

## Legal and additional information.

### About Samsung Electronics Co., Ltd.

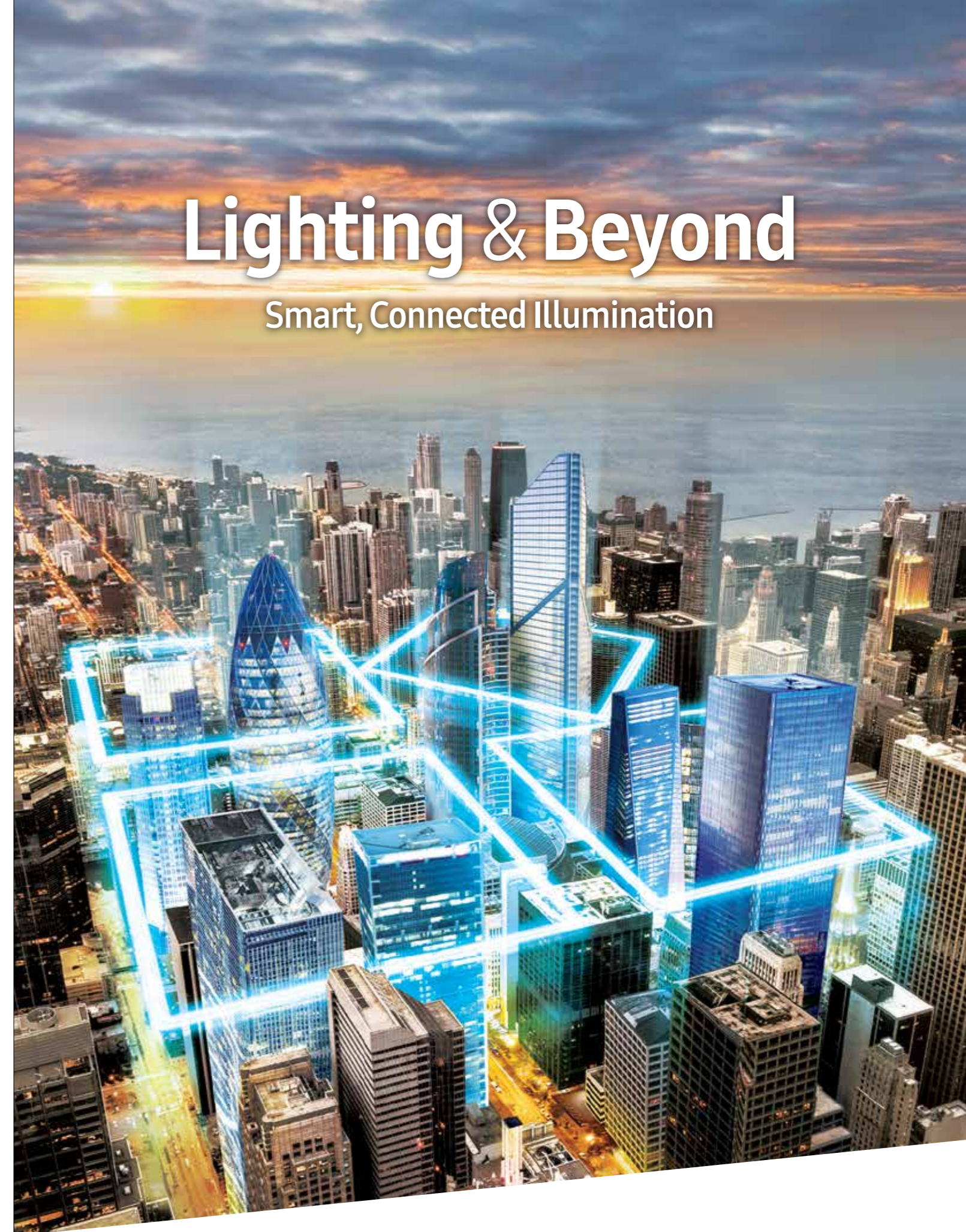
Samsung Electronics Co., Ltd. inspires the world and shapes the future with transformative ideas and technologies that redefine the worlds of TVs, smartphones, wearable devices, tablets, cameras, digital appliances, printers, medical equipment, network systems, and semiconductor and LED solutions. We are also leading in the Internet of Things space with the open platform SmartThings, our broad range of smart devices, and through proactive crossindustry collaboration. We employ 319,000 people across 84 countries with annual sales of US \$196 billion. To discover more, and for the latest news, feature articles and press material, please visit the Samsung Newsroom at [news.samsung.com](http://news.samsung.com).

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**SAMSUNG**



# Lighting & Beyond

Smart, Connected Illumination

| Samsung LED Component

**SAMSUNG**



# Overview & Technology

Samsung Electronics Co., Ltd. is a global leader in consumer electronics and the core components that go into them.

## Overview

Samsung's global network extends across the world where the creativity, expertise and diverse perspectives of employees are helping to drive growth.

\* As of December 2015

Manufacturing Subsidiaries	32
R&D	33
Design Centers	6
Regional Headquarters	14

77 Countries

## Brand Value

Ranked 7th in Global Brand Value, Samsung recorded a brand value of \$45.3 Billion in 2015.

\* Source : Interbrand / Business Week

Rank	Company	Rank	Company	Rank	Company	Rank	Company
1	Coca-Cola	1	Coca-Cola	1	Apple	5	IBM
2	IBM	2	Apple	2	Google	6	Toyota
3	Apple	3	IBM	3	Coca-Cola	7	Samsung Electronics
4	Google	4	Google	4	IBM	8	GE
				9	Intel	9	McDonald's
				10	Toyota		
17	Samsung Electronics	19	Nokia				
35	Sony	20	Amazon				
41	Phillips						

## Intellectual Property

In 2015, Samsung registered 5,072 new patents at the U.S. Patent & Trade Office. This placed it as the second-highest U.S. patent winner, a position it has held for the 10 consecutive years since 2006.

\* As of December 2015



2015 US Patents Registration

\* Source: The U.S. Patent and Trademark Office (USPTO)

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Samsung aspires to create new technologies and innovative products that inspire the world, while delivering new value to enhance the lives of customers, partners and employees.

