THE DATASHEET OF

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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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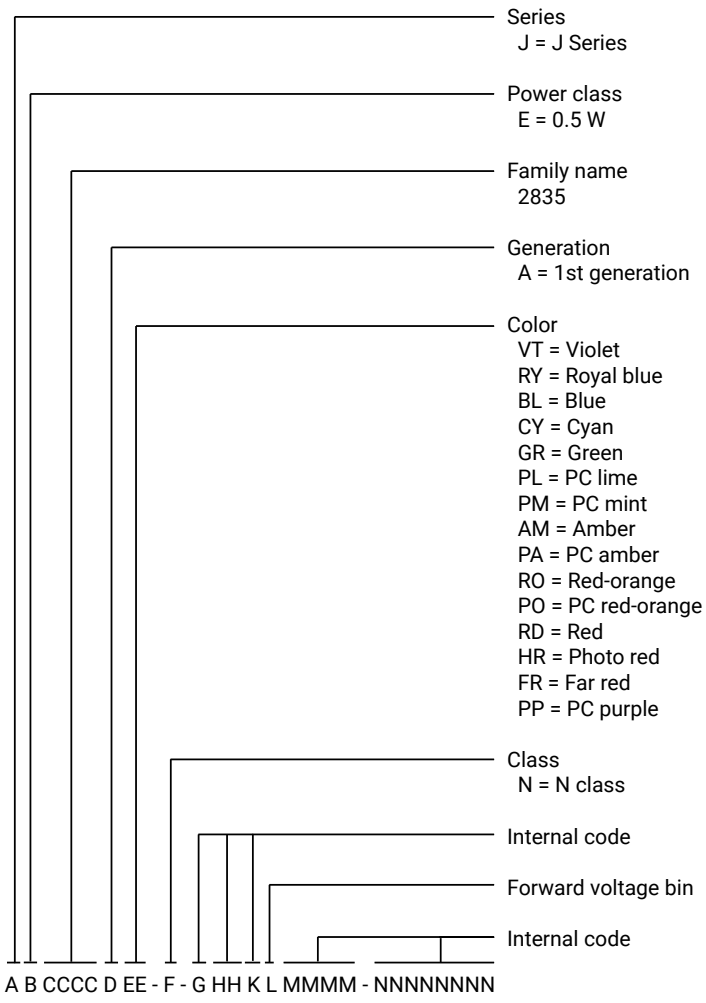
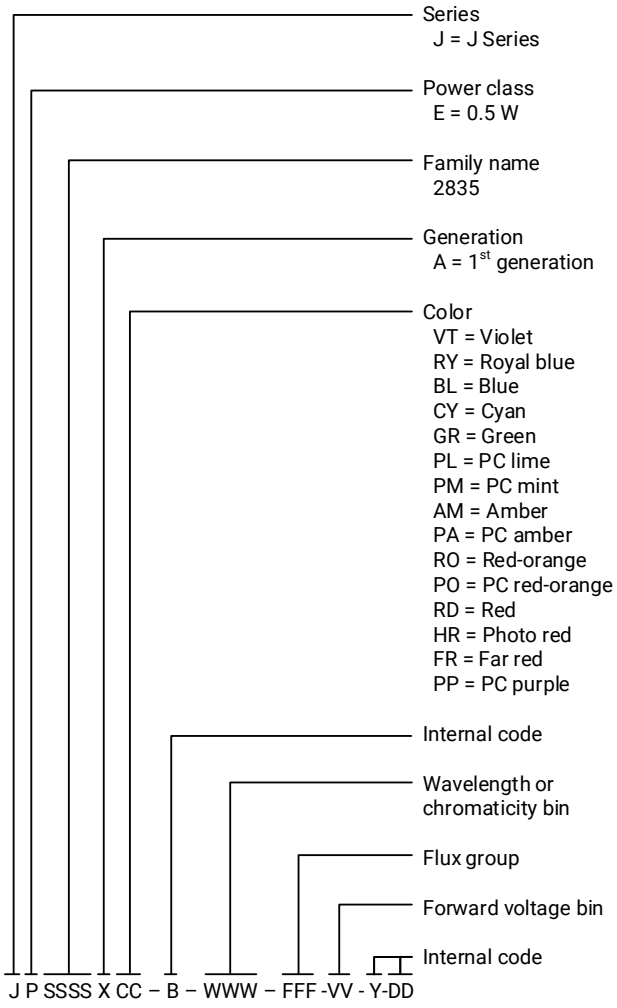
ORDER CODE & BIN CODE FORMATS

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

Order Code



Bin Code



JE2835 VIOLET

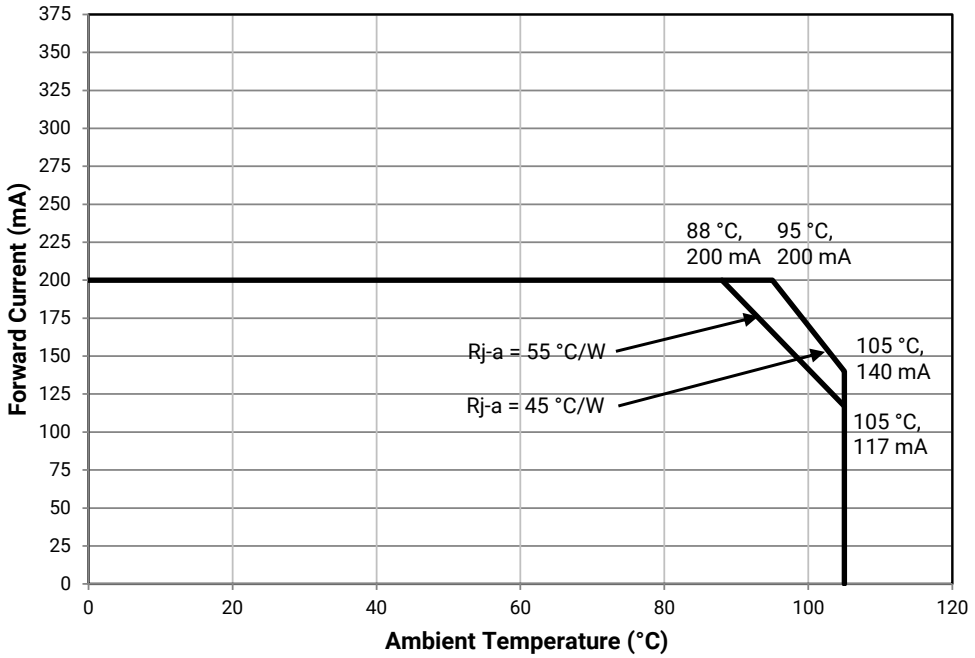
CHARACTERISTICS - JE2835 VIOLET

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 mA, T_j = 25 °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
			Minimum		Maximum		
Group	Flux (mW)		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 °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

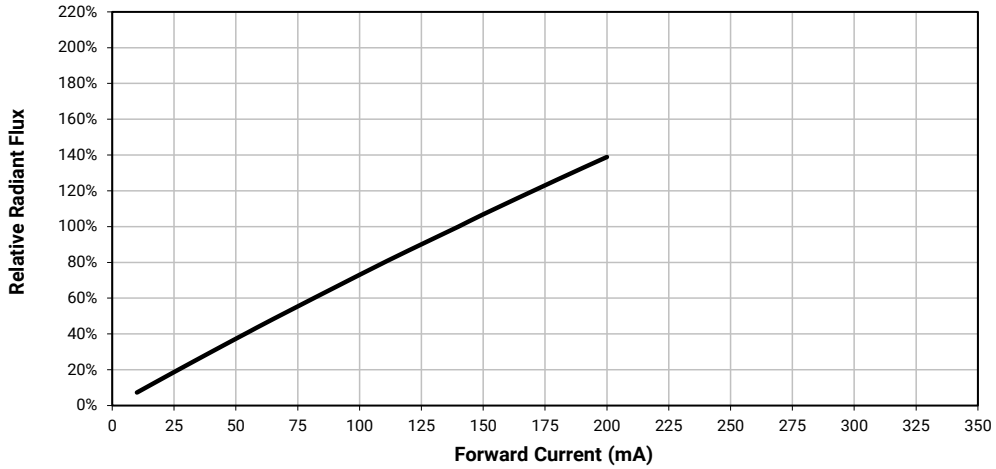
J Series JE2835 violet LEDs are tested for peak wavelength (PWL) and sorted into one of the PWL bins defined below.

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

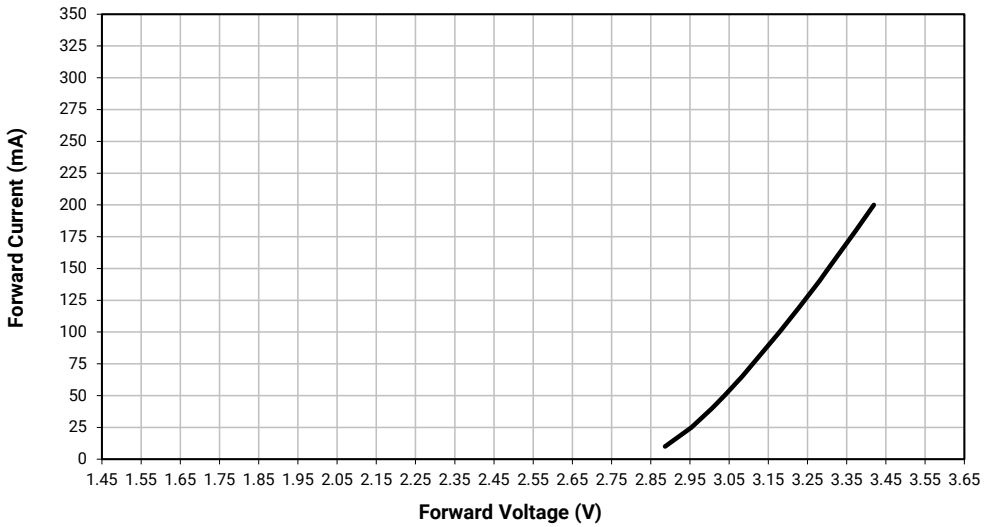
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

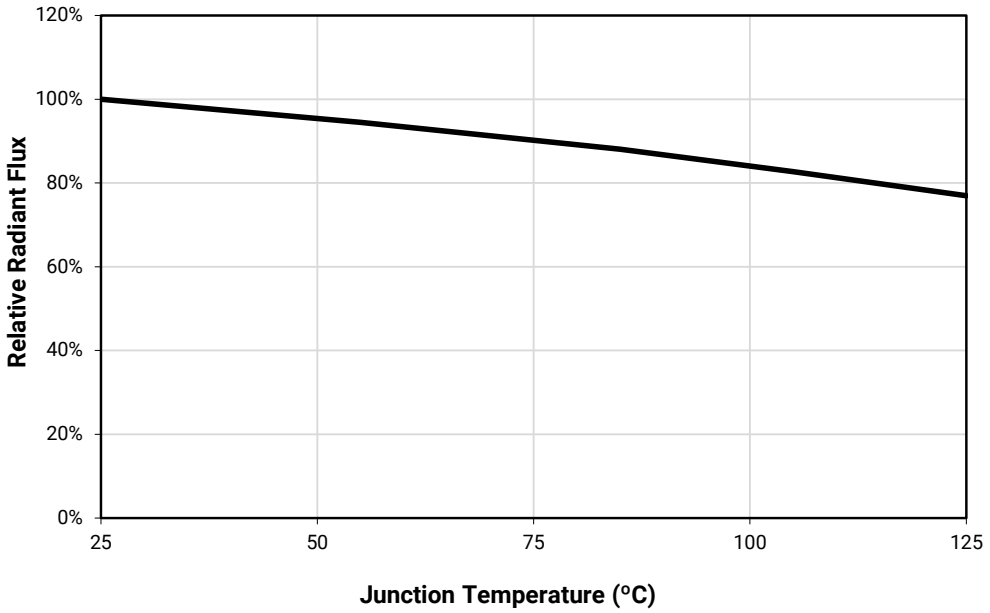
RELATIVE RADIANT FLUX VS. CURRENT - JE2835 VIOLET



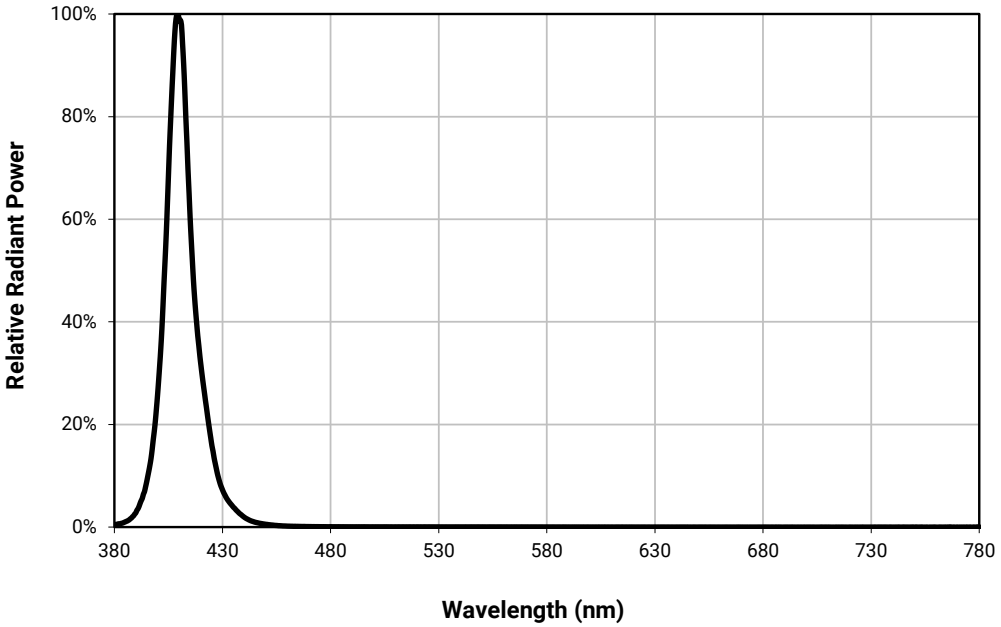
ELECTRICAL CHARACTERISTICS - JE2835 VIOLET



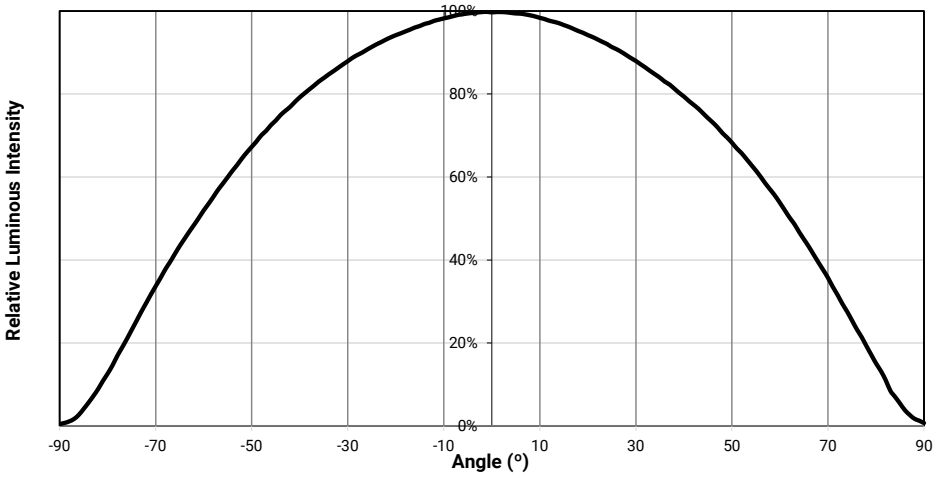
RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE - JE2835 VIOLET



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 VIOLET



TYPICAL SPATIAL DISTRIBUTION - JE2835 VIOLET



JE2835 ROYAL BLUE

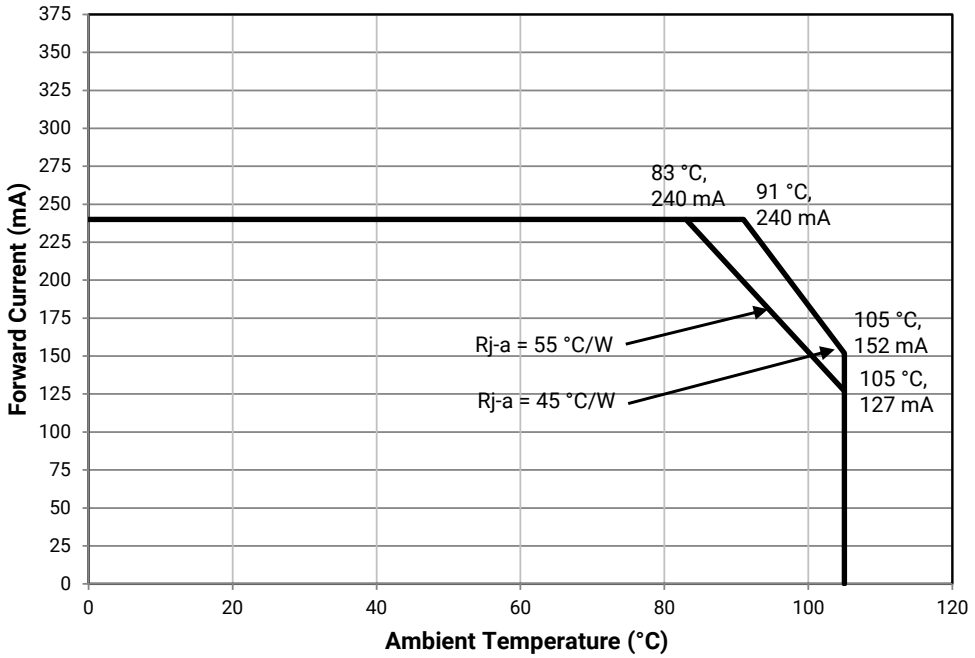
CHARACTERISTICS - JE2835 ROYAL BLUE

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 mA, T_j = 25 °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
			Minimum		Maximum		
Group	Flux (mW)		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 °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

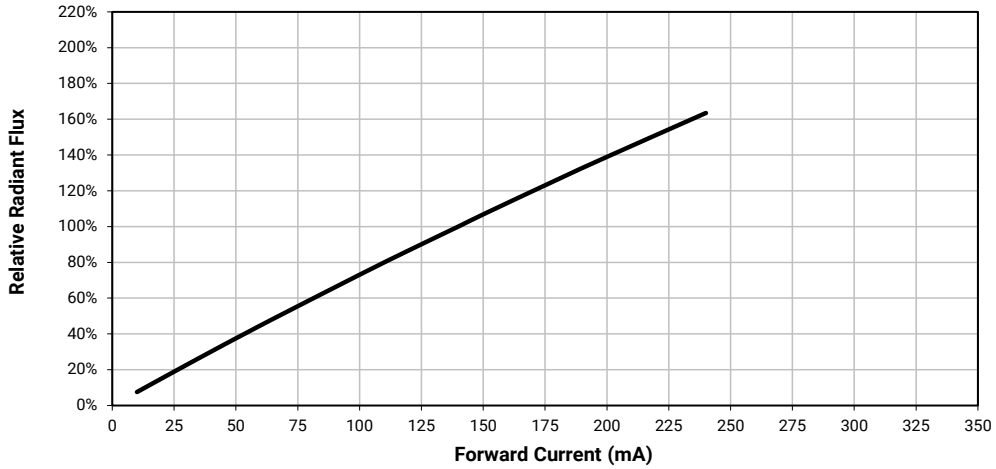
J Series JE2835 royal blue LEDs are tested for dominant wavelength (DWL) and sorted into one of the DWL bins defined below.

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

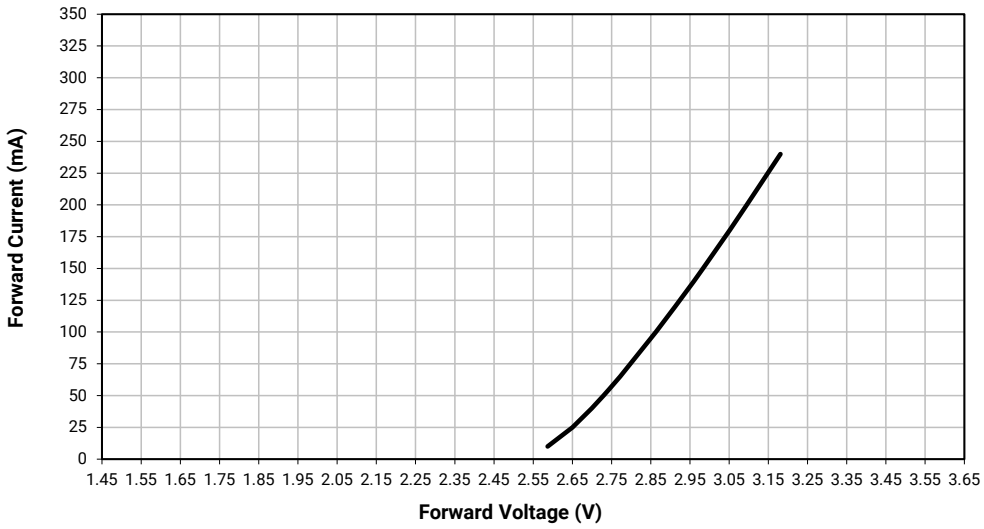
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

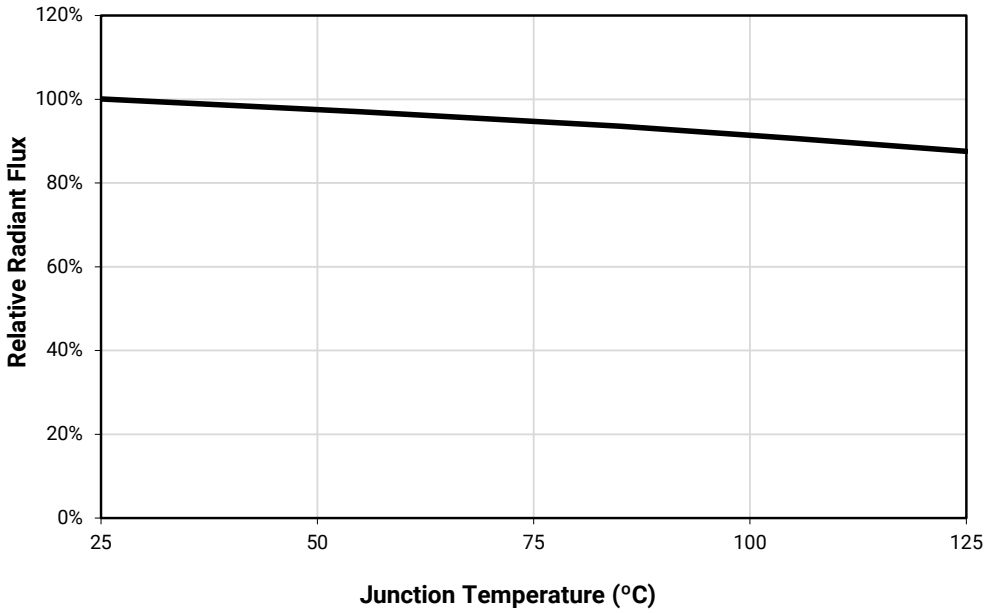
RELATIVE RADIANT FLUX VS. CURRENT - JE2835 ROYAL BLUE



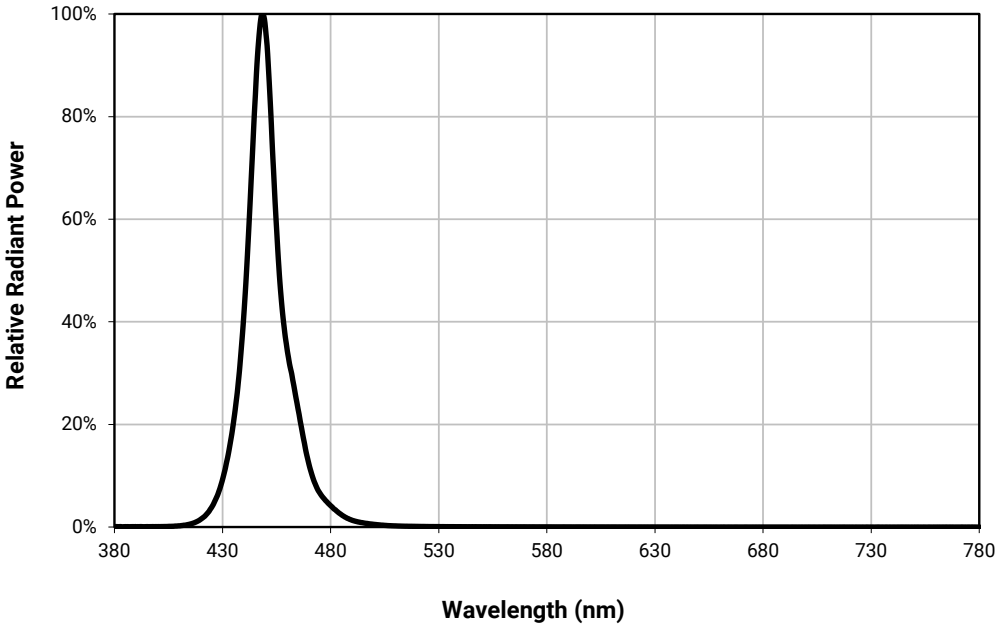
ELECTRICAL CHARACTERISTICS - JE2835 ROYAL BLUE



