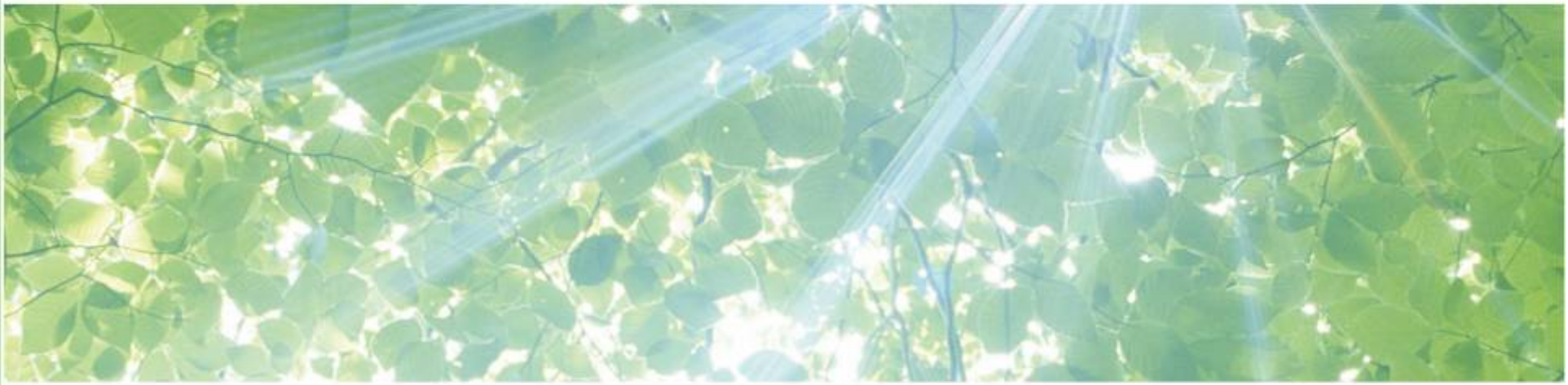
“A Company of Good People”



ACRICH2 Roadshow 2012

SEOUL SEMICONDUCTOR

Agenda

- Overview of Seoul Semiconductor
- Main Products and Features
- New Products Plan
- The Solutions With Seoul Semi LEDs

Seoul Semiconductor

Revenue 2011: 1000Mio US$

2610 employees

Number 4 * LED supplier

* Source Strategies Unlimited and IMS

New Chip Factory

New Ansan factory , **Ramp up in July 2011**

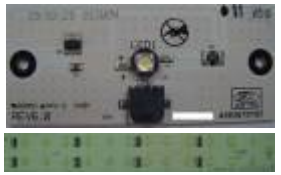
Investment US$ 275M

Korea	m^2	Remark
Seoul	4,816	Chip LED/R&D/Sales
Ansan	82,183	MO-Line / FAB-Line / PKG Line

Epi

Fab

PKG



Custom Module

SEOUL SEMICONDUCTOR

Our Main Products

Long lifetime
Simply design

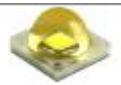
Acrich2

CRI 70&80&90
High efficiency

5050

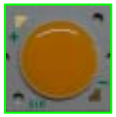
CRI80&90
LM80@120mA

5630



Vertical chip
High cold/hot lumen maintaince

Z5系列



Reliability

COB

High efficiency

3020

Acrich2

- Our approach is to simplify LED lamp design
- No Driver loss
- Reduce lamp weight
- Low circuit cost
- Lifetime (Acrich2 Solution: 50,000hr / DC LED Lamp : 15,000hr)
- Flicker improvement
- Dimming support

What is Acrich?

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- ❑ Acrich is a compound word of Acro and Rich
- ❑ Acrich is used in direct AC driving without AC/DC Converter
- ❑ Acrich is available for AC High voltage through an Integrated chip

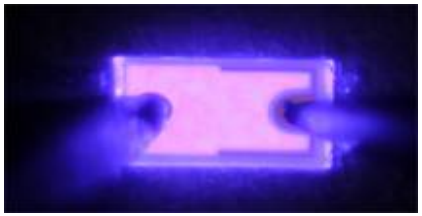
[Meaning]

- ✓ **“Acro” = Top or First**
- ✓ **“rich” = Value**

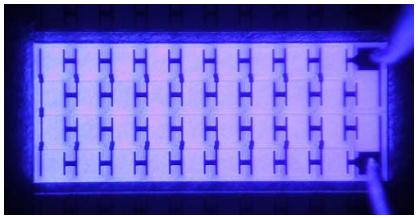
➔ **Top semiconductor lighting technology**

[What is Acrich?]

- ✓ **Monolithic array of LED cells create a high voltage LED**



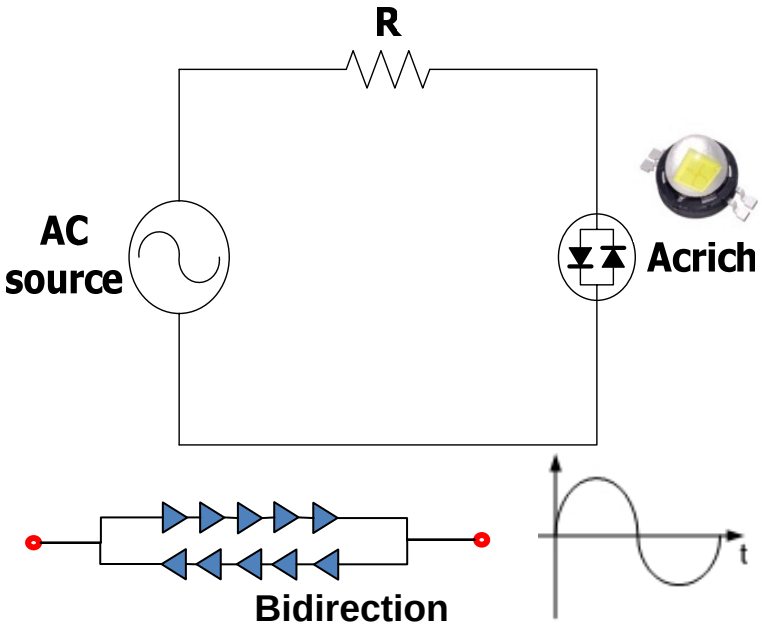
DC LED

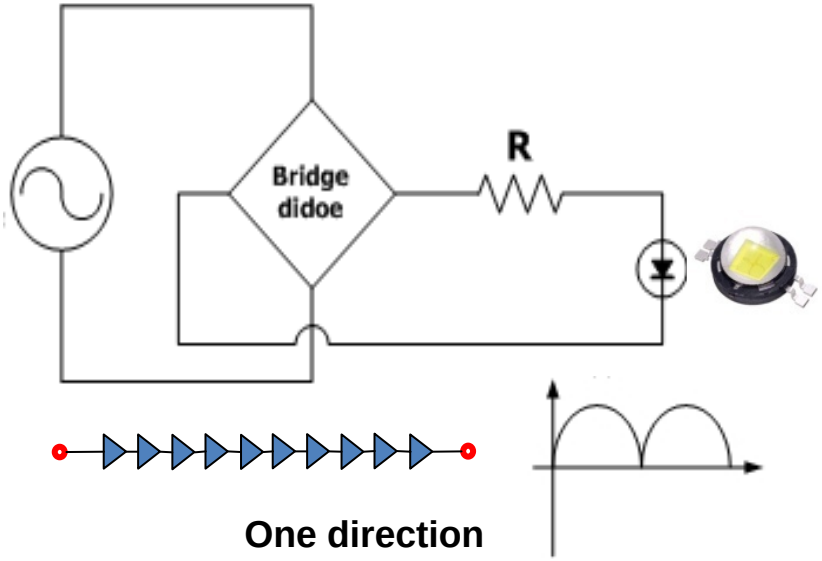


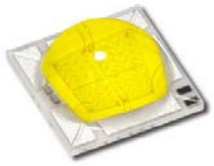
Acrich LED

What is Acrich?

- 1’st generation of Acrich has One directional and bidirectional product.
- One directional with a bridge diode is more efficient than bidirectional.

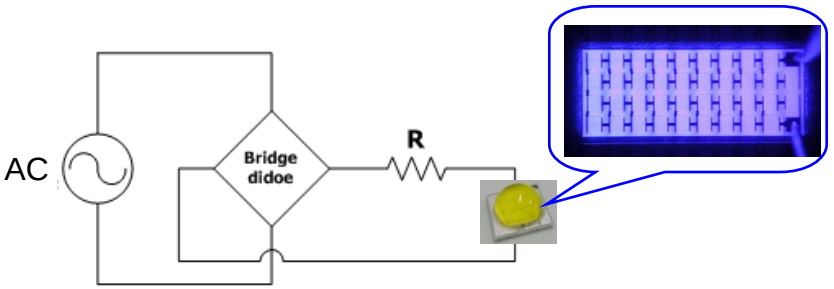




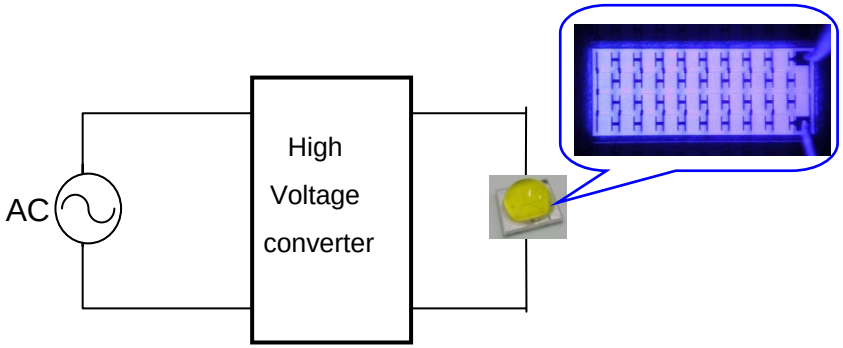
Products						
						
	< A2 series >	< A3 series >	<A5 series >	< A4 series >	< A7 series >	< A8 series>

Acrich Technology (High Voltage)

- **HV LED has that high voltage die is driven with converter, High voltage die use the Acrich Technique that single die has the multi-cell**
- **Acrich Technology is the multi-cell in single die, we can control the voltage by cell number.**



[One direction Acrich AC Solution]



[HV DC Solution]

Using same Die(one direction) in Acrich 2 and HV LED.