## Vertical Integration

Unique company that has full in-house solutions from raw material to Light Engines and Smart Lighting Platform



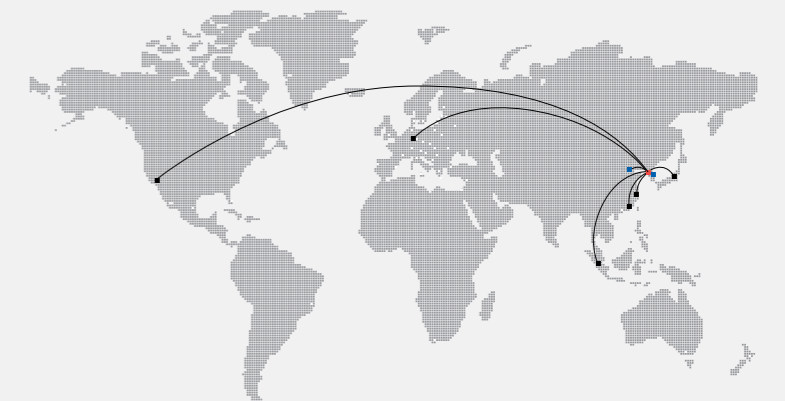
## High Reliability

Quality management & design verification system for optimizing time-to-market



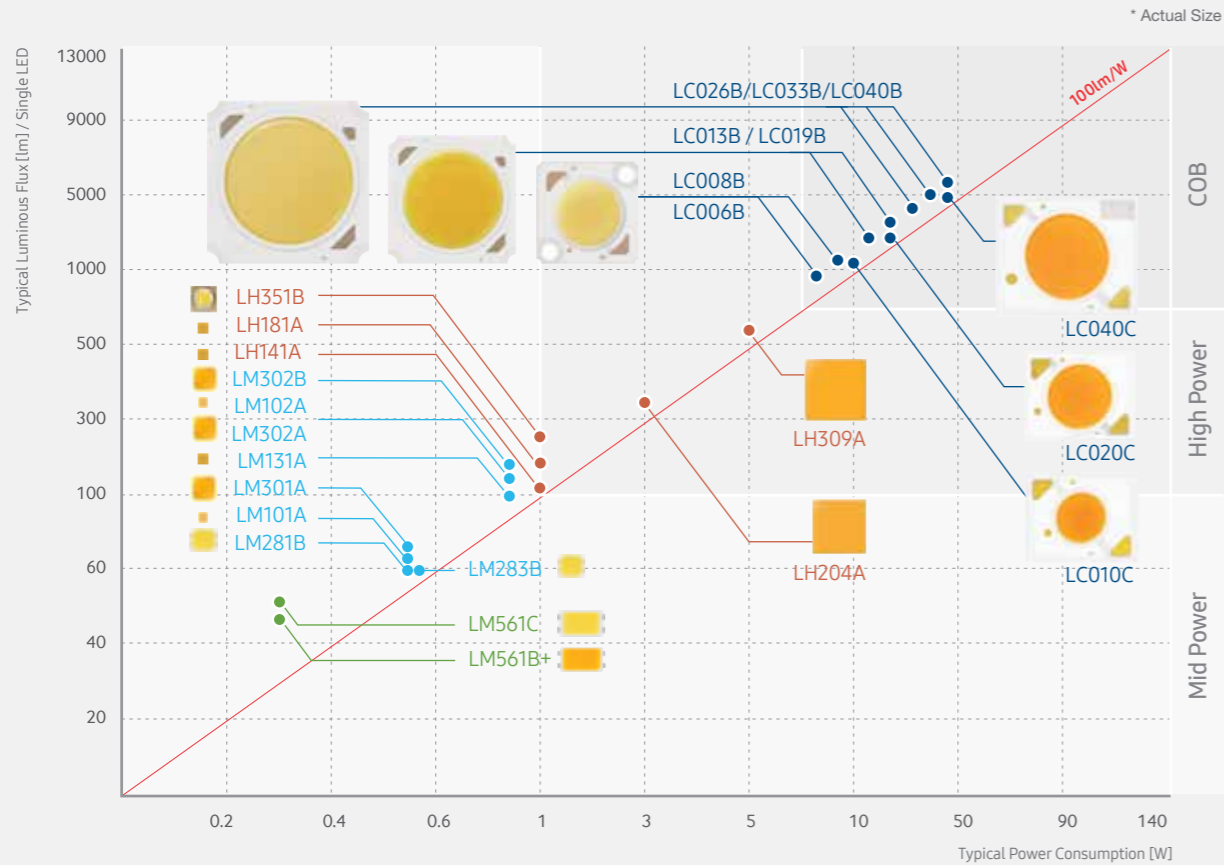
## World Best SCM

Reliable, on-time delivery without delays



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# Samsung LED Line-up for illumination



## Mid Power LED (0.3W)

- High efficacy
- Replacement for fluorescent lamps
- LED Tube, Ambient Light

## High Power LED

- Ultra High Flux
- Provides excellent color consistency
- Spotlight, Street Light

## Mid Power LED (~1W)

- High flux & better lm/\$
- Replacement for incandescent lamps
- Retrofit Bulb, MR/PAR, Downlight

## COB

- Chip on Board solution
- Outstanding color rendering & consistency
- Spotlight, High Bay & Low Bay Light

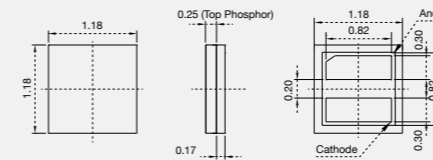
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# CSP

## LM101A

Compact form factor for design flexibility

- 1 W class mid power LED
- Compact footprint: 1.18 mm x 1.18 mm



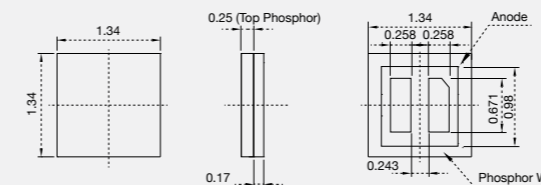
CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Max.		
70	3000	55	67	150	SCS7VT78EPL1V0S06E
	3500	55	67		SCS7UT78EPL1U0S06E
	4000	59	71		SCS7TT78EPL1T0S06E
	5000	59	71		SCS7RT78EPL1R0S06E
	5700	59	71		SCS7QT78EPL1Q0S06E
	6500	59	71		SCS7PT78EPL1P0S06E
80	2700	47	59	SCS8WT78EPL1W0S06E	
	3000	51	63	SCS8VT78EPL1V0S06E	
	3500	51	63	SCS8UT78EPL1U0S06E	
	4000	51	63	SCS8TT78EPL1T0S06E	
	5000	55	67	SCS8RT78EPL1R0S06E	
	5700	51	63	SCS8QT78EPL1Q0S06E	
90	6500	51	63	SCS8PT78EPL1P0S06E	
	2700	35	47	SCS9WT78EPL1W0S06E	
	3000	35	47	SCS9VT78EPL1V0S06E	
	3500	39	51	SCS9UT78EPL1U0S06E	

※ Bin option is available, please refer to data sheet for more details.

