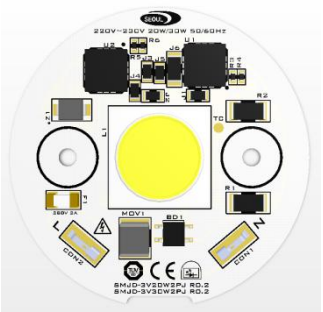
Integrated AC LED Solution

Acrich2.5 – 30W

SMJD-3V30W2PJ



Product Brief

Description

- The Acrich2.5 series of products are designed to be driven directly off of AC line voltage, therefore they do not need the standard converter essential for conventional general lighting products.
- The converter or driver found in most general lighting products can limit the overall life of the product, but with the Acrich2.5 series of products the life of the product can more closely be estimated from the LED itself. This will also allow for a much smaller form factor from an overall fixture design allowing for higher creativity in the fixture.
- The modules have a high power factor which can contribute to a higher energy savings in the end application.

Features and Benefits

- Connects directly to AC line voltage
- High Power Efficiency & Factor
- Long Life Time
- Miniaturization
- Lead Free Product
- RoHS Compliant
- Zhaga footprint
- LES 14mm

Key Applications

- Down Light
- Spots
- Track lamps

Table 1-1. Product Selection - FLUX

Bin	Flux			Unit	Mark
	Min.	Typ.	Max.		
C70	2400	2700	-	lm	CRI90
D00	2700	3000	-		CRI80

Table 1-2. Product Selection - CCT

Bin	CCT	Unit
H0A	2,700	K
G0A	3,000	
E0A	4,000	
C0A	5,000	

Table 1-3. Product Selection – CRI and Vf

Bin	CRI	P [W]	Vin [Vac]	Unit
8ALL	80	30	230	Vrms
9ALL	90			

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Performance Characteristics

Table 3. Electro Optical Characteristics, T_a = 85ºC

Parameter	Symbol	Value			Unit	Mark
		Min.	Typ.	Max.		
Luminous Flux [1]	Φ_V	2400	2700	-	lm	CRI90
		2700	3000	-		CRI80
Correlated Color Temperature [2]	CCT	2600	2700	2900	K	H
		2900	3000	3200		G
		3700	4000	4200		E
		4700	5000	5300		C
CRI	Ra	80	-	-	-	8
		90	-	-	-	9
Input Voltage [3]	V_{in}	-	230	-	V	
Power Consumption	P	27	30	36	W	
Operating Frequency	F		50 / 60		Hz	
Power Factor	PF		Over 0.97		-	
Viewing Angle	$2\Theta_{1/2}$		120		deg.	
Surge Voltage [4]	V_s	-	1.0	-	kV	

Notes :

(1) Φ_V is the total luminous flux output measured with an integrated sphere.

(2) Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.

(3) Operating Voltage doesn't indicate the maximum voltage which customers use but means tolerable voltage according to each country's voltage variation rate. It is recommended that the solder pad temperature should be below 85℃.

(4) Surge withstand in accordance with IEC61000-4-5.(Line to Line)

All measurements were made under the standardized environment of Seoul Semiconductor.

Absolute Maximum Ratings

Table 3. Absolute Maximum Ratings, T_a = 85ºC

Parameter	Symbol	Unit	Value
Maximum Input Voltage	V_{in}	Vrms	264
Power Consumption	P	W	36
Operating Temperature	T_{opr}	ºC	-30 ~ 85
Storage Temperature	T_{stg}	ºC	-40 ~ 100
ESD Sensitivity	-	-	±4kV HBM

