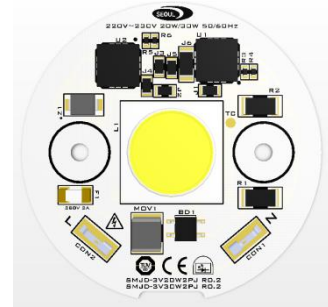


Integrated AC LED Solution

Acrich2.5 – 20W

SMJD-3V20W2PJ



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.		
B90	1700	1900	-	lm	CRI90
C10	1900	2100	-		CRI80

Table 1-2. Product Selection - CCT

Bin	CCT	Unit
G0A	3,000	K
E0A	4,000	

Table 1-3. Product Selection – CRI and Vf

Bin	CRI	P [W]	Vin [Vac]	Unit
8ALL	80	20	230	Vrms
9ALL	90			

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Performance Characteristics

Table 3. Electro Optical Characteristics, T_a = 25°C

Parameter	Symbol	Value			Unit	Mark
		Min.	Typ.	Max.		
Luminous Flux ^[1]	Φ_V	1700	1900	-	lm	CRI90
		1900	2100	-		CRI80
Correlated Color Temperature ^[2]	CCT	2900	3000	3200	K	G
		3700	4000	4200		E
CRI	Ra	80	-	-	-	8
		90	-	-	-	9
Input Voltage ^[3]	V _{in}	198	230	264	Vrms	
Power Consumption	P	18	20	24	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 70°C.
- (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, $T_a = 25^\circ\text{C}$

Parameter	Symbol	Unit	Value
Maximum Input Voltage	V_{in}	Vac	264
Power Consumption	P	W	24
Operating Temperature	T_{opr}	$^\circ\text{C}$	-30 ~ 85
Storage Temperature	T_{stg}	$^\circ\text{C}$	-40 ~ 100
ESD Sensitivity	-	-	$\pm 4\text{kV HBM}$

Characteristic Graph

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

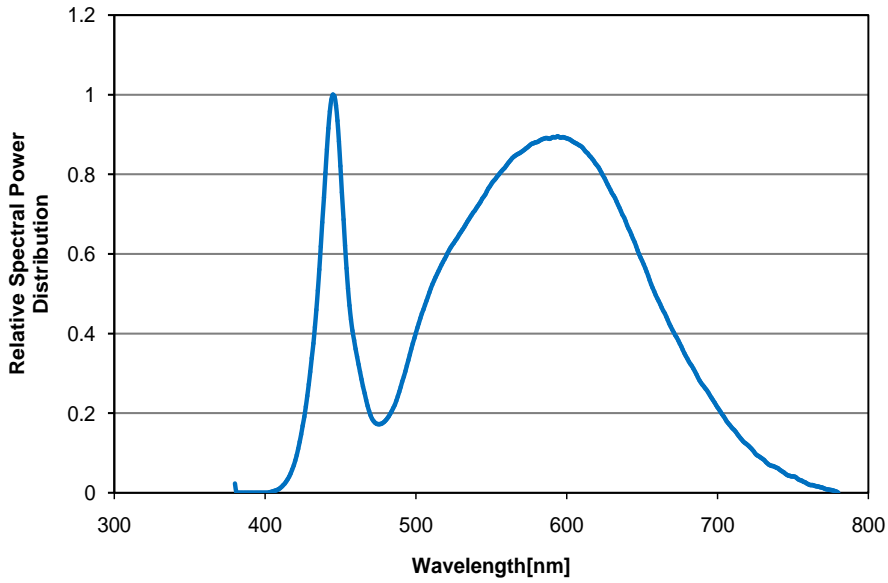
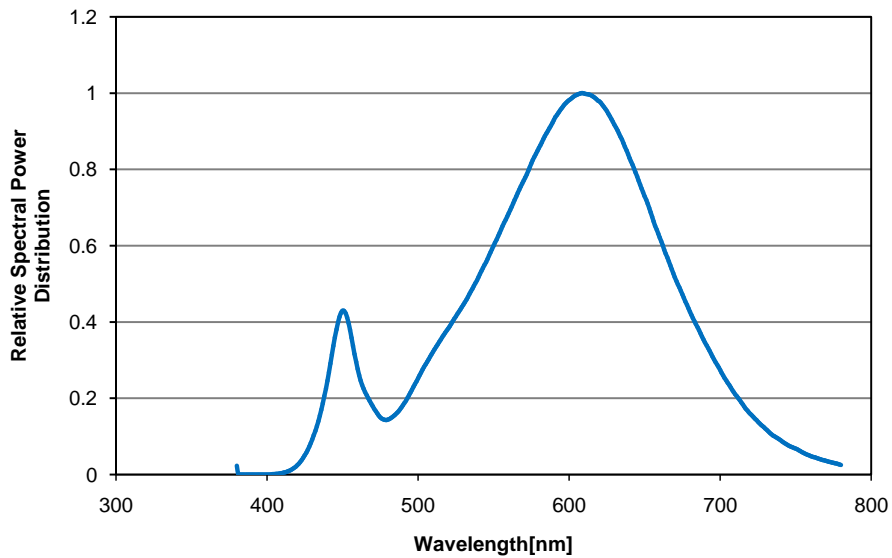
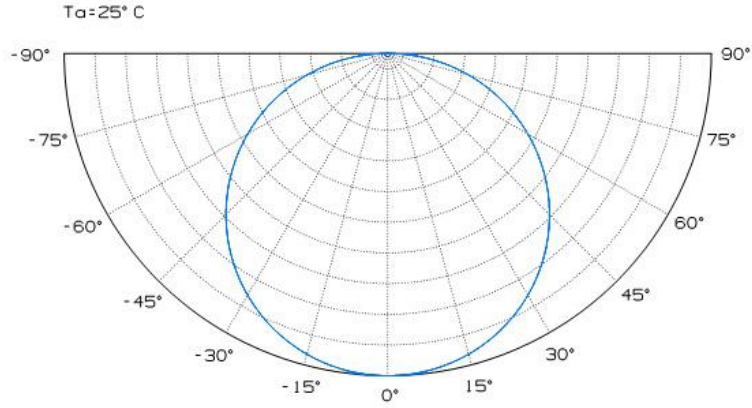


