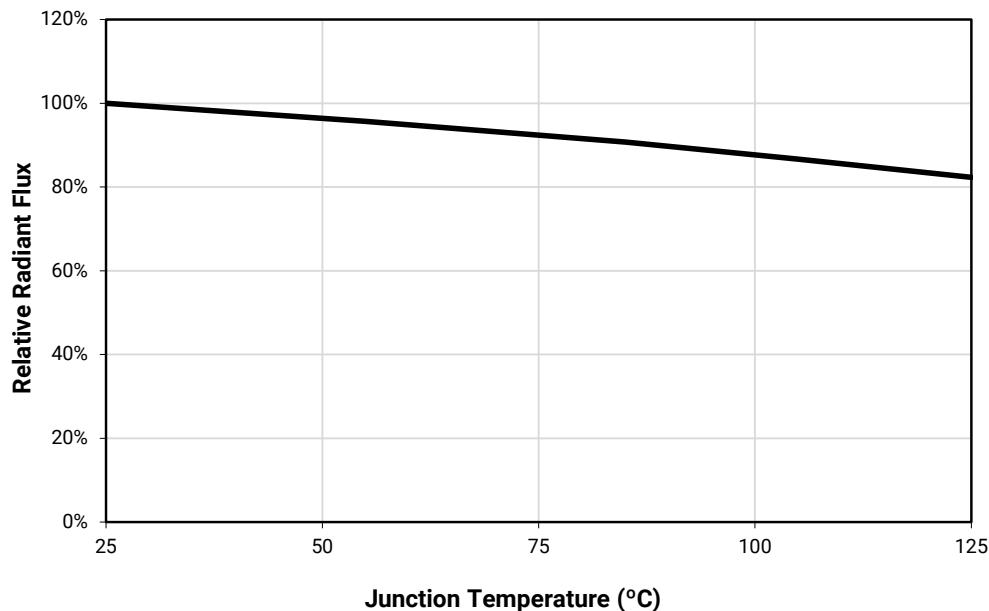
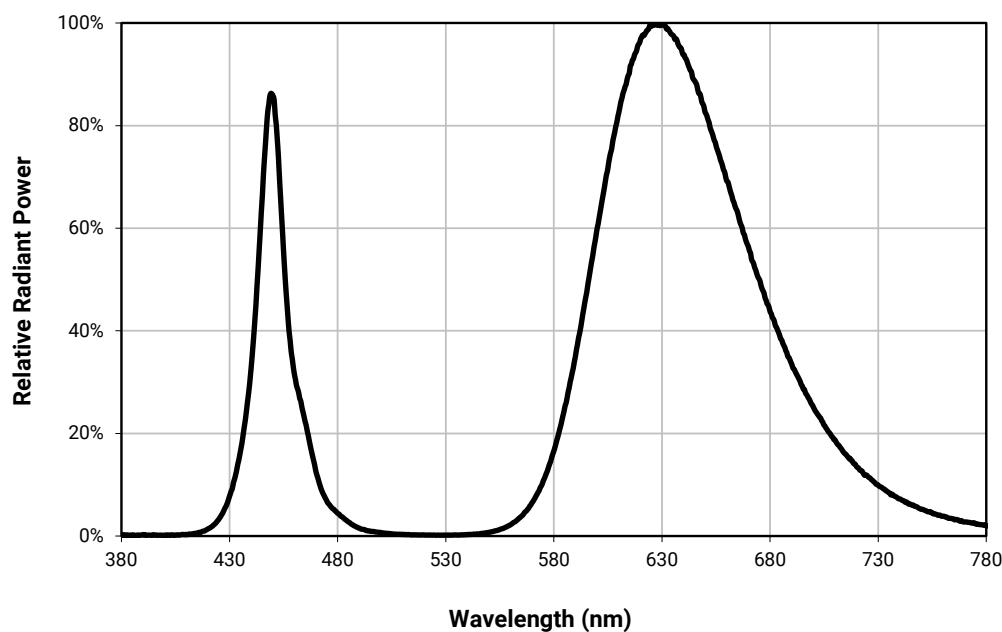
J Series JE2835 PC purple LEDs are tested for radiant flux at 140 mA and placed into one of the following radiant-flux groups.

| Color | Code | Minimum Radiant Flux (mW) | Maximum Radiant Flux (mW) |
|-----------|------|---------------------------|---------------------------|
| PC Purple | 35 | 180 | 190 |
| | 36 | 190 | 200 |
| | 37 | 200 | 210 |