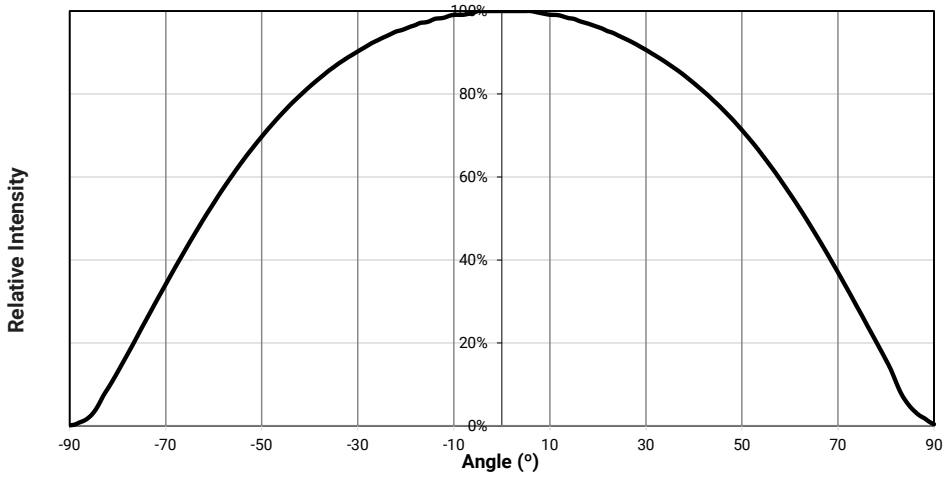
RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE - JE2835 ROYAL BLUE



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 ROYAL BLUE



TYPICAL SPATIAL DISTRIBUTION - JE2835 ROYAL BLUE



JE2835 BLUE

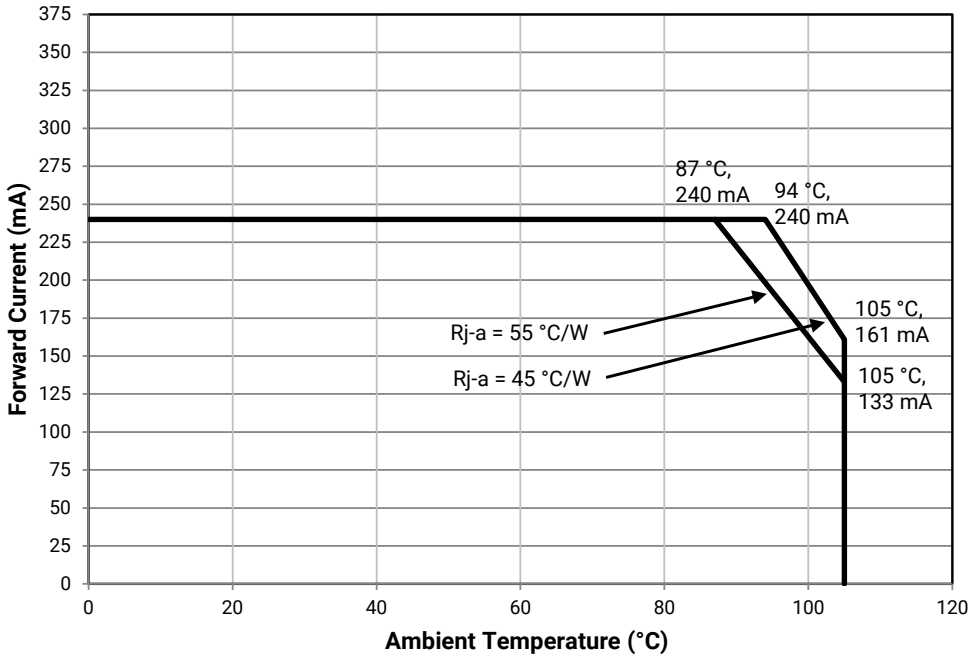
CHARACTERISTICS - JE2835 BLUE

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 mA, T_J = 25 °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
			Minimum		Maximum		
Group	Flux (lm)		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 °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

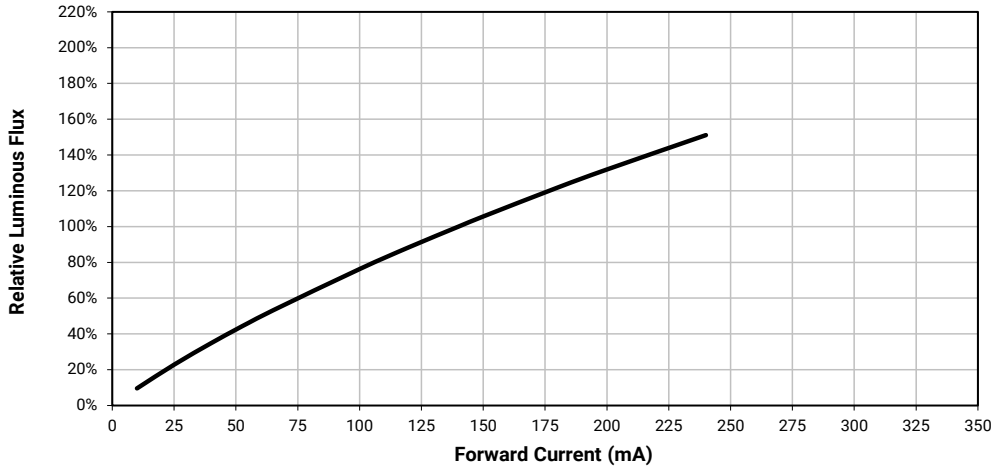
J Series JE2835 blue LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

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

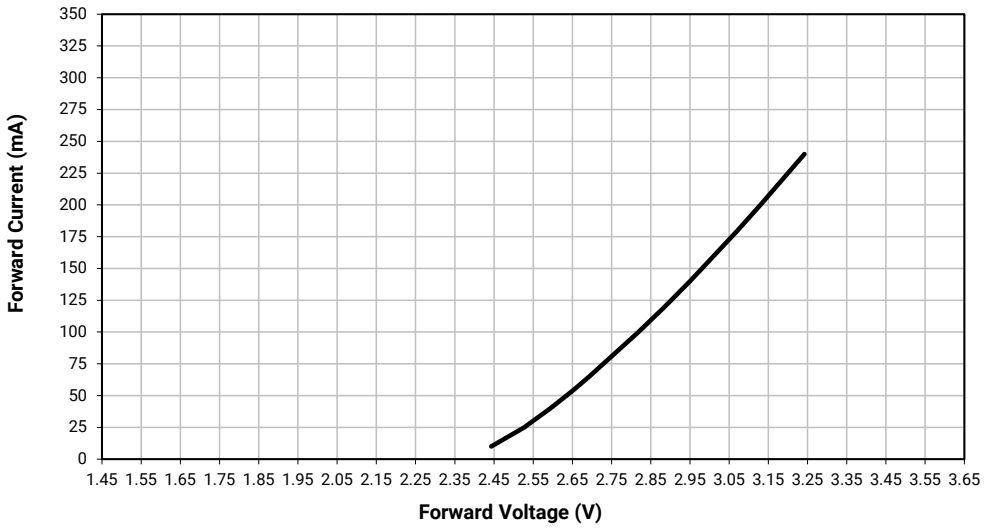
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

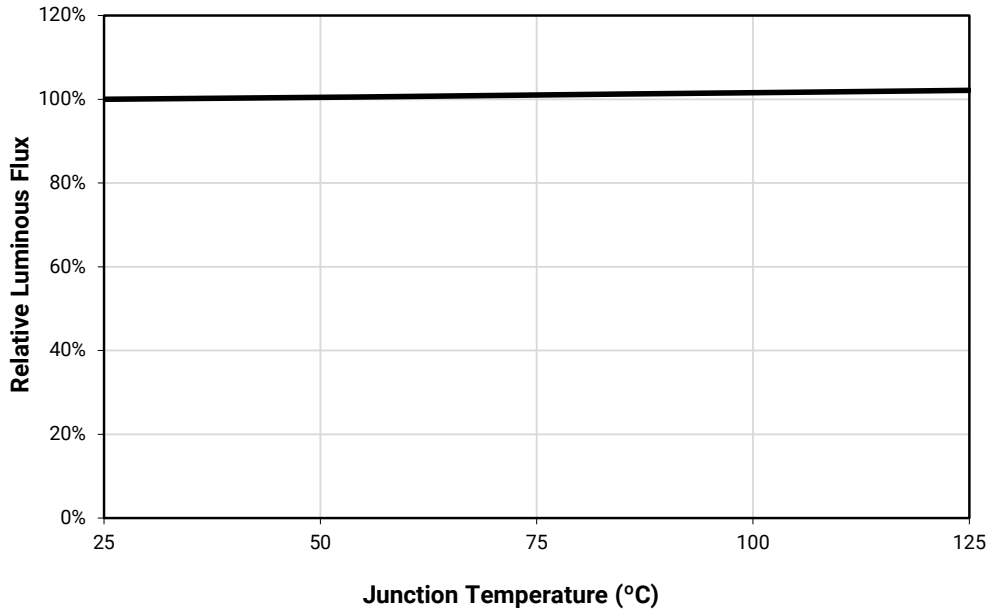
RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 BLUE



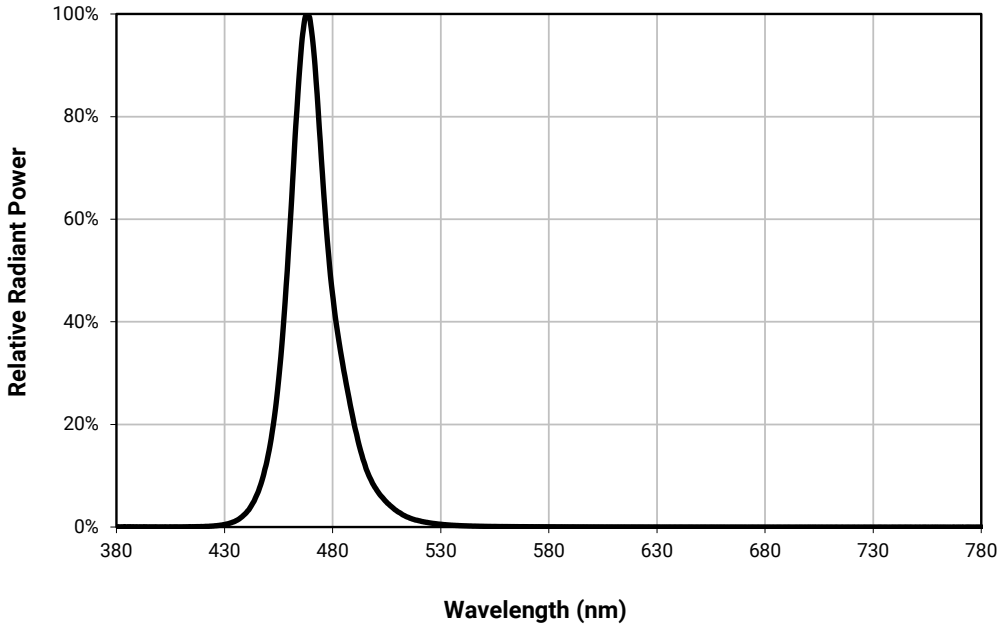
ELECTRICAL CHARACTERISTICS - JE2835 BLUE



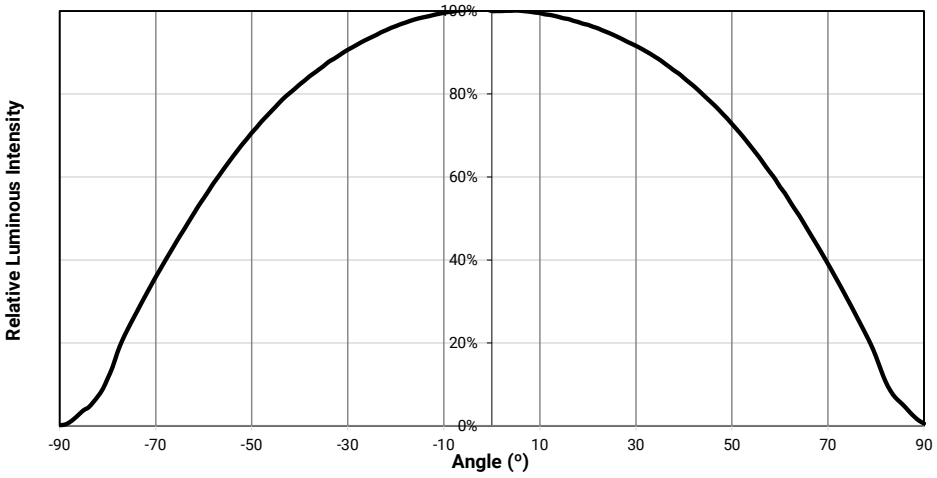
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 BLUE



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 BLUE



TYPICAL SPATIAL DISTRIBUTION - JE2835 BLUE



JE2835 CYAN

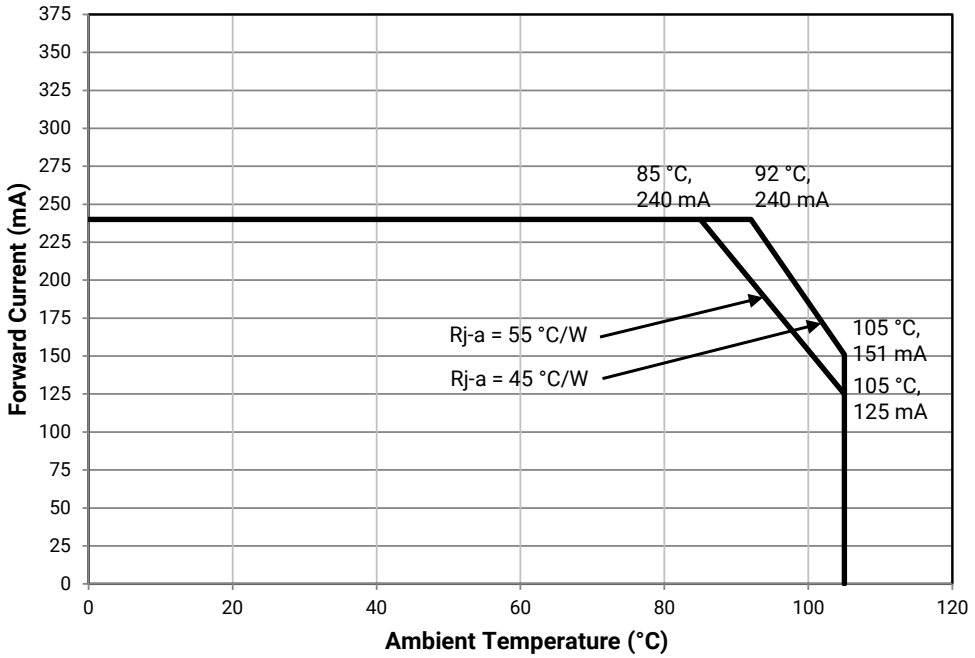
CHARACTERISTICS - JE2835 CYAN

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 mA, T_J = 25 °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
			Minimum		Maximum		
Group	Flux (lm)		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 °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

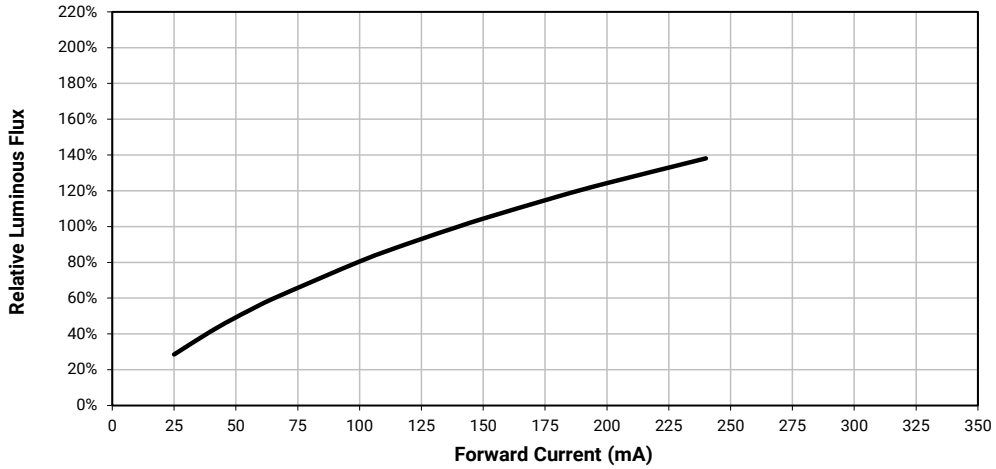
J Series JE2835 cyan LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

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

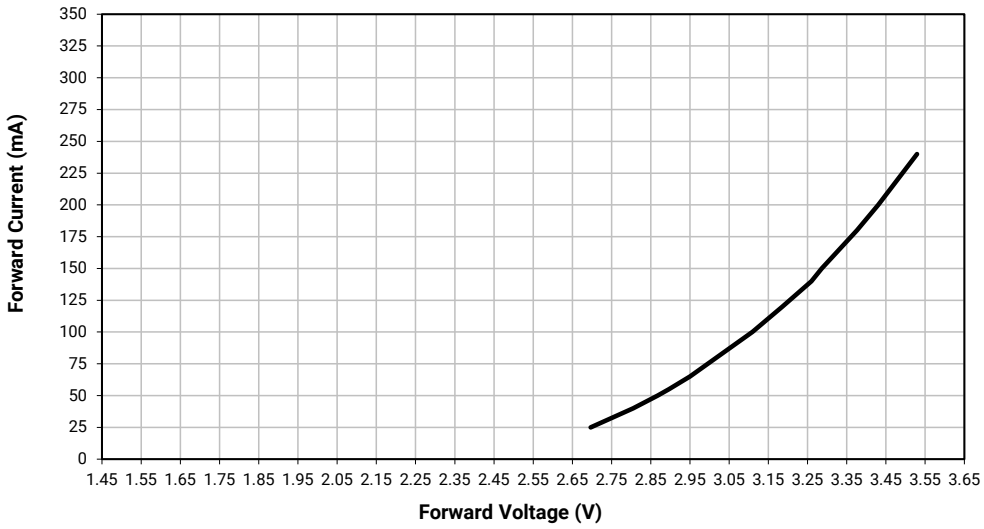
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

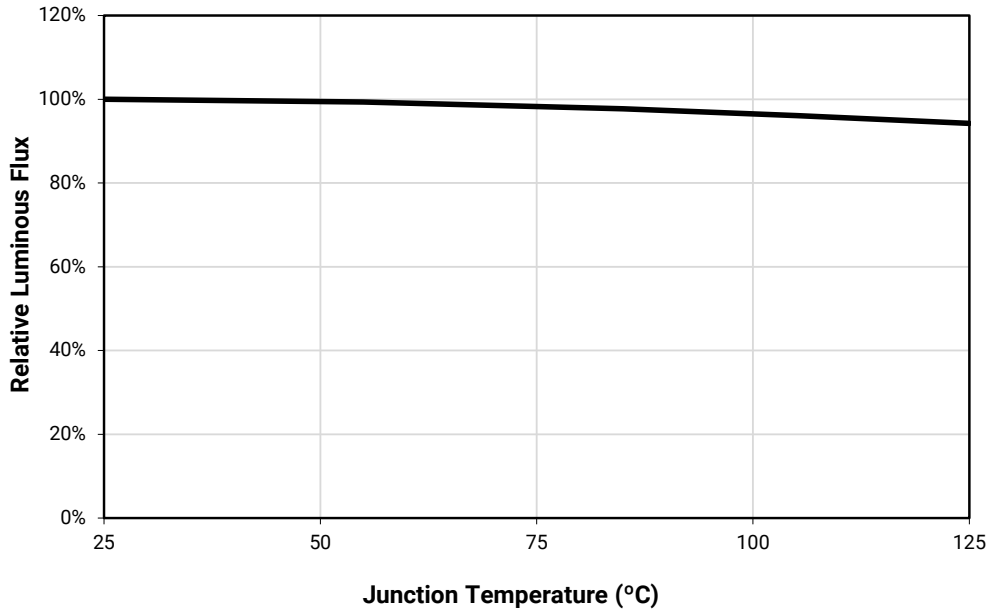
RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 CYAN



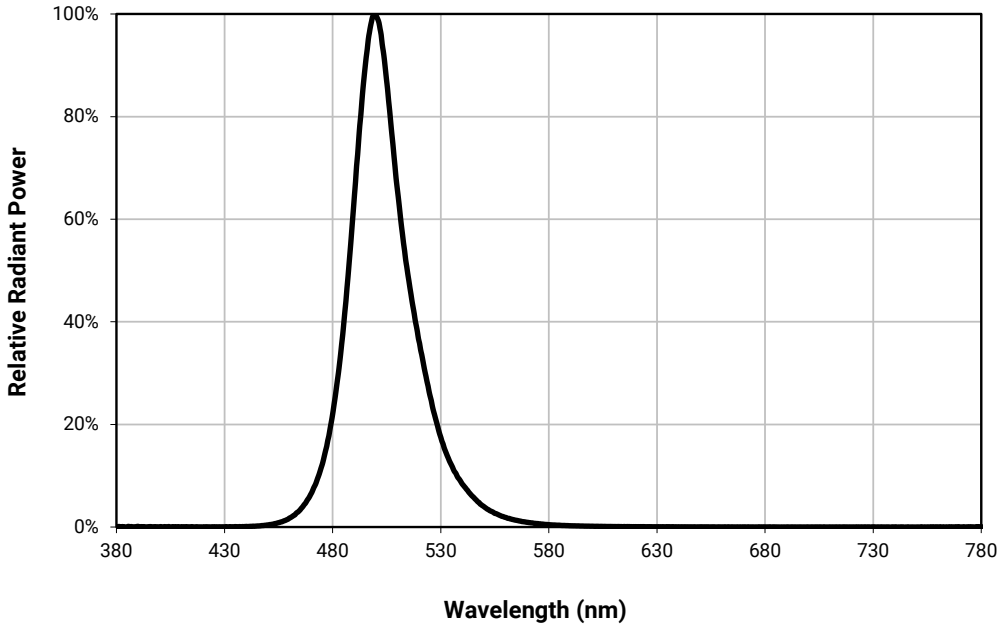
ELECTRICAL CHARACTERISTICS - JE2835 CYAN



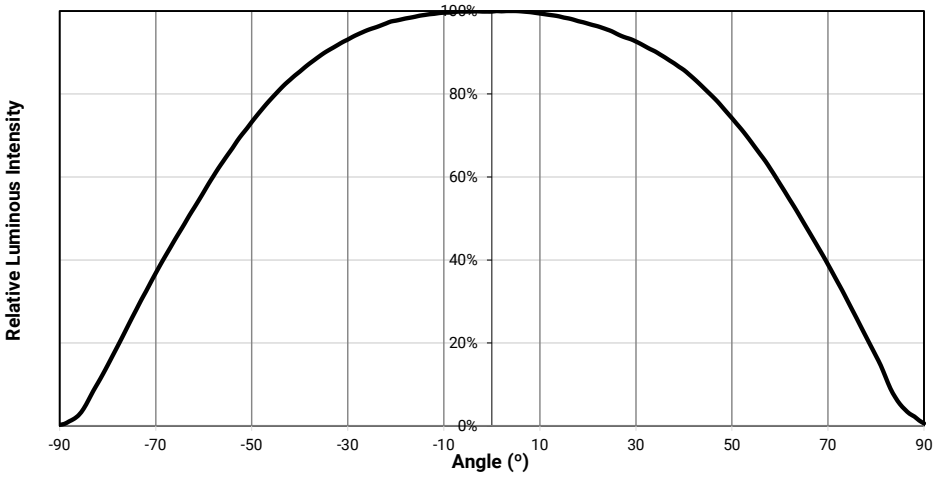
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 CYAN



