

SSM-80 LEDs

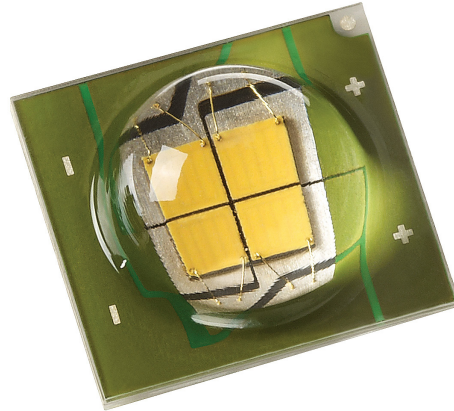


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Introduction:

This document describes the binning and labeling nomenclature for SSM-80 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
SSM-80-W40M	SSM-80-W40M-A 91/T 91-xx123	SSM-80 white Big Chip LED™ consisting of four 2 mm ² LEDs mounted on a ceramic substrate, A 91- tray pack T 91- Tape & Reel
SSM-80-W35M	SSM-80-W35M-A 91/T 91-xx123	
SSM-80-W30M	SSM-80-W30M-A 91/T 91-xx123	
SSM-80-W27M	SSM-80-W27M-A 91/T 91-xx123	

SSR-80-W40M	SSR-80-W40M-R 91-xx123	SSR-80 evaluation module consisting of a SSM-80 surface mount device mounted on an aluminum star board
SSR-80-W35M	SSR-80-W35M-R 91-xx123	
SSR-80-W30M	SSR-80-W30M-R 91-xx123	
SSR-80-W27M	SSR-80-W27M-R 91-xx123	

SSM-80 Shipping and Labeling Nomenclature

All SSM-80 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 4 5 E — F 6 7 — G H — I 8

Product Family	Chip Area	Color	Package Configuration	Flux Bin	Chromaticity Bin
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Product Family	A - Package type: "S" denotes surface mount B - Lens type: "S" denotes dome C - Chip quantity: "M" denotes multi-chip
Chip Area	1 2 3 - Total LED chip area (mm ²) x 10: "80" denotes 8 mm ²
Color	D - Color: "W" denotes white 4 5 - Color temperature: "40" denotes 4000K E - Color rendering: "M" (moderate) denotes a typical CRI of 83
Package Config.	F 6 7 - Package configuration (for internal use)
Flux Bin	G H - Flux bin
Chromaticity Bin	I 8 - Chromaticity bin

Example:

The part number SSM-80-W40M-A91-MA-Q4 refers to a 4000K Moderate CRI white, SSM-80 emitter, with a flux range of 1,380-1,485 lumens and a chromaticity value within the box defined by the four points (0.374, 0.387), (0.387, 0.396), (0.382, 0.380), (0.370, 0.373).

SSM-80 Bin Kit Ordering Nomenclature

All SSM-80 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 4 5 E — F 6 7 — G H 8 9 0

Product Family	Chip Area	Color	Package Configuration	Bin Kit
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Product Family	A - Package type: "S" denotes surface mount B - Lens type: "S" denotes dome C - Chip quantity: "M" denotes multi-chip			
Chip Area	1 2 3 - Total LED chip area (mm ²) x 10: "80" denotes 8 mm ²			
Color	D - Color: "W" denotes white 4 5 - Color temperature: "40" denotes 4000K E - Color rendering: "M" (moderate) denotes a typical CRI of 83			
Package Config.	F 6 7 - Package configuration (for internal use)			
Bin Kit	G H - Flux bin kit code 8 9 0 - Chromaticity bin kit code			

Example:

The ordering part number SSM-80-W40M-A91-MA 501 refers to a 4000K Moderate CRI white, SSM-80 emitter, with a minimum flux value of 1,380 lumens and falling in the Q4, Q3, R4, and R3 chromaticity bins.