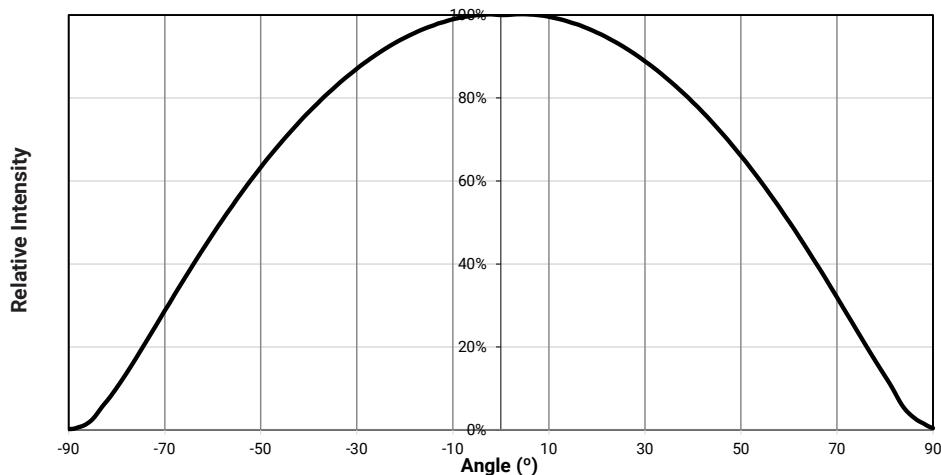
Notes:

- Cree Venture maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and $\pm 1 \text{ nm}$ on wavelength measurements. See the Measurements section (page 84).
- Cree Venture J Series 2835 LED order codes specify only a minimum flux bin and not a maximum. Cree Venture may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity restrictions specified by the order code.

RELATIVE RADIANT FLUX VS. CURRENT - JE2835 PC PURPLE**ELECTRICAL CHARACTERISTICS - JE2835 PC PURPLE**

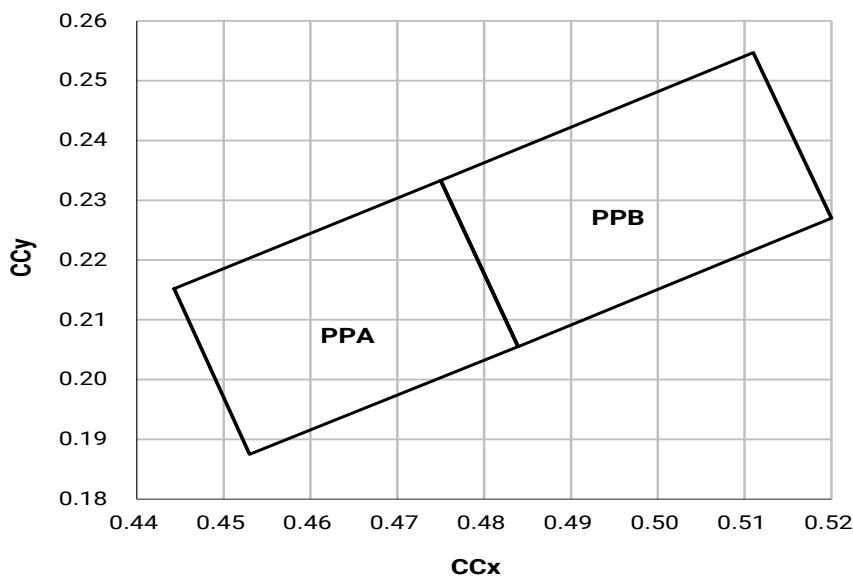
RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE - JE2835 PC PURPLE**RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PC PURPLE**

TYPICAL SPATIAL DISTRIBUTION - JE2835 PC PURPLE



CHROMATICITY COLOR COORDINATES - JE2835 PC PURPLE

J Series JE2835 PC purple LEDs are tested for chromaticity and placed into one of the regions defined by the following bounding coordinates.



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| PPA | 0.4443 | 0.2152 |
| | 0.4530 | 0.1875 |
| | 0.4839 | 0.2055 |
| | 0.4750 | 0.2333 |
| PPB | 0.4750 | 0.2333 |
| | 0.4839 | 0.2055 |
| | 0.5200 | 0.2270 |
| | 0.5110 | 0.2547 |

HORTICULTURE VALUES

The following table provides PPF values for J Series JE2835 color LEDs.

| Color | PPF* | PPF/W* |
|------------|------------------------------|------------------------------|
| | ($\mu\text{mol}/\text{s}$) | ($\mu\text{mol}/\text{J}$) |
| Violet | 0.72 | 1.57 |
| Royal blue | 1.01 | 2.43 |
| Blue | 0.89 | 2.16 |
| PC Mint | 1.00 | 2.42 |
| Photo Red | 0.76 | 2.54 |
| PC Purple | 0.89 | 2.20 |

The following table provides PF_{FR} values for J Series JE2835 color LEDs.

| Color | PF _{FR} ** | PF _{FR} /W** |
|---------|------------------------------|------------------------------|
| | ($\mu\text{mol}/\text{s}$) | ($\mu\text{mol}/\text{J}$) |
| Far Red | 0.80 | 2.67 |

Note:

* PPF values are calculated from luminous or radiant flux values and are for reference only.