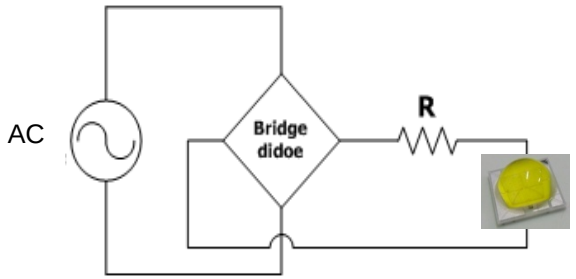
But Driven method is different each other

Acrich vs Acrich2 (AC Module)

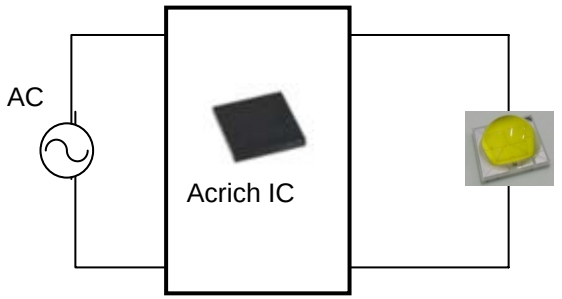
SEOUL SEMICONDUCTOR

- **Acrich2 integrates essential components used with Acrich, such as resistors and bridge diodes, in single IC**
  - **Power Factor improved above 97%**
  - **THD improved below 25%**
  - **Flicker improvement**

[Acrich]



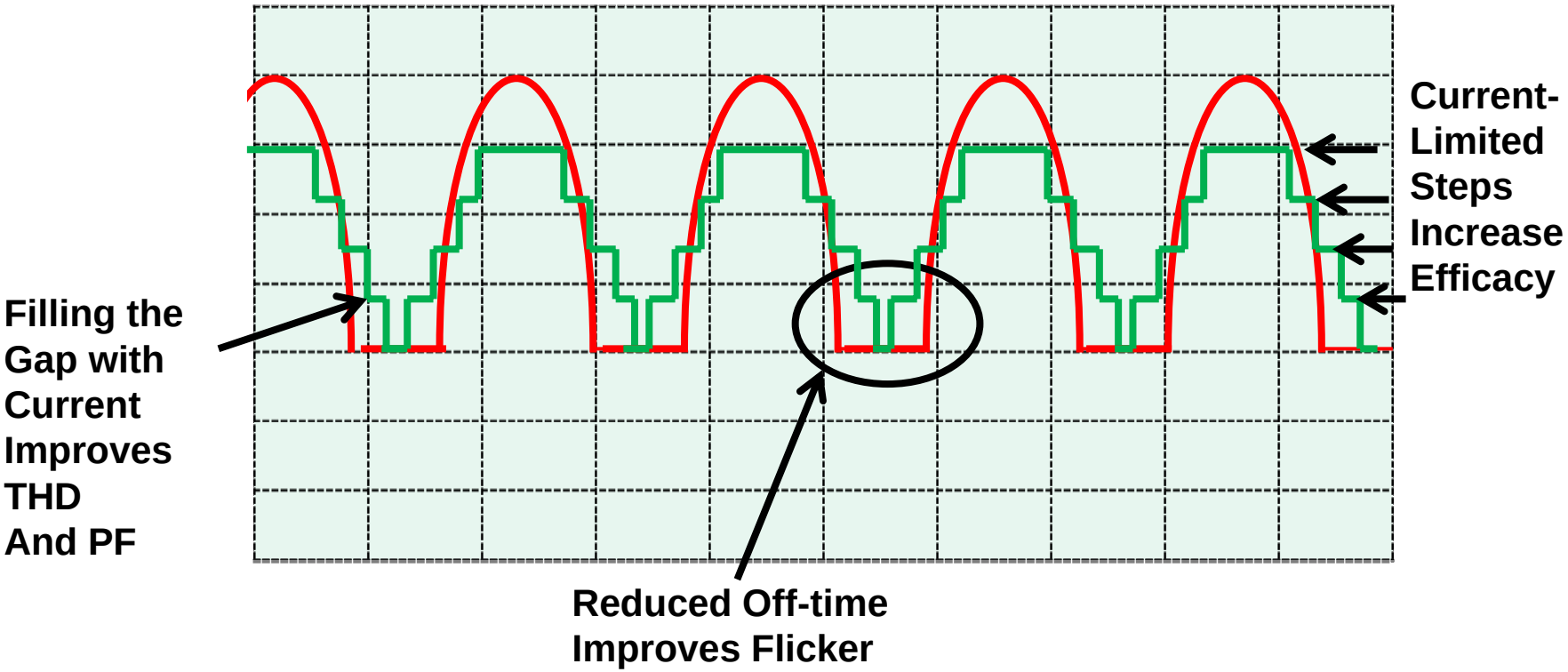
[Acrich2]

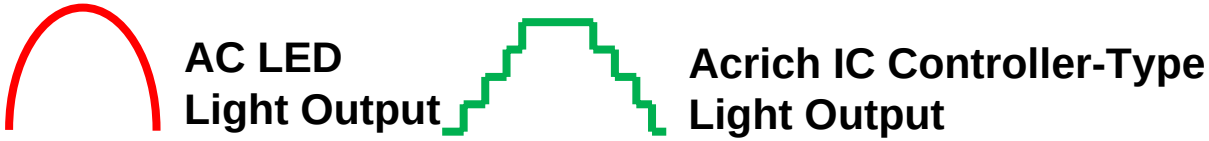


	Acrich	Acrich 2
efficiency	80%	90%
Power Factor	90%	97%
THD	Below 50%	Below 25%
Flicker Ratio	1	100V = 0.25 220V = 0.25
Components	Resistor, Bridge Diode	Integrated in an IC

Acrich vs Acrich2 (AC Module)

SEOUL SEMICONDUCTOR

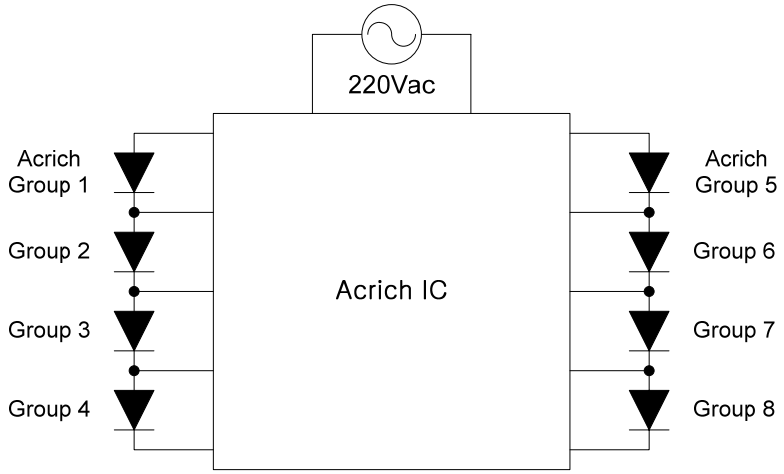


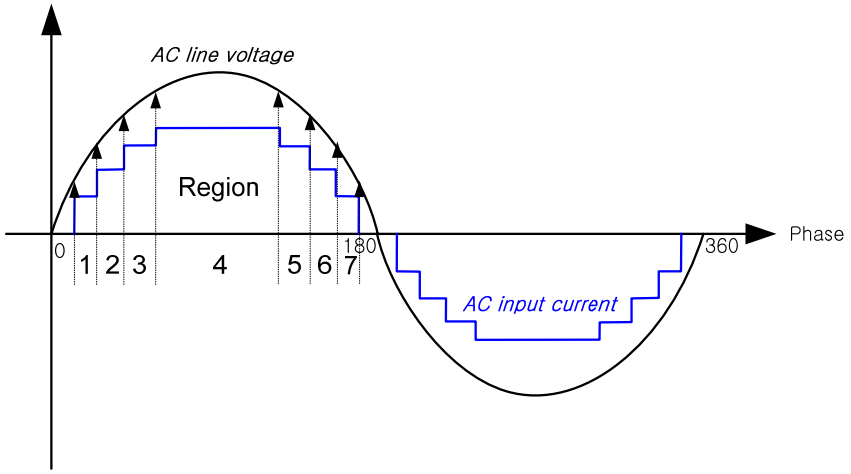


How Acrich IC works in Acrich2

☐ Functional Description of Acrich2 (Ex. 220V 8W application)

Circuit Diagram of Acrich 2	AC Input Current Wave (= Acrich's Driving Current)





Description of the Acrich's Operation

- ◆ Operation of the Acrich group 1~4 same as a group 5~8
- ◆ Operation table of each Acrich group (phase 0 ~ 180˚)

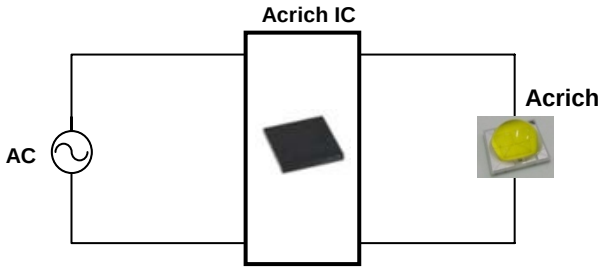
Region	1	2	3	4	5	6	7
Group 1	ON	ON	ON	ON	ON	ON	ON
Group 2	OFF	ON	ON	ON	ON	ON	OFF
Group 3	OFF	OFF	ON	ON	ON	OFF	OFF
Group 4	OFF	OFF	OFF	ON	OFF	OFF	OFF

What is different?

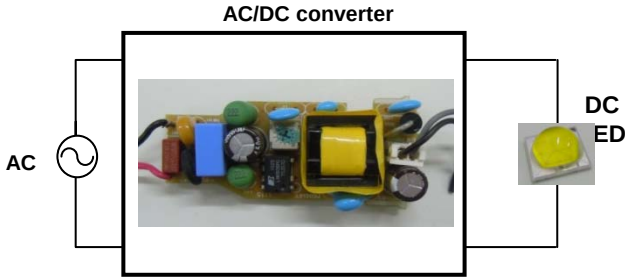
No AC-DC Converter !

- ✓ Smaller Heat Sink → Cost saving
- ✓ Less Quality Issue → High reliability
- ✓ Longer Life time → Low maintenance cost
- ✓ Higher Power Factor → Eco-friendly
- ✓ More Design Flexibility → Aesthetic design

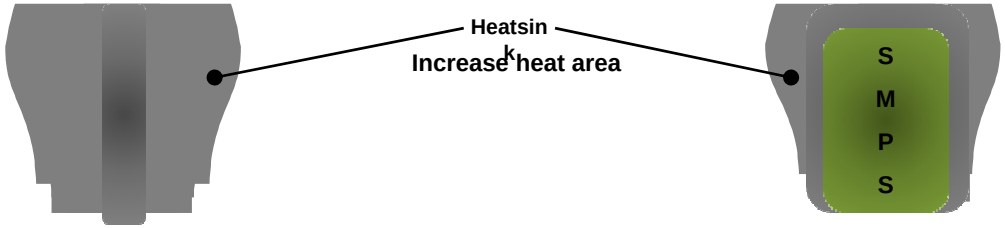
Acrich 2 Solution	AC-DC converter + DC LED



Size : 8 x 8 x 1 mm^3
✓ Only one external component



Size : 50 x 25 x 10 mm^3
✓ Multiple components : 20~30ea



✓ Heatsink for Acrich 2

✓ Heatsink for nor. Solution(include converter)

What is different?