## LM102A

Compact form factor for design flexibility

- 1 W class mid power LED
- Compact footprint: 1.34 mm x 1.34 mm



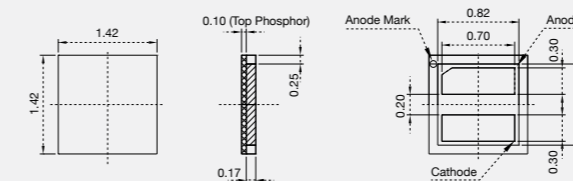
CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Max.		
70	3000	103	119	150	SCS7VT93HPL2V0S03F
	3500	103	119		SCS7UT93HPL2U0S03F
	4000	119	135		SCS7TT93HPL2T0S03F
	5000	119	135		SCS7RT93HPL2R0S03F
	5700	127	143		SCS7QT93HPL2Q0S03F
	6500	127	143		SCS7PT93HPL2P0S03F
80	2700	95	111	SCS8WT93HPL2W0S03F	
	3000	95	111	SCS8VT93HPL2V0S03F	
	3500	103	119	SCS8UT93HPL2U0S03F	
	4000	111	127	SCS8TT93HPL2T0S03F	
	5000	111	127	SCS8RT93HPL2R0S03F	
	5700	111	127	SCS8QT93HPL2Q0S03F	
90	6500	111	127	SCS8PT93HPL2P0S03F	
	2700	71	87	SCS9VT93HPL2V0S03F	
	3000	63	79	SCS9VT93HPL2V0S03F	
	3500	79	95	SCS9UT93HPL2U0S03F	

※ Bin option is available, please refer to data sheet for more details.

## LM131A

Compact form factor for design flexibility

- 1W class mid power LED with white side wall
- Completed 6,000 hours of LM-80 testing @ 350 mA, 105 °C
- Compact footprint: 1.42 mm x 1.42 mm



CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Max.		
80	2700	82	106	300	SCS8WT78EFL1W08ECK
	3000	86	110		SCS8VT78EFL1V09FCK
	4000	94	118		SCS8TT78EFL1T0BHCK
	5000	98	122		SCS8RT78EFL1R0CICK
	6500	94	118		SCS8PT78EFL1P0BHCK

※ Bin option is available, please refer to data sheet for more details.

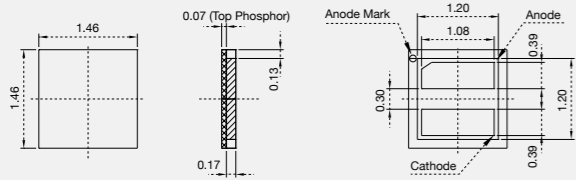
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# CSP

## LH141A

Samsung flip chip provides optimized solution for torch / flash light

- 2 W class high power LED
- Phosphor film directly attached to flip chip surface
- Plastic-free structure delivers low thermal resistance
- Compact footprint: 1.46 mm x 1.46 mm



[300mA, 25°C]

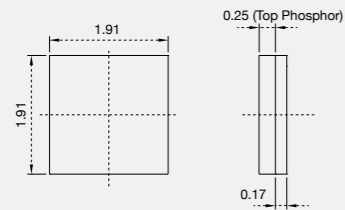
CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Typ.		
68	5000	110	135	350	SCS6RTB6EFL1R0FZ6K
	6000	110	131		SCS6JTB6EFL1J0FZ6K
	7600	110	124		SCS6NTB6EFL1N0FZ6K

※ Bin option is available, please refer to data sheet for more details.

## LH181A

Compact form factor for design flexibility

- 1W class high power LED
- High performance and superior lm/\$
- Compact form factor: 1.9 mm x 1.9 mm



[350mA, 85°C]

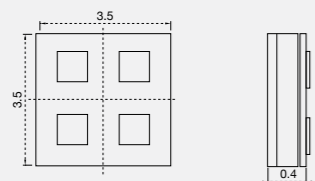
CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Typ.			
80	2700	133		350	SCS8W7FFHPL1W0XX6K
	4000	158			SCS7T7FFHPL1T0XX6K
	5000	160			SCS7R7FFHPL1RTXX6K

※ Bin option is available, please refer to data sheet for more details.

## LH204A

Compact form factor for design flexibility

- 3-5W class high power LED
- 2x2 CSP array provides high flux and great CBCP
- Compact form factor: 3.5 mm x 3.5 mm



[150mA, 85°C]

CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Typ.		
90	2700	176		150	SPHWHTCAN50GW1W0XX
	3000	181			SPHWHTCAN50GW1V0XX
	2700	215			SPHWHTCAN50EW1W0XX
80	3000	221		150	SPHWHTCAN50EW1V0XX
	3500	228			SPHWHTCAN50EW1U0XX
	4000	233			SPHWHTCAN50EW1T0XX
	5000	239			SPHWHTCAN50EW1R0XX

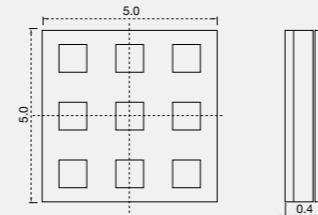
※ Bin option is available, please refer to data sheet for more details.

# CSP / Mid Power LEDs

## LH309A

Compact form factor for design flexibility

- 5-10W class high power LED
- 3x3 CSP array provides high flux and great CBCP
- Compact form factor: 5.0 mm x 5.0 mm



[150mA, 85°C]

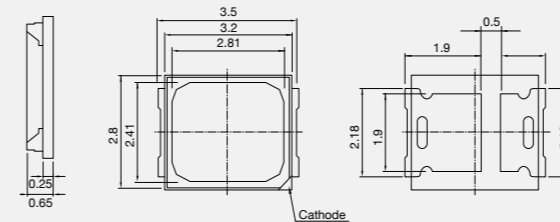
CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Typ.			
90	2700	406		150	SPHWHTCAN00GX5W0XX
	3000	419			SPHWHTCAN00GX5V0XX
	2700	495			SPHWHTCAN00EX5W0XX
80	3000	509		150	SPHWHTCAN00EX5V0XX
	3500	527			SPHWHTCAN00EX5U0XX
	4000	537			SPHWHTCAN00EX5T0XX
	5000	552			SPHWHTCAN00EX5R0XX

※ Bin option is available, please refer to data sheet for more details.

