

LUXEON XF-3014 CV

Flexible light source distributing uniform light across user selectable lengths

LUXEON XF-3014 CV is for constant voltage driven applications that require a flexible design capable of maintaining uniform light distribution over long lengths. These current regulated flexible strips come in variable length options and are either cuttable or include snap-together connectors for precision design. LUXEON XF-3014 CV is designed for ease of system integration, faster time to market and best-in-class reliability.

LUXEON XF-3014 CV is available in the following configurations:

- 6 LEDs per segment cuttable every 96mm
- 6 LEDs, 96mm segments with connectors
- 30 LEDs, 480mm segments with connectors



FEATURES AND BENEFITS

112 lumens per 96mm segment with 105 lm/W efficacy at 24V, $T_j=50^{\circ}\text{C}$

2700, 3000 and 4000K CCT offerings with 80CRI

<2% light output attenuation over 10m length

Backside adhesive for attachment to heat sink allows for ease of mounting and assembly

Complete integrated solution guarantees simplified supply chain and faster time to market

5 year limited warranty

PRIMARY APPLICATIONS

Downlights

Indoor Area Lighting

- Under Cabinet

Specialty Lighting

- Cove
- Accent

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General Product Information

Product Test Conditions

The typical input voltage for each LUXEON XF-3014 CV strip is 24V. Each 96mm base segment is an LED string composed of 6 LEDs in series. These are connected to constant current regulators which provide 45mA per segment nominally.

LUXEON XF-3014 LEDs are tested and binned with a 20ms monopulse (MP) drive current of 60mA at a junction temperature, T_j , of 25°C. The minimum, typical, and maximum performance for LUXEON XF-3014 CV in this datasheet are derived from individual LED measurements. The confidence level on all minimum and maximum performance parameters in this datasheet is 99% to within individual LED tolerance.

Part Number Nomenclature

Part numbers for LUXEON XF-3014 CV follow the convention below:

L 2 1 9 – **A A B B C D D** F V 0 **E** 0 0

Where:

- A A** – designates nominal ANSI CCT (27=2700K, 30=3000K, 40=4000K)
- B B** – designates minimum CRI (80=80CRI)
- C** – designates sectional type (C=cuttable, 0=not cuttable)
- D D** – designates number of LEDs per segment (06=6 LEDs, 30=30 LEDs)
- E** – designates connector option (C=connectors, 0=no connectors)

Therefore, the following part number is used for a LUXEON XF-3014 CV 3000K 80CRI cuttable every 6 LEDs without connectors:

L 2 1 9 – **3 0 8 0 C 0 6** F V 0 **0** 0 0

Lumen Maintenance

Please contact your local Sales Representative or Lumileds Technical Solutions Manager for more information about the long-term performance of this product.

Environmental Compliance

Lumileds LLC is committed to providing environmentally friendly products to the solid-state lighting market. LUXEON XF-3014 CV is compliant to the European Union directives on the restriction of hazardous substances in electronic equipment, namely the RoHS Directive 2011/65/EU and REACH Regulation (EC) 1907/2006. Lumileds LLC will not intentionally add the following restricted materials to its products: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).

Performance Characteristics

Product Selection Guide

Table 1. Product performance of LUXEON XF-3014 CV at 24V, specified current, $T_j=50^{\circ}\text{C}$.

CONFIGURATION	NOMINAL CCT	MINIMUM CRI ^[1]	LUMINOUS FLUX ^[2] (lm)		TYPICAL LUMINOUS EFFICACY (lm/W)	REGULATED CURRENT ^[3] (mA)	SEGMENT TYPE ^[4]	PART NUMBER
			MINIMUM	TYPICAL				
6 LEDs, 96mm (1 parallel x 6 series)	2700K	80	86	98	92	45	Cuttable	L219-2780C06FV0000
	3000K	80	90	102	96	45	Cuttable	L219-3080C06FV0000
	4000K	80	100	112	105	45	Cuttable	L219-4080C06FV0000
6 LEDs, 96mm (1 parallel x 6 series)	2700K	80	86	98	92	45	Connectors	L219-2780006FV0C00
	3000K	80	90	102	96	45	Connectors	L219-3080006FV0C00
	4000K	80	100	112	105	45	Connectors	L219-4080006FV0C00
30 LEDs, 480mm (5 parallel x 6 series)	2700K	80	430	490	92	225	Connectors	L219-2780030FV0C00
	3000K	80	450	510	96	225	Connectors	L219-3080030FV0C00
	4000K	80	500	560	105	225	Connectors	L219-4080030FV0C00

Notes for Table 1:

1. Lumileds maintains a tolerance of ± 2 on CRI measurements.
2. Lumileds maintains a tolerance of $\pm 7.5\%$ on luminous flux measurements.
3. Supply should be capable of providing 45mA per 96mm segment or 6 LEDs in series.
4. Cuttable options feature pre-tinned solder terminals and comes in 19.2m continuous reel.

