

CBM-380 LEDs

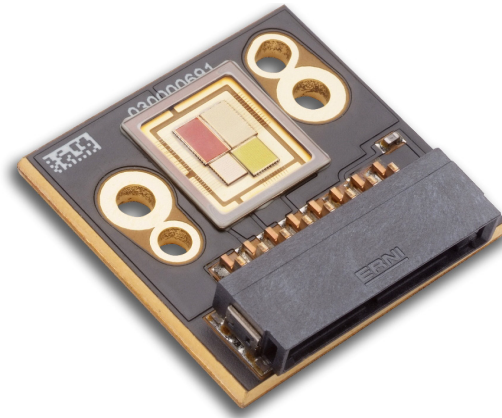


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Introduction:

This document describes the binning and labeling nomenclature for CBM-380 Big Chip LED™ product as well as the orderable bin kits for each part.

With each build of parts, there is a distribution of performance in both flux and wave length or chromaticity. In order to guarantee specific performance for customers, each device is measured and subsequently grouped into flux and wavelength or chromaticity bins. Each individual package or reel of parts contains only one combination of flux and wavelength or chromaticity bin. Furthermore, bins are combined into orderable bin kits comprising of a selection of flux and wavelength or chromaticity bins to ease the ordering process.

Table of Products

Products	Ordering Part Number	Description
CBM-380-RGBW	CBM-380-RGBW-D11-XX123	CBM-380 RGBW Big Chip LED™ consisting of a red 12 mm ² LED, a green 12 mm ² LED, a blue 5.4 mm ² LED, a white 9 mm ² LED, thermistor, connector, and copper-core PCB

CBM-380 Shipping and Labeling Nomenclature

All CBM-380 products are packaged and labeled with their respective bin as outlined in the following pages. Each package or reel will only contain one bin. The part number designation is as follows:

A B C — 1 2 3 — D E F G — H 4 5 — I J — K 6

Product Family	Chip Area	Color	Package Configuration	Flux Bin	Chromaticity Bin/ Wavelength
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Product Family	A - Package type: "C" denotes chip-on board B - Lens type: "B" denotes window (no lens) C - Chip quantity: "M" denotes multi-chip				
Chip Area	1 2 3 - Total LED chip area (mm ²) x 10: "380" denotes 38 mm ²				
Color	D E F G- Color: "RGBW" denotes Red Green Blue White				
Package Config.	H 4 5 - Package configuration (for internal use)				
Flux Bin	I J - Flux bin				
Chromaticity Bin/ Wavelength	K 6 - Wavelength / Chromaticity bin				

Example:

The part number CBM-380-RGBW-D11-QK-G4 refers to a RGBW, CBM-380 emitter, with a white flux above 1,450 lumens and a chromaticity value within the box defined by the four points (0.313, 0.338), (0.321, 0.348), (0.322, 0.336), (0.312, 0.328).

CBM-380 Bin Kit Ordering Nomenclature

All CBM-380 White products are sold in sets of flux and chromaticity bins called bin kits. Each bin kit specifies a minimum flux bin and a specific selection of chromaticity bins. The ordering part number designation is as follows:

A B C — 1 2 3 — D E F G — H 4 5 — I J 6 7 8

Product Family	Chip Area	Color	Package Configuration	Bin Kit
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Product Family	A - Package type: "C" denotes chip-on board B - Lens type: "B" denotes window (no lens) C - Chip quantity: "M" denotes multi-chip
Chip Area	1 2 3 - Total LED chip area (mm ²) x 10: "380" denotes 38 mm ²
Color	D E F G- Color: "RGBW" denotes Red Green Blue White
Package Config.	H 4 5 - Package configuration (for internal use)
Bin Kit	I J - Flux bin kit code 6 7 8 - Wavelength / Chromaticity bin kit code

Example:

The ordering part number CBM-380-RGBW-D11-QG101 refers to a bin kit containing a flux value range of 850 to 1,000 lumens and falling in the F4, F3, G4, and G3 chromaticity bins.