SSM-80 White Binning Structure

SSM-80 LEDs are tested for luminous flux and chromaticity at a drive current of 1.4 A and placed into one of the following luminous flux (FF) and chromaticity (WW) bins:

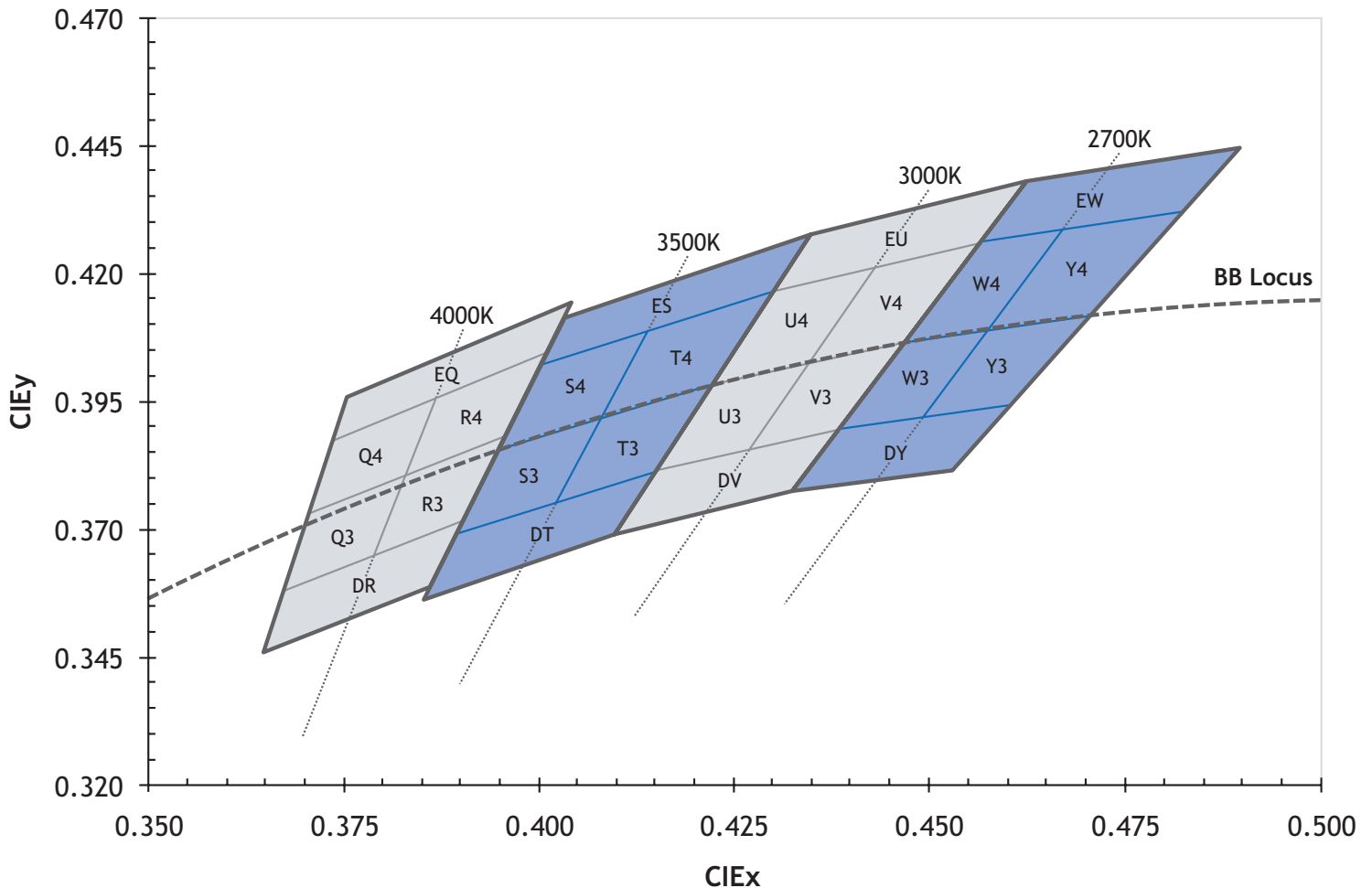
Flux Bins

Flux Bin (FF)	Minimum Flux (lm) @ 1.4A	Maximum Flux (lm) @ 1.4A
KA	1,040	1,120
KB	1,120	1,200
LA	1,200	1,290
LB	1,290	1,380
MA	1,380	1,485

*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.