** PF_{FR} values are calculated from radiant flux values and are for reference only.

PERFORMANCE GROUPS - FORWARD VOLTAGE ($T_J = 25^\circ\text{C}$)

J Series JE2835 color LEDs are tested for forward voltage and placed into one of the following voltage bins.

The following voltage bins are indicated in the Forward Voltage Bin field in the bin code for JE2835 color LEDs.

| Color | Code | Minimum Forward Voltage (V) | Maximum Forward Voltage (V) |
|------------|------|-----------------------------|-----------------------------|
| Violet | AH | 3.1 | 3.2 |
| | AJ | 3.2 | 3.3 |
| | AK | 3.3 | 3.4 |
| | AL | 3.4 | 3.5 |
| Royal Blue | AE | 2.8 | 2.9 |
| | AF | 2.9 | 3.0 |
| | AG | 3.0 | 3.1 |
| Blue | AE | 2.8 | 2.9 |
| | AF | 2.9 | 3.0 |
| | AG | 3.0 | 3.1 |
| Cyan | AH | 3.1 | 3.2 |
| | AJ | 3.2 | 3.3 |
| | AK | 3.3 | 3.4 |
| Green | AC | 2.6 | 2.7 |
| | AD | 2.7 | 2.8 |
| | AE | 2.8 | 2.9 |
| | AF | 2.9 | 3.0 |
| PC Lime | AE | 2.8 | 2.9 |
| | AF | 2.9 | 3.0 |
| | AG | 3.0 | 3.1 |
| PC Mint | AE | 2.8 | 2.9 |
| | AF | 2.9 | 3.0 |
| | AG | 3.0 | 3.1 |
| Amber | AW | 2.0 | 2.1 |
| | AX | 2.1 | 2.2 |
| | AY | 2.2 | 2.3 |
| | AZ | 2.3 | 2.4 |
| | AA | 2.4 | 2.5 |
| PC Amber | AE | 2.8 | 2.9 |
| | AF | 2.9 | 3.0 |
| | AG | 3.0 | 3.1 |
| Red-Orange | AW | 2.0 | 2.1 |
| | AX | 2.1 | 2.2 |
| | AY | 2.2 | 2.3 |
| | AZ | 2.3 | 2.4 |

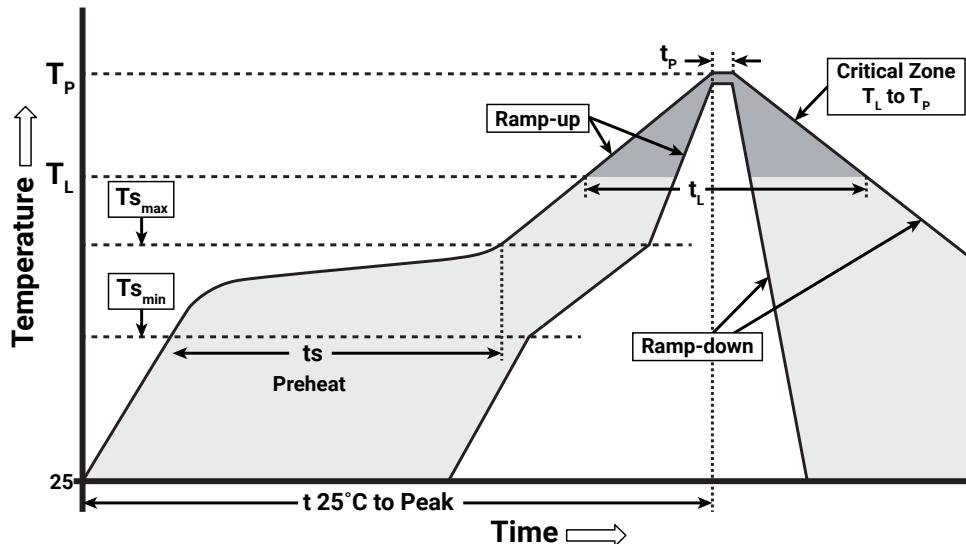
PERFORMANCE GROUPS - FORWARD VOLTAGE ($T_J = 25^\circ\text{C}$) - CONTINUED

| Color | Code | Minimum Forward Voltage (V) | Maximum Forward Voltage (V) |
|---------------|------|-----------------------------|-----------------------------|
| PC Red-Orange | AE | 2.8 | 2.9 |
| | AF | 2.9 | 3.0 |
| | AG | 3.0 | 3.1 |
| Red | AW | 2.0 | 2.1 |
| | AX | 2.1 | 2.2 |
| | AY | 2.2 | 2.3 |
| | AZ | 2.3 | 2.4 |
| Photo Red | AV | 1.9 | 2.0 |
| | AW | 2.0 | 2.1 |
| | AX | 2.1 | 2.2 |
| | AY | 2.2 | 2.3 |
| Far Red | AV | 1.9 | 2.0 |
| | AW | 2.0 | 2.1 |
| | AX | 2.1 | 2.2 |
| | AY | 2.2 | 2.3 |
| PC Purple | AE | 2.8 | 2.9 |
| | AF | 2.9 | 3.0 |
| | AG | 3.0 | 3.1 |

REFLOW SOLDERING CHARACTERISTICS

In testing, Cree Venture has found J Series 2835 color LEDs to be compatible with JEDEC J-STD-020C, using the parameters listed below. As a general guideline, Cree Venture recommends that users follow the recommended soldering profile provided by the manufacturer of the solder paste used, and therefore it is the lamp or luminaire manufacturer's responsibility to determine applicable soldering requirements.