Characteristic Graph

Fig 1. Relative Spectral Distribution vs. Wavelength Characteristic – E

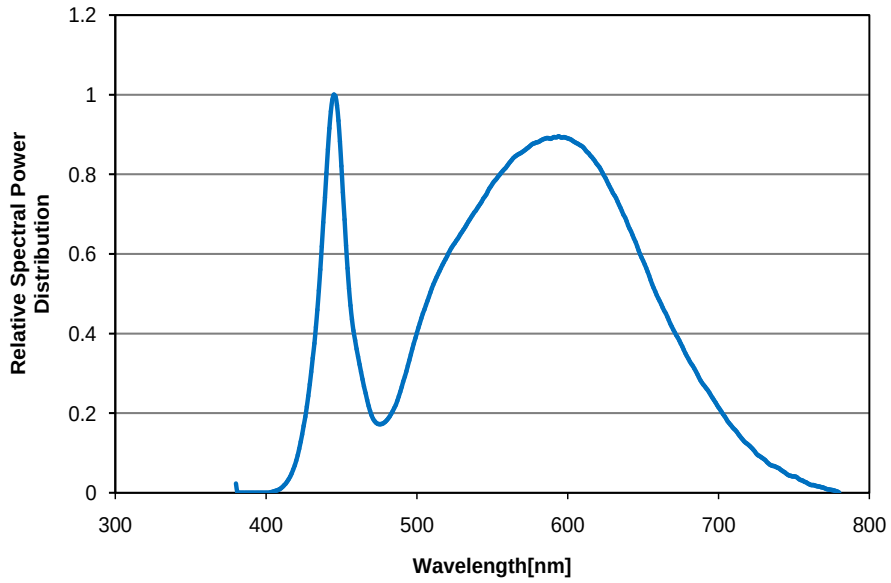
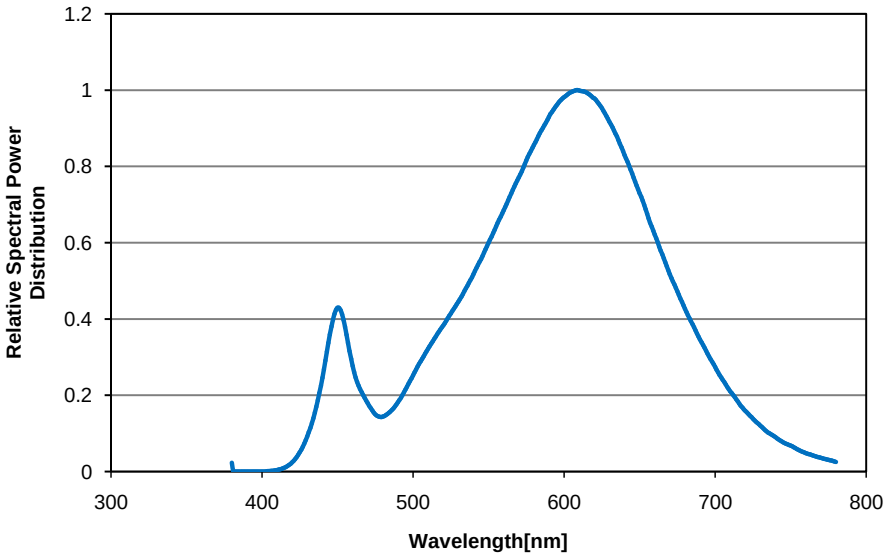
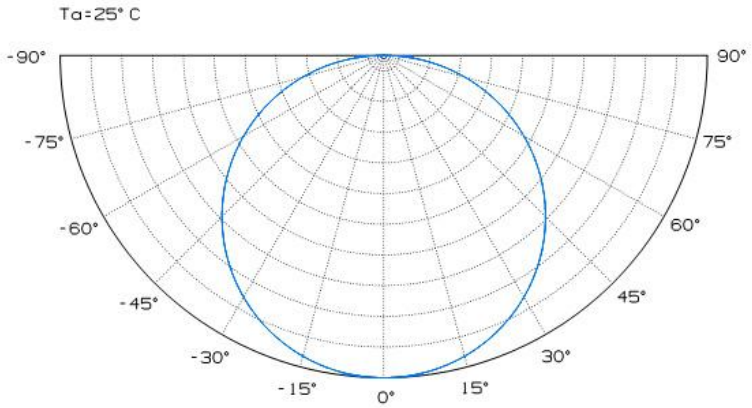


