

LIGHT ENGINE ARRAY FINA PROJECT 48in 50 LEDs CREE 2SM

Issue Date	September, 2024
Issued by	Nascimento, K.

Applications

- Projectors
- Decorative lighting
- Indoor light

Characteristics

- Module Efficacy – up to 172 lm/W
- L70 > 50,000 hours
- CRI > 90 (Typ.95)
- 02 SDCM
- CCTs 2,700K / 3,000K / 3,500K / 4,000K
- 05 years warranty



DRIVE PARAMETERS

Parameter	Nominal	Max
I _{board} (Current)	275 mA	1,000 mA
V _{board} (Voltage)	26.5 V	29.0 V

MODULE TEMPERATURES

Parameter	Nominal	Max
T _c (case temperature at T _c point)	75 °C	85 °C

PRODUCT PART NUMBER

	90 CRI 2 Step				
Audax PN	80609600100	80609700100	80609800100	80609900100	80610000100
Pinnacle PN	C-L50ARC48-927	C-L50ARC48-930	C-L50ARC48-935	C-L50ARC48-940	C-L50ARC48-950
Kenosha PN	L-6757	L-6758	L-6759	L-6760	L-6761
	2,700K	3,000K	3,500K	4,000K	3,000K

LED TYPE

Manufacturer: CREE®

LED Series: J Class 2835 2 Steps Precision Dimming

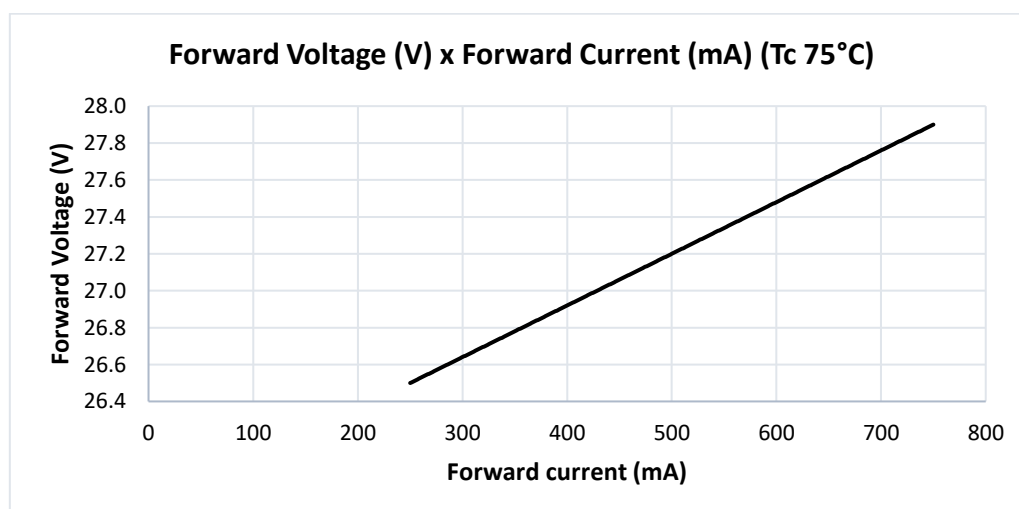
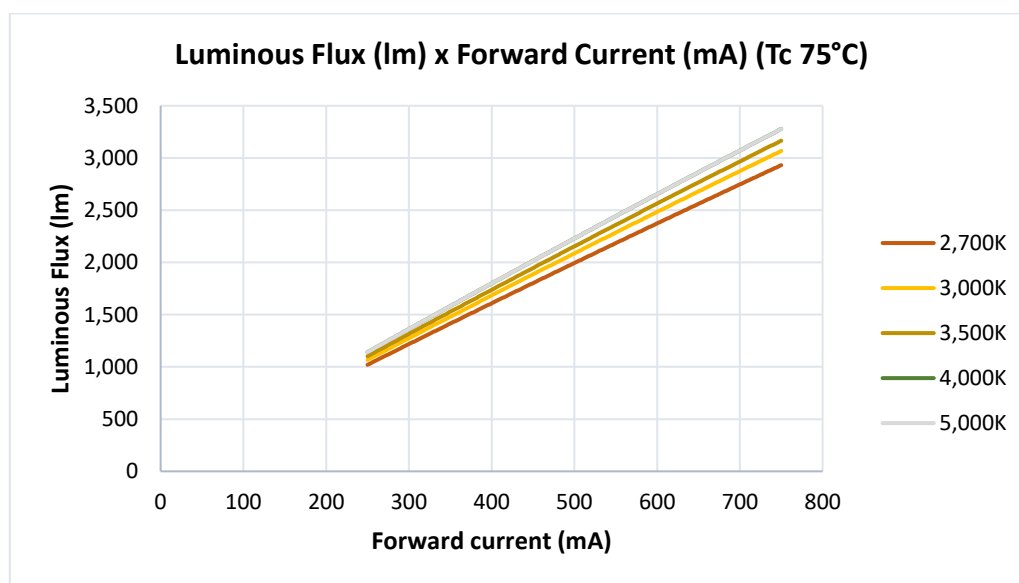
TECHNICAL INFORMATION

