



SEOUL SEMICONDUCTOR

Acrich COB Zhaga Module

Seoul Semiconductor

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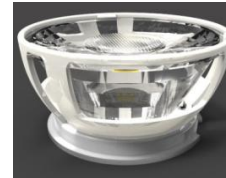
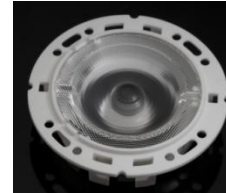
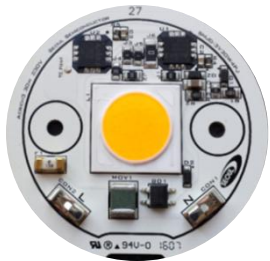
Acrich COB Zhaga Module Family

- Zhaga Compatible
- No Junction box necessary for AC/DC converter
- Compatible with multiple lenses/reflectors available in the market
- Customer can use cables of 1.5mm² section and connect it directly to mains according to luminaires regulation IEC 60598-1
- Dimmable with TRIAC – Trailing Edge only
- Highest lm/w in the market for AC COB technology

@ Ts = 85°C

Model	LES [mm]	Size [mm]	CCT [K]	Power [W]	CRI	Flux min [lm]	Eff. min [lm/W]
	14	57mm (Round)	3000K	20W	80	1,900	95
					90	1,700	85
				30W	80	2,850	95
					90	2,550	85
			4000K	20W	80	2,000	100
					90	1,800	90
				30W	80	3,000	100
					90	2,700	90

Acrich COB Zhaga Module – a NEW World of possibilities



Acrich COB
ZHAGA

HEATSINKS

HOLDERS
COVERS

REFLECTORS
LENS

DIMMERS

Acrich COB Zhaga Module Family

- Expected Lifetime with simulated values
- Final LM80 values with 6000hours test will be available in **February 2017**
- **Longer lifetime** is expected for the 20W module based on same LED driven at lower power

Power [W]	TM21 (L70)	TM21 (L80)	TM21 (L90)
	Calculated for Ts=85 °C [hours]	Calculated for Ts=85 °C [hours]	Calculated for Ts=85 °C [hours]
30W	165.000h	105.000h	51.000h

- CE certification test report issued by TUV Germany will be available from 20th October 2016

Advantages of AC COB ZHAGA from SSC

- **Benefits of AC COB ZHAGA compared with AC/DC driver**
 1. Less mechanical parts, **compact solution**
 2. Highest lumen/watt in the market → **134 lm/w module**
 3. More **cost effective** solution
 4. **Dimmable with TRIAC** – Trailing Edge only
 5. More **design free** than other solutions
 6. Safe and efficient solution
 7. **Longer lifetime** based on Acrich technology
 8. Easy to implement in traditional systems or mechanics
 9. **CE** certification from **TUV** Germany



Acrich COB Zhaga – Test reports

Summary of samples test results

*** Tests done at Tambient and Tc 25°C (Flash test)*

Reference	Power [W]	CCT [K]	CRI	Flux Typ [lm]	Eff. typ [lm/W]
Sample 1	18.8	3783	83.7	2540	134 Highest in market
Sample 2	19.8	3084	82.0	2662	134
Sample 3	19.5	3749	91.9	2333	119
Sample 4	20.1	2971	92.6	2169	107
Sample 5	30.8	3808	83.4	3808	128
Sample 6	31.2	3004	80.7	3627	116
Sample 7	30.5	3760	92.1	3380	110
Sample 8	31.4	2975	92.0	3096	98

Acrich COB Zhaga – Test reports

Sample 1. Test Acrich COB Zhaga 20W 4000K CRI80

Light efficiency:

134 Lumen/Watt

Light quality:

CRI: 83.7

Color temperature:

3783 K

Output: 2540 lm

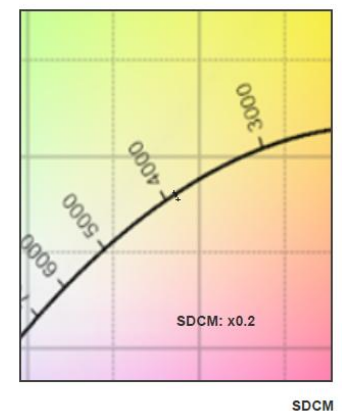
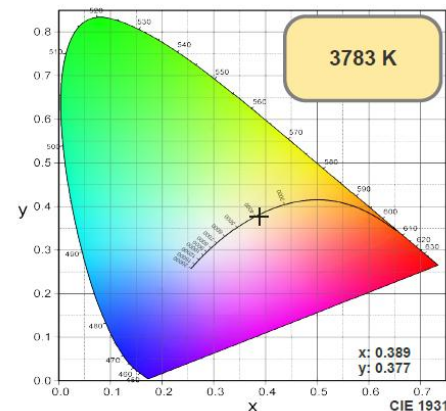
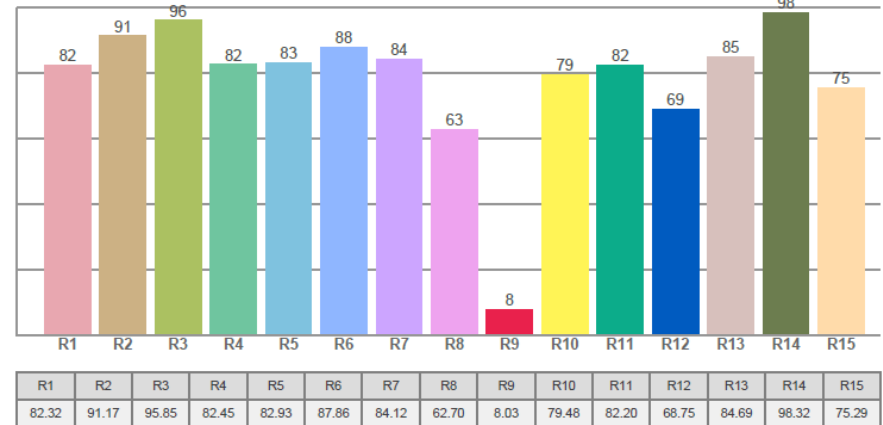
Peak: 759 cd

Power: 18.8 W

PF: 0.99

**** Tests done at Tambient and Tc 25°C (Flash test)**

R1-R8 = CRI: 83.7



Acrich COB Zhaga – Test reports

Sample 2. Test Acrich COB Zhaga 20W 3000K CRI80

Light efficiency:

134 Lumen/Watt

Light quality:

CRI: 82.0

Color temperature:

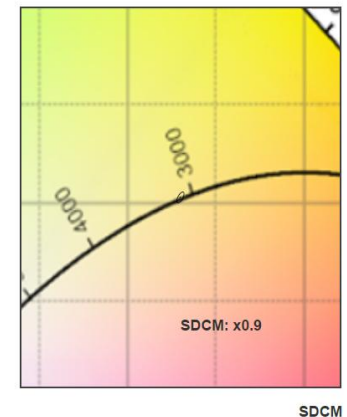
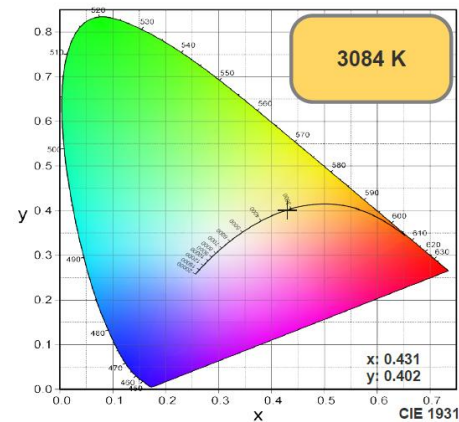
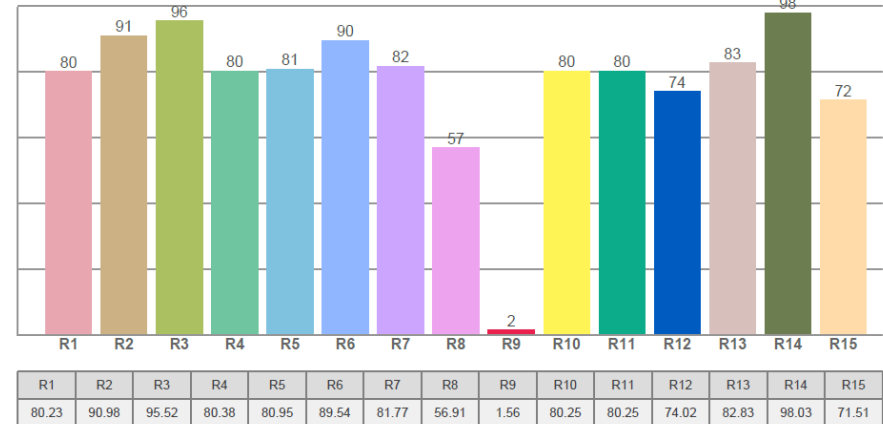
3084 K

Output: 2662 lm
Peak: 759 cd

Power: 19.8 W
PF: 0.99

**** Tests done at Tambient and Tc 25°C (Flash test)**

R1-R8 = CRI: 82.0



Acrich COB Zhaga – Test reports

Sample 3. Test Acrich COB Zhaga 20W 4000K **CRI90**

Light efficiency:

119 Lumen/Watt

Light quality:

CRI: 91.9

Color temperature:

3749 K

Output: 2333 lm

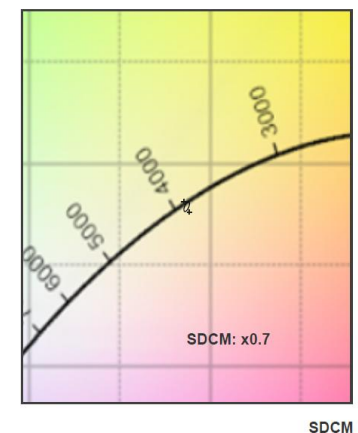
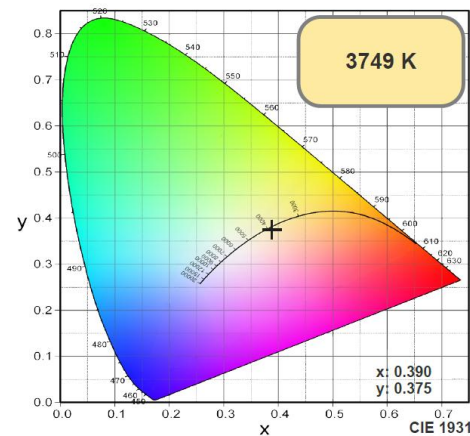
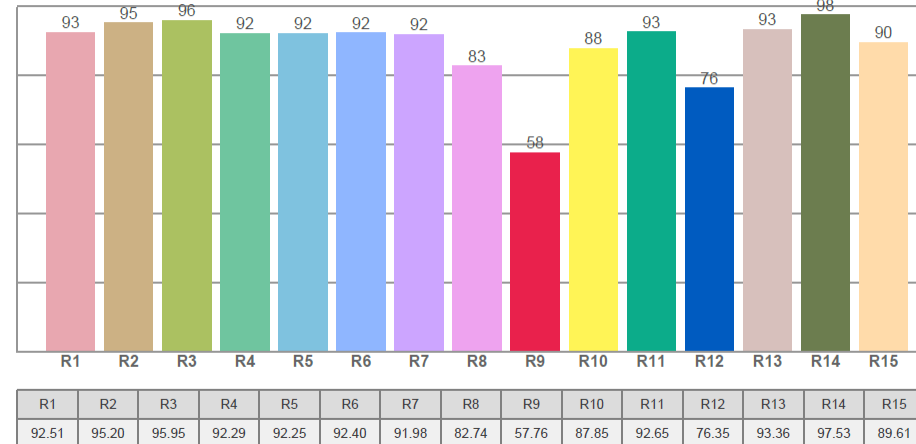
Peak: 695 cd

Power: 19.5 W

PF: 0.99

**** Tests done at Tambient and Tc 25°C (Flash test)**

R1-R8 = CRI: 91.9



Acrich COB Zhaga – Test reports

Sample 4. Test Acrich COB Zhaga 20W 3000K **CRI90**

Light efficiency:

107 Lumen/Watt

Light quality:

CRI: 92.6

Color temperature:

2971 K

Output: 2169 lm

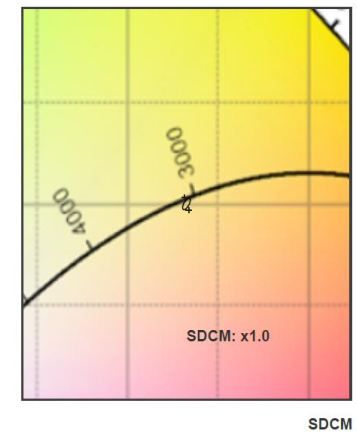
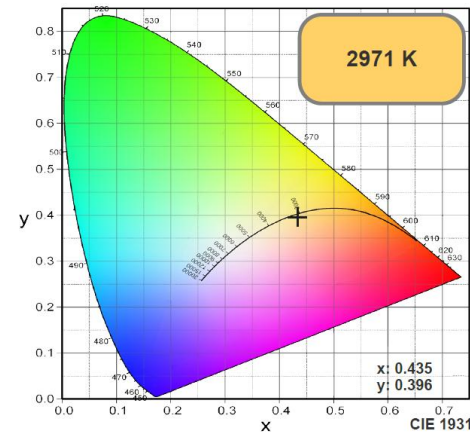
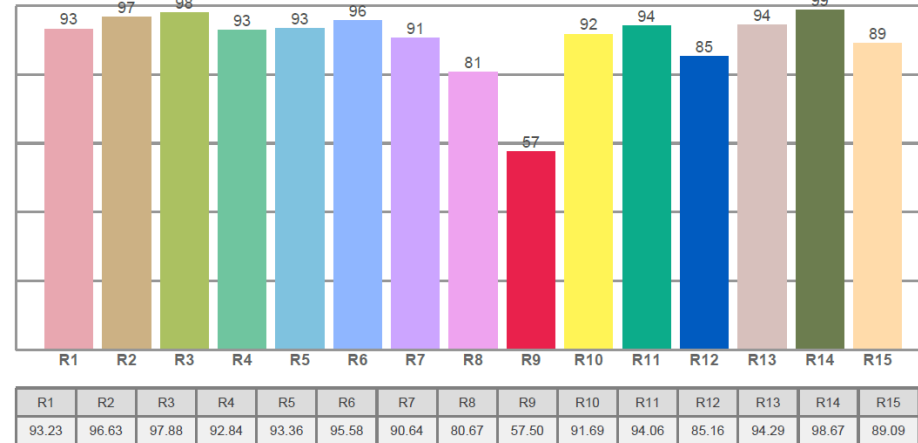
Peak: 660 cd