Fig 2. Relative Spectral Distribution vs. Wavelength Characteristic – G



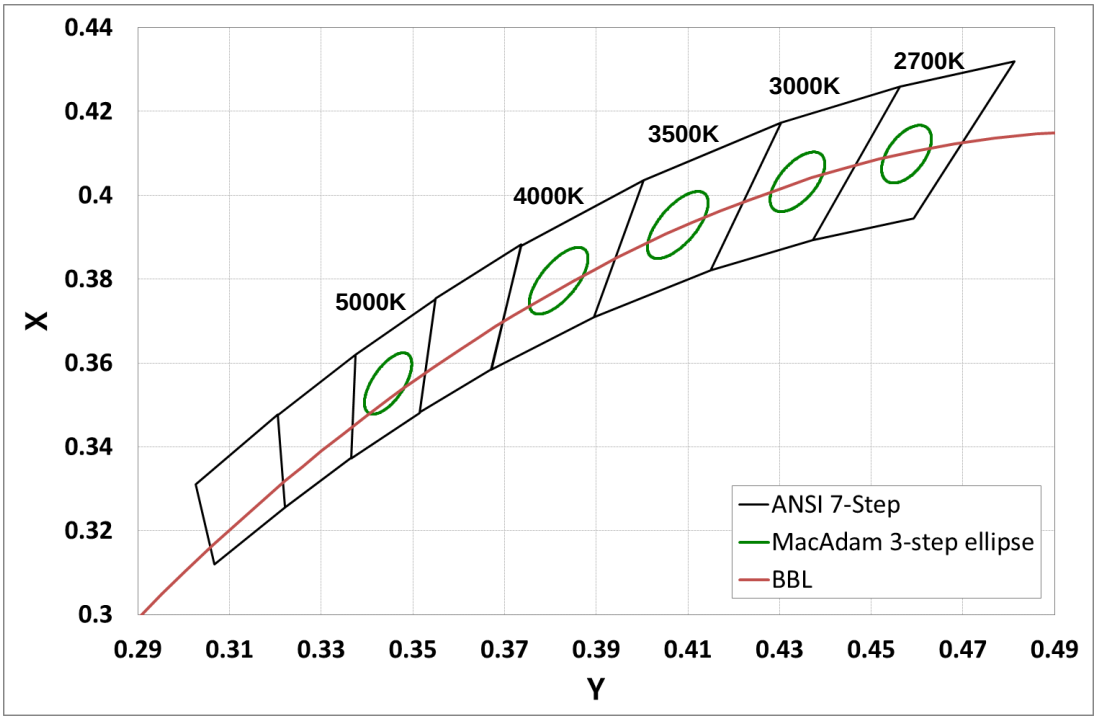
Luminous Flux Characteristics

