



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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SUNON

SPECIFICATION FOR APPROVAL

CUSTOMER :

MOTOR TYPE : 

MODEL NO : LA002-012A9BDN

DESCRIPTION : LED Cooling Module

DIMENSIONS : ϕ 52 X 20 mm

SUNON SPEC. NO. : D04088020G-00

CUSTOMER APPROVAL NO. :

APPROVED BY CUSTOMER :

(AUTHORIZED)

DRAWN Amy 11/21	CHECKED Jensen	APPROVED Meijung	SPEC. NO	D04088020G-00
			ISSUED DATE	11. 21. 2011
			EDITION	0
			REVISION DATE	

建準電機工業股份有限公司

SUNONWEALTH ELECTRIC MACHINE INDUSTRY CO., LTD.

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SPECIFICATION FOR APPROVAL**CHECK LIST**

1. SCOPE -----Page 2
2. SPECIFICATIONS -----Page 3
3. DIMENSION -----Page 4
4. NOTES -----Page 5-7
5. Declaration of RoHS -----Page 8

SUNONWEALTH ELECTRIC
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PAGE	1 OF 8
SPEC. NO.	D04088020G-00
ISSUED DATE	11. 21. 2011
EDITION	0
REVISION DATE	

2011.11.24
發行章

1.SCOPE

This compact LED cooling module (including Sunon's patented fan) is designed for heat dissipation of a Xicato XSL LED module up to 23W.The following specification outlines the performance of this module for LED lighting system.

**SUNONWEALTH ELECTRIC
MACHINE INDUSTRY CO., LTD.**
建準電機工業股份有限公司

PAGE	2 OF 8
SPEC. NO.	D04088020G-00
ISSUED DATE	11. 21. 2011
EDITION	0
REVISION DATE	



MODEL : LA002-012A9BDN**2.SPECIFICATIONS**

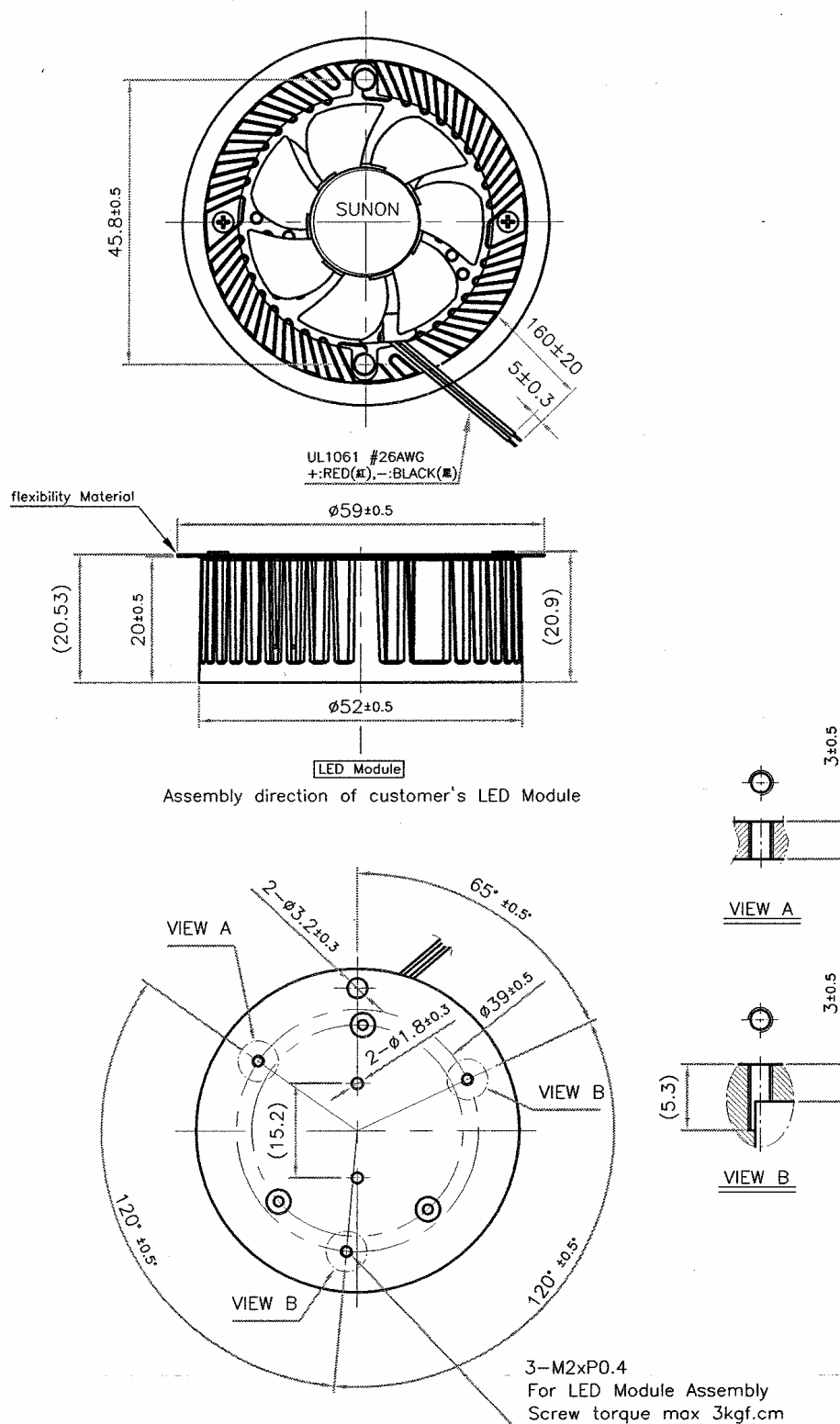
1. Module Dimension	φ 52 x 20 mm
2. Heat Sink Material	ADC12
3. Cooling Method	Fan
4. Fan Speed (with Heat Sink)	3800 RPM ± 10%
5. Rated Voltage	5.0 VDC
6. Rated Current	42 mA
7. Power Consumption	0.21 Watts
8. Fan Bearing System	Vapo
9. Direction Of Rotation	Clockwise (CW) viewed from front of fan blade, after power on 30 seconds, Counter- Clockwise(CCW) viewed from front of fan blade.
10. Cooling Module Noise @ 1M	16.8 dB(A)
11. Operating Voltage Range	4.0-5.5 VDC
12. Operating Temperature	-10 to + 70 deg. C
13. Storage Temperature	-40 to + 70 deg. C
14. Weight	48 g
15. Thermal resistance	1.09 °C /W(based on XSM8027-1300)
16. Tolerance	±20% on rated power and current.
17. Life Expectancy (MTTF)	60,000hours at 50 deg. C (Fan Temperature),65% humidity, 90% CL.
18. Special Features	<input checked="" type="checkbox"/> Self -Cleaning