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 CYAN



TYPICAL SPATIAL DISTRIBUTION - JE2835 CYAN



JE2835 GREEN

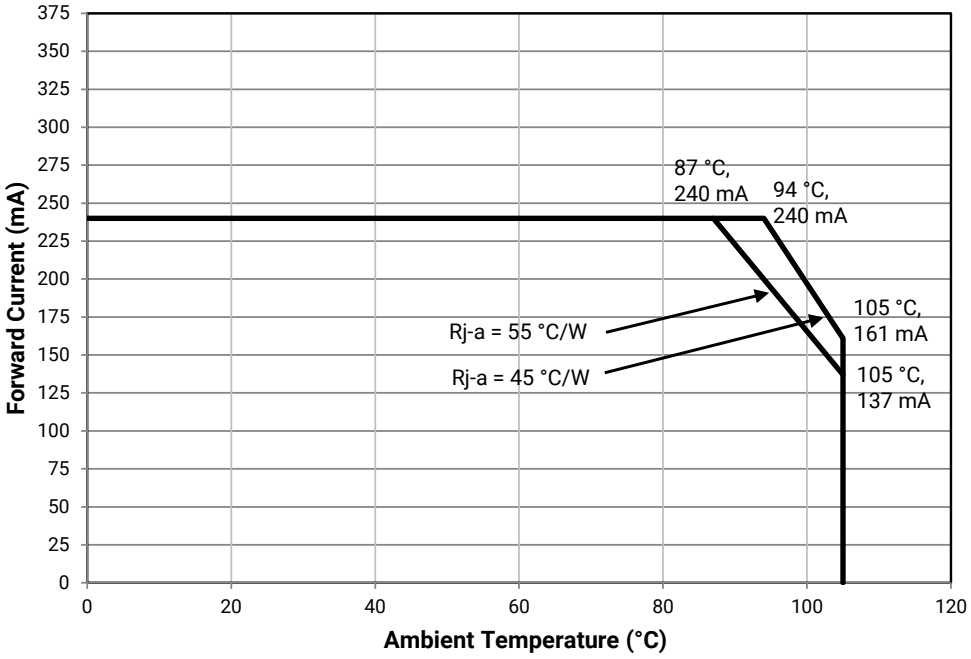
CHARACTERISTICS - JE2835 GREEN

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 mA, T_J = 25 °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
			Minimum		Maximum		
Group	Flux (lm)		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 °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

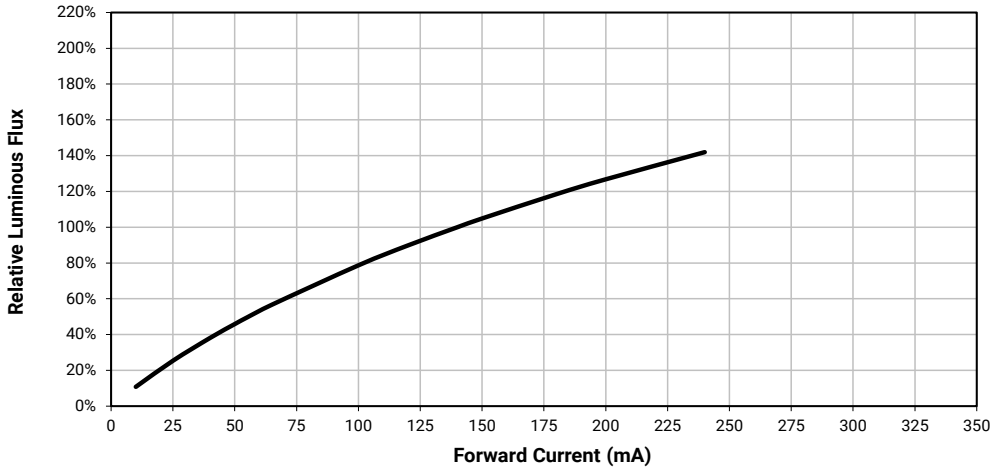
J Series JE2835 green LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

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

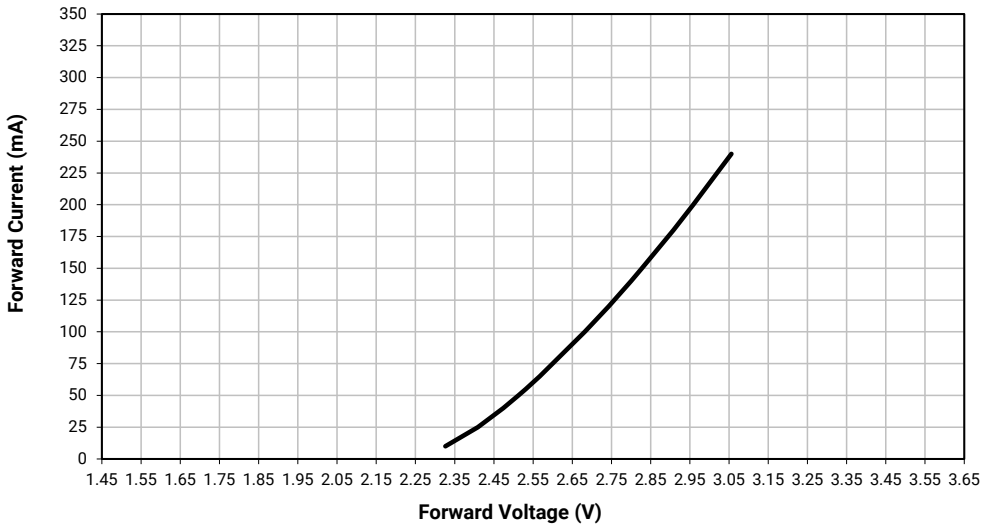
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

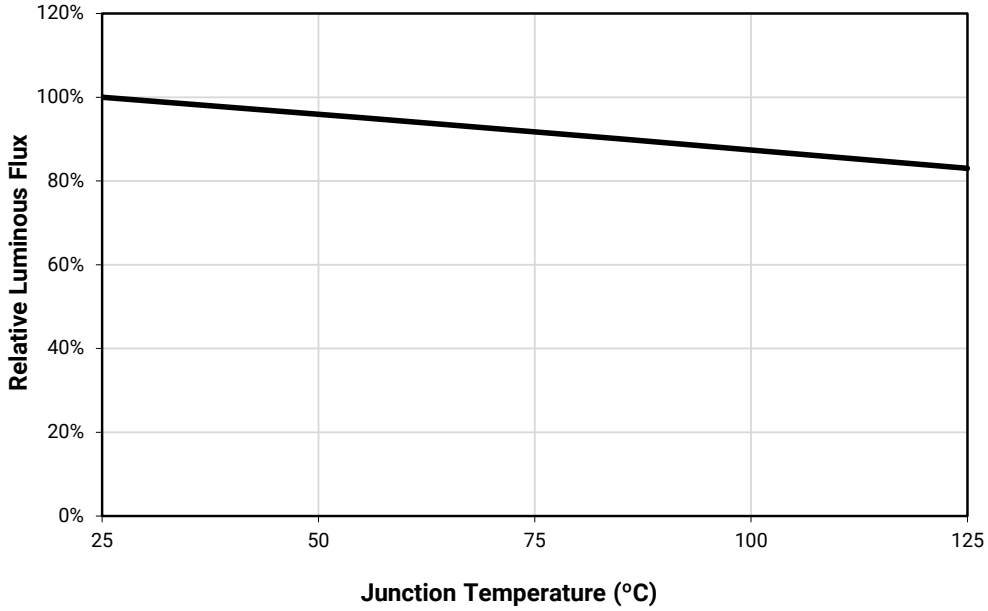
RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 GREEN



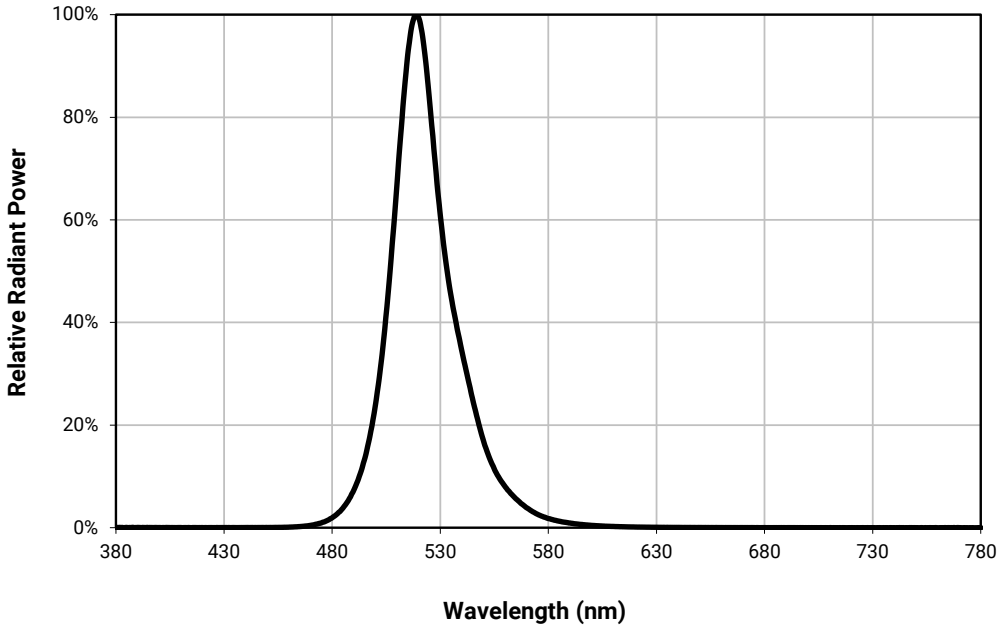
ELECTRICAL CHARACTERISTICS - JE2835 GREEN



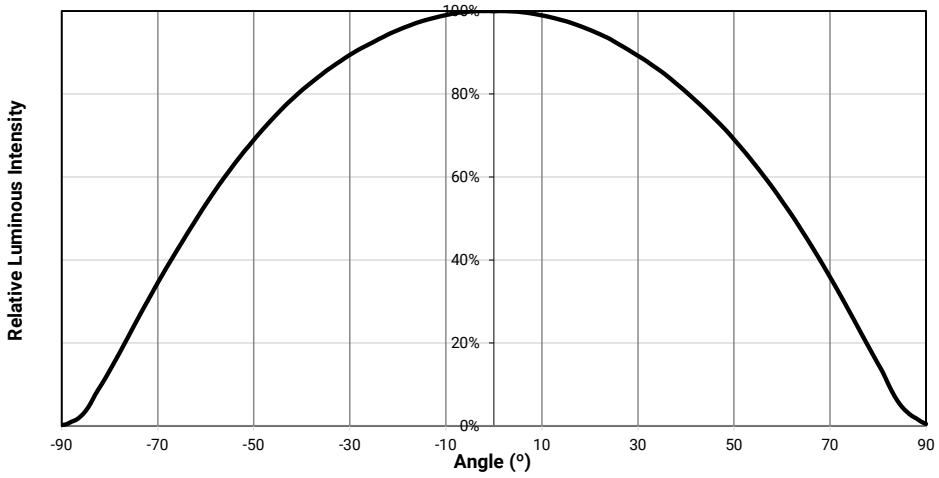
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 GREEN



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 GREEN



TYPICAL SPATIAL DISTRIBUTION - JE2835 GREEN



JE2835 PC LIME

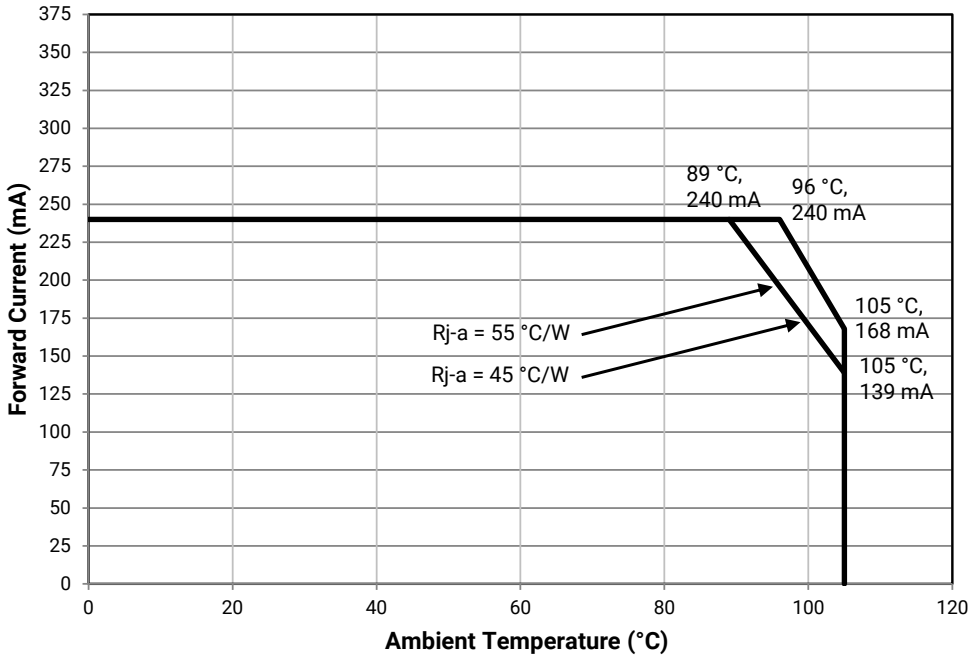
CHARACTERISTICS - JE2835 PC LIME

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 mA, T_J = 25 °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 °C)

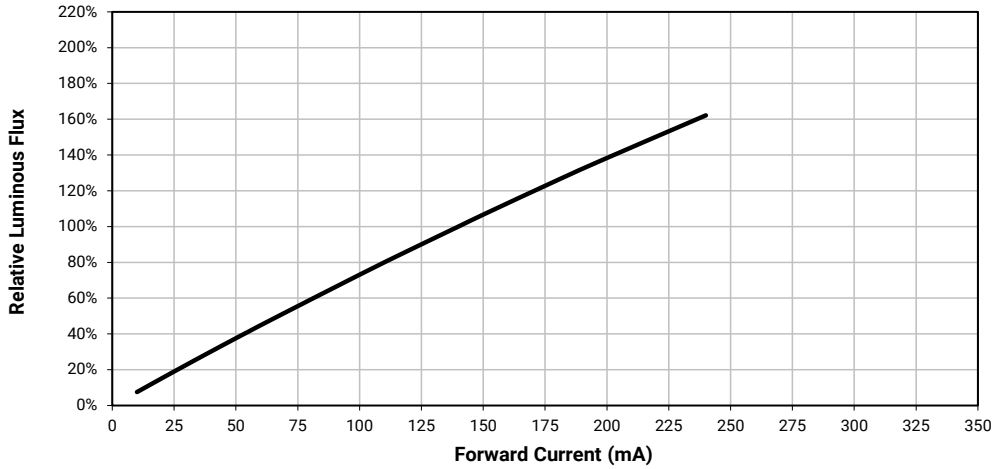
J Series JE2835 PC lime LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

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

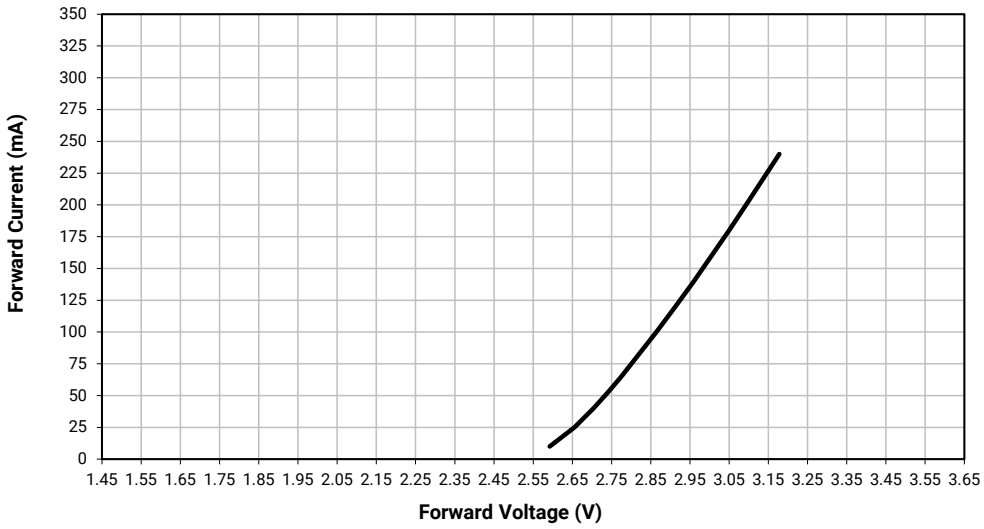
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

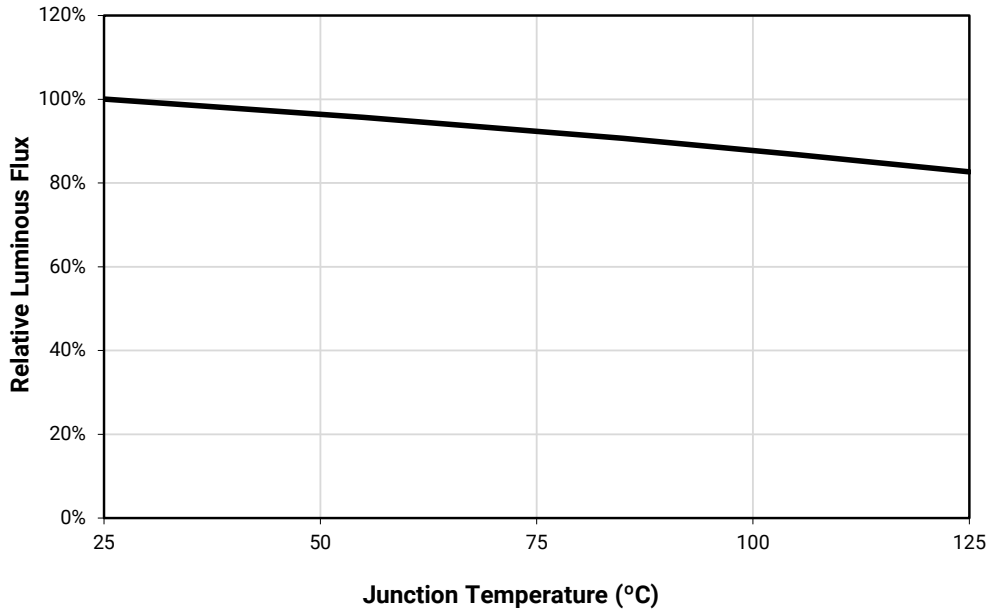
RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 PC LIME



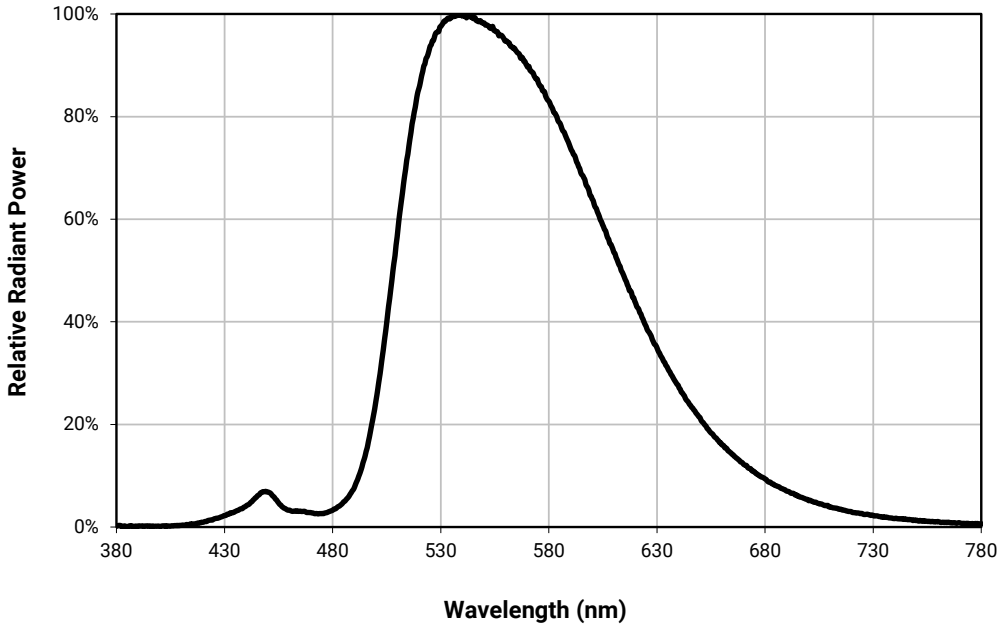
ELECTRICAL CHARACTERISTICS - JE2835 PC LIME



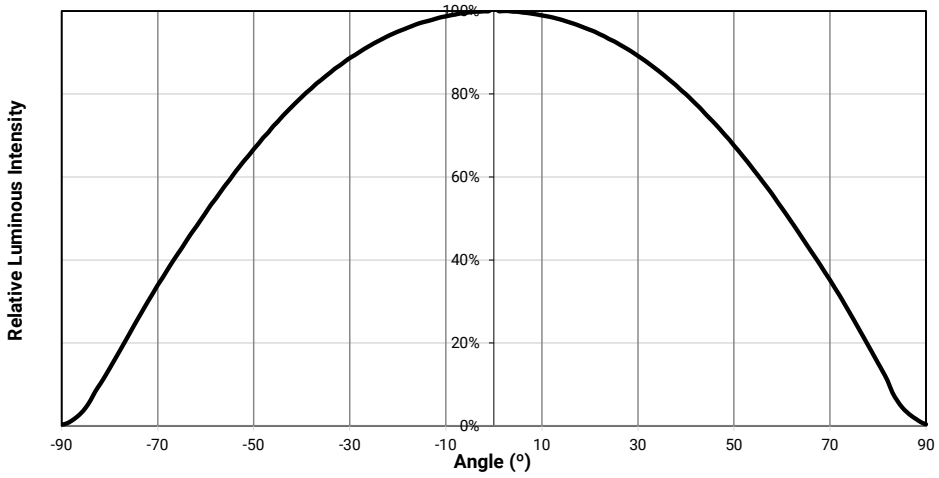
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 PC LIME



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PC LIME

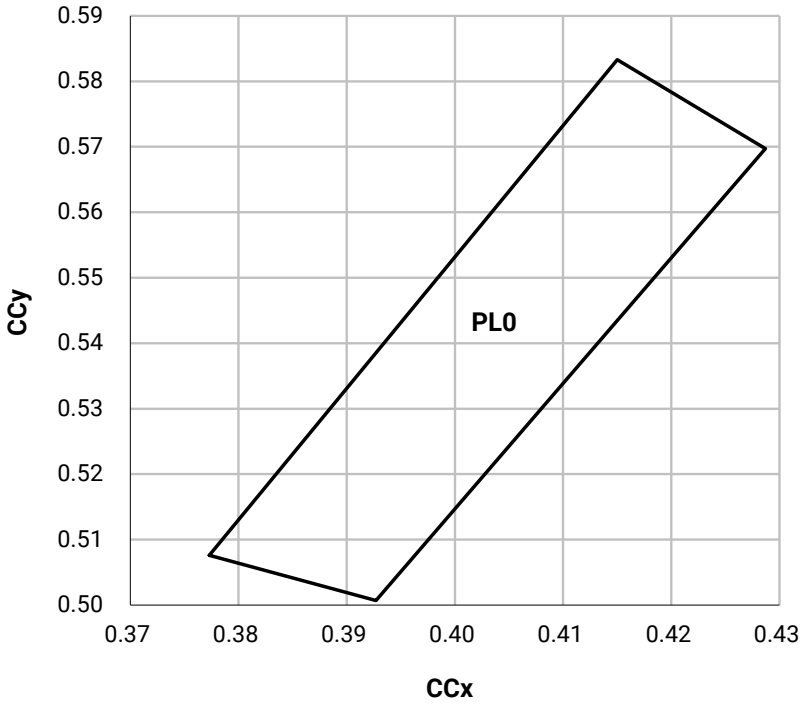


TYPICAL SPATIAL DISTRIBUTION - JE2835 PC LIME



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

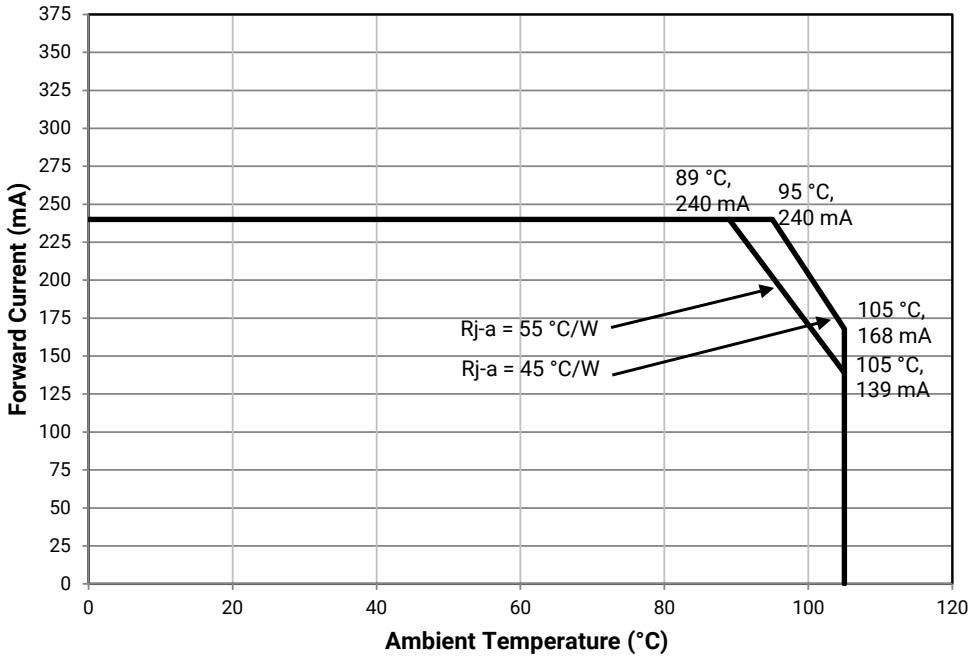
CHARACTERISTICS - JE2835 PC MINT

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 mA, T_J = 25 °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 °C)