CBM-380 White Binning Structure

White die of CBM-380 LEDs is tested for luminous flux and chromaticity at a drive current of 9.0 A (1.0 A/mm²) and placed into one of the following luminous flux (FF) and chromaticity (WW) bins:

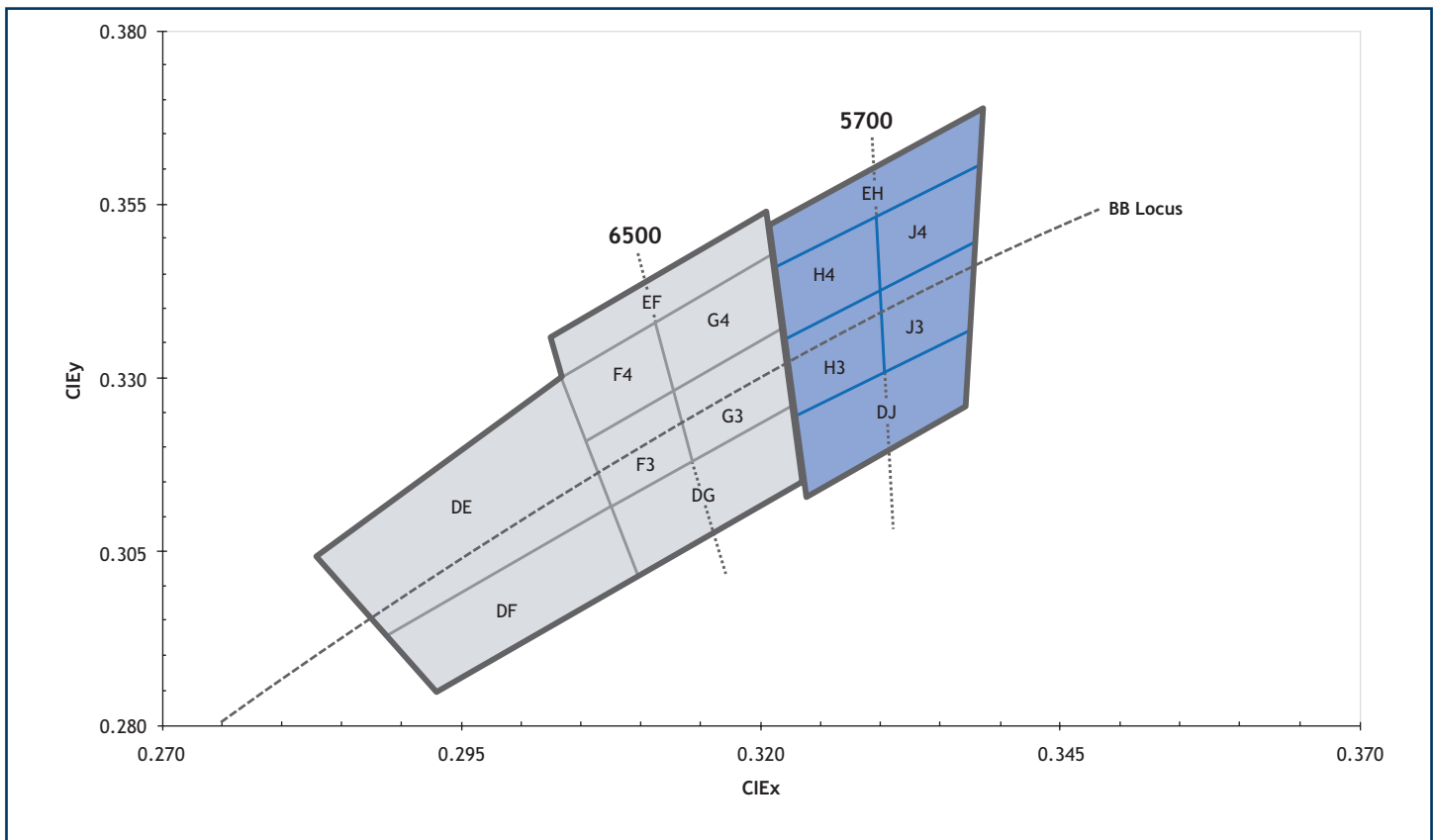
Flux Bins

Flux Bin Code (FF)	Minumum Flux (lm) @ 9.0 A	Maximum Flux (lm) @ 9.0 A
R	1,450	1,750

*Note: Luminus maintains a +/- 6% tolerance on flux measurements.