Note that this general guideline may not apply to all PCB designs and configurations of reflow soldering equipment.



IPC/JEDEC J-STD-020C

| Profile Feature | Lead-Free Solder |
|--|------------------|
| Temperature Min. ($T_{S_{\min}}$) | 150 °C |
| Temperature Max. ($T_{S_{\max}}$) | 200 °C |
| Time (t_S) from $T_{S_{\min}}$ to $T_{S_{\max}}$ | 60-120 seconds |
| Ramp-Up Rate (T_L to T_p) | 3 °C/second |
| Liquidus Temperature (T_L) | 217 °C |
| Time (t_L) Maintained Above T_L | 60-150 seconds |
| Peak Package Body Temperature (T_p) | 260 °C max. |
| Time (t_p) Within 5 °C of the Specified Classification Temperature (T_c) | 30 seconds max. |
| Ramp-Down Rate (T_p to T_L) | 6 °C/second max. |
| Time 25 °C to Peak Temperature | 8 minutes max. |

Note: All temperatures refer to the topside of the package, measured on the package body surface.

NOTES

Measurements

The luminous flux, radiant power, chromaticity, forward voltage and CRI measurements in this document are binning specifications only and solely represent product measurements as of the date of shipment. These measurements will change over time based on a number of factors that are not within Cree Venture's control and are not intended or provided as operational specifications for the products. Calculated values are provided for informational purposes only and are not intended or provided as specifications.

Pre-Release Qualification Testing

Please read the [J Series Reliability Overview](#) for the details of the pre-release qualification testing for J Series LEDs.

Lumen Maintenance

Cree Venture uses standardized IES LM-80-08 and TM-21-11 methods for collecting long-term data and extrapolating LED lumen maintenance. For information on the specific LM-80 data sets available for this LED, refer to the public [J Series LM-80 results document](#).

Please read the [Thermal Management application note](#) for details on how thermal design, ambient temperature, and drive current affect the LED junction temperature.

Moisture Sensitivity

Cree Venture recommends keeping J Series 2835 color LEDs in the provided, resealable moisture-barrier packaging (MBP) until immediately prior to soldering. Unopened MBP that contains J Series 2835 color LEDs do not need special storage for moisture sensitivity.

Once the MBP is opened, J Series 2835 color LEDs should be handled and stored as MSL 3 per JEDEC J-STD-033, meaning they have limited exposure time before damage to the LED may occur during the soldering operation. The table on the right specifies the maximum exposure time in days depending on temperature and humidity conditions. LEDs with exposure time longer than the specified maximums must be baked according to the baking conditions listed below.

| Moisture Sensitivity Level | Temp. | Maximum Percent Relative Humidity | | | | |
|----------------------------|-------|-----------------------------------|-----|-----|-----|-----|
| | | 50% | 60% | 70% | 80% | 90% |
| Level 3 | 35 °C | 8 | 5 | 1 | 0.5 | 0.5 |
| Level 3 | 30 °C | 11 | 7 | 1 | 1 | 1 |
| Level 3 | 25 °C | 14 | 10 | 2 | 1 | 1 |
| Level 3 | 20 °C | 20 | 13 | 2 | 1 | 1 |

Baking Conditions

It is not necessary to bake all J Series 2835 color LEDs. Only the LEDs that meet all of the following criteria must be baked:

1. LEDs that have been removed from the original MBP.
2. LEDs that have been exposed to a humid environment longer than listed in the Moisture Sensitivity section above.
3. LEDs that have not been soldered.

LEDs should be baked at 60 °C for 24 hours. LEDs may be baked in the original reels. Remove LEDs from the MBP before baking. Do not bake parts at temperatures higher than 60 °C. This baking operation resets the exposure time as defined in the Moisture Sensitivity section above.

NOTES - CONTINUED

RoHS Compliance

The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC (RoHS2), as implemented January 2, 2013. RoHS Declarations for this product can be obtained from your Cree representative or from the [Product Ecology](#) section of the Cree website.

REACH Compliance

REACH substances of very high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact a Cree representative to insure you get the most up-to-date REACH SVHC Declaration. REACH banned substance information (REACH Article 67) is also available upon request.