**SUNONWEALTH ELECTRIC
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建準電機工業股份有限公司

PAGE	3 OF 8
SPEC. NO.	D04088020G-00
ISSUED DATE	11. 21. 2011
EDITION	0
REVISION DATE	



3.DIMENSION



SUNONWEALTH ELECTRIC
MACHINE INDUSTRY CO., LTD.
建準電機工業股份有限公司

PAGE	4 OF 8
SPEC. NO.	D04088020G-00
ISSUED DATE	11. 21. 2011
EDITION	0
REVISION DATE	

建準電機工業(股)公司
研發部
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Notes

I .SAFETY

1. **DO NOT** use or operate this module in excess of the limitations set forth in this specification. SUNON is not be responsible for the non-performance of this module and/or any damages resulting from its use, if it is not used or operated in accordance with the specifications.
2. SUNON recommends adding a protection circuit to the product or application in which this module is installed, such as a thermo-fuse, or current-fuse or thermo-protector. The failure to use such a device may result in smoke, fire, electric shock by insulation degradation in cases of motor lead short circuit, overload, or over voltage, and/or other failure.
3. SUNON recommends installing a protection device to the product or application in which this module is installed if there is a possibility of reverse-connection between VDC (+) and GND (-). The failure to install such a device may result in smoke, fire, and/or destruction, although these conditions may not manifest immediately.
4. This module must be installed and used in compliance with all applicable safety standards and regulations.
5. Use proper care when handling and/or installing this module. Improper handling or installation of this module may cause damage that could result in unsafe conditions.
6. Use proper care during installation and/or wiring. Failure to use proper care may cause damage to certain components of the module including, but not limited to, the coil and lead wires, which could result in smoke and/or fire.
7. **DO NOT** use power or ground PWM to control the fan speed. If the fan speed needs to be adjusted, please contact Sunon to customize the product design for your application.
8. For critical or extreme environments, including non stop operation, please contact Sunon and we will gladly provide assistance with your product selection to ensure an appropriate cooling product for your application.

SUNONWEALTH ELECTRIC
MACHINE INDUSTRY CO., LTD.
建準電機工業股份有限公司

PAGE	5 OF 8
SPEC. NO.	D04088020G-00
ISSUED DATE	11. 21. 2011
EDITION	0
REVISION DATE	



Notes

II. SPECIFICATION MODIFICATION

1. SUNON offers engineering assistance on module installation and cooling system design.
2. All changes, modifications and/or revisions to the specifications, if any, are incorporated in the attached specifications.
3. No changes, modifications and/or revisions to these specifications are effective absent agreement, by both Sunon and the customer, in writing.
4. This module will be shipped in accordance with the attached specification unless SUNON and the customer have agreed otherwise, in writing, as specified in Paragraph 3, above.