Electrical and Thermal Characteristics

Table 2. Electrical and thermal characteristics for LUXEON XF-3014 CV at 24V, specified current, $T_j=50^{\circ}\text{C}$.

PART NUMBER	TYPICAL INPUT VOLTAGE (V) ^[1]	TEMPERATURE COEFFICIENT OF OUTPUT CURRENT ^[2] (%/ $^{\circ}\text{C}$)	THERMAL RESISTANCE ^[3] ($^{\circ}\text{C}/\text{W}$)	
			JUNCTION TO SOLDER JOINT ^[4] , $R\theta_{j-c}$	SOLDER JOINT TO HEAT SINK ^[5] , $R\theta_{c-HS}$
L219-xxxxxxFV0000	24	-0.2	40	30
L219-xxxx0xxFV0C00	24	-0.2	40	30

Notes for Table 2:

1. See Figure 2 for light output vs. input voltage characteristics.
2. Per constant current regulator.
3. T_c is measurement point next to LED. See AB208 for details.
4. $R\theta_{j-c}$ specified from LED junction to T_c (solder joint). Measured with flex strip laminated onto aluminum plate.
5. $R\theta_{c-HS}$ specified from T_c to heat-sink. Measured with flex strip laminated on aluminum plate.

Absolute Maximum Ratings

Table 3. Absolute maximum ratings for LUXEON XF-3014 CV.

PARAMETER	MAXIMUM PERFORMANCE
Maximum Supply Voltage ^[1]	32V for L219-xxxxC06FV0000 27V for L219-xxxx006FV0C00 27V for L219-xxxx030FV0C00
LED Junction Temperature ^[2] (DC & Pulse)	100°C
ESD Sensitivity (ANSI/ESDA/JEDEC JS-001-2012)	IEC 61000-4-2 HBM Level 2 (±4/4 kV contact/air discharge)
Operating Temperature at Tc point ^[3]	-40°C to 85°C
Operating Temperature at Tc1 point ^[4]	-40°C to 105°C
Flex Substrate Temperature	105°C
Storage Temperature	<30°C <65%RH for ≤1 year
UL Recognition	LUXEON XF-3014 CV UL recognized for Class 2 drivers only
Reverse Voltage (V _{reverse})	LUXEON LEDs are not designed to be driven in reverse bias

Notes for Table 3:

1. For full current operation supply should be capable of at least 19V and 45mA per 6 LEDs segment (96mm).
2. Proper current derating must be observed to maintain the junction temperature below the maximum allowable junction temperature.
3. Measured at Tc point next to LED. See AB208 for details.
4. Measured at Tc1 point next to Constant Current Regulator.

Characteristic Curves

Spectral Power Distribution Characteristics

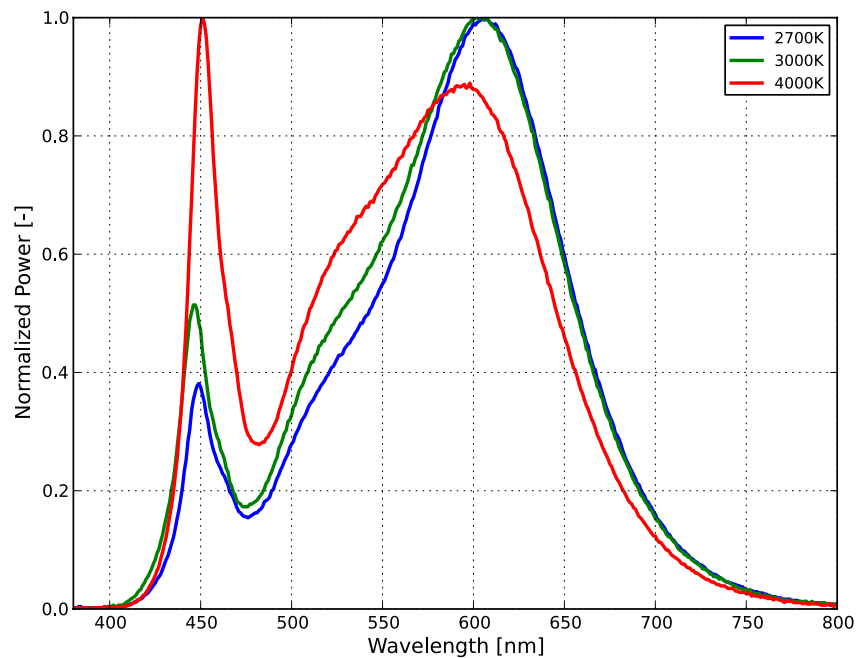


Figure 1: Typical normalized power vs. wavelength for LUXEON 3014 at 60mA, T_j=25°C.