UL® Recognized Component

This product meets the requirements to be considered a UL Recognized Component with Level 4 enclosure consideration. The LED package or a portion thereof has been investigated as a fire and electrical enclosure per ANSI/UL 8750.

Vision Advisory

WARNING: Do not look at an exposed lamp in operation. Eye injury can result. For more information about LEDs and eye safety, please refer to the [J Series LED Eye Safety application note](#).

MECHANICAL DIMENSIONS

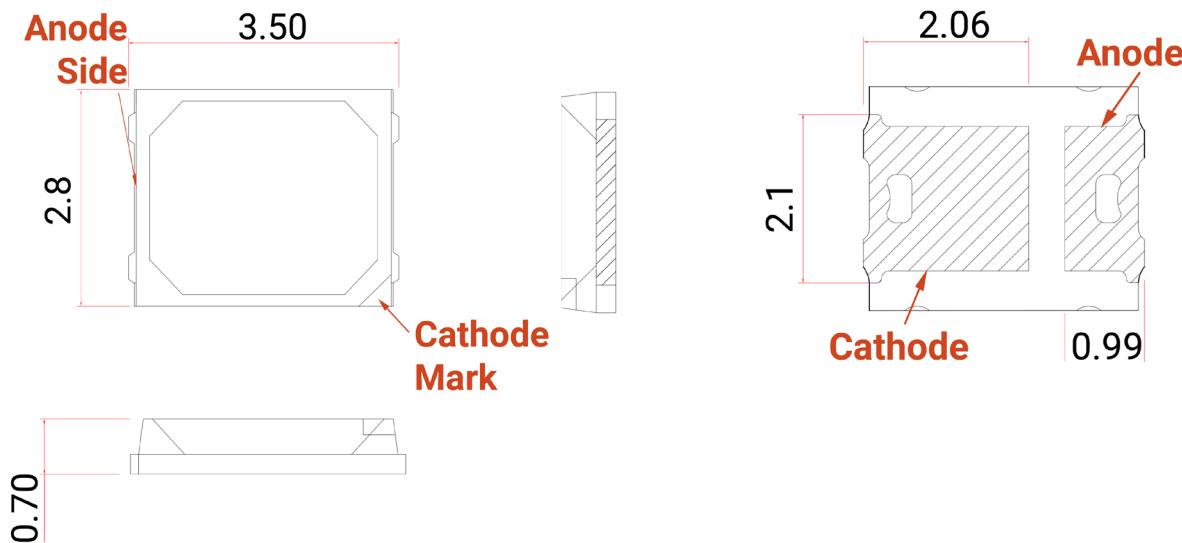
J Series JE2835 color LEDs are configured in one of two groups, such that each group of LEDs has the opposite polarity of the other.

Group 1

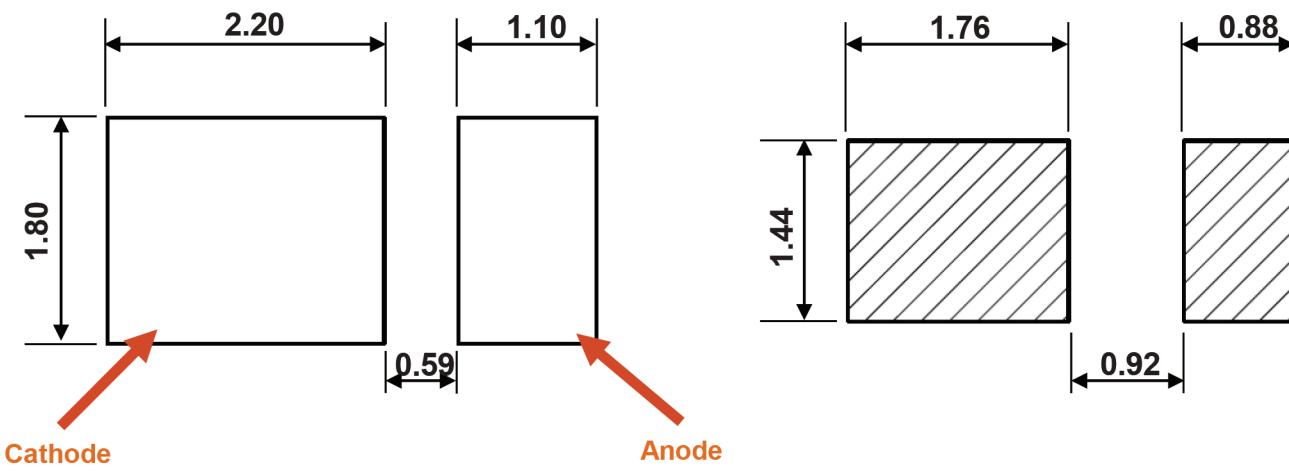
Violet, royal blue, blue, cyan, green, PC lime, PC mint, PC amber, PC red orange, PC purple

Vias, if present, are not shown on these drawings.