Power: 20.1 W

PF: 0.99

**** Tests done at Tambient and Tc 25°C (Flash test)**

R1-R8 = CRI: 92.6



Acrich COB Zhaga – Test reports

Sample 5. Test Acrich COB Zhaga 30W 4000K CRI80

Light efficiency:

128 Lumen/Watt

Light quality:

CRI: 83.4

Color temperature:

3808 K

Output: 3949 lm

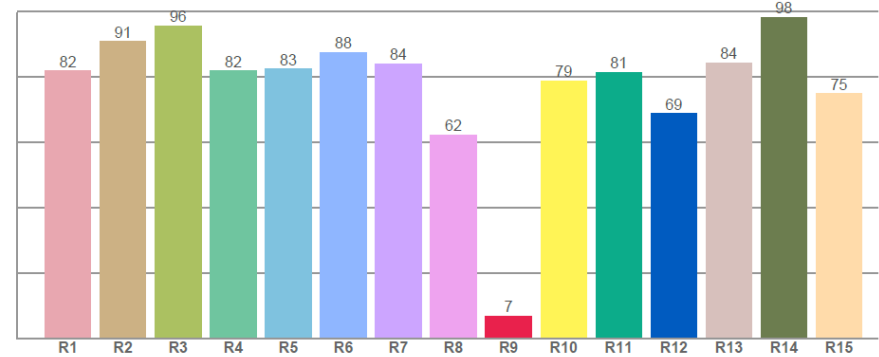
Peak: 1156 cd

Power: 30.8 W

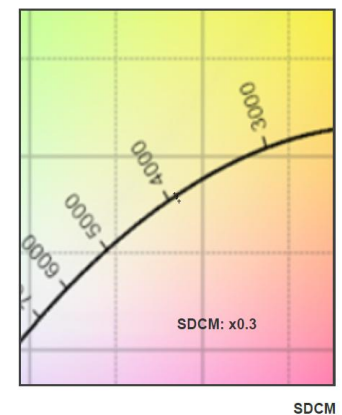
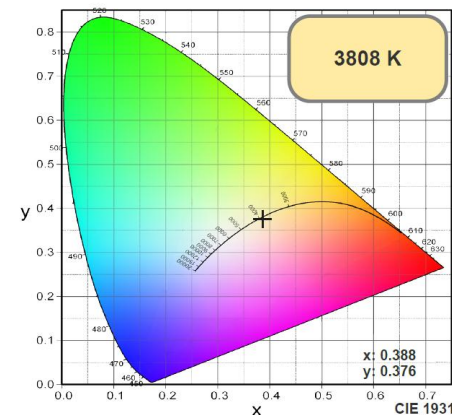
PF: 0.99

**** Tests done at Tambient and Tc 25°C (Flash test)**

R1-R8 = CRI: 83.4



R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81.90	90.94	95.75	81.97	82.51	87.51	84.01	62.35	6.89	78.83	81.47	68.80	84.31	98.23	74.92



Acrich COB Zhaga – Test reports

Sample 6. Test Acrich COB Zhaga 30W 3000K CRI80

Light efficiency:

116 Lumen/Watt

Light quality:

CRI: 80.7

Color temperature:

3004 K

Output: 3627 lm

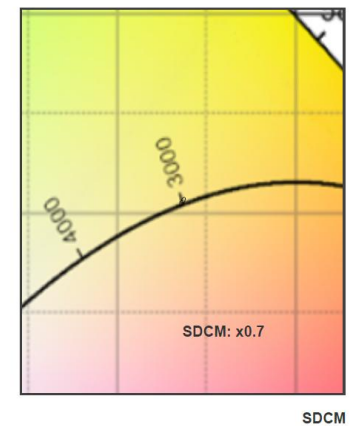
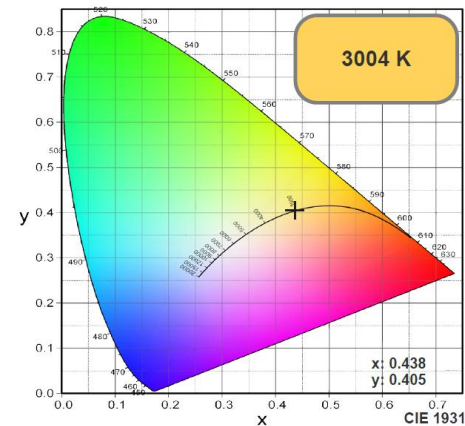
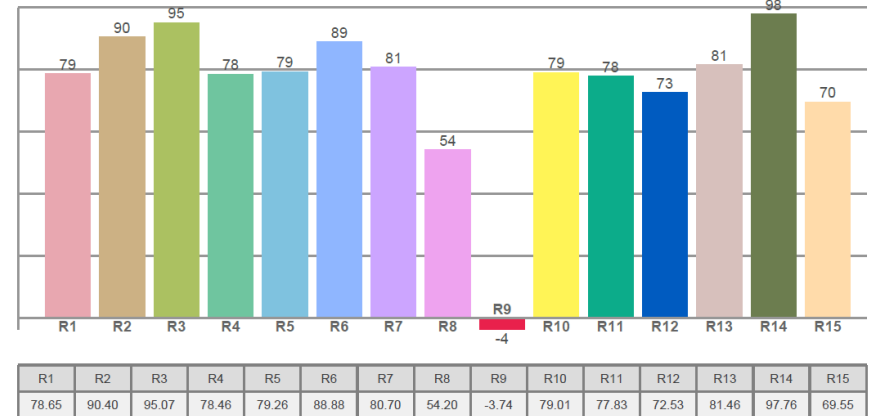
Peak: 1112 cd

Power: 31.2 W

PF: 0.99

**** Tests done at Tambient and Tc 25°C (Flash test)**

R1-R8 = CRI: 80.7



Acrich COB Zhaga – Test reports

Sample 7. Test Acrich COB Zhaga 30W 4000K **CRI90**

Light efficiency:

110 Lumen/Watt

Light quality:

CRI: 92.1

Color temperature:

3760 K

Output: 3380 lm

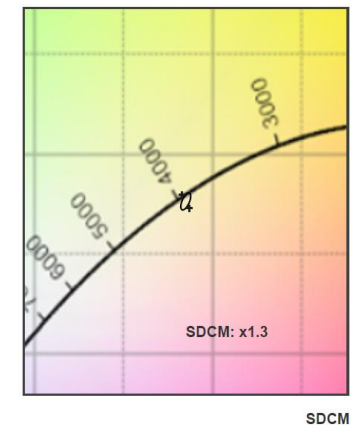
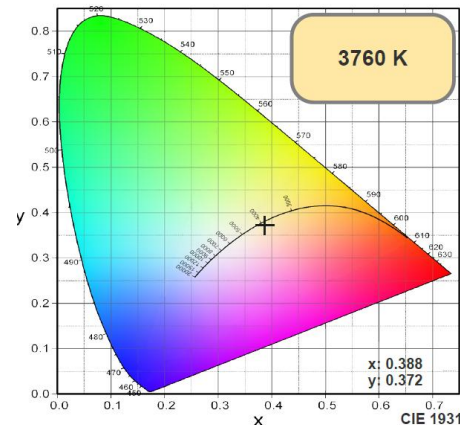
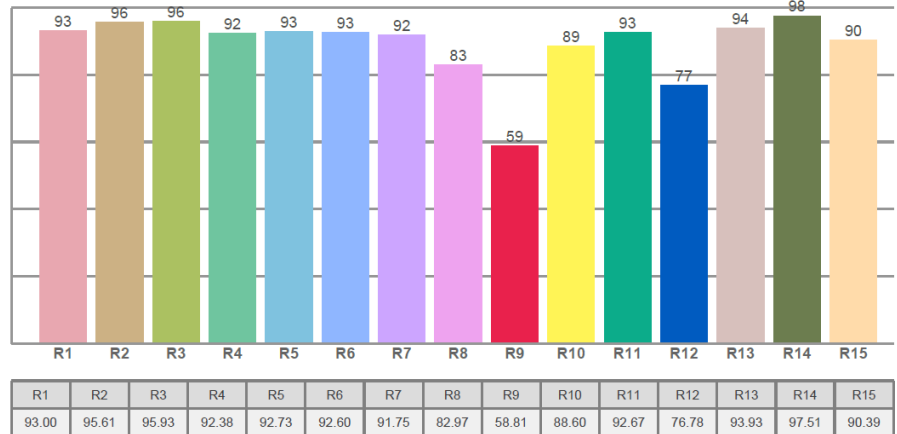
Peak: 1016 cd

Power: 30.5 W

PF: 0.99

**** Tests done at Tambient and Tc 25°C (Flash test)**

R1-R8 = CRI: 92.1



Acrich COB Zhaga – Test reports

Sample 8. Test Acrich COB Zhaga 30W 3000K **CRI90**

Light efficiency:

98 Lumen/Watt

Light quality:

CRI: 92.0

Color temperature:

2975 K

Output: 3096 lm

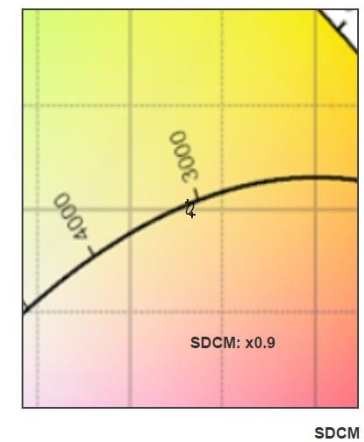
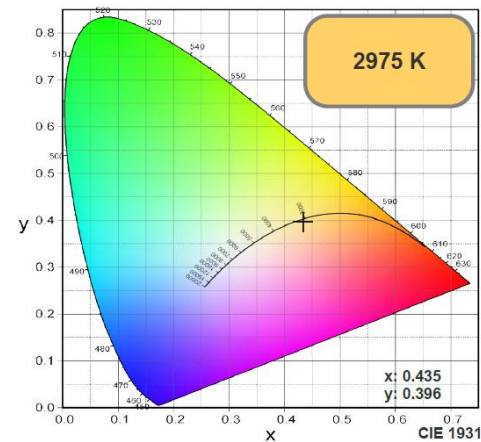
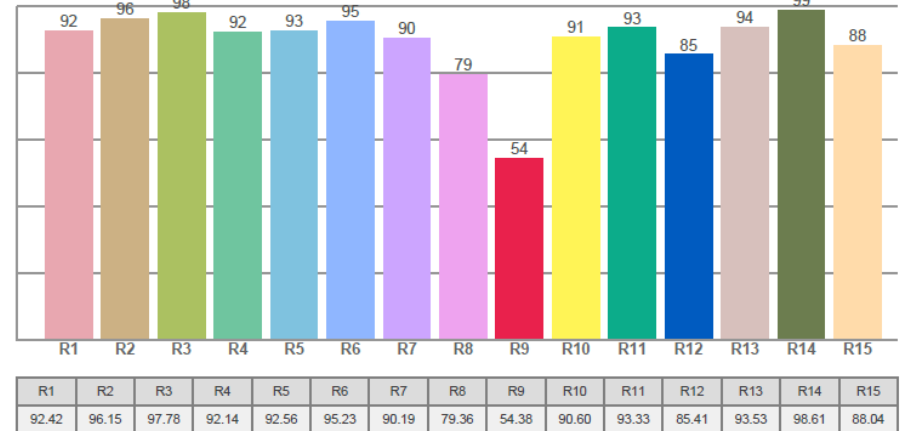
Peak: 948 cd

Power: 31.4 W

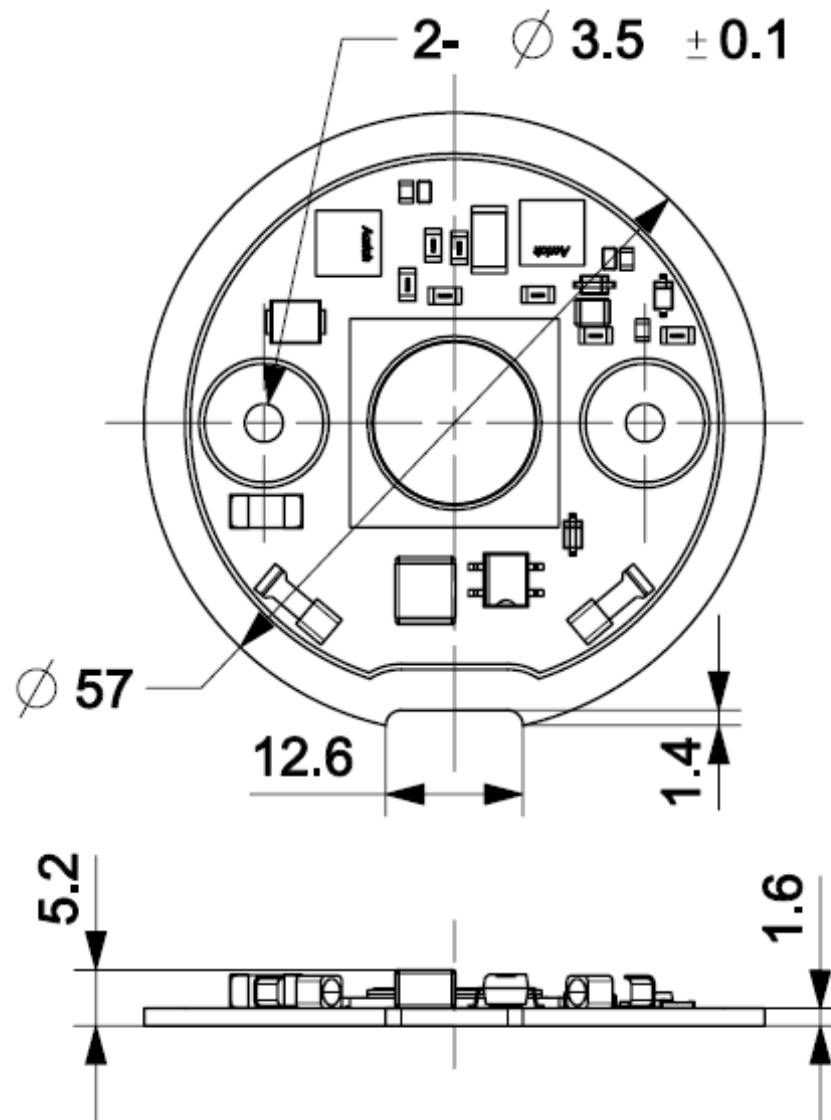
PF: 0.99

**** Tests done at Tambient and Tc 25°C (Flash test)**

R1-R8 = CRI: 92.0



Schematic Dimensions



Available Heatsinks for Acrich COB Zhaga

Compatible with existing heat sinks for zhaga modules as fixation holes and distances are same