## LM281B

Designed for better lm/\$, downlights and ambient lights

- 0.5 W class mid power LED
- Standard footprint: 2.8 mm x 3.5 mm



[150mA, 25°C]

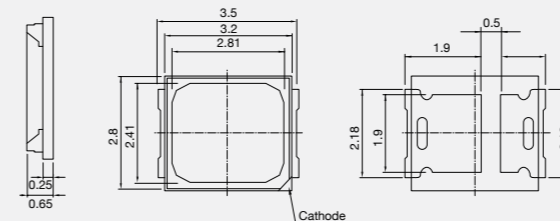
CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Max.		
80	2700	53.3	65.3	150	SPMWH1228FD5WAW0S3
	3000	54.3	66.3		SPMWH1228FD5WAV0S3
	3500	55.3	67.3		SPMWH1228FD5WAW0S3
	4000	57.3	69.3		SPMWH1228FD5WAT0S3
	5000	59.3	71.3		SPMWH1228FD5WAR0S3
	5700	58.3	70.3		SPMWH1228FD5WAQ0S3
6500	57.3	69.3	SPMWH1228FD5WAP0S3		

※ Bin option is available, please refer to data sheet for more details.

## LM283B

Designed for better lm/\$, lamps and downlights

- 0.5 W class mid power LED (9V)
- Standard footprint: 2.8 mm x 3.5 mm



[100mA, 25°C]

CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Max.		
80	2700	98	118	100	SPMWH1229AD5SGW0SA
	3000	100	120		SPMWH1229AD5SGV0SA
	3500	103	123		SPMWH1229AD5SGU0SA
	4000	105	125		SPMWH1229AD5SGT0SA
	5000	110	130		SPMWH1229AD5SGR0SA
	5700	108	128		SPMWH1229AD5SGQ0SA
6500	105	125	SPMWH1229AD5SGP0SA		

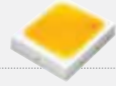
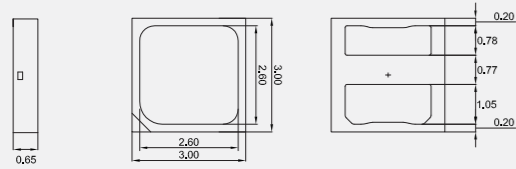
※ Bin option is available, please refer to data sheet for more details.

# Mid Power LEDs

## LM301A

Designed for best lm/\$, high bay & down light

- Mid-high power LED
- EMC resin for high reliability
- Standard footprint: 3.0 mm x 3.0 mm



[150mA, 85°C]

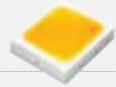
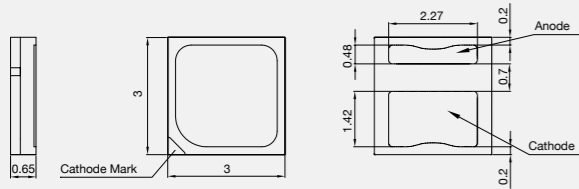
CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Max.		
80	2700	50	58	150	SPMWHT328FD5WAW0S0
	3000	54	62		SPMWHT328FD5WAV0S0
	3500	54	62		SPMWHT328FD5WAU0S0
	4000	58	66		SPMWHT328FD5WAT0S0
	5000	58	66		SPMWHT328FD5WAR0S0
70	5700	58	66	SPMWHT328FD5WAQ0S0	
	6500	58	66	SPMWHT328FD5WAP0S0	
	2700	54	62	SPMWHT328FD3WAW0S0	
	3000	58	66	SPMWHT328FD3WAV0S0	
	3500	58	66	SPMWHT328FD3WAU0S0	
4000	62	70	SPMWHT328FD3WAT0S0		
5000	62	70	SPMWHT328FD3WAR0S0		
5700	62	70	SPMWHT328FD3WAQ0S0		
6500	62	70	SPMWHT328FD3WAP0S0		

※ Bin option is available, please refer to data sheet for more details.

## LM302A

Designed for better lm/\$, lamps & down lights

- 1 W class mid-high power LED (6V)
- EMC resin for high reliability
- Standard footprint: 3.0 mm x 3.0 mm



[150mA, 25°C]

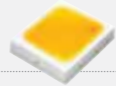
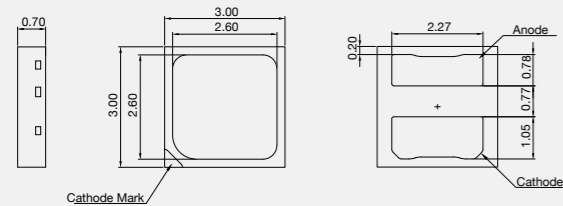
CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Max.		
90	2700	88	96	150	SPMWHT327FD7GBW0S0
	3000	85	101		SPMWHT327FD7GBV0S0
	3500	87	103		SPMWHT327FD7GBU0S0
	4000	89	103		SPMWHT327FD7GBT0S0
	5000	89	105		SPMWHT327FD7GBR0S0
80	5700	85	101	SPMWHT327FD7GBQ0S0	
	6500	83	99	SPMWHT327FD7GBP0S0	
	2700	102	126	SPMWHT327FD5GBW0S0	
	3000	104	128	SPMWHT327FD5GBV0S0	
	3500	107	131	SPMWHT327FD5GBU0S0	
70	4000	109	133	SPMWHT327FD5GBT0S0	
	5000	113	137	SPMWHT327FD5GBR0S0	
	5700	111	135	SPMWHT327FD5GBQ0S0	
	6500	109	133	SPMWHT327FD5GBP0S0	
	3000	112	128	SPMWHT327FD3GBV0S0	
4000	117	133	SPMWHT327FD3GBT0S0		
5000	121	137	SPMWHT327FD3GBR0S0		
5700	119	135	SPMWHT327FD3GBQ0S0		

※ Bin option is available, please refer to data sheet for more details.

## LM302B

Designed for best lm/\$, High & Low bay & down light

- Superior mid power LED with wide over-drive range up to 1.5W
- Mold resin for high reliability
- Standard footprint: 3.0 mm x 3.0mm



[150mA, 85°C]

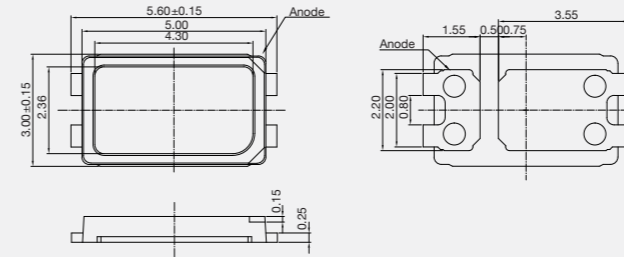
CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Max.		
80	2700	100	116	150	SPMWHT329FD5YBW0S0
	3000	100	116		SPMWHT329FD5YBV0S0
	3500	108	124		SPMWHT329FD5YBU0S0
	4000	116	132		SPMWHT329FD5YBT0S0
	5000	116	132		SPMWHT329FD5YBR0S0
70	5700	116	132	SPMWHT329FD5YBQ0S0	
	6500	116	132	SPMWHT329FD5YBP0S0	

※ Bin option is available, please refer to data sheet for more details.