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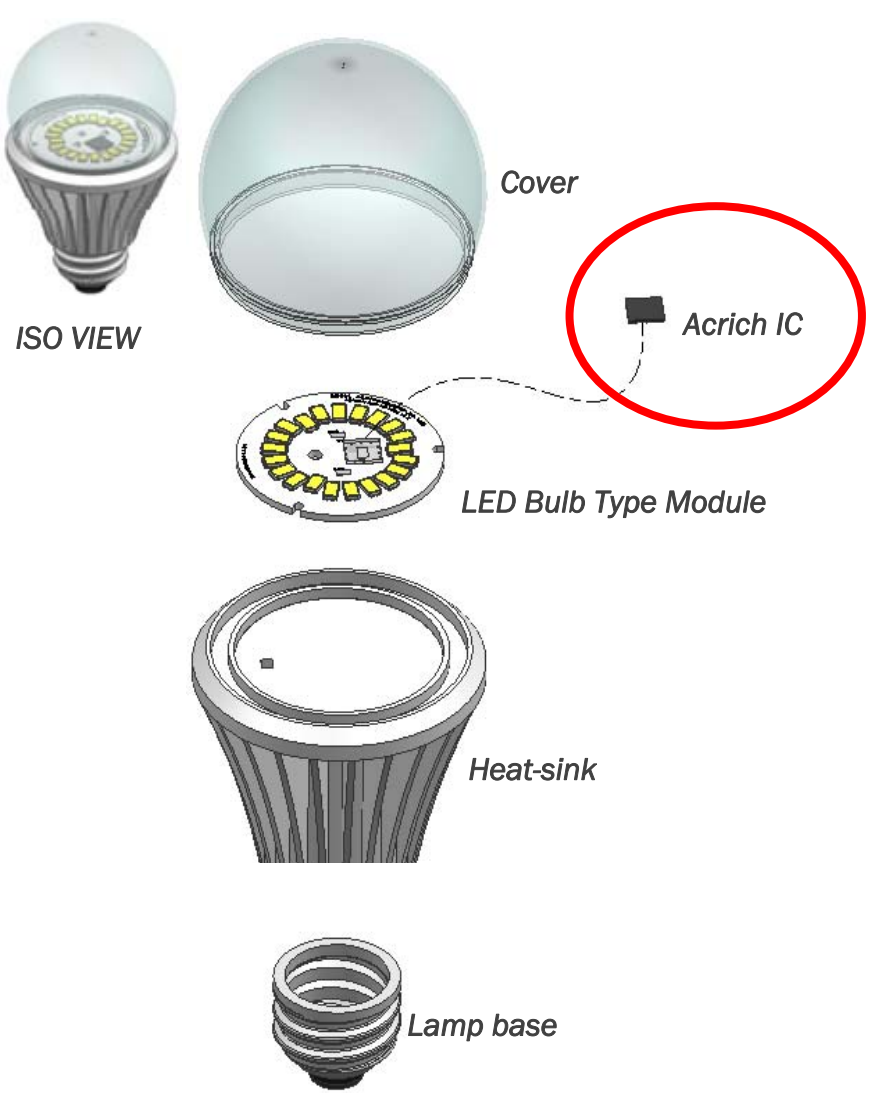
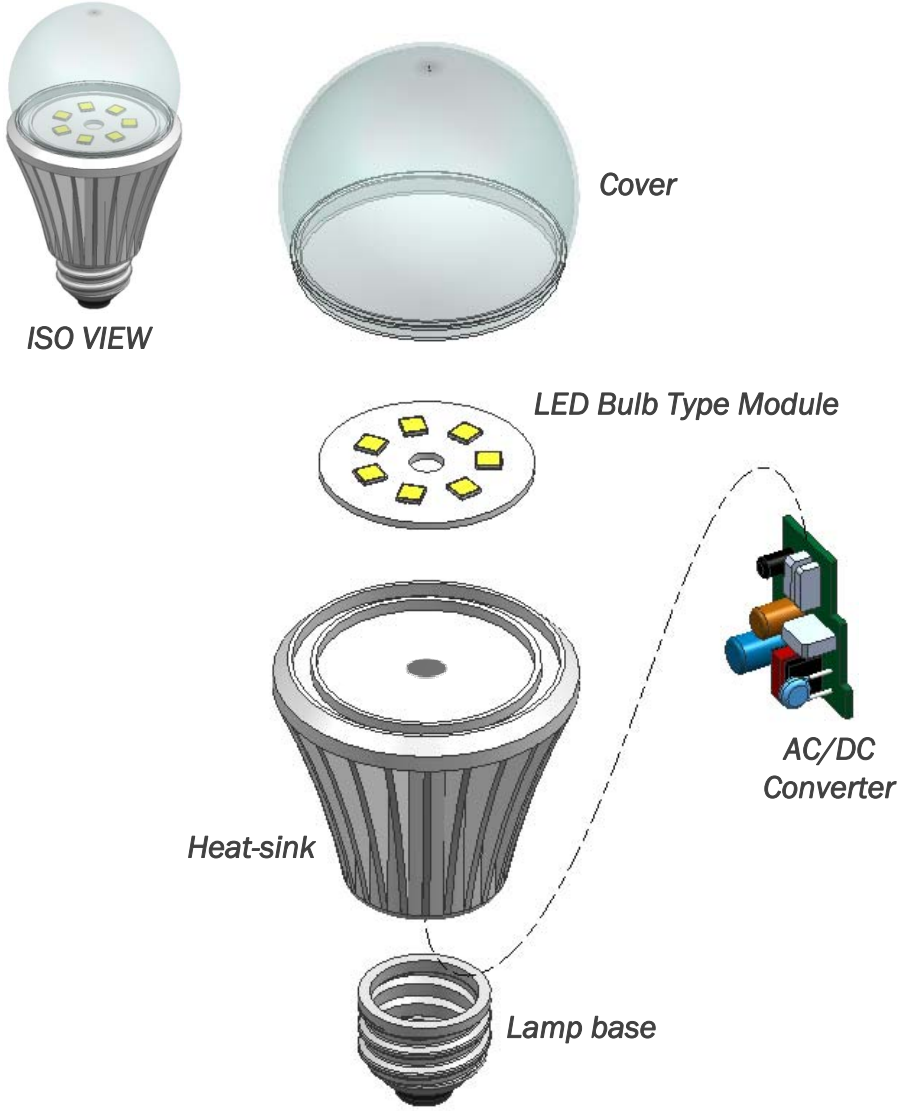


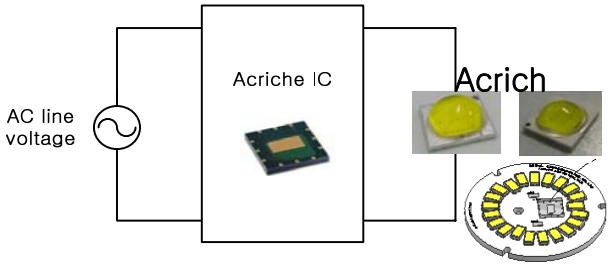
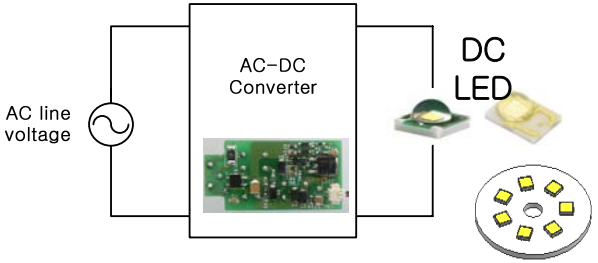
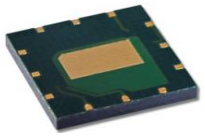
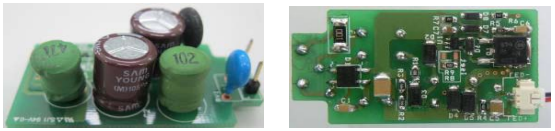
<AC : Acrich2 Bulb>



< DC type Bulb >

DC Module vs Acrich Module Comparison

SEOUL SEMICONDUCTOR

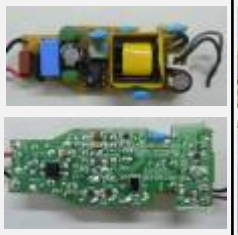
Item	Acrich IC Solution	AC-DC converter
AC Driving Configurations		
Electrical Components For AC driving	IC + simple surge protection circuit	Need a lot of components : 10~50ea
		
Driving Circuit Size	8mm X 8mm, 6mm X 6mm	Need several hundred mm2
Power Efficiency	> 90 %	70 ~ 90 %
Power Factor	> 0.95	0.4 ~ 0.95
THD	< 25%	10~95%
Circuit Life Time	87,600 hrs at Tjmax = 125° C	10,000~15,000hrs at Topr = 70° C (Electrolytic Capacitor)
Circuit Cost	Low cost	Normal
Module Surge Test	> 3kV	-
Space utilization	Excellent	Limitation

DC Module vs Acrich Module Comparison

SEOUL SEMICONDUCTOR

☐ Comparison chart – 8 W bulb, 220 V

✓ **Acrich2 is competitive = 2 X Lifetime, ½ Power consumption, 2 X Design flexibility**

	Bulb					
	✓Acrich2	✓Acrich2+	A Company	B Company	C Company	Remark
Circuit	Acrich IC	Acrich IC	AC-DC Converter (electrolytic cap)	AC-DC Converter (electrolytic cap)	AC-DC Converter (electrolytic cap)	
Circuit						
Power Adjust	4W / 8W	3~16W	O	O	O	
Relative lifetime [p.u]	1	1	0.22	0.22	0.16	Refer to P20~22
Capacitor temperature	Cap. less	Cap. less	75℃	77℃	80℃	
Relative apparent power [p.u]	1	1	2	1.08	1.33	Refer to P23
Power Factor	0.97↑	0.99↑	0.54	0.96	0.82	
Driver Efficiency [%]	90 %	90 %	81 %	84 %	80 %	
THD [%]	25 %↓	15 %↓	65 %	9.1 %	25.9 %	
Efficacy [lm/W]	72 lm/W	72 lm/W	75 lm/W	71 lm/W	54 lm/W	* module + converter

※ Condition. : CRI : 82 / CCT : 3000 K

UL Certification of Acrich2

NOTICE OF AUTHORIZATION TO APPLY THE UL MARK

02/06/2012

Seoul Semiconductor
Mr. Hyunwoo Paik
1b-36, 727-5 Wonsi-dong
Danwon-gu
Ansan-city Kyunggi-do 425-851, Kr

Our Reference:	File E315508, Vol. 1	Project Number	11CA60662
Your Reference:	PAIK, HYUNWOO MR.		
Project Scope:	Component, LED Modules, Model SMJEA3012220, SMJEA3011220		

Dear Mr. Hyunwoo Paik:

UL's investigation of your product(s) has been completed under the above Reference Number and the product was determined to comply with the applicable requirements.

This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Mark only at authorized factories under UL's Follow-Up Service Program.

To provide the manufacturer with the intended authorization to use the UL Mark, the addressee must send a copy of this notice to each manufacturing location currently authorized in File E315508, Vol. 1.

This authorization is effective from the date of this Notice and only for products at the indicated manufacturing locations. Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent in the near future. Until then, this letter authorizes application of the UL Mark for 90 days from the date of this letter.

Products that bear the UL Mark shall be identical to those that were evaluated by UL and found to comply with UL's requirements. If changes in construction are discovered, appropriate action will be taken for products not in conformance with UL's requirements and continued use of the UL Mark may be withdrawn. UL may elect to withdraw use of the UL Mark if the Applicant or Manufacturer fails to comply with UL's requirements including ongoing compliance of the product, under UL's Follow-Up Service.

Any information and documentation provided to you involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

The contents of this Letter are intended solely for the use of UL and the Applicant. The opinions and findings of UL represent its judgment given with due consideration to the necessary limitations of practical operation in accordance with UL's objectives and purposes. UL shall not otherwise be responsible for the use of or reliance upon the contents of this letter by anyone. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental, consequential or punitive damages, arising out of or in connection with the use or reliance upon the contents of this letter to anyone other than the Applicant as provided in the agreement between UL and Applicant. Any use or reference to UL's name or certification mark(s) by anyone other than the Applicant in accordance with the agreement is prohibited without the express written approval of UL.