All measurements are ± 0.1 mm unless otherwise indicated.



All measurements are ± 0.1 mm unless otherwise indicated.



Recommended PCB Solder Pad

Recommended Stencil Pattern

MECHANICAL DIMENSIONS - CONTINUED

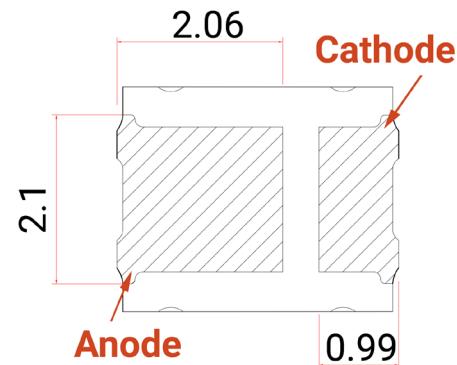
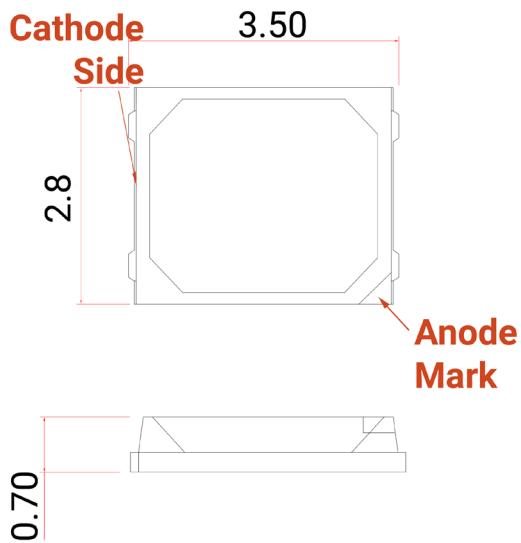
J Series JE2835 color LEDs are configured in one of two groups, such that each group of LEDs has the opposite polarity of the other.

Group 2

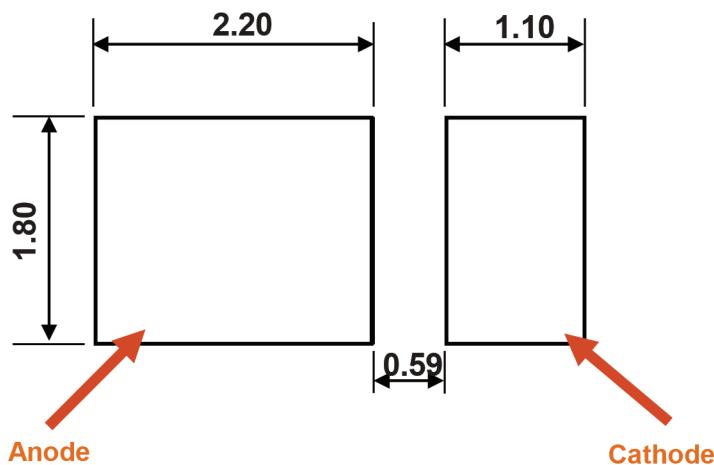
Amber, red-orange, red, photo red, far red

Thermal vias, if present, are not shown on these drawings.

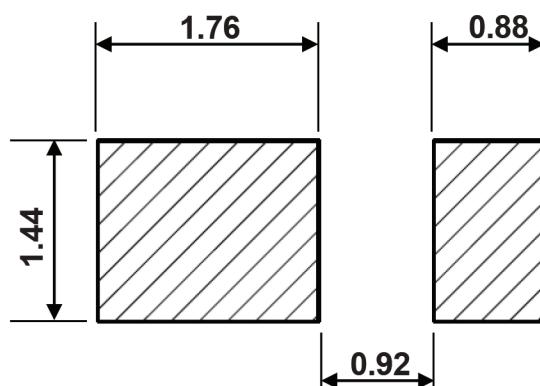
All measurements are ± 0.1 mm unless otherwise indicated.



All measurements are ± 0.1 mm unless otherwise indicated.