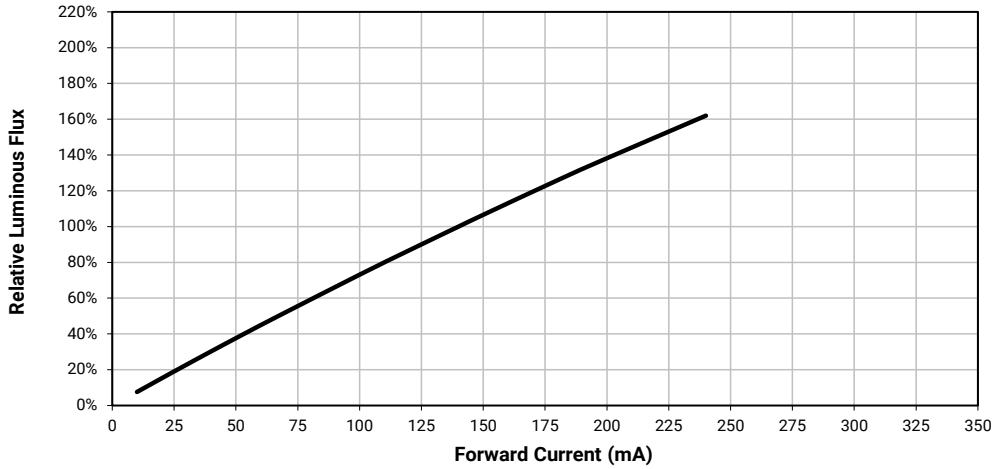
J Series JE2835 PC mint LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

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

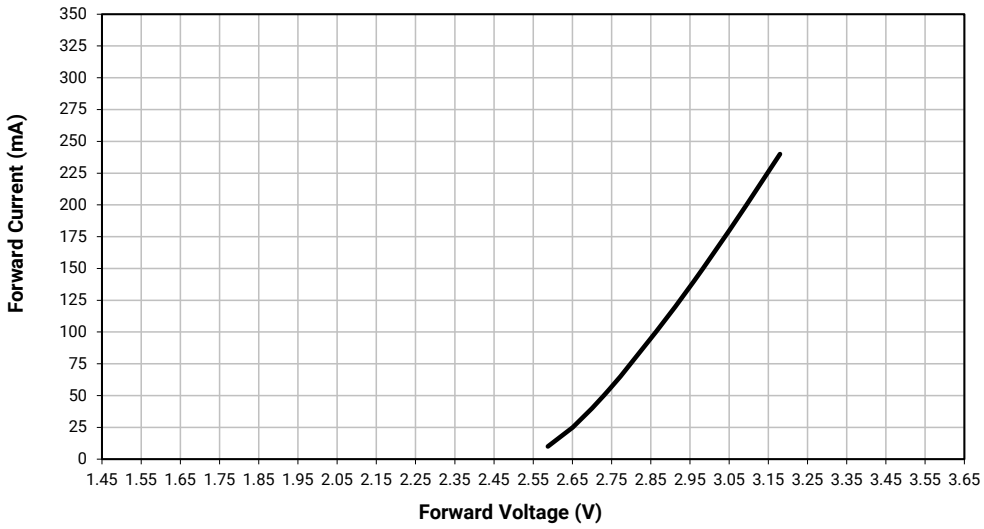
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

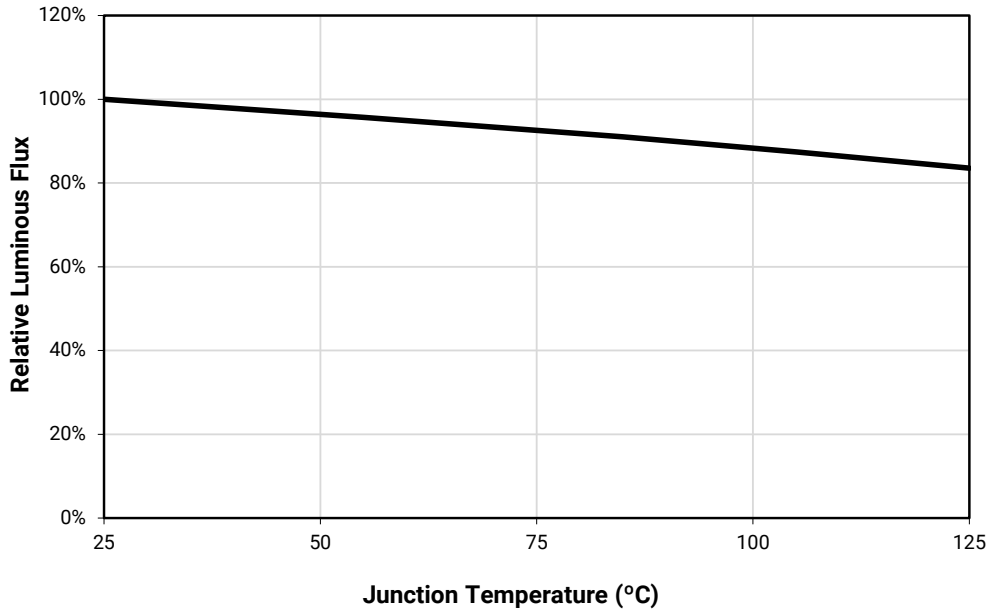
RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 PC MINT



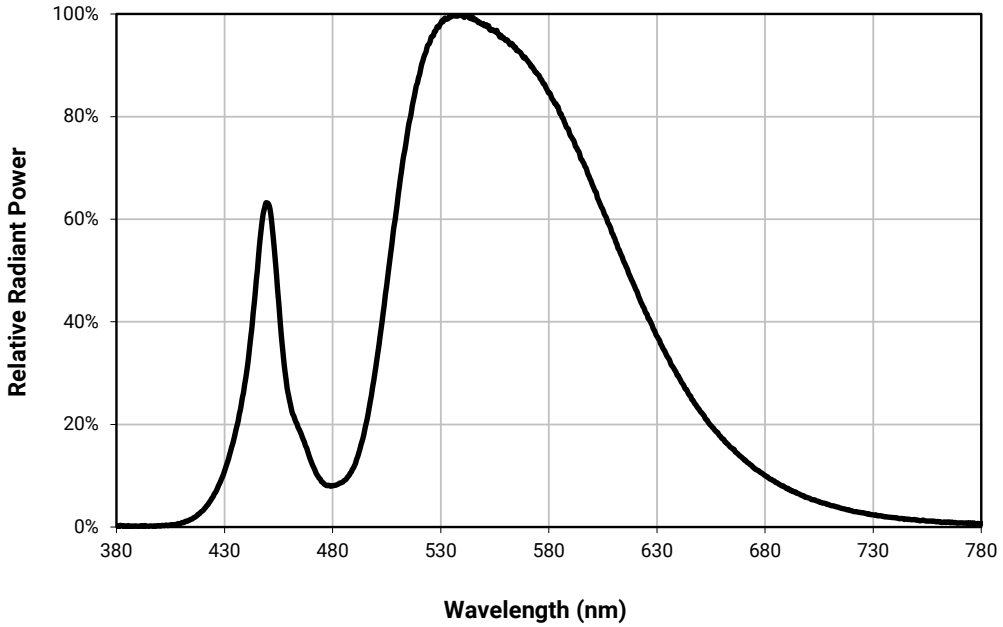
ELECTRICAL CHARACTERISTICS - JE2835 PC MINT



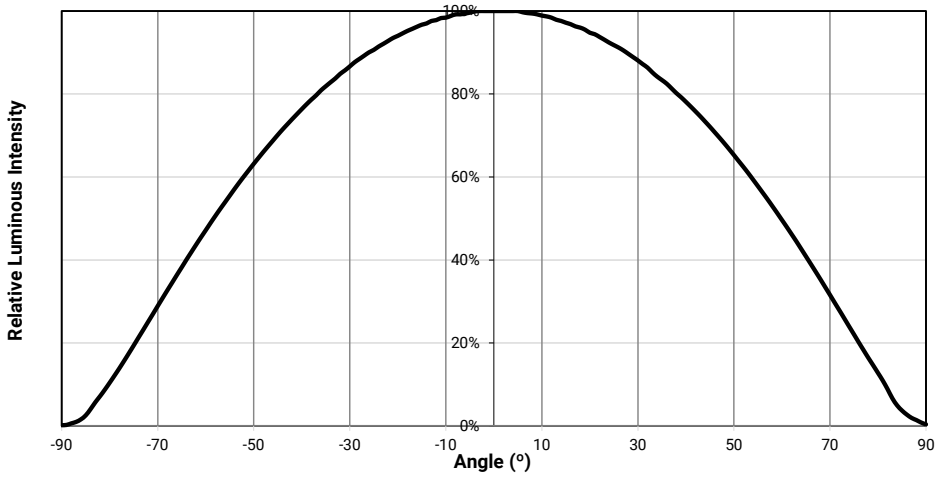
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 PC MINT



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PC MINT

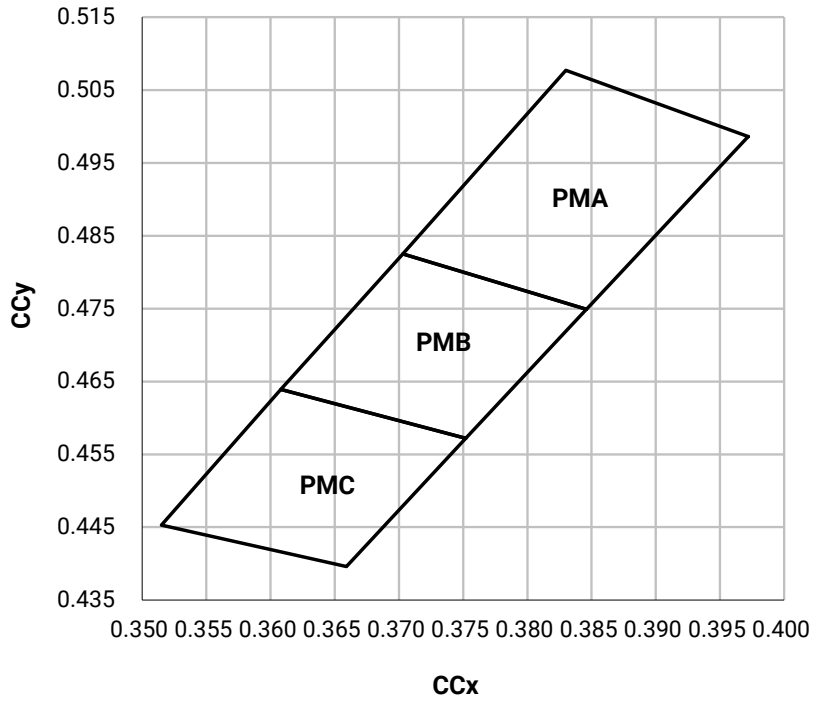


TYPICAL SPATIAL DISTRIBUTION - JE2835 PC MINT



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

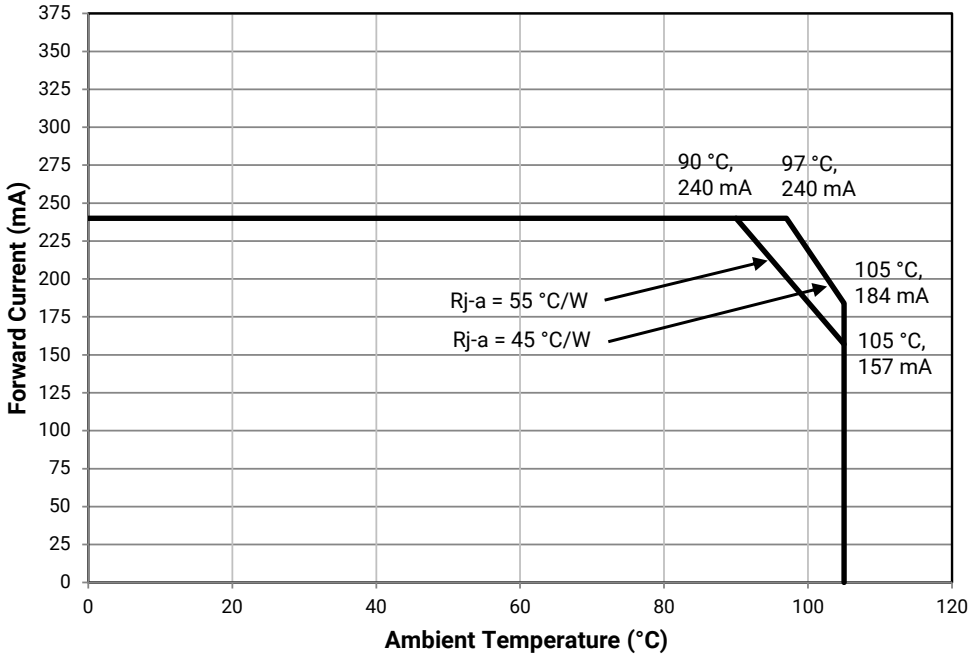
CHARACTERISTICS - JE2835 AMBER

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 mA, T_J = 25 °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
			Minimum		Maximum		
Group	Flux (lm)		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 °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

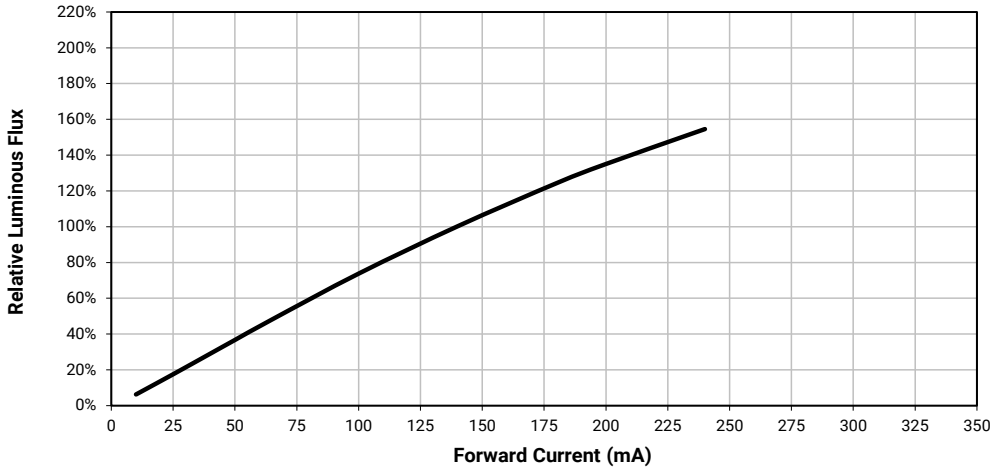
J Series JE2835 amber LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

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

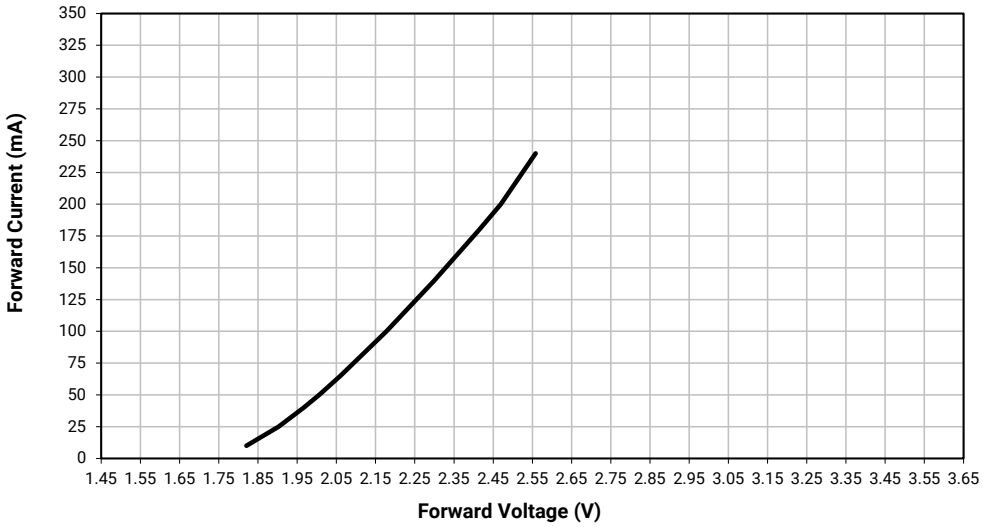
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

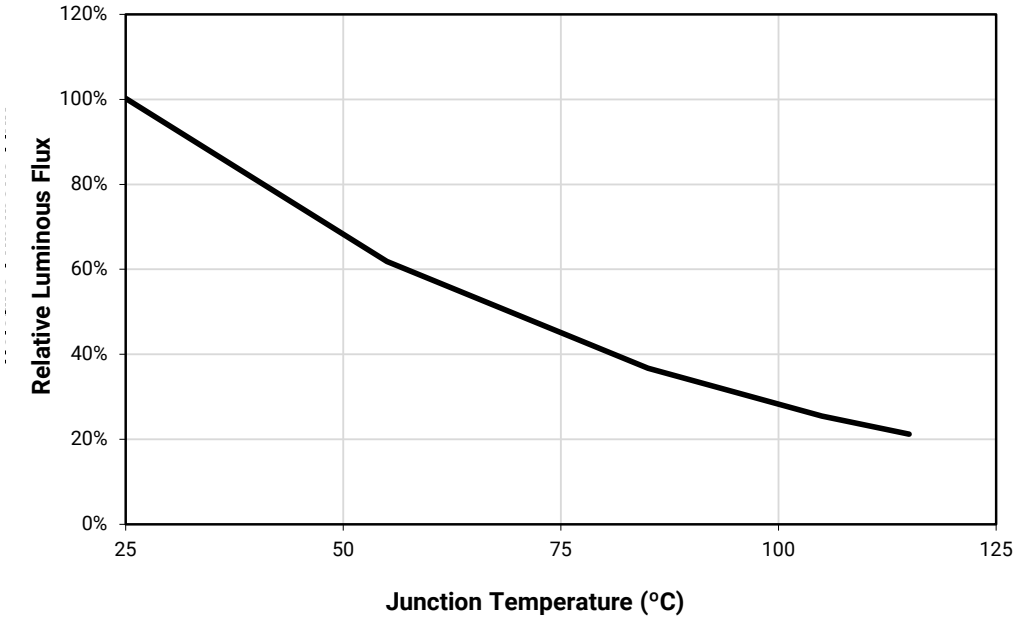
RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 AMBER



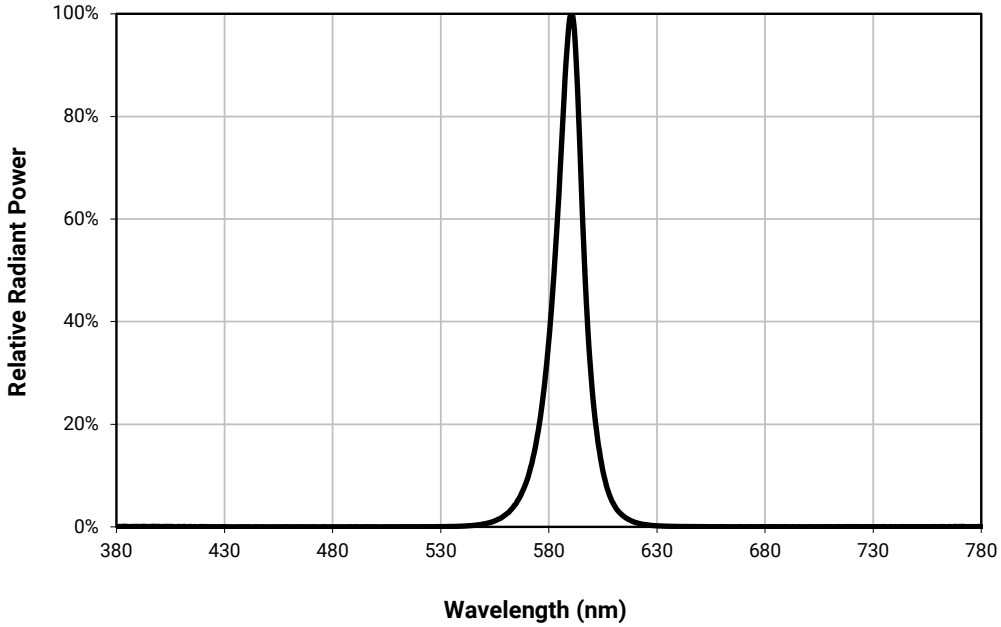
ELECTRICAL CHARACTERISTICS - JE2835 AMBER



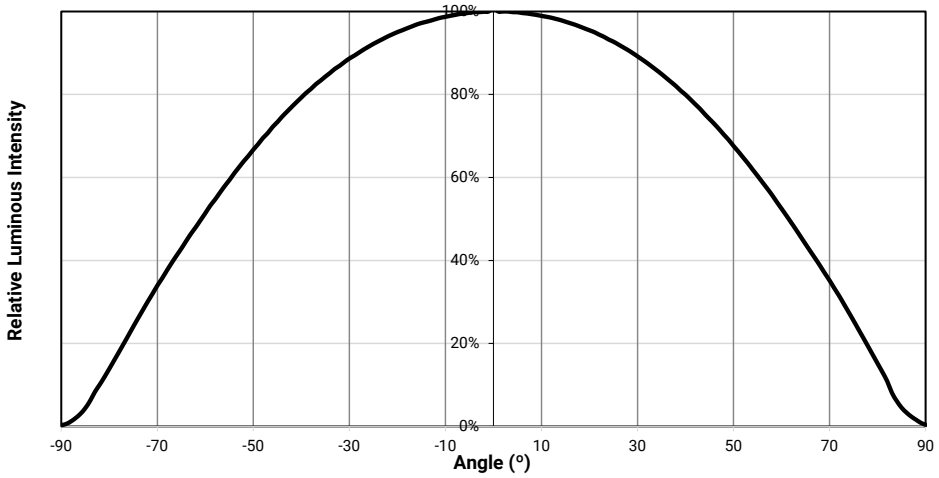
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 AMBER



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 AMBER



TYPICAL SPATIAL DISTRIBUTION - JE2835 AMBER



JE2835 PC AMBER

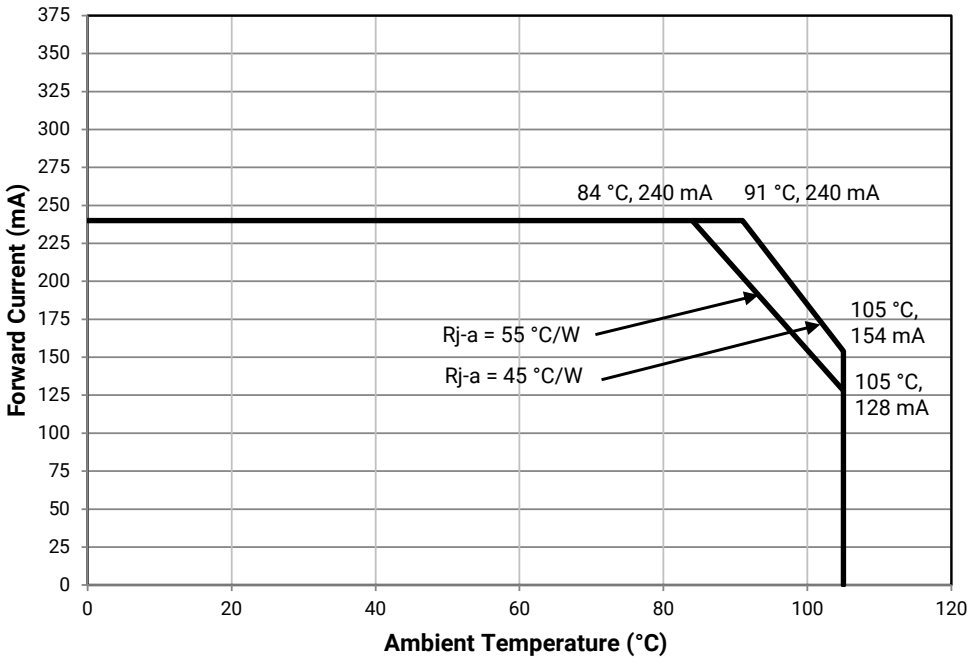
CHARACTERISTICS - JE2835 PC AMBER

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 mA, T_J = 25 °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 °C)

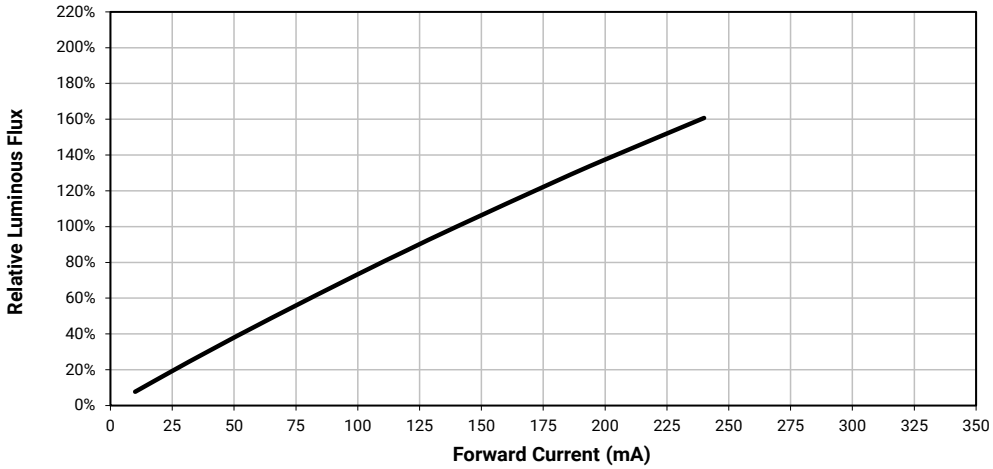
J Series JE2835 PC amber LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