CCT	LED Driver Current (mA)	# LEDs	Luminous Flux (lm)*	Forward Voltage (V)**	LED Forward Current (mA)	T _c (°C)	Power (W)	Efficacy (lm/W)
2,700K	250	50	1,020	26.5	50	75	6.6	154
2,700K	500	50	1,994	27.2	100	75	13.6	147
2,700K	750	50	2,931	27.9	150	75	20.9	140
3,000K	250	50	1,067	26.5	50	75	6.6	161
3,000K	500	50	2,087	27.2	100	75	13.6	153
3,000K	750	50	3,067	27.9	150	75	20.9	147
3,500K	250	50	1,102	26.5	50	75	6.6	166
3,500K	500	50	2,154	27.2	100	75	13.6	158
3,500K	750	50	3,166	27.9	150	75	20.9	151
4,000K	250	50	1,141	26.5	50	75	6.6	172
4,000K	500	50	2,230	27.2	100	75	13.6	164
4,000K	750	50	3,277	27.9	150	75	20.9	157
5,000K	250	50	1,141	26.5	50	75	6.6	172
5,000K	500	50	2,230	27.2	100	75	13.6	164
5,000K	750	50	3,277	27.9	150	75	20.9	157

*Luminous flux may vary by +/- 10%

**Forward Voltage may vary by +/- 2%

TECHNICAL GRAPHS



LED PN

The selected LEDs for the project have the following commercial part number.

Nominal CCT	CREE® PN	Flux BIN	Voltage BIN
5,000 K	JB2835BWT-J-U50HAPAUD-N06A0001	Discontinued C9	AC
4,000 K	JB2835BWT-J-U40HAPAUD-N06A0001	C9	AC
3,500 K	JB2835BWT-J-U35HAPAUD-N06A0001	C9	AC
3,000 K	JB2835BWT-J-U30HAPAUD-N06A0001	C8	AC
2,700 K	JB2835BWT-J-U27HAPAUD-N06A0001	C8	AC