Fig 2. Relative Spectral Distribution vs. Wavelength Characteristic – G

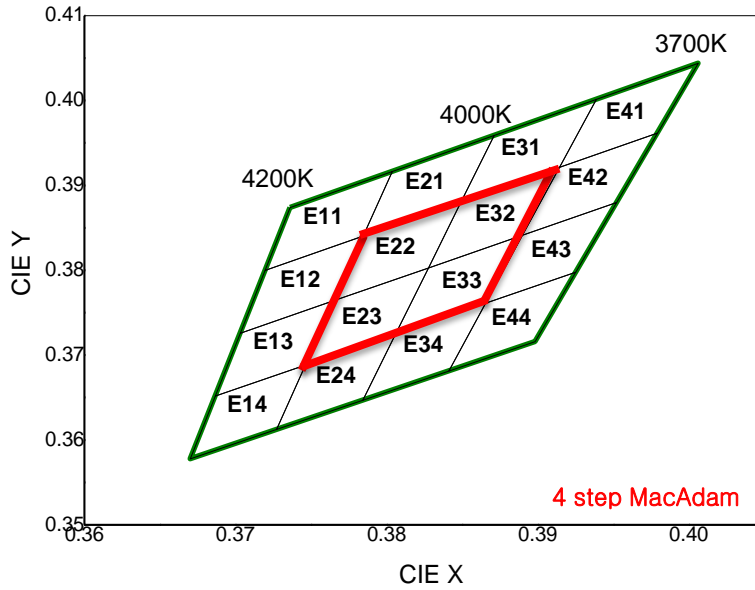


Luminous Flux Characteristics

Fig 3. Radiant Pattern, $T_a = 25^\circ\text{C}$

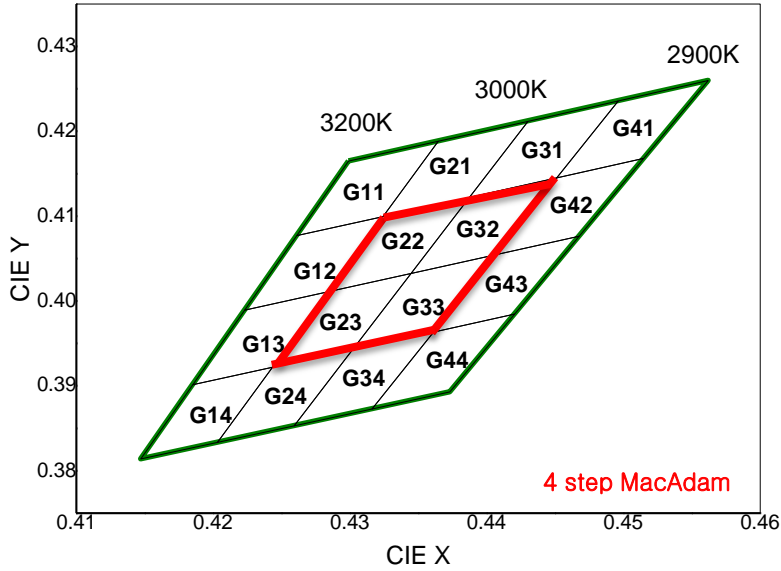


Color Bin Structure



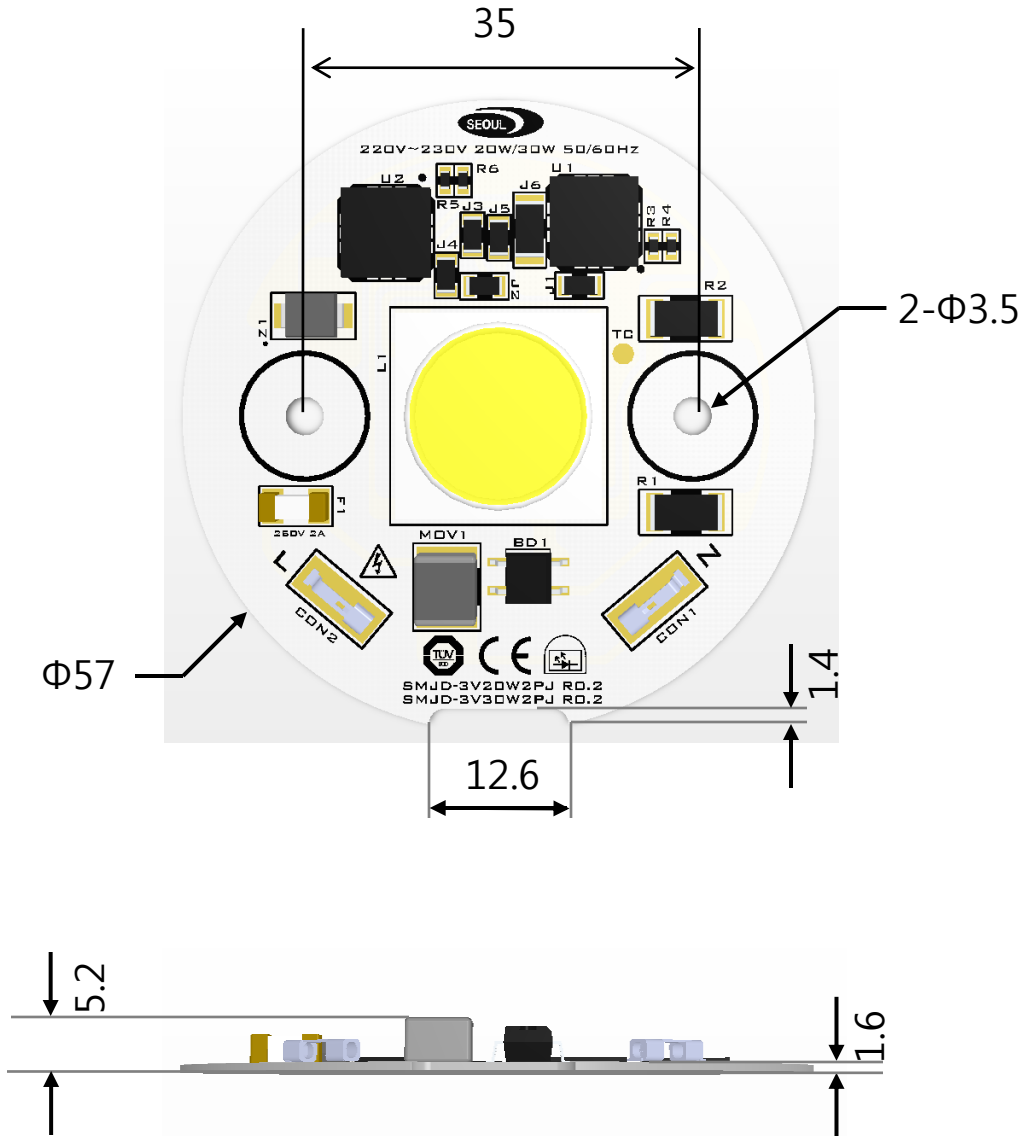
E11		E21		E31		E41	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3736	0.3874	0.3804	0.3917	0.3871	0.3959	0.3939	0.4002
0.3720	0.3800	0.3784	0.3841	0.3849	0.3881	0.3914	0.3922
0.3784	0.3841	0.3849	0.3881	0.3914	0.3922	0.3979	0.3962
0.3804	0.3917	0.3871	0.3959	0.3939	0.4002	0.4006	0.4044
E12		E22		E32		E42	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3720	0.3800	0.3784	0.3841	0.3849	0.3881	0.3914	0.3922
0.3703	0.3726	0.3765	0.3765	0.3828	0.3803	0.3890	0.3842
0.3765	0.3765	0.3828	0.3803	0.3890	0.3842	0.3952	0.3880
0.3784	0.3841	0.3849	0.3881	0.3914	0.3922	0.3979	0.3962
E13		E23		E33		E43	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3703	0.3726	0.3765	0.3765	0.3828	0.3803	0.3890	0.3842
0.3687	0.3652	0.3746	0.3689	0.3806	0.3725	0.3865	0.3762
0.3746	0.3689	0.3806	0.3725	0.3865	0.3762	0.3925	0.3798
0.3765	0.3765	0.3828	0.3803	0.3890	0.3842	0.3952	0.3880
E14		E24		E34		E44	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.3687	0.3652	0.3746	0.3689	0.3806	0.3725	0.3865	0.3762
0.3670	0.3578	0.3727	0.3613	0.3784	0.3647	0.3841	0.3682
0.3727	0.3613	0.3784	0.3647	0.3841	0.3682	0.3898	0.3716
0.3746	0.3689	0.3806	0.3725	0.3865	0.3762	0.3925	0.3798