Recommended PCB Solder Pad

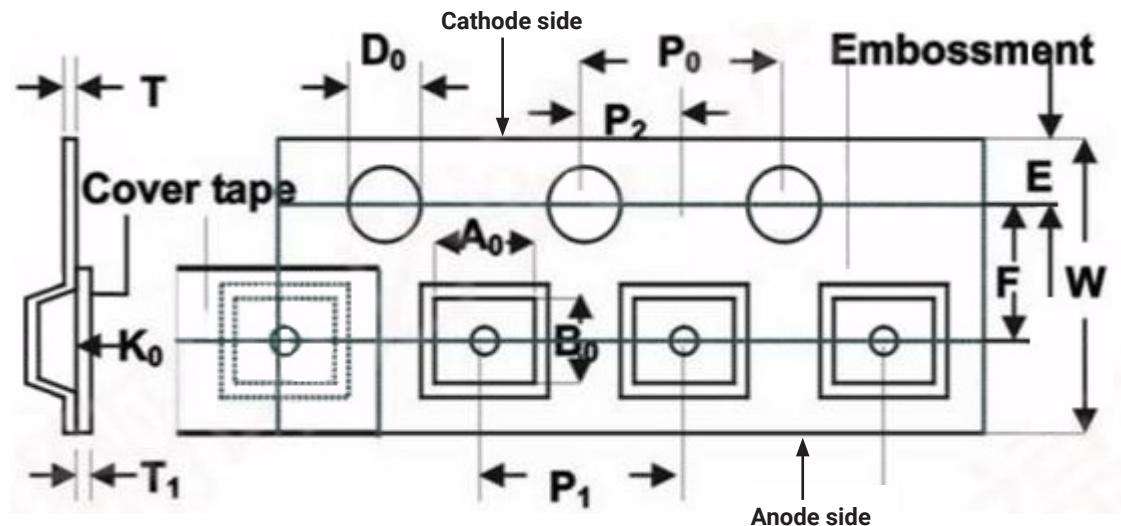


Recommended Stencil Pattern

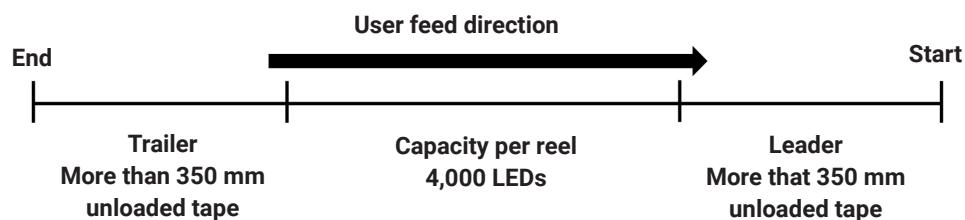
TAPE & REEL

All Cree Venture carrier tapes conform to EIA-481D, Automated Component Handling Systems Standard.

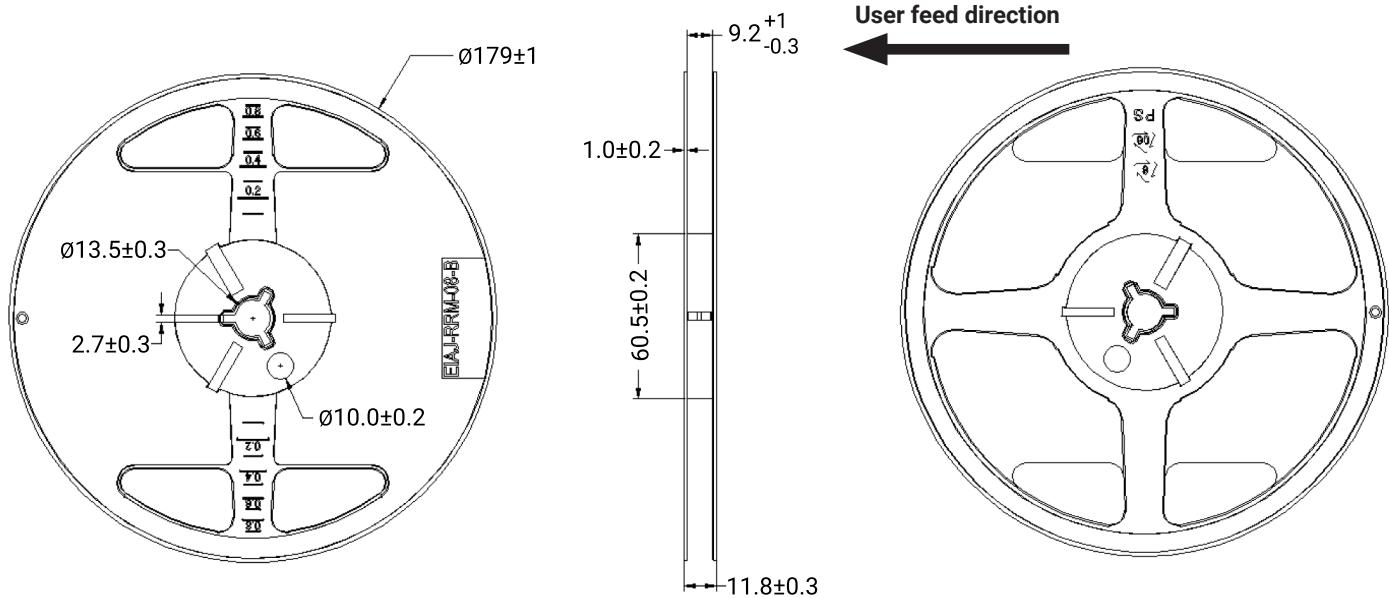
All dimensions in mm.