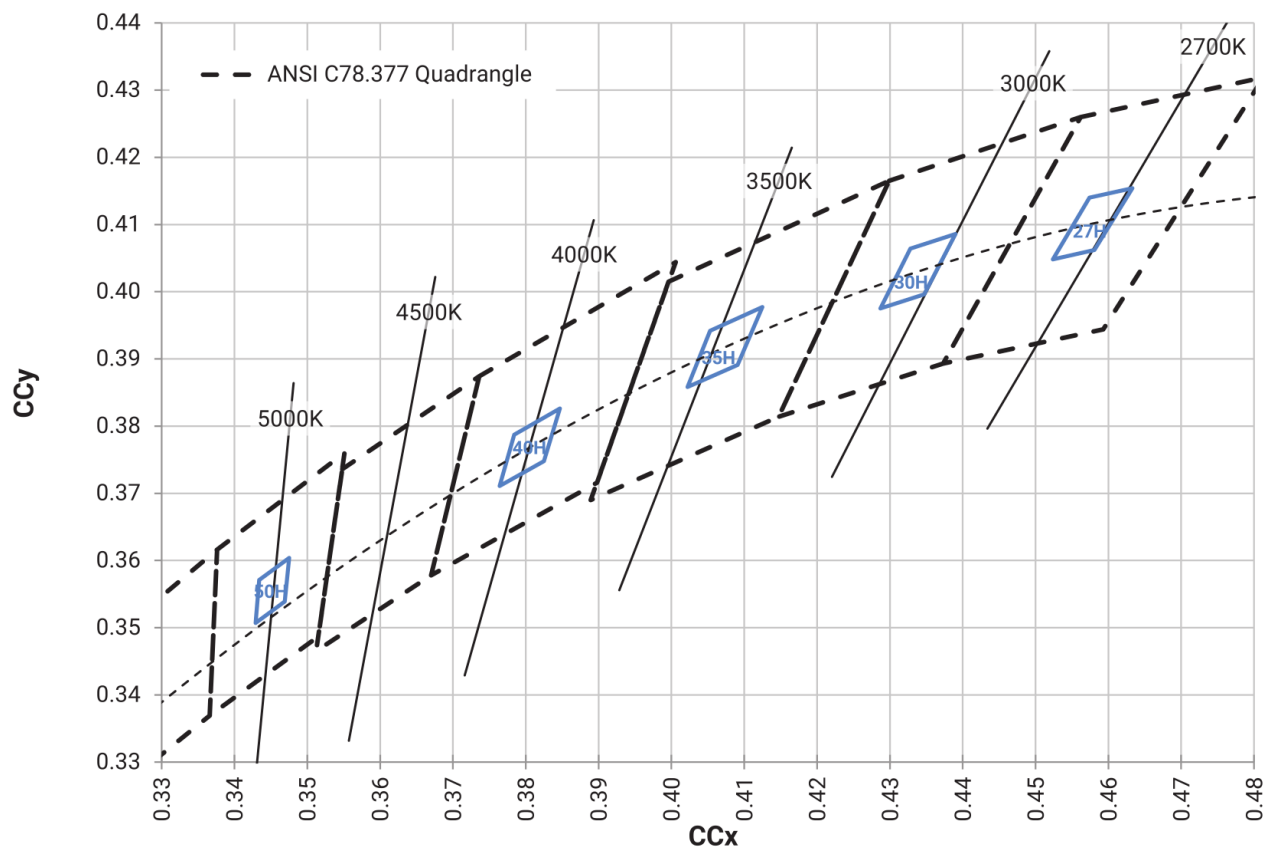
LED COLOR VARIANCE

The LEDs are tested for chromaticity and placed into one of the regions defined by the following bounding coordinates.

Color Temperatures – 2-Step			
Code	CCT	x	y
50H	5000 K	0.3429	0.3507
		0.3434	0.3571
		0.3475	0.3604
		0.3469	0.3539
40H	4000 K	0.3777	0.3739
		0.3797	0.3816
		0.3861	0.3855
		0.3838	0.3777
35H	3500 K	0.4022	0.3858
		0.4053	0.3942
		0.4125	0.3977
		0.4091	0.3891
30H	3000 K	0.4287	0.3975
		0.4328	0.4064
		0.4390	0.4086
		0.4347	0.3996
27H	2700 K	0.4524	0.4048
		0.4574	0.4140
		0.4633	0.4154
		0.4581	0.4062

A tolerance of +/- 0.005 on chromaticity (CCx, CCy) is expected by the LED manufacturer.