4000K Chromaticity Bins		
Bin Code (WW)	CIEx	CIey
EQ	0.376	0.396
	0.404	0.414
	0.401	0.404
	0.374	0.387
Q3*	0.370	0.373
	0.382	0.380
	0.378	0.365
	0.367	0.358
Q4*	0.374	0.387
	0.387	0.396
	0.382	0.380
	0.370	0.373
R3*	0.382	0.380
	0.395	0.388
	0.390	0.372
	0.378	0.365
R4*	0.387	0.396
	0.401	0.404
	0.395	0.388
	0.382	0.380
DR	0.367	0.358
	0.390	0.372
	0.386	0.359
	0.364	0.346

3500K Chromaticity Bins		
Bin Code (WW)	CIEx	CIey
ES	0.403	0.411
	0.435	0.427
	0.430	0.417
	0.400	0.402
S3*	0.394	0.385
	0.407	0.392
	0.402	0.375
	0.389	0.369
S4*	0.400	0.402
	0.415	0.409
	0.407	0.392
	0.394	0.385
T3*	0.407	0.392
	0.422	0.399
	0.415	0.381
	0.402	0.375
T4*	0.415	0.409
	0.430	0.417
	0.422	0.399
	0.407	0.392
DT	0.389	0.369
	0.415	0.381
	0.409	0.369
	0.385	0.357

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

3000K Chromaticity Bins		
Bin Code (WW)	CIEx	CIey
EU	0.435	0.427
	0.462	0.437
	0.456	0.426
	0.430	0.417
U3*	0.422	0.399
	0.434	0.403
	0.426	0.385
	0.415	0.381
U4*	0.430	0.417
	0.443	0.421
	0.434	0.403
	0.422	0.399
V3*	0.434	0.403
	0.447	0.408
	0.437	0.389
	0.426	0.385
V4*	0.443	0.421
	0.456	0.426
	0.447	0.408
	0.434	0.403
DV	0.415	0.381
	0.437	0.389
	0.431	0.377
	0.409	0.369

2700K Chromaticity Bins		
Bin Code (WW)	CIEx	CIey
EW	0.462	0.437
	0.488	0.444
	0.481	0.432
	0.456	0.426
W3*	0.447	0.408
	0.458	0.410
	0.448	0.392
	0.437	0.389
W4*	0.456	0.426
	0.469	0.429
	0.458	0.410
	0.447	0.408
Y3*	0.458	0.410
	0.70	0.413
	0.459	0.394
	0.448	0.392
Y4*	0.469	0.429
	0.481	0.432
	0.470	0.413
	0.458	0.410
DY	0.437	0.389
	0.459	0.394
	0.452	0.382
	0.431	0.377

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

SSM-80 Bin Kit Order Codes

The following tables describe the bin kit ordering codes for SSM-80 and SSR-80. The flux and chromaticity bins are also included in the bin kit. Each kit specifies a minimum flux and the listed chromaticity 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 bins. For information on ordering bin kits not listed below, please contact Luminus or an official distributor.

SSM-80 and SSR-80 Bin Kit Order Codes

Color	Luminous Flux		Chromaticity Bins	Kit Number
	Bin Kit Flux Code	Min. Flux		
White W40M 4000K, Moderate CRI (typ. 83)	MA	1,380	Q4, Q3, R4, R3, EQ, DR	MA 500
			Q4, Q3, R4, R3	MA 501
	LB	1,290	Q4, Q3, R4, R3, EQ, DR	LB 500
			Q4, Q3, R4, R3	LB 501
White W35M 3500K, Moderate CRI (typ. 83)	LB	1,290	S4, S3, T4, T3, ES, DT	LB 600
			S4, S3, T4, T3	LB 601
	LA	1,200	S4, S3, T4, T3, ES, DT	LA 600
			S4, S3, T4, T3	LA 601
White W30M 3000K, Moderate CRI (typ. 83)	LA	1,200	U4, U3, V4, V3, EU, DV	LA 700
			U4, U3, V4, V3	LA 701
	KB	1,120	U4, U3, V4, V3, EU, DV	KB 700
			U4, U3, V4, V3	KB 701
White W27M 2700K, Moderate CRI (typ. 83)	KB	1,120	W4, W3, Y4, Y3, EW, DY	KB 800
			W4, W3, Y4, Y3	KB 801
	KA	1,040	W4, W3, Y4, Y3, EW, DY	KA 800
			W4, W3, Y4, Y3	KA 801

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