Very truly yours,

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SEOFF2D-4DEA6B

Introducing family of Acrich2 and NEW Acrich2

SEOUL SEMICONDUCTOR

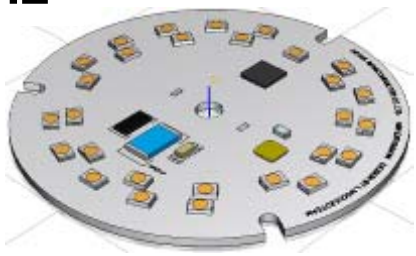
☐ Acrich2 Family

- ✓ A new series of Acrich2 is now in mass production of lighting source.
- ✓ Acrich 2 are designed as 4 W, 8 W, 12 W and 16 W devices respectively.
- ✓ New Acrich2 are revised AIC and LED PKG.

4 W		8 W	12 W	16 W
				
MR	Bulb	Bulb	Bulb	Downlight

NEW Acrich2

Candle 8.5W



Downlight 16W

Introducing family of Acrich2 and NEW Acrich2+

SEOUL SEMICONDUCTOR

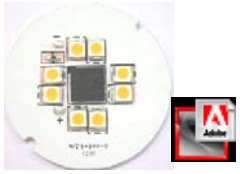
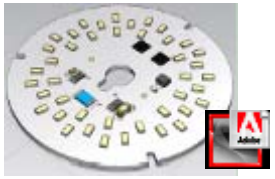
✓ **Acrich2 can be diversely connected to 100 V, 120 V and 220 V outlets eliminating the need for a DC converter.**

		Application	Input Voltage	Part No.	# of LED	# of IC
4 W		Bulb	100 V	SMJE-1V04W1P2-XX	12	1
			120 V	SMJE-2V04W1P3-XX		
			220 V	SMJE-3V04W1P3-XX		
		MR	100 V	SMJP-1V04W1P1-XX	4	
			120 V	SMJP-2V04W1P1-XX		
			220 V	SMJP-3V04W1P1-XX		
8 W		Bulb	100 V	SMJE-1V08W1P2-XX	21	1
			120 V	SMJE-2V08W1P3-XX		
			220 V	SMJE-3V08W1P3-XX		
12 W		Bulb	100 V	SMJE-1V12W1P2-XX	30	2
			120 V	SMJE-2V12W1P3-XX		
			220 V	SMJE-3V12W1P3-XX		
16 W		Down light	100 V	SMJD-1V16W1P2-XX	42	2
			120 V	SMJD-2V16W1P3-XX		
			220 V	SMJD-3V16W1P3-XX		

Introducing family of Acrich2 and NEW Acrich2+

SEOUL SEMICONDUCTOR

✓ **Acrich2 can be diversely connected to 100 V, 120 V and 220 V outlets eliminating the need for a DC converter.**

		Application	Input Voltage	Part No.	# of LED	# of IC
8 W	 Under development	Bulb	100 V	TDB	8	1
			120 V	TDB		
			220 V	TDB		
8.5W	 spec	Candle	100 V	CANDLE MODULE	8	1
			120 V	CANDLE MODULE		
			220 V	CANDLE MODULE		
12w	 Under development	Bulb	100 V	TDB	16	1
			120 V	TDB		
			220 V	TDB		
16 W	 ACRICH2+	Down light	100 V	TDB	42	2
			120 V	SMJD-S16ES120		
			220 V	SMJD-S16ES220		

Introducing family of Acrich2 and NEW Acrich2+

SEOUL SEMICONDUCTOR

☐ Acrich2 Family at voltage

- ✓ MR, bulbs can be replaced by 4 W Acrich2
- ✓ Acrich2 can also be used widely in replacing traditional 40W, 60W light bulbs and down light.

Power	Replacement	Luminous Flux [lm]						Remarks
		100 V		120 V		220 V		
		Min	Typ	Min	Typ	Min	Typ	
4 W	Bulb	240	290	240	290	280	330	Ref. 220V
	MR	220	245	250	290	270	320	Ref. 220V
8 W	40 W Bulb	500	570	500	570	560	640	Ref. 220V
8.5W	Candle light	–	–	–	–	520	560	Ref. 220V
12 W	60 W Bulb	780	820	800	840	900	940	Ref. 220V
16 W	Down light	1000	1100	1000	1100	1050	1250	Ref. 220V

- ➢ Acrich2 includes a fully Integrated module combining with IC for power conditioning
- ➢ Easy to design customer's own bulbs
- ➢ Directly connect to AC power via 2 wires
- ➢ Standard form factor to fit MR, 40W and 60W bulb
- ➢ Speeds time to market since light engine design is already completed
- ➢ Dimmable

Acrich2 Benefits : Long Life Time

SEOUL SEMICONDUCTOR

☐ Features and Benefits

✓ **Long Life time -> $1,926(per 20sets) cost save for 11 years**

Acrich → 50,000 hrs

Acrich IC → 87,000 hrs

Light bulb with Acrich2 → 50,000 hrs

Lifetime of light bulb with Acrich2

DC LED → 50,000 hrs

AC/DC Converter → 15,000 hrs

Light bulb with DC LED → 15,000 hrs

Lifetime of light bulb with DC LED + AC/DC converter

Operating time is 12 hours a day, bulb of 50,000 life time is available for 4,166 days(11.4years)

Bulb retail price(Acrich 2, DC apply equally)
$25

60Watt Omni-Directional bulb retrofit basis

Initial investment (product purchase cost)
$500

$25 x 20 bulbs in one office space

Maintenance cost (for 11 years)

Personnel expenses of installation
$85/hr

100 min. (20ea exchange time) : 5min./1ea
$142

Installation and exchange
AC 2 Bulb 1time
DC Bulb 4times

Total
AC2 Bulb $ 642
DC Bulb $2,568

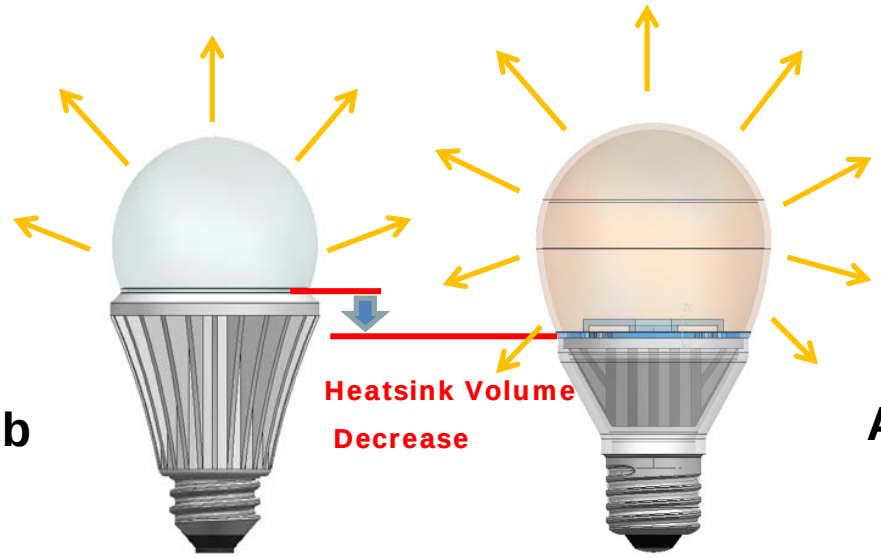
75% cost save

DC bulb
4 x $500(product purchase cost) +
4 x $142(Personnel expenses of installation and Maintenance cost)

Acrich2 bulb
$500(product purchase cost) +
$142(Personnel expenses of installation and Maintenance cost)

Acrich2 Benefits : Design Flexibility

SEOUL SEMICONDUCTOR



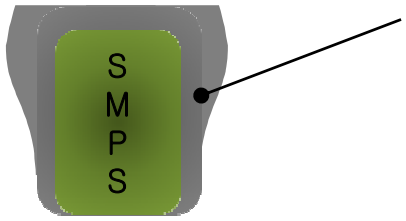
Normal DC Bulb

Acrich2 Bulb

Angle: Max.140°

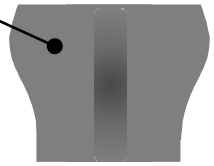
Angle: Max.300°

Semi-Omni directional Lamp



Heatsink Area

Heatsink Volume Decrease



✓ **Heatsink for DC Solution (include converter)**

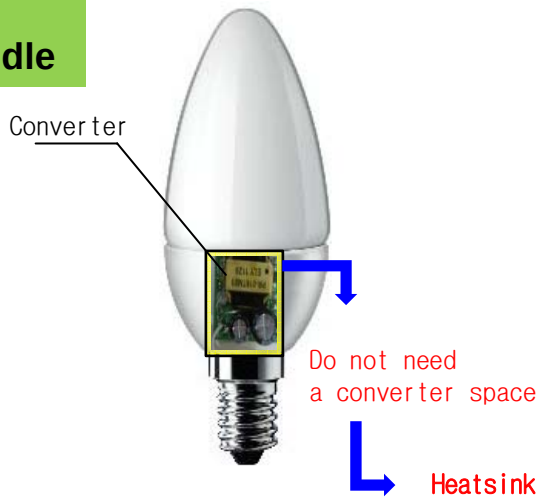
✓ **Heatsink for Acrich 2**

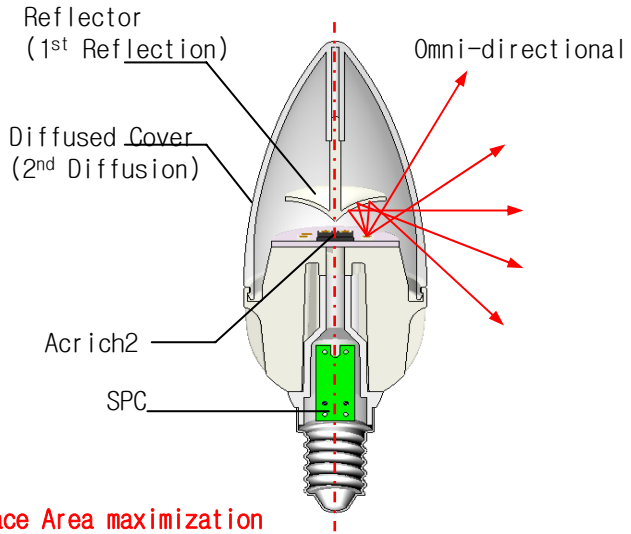
Acrich2 Benefits : Design Flexibility

SEOUL SEMICONDUCTOR

Example 1
Acrich2 Bulb

Example 2
Acrich2 Candle





Acrich2 Benefits : Power Consumption

SEOUL SEMICONDUCTOR

- Power plants don't need to generate much electricity by effective power consumption thanks to Acrich 2 with high power factor.
- High power factor of Acrich 2 enables power plant to save much electricity than when using DC LED.
- Acrich 2 applied light bulbs can reduce as much CO_2 as two trees can due to its high power factor.