LED BINNING STRUCTURE



LED PRECISION DIMMING BINNING

The Precision Dimming technology presented by Cree requires a very careful assembly and mixing process. Here are the variations of the BIN available for this custom LED:

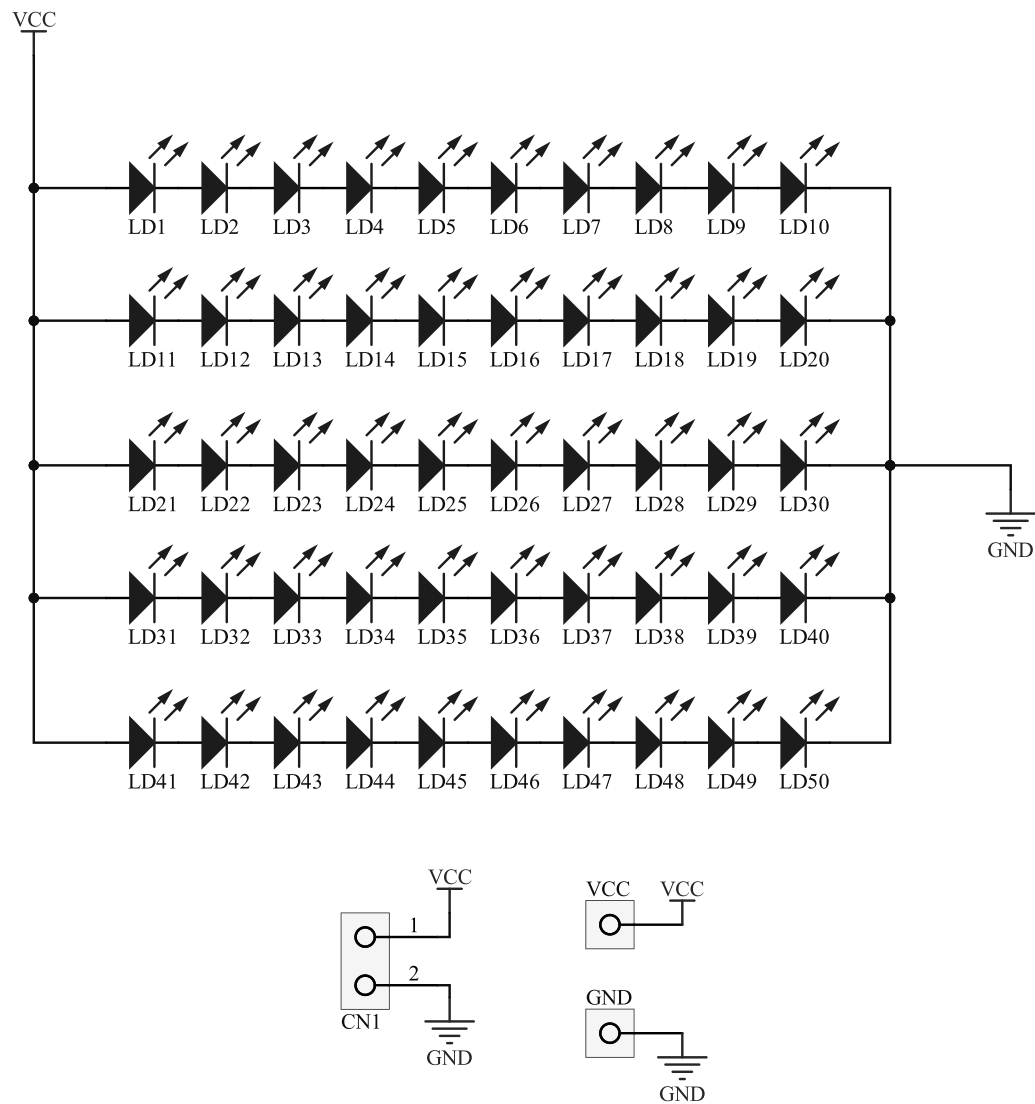
Nominal CCT	Precision Dimming BINs	CREE® PN
5,000 K	L, M	JB2835BWT-J-U50HAPAUD-N06A0001
4,000 K	L, M	JB2835BWT-J-U40HAPAUD-N06A0001
3,500 K	L, M	JB2835BWT-J-U35HAPAUD-N06A0001
3,000 K	K, L	JB2835BWT-J-U30HAPAUD-N06A0001
2,700 K	K, L	JB2835BWT-J-U27HAPAUD-N06A0001