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

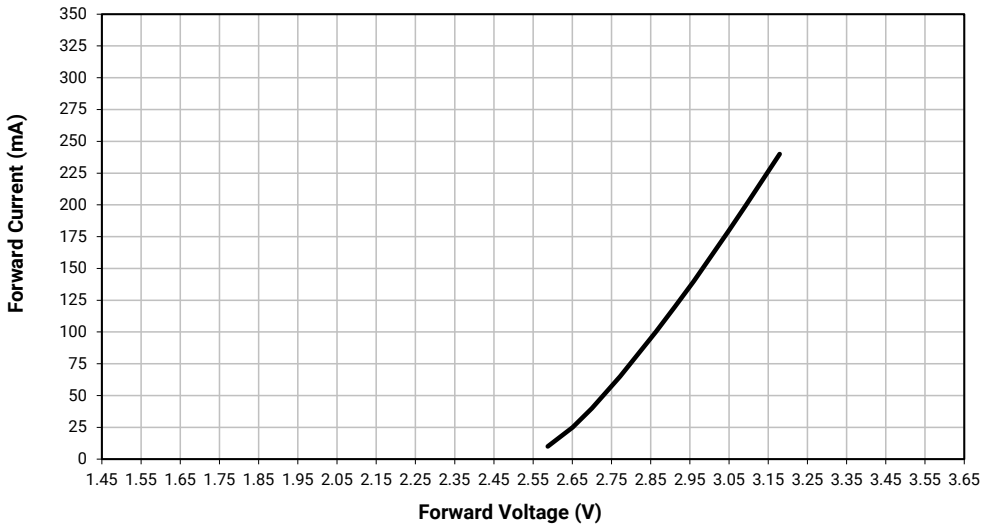
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

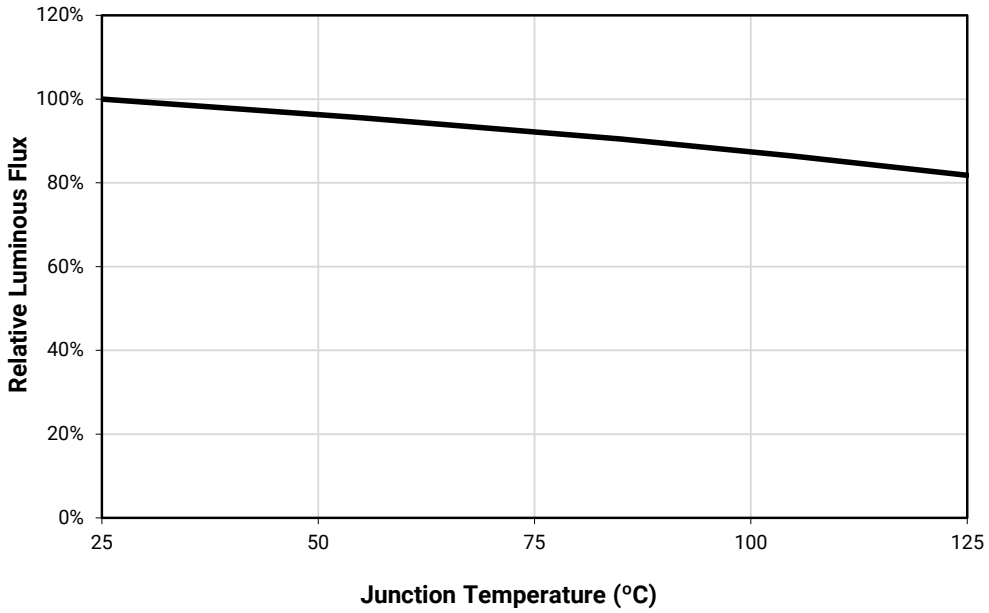
RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 PC AMBER



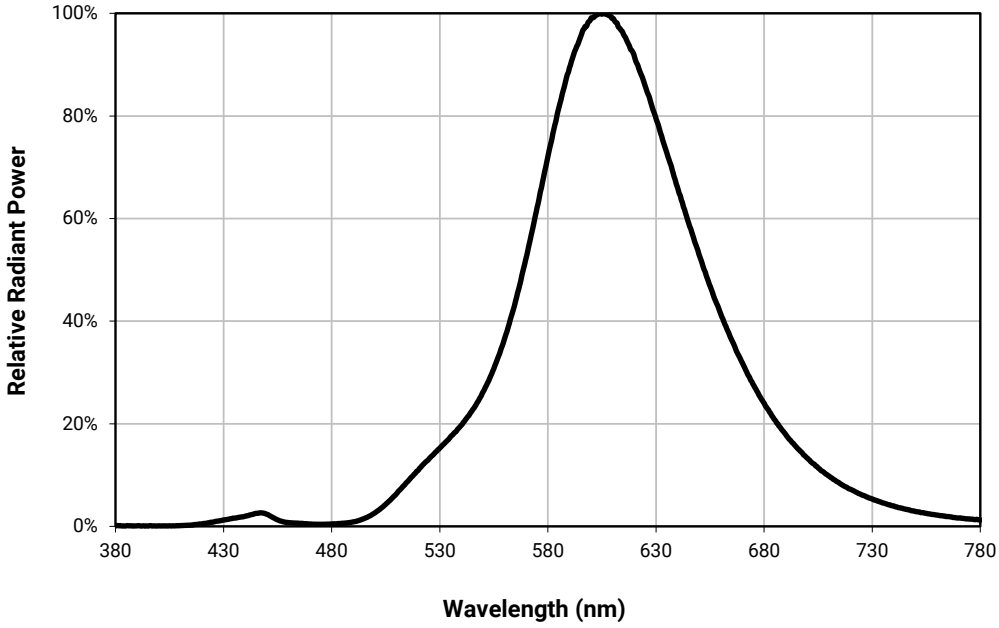
ELECTRICAL CHARACTERISTICS - JE2835 PC AMBER



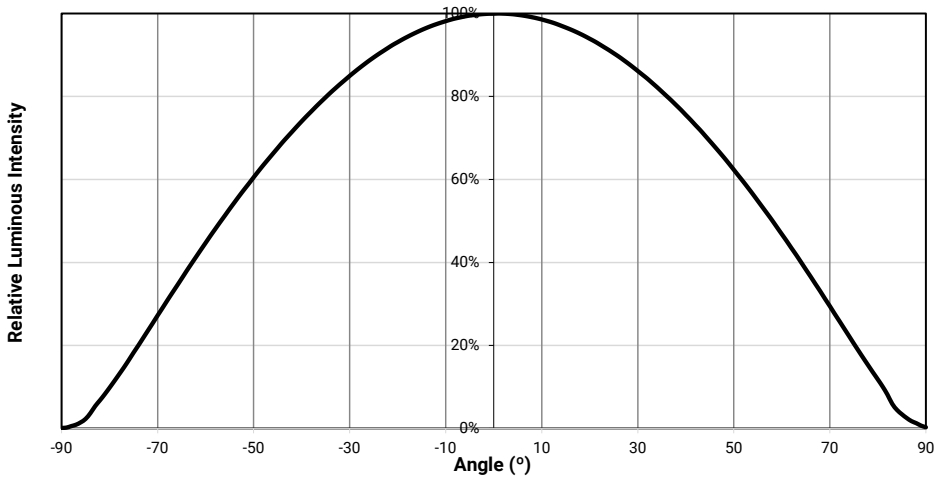
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 PC AMBER



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PC AMBER

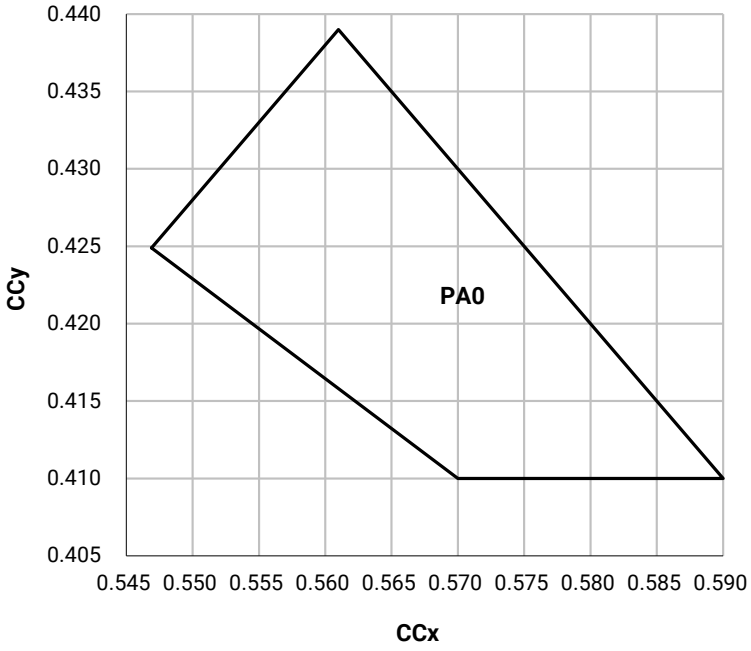


TYPICAL SPATIAL DISTRIBUTION - JE2835 PC AMBER



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

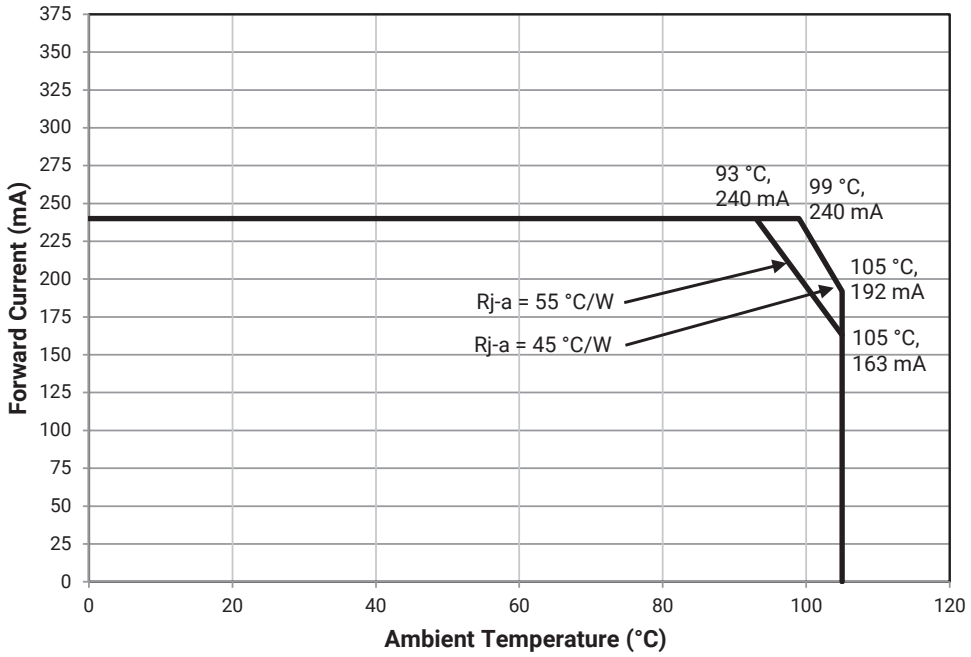
CHARACTERISTICS - JE2835 RED-ORANGE

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 mA, T_J = 25 °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
			Minimum		Maximum		
Group	Flux (lm)		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 °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

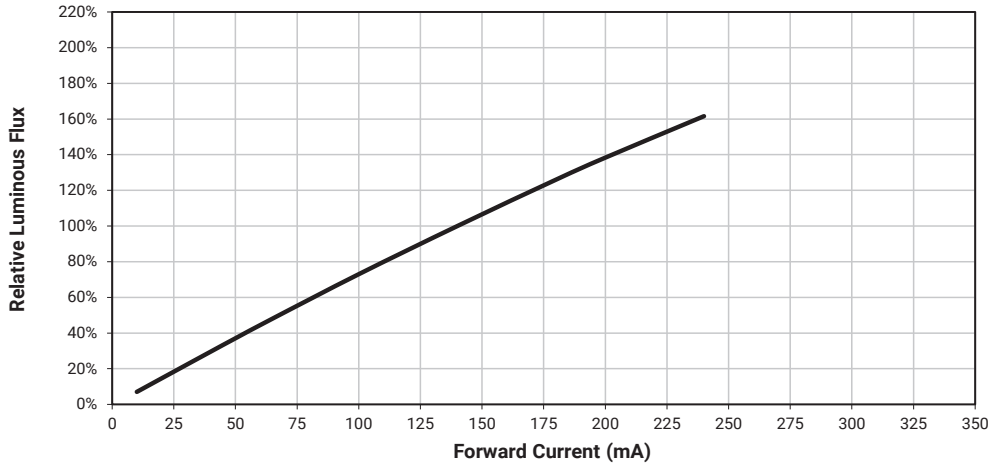
J Series JE2835 red-orange LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

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

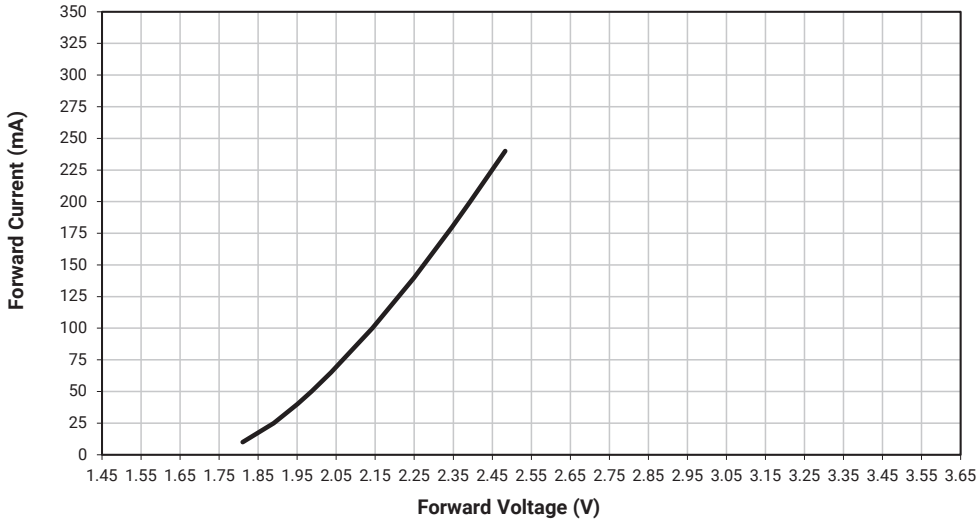
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

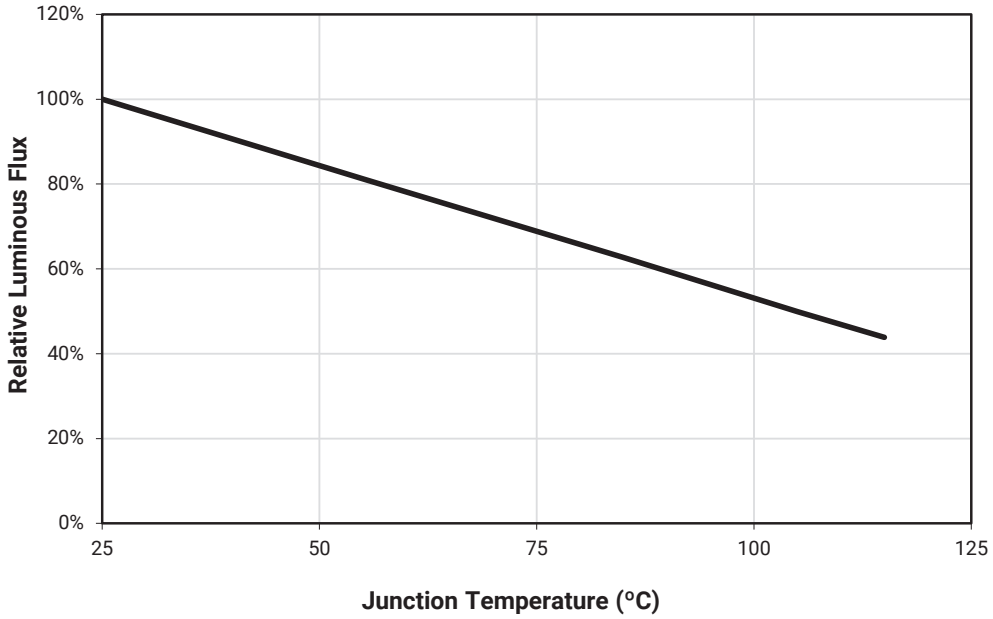
RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 RED-ORANGE



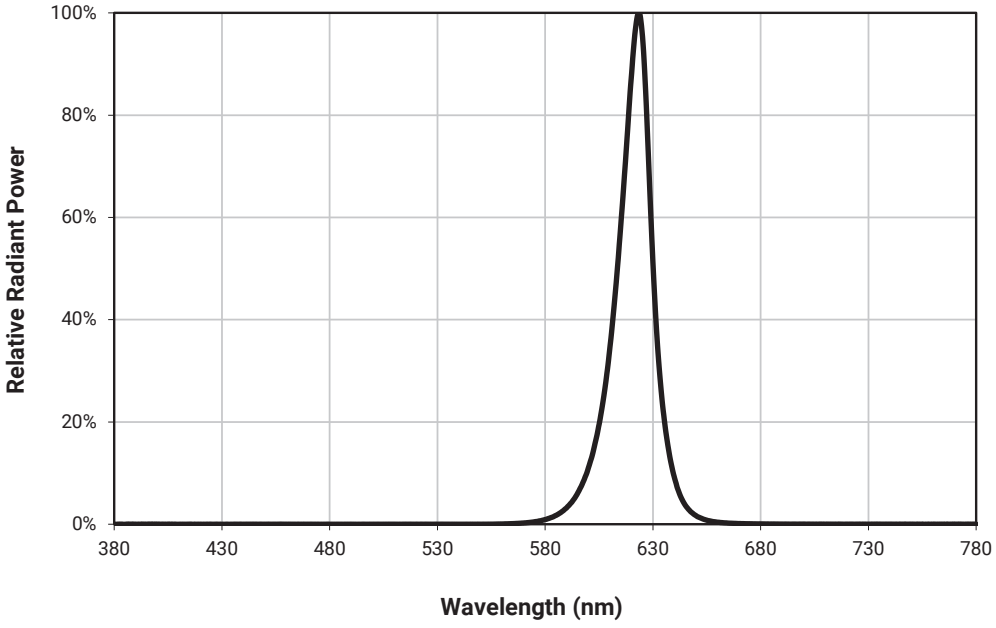
ELECTRICAL CHARACTERISTICS - JE2835 RED-ORANGE



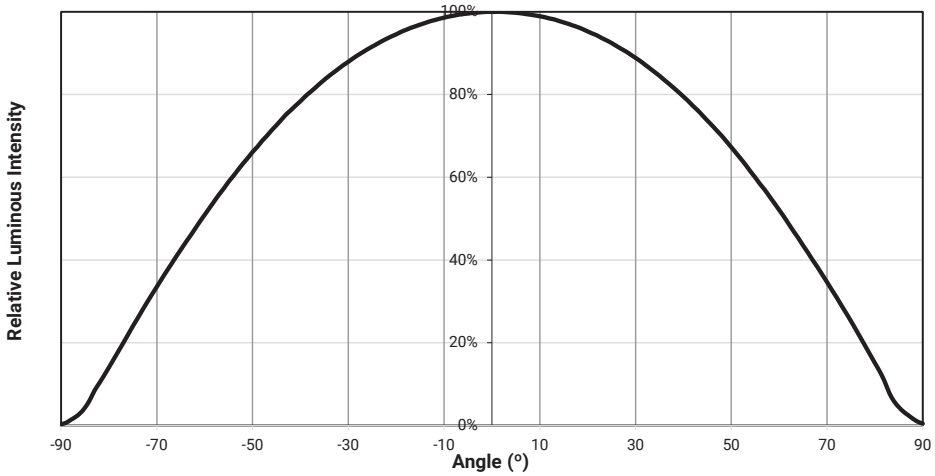
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 RED-ORANGE



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 RED-ORANGE



TYPICAL SPATIAL DISTRIBUTION - JE2835 RED-ORANGE



JE2835 PC RED-ORANGE

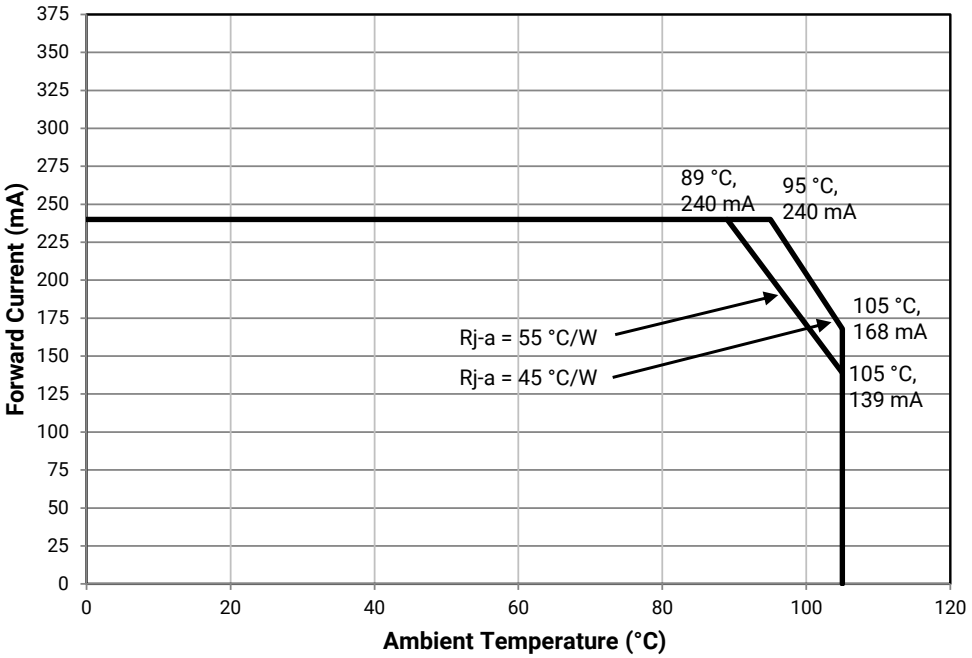
CHARACTERISTICS - JE2835 PC RED-ORANGE

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 mA, T_J = 25 °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 °C)

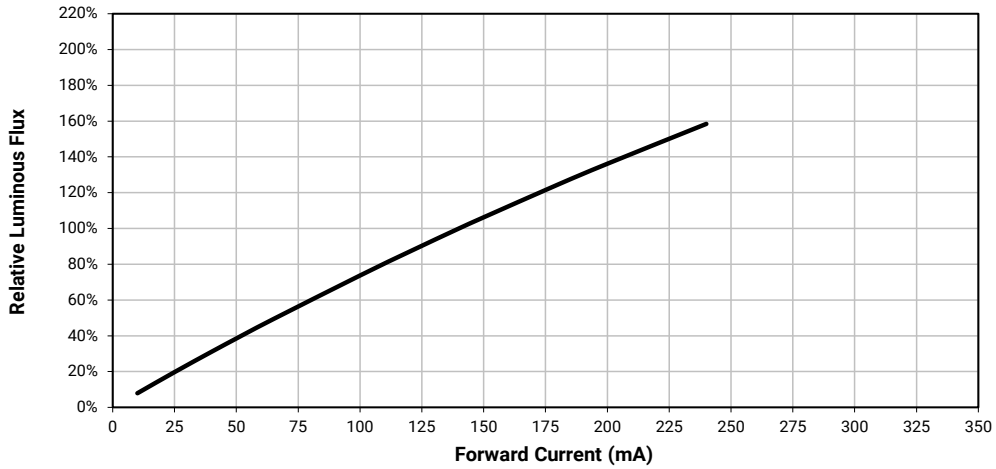
J Series JE2835 PC red-orange LEDs are tested for luminous flux at 140 mA and placed into one of the following luminous-flux groups.