	Acrich 2	DC LED
Power Factor	0.95~0.97	0.5~0.9
Power Efficiency	≥ 90 %	75 ~ 85%

8W Light bulb with Acrich 2

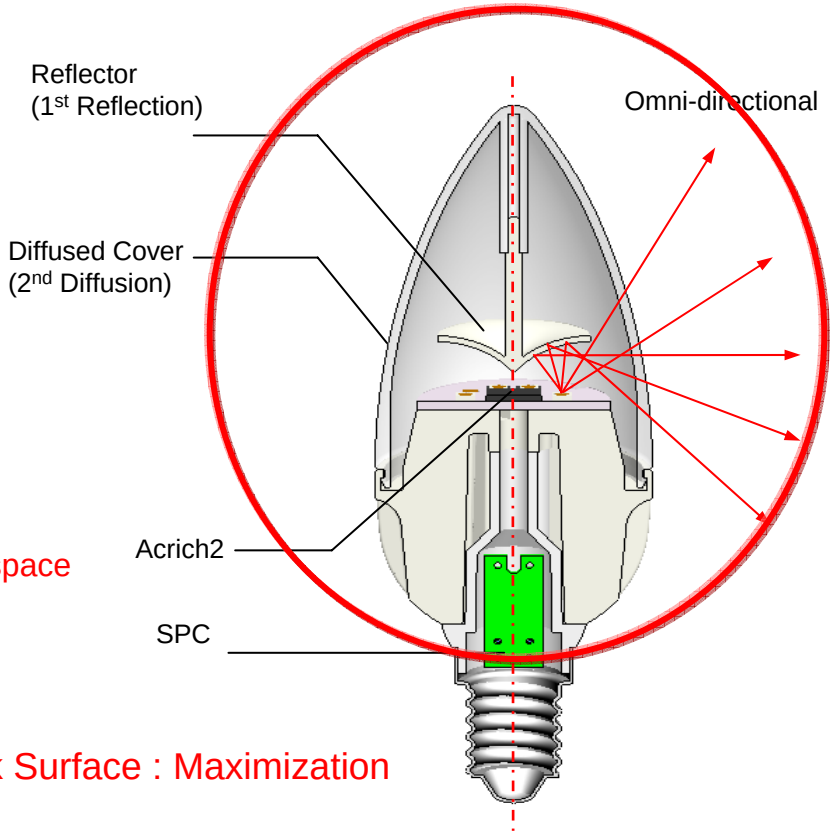
=

+

Acrich2 Candle Module

Do not need
a converter space

Heat Sink Surface : Maximization



Acrich2 Candle Module

SEOUL SEMICONDUCTOR

☐ Features and Benefits

Index	Acrich2 Candle	P-company Candle	G-company Candle	O-company Candle	S-company Candle
Power Consumtion [W]	**8.4**	3	1.8	3.5	4
Luminous Flux [lm]	**450**	**136**	**75**	**250**	**230**
Luminous Efficacy [lm/W]	54	45.3	41.6	71.4	57.5
Power Factor	0.96	0.6	-	-	0.9
Color Temperature[K]	3,000	2,700	3,000	2,700	2,700
Color Rendering Index [Ra]	80	90	75	80	80
Beam Angle [FWHM, ˚]	260	300	-	-	160
Size	40 x 117.8	35.5 x 101	35 x 104	37 X 102	35 x 102
cent/lm	**2.4**	14.7	24.0	-	7.6
Selling price [$]	**$$$**	$20	$17.99	New	$17.4
Life Time	25,000h	50,000h	15,000h	25,000h	20,000h
Image					

Acrich2 Street lighting

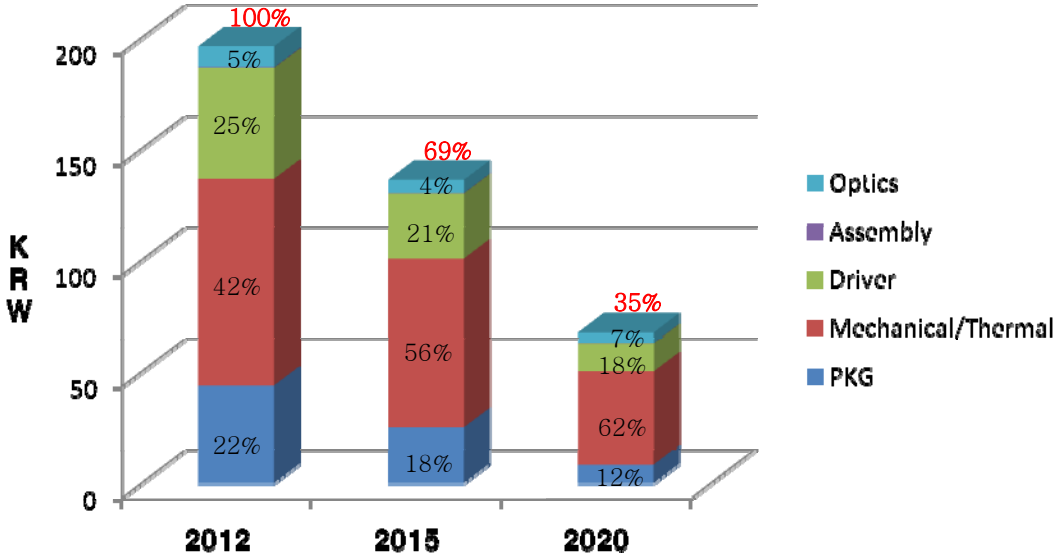
SEOUL SEMICONDUCTOR

- **Cost Percentage**
  - Mechanical/Thermal → 47%, Converter → 25%, PKG → 22%
- **Cost Strategy**
  - Module & Heat Sink Size → Minimum
- **Effect**
  - Fixture Size ↓ Weight ↓ Cost ↓
  - Low maintenance cost

Longer Life time → Low maintenance cost

Street light Cost %

Index	2012	2015	2020
PKG	22%	18%	12%
Mechanical /Thermal	47%	56%	62%
Driver	25%	21%	18%
Assembly	0.1%	0.1%	0.2%
Optics	5%	4%	7%



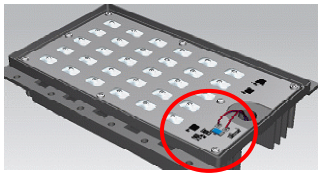
Acrich2 Street lighting

❑ **Small and Light Head (20~30% ↓) → Saving Total System Expense**

- Reduced Weight -> No Change Street Light Pole

Present

AC-DC Converter

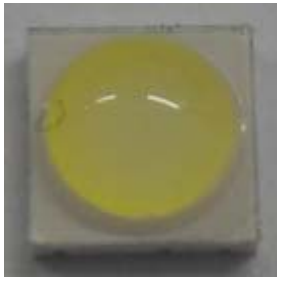


Future

Acrich2 COB

Acrich2 Street lighting

SEOUL SEMICONDUCTOR

ITEM	PRODUCT	Fix.
PKG	- 4040 PKG: 1.5W	 
30W	- 4040 PKG: 22ea - AC IC: 2ea - Min.2700lm/System - PCB Size: 127.6 x 147.6(mm)	 
45W	- 4040 PKG: 33ea - AC IC: 3ea - Min.4000lm/System - PCB Size: 127.4 x 233.4(mm)	 

Acrich2 Street lighting

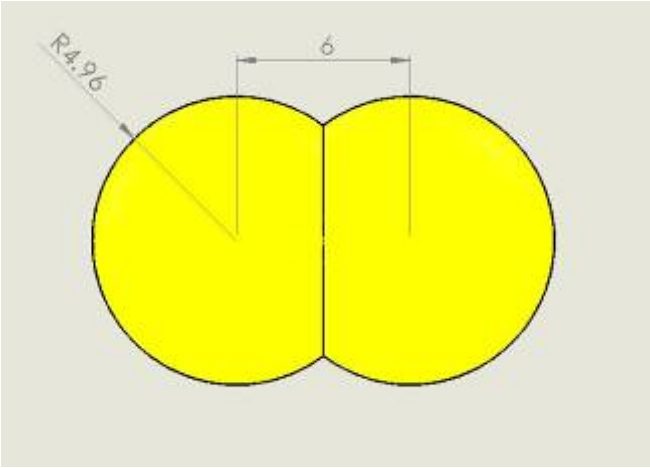
SEOUL SEMICONDUCTOR

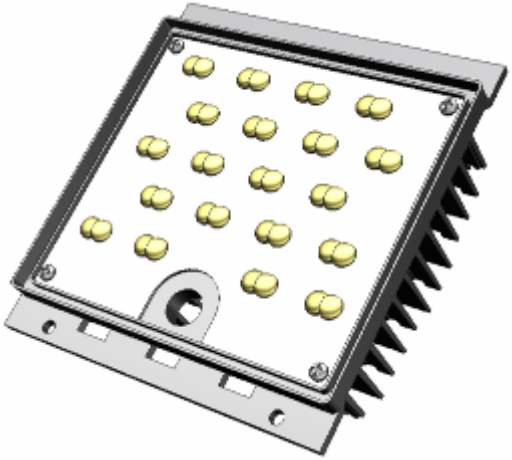
Electrical & Optical

Index list	Luminous Flux [lm]	Watt [W]	System Efficacy [lm/W]	CCT [K]	CRI
30W Module	2800	30	93	5000	Min 70
45W Module	3840	40	95	5000	Min 70

 # system efficacy -> module + 2nd optic + aging 1hour

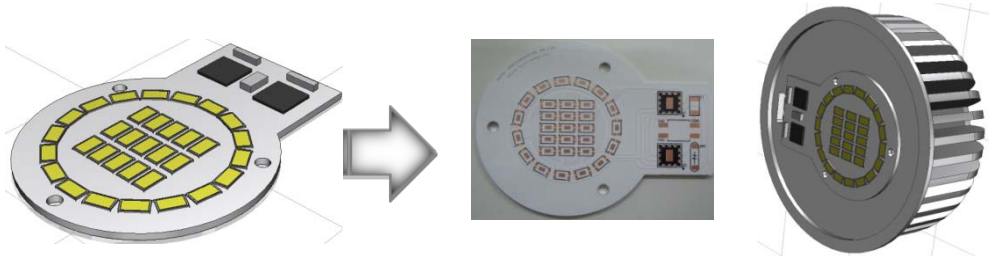
Lens Design Concept





Acrich Customized Module

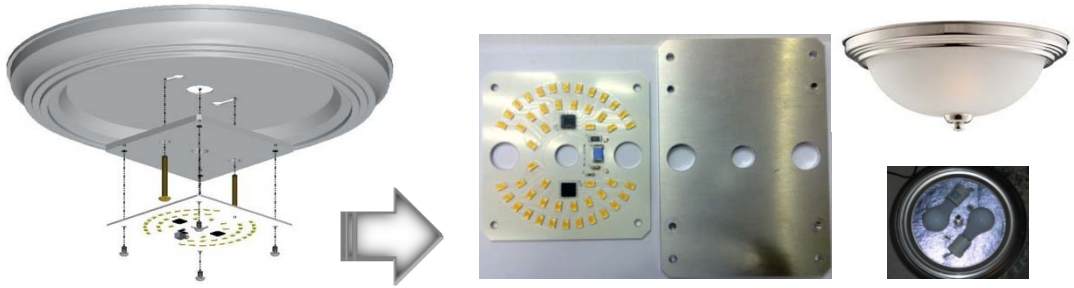
Down lighting



< Spec. >

- Acrich2 120V 12, Warm / 750lm

Flush mount Lamp



< Spec. >

- Acrich2 120V 16W(17W), 138x94mm
- External diameter: 11” (325 mm)
- Internal diameter :8.25” (210 mm)
- Light source : 1600 lm
- Target Lumens: 1000 min
- Dimmable ; Yes
- Provisions for mounting to a J-Box

Acrich Customized Module

Street lighting

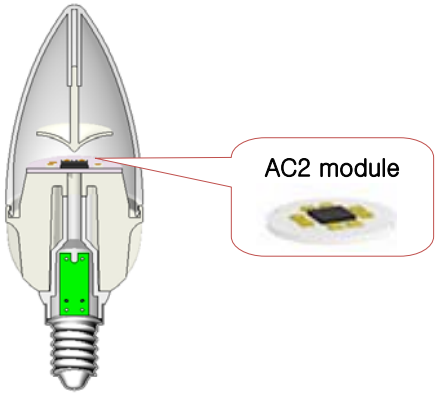
<30W>

<45W>

< Spec. >

- Engine type :
  Acrich module + Heat sink + 2nd Optics
- Power : 30W / 45W (220/230/240V)
- Luminous Flux : 2850lm(30W, 5000K)
- Efficacy : 95 lm/W
- Color Rendering Index (Ra) : Min 68