Light Output Characteristics

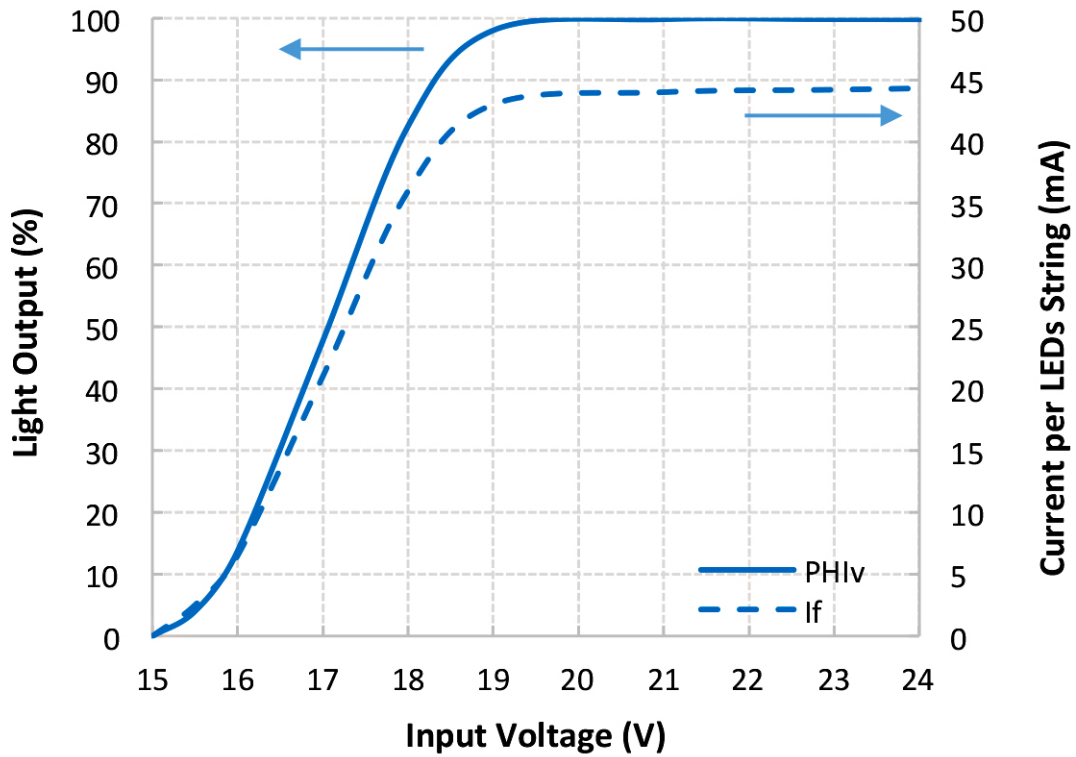


Figure 2: Typical light output vs. input voltage for LUXEON XF-3014 CV at 4000K, 80CRI, $T_j=50^\circ\text{C}$.