## LM561B Plus

Improved efficacy and performance of LM561B to provide better solution

- 0.3 W class mid power LED
- High efficacy for distributed light
- Standard footprint: 5.6 mm x 3.0 mm



[65mA, 25°C]

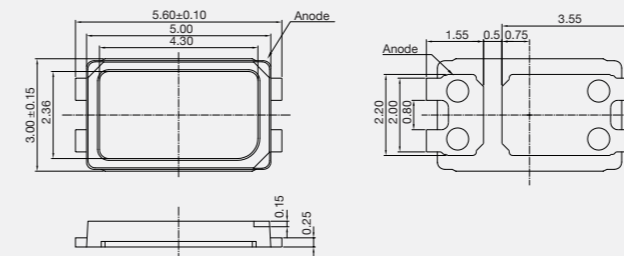
CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Max.		
90	2700	22	28	65	SPMWHT541MP7WAW0S0
	3000	22.5	28.5		SPMWHT541MP7WAV0S0
	3500	23	29		SPMWHT541MP7WAU0S0
	4000	24	30		SPMWHT541MP7WAT0S0
	5000	25	31		SPMWHT541MP7WAR0S0
80	5700	24.5	30.5	SPMWHT541MP7WAQ0S0	
	6500	24	30	SPMWHT541MP7WAP0S0	
	2700	30	32	SPMWHT541MP5WAW0S0	
	3000	30.5	32.5	SPMWHT541MP5WAV0S0	
	3500	31	33	SPMWHT541MP5WAU0S0	
MacAdam 3 step	4000	32	34	SPMWHT541MP5WAT0S0	
	5000	33	35	SPMWHT541MP5WAR0S0	
	5700	32.5	34.5	SPMWHT541MP5WAQ0S0	
	6500	32	34	SPMWHT541MP5WAP0S0	
	2700	30	34	SPMWHT541MP5WAWUS0	
3000	30.5	34.5	SPMWHT541MP5WAVUS0		
3500	31	35	SPMWHT541MP5WAUUS0		
4000	32	36	SPMWHT541MP5WATUS0		
5000	33	37	SPMWHT541MP5WARUS0		
5700	32.5	36.5	SPMWHT541MP5WAQUS0		
6500	32	36	SPMWHT541MP5WAPUS0		

※ Bin option is available, please refer to data sheet for more details.

## LM561C

Highest performance, highest lm/W for fluorescent lamp replacement

- 0.3 W class mid power LED
- Highest efficacy: 201 lm/W @ 65 mA, 5000 K, 80 CRI, 25°C
- Standard footprint: 5.6 mm x 3.0 mm



[65mA, 25°C]

CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Max.		
80	2700	30	34	65	SPMWHT541ML5XAW0S0
	3000	30.5	34.5		SPMWHT541ML5XAV0S0
	3500	31	35		SPMWHT541ML5XAU0S0
	4000	32	36		SPMWHT541ML5XAT0S0
	5000	33	37		SPMWHT541ML5XAR0S0
MacAdam 3 step	5700	32.5	36.5	SPMWHT541ML5XAQ0S0	
	6500	32	36	SPMWHT541ML5XAP0S0	
	2700	30	34	SPMWHT541ML5XAWUS0	
	3000	30.5	34.5	SPMWHT541ML5XAVUS0	
	3500	31	35	SPMWHT541ML5XAUUS0	
4000	32	36	SPMWHT541ML5XATUS0		
5000	33	37	SPMWHT541ML5XARUS0		
5700	32.5	36.5	SPMWHT541ML5XAQUS0		
6500	32	36	SPMWHT541ML5XAPUS0		

※ Bin option is available, please refer to data sheet for more details.



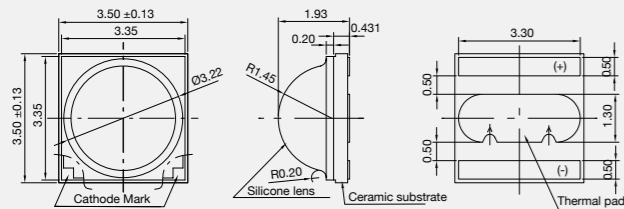
# High Power LEDs

## LH351B



High performance for outdoors & directional lighting applications

- Operates at a maximum current of up to 1.5A
- High efficacy outdoor solution (Delivering set efficacy over 110lm/W@700mA)
- Excellent efficacy : 172lm/W @350mA, 85°C 5000K
- LM80 Certified @ 1A, 105°C (Ts) (L70>60,000 @ 1A)
- Footprint: 3.5 mm x 3.5 mm



[350mA, 85°C]

CRI Min.	CCT (K)	Luminous Flux (lm)		IF (mA)	Part Number
		Min.	Max.		
90	2700	90	120	350	SPHWH2L3D30GD4W0F3
		100	130		SPHWH2L3D30GD4W0G3
	3000	90	120		SPHWH2L3D30GD4V0F3
		100	130		SPHWH2L3D30GD4V0G3
	3500	100	130		SPHWH2L3D30GD4U0G3
		110	140		SPHWH2L3D30GD4U0H3
80	2700	110	140	SPHWH2L3D30ED4W0H3	
		120	150	SPHWH2L3D30ED4W0J3	
	3000	110	140	SPHWH2L3D30ED4V0H3	
		120	150	SPHWH2L3D30ED4V0J3	
	3500	120	150	SPHWH2L3D30ED4V0K3	
		130	160	SPHWH2L3D30ED4V0L3	
75	4000	120	150	SPHWH2L3D30ED4U0K3	
		130	160	SPHWH2L3D30ED4U0L3	
	5000	120	150	SPHWH2L3D30ED4T0J3	
		130	160	SPHWH2L3D30ED4T0K3	
	5000	140	170	SPHWH2L3D30ED4T0M3	
		140	170	SPHWH2L3D30ED4R0M3	
70	5000	140	170	SPHWH1L3D30DD4RTM3	
		150	180	SPHWH1L3D30DD4RTN3	
	5700	140	170	SPHWH2L3D30DD4QTM3	
		150	180	SPHWH2L3D30DD4QTN3	
	6500	140	170	SPHWH2L3D30CD4V0K3	
		140	170	SPHWH2L3D30CD4V0M3	
65	4000	140	170	SPHWH2L3D30CD4T0M3	
		150	180	SPHWH2L3D30CD4T0N3	
	5000	140	170	SPHWH2L3D30CD4RTM3	
		150	180	SPHWH2L3D30CD4RTN3	
	5700	140	170	SPHWH2L3D30CD4RTP3	
		140	170	SPHWH2L3D30CD4QTM3	
65	5700	150	180	SPHWH2L3D30CD4QTN3	
		140	170	SPHWH2L3D30CD4PTM3	
	6500	150	180	SPHWH2L3D30CD4PTN3	
		140	170	SPHWH2L3D30BD4T0M3	
	5000	150	180	SPHWH2L3D30BD4T0N3	
		160	190	SPHWH2L3D30BD4T0P3	
65	5000	150	180	SPHWH2L3D30BD4RTN3	
		160	190	SPHWH2L3D30BD4RTP3	
	5700	160	190	SPHWH2L3D30BD4RTQ3	
		150	180	SPHWH2L3D30BD4QTN3	
	6500	160	190	SPHWH2L3D30BD4QTP3	
		150	180	SPHWH2L3D30BD4PTN3	
160	190	SPHWH2L3D30BD4PTP3			

※ Bin option is available, please refer to data sheet for more details.