Color Bin Structure



G11		G21		G31		G41	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4299	0.4165	0.4364	0.4188	0.4430	0.4212	0.4496	0.4236
0.4261	0.4077	0.4324	0.4099	0.4387	0.4122	0.4451	0.4145
0.4324	0.4100	0.4387	0.4122	0.4451	0.4145	0.4514	0.4168
0.4365	0.4189	0.4430	0.4212	0.4496	0.4236	0.4562	0.4260
G12		G22		G32		G42	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4261	0.4077	0.4324	0.4100	0.4387	0.4122	0.4451	0.4145
0.4223	0.3990	0.4284	0.4011	0.4345	0.4033	0.4406	0.4055
0.4284	0.4011	0.4345	0.4033	0.4406	0.4055	0.4468	0.4077
0.4324	0.4100	0.4387	0.4122	0.4451	0.4145	0.4515	0.4168
G13		G23		G33		G43	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4223	0.3990	0.4284	0.4011	0.4345	0.4033	0.4406	0.4055
0.4185	0.3902	0.4243	0.3922	0.4302	0.3943	0.4361	0.3964
0.4243	0.3922	0.4302	0.3943	0.4361	0.3964	0.4420	0.3985
0.4284	0.4011	0.4345	0.4033	0.4406	0.4055	0.4468	0.4077
G14		G24		G34		G44	
CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y	CIE X	CIE Y
0.4243	0.3922	0.4302	0.3943	0.4302	0.3943	0.4361	0.3964
0.4203	0.3834	0.4259	0.3853	0.4259	0.3853	0.4316	0.3873
0.4147	0.3814	0.4203	0.3834	0.4316	0.3873	0.4373	0.3893
0.4185	0.3902	0.4243	0.3922	0.4361	0.3964	0.4420	0.3985

Mechanical Dimensions



Notes :