Efficacy Characteristics

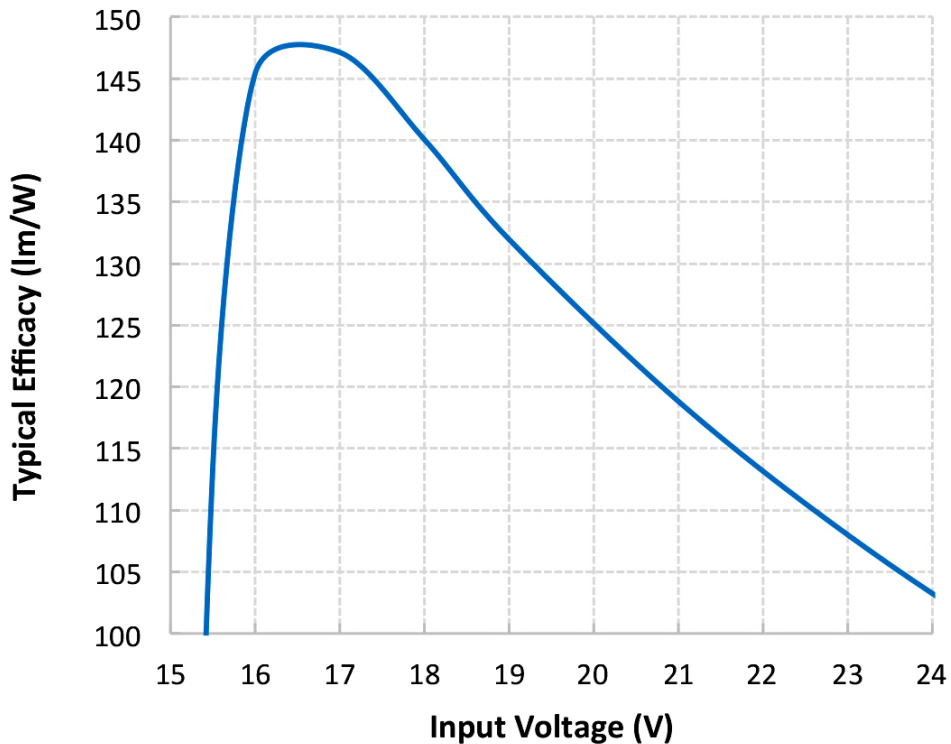


Figure 3: Typical efficacy vs. input voltage for LUXEON XF-3014 CV at 4000K, 80CRI, $T_j=50^\circ\text{C}$.

Radiation Pattern Characteristics

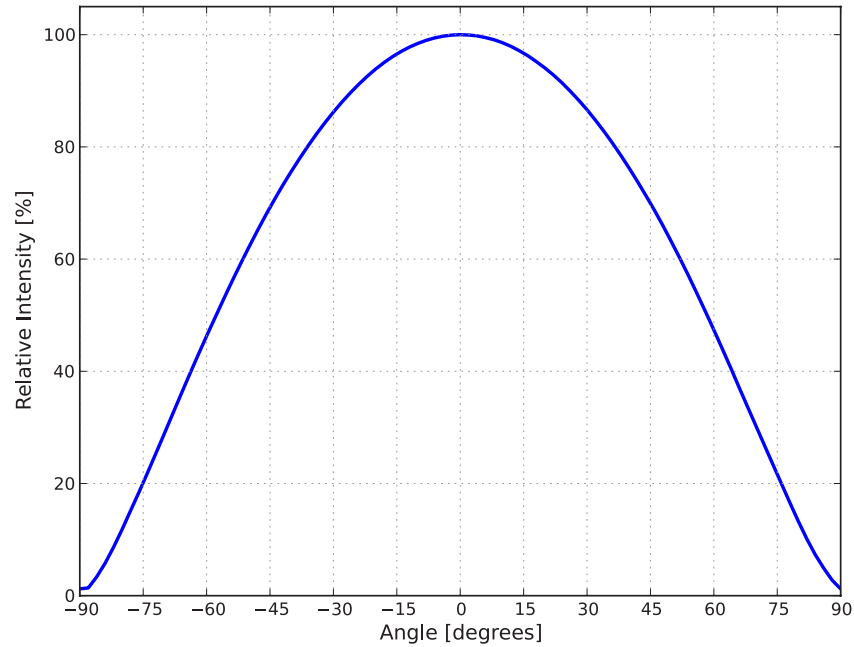


Figure 4: Typical radiation pattern for LUXEON 3014 at 60mA, $T_j=25^{\circ}\text{C}$.

Color Bin Definition

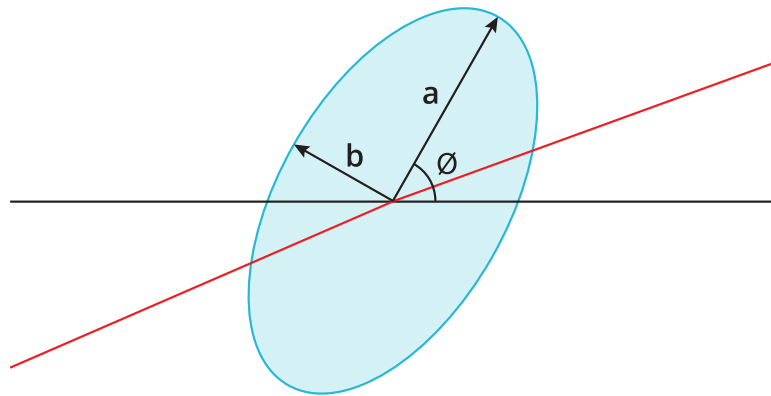


Figure 5: 3-step MacAdam ellipse illustration for Table 4.

Table 4. 3-step MacAdam ellipse color bin definitions for LUXEON XF-3014 CV at 24V, specified current, $T_j=50^{\circ}\text{C}$.