Fig 3. Radiant Pattern, T_a =85℃



Color Bin Structure

Fig 8. CIE Chromaticity Diagram

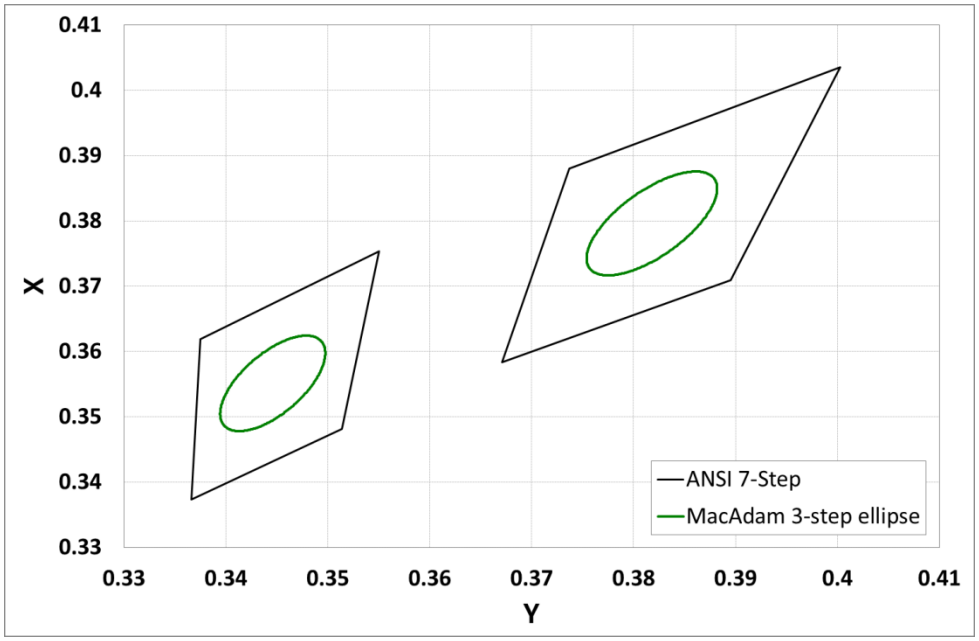


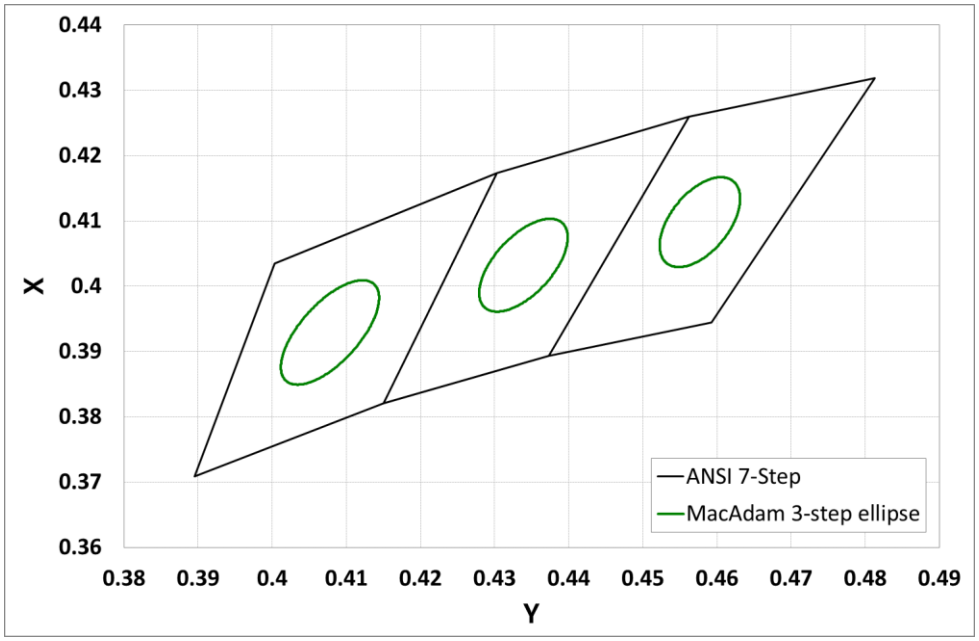
Notes:

1. 3-step MacAdam ellipse is based on ANSI C78.377
2. 7-step: ANSI C78.377-2015

Color Bin Structure

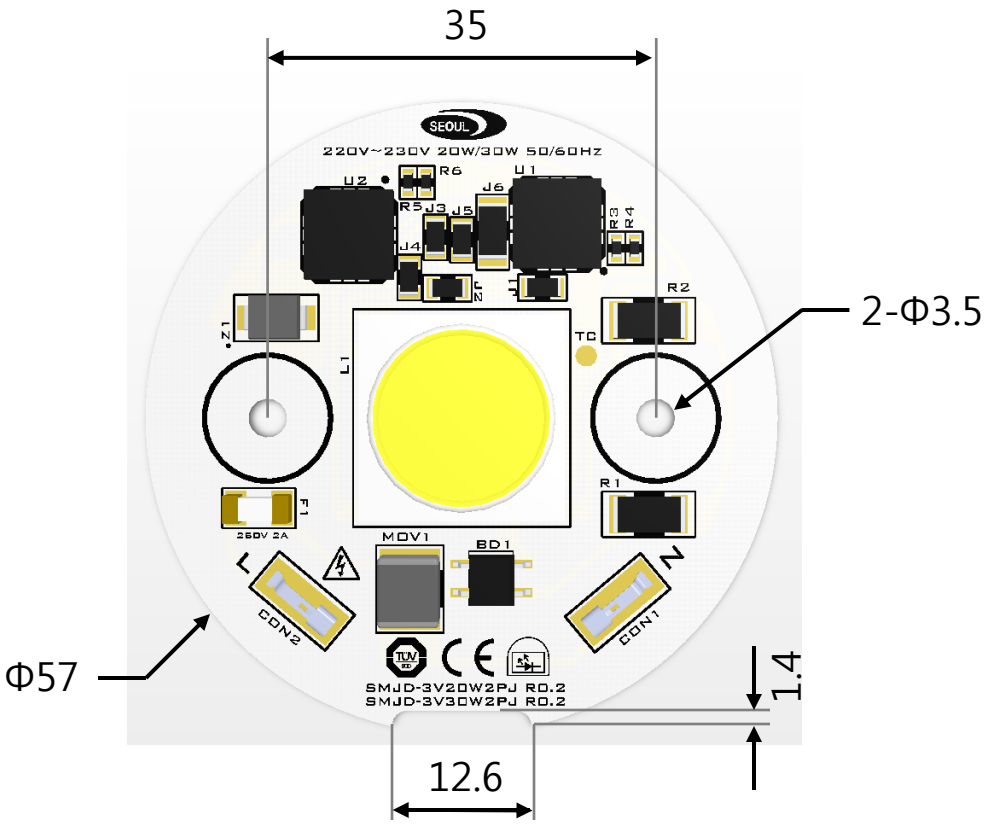
CIE Chromaticity Diagram, T_j=85℃

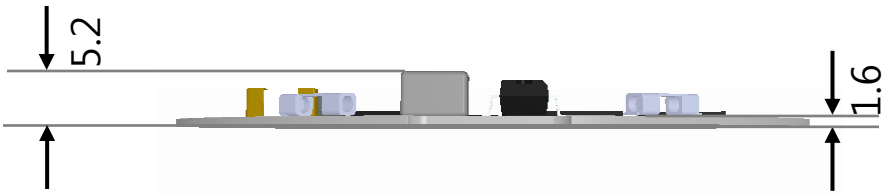




Color Region	CCT(K)	Center Point	
		CIE x	CIE y
3-Step MacAdam Ellipse	2700	0.4577	0.4098
	3000	0.4339	0.4032
	3500	0.4078	0.3929
	4000	0.3818	0.3796
	5000	0.3446	0.3551

Mechanical Dimensions





Notes :

(1) All dimensions are in millimeters. (Tolerance : ±0.2)
(2) Scale : None

Marking Information

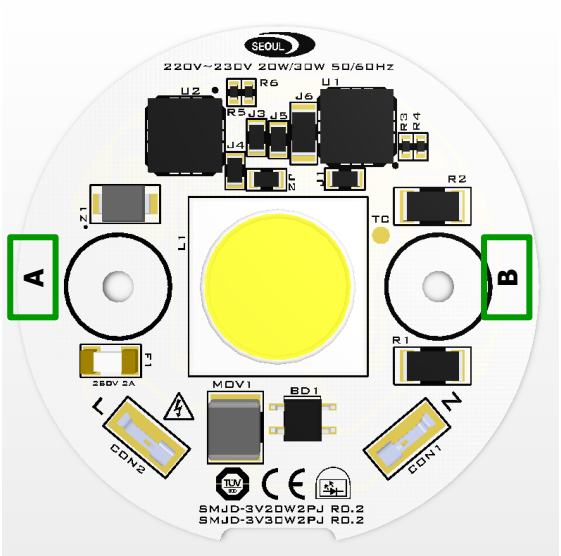


Fig 1. Marking point

A	160901	①	SMT Date (YYMMDD, 6 Digits)
B	C820	①	CCT Rank (C~H, 1 Digit)
		②	CRI (80/90, 1 Digit)
		③	P[W] (20W/30W, 2 Digits)