Candle lamp



< Spec. >

- Power consumption : 8.4W
- Luminous Flux : 400lm
- Color temperature : 3,000K
- Color Rendering Index (Ra) : 80
- Beam angle : 260

Acrich Customized Module

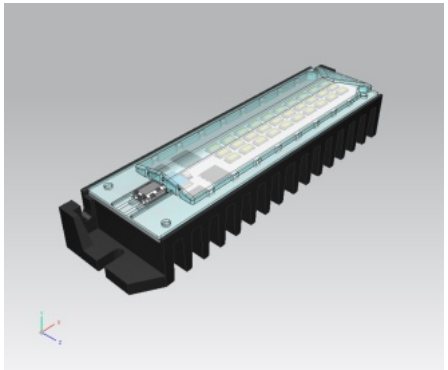
Road indication

< Spec. >

- A Type : Acrich2 220V 8W

- B Type : Acrich2 220V 12W

Wall washer, General purpose lighting



< Spec. >

- Power consumption : ~ 12 W
- Luminous Flux : ~ 1000 lm
- Color temperature : 5,000K~7,000K
- Color Rendering Index (Ra) : 70~80

<Application>

-Wall washer lighting

- General purpose lighting
- Flood lighting
- Garden lighting
- Architectural lighting

Acrich Customized Module

Omni direction lighting module (with 2ndary diffuse lens)

< Spec. >

- Power consumption : 12W
- Luminous Flux : 1000 lm
- Color temperature : 5,000K~7,000K
- Color Rendering Index (Ra) : 70~80

<Application>

- General lighting, Work lamp

Linear module

< Spec. >

- Power consumption : ~8.4W
- Luminous Flux : ~800 lm
- Color temperature : 5,000K~7,000K
- Color Rendering Index (Ra) : 70~80

<Application>

- Retail display, Refrigerator display lighting
- Cove lighting, Linear lamp

Lead time of development

Acrich2 Develop. Process & schedule (Custom type)

Module Development & MP Experience : Over 20 years !!!

Speedy Development Sample : within 1 week
MP Setup complete : 2 weeks After customer approval
MP Delivery : Only 4 weeks after customer order

Note

■ Condition

-.Working Day
-.Non-special specification
-.Smooth material supply

Total within 7 weeks!!

Customer Application

8w bulb

17w dimmable ceiling light

Customer Application

12W/ 16W downlight

Customer Application with plasticized ceramic

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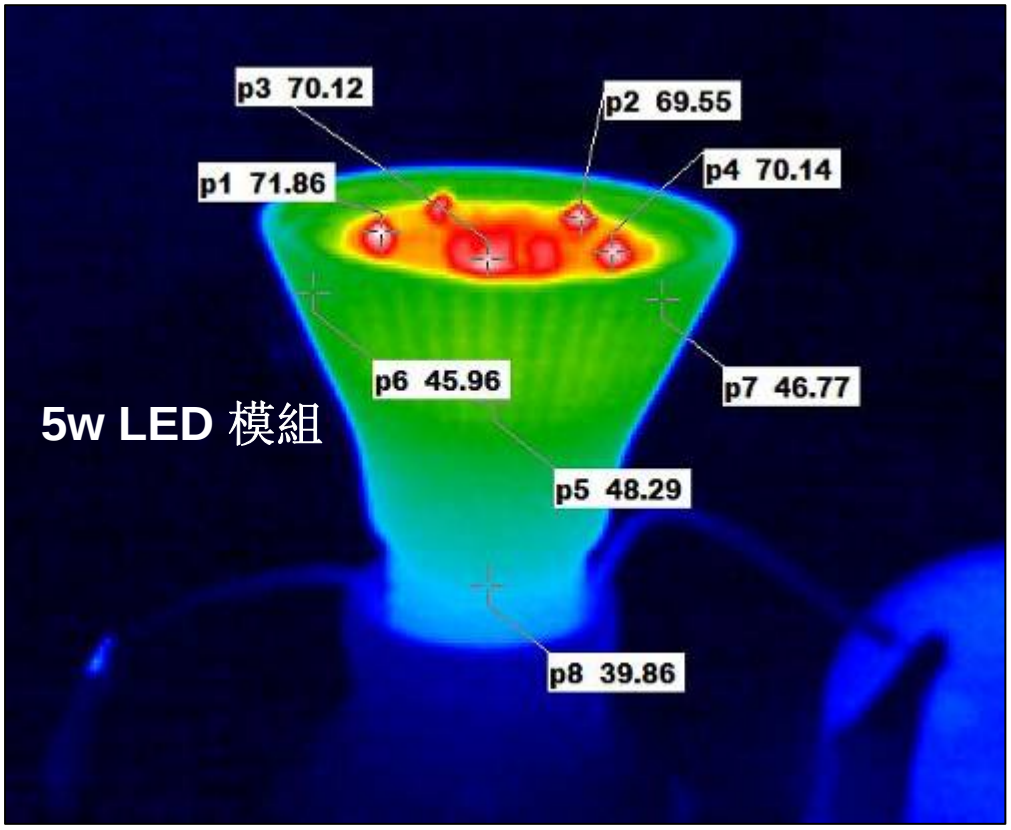
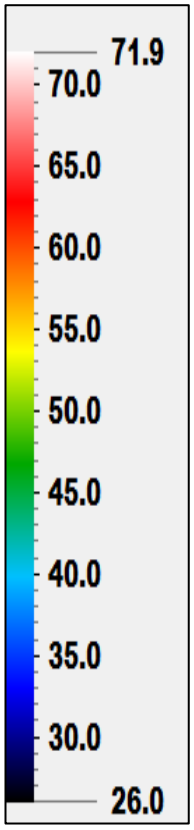
4.5w MR

4.5w Bulb

12w Bulb

Customer Application with plasticized ceramic





编号	温度	X	Y
1	71.86	61	34
2	69.55	93	32
3	70.12	78	38
4	70.14	98	37
5	48.29	79	59
6	45.96	50	43
7	46.77	106	44
8	39.86	78	86

Customer Application with plasticized ceramic

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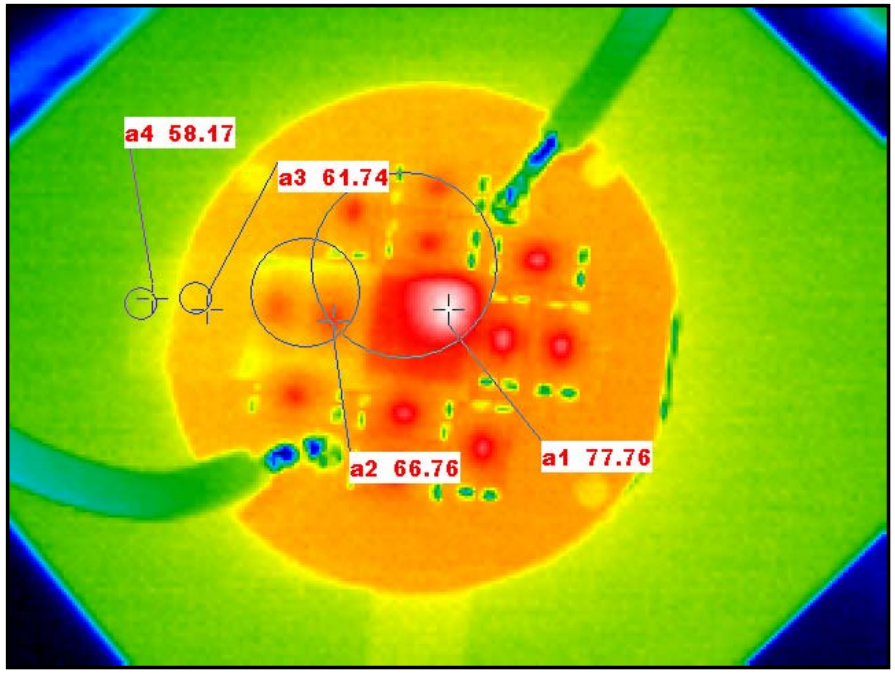
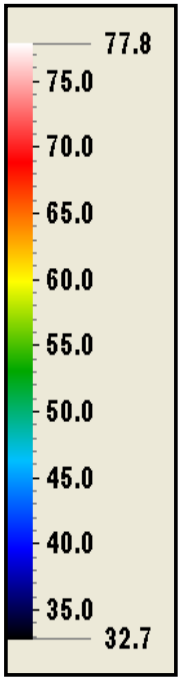
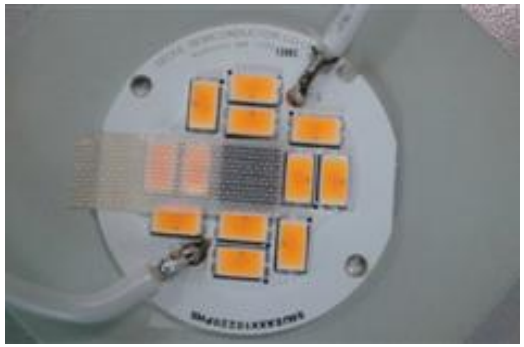
Thermal Test Report with Seoul 4.5w LED module







Point	Max Temp(℃)	X(TH)	Y(TH)	Comment
a1	77.76	81	56	Surface Temperature of Power IC
a2	66.76	60	58	Surface Temperature on the top of LED package
a3	61.74	37	56	Surface Temperature of MCPCB
a4	58.17	27	54	Surface Temperature of HASC near MCPCB edge

Summary

1) Low Cost

-. In comparison with DC solution

2) Heat-sink benefit

-. Material Cost Down

-. Heat-sink Design : Flexibility.

-. Semi or Full Omni directional Lamp : advantage

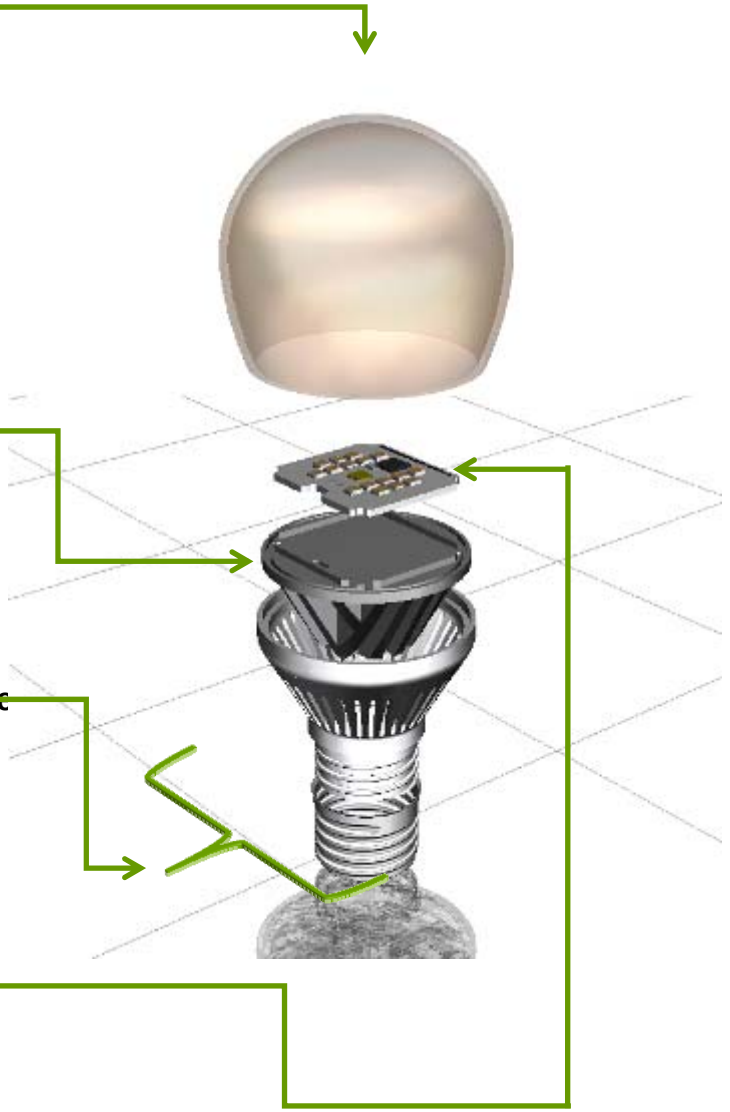
3) Long life time

-. Long Life Time (Life Time : >35,000 hr) → Saving Maintenance

4) Customize

-. According to Customer needs, Action to flexible outline dimension and change of Hole position.