# COB LEDs

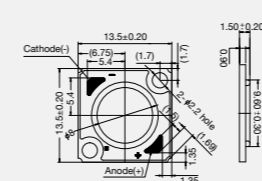
## LC Series

High efficacy COB LED package with High performance, well-suited for use in spotlight applications

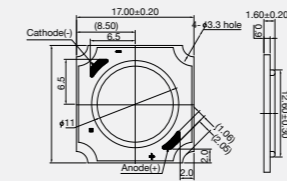
- Chip on Board (COB) solution makes it easy to design in
- Simple assembly reduces manufacturing cost
- Low thermal resistance
- InGaN/GaN MQW LED with long time reliability
- Completed 6,000 hours of LM-80 testing



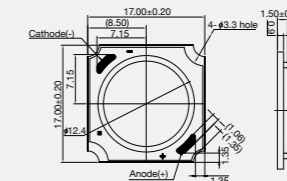
	Standard COB				Small LES COB					
	LC006B	LC008B	LC013B	LC019B	LC026B	LC033B	LC040B	LC010C	LC020C	LC040C
LES	8 mm		11 mm	12.4 mm	17 mm			6 mm	8 mm	11 mm
Typical	35.5 V @25°C		35.5 V @25°C		35.5 V @25°C			34.5 V @85°C		
Max.	6.4 W (180 mA)	8.6 W (240 mA)	12.8 W (360 mA)	19.2 W (540 mA)	25.6 W (720 mA)	32 W (900 mA)	38.3 W (1,080 mA)	9.3 W (270 mA)	18.6 W (540 mA)	37.3 W (1,080 mA)
Size	13.5 x 13.5 mm		17.0 x 17.0 mm		21.5 x 21.5 mm			12.0 x 15.0 mm		16.0 x 19.0 mm



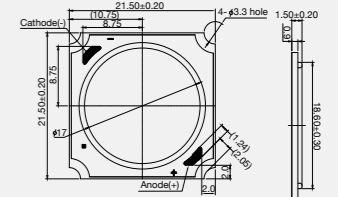
LC006B / LC008B



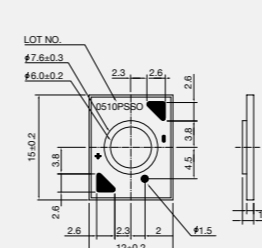
LC013B



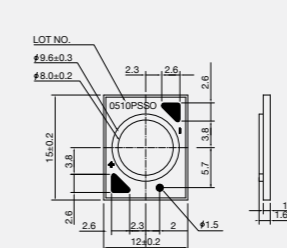
LC019B



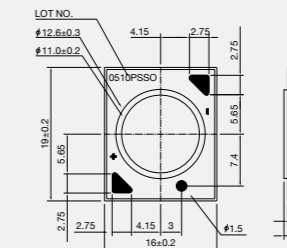
LC026B / LC033B / LC040B



LC010C



LC020C



LC040C

# COB LEDs | Standard COB Gen2

Product	CRI Min.	CCT (K)	Tc = 25°C		Tc = 85°C		IF (mA)	Part Number
			Luminous Flux Typ. (lm)	Luminous Efficacy Typ. (lm/W)	Luminous Flux Typ. (lm)	Luminous Efficacy Typ. (lm/W)		
LC006B	Vivid	3000	800	125	728	118	180	SPHWW1HDN82VYHV3CF
		3500	816	128	742	120		SPHWW1HDN82VYHU3CF
		4000	824	129	749	121		SPHWW1HDN82VYHT3CF
	95	2700	683	107	622	101		SPHWW1HDN82YHV3CC
		3000	704	110	641	104		SPHWW1HDN82YHV3CC
		3500	726	114	660	107		SPHWW1HDN82YHU3CC
	90	2700	768	120	698	113		SPHWW1HDN82YHV3CG
		3000	800	125	728	118		SPHWW1HDN82YHV3CG
		3500	816	128	742	120		SPHWW1HDN82YHU3CG
	80	4000	824	129	749	121		SPHWW1HDN82YHT3CG
		2700	914	143	832	134		SPHWW1HDN82YHV3EE
		3000	952	149	866	140		SPHWW1HDN82YHV3EE
70	3500	971	152	884	143	SPHWW1HDN82YHU3EE		
	4000	990	155	901	146	SPHWW1HDN82YHT3EE		
	5000	980	153	892	144	SPHCW1HDN82YHRT3EE		
LC008B	Vivid	3000	1,091	124	992	117	240	SPHWW1HDN94VYHV3FG
		3500	1,112	127	1,012	119		SPHWW1HDN94VYHU3FG
		4000	1,123	128	1,022	121		SPHWW1HDN94VYHT3FG
	95	2700	932	106	848	100		SPHWW1HDN94YHV3EC
		3000	961	110	874	103		SPHWW1HDN94YHV3EC
		3500	990	113	900	106		SPHWW1HDN94YHU3EC
	90	2700	1,047	120	953	112		SPHWW1HDN94YHV3FG
		3000	1,091	124	992	117		SPHWW1HDN94YHV3FG
		3500	1,112	127	1,012	119		SPHWW1HDN94YHU3FG
	80	4000	1,123	128	1,022	121		SPHWW1HDN94YHT3FG
		2700	1,246	142	1,134	134		SPHWW1HDN94YHV3KH
		3000	1,298	148	1,181	139		SPHWW1HDN94YHV3KH
70	3500	1,324	151	1,205	142	SPHWW1HDN94YHU3KH		
	4000	1,351	154	1,229	145	SPHWW1HDN94YHT3KH		
	5000	1,337	153	1,217	143	SPHCW1HDN94YHRTKH		
LC013B	Vivid	3000	1,337	153	1,203	142	360	SPHWW1HDN94YHVTMG
		3500	1,371	157	1,244	146		SPHWW1HDN94YHTMG
		4000	1,404	160	1,264	149		SPHCW1HDN94YHRTMG
	95	2700	1,417	162	1,276	150		SPHWW1HDNA2VYHV31F
		3000	1,632	128	1,485	120		SPHWW1HDNA2VYHU31F
		3500	1,664	130	1,515	122		SPHWW1HDNA2VYHT31F
	90	4000	1,681	132	1,529	124		SPHWW1HDNA2YHV31E
		2700	1,394	109	1,269	103		SPHWW1HDNA2YHU31E
		3000	1,437	112	1,308	106		SPHWW1HDNA2YHT31E
	80	3500	1,481	116	1,347	109		SPHWW1HDNA2YHV31G
		4000	1,566	123	1,425	115		SPHWW1HDNA2YHU31G
		5000	1,632	128	1,485	120		SPHWW1HDNA2YHT31G
70	3000	1,664	130	1,515	122	SPHWW1HDNA25YHV31E		
	3500	1,681	132	1,529	124	SPHWW1HDNA25YHU31E		
	4000	1,865	146	1,697	137	SPHWW1HDNA25YHT31E		
80	3000	1,943	152	1,768	143	SPHWW1HDNA25YHV31E		
	3500	1,981	155	1,803	146	SPHWW1HDNA25YHU31E		
	4000	2,021	158	1,839	149	SPHWW1HDNA25YHT31E		
70	5000	2,001	157	1,821	147	SPHCW1HDNA25YHRT1E		
	3000	2,001	157	1,801	146	SPHCW1HDNA25YHQT1E		
	4000	2,101	164	1,891	153	SPHWW1HDNA23YHVT1F		
70	4000	2,101	164	1,891	153	SPHWW1HDNA23YHTT1F		
	5000	2,121	166	1,909	154	SPHCW1HDNA23YHRT1F		