Table 1. MP information

C70E0A8ALL

① ② ③ ④ ⑤

Flux	Bin	Flux	Bin
0lm	A	0lm	0
1000lm	B	400lm	40
2000lm	C	700lm	70
3000lm	D		

CCT
H
E
G
G

Bin*
0A
03
04

CRI**
8
9

Vf
All

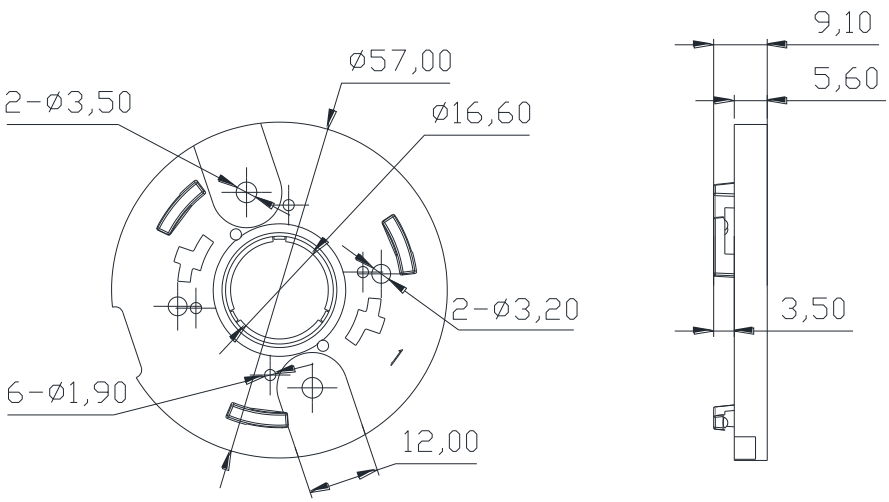
* 0A : All Bin
03 : 3-step
04 : 4-step

** 8 : CRI80
9 : CRI90

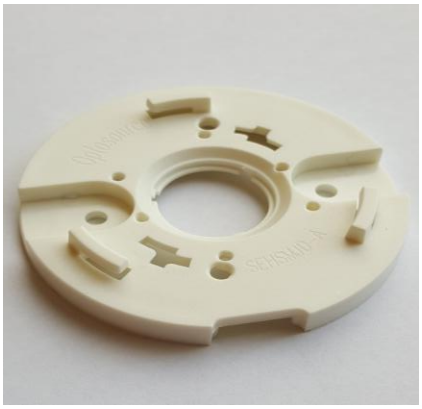
Mechanical Dimensions

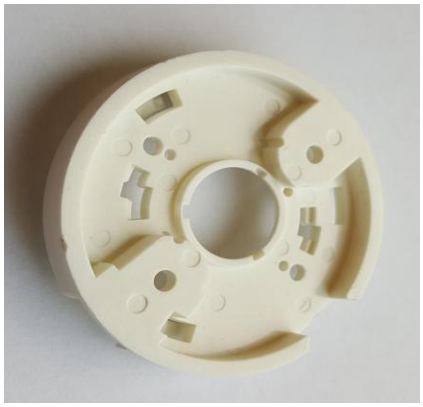
- **HOLDER-SA**

Reference Code Product
HOLDER-SA



- **PICTURE**





Notes :