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

Marking Information

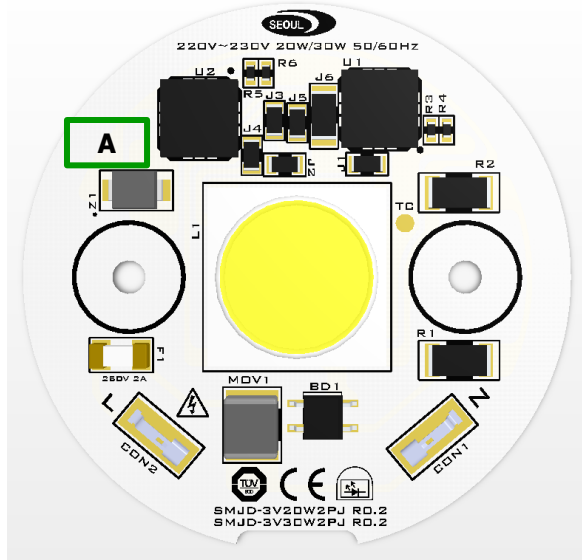
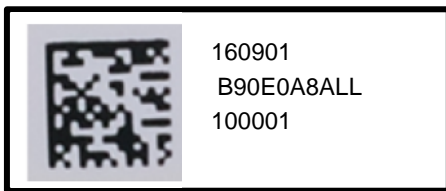
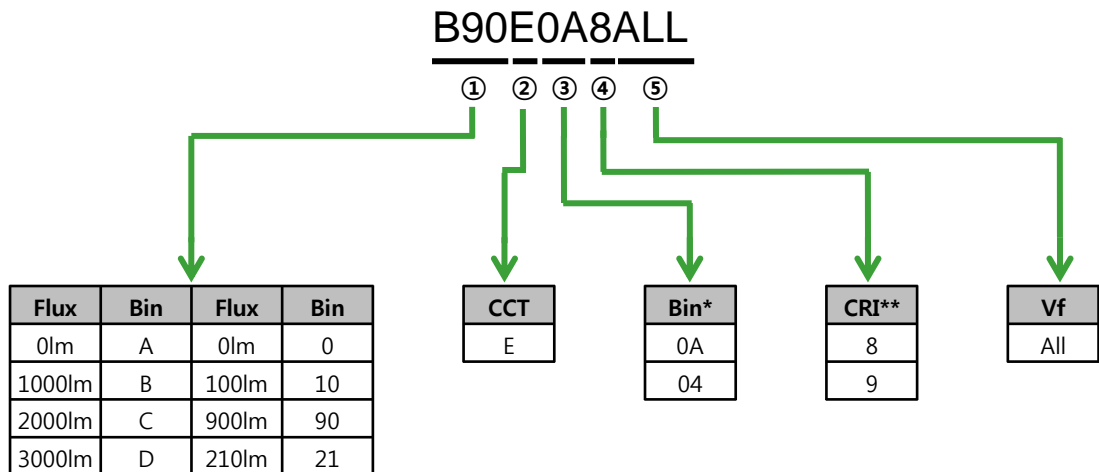


Fig 1. 2D Marking point



- ① SMT Date (YYMMDD, 6 Digits)
- ② MP Information (10 Digits)
- ③ Lot Number (6 Digits)

Table 1. MP information



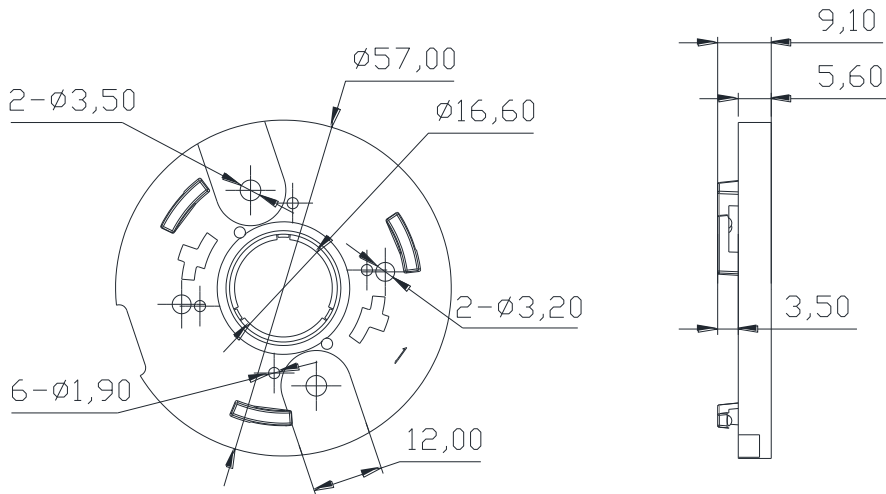
*
0A : All Bin
04 : Center 4bin Mixing(4-step)

**
8 : CRI80
9 : CRI90

Mechanical Dimensions

- HOLDER-SA**

Reference Code Product
Holder-SA



- PICTURE**

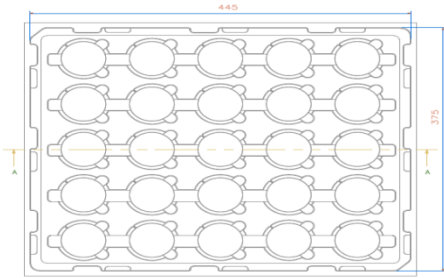

Notes :