※ Bin option is available, please refer to data sheet for more details.



Product	CRI Min.	CCT (K)	Tc = 25°C		Tc = 85°C		IF (mA)	Part Number
			Luminous Flux Typ. (lm)	Luminous Efficacy Typ. (lm/W)	Luminous Flux Typ. (lm)	Luminous Efficacy Typ. (lm/W)		
LC019B	Vivid	3000	2,399	125	2,183	118	540	SPHWW1HDNB2VYHV32J
		3500	2,447	128	2,226	120		SPHWW1HDNB2VYHU32J
		4000	2,471	129	2,248	121		SPHWW1HDNB2VYHT32J
	95	2700	2,050	107	1,865	101		SPHWW1HDNB2YHV31F
		3000	2,113	110	1,923	104		SPHWW1HDNB2YHV31F
		3500	2,177	114	1,981	107		SPHWW1HDNB2YHU31F
	90	2700	2,303	120	2,095	113		SPHWW1HDNB2YHV32K
		3000	2,399	125	2,183	118		SPHWW1HDNB2YHV32K
		3500	2,447	128	2,226	120		SPHWW1HDNB2YHT32K
	80	4000	2,471	129	2,248	121		SPHWW1HDNB2YHT32K
		2700	2,741	143	2,495	134		SPHWW1HDNB25YHV31H
		3000	2,856	149	2,599	140		SPHWW1HDNB25YHU31H
70	3500	2,913	152	2,651	143	SPHWW1HDNB25YHT31H		
	4000	2,971	155	2,704	146	SPHWW1HDNB25YHT31H		
	5000	2,941	153	2,677	144	SPHCW1HDNB25YHRT1H		
LC026B	Vivid	3000	3,264	128	2,970	120	720	SPHWW1HDNC2VYHV32F
		3500	3,329	130	3,029	122		SPHWW1HDNC2VYHU32F
		4000	3,361	132	3,059	124		SPHWW1HDNC2VYHT32F
	95	2700	2,789	109	2,538	103		SPHWW1HDNC28YHV32F
		3000	2,875	112	2,616	106		SPHWW1HDNC28YHU32F
		3500	2,961	116	2,695	109		SPHWW1HDNC28YHT32F
	90	2700	3,133	123	2,851	115		SPHWW1HDNC27YHV32G
		3000	3,264	128	2,970	120		SPHWW1HDNC27YHU32G
		3500	3,329	130	3,029	122		SPHWW1HDNC27YHT32G
	80	4000	3,361	132	3,059	124		SPHWW1HDNC27YHT32G
		2700	3,730	146	3,394	137		SPHWW1HDNC25YHV32H
		3000	3,885	152	3,535	143		SPHWW1HDNC25YHU32H
70	3500	3,963	155	3,606	146	SPHWW1HDNC25YHT32H		
	4000	4,042	158	3,678	149	SPHWW1HDNC25YHT32H		
	5000	4,002	157	3,642	147	SPHCW1HDNC25YHRT2H		
LC033B	Vivid	3000	4,002	157	3,642	147	900	SPHCW1HDNC25YHQT2H
		3500	4,002	157	3,642	147		SPHWW1HDNC23YHVT3F
		4000	4,202	164	3,782	153		SPHWW1HDNC23YHTT3F
	95	2700	4,242	166	3,818	154		SPHCW1HDNC23YHRT3F
		3000	4,018	126	3,657	118		SPHWW1HDND2VYHV33P
		3500	4,099	128	3,730	121		SPHWW1HDND2VYHU33P
	90	4000	4,139	130	3,766	122		SPHWW1HDND2VYHT33P
		2700	3,434	107	3,125	101		SPHWW1HDND28YHV33J
		3000	3,540	111	3,221	104		SPHWW1HDND28YHU33J
	80	3500	3,646	114	3,318	107		SPHWW1HDND28YHT33J
		2700	3,857	121	3,510	113		SPHWW1HDND27YHV33Q
		3000	4,018	126	3,657	118		SPHWW1HDND27YHU33Q
70	3500	4,099	128	3,730	121	SPHWW1HDND27YHT33Q		
	4000	4,139	130	3,766	122	SPHWW1HDND27YHT33Q		
	2700	4,592	144	4,179	135	SPHWW1HDND25YHV33H		
90	3000	4,784	150	4,353	141	SPHWW1HDND25YHU33H		
	3500	4,879	153	4,440	144	SPHWW1HDND25YHT33H		
	4000	4,977	156	4,529	146	SPHWW1HDND25YHT33H		
80	5000	4,927	154	4,484	145	SPHCW1HDND25YHRT3H		
	3000	4,927	154	4,484	145	SPHCW1HDND25YHQT3H		
	4000	5,173	162	4,656	151	SPHWW1HDND23YHVT4P		
95	5000	5,223	163	4,700	152	SPHWW1HDND23YHTT4P		
	3000	4,773	124	4,343	117	SPHCW1HDND23YHRT4P		
	3500	4,868	127	4,430	119	SPHWW1HDNE2VYHV34J		
90	4000	4,916	128	4,474	121	SPHWW1HDNE2VYHU34J		
	2700	4,079	106	3,711	100	SPHWW1HDNE2VYHT34J		
	3000	4,205	110	3,826	103	SPHWW1HDNE28YHV33M		
80	3500	4,331	113	3,941	106	SPHWW1HDNE28YHU33M		
	4000	4,582	120	4,170	112	SPHWW1HDNE28YHT33M		
	3000	4,773	124	4,343	117	SPHWW1HDNE27YHV34K		
70	3500	4,868	127	4,430	119	SPHWW1HDNE27YHU34K		
	4000	4,916	128	4,474	121	SPHWW1HDNE27YHT34K		
	2700	5,455	142	4,964	134	SPHWW1HDNE25YHV34H		
90	3000	5,682	148	5,171	139	SPHWW1HDNE25YHU34H		
	3500	5,796	151	5,274	142	SPHWW1HDNE25YHT34H		
	4000	5,912	154	5,380	145	SPHWW1HDNE25YHT34H		
80	5000	5,852	153	5,326	143	SPHCW1HDNE25YHRT4H		
	3000	5,852	153	5,326	143	SPHCW1HDNE25YHQT4H		
	4000	6,145	160	5,531	149	SPHWW1HDNE28YHV33M		
70	4000	6,145	160	5,531	149	SPHWW1HDNE28YHU33M		
	5000	6,204	162	5,583	150	SPHWW1HDNE28YHT33M		