| Symbol | Specification | Symbol | Specification |
|----------------|---------------|----------------|---------------|
| W | 8.00 ± 0.10 | A ₀ | 3.00 ± 0.10 |
| E | 1.75 ± 0.10 | B ₀ | 3.70 ± 0.10 |
| F | 3.50 ± 0.05 | K ₀ | 1.05 ± 0.10 |
| D ₀ | 1.55 ± 0.10 | | |
| P ₀ | 4.00 ± 0.10 | | |
| P ₁ | 4.00 ± 0.10 | | |
| P ₂ | 2.00 ± 0.05 | | |
| T | 0.20 ± 0.05 | | |
| T ₁ | 0.05 ± 0.01 | | |

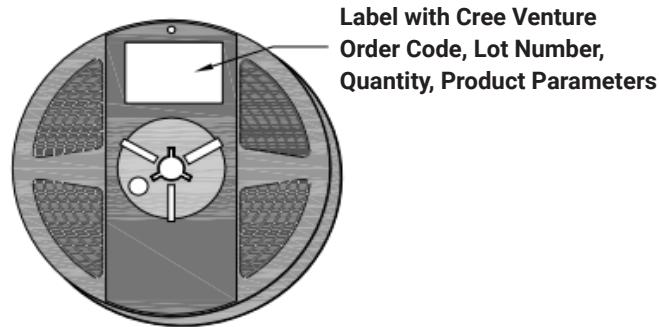


TAPE & REEL- CONTINUED

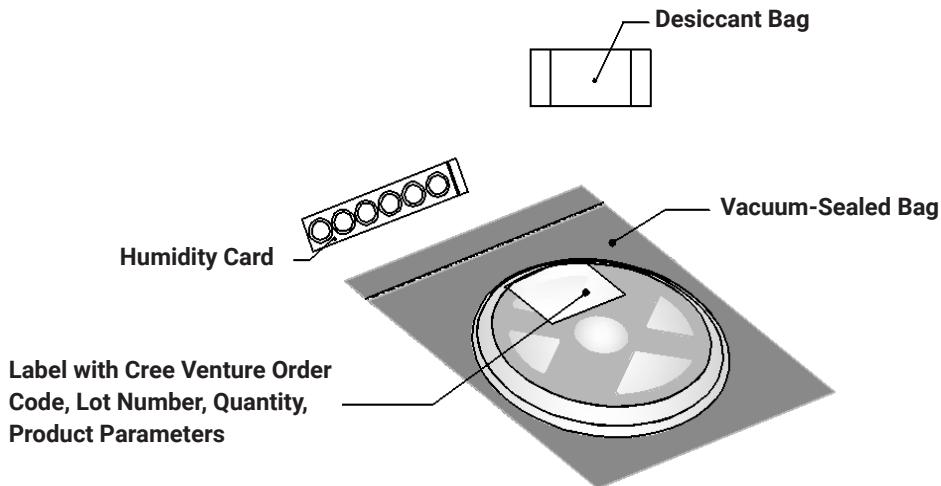


PACKAGING

Unpackaged Reel



Packaged Reel



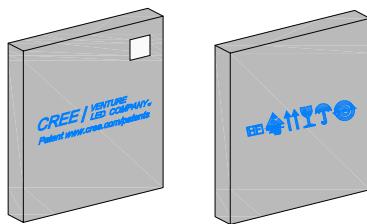
PACKAGING - CONTINUED

J Series 2835 color LEDs are packaged in boxes for shipment. Box sizes and the number of reels per box are as follows.

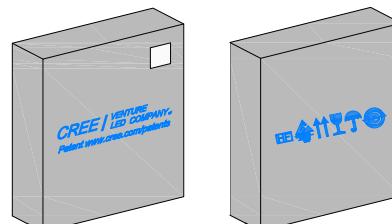
| Box | Box Dimensions | Maximum Number of Reels per Box |
|-----|--------------------|---------------------------------|
| 1 | 250 x 210 x 30 mm | 2 |
| 2 | 250 x 210 x 50 mm | 4 |
| 3 | 530 x 230 x 275 mm | 42 |
| 4 | 530 x 443 x 275 mm | 84 |

Each box has at least one label (shown as a white square in the diagrams below) showing the order code, lot number, quantity, and product parameters.

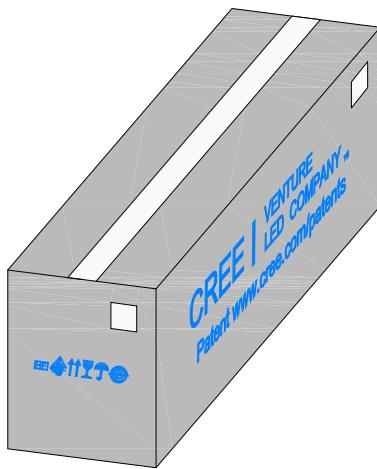
Box 1



Box 2



Box 3



Box 4