-. If you want to change the characteristics required development period: within 7 weeks



Acrich HV

Acrich 5630

SEOUL SEMICONDUCTOR

Size : 5.6 x 3.0 mm
Thickness : 0.75 mm

Advantages & Benefits

. High voltage operation(Typ 19V / Typ 22V)
. Energy Star Bin system
. Long Life Time

Applications

. Acrich2 Module (4W/8W/12W/16W)
Indoor lighting
. Bulb replacement
. Down Light
. Ceiling panel light

Electrical Optical Characteristics

Part No.	Color CCT	Luminous Flux [lm]	Operating condition [mA @V]	Power dissipation [W]	Luminous Efficacy [lm/W]	CRI	Viewing Angle [º]	Thermal Resistance [R θ J-C , ºC /W]
SAW8KG0A	3700-7000	40	DC 20mA @19V	0.38	105	82	125	27
	2600-3700	35			93			
SAW8KG0B	3700-7000	43	DC 20mA @22V	0.44	97	82	125	27
	2600-3700	38			86			

Acrich 6540

SEOUL SEMICONDUCTOR

Size : 6.5 x 4.0 mm
Thickness : 0.8 mm

Advantages & Benefits

. High voltage operation(Typ 13V)
. Energy Star Bin system
. Long Life Time

Applications

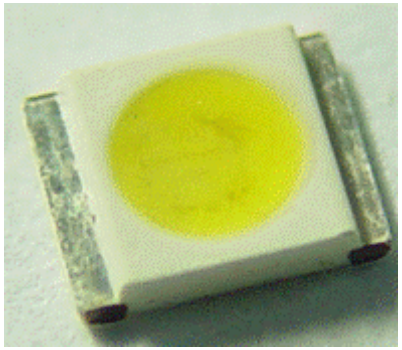
. Acrich2 Linear Module
- Indoor lighting
. Inner refrigerator

Electrical Optical Characteristics

Part No.	Color CCT	Luminous Flux [lm]	Operating condition [mA @V]	Power dissipation [W]	Luminous Efficacy [lm/W]	CRI	Viewing Angle [º]	Thermal Resistance [R θ J-C , ºC /W]
SAW8P42A	3700-7000	30	DC 20mA @13V	0.26	116	83	115	20

Acrich 3528

SEOUL SEMICONDUCTOR



Size : 3.5 x 2.8 mm
Thickness : 0.6 mm

Advantages & Benefits

. High voltage operation(Typ 32.5V)
. Energy Star Bin system
. Long Life Time

Applications

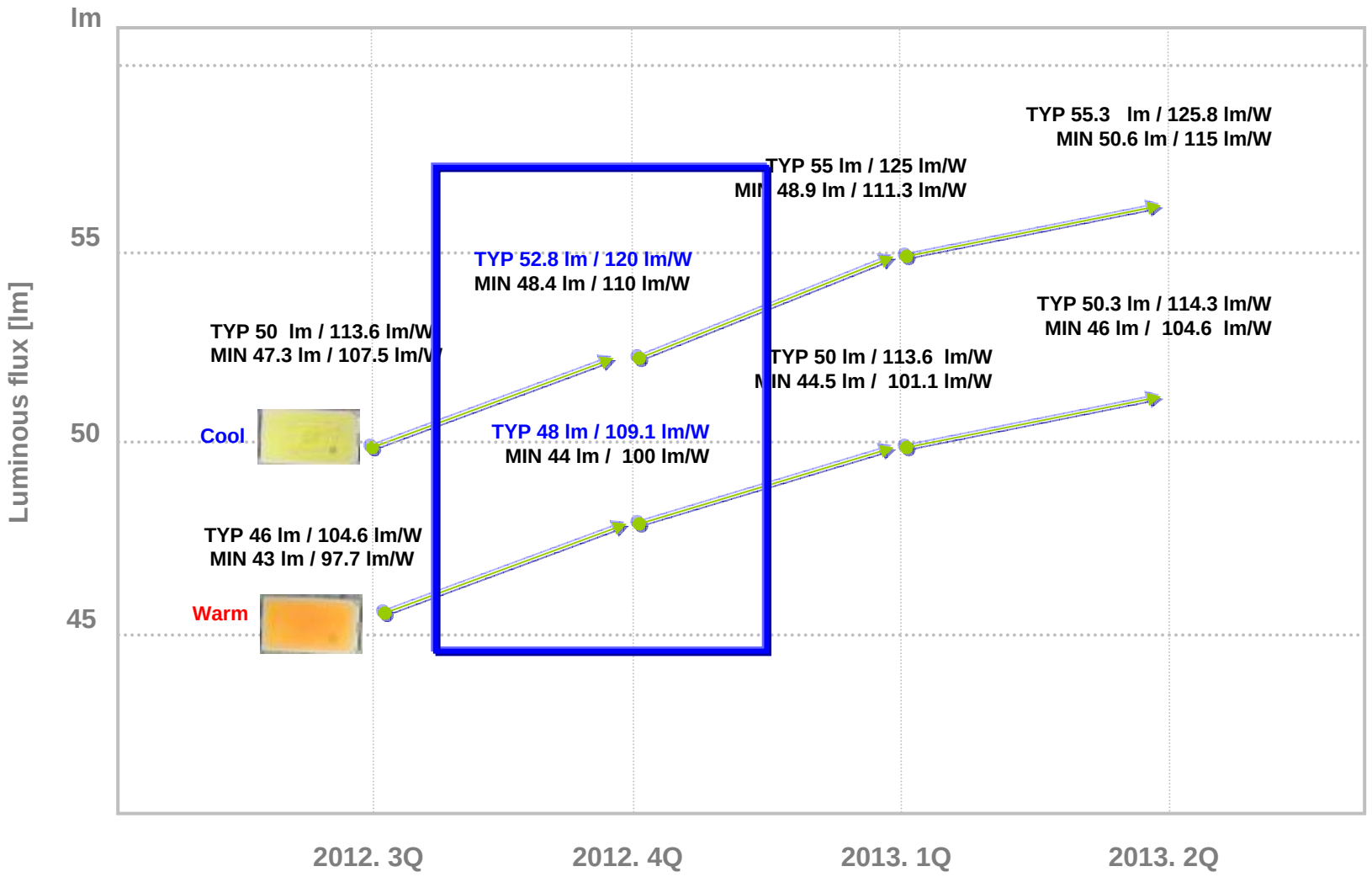
. Acrich2 Linear Module
- Indoor lighting
. Inner refrigerator

Electrical Optical Characteristics

Part No.	Color CCT	Luminous Flux [lm]	Operating condition [mA @V]	Power dissipation [W]	Luminous Efficacy [lm/W]	CRI	Viewing Angle [º]	Thermal Resistance [R θ J-C , ºC /W]
SAW8WA2A	3700-7000	120	DC 40mA @32.5V	1.3	92	82	120	23
	2600-3700	110			85			