- Mechatronix

<http://www.mechatronix-asia.com/>

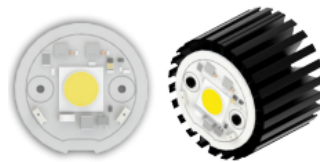
http://www.led-heatsink.com/products_search.php?webTag=Seoul Semiconductor LED Cooling&module=253&thermal=1&v1=&Diameter=&Height=

- Mingfa tech

www.heatsinkled.com

- A.A.G. STUCCHI

<http://www.aagstucchi.it/en/products/heat-sinks/>



Seoul Semiconductor ACrich AC Zhaga LED COB

Model names

- ACrich AC Zhaga COB 30W

Mounting

- Direct mounting with 2 self tapping screws M3 x 6mm
Green indicator marks



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Available Heatsinks for Acrich COB Zhaga



CRYSTAL 45mm



CRYSTAL 70mm



CRYSTAL 85mm



CRYSTAL 95mm



CRYSTAL 120mm



CRYSTAL 160mm

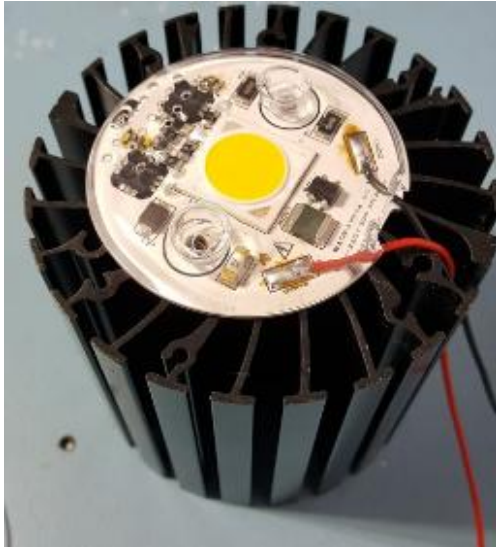


Accessories

Available Cover for Acrich COB Zhaga

SSC developed a cover to protect the module from electric parts

Made of PMMA the efficiency of the cover is 93%



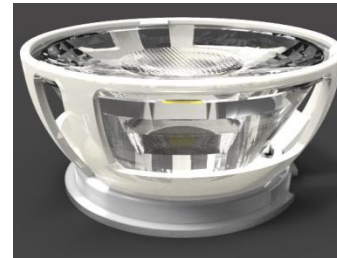
Available Lenses/Reflectors for Acrich COB Zhaga

Compatible with multiple lenses/reflectors available in the market for 13mm LES

“SSC AC COB ZHAGA has the smallest LES in the market thanks to patented MJT leds”

- **Hicreat**

<http://www.hkoptics.com/>

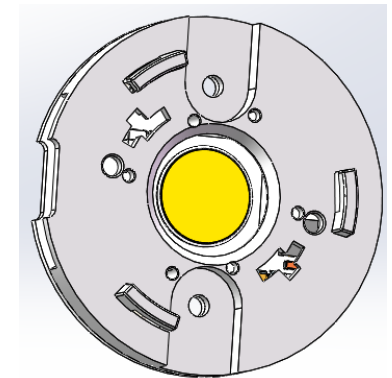
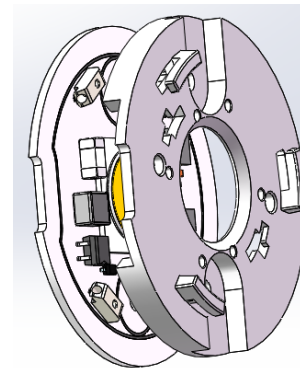


- **Optosource (Holder provider)**

<http://www.opto-source.net/?l2>

- **LEDIL**

www.ledil.com



- **BJB (Holder provider)**

<http://www.bjb.com/>

Available Lenses/Reflectors for Acrich COB Zhaga

www.opto-source.net/?fproduct/12/i871

Language:  中文版  ENGLISH



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Diameter

--min-- --max--

Height

--min-- --max--

or select angle from list

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Holder

Code: SEHSMJD-A

FWHM: 0°

Diameter: 57 mm

Height: 5.6 mm

Type: Seoul Semiconductor >> AC COB

REQUEST 3D MECHANICAL MODEL

DETAILS

Holder for Seoul AC COB



- Specially design for Seoul AC COB series LEDs.

Available Lenses/Reflectors for Acrich COB Zhaga

Optosource - available optics

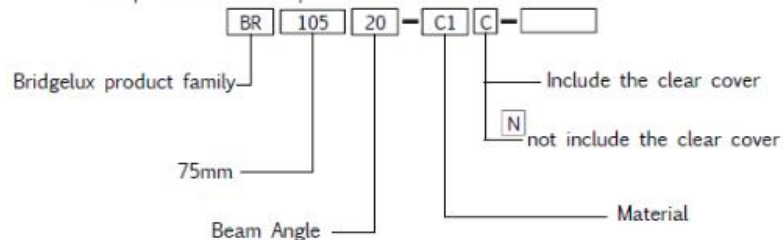
Optical Reflector for Seoul AC COB



- Specially design for Seoul AC COB series LEDs.
- Conform to the environmental protection standard RoHS.

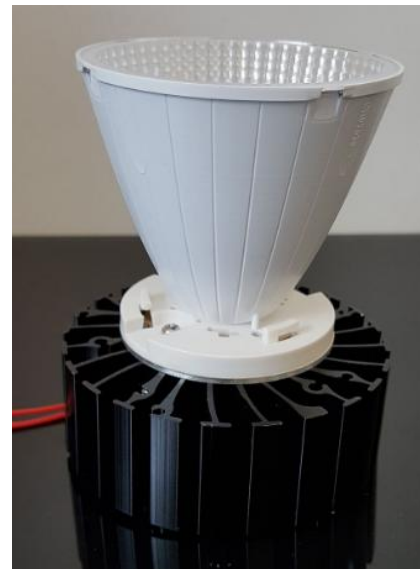
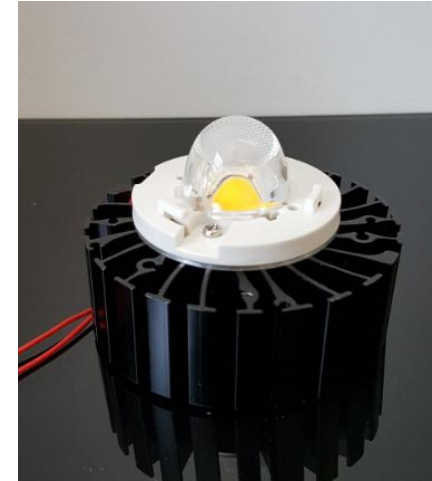
Product Naming Guidelines

