

SST-50 LEDs

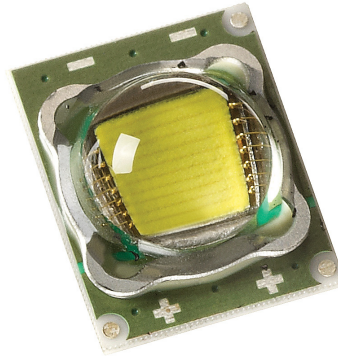


Table of Contents

Table of Products.....	2
Shipping and Labeling Nomenclature	3
Bin Kit Ordering Nomenclature	4
White Flux Binning Structure	5
White Chromaticity Binning Structure	5
SST-50 Bin Kit Ordering Codes	10

Introduction:

This document describes the binning and labeling nomenclature for SST-50 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
SST-50-W65S	SST-50-W65S-F21/T21-xx123	White Big Chip LED™ SST-50 surface mount device consisting of a 5mm ² LED on a ceramic substrate, F21-tray pack T21- Tape & Reel
SST-50-W57S	SST-50-W57S-F21/T21-xx123	
SST-50-WDLS	SST-50-WDLS-F21/T21-xx123	
SST-50-W45S	SST-50-W45S-F21/T21-xx123	
SST-50-40S	SST-50-W40S-F21/T21-xx123	
SST-50-WCLS	SST-50-WCLS-F21/T21-xx123	
SST-50-W30M	SST-50-W30M-F21/T21-xx123	
SST-50-WWRM	SST-50-WWRM-F21/T21-xx123	
SSR-50-W65S	SSR-50-W65S-R21-xx123	SSR-50 evaluation module consisting of a SST-50 surface mount device mounted on an aluminum star board
SSR-50-W57S	SSR-50-W57S-R21-xx123	
SSR-50-WDLS	SSR-50-WDLS-R21-xx123	
SSR-50-W45S	SSR-50-W45S-R21-xx123	
SSR-50-W40S	SSR-50-W0S-R21-xx123	
SSR-50-WCLS	SSR-50-WCLS-R21-xx123	
SSR-50-W30M	SSR-50-W30M-R21-xx123	
SSR-50-WWRM	SSR-50-WWRM-R21-xx123	

SST-50 Shipping and Labeling Nomenclature

All SST-50 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: "T" denotes single chip and "R" denotes prototyping board				
Chip Area	1 2 3 - Total LED chip area (mm ²) x 10: "50" denotes 5mm ²				
Color	D - Color: "W" denotes white 4 5 - Color temperature: "65" denotes 6500K, "DL" denotes daylight white (6500K through 5700K) etc. E - Color rendering: "S" (standard) denotes a typical CRI of 70, "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 SST-50-W65S-F21-J3-G4 refers to a 6500K standard CRI white, SST-50 emitter, with a flux range from 475 to 500 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).

SST-50 Bin Kit Ordering Nomenclature

All SST-50 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 Code
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Product Family	A - Package type: "S" denotes surface mount B - Lens type: "S" denotes dome C - Chip quantity: "T" denotes single chip and "R" denotes prototyping board
Chip Area	1 2 3 - Total LED chip area (mm ²) x 10: "50" denotes 5mm ²
Color	D - Color: "W" denotes white 4 5 - Color temperature: "65" denotes 6500K, "DL" denotes daylight white (6500K through 5700K) etc. E - Color rendering: "S" (standard) denotes a typical CRI of 70, "M" (moderate) denotes a typical CRI of 83
Package Config.	F 6 7 - Package configuration (for internal use)
Bin Kit Code	G H - Flux bin 8 9 0 - Chromaticity bin kit code

Example:

The ordering part number SST-50-W65S-F21-J3101 refers to a 6500K standard CRI white, SST-50 emitter, with a minimum flux value of 475 lumens and falling in the F4, F3, G4, G3, EF, and DG chromaticity bins.