Discontinued

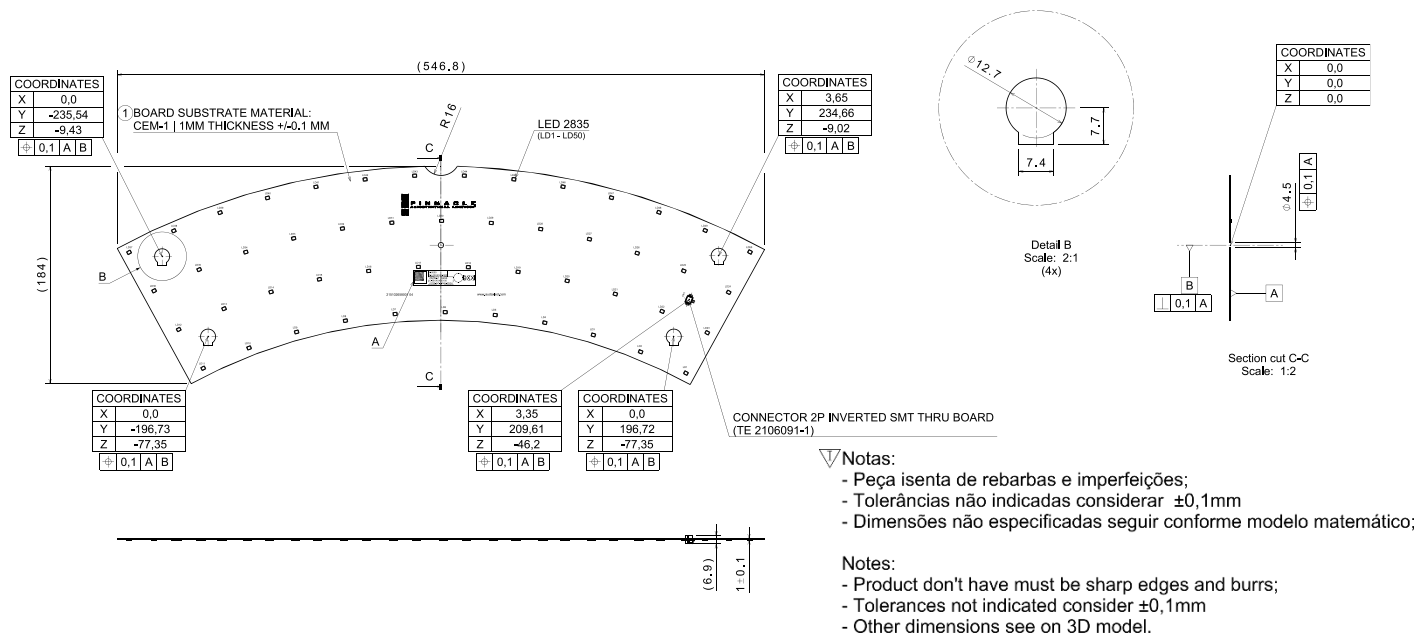
If necessary, the mixing BIN will follow these principles:

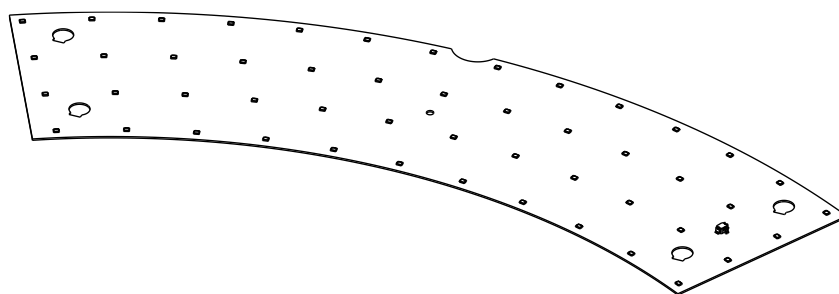
1. Do not use dissimilar Precision Dimming bins in parallel strings when each string is a single bin.
2. Use a single Precision Dimming bin and CCT/CRI bin for an entire board build.
3. If mixing bins, only mix equal numbers of each Precision Dimming bin and CCT/CRI bin in each parallel string.