The part number is explained as follows: BR10520-C1C-



Reflector Types

Order Code	FWHM	cd/lm	Holder
BR10520-C1C	±10	4.41	Without Holder
BR10540-C1C	±18	2.29	Without Holder
BR10560-C1C	±28	1.44	Without Holder



Available Lenses/Reflectors for Acrich COB Zhaga

LEDIL - available optics

LEDiL



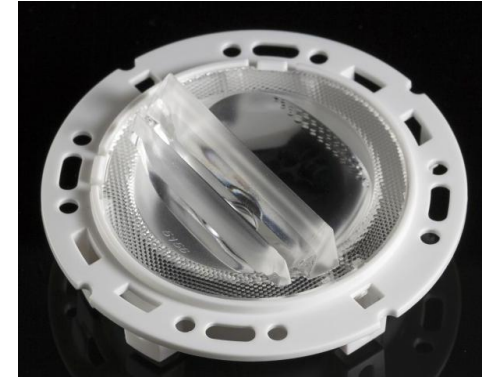
LEDIL Angela

Reflectors family



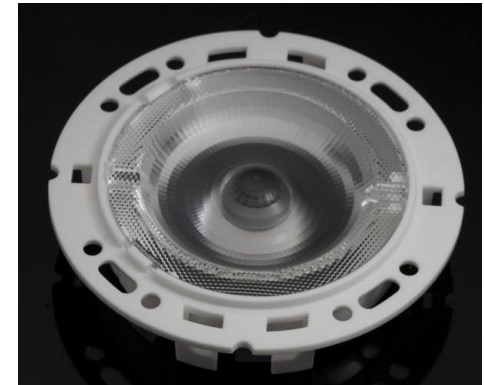
LEDIL Angelina

Reflectors family



LEDIL Ronda

Lens family



Available Lenses/Reflectors for Acrich COB Zhaga

LEDIL - available optics and simulated values



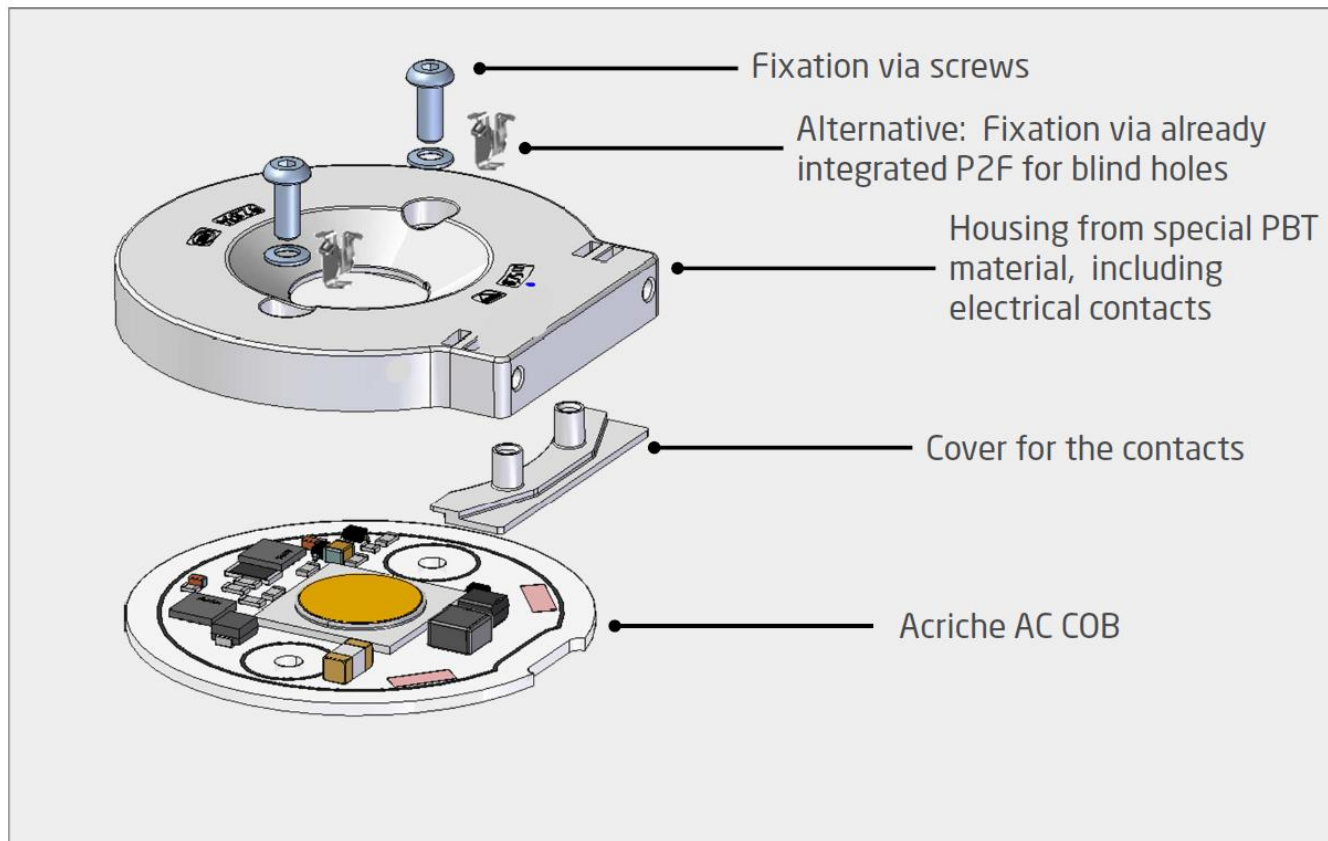
Name	Status	Led	Manufacter	Shape	Type	Beam	Beam Explanation	Sources	Diameter	Height	mFWHM	cd/lm	10%	Efficiency
F13379_ANGELA-S	production ready	AC Zhaga COB	Seoul	round	Reflector	S	Spot	1	119.5	74.27	10	15.000	17	89
F13401_ANGELINA-M	production ready	AC Zhaga COB	Seoul	round	Reflector	M	Medium	1	82	31	42	1.100	99	92
F13325_ANGELINA-S	production ready	AC Zhaga COB	Seoul	round	Reflector	S	Spot	1	82	31	25	1.800	94	92
F13380_ANGELA-M	production ready	AC Zhaga COB	Seoul	round	Reflector	M	Medium	1	119.5	74.5	18	3.200	69	85
F13381_ANGELA-W	production ready	AC Zhaga COB	Seoul	round	Reflector	W	Wide	1	119.5	74.5	38	1.500	76	82
F13402_ANGELINA-W	production ready	AC Zhaga COB	Seoul	round	Reflector	W	Wide	1	82	31	57	0.900	100	93
F14532_ANGELETTE-S	production ready	AC Zhaga COB	Seoul	round	Reflector	Asymmetric	Asymmetric	1	110	57.3	13	6.400	29	90
F14533_ANGELETTE-M	production ready	AC Zhaga COB	Seoul	round	Reflector	M	Medium	1	110	57.3	51	1.100	81	88
F14534_ANGELETTE-WW	production ready	AC Zhaga COB	Seoul	round	Reflector	WW	Very Wide	1	110	57.3	70	0.850	87	89
F14619_ANGELETTE-S-PLAIN	production ready	AC Zhaga COB	Seoul	round	Reflector	Asymmetric	Asymmetric	1	110	57.3	13	6.400	29	90
F14620_ANGELETTE-M-PLAIN	production ready	AC Zhaga COB	Seoul	round	Reflector	M	Medium	1	110	57.3	51	1.100	81	88
F14622_ANGELETTE-WW-PLAIN	production ready	AC Zhaga COB	Seoul	round	Reflector	WW	Very Wide	1	110	57.3	70	0.850	87	89
F13838_ANGELINA-XW	production ready	AC Zhaga COB	Seoul	round	Reflector	W	Wide	1	82	31	93	0.490	126	94
F13840_ANGELA-XW	production ready	AC Zhaga COB	Seoul	round	Reflector	W	Wide	1	119.5	74.5	72	0.630	125	92
FC13973_ANGELINA-RZ-S	production ready	AC Zhaga COB	Seoul	round	RefPack	S	Spot	1	82	31	30	1.400	96	88
FC13975_ANGELINA-RZ-M	production ready	AC Zhaga COB	Seoul	round	RefPack	M	Medium	1	82	31	47	0.940	101	88
FC13976_ANGELINA-RZ-W	production ready	AC Zhaga COB	Seoul	round	RefPack	W	Wide	1	82	31	64	0.780	103	89
FC13991_ANGELA-RZ-S	production ready	AC Zhaga COB	Seoul	round	RefPack	S	Spot	1	119.5	74.5	10	10.100	23	84
FC13992_ANGELA-RZ-M	production ready	AC Zhaga COB	Seoul	round	RefPack	M	Medium	1	119.5	74.5	19	2.500	71	79
FC13993_ANGELA-RZ-W	production ready	AC Zhaga COB	Seoul	round	RefPack	W	Wide	1	119.5	74.5	41	1.300	77	79
FC13994_ANGELA-RZ-XW	production ready	AC Zhaga COB	Seoul	round	RefPack	W	Wide	1	119.5	74.5	72	0.580	126	87
FN15267_ANGELETTE-S-RZ	production ready	AC Zhaga COB	Seoul	round	RefPack	Asymmetric	Asymmetric	1	110	57.3	14	4.500	41	85
FN15268_ANGELETTE-M-RZ	production ready	AC Zhaga COB	Seoul	round	RefPack	M	Medium	1	110	57.3	55	0.990	84	84
FN15269_ANGELETTE-WW-RZ	production ready	AC Zhaga COB	Seoul	round	RefPack	WW	Very Wide	1	110	57.3	71	0.740	92	85
FN15270_ANGELETTE-S-PLAIN-RZ	production ready	AC Zhaga COB	Seoul	round	RefPack	Asymmetric	Asymmetric	1	110	57.3	14	4.500	41	85
FN15271_ANGELETTE-M-PLAIN-RZ	production ready	AC Zhaga COB	Seoul	round	RefPack	M	Medium	1	110	57.3	55	0.990	84	84
FN15272_ANGELETTE-WW-PLAIN-RZ	production ready	AC Zhaga COB	Seoul	round	RefPack	WW	Very Wide	1	110	57.3	71	0.740	92	85
FN15380_RONDA-WAS	production ready	AC Zhaga COB	Seoul	round	Assembly	Asymmetric	Asymmetric	1	69.9	22.3	Asymmetric	0.610	Asymmetric	86
FN15381_RONDA-WWW	production ready	AC Zhaga COB	Seoul	round	Assembly	WWW	WWW-class	1	69.9	14.6	78	0.490	130	83
FN15387_RONDA-WW	production ready	AC Zhaga COB	Seoul	round	Assembly	WW	Very Wide	1	69.9	14.6	67	0.610	113	84
FN15388_RONDA-ZT45	production ready	AC Zhaga COB	Seoul	round	Assembly	Asymmetric	Asymmetric	1	69.9	15.4	Asymmetric	0.370	Asymmetric	86
FN15552_RONDA-W	production ready	AC Zhaga COB	Seoul	round	Assembly	W	Wide	1	69.9	14.6	59	0.770	101	86