SST-50 White Binning Structure

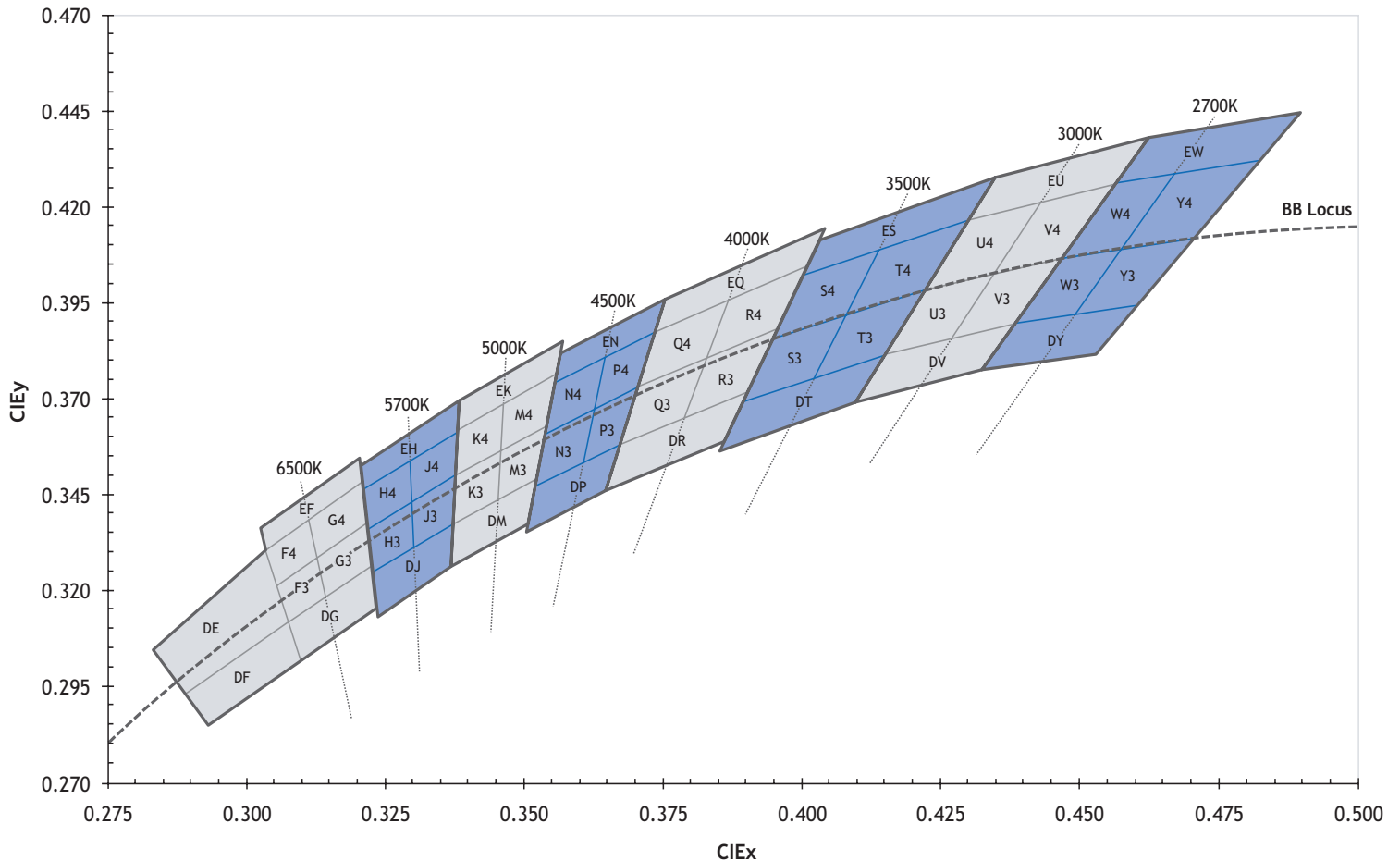
SST-50 LEDs are tested for luminous flux and chromaticity at a drive current of 1.75 A (350 mA/mm²) and placed into one of the following luminous flux (FF) and chromaticity (WW) bins:

Flux Bin (FF)	Minimum Flux (lm) @ 1.75A	Maximum Flux (lm) @ 1.75A
G2	300	325
G3	325	350
H	350	375
H2	375	400
H3	400	425
J	425	450
J2	450	475
J3	475	500
K	500	530

*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

5000K Chromaticity Bins		
Bin Code (WW)	CIE _x	CIE _y
EK	0.338	0.368
	0.356	0.384
	0.355	0.376
	0.338	0.362
K3*	0.337	0.349
	0.345	0.355
	0.345	0.343
	0.337	0.337
K4*	0.338	0.362
	0.347	0.369
	0.345	0.355
	0.337	0.349
M3*	0.345	0.355
	0.353	0.349
	0.352	0.372
	0.344	0.343
M4*	0.346	0.369
	0.355	0.376
	0.353	0.362
	0.345	0.355
DM	0.337	0.337
	0.352	0.349
	0.350	0.337
	0.336	0.326

4500K Chromaticity Bins		
Bin Code (WW)	CIE _x	CIE _y
EN	0.356	0.384
	0.376	0.396
	0.374	0.387
	0.355	0.374
N3*	0.353	0.360
	0.361	0.366
	0.359	0.352
	0.351	0.347
N4*	0.355	0.374
	0.364	0.381
	0.361	0.366
	0.353	0.360
P3*	0.361	0.366
	0.370	0.373
	0.367	0.358
	0.359	0.352
P4*	0.364	0.381
	0.374	0.387
	0.370	0.373
	0.361	0.366
DP	0.351	0.347
	0.367	0.358
	0.364	0.346
	0.350	0.335

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

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

SST-50 and SSR-50 Bin Kit Order Codes

The following tables describe the bin kit ordering codes for the SST-50 and SSR-50. 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.