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

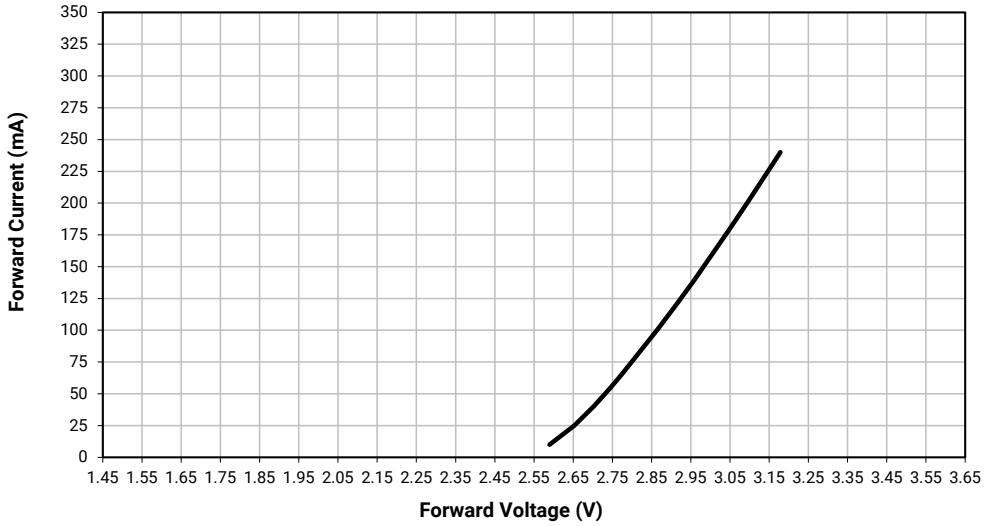
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

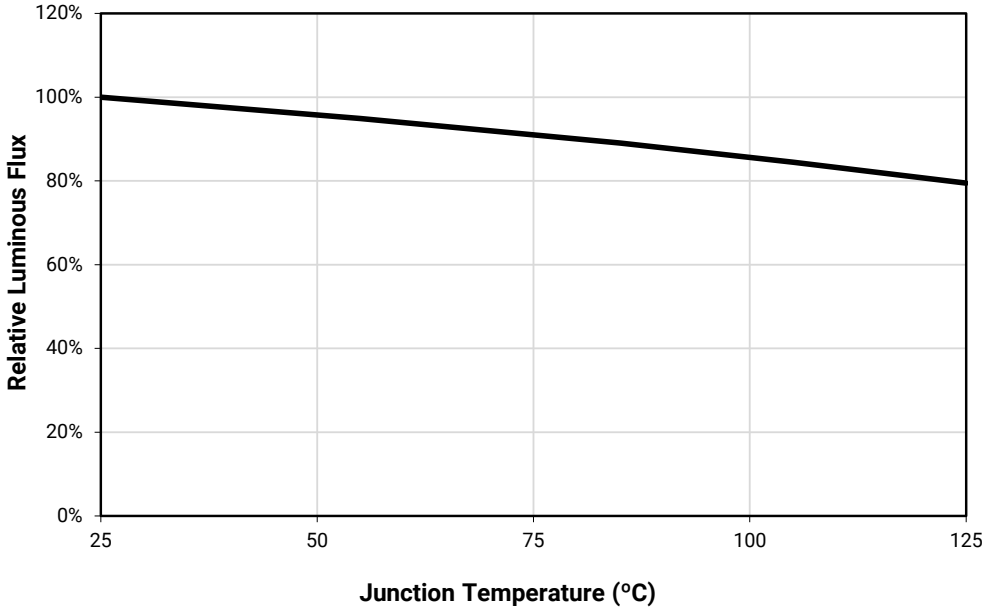
RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 PC RED-ORANGE



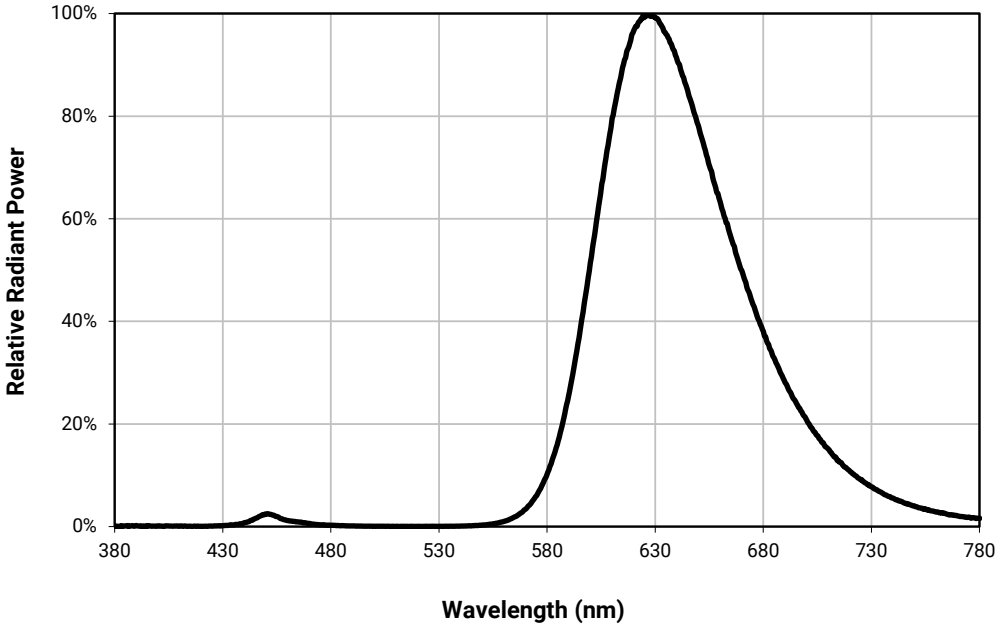
ELECTRICAL CHARACTERISTICS - JE2835 PC RED-ORANGE



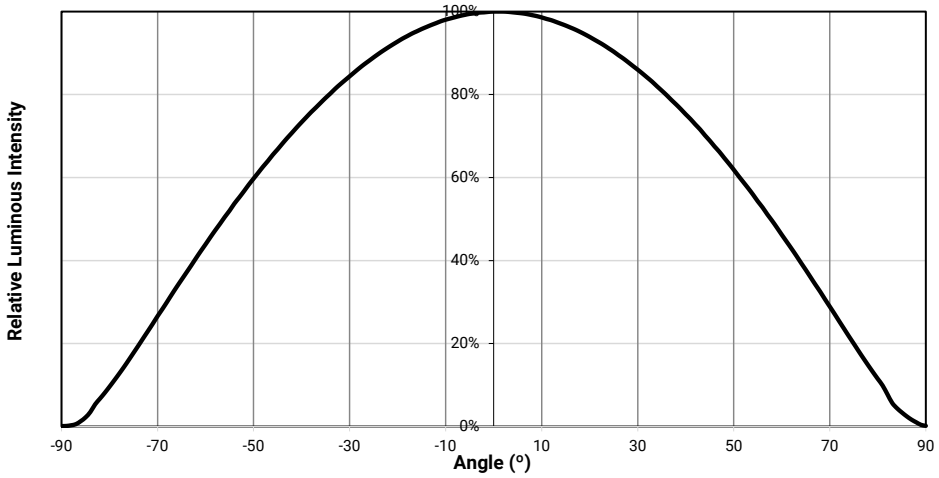
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 PC RED-ORANGE



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PC RED-ORANGE

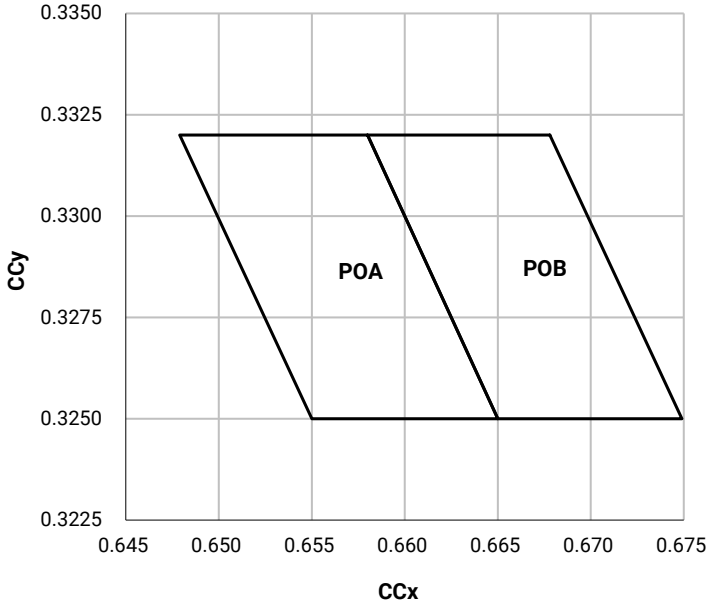


TYPICAL SPATIAL DISTRIBUTION - JE2835 PC RED-ORANGE



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

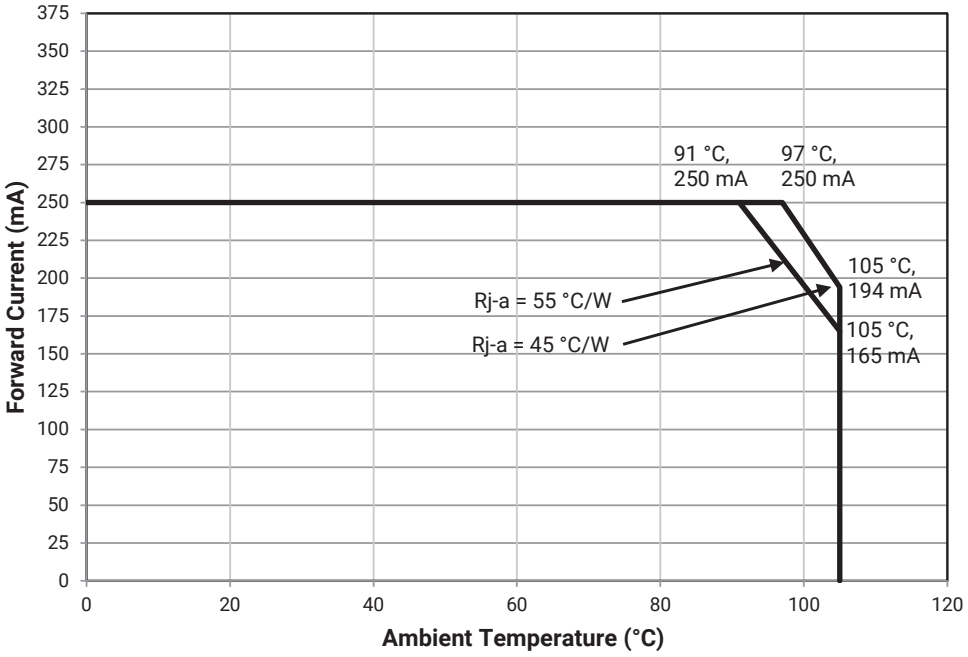
CHARACTERISTICS - JE2835 RED

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 mA, T_J = 25 °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
			Minimum		Maximum		
Group	Flux (lm)		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 °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

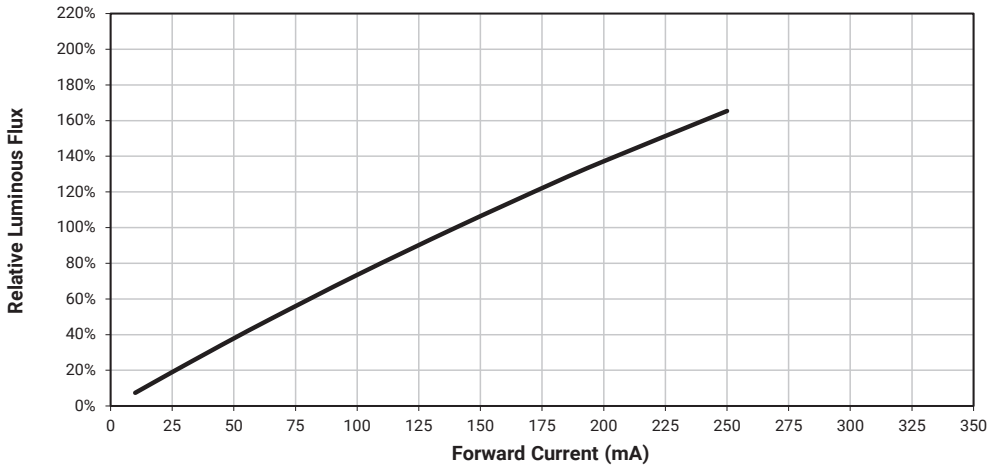
J Series JE2835 red LEDs are tested for dominant wavelength and sorted into one of the DWL bins defined below.

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

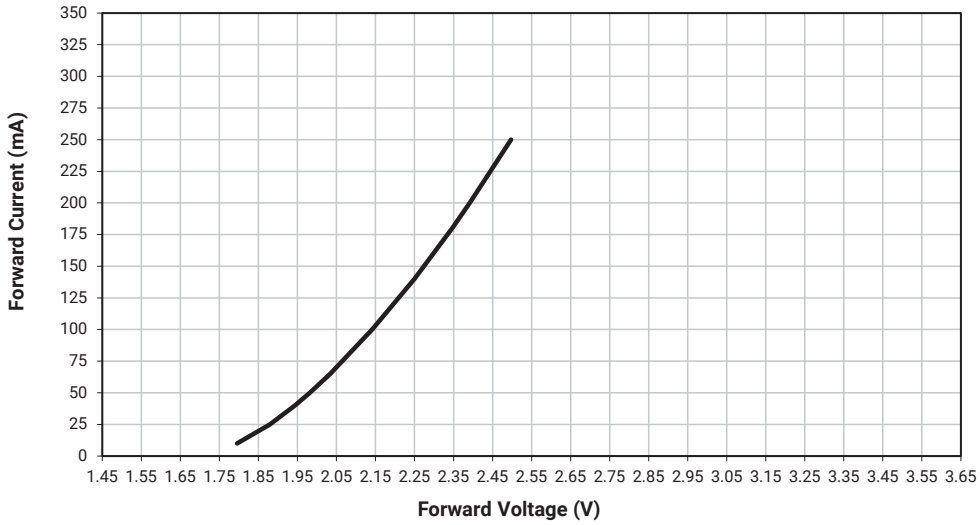
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

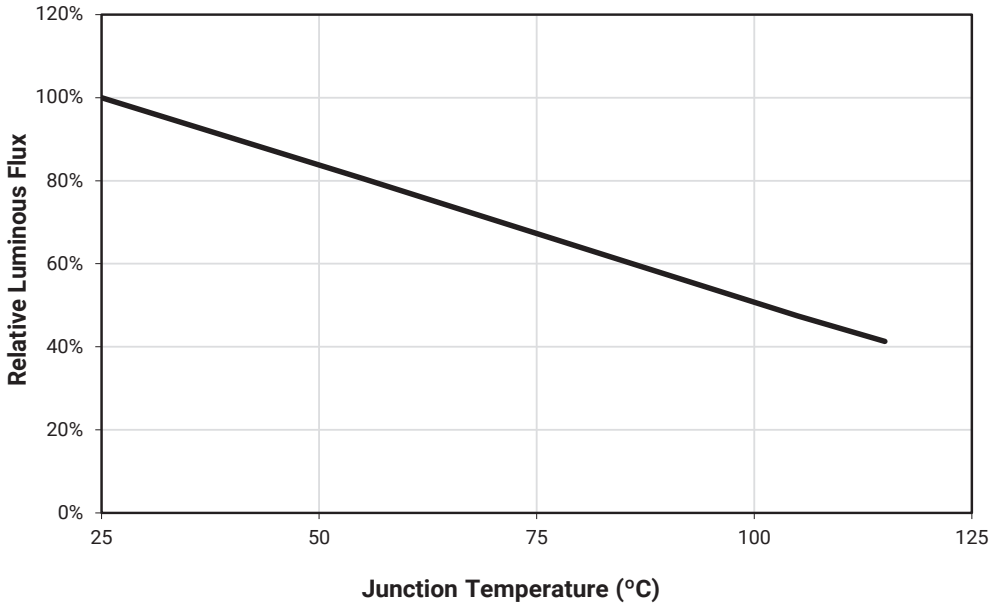
RELATIVE LUMINOUS FLUX VS. CURRENT - JE2835 RED



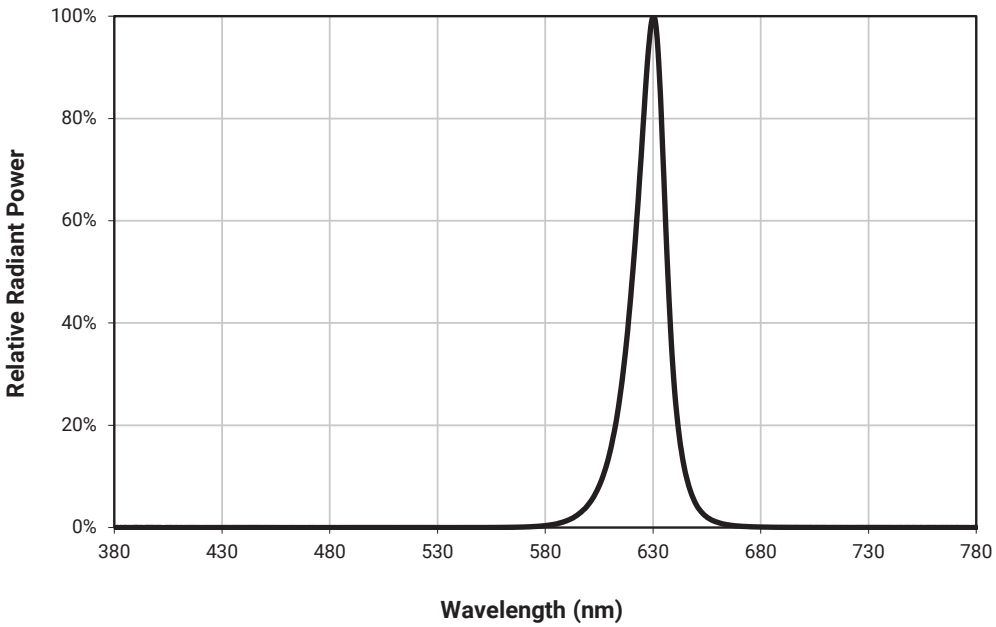
ELECTRICAL CHARACTERISTICS - JE2835 RED



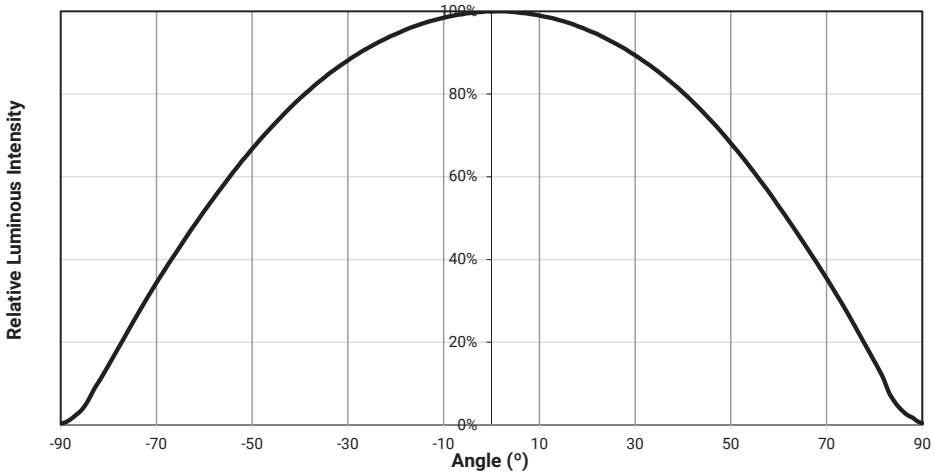
RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE - JE2835 RED



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 RED



TYPICAL SPATIAL DISTRIBUTION - JE2835 RED



JE2835 PHOTO RED

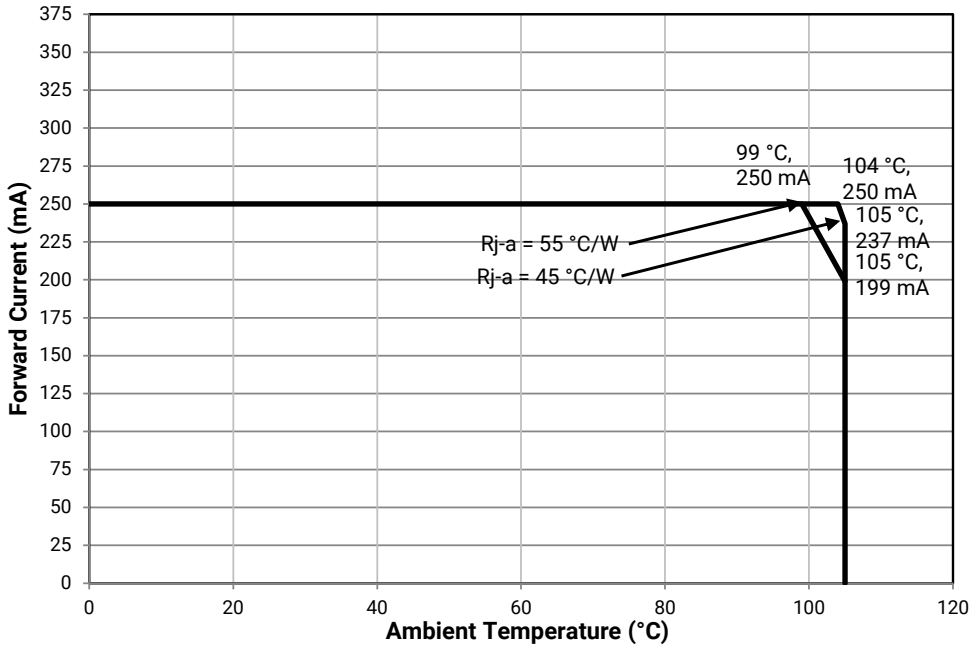
CHARACTERISTICS - JE2835 PHOTO RED

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 mA, T_J = 25 °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 °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

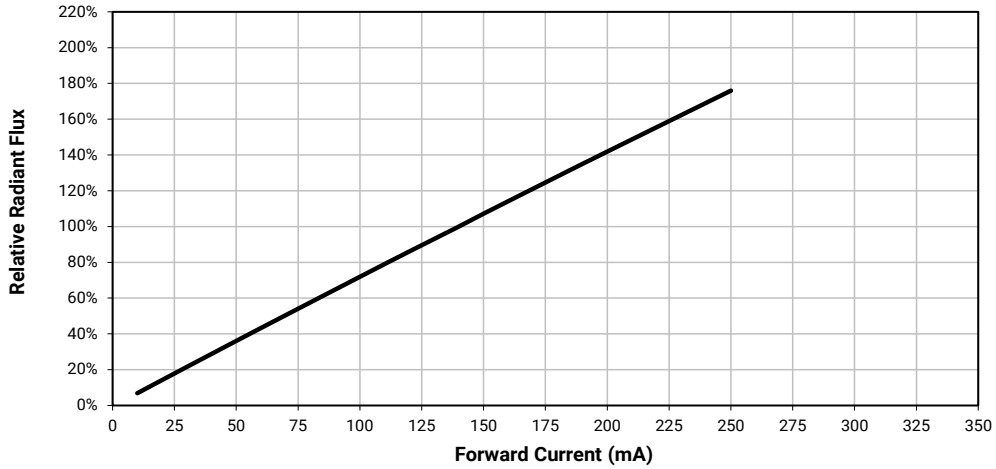
J Series JE2835 photo red LEDs are tested for peak wavelength (PWL) and sorted into one of the PWL bins defined below.