Available Lenses/Reflectors for Acrich COB Zhaga

BJB - available holder/optics

→ Best solution for automatic mounting and usage of robots

Connector for Acriche AC COB



Available Lenses/Reflectors for Acrich COB Zhaga

BJB - available holder/optics

<https://www.bjb.com/index.php?pid=347520&lid=3>

☐		47.940.-351 BJB///OEM-Line Spotlight Anschlusselement und Reflektoren für COB LED Module Reflektor Zum Einsatz mit Spotlight-Anschlusselement 47.319.6111.50
☐		47.940.-352 BJB///OEM-Line Spotlight Anschlusselement und Reflektoren für COB LED Module Reflektor Zum Einsatz mit Spotlight-Anschlusselement 47.319.6111.50
☐		47.950.-301 BJB///OEM-Line Spotlight Anschlusselement und Reflektoren für COB LED Module Reflektor Abstrahlcharakteristik: Spot Geeignet zum Einsatz mit Spotlight- Anschlusselementen 47.319.2xxx und Spot-, Downlight Modulen 32.120.xxxx
☐		47.950.-302 BJB///OEM-Line Spotlight Anschlusselement und Reflektoren für COB LED Module Reflektor Abstrahlcharakteristik: Medium Geeignet zum Einsatz mit Spotlight- Anschlusselementen 47.319.2xxx und Spot-, Downlight Modulen 32.120.xxxx

Available Lenses/Reflectors for Acrich COB Zhaga

BJB - available holder/optics



GAGGIONE



BJB holder + Gaggione Lens

Narrowest Spot in the market → 15 degrees

Available Lenses/Reflectors for Acrich COB Zhaga

BJB - available holder/optics

Designed in cooperation with **BJB**
a cage holder is available to fit
BJB COB adapter



SHAPING
YOUR
LIGHT

GAGGIONE

LLC66x7

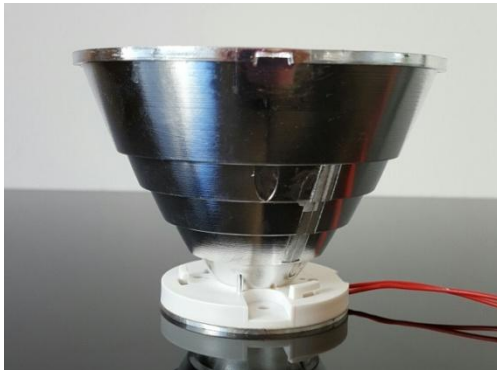


67mm silicone collimators



Available Lenses/Reflectors for Acrich COB Zhaga

Examples of mounted lenses and reflectors



Available Lenses/Reflectors for Acrich COB Zhaga

→ LEDIL lens ref. RONDA WW – TEST with Acrich COB Zhaga – 20W 4000K CRI80



Light efficiency:

114 Lumen/Watt

Light quality:

CRI: 83.0

Color temperature:

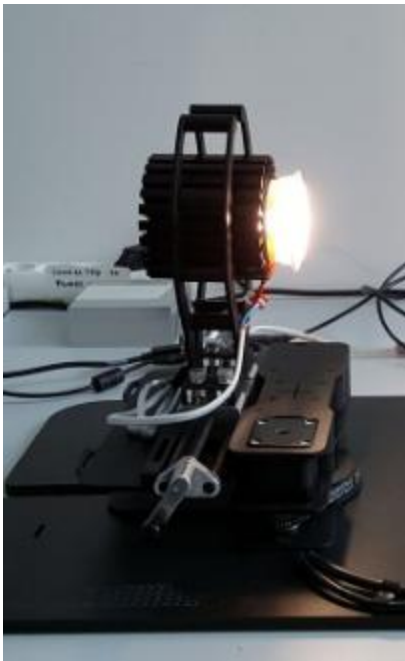
3592 K

Output: 2172 lm

Peak: 1416 cd

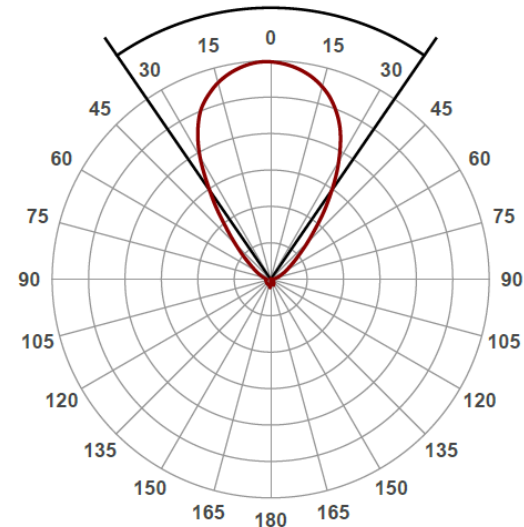
Power: 19.0 W

PF: 0.99



Beam angle

69°



Available Lenses/Reflectors for Acrich COB Zhaga

→ LEDIL lens ref. ANGELA-W-B – TEST with Acrich COB Zhaga – 20W 4000K CRI80



Light efficiency:

110 Lumen/Watt

Light quality:

CRI: 83.7

Color temperature:

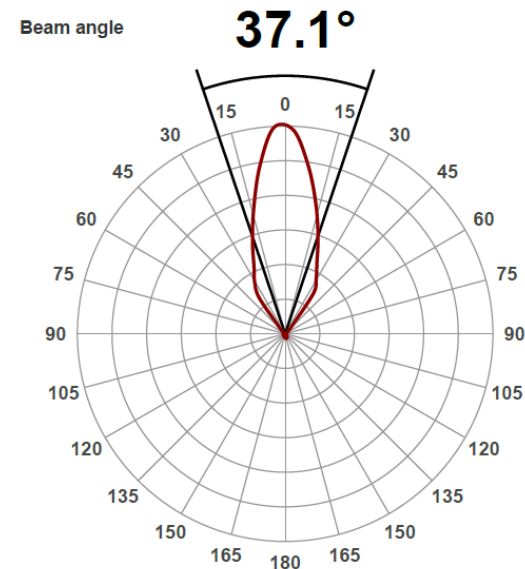
3785 K

Output: 2100 lm

Peak: 3139 cd

Power: 19.0 W

PF: 0.99



Available DIMMERS for Acrich COB Zhaga

Acrich COB Zhaga module is dimmable with TRIAC – Trailing Edge technology dimmers

What is a TRIAC trailing edge dimmer ?

	Triac Dimmer (Leading Edge Type)	FET or IGBT Dimmer (Trailing Edge Type)
Dimmer Circuit		
Waveform		
Application	Incandescent Lamp dimmer type	Halogen Lamp (Transformer type or CFL) dimmer type

Available DIMMERS for Acrich COB Zhaga

Which dimmers are recommended and working ? **Most of TRIAC Trailing Edge dimmers**

- **CASAMBI – Bluetooth module CBU – TED**

<http://casambi.com/products/CBU-TED.html>



CBU-TED

Compact, high quality trailing edge dimmer for dimmable mains voltage powered loads. It can be installed behind a traditional wall switch, into the casing or the ceiling connection of a luminaire.

- **Relco TRIAC dimmers for Acrich modules**

[http://www.relcogroup.com/dwl/Catalogo%20Components intero low.pdf](http://www.relcogroup.com/dwl/Catalogo%20Components%20intero%20low.pdf)

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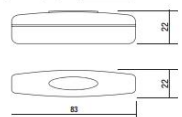


DIMMER FOR LED MODULES *Acrich*

VARIABLE PER MODULI LED 230V. *Acrich*

SNELLO/ACR...
Variatore elettronico con comando a pulsante per moduli LED Acrich2, LED Acrich3, LED Citizen COB 230V.
Electronic dimmer with button control for LED Acrich2, LED Acrich3, LED Citizen COB 230V modules.

CE, RoHS, C, IP20, 230V OK



SNELLO/ACR N
cod. RL7180

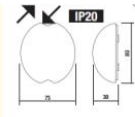
SNELLO/ACR B
cod. RL7185

SNELLO/ACR T
cod. RL7190

DT/ACR...
Variatore elettronico con comando a pulsante per moduli LED Acrich2, LED Acrich3, LED Citizen COB 230V.
Electronic dimmer with button control for LED Acrich2, LED Acrich3, LED Citizen COB 230V modules.

W, V, Hz, 4+100 (max 5 Acrich mod.), 220+240, 50, 10

VARIABLE e dispositivi di comando - DIMMER and co



DIMLED...
Variatore a sfioratore da incasso per moduli LED Acrich2, LED Acrich3, LED Citizen COB 230V.
Built-in rotary dimmer for LED Acrich2, LED Acrich3, LED Citizen COB 230V modules.

CE, RoHS, C, IP20, 230V OK

Art.	Serie	W	V	Hz	Mod.	Code
DIMLED 34 DSI	International	4+100 (max 5 Acrich mod.) - max 5 lampi	230	50	1	RP0953
DIMLED 34 DLT	Light	4+100 (max 5 Acrich mod.) - max 5 lampi	230	50	1	RP0954
DIMLED 34 DTC	Light Tech	4+100 (max 5 Acrich mod.) - max 5 lampi	230	50	1	RP0959
DIMLED 34 DTP	Venera Plana	4+100 (max 5 Acrich mod.) - max 5 lampi	230	50	1	RP0962
DIMLED 34 DSA A	Acetate	4+100 (max 5 Acrich mod.) - max 5 lampi	230	50	1	RP0965
DIMLED 34 DSA B	Alkan	4+100 (max 5 Acrich mod.) - max 5 lampi	230	50	1	RP0971
DIMLED 34 DSA C	Alkan	4+100 (max 5 Acrich mod.) - max 5 lampi	230	50	1	RP0968
DIMLED 34 DSA D	Alkan	4+100 (max 5 Acrich mod.) - max 5 lampi	230	50	1	RP0974
DIMLED 45 DSA	IP 45mm	4+100 (max 5 Acrich mod.) - max 5 lampi	230	50	0/05	RP0977



Available DIMMERS for Acrich COB Zhaga

Acrich COB Zhaga module is dimmable with TRIAC – Trailing Edge technology dimmers

Example of dimming performance with CASAMBI Bluetooth dimmer CBU-TED



Minimum



Mid power



Full power

Advantages of AC COB ZHAGA from SSC

Easy implementation in actual luminaires

- Example of retrofitting and existing luminaire with external driver



Advantages of AC COB ZHAGA from SSC

Easy implementation in actual luminaires

- Example of retrofitting and existing luminaire with external driver



Advantages of AC COB ZHAGA from SSC





THANK YOU!

www.seoulsemicon.com