SST-50 and SSR-50 Bin Kit Order Codes

Color	Luminous Flux		Chromaticity Bins	Kit Number
	Bin Kit Flux Code	Min. Flux		
White W65S 6500K, Standard CRI (typ. 70)	J	425	F4, F3, G4, G3, EF, DG, DE, DF	GJ100
			F4, F3, G4, G3, EF, DG	GJ101
			F4, F3, G4, G3	GJ102
	J2	450	F4, F3, G4, G3, EF, DG, DE, DF	J2100
			F4, F3, G4, G3, EF, DG	J2101
			F4, F3, G4, G3	J2102
	J3	475	F4, F3, G4, G3, EF, DG, DE, DF	J3100
			F4, F3, G4, G3, EF, DG	J3101
			F4, F3, G4, G3	J3102
	K	500	F4, F3, G4, G3, EF, DG, DE, DF	GK100
			F4, F3, G4, G3, EF, DG	GK101
			F4, F3, G4, G3	GK102
White WDLS 6500K & 5700K Standard CRI (typ. 70)	J	425	F4, F3, G4, G3, EF, DG, DE, DF H4, H3, J4, J3, EH, DJ	GJ150
	J2	450	F4, F3, G4, G3, EF, DG, DE, DF H4, H3, J4, J3, EH, DJ	J2150
	J3	475	F4, F3, G4, G3, EF, DG, DE, DF H4, H3, J4, J3, EH, DJ	J3150
	K	500	F4, F3, G4, G3, EF, DG, DE, DF H4, H3, J4, J3, EH, DJ	GK150
White W57S 5700K, Standard CRI (typ. 70)	J	425	H4, H3, J4, J3, EH, DJ	J200
			H4, H3, J4, J3	J201
	J2	450	H4, H3, J4, J3, EH, DJ	J2200
			H4, H3, J4, J3	J2201
	J3	475	H4, H3, J4, J3, EH, DJ	J3200
			H4, H3, J4, J3	J3201
	K	500	H4, H3, J4, J3, EH, DJ	GK200
			H4, H3, J4, J3	GK201



White W45S 4500K, Standard CRI (typ. 70)	H2	375	N4, N3, P4, P3, EN, DP	H2400
			N4, N3, P4, P3	H2401
	H3	400	N4, N3, P4, P3, EN, DP	H3400
			N4, N3, P4, P3	H3401
	J	425	N4, N3, P4, P3, EN, DP	GJ400
			N4, N3, P4, P3	GJ401
J2	450	N4, N3, P4, P3, EN, DP	J2400	
		N4, N3, P4, P3	J2401	
White WCLS 4500K & 4000K Standard CRI (typ. 70)	H2	375	N3, N4, P3, P4, DP, EN Q3, Q4, R3, R4, DR, EQ	H2450
	H3	400	N3, N4, P3, P4, DP, EN Q3, Q4, R3, R4, DR, EQ	H3450
	J	425	N3, N4, P3, P4, DP, EN Q3, Q4, R3, R4, DR, EQ	GJ450
	J2	450	N3, N4, P3, P4, DP, EN Q3, Q4, R3, R4, DR, EQ	J2450
White W40S 4000K, Standard CRI (typ. 70)	H2	375	Q4, Q3, R4, R3, EQ, DR	H2500
			Q4, Q3, R4, R3	H2501
	H3	400	Q4, Q3, R4, R3, EQ, DR	H3500
			Q4, Q3, R4, R3	H3501
	J	425	Q4, Q3, R4, R3, EQ, DR	GJ500
			Q4, Q3, R4, R3	GJ501
J2	450	Q4, Q3, R4, R3, EQ, DR	J2500	
		Q4, Q3, R4, R3	J2501	
White W30M 3000K, Moderate CRI (typ. 83)	G2	300	U4, U3, V4, V3, EU, DV	G2700
			U4, U3, V4, V3	G2701
	G3	325	U4, U3, V4, V3, EU, DV	G3700
			U4, U3, V4, V3	G3701
	H	350	U4, U3, V4, V3, EU, DV	GH700
			U4, U3, V4, V3	GH701
White WWRM 3000K & 2700K Moderate CRI (typ. 83)	G2	300	U3, U4, V3, V4, DV, EU W3, W4, Y3, Y4, DY, EW	G2750
	G3	325	U3, U4, V3, V4, DV, EU W3, W4, Y3, Y4, DY, EW	G3750
	H	350	U3, U4, V3, V4, DV, EU W3, W4, Y3, Y4, DY, EW	GH750

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