SCHEMATICS



MECHANICAL DRAWING





Isometric view
Scale:1:2

③			①			
Audax Part Number	Pinnacle Part Number	Kenosha Part Number	Description	CRI [Z]	CCT [VV]	Icon
80609600100	C-L50ARC48-927	L-6757	LIGHT ENGINE 48IN ARRAY FINA PROJECT 927 CREE J CLASS 2SM	90 [9]	2700K [27]	○
80609700100	C-L50ARC48-930	L-6758	LIGHT ENGINE 48IN ARRAY FINA PROJECT 930 CREE J CLASS 2SM	90 [9]	3000K [30]	△
80609800100	C-L50ARC48-935	L-6759	LIGHT ENGINE 48IN ARRAY FINA PROJECT 935 CREE J CLASS 2SM	90 [9]	3500K [35]	□
80609900100	C-L50ARC48-940	L-6760	LIGHT ENGINE 48IN ARRAY FINA PROJECT 940 CREE J CLASS 2SM	90 [9]	4000K [40]	☆
80610000100	C-L50ARC48-950	L-6761	LIGHT ENGINE 48IN ARRAY FINA PROJECT 950 CREE J CLASS 2SM	90 [9]	5000K [50]	✕

Discontinued

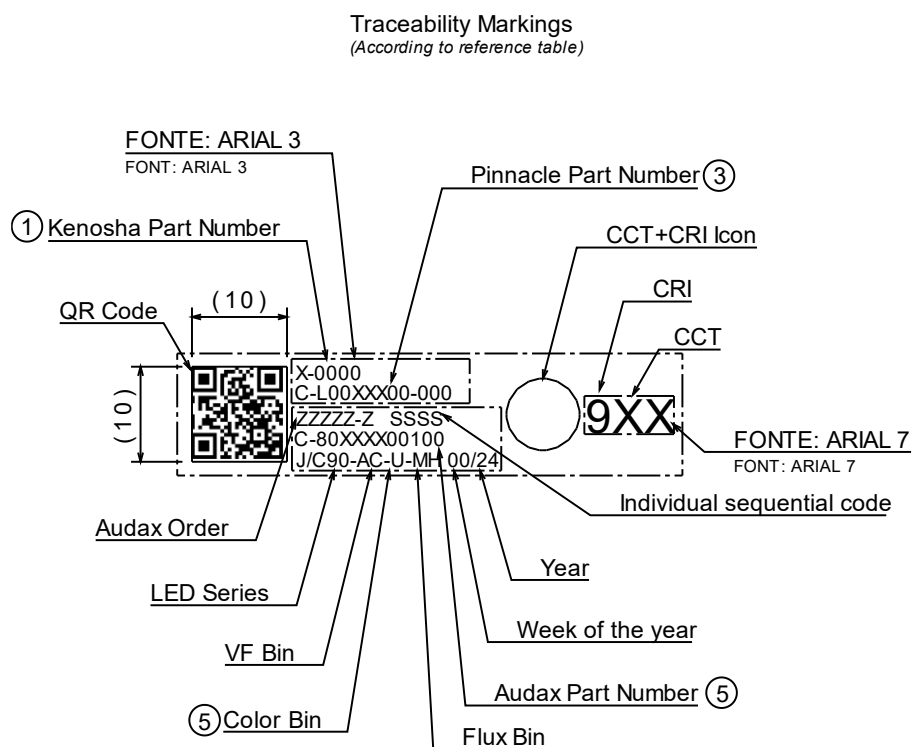
SOLDERMASK COLOR

The solder mask model for all products is **Taiyo® PSR-4000 LEW7S**, combined with the **CA-40 LEW7S hardener** (5 unit of solder mask material for 1 unit of hardener). The final product has a thickness range of 30µm to 50µm.