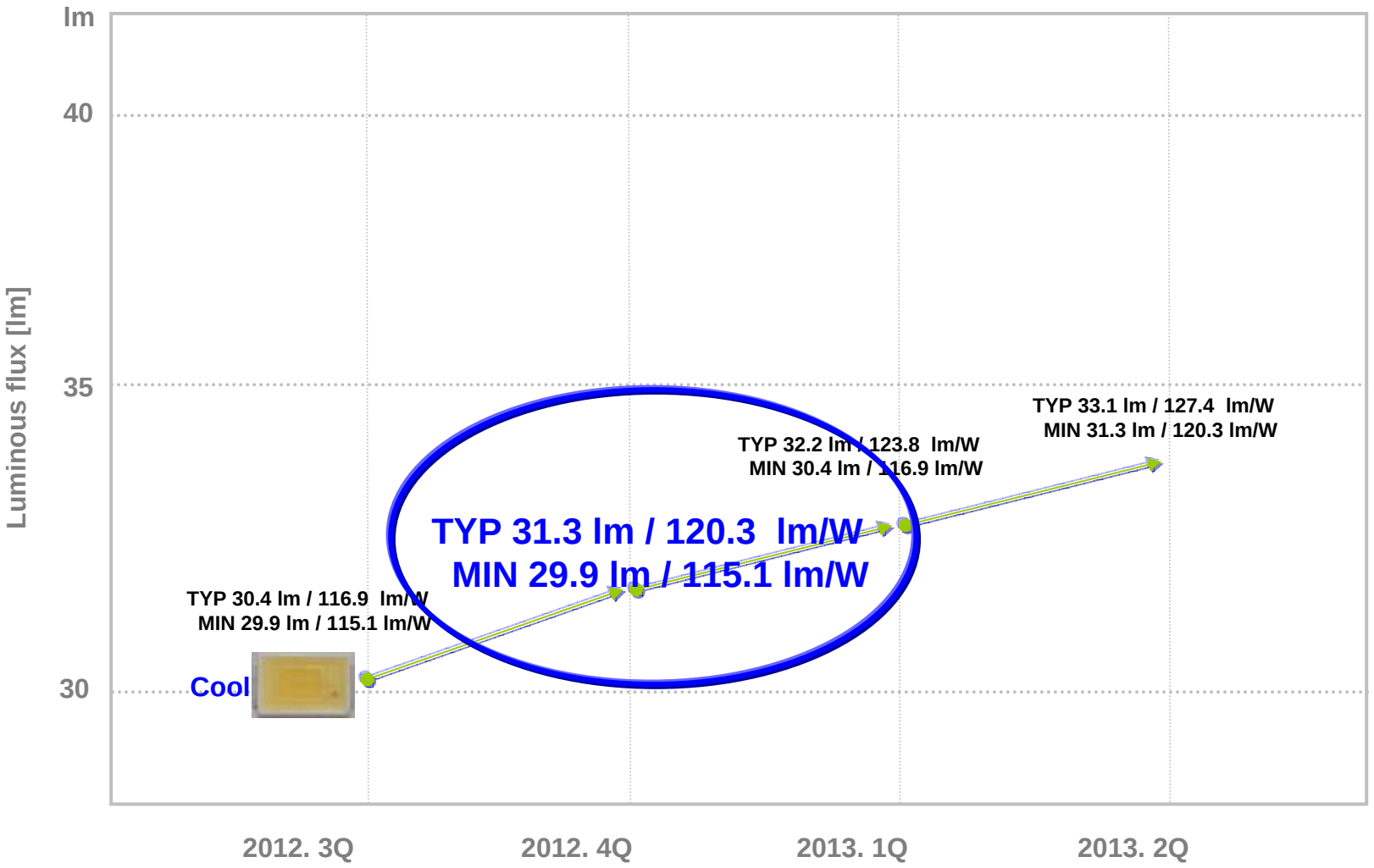
Flux Roadmap_Acrich 5630

SEOUL SEMICONDUCTOR



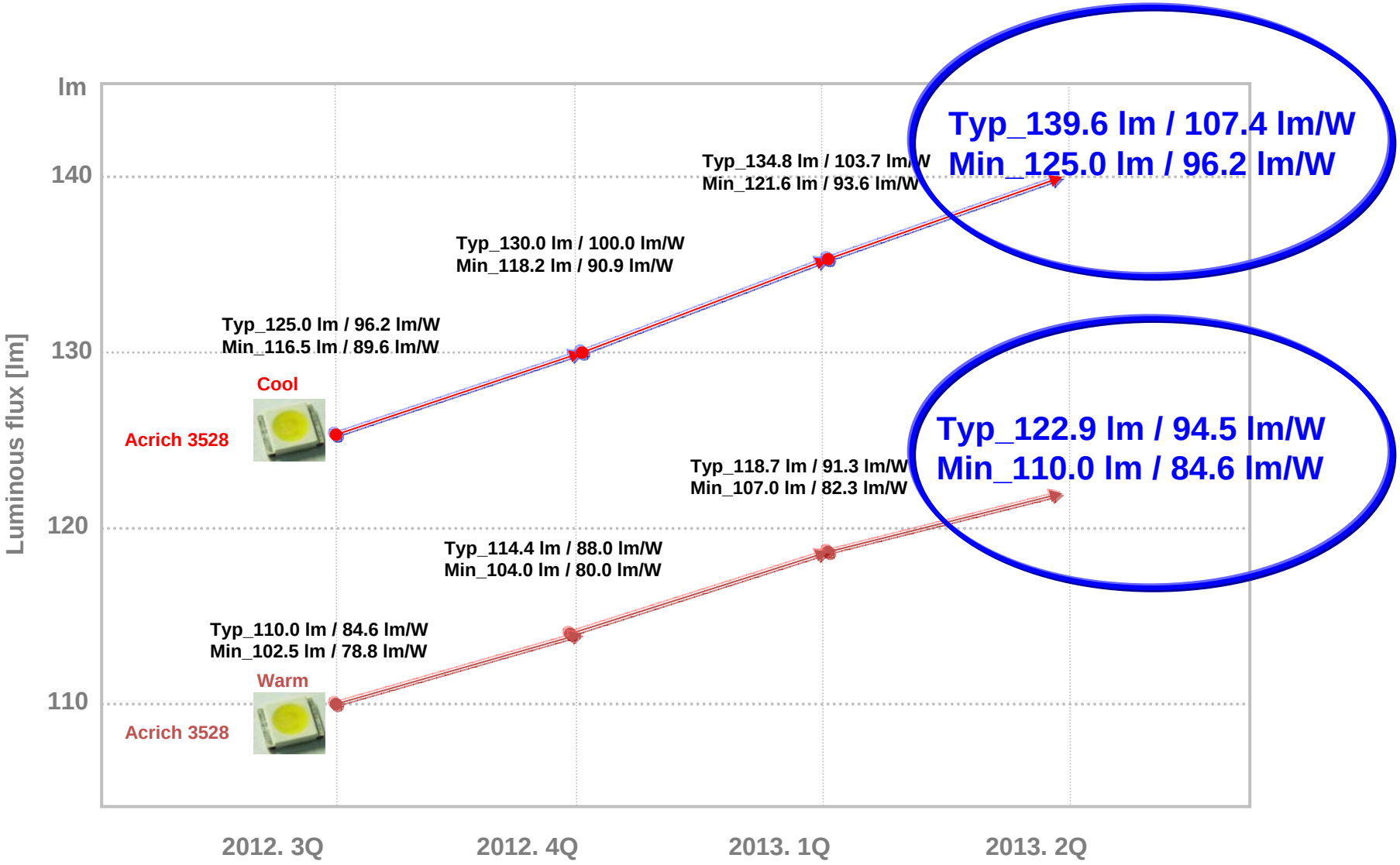
Flux Roadmap_Acrich 6540

SEOUL SEMICONDUCTOR



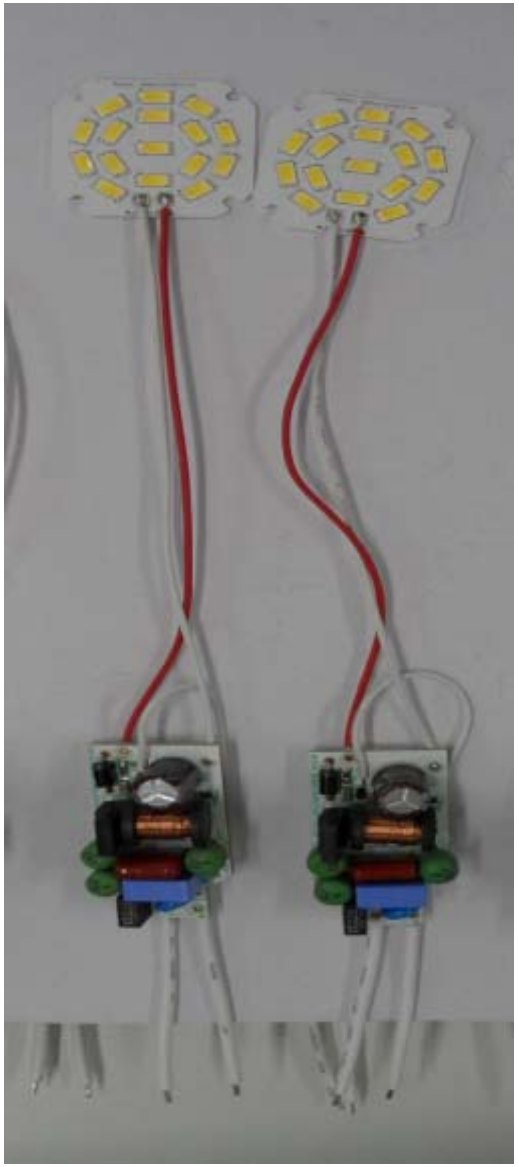
Flux Roadmap_Acrich 3528

SEOUL SEMICONDUCTOR



Acrich module demokit

SEOUL SEMICONDUCTOR

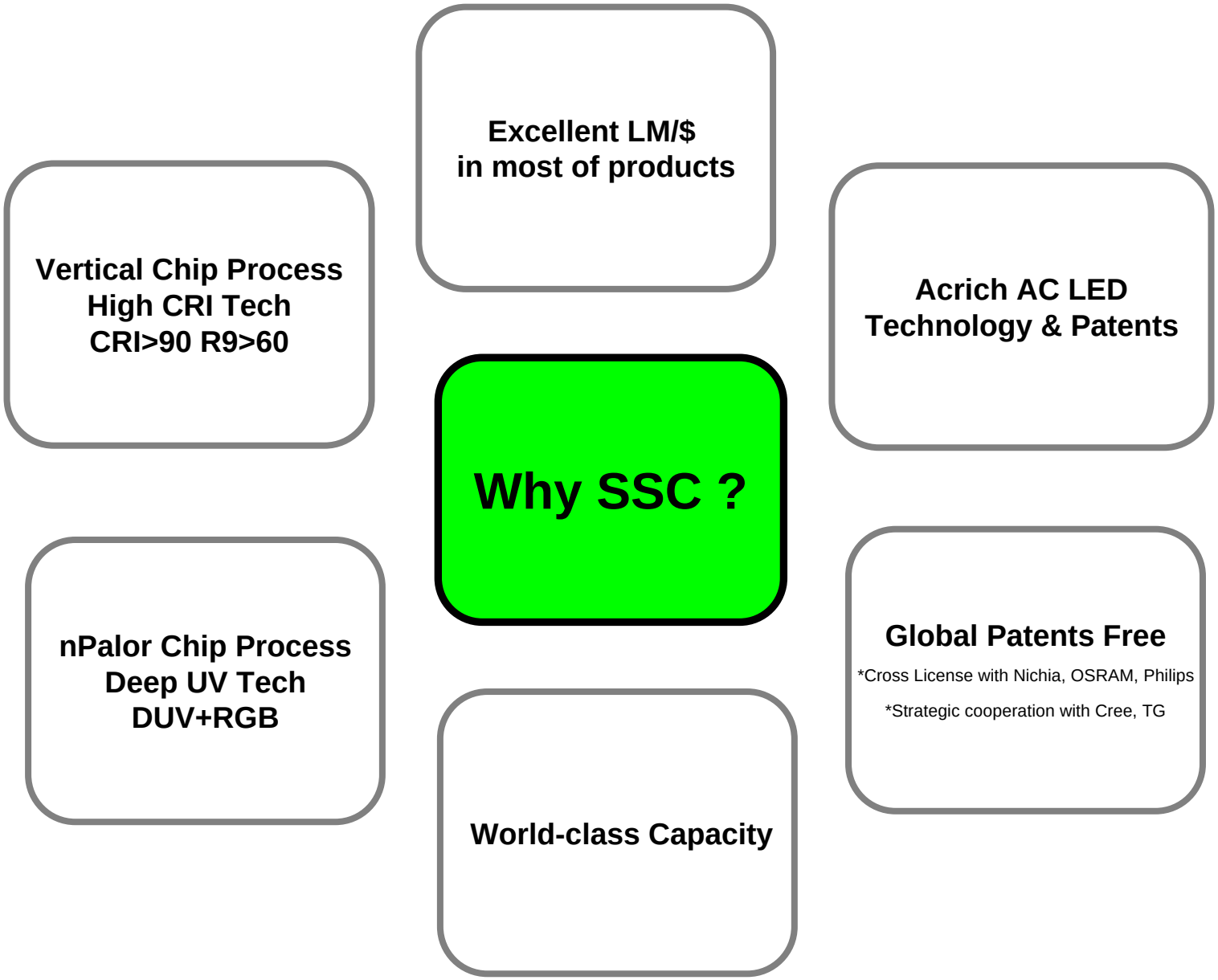


Warm white

Item		Unit	AC 220V	Remark
电特性	Vrms	V	220	
	Arms	A	32	
	Watt	W	6.5	
	PF	-	0.92	
	THD	%	21	
光特性	Flux	lm	550	
	Efficiency	lm/W	85	
	CIE	Cx	0.445	
		Cy	0.414	
	CCT	K	2963	
	CRI	Ra	83	

Cool white

Item		Unit	AC 220V	Remark
电特性	Vrms	V	220	
	Arms	A	33	
	Watt	W	6.6	
	PF	-	0.88	
	THD	%	22	
光特性	Flux	lm	597	
	Efficiency	lm/W	91	
	CIE	Cx	0.352	
		Cy	0.366	
	CCT	K	4811	
	CRI	Ra	84	


Excellent LM/$
in most of products
Vertical Chip Process
High CRI Tech
CRI>90 R9>60
Acrich AC LED
Technology & Patents
Why SSC ?
nPalor Chip Process
Deep UV Tech
DUV+RGB
Global Patents Free
*Cross License with Nichia, OSRAM, Philips
*Strategic cooperation with Cree, TG
World-class Capacity

Eiffer Tower, Paris

With SSC P4 Series

Thanks