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

Material	Color	Max temperature allowed ($^{\circ}\text{C}$)	Dimensions
PC	High reflective white	105	$\phi 57 \times \phi 16.6 \times 5.6$

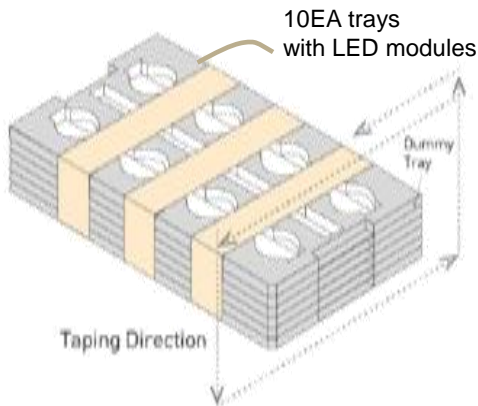
Packing Information

1. Tray information



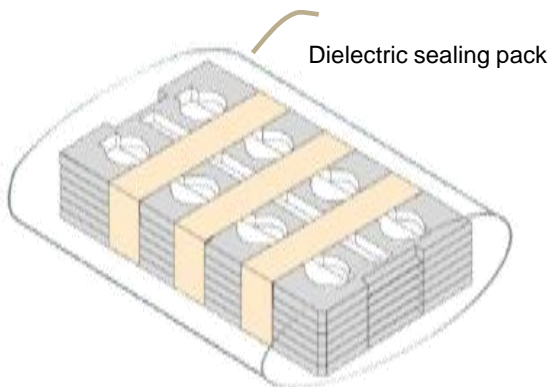
- 25 PCS LED modules packed per tray (both faces)

2. Tray stack and taping

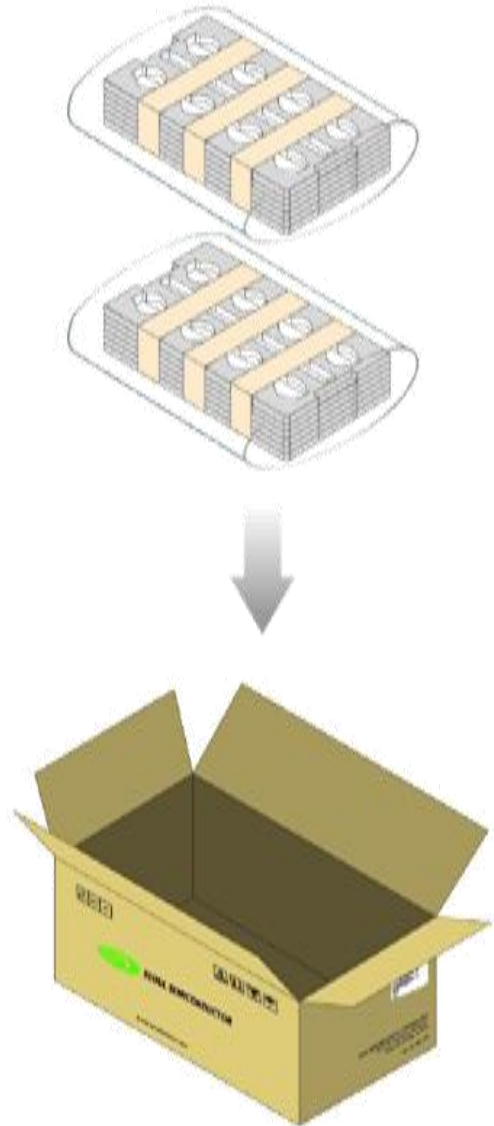


- 10 LED module trays and additional 1 dummy trays up of box
- Add silica gel (1EA) on top of the tray

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-3V20W2PJ⁽¹⁾
Rank	B90E0A8ALL⁽²⁾
Type	STD
Quantity	XXX
Date	YYMMDDXXXXX-XXXXXXX⁽³⁾
	SEOUL SEMICONDUCTOR CO.,LTD.

Reference


- (1) The model number designation is explained as follow
 SMJQ : Seoul Semiconductor internal code
 3V : 230V
 20W : 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.

<p>TOTAL Quantity</p> <p> </p> <p>XXX</p>
 SEOUL SEMICONDUCTOR CO.,LTD.

Notes

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



Company Information

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Company Information

Seoul Semiconductor (www.SeoulSemicon.com) manufactures 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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