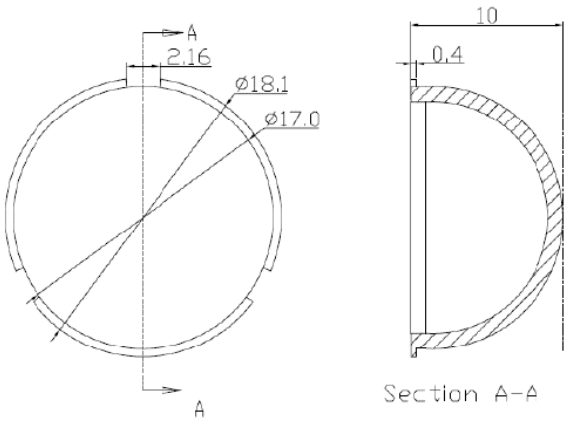
(1) All dimensions are in millimeters. (Tolerance : ±0.2)
(2) Scale : None

Material	Color	Max temperature allowed (°C)	Dimensions
PC	High reflective white	105	ø57×ø16.6×5.6

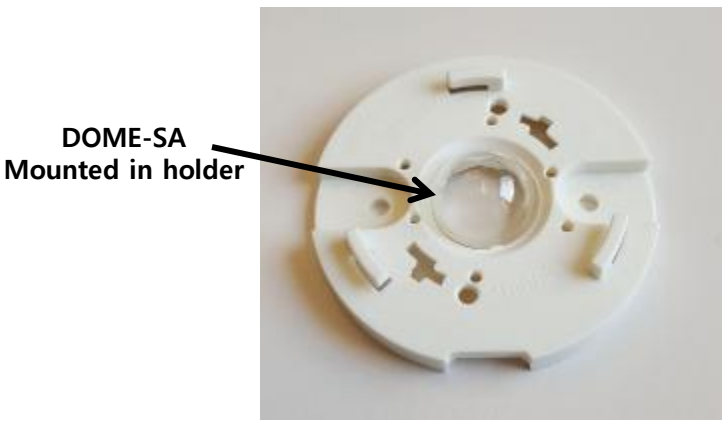
Mechanical Dimensions

- **DOME-SA**

Reference Code Product
DOME-SA



- **PICTURE** – Combination of holder and dome parts



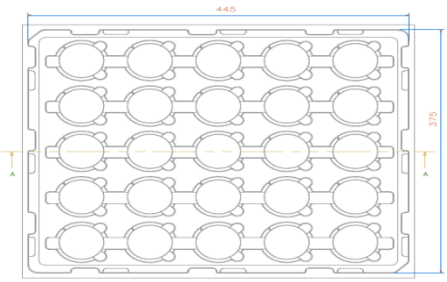
Notes :

(1) All dimensions are in millimeters. (Tolerance : ±0.2)
(2) Scale : None

Material	Color	Max temperature allowed (°C)	Dimensions
PC	Hightransparency	105	Ø18.1×ø17.0×10

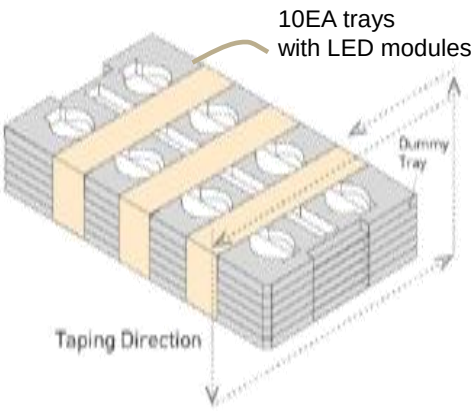
Packing Information

1. Tray information



• 50 PCS LED modules packed per tray(both faces)