※ Bin option is available, please refer to data sheet for more details.



# COB LEDs | Small LES COB

Product	CRI Min.	CCT (K)	Tc = 25°C		Tc = 85°C		IF (mA)	Part Number
			Luminous Flux Typ. (lm)	Luminous Efficacy Typ. (lm/W)	Luminous Flux Typ. (lm)	Luminous Efficacy Typ. (lm/W)		
LC010C	90	2700	962	99	871	93	SPHWH2HDNA07YHW3C1	
		3000	985	101	892	96	SPHWH2HDNA07YHV3C1	
		3500	997	103	903	97	SPHWH2HDNA07YHU3C1	
		4000	1,020	105	924	99	SPHWH2HDNA07YHT3C1	
	80	2700	1,102	113	998	107	SPHWH2HDNA05YHW3C1	
		3000	1,173	121	1,062	114	SPHWH2HDNA05YHV3C1	
		3500	1,229	126	1,113	119	SPHWH2HDNA05YHU3C1	
		4000	1,277	131	1,156	124	SPHWH2HDNA05YHT3C1	
		5000	1,337	138	1,211	130	SPHWH2HDNA05YHRTC1	
		5700	1,337	138	1,211	130	SPHWH2HDNA05YHQTC1	
LC020C	90	2700	1,923	99	1,742	93	SPHWH2HDNC07YHW3C1	
		3000	1,970	101	1,784	96	SPHWH2HDNC07YHV3C1	
		3500	1,993	103	1,805	97	SPHWH2HDNC07YHU3C1	
		4000	2,040	105	1,848	99	SPHWH2HDNC07YHT3C1	
	80	2700	2,204	113	1,996	107	SPHWH2HDNC05YHW3C1	
		3000	2,345	121	2,124	114	SPHWH2HDNC05YHV3C1	
		3500	2,458	126	2,226	119	SPHWH2HDNC05YHU3C1	
		4000	2,554	131	2,313	124	SPHWH2HDNC05YHT3C1	
		5000	2,673	138	2,421	130	SPHWH2HDNC05YHRTC1	
		5700	2,673	138	2,421	130	SPHWH2HDNC05YHQTC1	
LC040C	90	2700	3,846	99	3,483	93	SPHWH2HDNE07YHW3C1	
		3000	3,940	101	3,568	96	SPHWH2HDNE07YHV3C1	
		3500	3,987	103	3,610	97	SPHWH2HDNE07YHU3C1	
		4000	4,081	105	3,695	99	SPHWH2HDNE07YHT3C1	
	80	2700	4,409	113	3,993	107	SPHWH2HDNE05YHW3C1	
		3000	4,690	121	4,248	114	SPHWH2HDNE05YHV3C1	
		3500	4,915	126	4,452	119	SPHWH2HDNE05YHU3C1	
		4000	5,108	131	4,626	124	SPHWH2HDNE05YHT3C1	
		5000	5,347	138	4,842	130	SPHWH2HDNE05YHRTC1	
		5700	5,347	138	4,842	130	SPHWH2HDNE05YHQTC1	

※ Bin option is available, please refer to data sheet for more details.

	CRI 95 Min.			CRI 90 Min.				CRI 80 Min.					CRI 70 Min.			
	2700K	3000K	3500K	2700K	3000K	3500K	4000K	2700K	3000K	3500K	4000K	5000K	5700K	3000K	4000K	5000K
MacAdam 3-Step	○	○	○	○	○	○	○	○	○	○	○	○	○			
MacAdam 2-Step	○	○	○	○	○	○	○	○	○	○	○					
MacAdam 7-Step (ANSI)												○	○	○	○	○



# Certification Support Program

To provide more valuable services for your successful business

## Program Overview

### Pre-Certification Test Support

Product structure, test and review by Samsung.  
Samsung is an accredited partner of UL, VDE & KOLAS

### Certification Accreditations Support

- Customer support for **Cost and Test Period Saving for the EU, US & ASIA certification**
- Global certification program roll out soon to be available

## Customer Benefit

Certification	ETL, Energy Star, DLC <sup>1)</sup> , FCC, LM 79		KS/High Efficiency	PSE	S-Mark	CE, ErP, ENEC, ENEC+, EU Eco-Label, GS mark		CCC/CQC	
Customer Location	US	Korea/China	-			EU/US/Asia	China	Korea	China
Cost Discount	Testing	-20%	-30%	-30%	-30%	-20%	-30%	-20%	-30%
	Handling			-	-30%	-30%			
Test Period Savings	-30 ~ -50%	-30 ~ -50%	-20 ~ -30%			-20 ~ -30%	-20 ~ -30%	-20 ~ -30%	-20 ~ -30%
Company	Intertek		KTL (Korea Testing Laboratory)			TUV SUD		CCIC	
Branch	North America, China, Hong Kong, Korea		Korea, China			North America, Germany, China, Hong Kong, Singapore, Taiwan, Korea		Korea, China	

1) Energy Star, DLC's duration is not included for Lumen Maintenance test duration.  
2) Discount rate is based on the standard price of Companies.

## Process



Testing and Certification Institute



Contact us : [www.samsung.com/global/business/led/contact-us](http://www.samsung.com/global/business/led/contact-us)