A Multispectral Visual System is used to determine the solder mask color by evaluating the intensity of eight individual spectra of light, with values ranging from 0 to 255 on the final product. The tolerance range is provided below. For more information, visit the [Keyence website](#).

	UV	B	G	AM	R	IF	FR	W
Minimum	96.0	145.0	146.0	154.0	156.0	162.0	135.0	147.0
Maximum	109.0	168.0	163.0	170.0	171.0	180.0	153.0	163.0

To maintain internal and external records, the following engraving has been marked on the boards.



Detail A
Scale:2:1

The QR code present the following text structure ("string"):

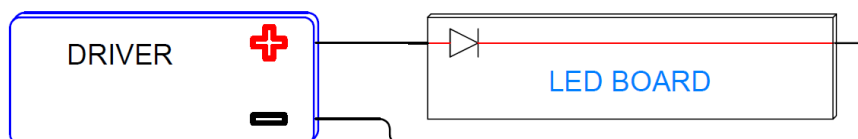
X-0000, ZZZZZ-ZZ SSSS, C-80XXXXXXXXXX CCC BBBB WW/YY

As an example: L-6215, 013485-04 0653, C-80607600100 927 J/C90-AC-U-MH 25/24

CODE	EXAMPLE	MEANING
X-0000	L-6737	Kenosha PN
ZZZZZ-ZZ	013485-04	Audax Order
SSSS	0653	Individual Sequential code
C-8043XX00100	C-80607600100	Audax PN
CCC	927	CRI (90) + CCT (2,700K)
BBBB	J/C90-AC-U-MH	LED Bin
WW	16	Week number
YY	24	Year

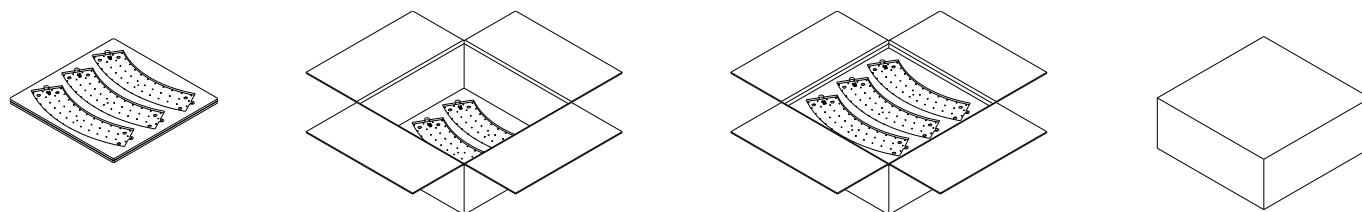
WIRING

Specification item	Value	Unit	Condition
Input wire cross- section	0.5...1.3 20...16	mm ² AWG	Solid wire
Input wire strip length	5...6	mm	Solid wire
Input wire cross-section	0.5...1.3 20...16	mm ² AWG	Stranded wire
Input wire strip length	5...6	mm	Stranded wire



PACKING

CARDBOARD BOX 600mm x 600mm x 250mm



Minimum Packing Quantity: 33pcs

*Each cardboard box contains only one CCT/Part Number

REVISION HISTORY

VERSION	ENGINEER IN CHARGE	DATE	CHANGE
00	KVN	Abril 30, 2024	Preliminary Release
01	KVN	May 14, 2024	Kenosha and Pinnacle PN added Solder mask color measurement make on the final product information Solder mask material / hardener ratio Board material and thickness added
02	CFA	June 05, 2024	Mechanical design update
03	KVN	July 15, 2024	Kenosha and Pinnacle PN engraving updated Removed Color Group Label from the mechanical drawing Pinnacle PN added to the mechanical drawing table LED Precision Dimming Binning Section added Solder mask color tolerances added
04	KVN	August 19, 2024	Solder mask color tolerances updated Luminous flux, board voltage, and chromaticity tolerance added Traceability marking updated with CREE BIN
05	KVN	September 16, 2024	5,000K option discontinued Precision Diming BIN updated