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

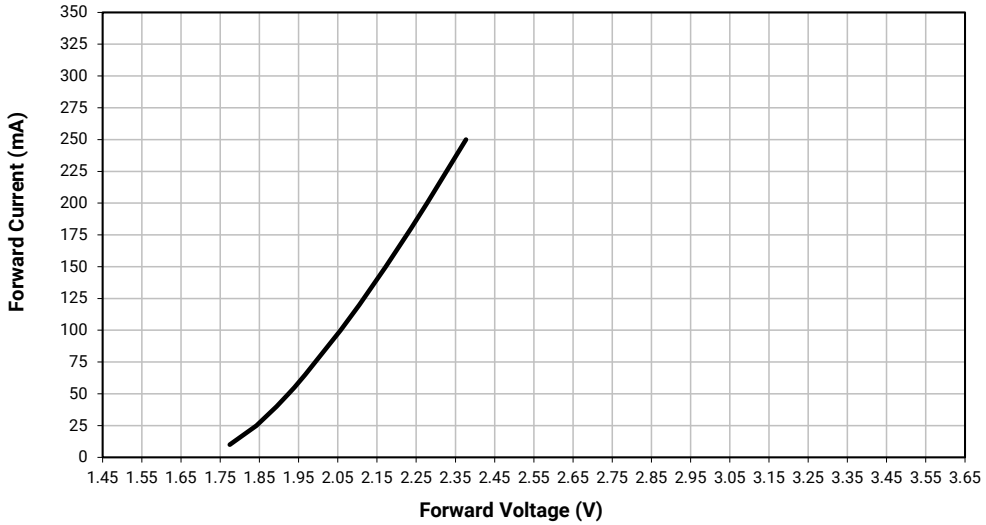
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

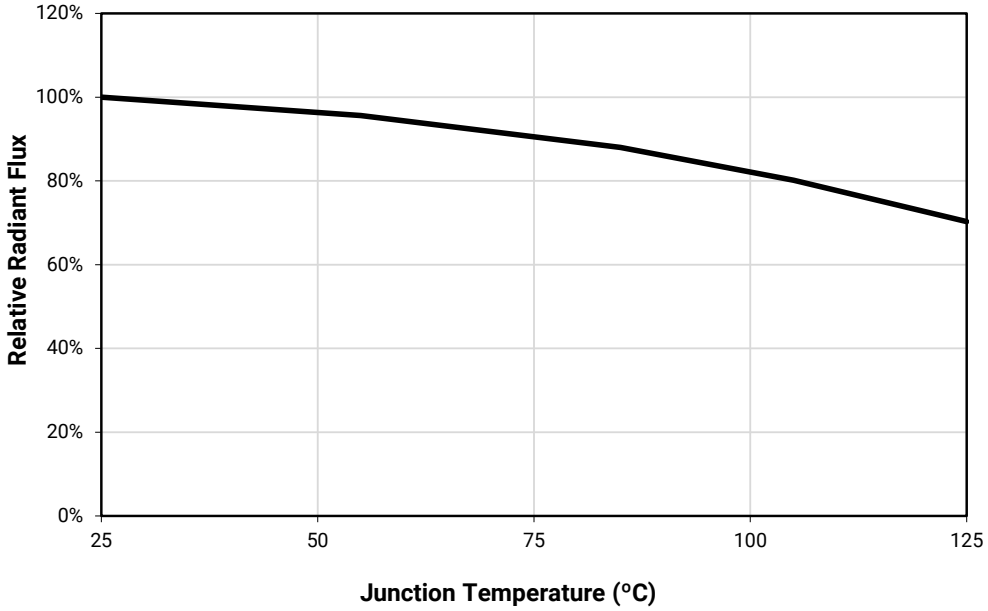
RELATIVE RADIANT FLUX VS. CURRENT - JE2835 PHOTO RED



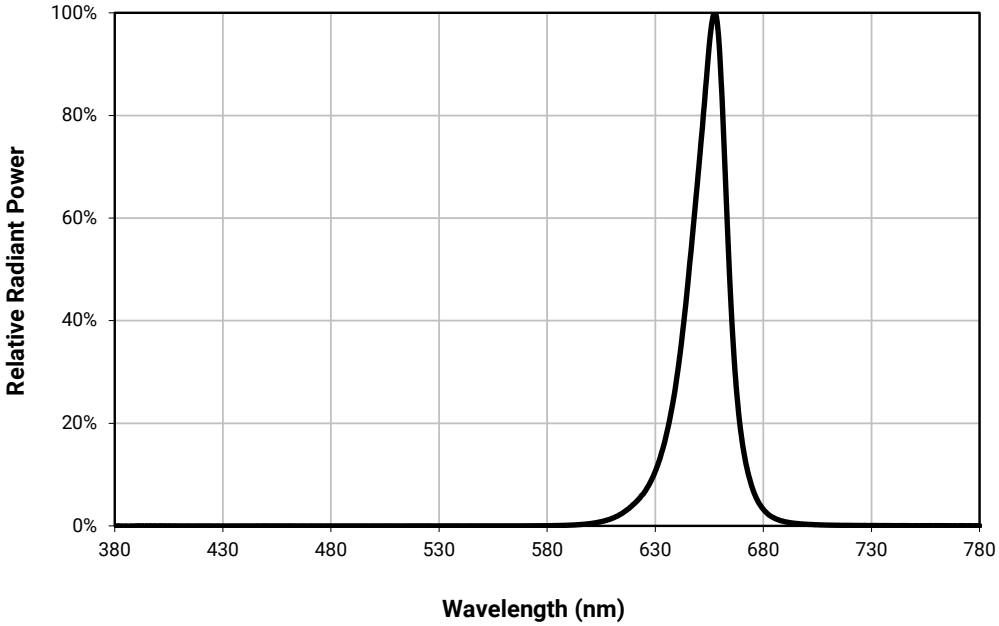
ELECTRICAL CHARACTERISTICS - JE2835 PHOTO RED



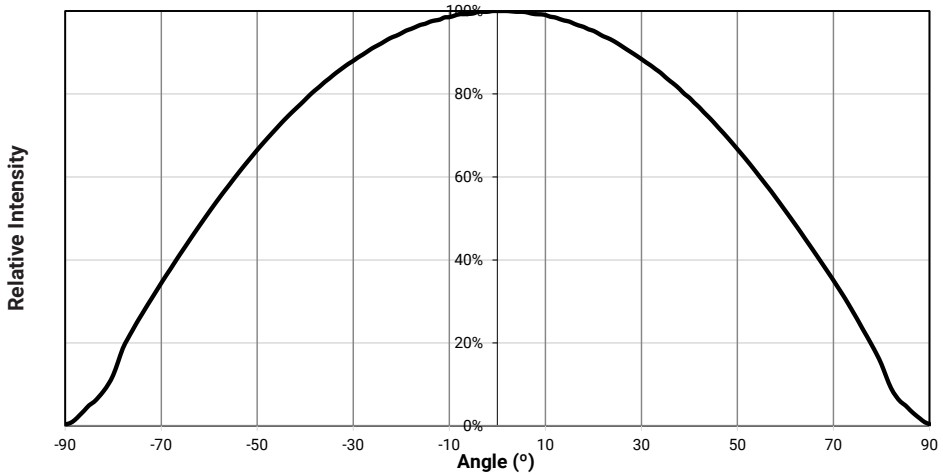
RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE - JE2835 PHOTO RED



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PHOTO RED



TYPICAL SPATIAL DISTRIBUTION - JE2835 PHOTO RED



JE2835 FAR RED

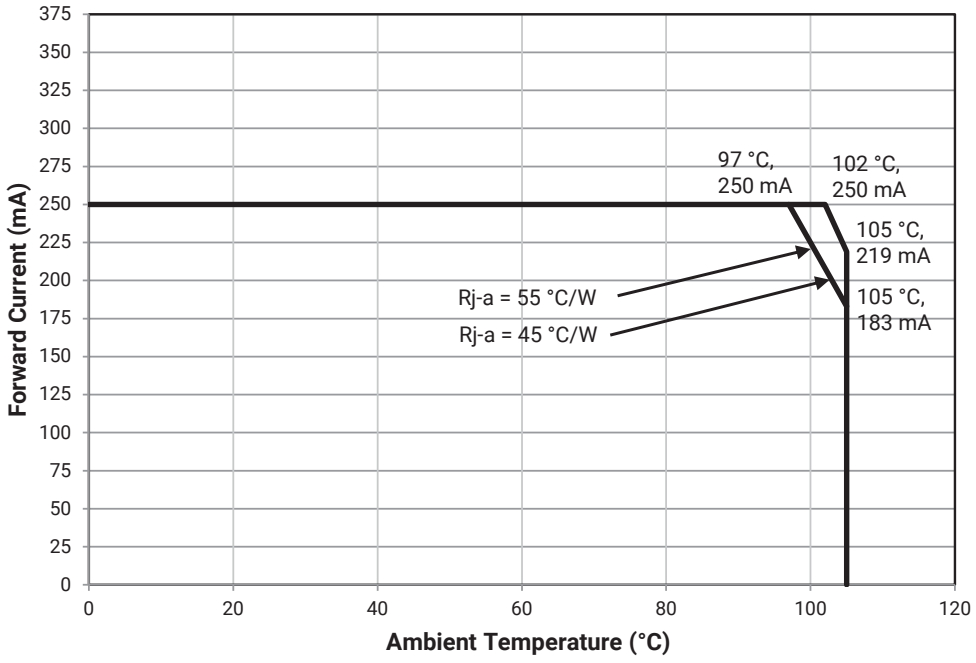
CHARACTERISTICS - JE2835 FAR RED

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 mA, T_J = 25 °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
			Minimum		Maximum		
Group	Flux (mW)		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 °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

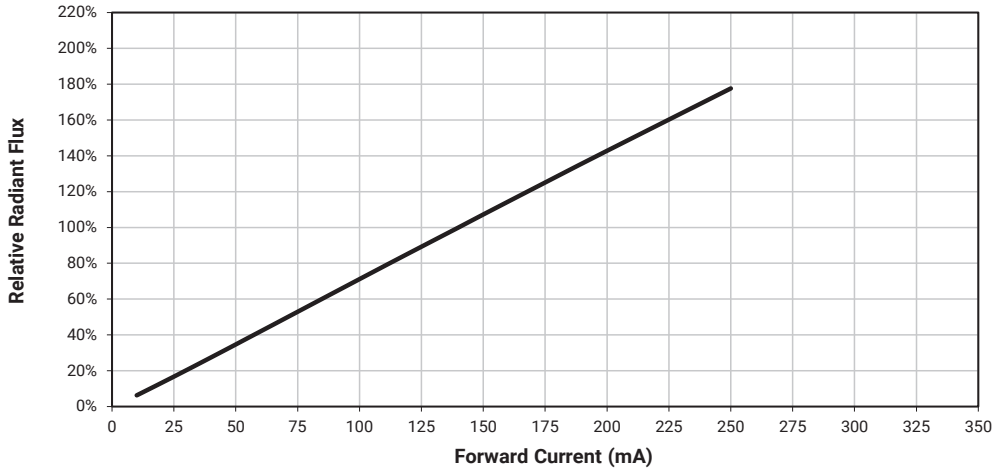
J Series JE2835 far red LEDs are tested for peak wavelength and sorted into one of the PWL bins defined below.

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

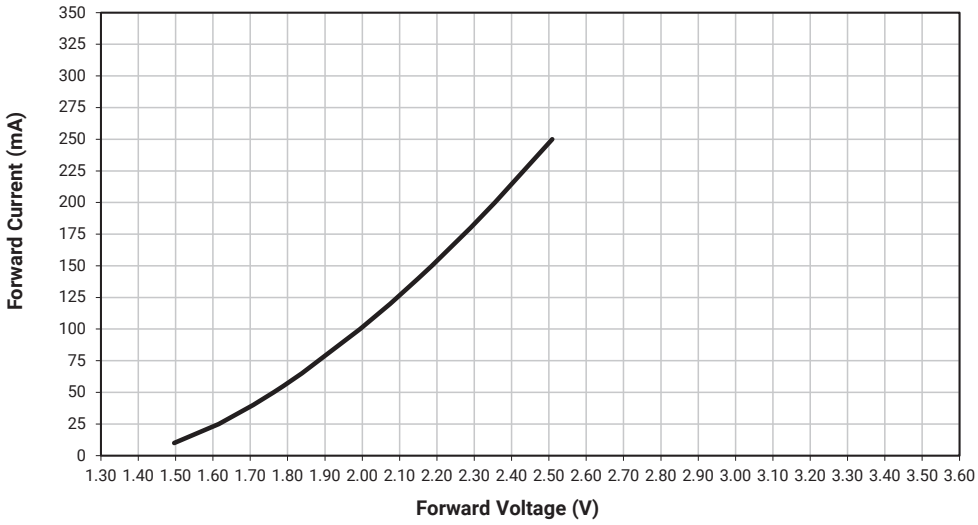
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

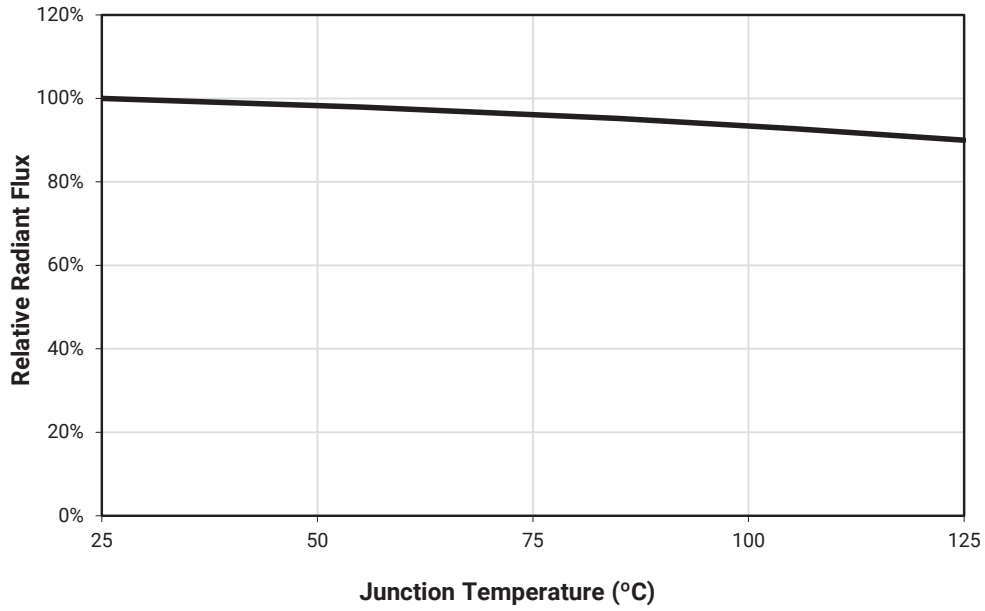
RELATIVE RADIANT FLUX VS. CURRENT - JE2835 FAR RED



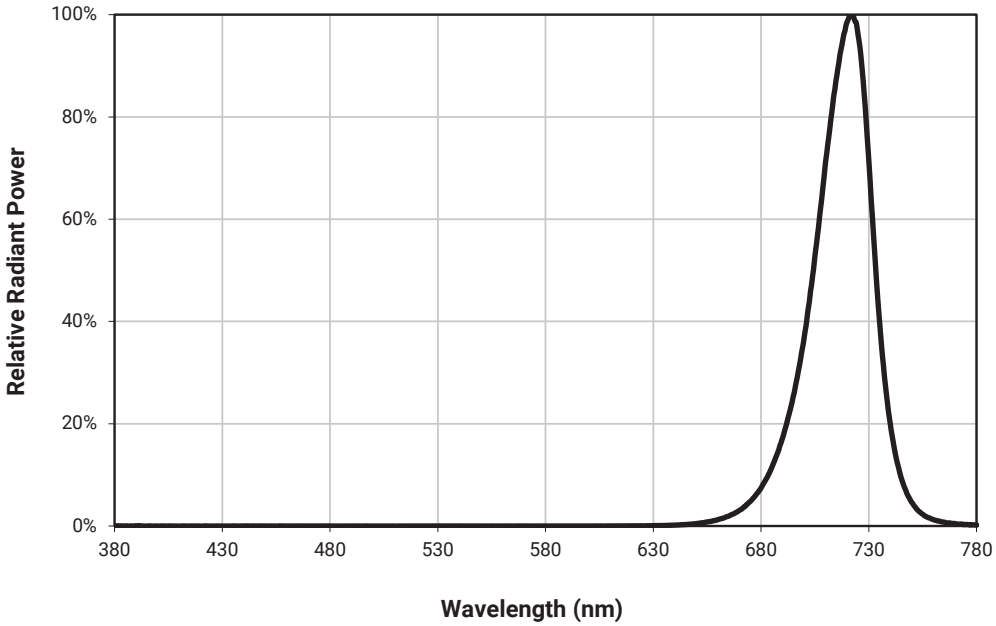
ELECTRICAL CHARACTERISTICS - JE2835 FAR RED



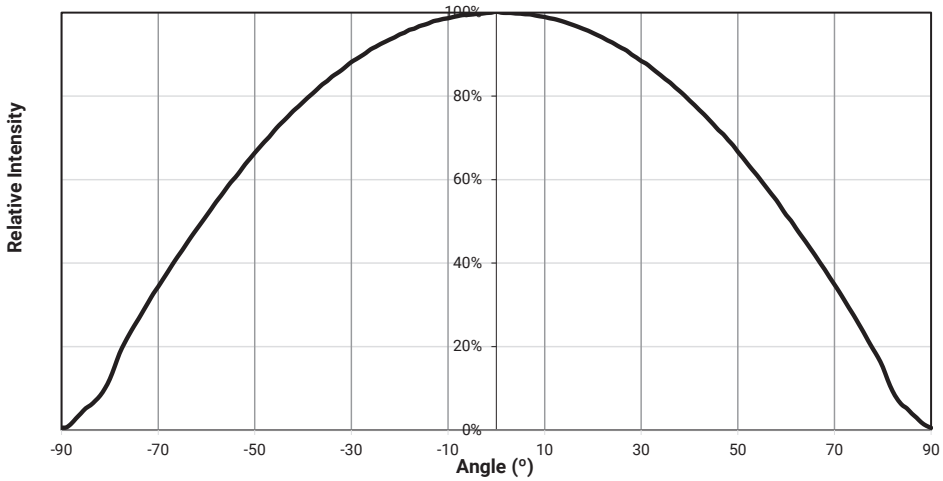
RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE - JE2835 FAR RED



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 FAR RED



TYPICAL SPATIAL DISTRIBUTION - JE2835 FAR RED



JE2835 PC PURPLE

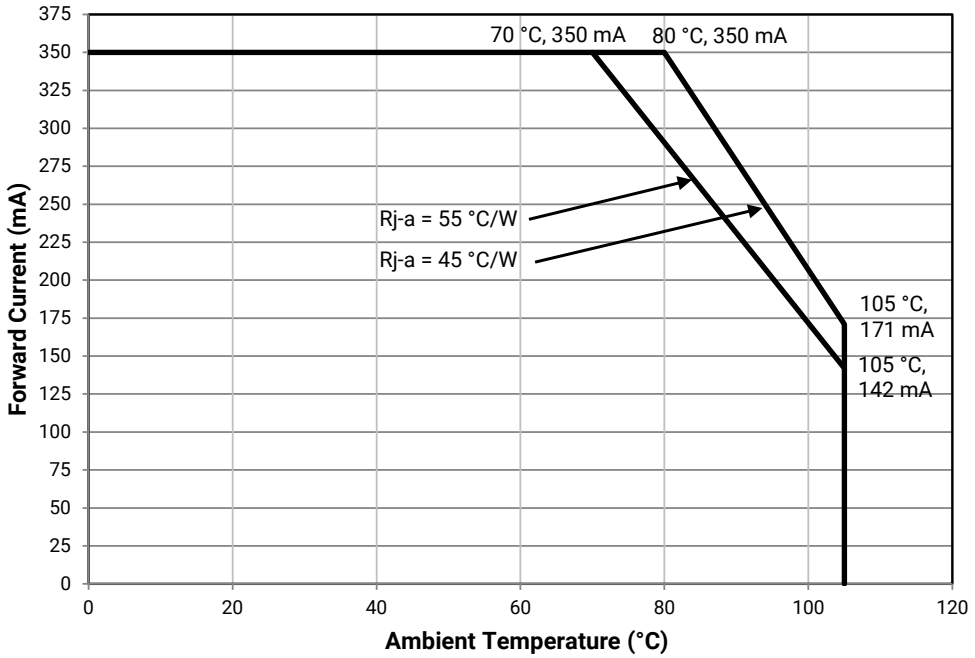
CHARACTERISTICS - JE2835 PC PURPLE

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 mA, T_J = 25 °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 °C)

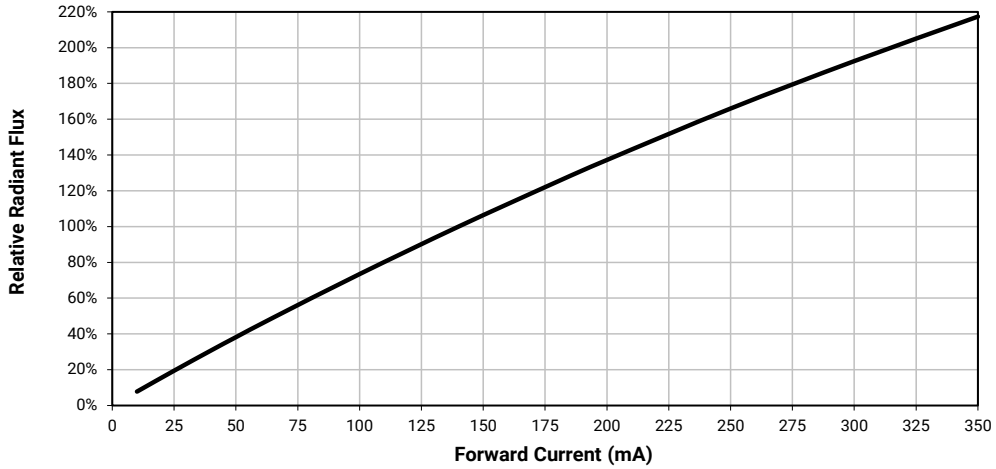
J Series JE2835 PC purple LEDs are tested for radiant flux at 140 mA and placed into one of the following radiant-flux groups.

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

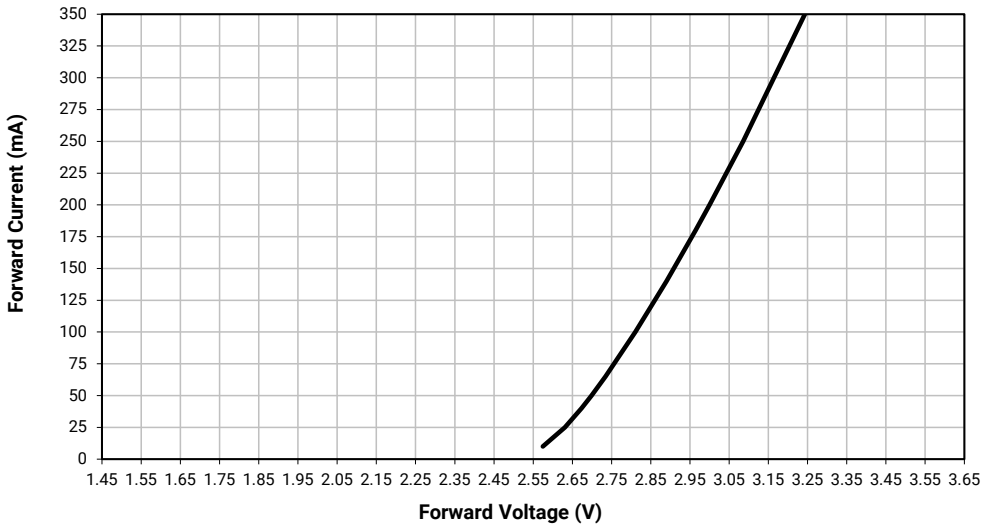
Notes:

- Cree Venture maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±1 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.