III. OTHER

1. When building your device, please examine thoroughly any variation of EMC, temperature rise, life data, quality, etc. of this product by shock/drop/vibration testing, etc. If there are any problems or accidents in connection with this product, it should be mutually discussed and examined.
2. Use proper care when handling this module. Components such as module holders or bearings may be damaged, if touched with fingers or other objects. Additionally, static electricity (ESD) may damage the internal circuits of the module.
3. DO NOT operate this module in proximity to hazardous materials such as organic silicon, cyanogens, formalin, phenol, or corrosive gas environments including, but not limited to, H₂S, SO₂, NO₂, or Cl₂.
4. SUNON recommends that you protect this module from exposure to outside elements such as dust, condensation, humidity or insects. Exposure of this module to outside elements such as dust, condensation, humidity or insects may affect its performance and may cause safety hazards. SUNON does not warrant against damage to the product caused by outside elements.

SUNONWEALTH ELECTRIC
MACHINE INDUSTRY CO., LTD.
建準電機工業股份有限公司

PAGE	6 OF 8
SPEC. NO.	D04088020G-00
ISSUED DATE	11. 21. 2011
EDITION	0
REVISION DATE	



Notes

5. This module must be installed properly and securely. Improper mounting may cause harsh resonance, vibration, and noise.
6. Fan guards may prevent injury during handling or installation of the module and are available for sale with this module.
7. Unless otherwise noted, all testing of this module is conducted at 25°C ambient temperature and sixty-five percent (65%) relative humidity.
8. DO NOT store this module in an environment with high humidity. This module must be stored in accordance with the attached specifications regarding storage temperature. If this module is stored for more than 6 months, SUNON recommends functional testing before using.
9. SUNON reserves the right to use components from multiple sources at its discretion. The use of components from other sources will not affect the specifications as described herein.
10. The “Life Expectancy” of this module has not been evaluated for use in combination with any end application. Therefore, the Life Expectancy Test Reports (L10 and MTTF Report) that relate to this module are only for reference.

VI. WARRANTY

This module is warranted against all defects which are proved to be fault in our workmanship and material for one year from the date of our delivery. The sole responsibility under the warranty shall be limited to the repair of the module or the replacement thereof, at SUNON’s sole discretion. SUNON will not be responsible for the failures of its modules due to improper handling, misuse or the failure to follow specifications or instructions for use. In the event of warranty claim, the customer shall immediately notify SUNON for verification. SUNON will not be responsible for any consequential damage to the customer’s equipment as a result of any modules proven to be defective.

SUNONWEALTH ELECTRIC
MACHINE INDUSTRY CO., LTD.
建準電機工業股份有限公司

PAGE	7 OF 8
SPEC. NO.	D04088020G-00
ISSUED DATE	11. 21. 2011
EDITION	0
REVISION DATE	



Declaration of RoHS

Control declaration of environment-related substances/materials

1. In accordance with the Restriction of Hazardous Substances (RoHS) Directive, Sunon product models have complied with law and discipline not to employ the forbidden substances, and restrict the allowable concentration of some limited substances deliberately in our components.

No	Substance		Criteria
1	CFCs & HCFCs (ozone depleting substances)		Forbidden
2	Chlorinated Organic Solvent		Forbidden
3	Lead and its compounds	Plastic (Frame, Impeller, wire harness, etc.)	<100ppm
		Solder	<1000ppm
		Steel alloy	<3500ppm
		Aluminium alloy	<4000ppm
		Copper alloy	<4wt%
4	Cadmium and its compounds	Solder	<20ppm
		Parts composed of metals containing zinc (e.g. brass, zinc for die casting)	<100ppm
		Plastic	<5ppm
5	PBBs and PBDEs		Forbidden
6	PCB and PCT		Forbidden
7	CP, Short-chain Chlorinated paraffins C10-13, Cl \geq 48 wt%		Forbidden
8	Mirex		Forbidden
9	PCN		Forbidden
10	Hexavalent Chromium compounds		<100ppm
11	Mercury and its compounds		Forbidden
12	Asbestos		Forbidden
13	Organic Tin compounds		Forbidden
14	Azo compounds		Forbidden
15	TBBP-A in external case plastic parts of products (PCB is exempted)		<1000ppm
16	Nickel in external case parts, which are likely to result in prolonged skin exposure		<1000ppm

SUNONWEALTH ELECTRIC
MACHINE INDUSTRY CO., LTD.
建準電機工業股份有限公司

PAGE	8 OF 8
SPEC. NO.	D04088020G-00
ISSUED DATE	11. 21. 2011
EDITION	0
REVISION DATE	