NOMINAL CCT	COLOR SPACE	CENTER POINT (cx, cy)	MAJOR AXIS, a	MINOR AXIS, b	ELLIPSE ROTATION ANGLE, θ
2700K	Single 3-step MacAdam Ellipse	(0.4578, 0.4101)	0.00810	0.00420	53.70°
3000K	Single 3-step MacAdam Ellipse	(0.4338, 0.4030)	0.00834	0.00408	53.22°
4000K	Single 3-step MacAdam Ellipse	(0.3818, 0.3797)	0.00670	0.00533	53.72°

Notes for Table 4:

1. Lumileds maintains a tolerance of ± 0.005 on x and y coordinates in the CIE 1931 color space.

Mechanical Dimensions

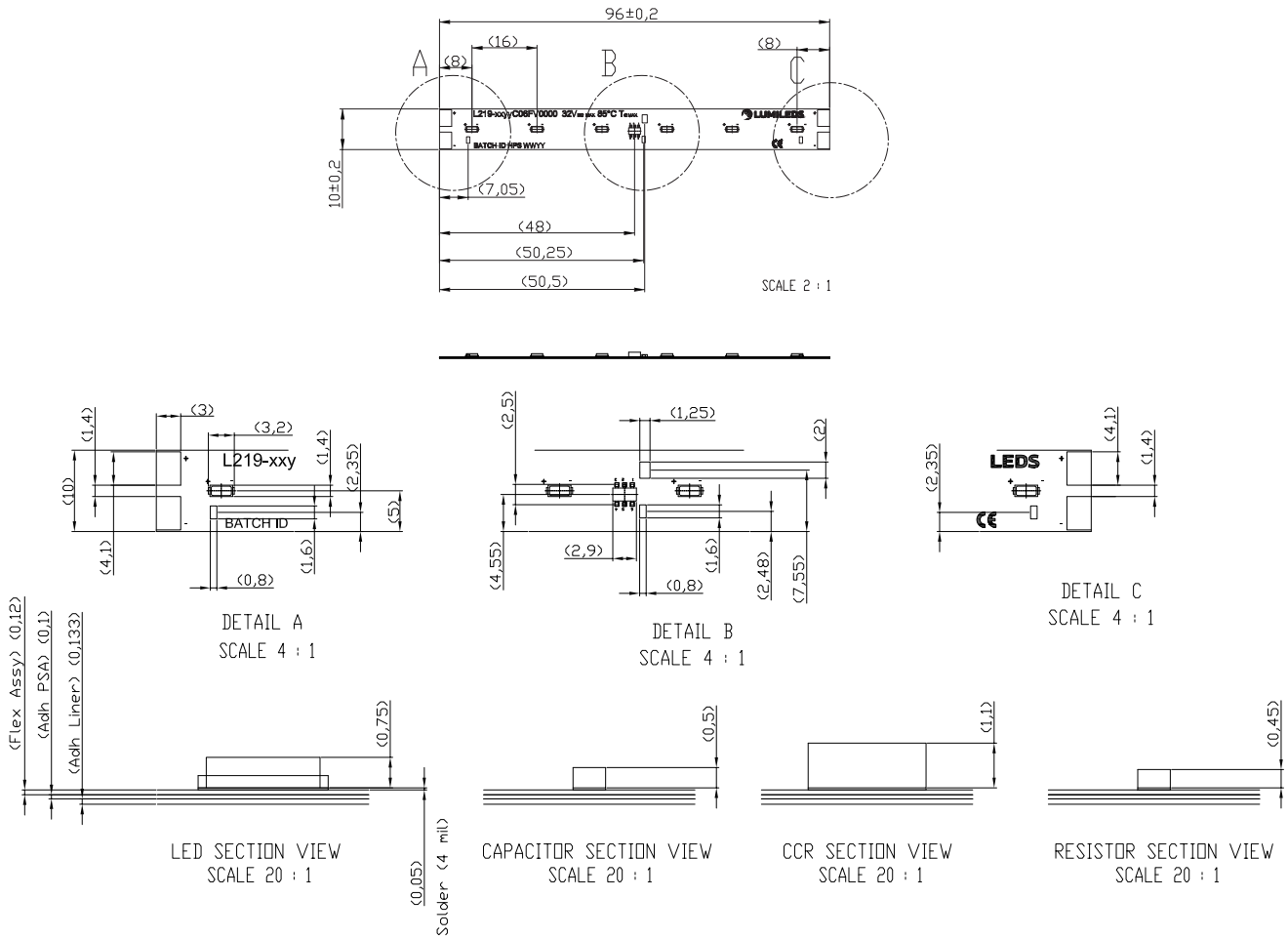


Figure 6a: Mechanical dimensions for L219-xxxxC06FV0000.