Chromaticity Bins

Luminus' Standard Chromaticity Bins: 1931 CIE Curve



The following tables describe the four chromaticity points that bound each chromaticity bin. Chromaticity bins are grouped together based on the color temperature.

6500K Chromaticity Bins		
Bin Code (WW)	CIEx	CIEy
DG	0.307	0.311
	0.322	0.326
	0.323	0.316
	0.309	0.302
F3*	0.305	0.321
	0.313	0.329
	0.315	0.319
	0.307	0.311
F4*	0.303	0.330
	0.312	0.339
	0.313	0.329
	0.305	0.321
G3*	0.313	0.329
	0.321	0.337
	0.322	0.326
	0.315	0.319
G4*	0.312	0.339
	0.321	0.348
	0.321	0.337
	0.313	0.329
EF	0.302	0.335
	0.320	0.354
	0.321	0.348
	0.303	0.330
DE	0.283	0.304
	0.303	0.330
	0.307	0.311
	0.289	0.293
DF	0.289	0.293
	0.307	0.311
	0.309	0.302
	0.293	0.285

5700K Chromaticity Bins		
Bin Code (WW)	CIEx	CIEy
DJ	0.322	0.324
	0.337	0.337
	0.336	0.326
	0.323	0.314
H3*	0.321	0.335
	0.329	0.342
	0.329	0.331
	0.322	0.324
H4*	0.321	0.346
	0.329	0.354
	0.329	0.342
	0.321	0.335
J3*	0.329	0.342
	0.337	0.349
	0.337	0.337
	0.330	0.331
J4*	0.329	0.354
	0.338	0.362
	0.337	0.349
	0.329	0.342
EH	0.320	0.352
	0.338	0.368
	0.338	0.362
	0.321	0.346

*Sub-bins within ANSI defined quadrangles per ANSI C78.377-2008

CBM-380 Monochromatic Binning Structure

All CBM-380 monochromatic LEDs are specified for luminous flux and wavelength at different drive conditions for each color. Red and green are specified at 12 A (1.0 A/mm²), and blue is specified at 8.1 A (1.5 A/mm²). Once tested, devices are placed into one of the following luminous flux (FF) and wavelength (WW) bins:

Flux Bins

Color	Luminous Flux Bin (FF)	Minimum Flux (lm)	Maximum Flux (lm)
Red	BK	600	770
	BM	770	970
Green	CM	2,000	2,300
	CN	2,300	2,600
Blue	DJ	250	350

Wavelength Bins

Color	Wavelength Bin (FF)	Minimum Wavelength @ 13.5A	Maximum Wavelength @ 13.5A
Red	R2	611	615
	R3	615	619
	R4	619	623
	R5	623	627
	R6	627	631
	R7	631	635
Green	G2	510	515
	G3	515	520
	G4	520	525
	G5	525	530
	G6	530	535
	G7	535	540
Blue	B4	450	455
	B5	455	460
	B6	460	465
	B7	465	470
	B8	470	475

*Note: Luminus maintains a +/- 6% tolerance on flux measurements.

CBM-380 Bin Kit Order Codes

The following tables describe the bin kit ordering codes for the CBM-380 and the flux and chromaticity/ wavelength bins included in the bin kit. Each kit specifies a minimum flux and the listed chromaticity/ wavelength bins. A maximum flux is not specified. Within each kit, Luminus may ship any part meeting or exceeding the minimum flux specification. Shipments will always meet the listed chromaticity/ wave length bins. For information on ordering bin kits not listed below, please contact Luminus or an official distributor.

CBM-380 Bin Kit Order Codes

Color	Luminous Flux		Chromaticity/ Wavelength Bins	Kit Number
	Bin Kit Flux Code	Min. Flux		
Red	QK	600	R4, R5, R6	QK100
Green		2,000	G4, G5, G6, G7	
Blue		250	B5, B6, B7	
White		1,450	F4, F3, G4, G3, EF, DG, DE, DF, H4, H3, J4, J3, EH, DJ	

Red	QK	600	R5	QK101
Green		2,000	G5, G6	
Blue		250	B6	
White		1,450	F4, F3, G4, G3	

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