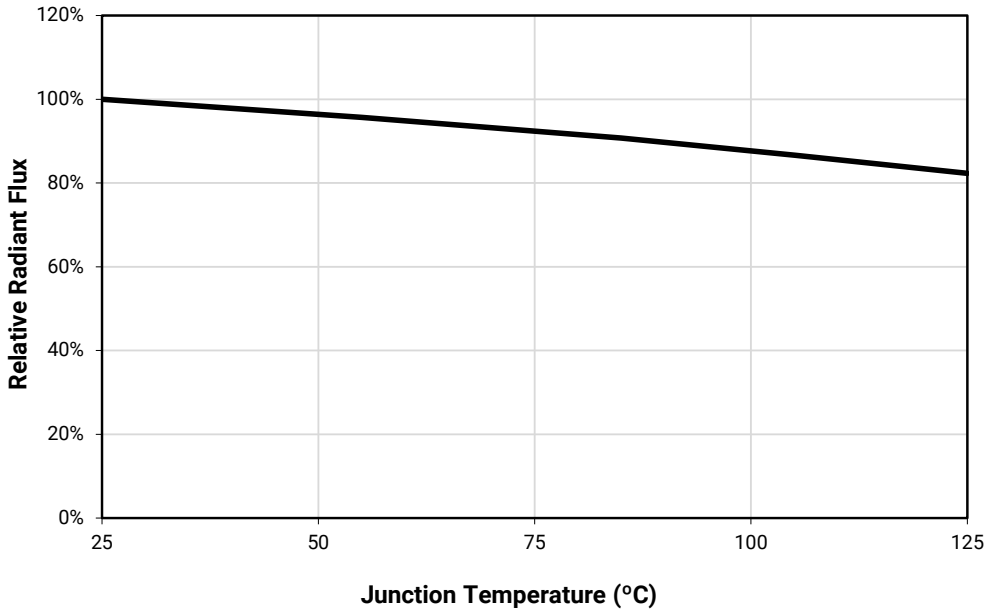
RELATIVE RADIANT FLUX VS. CURRENT - JE2835 PC PURPLE



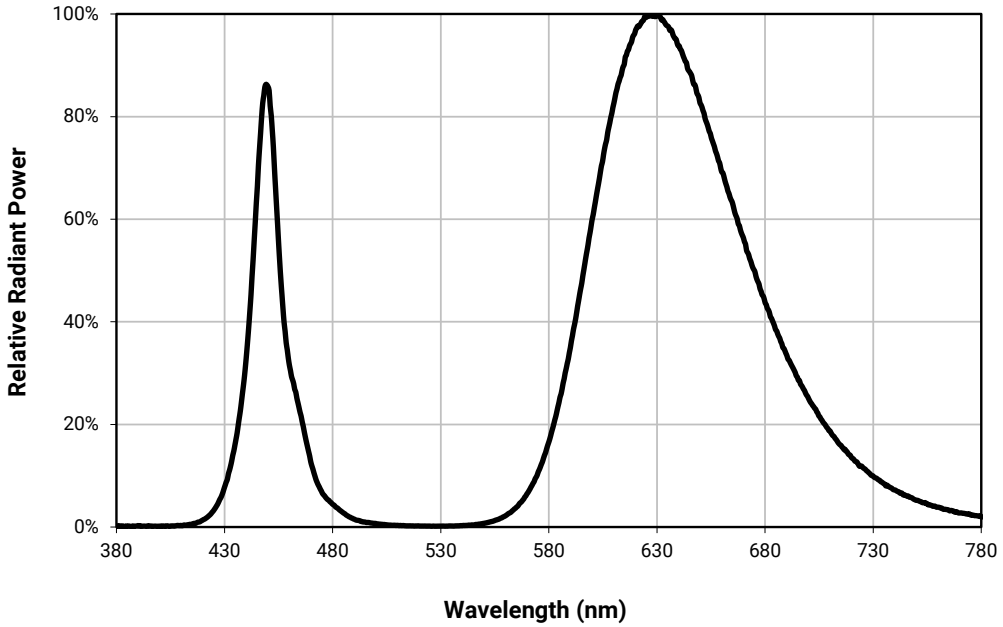
ELECTRICAL CHARACTERISTICS - JE2835 PC PURPLE



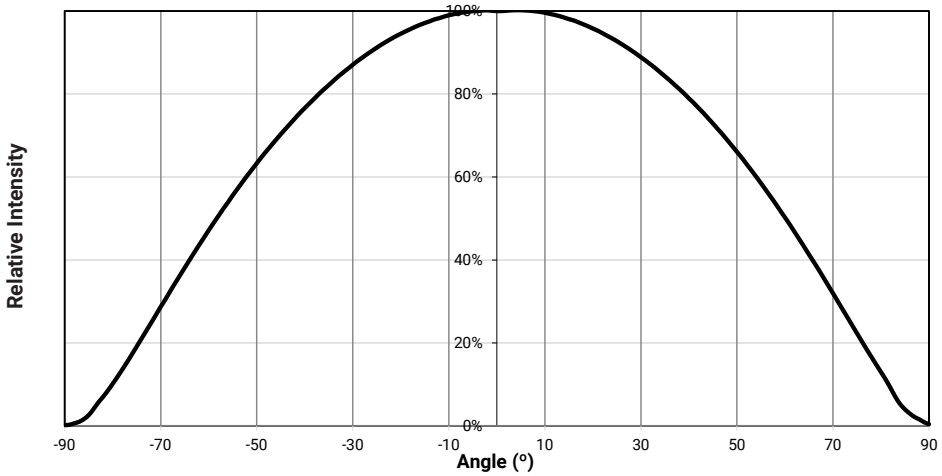
RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE - JE2835 PC PURPLE



RELATIVE SPECTRAL POWER DISTRIBUTION - JE2835 PC PURPLE

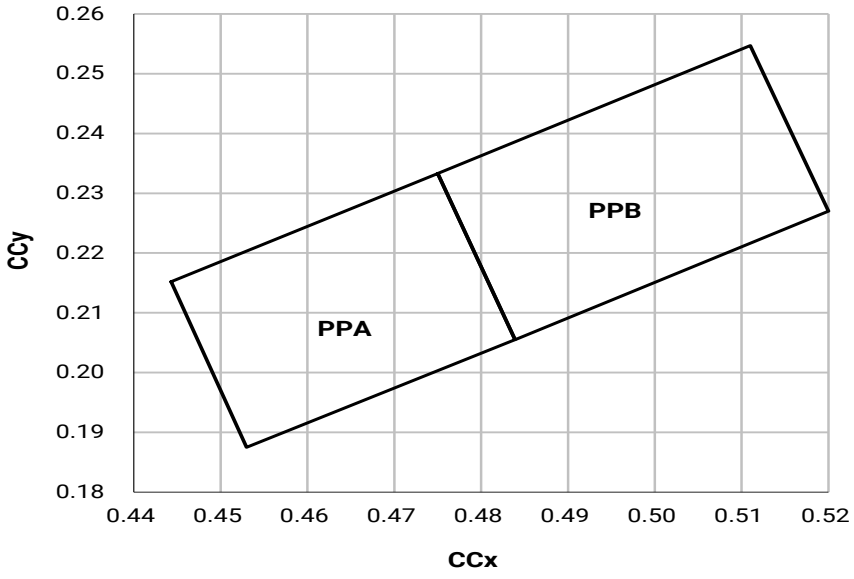


TYPICAL SPATIAL DISTRIBUTION - JE2835 PC PURPLE



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* (µmol/s)	PPF/W* (µmol/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}** (µmol/s)	PF_{FR}/W** (µmol/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 °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

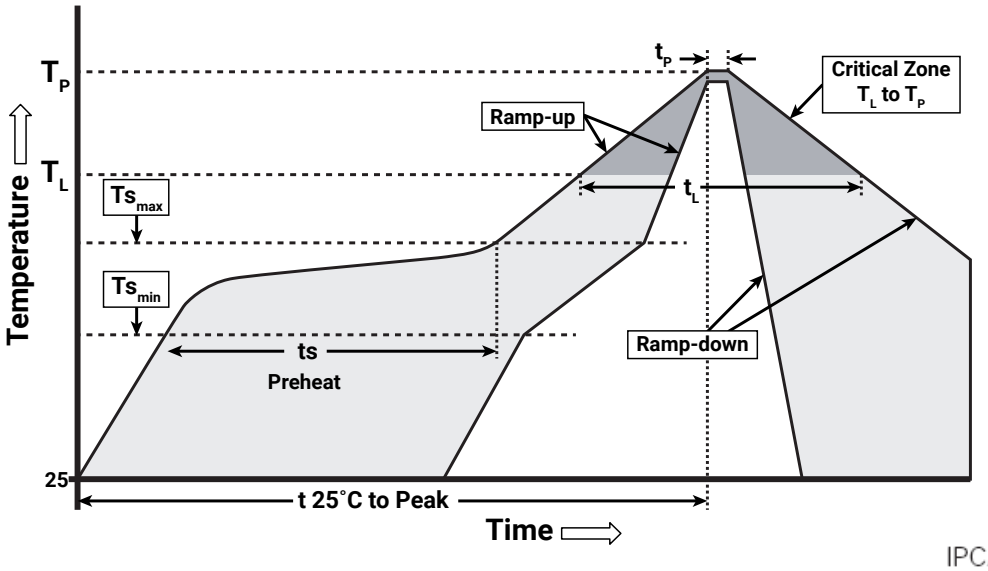
PERFORMANCE GROUPS - FORWARD VOLTAGE (T_J = 25 °C) - CONTINUED

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. (Ts_{min})	150 °C
Temperature Max. (Ts_{max})	200 °C
Time (ts) from Ts_{min} to Ts_{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 (Tp)	260 °C max.
Time (tp) Within 5 °C of the Specified Classification Temperature (Tc)	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

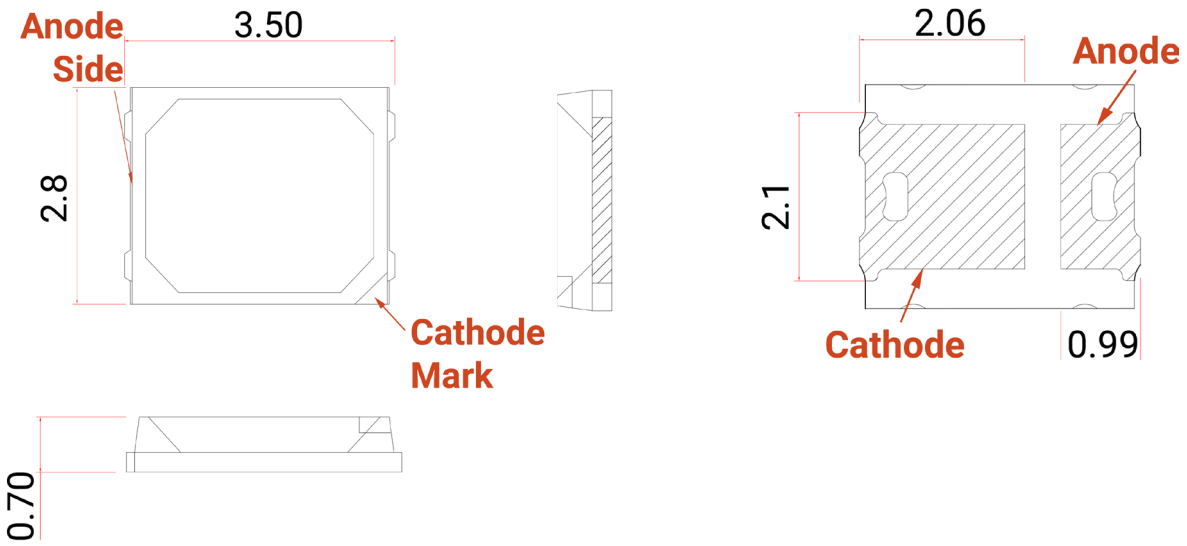
J Series JE2835 color LEDs are configured in one of two groups, such that each group of LEDs has the opposite polarity of the other.

Group 1

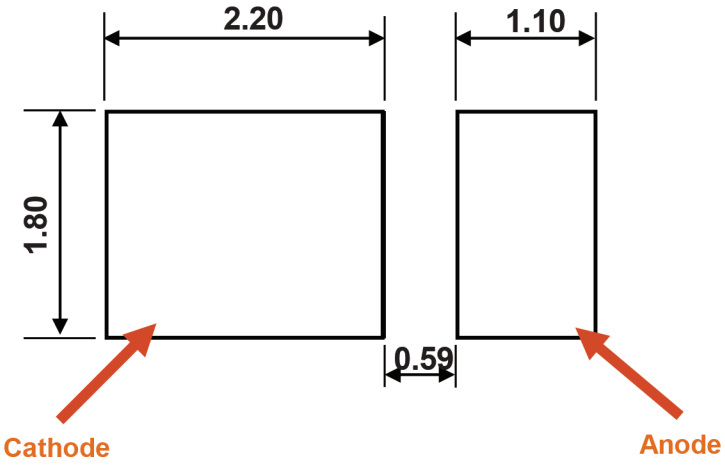
Violet, royal blue, blue, cyan, green, PC lime, PC mint, PC amber, PC red orange, PC purple

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

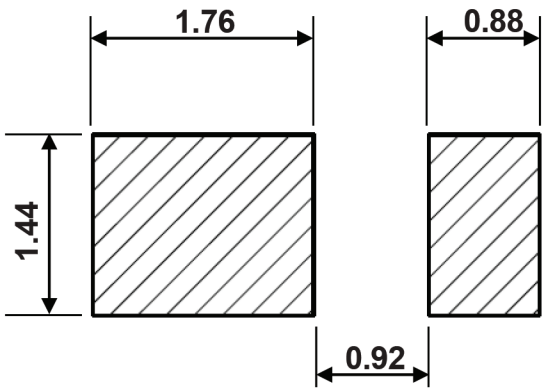
All measurements are ±0.1 mm unless otherwise indicated.



All measurements are ±0.1 mm unless otherwise indicated.



Recommended PCB Solder Pad



Recommended Stencil Pattern

MECHANICAL DIMENSIONS - CONTINUED

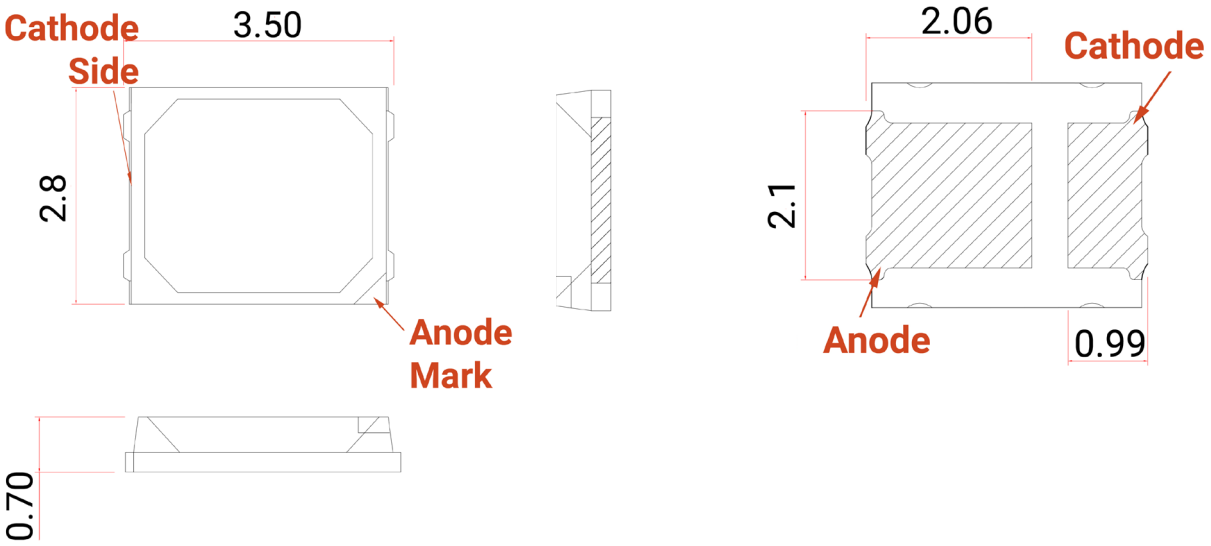
J Series JE2835 color LEDs are configured in one of two groups, such that each group of LEDs has the opposite polarity of the other.

Group 2

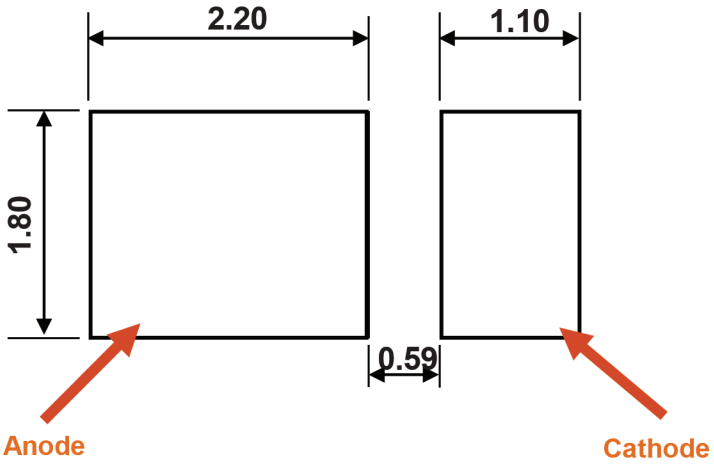
Amber, red-orange, red, photo red, far red

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

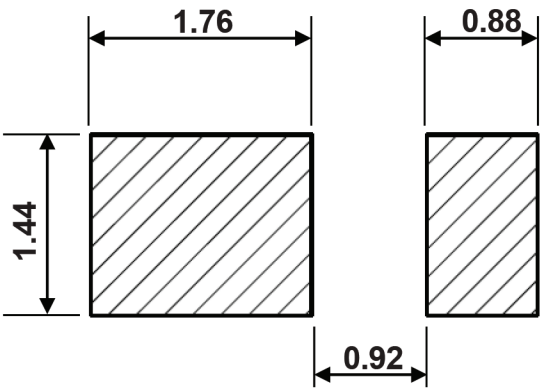
All measurements are ±0.1 mm unless otherwise indicated.



All measurements are ±0.1 mm unless otherwise indicated.



Recommended PCB Solder Pad

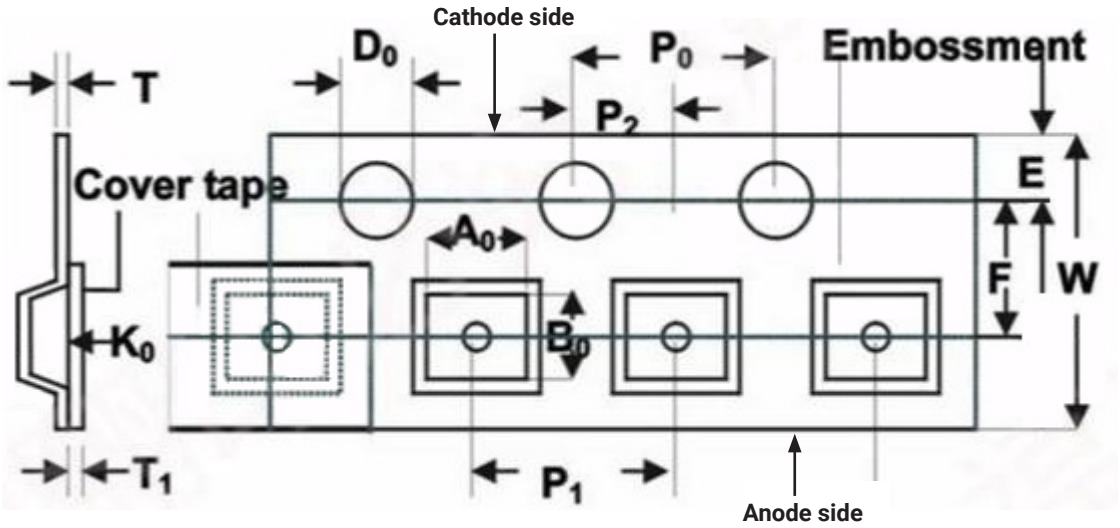


Recommended Stencil Pattern

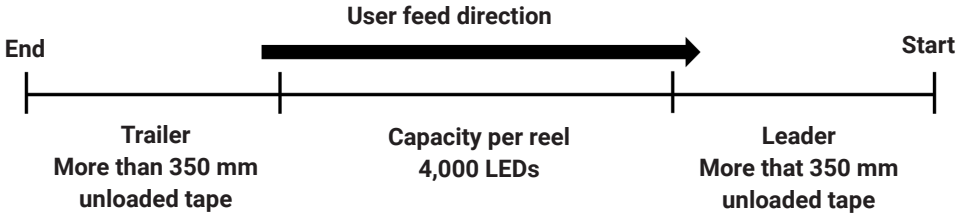
TAPE & REEL

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

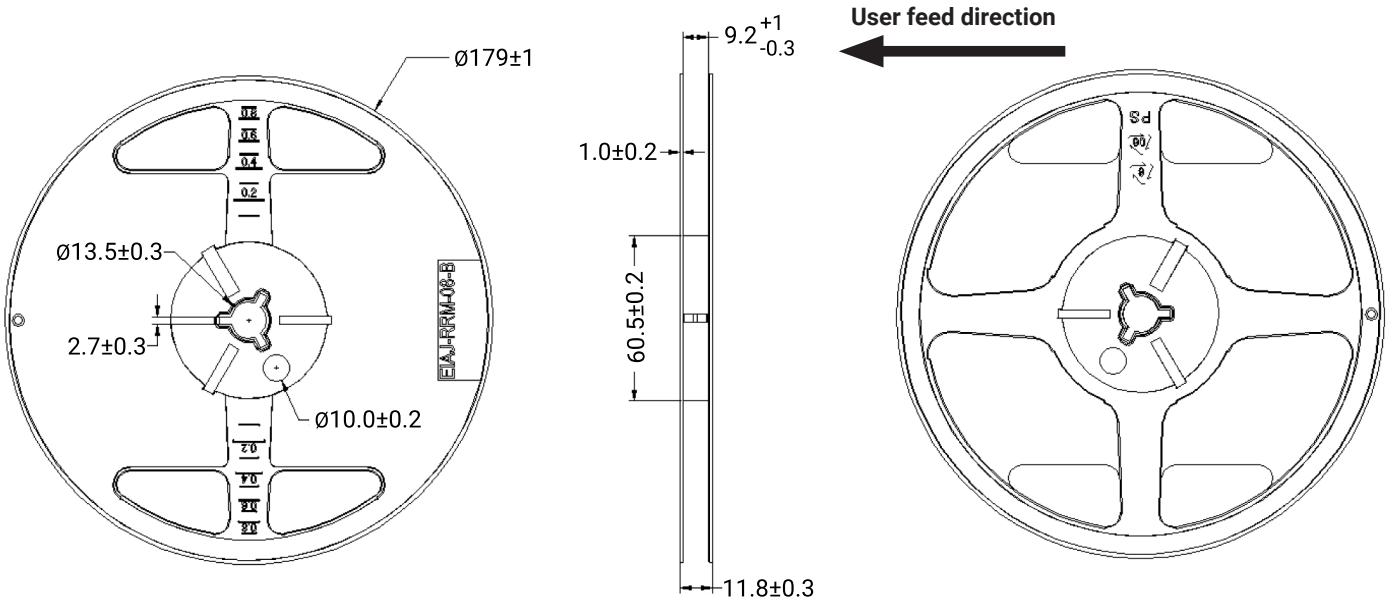
All dimensions in mm.



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		
T1	0.05 ± 0.01		

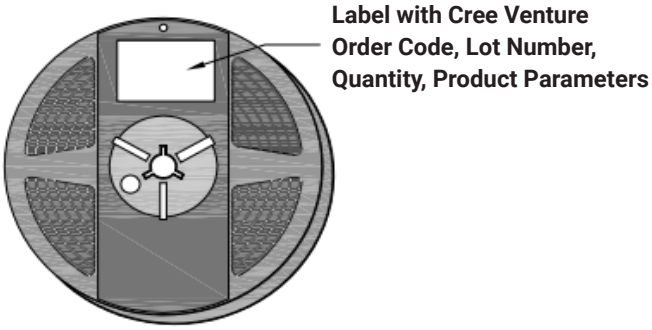


TAPE & REEL- CONTINUED

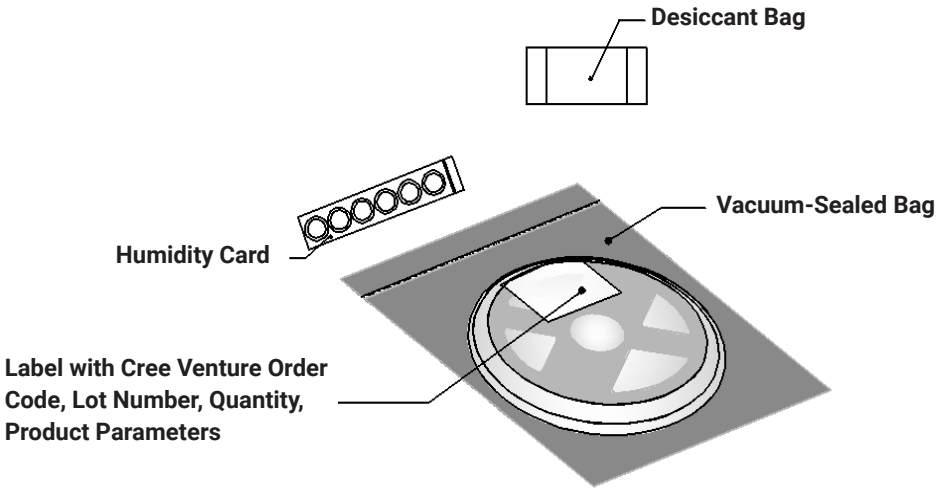


PACKAGING

Unpackaged Reel



Packaged Reel



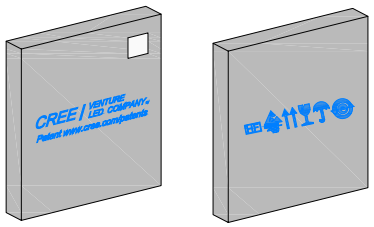
PACKAGING - CONTINUED

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

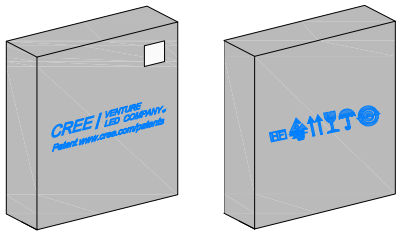
Box	Box Dimensions	Maximum Number of Reels per Box
1	250 x 210 x 30 mm	2
2	250 x 210 x 50 mm	4
3	530 x 230 x 275 mm	42
4	530 x 443 x 275 mm	84

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.

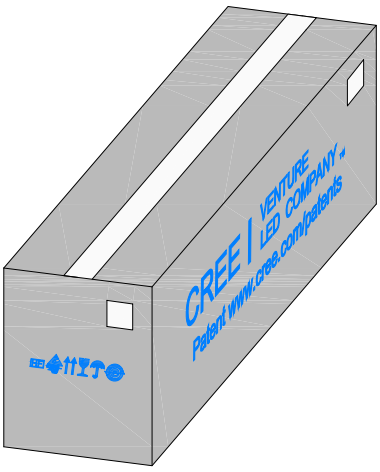
Box 1



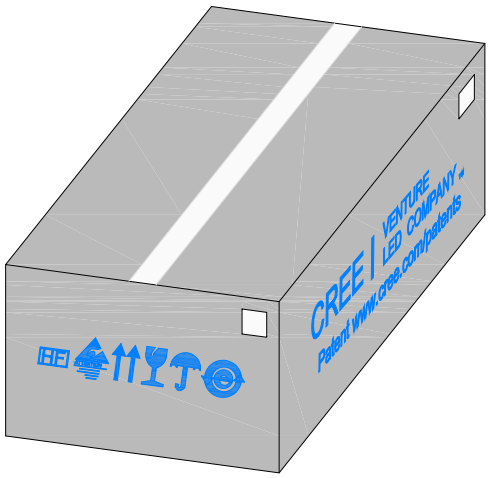
Box 2



Box 3



Box 4



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- Alternative Solution
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