Notes for Figure 6a:

1. Drawings are not to scale.
2. All dimensions are in millimeters.

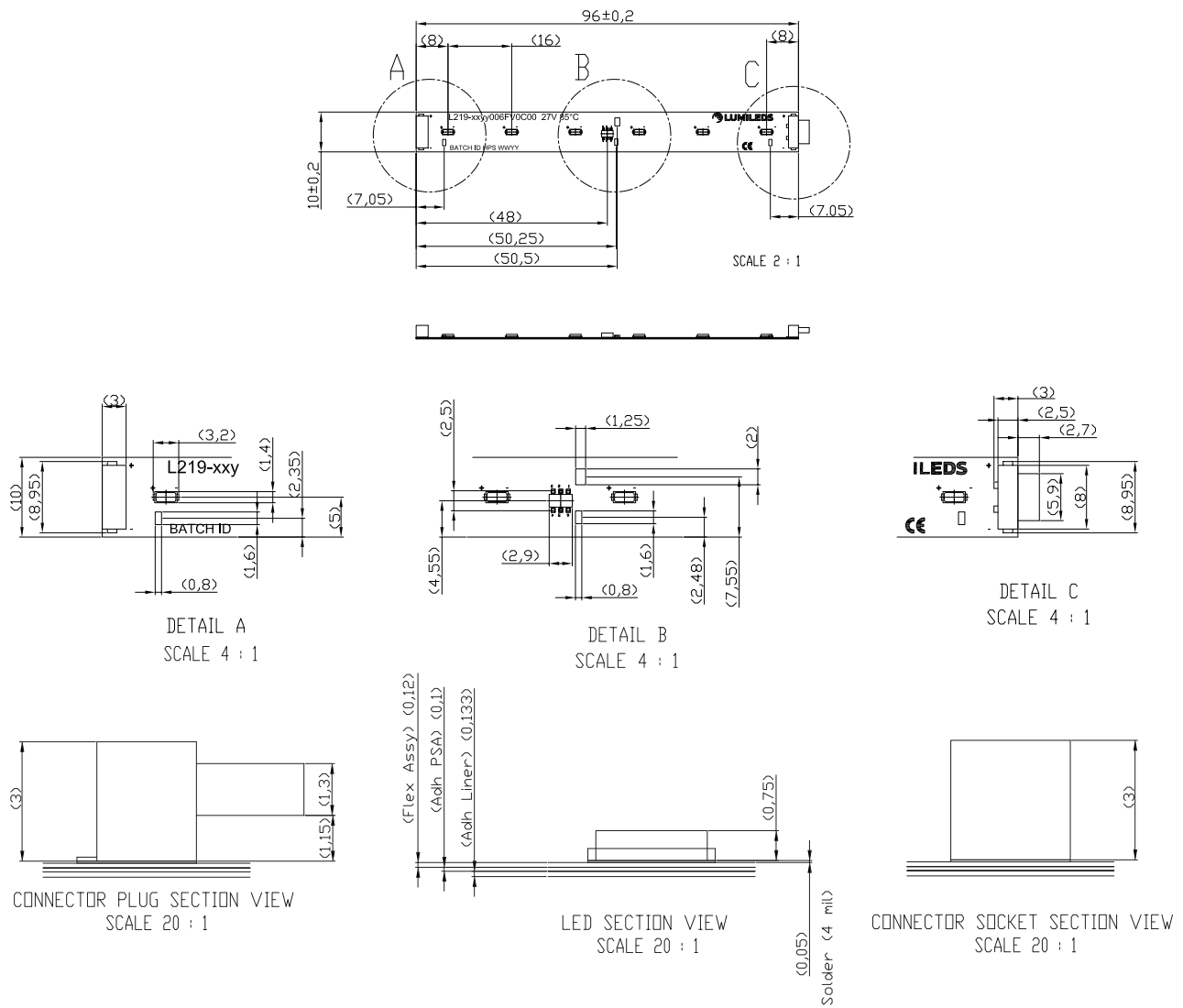


Figure 6b: Mechanical dimensions for L219-xxxx006FV0C00.

Notes for Figure 6b:

1. Drawings are not to scale.
2. All dimensions are in millimeters.

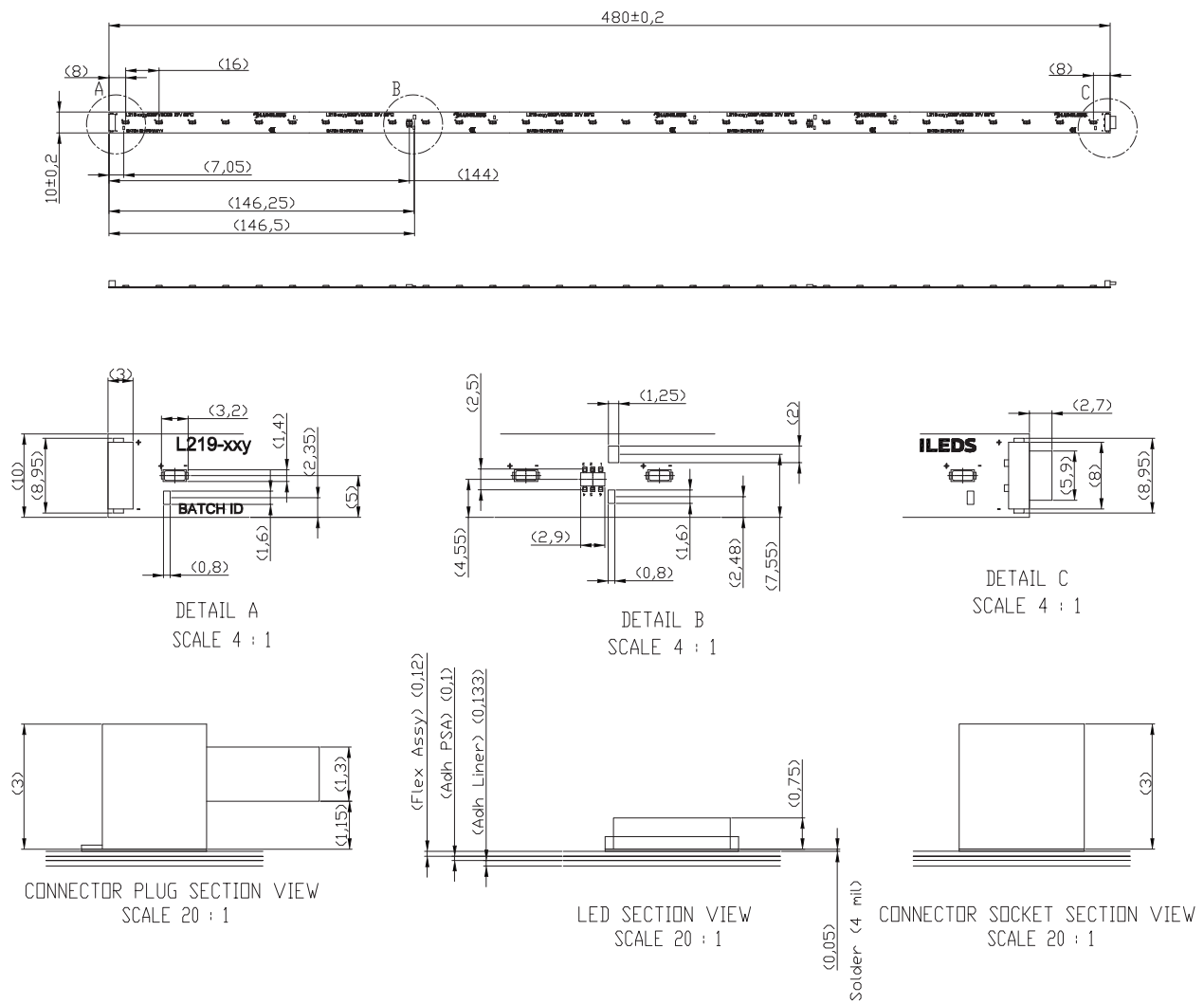


Figure 6c: Mechanical dimensions for L219-xxxx030FV0C00.

Notes for Figure 6c:

1. Drawings are not to scale.
2. All dimensions are in millimeters.

Packaging Information

Table 5. Packaging information for LUXEON XF-3014 CV.

PART NUMBER	UNITS PER REEL	UNIT LENGTH (m)	REEL LENGTH (m)	SINGLE PACKAGING INCREMENT (SPI)
L219-xxxxC06FV0000	1	19.200	19.20	1 Reel
L219-xxxx006FV0C00	20	0.096	1.92	1 Reel
L219-xxxx030FV0C00	20	0.480	9.60	1 Reel