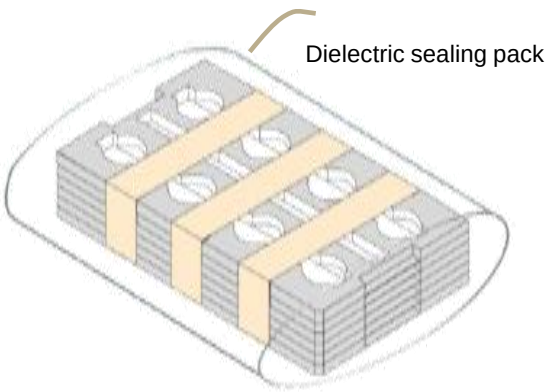
2. Tray stack and taping



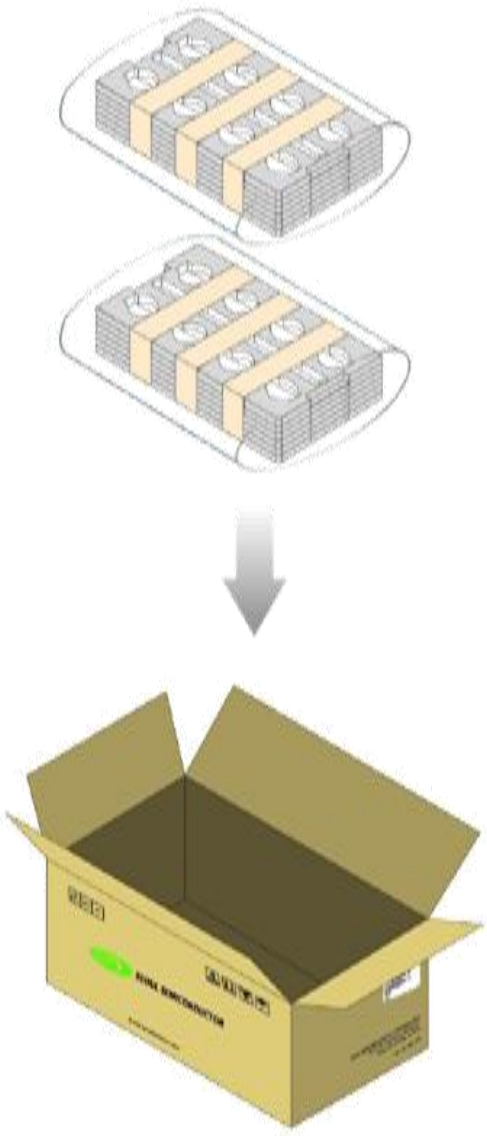
• 10 LED module trays and additional 1 dummy trays up of box

• Add silica gel (1EA) on top of the tray

3. Sealing packing



4. Box information & packing



• 500 PCS modules per BOX 1EA

** 1 Box: 50 PCS per tray x 10 trays = 500 PCS

Label Information

Model No.	**SMJD-3V30W2PJ(1)**
Rank	**C70E0A8ALL(2)**
Type	**STD**
Quantity	**XXX**
Date	**YYMMDDXXXXX-XXXXXXX(3)**
SEOUL	**SEOUL SEMICONDUCTOR CO.,LTD.**

Reference

(1) The model number designation is explained as follow
- SMJQ : Seoul Semiconductor internal code
- 3V : 230V
- 30W : About Power
- 2 : Acrich2.5 IC
- PJ : COB PKG

(2) It represents the LED module Characteristic

(3) YYMMDD: Produced date.
XXXXX : Lot No.
81XXXXX : SSC internal product code(SAP)

Note

(1) It is attached to the top left corner of the box.

TOTAL Quantity

XXX

SEOUL **SEOUL SEMICONDUCTOR CO.,LTD.**

Notes

(1) It is attached to the bottom right corner of the box.

Company Information

Published by

Company Information

Seoul Semiconductor (www.SeoulSemicon.com) manufacturers and packages a wide selection of light emitting diodes (LEDs) for the automotive, general illumination/lighting, Home appliance, signage and back lighting markets. The company is the world's fifth largest LED supplier, holding more than 10,000 patents globally, while offering a wide range of LED technology and production capacity in areas such as "nPola", "Acrich", the world's first commercially produced AC LED, and "Acrich MJT - Multi-Junction Technology" a proprietary family of high-voltage LEDs.

The company's broad product portfolio includes a wide array of package and device choices such as Acrich and Acirch2, high-brightness LEDs, mid-power LEDs, side-view LEDs, and through-hole type LEDs as well as custom modules, displays, and sensors.

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