Reel Dimensions

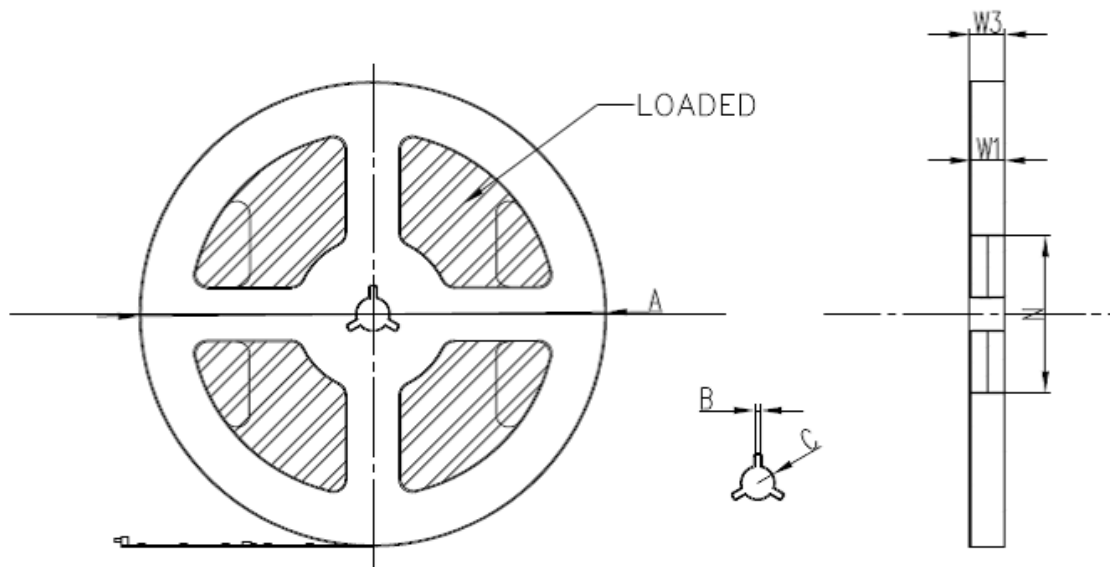


Figure 7a: Reel dimensions for L219-xyy006FV0C00.

Table 6. Reel dimension information for Figure 7a.

ITEMS	A	N	W1	W3	C	B
DIMENSIONS (mm)	178	59.8	12.4	13.4	13.3	2.2
TOLERANCE	±2	±2	+2 -0	+3 -1	±0.5	±0.5

Notes for Figure 7a:

1. Drawings are not to scale.
2. All dimensions are in millimeters.

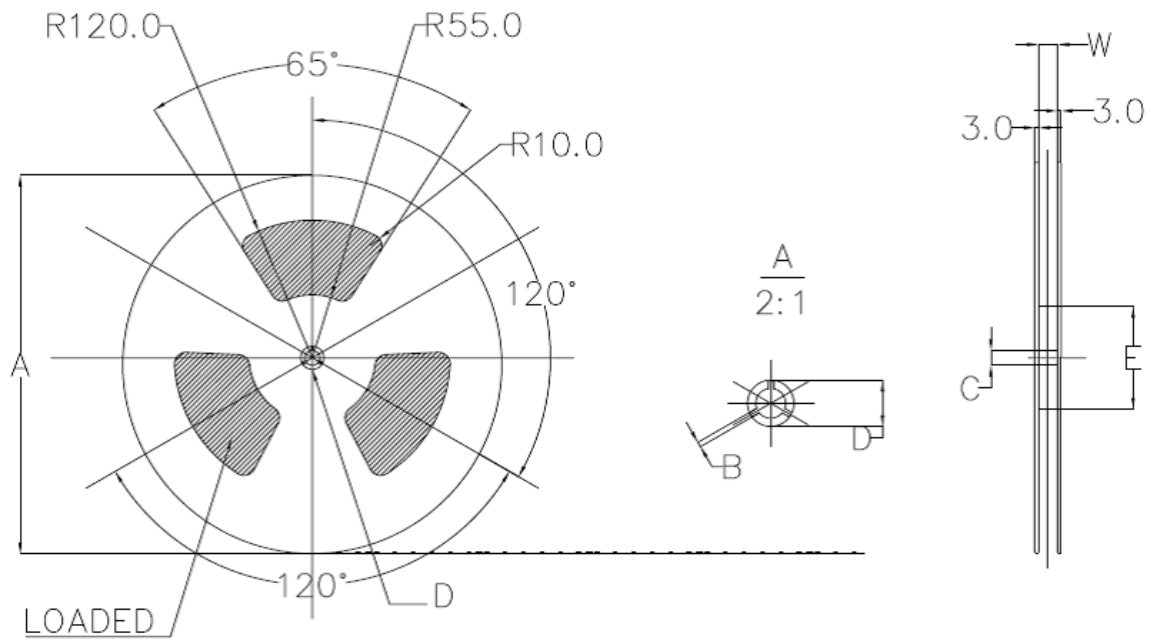


Figure 7b: Reel dimensions for L219-xyy030FV0C00 and L219-xyyC06FV0000.

Table 7. Reel dimension information for Figure 7b.

ITEMS	A	B	C	D	E	W (max)
DIMENSIONS (mm)	330	2.2	13.0	20.2	90	12.5
TOLERANCE	-	-	+0.5 -0.2	-	-	±0.5

Notes for Figure 7b:

1. Drawings are not to scale.
2. All dimensions are in millimeters.

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For 100 years, Lumileds commitment to innovation has helped customers pioneer breakthrough products in the automotive, consumer and illumination markets.

Lumileds is shaping the future of light with our LEDs and automotive lamps, and helping our customers illuminate how people see the world around them.

To learn more about our portfolio of light engines, visit lumileds.com.



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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А