

# SUNON

## SPECIFICATION FOR APPROVAL

### FOR REFERENCE

**CUSTOMER :**

**MODEL NO : CM036-20001N**

**DESCRIPTION : Thermal Module**

**DIMENSIONS : 133.4X57.2X15.6 mm**

**SUNON SPEC. NO. : C01003950G-00**

**CUSTOMER APPROVAL NO. :**

**APPROVED BY**

**CUSTOMER :**

**(AUTHORIZED)**

<b>DRAWN</b>  Fei Fei	<b>CHECKED</b>  Qian	<b>APPROVED</b>  Jordan	<b>SPEC. NO</b>	<b>C01003950G-00</b>
			<b>ISSUED DATE</b>	<b>12. 15. 2021</b>
			<b>EDITION</b>	<b>0</b>
			<b>REVISION DATE</b>	

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**

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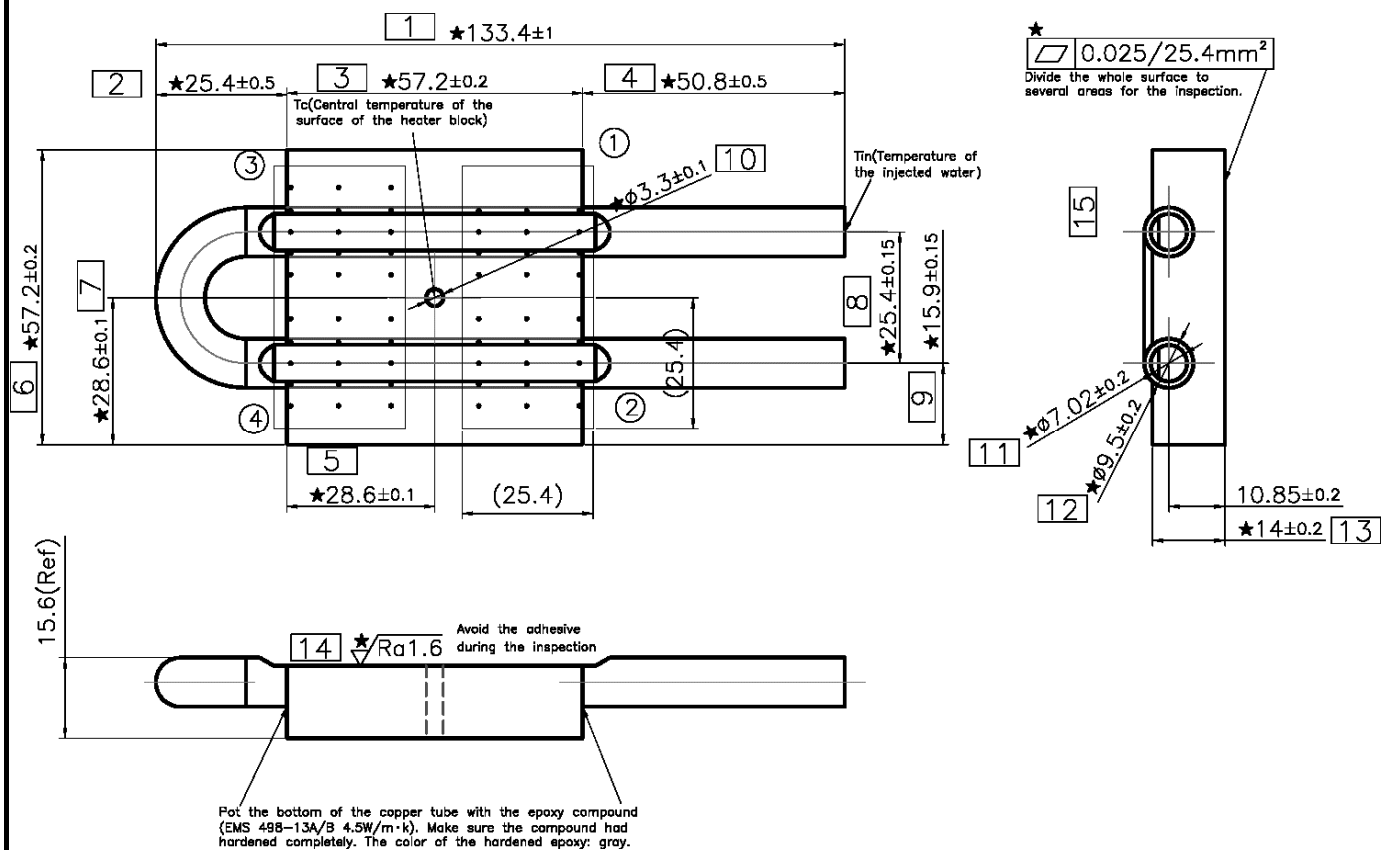
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**MODEL : CM036-20001N****1.SPECIFICATIONS**

1. Application	N/A		
2. Heat Sink Dimension	57.2X57.2X14 mm		
3. Heat Sink Material	AL1050		
4. Cooling Method	N/A		
5. Thermal Grease / PAD	N/A		
6. Fan Dimension	N/A		
7. Fan Speed (with Heat Sink)	N/A		
8. Fan Airflow ( with Heat Sink )	N/A		
9. Fan Rating Voltage	N/A		
10. Fan Rating Current ( with Heat Sink )	N/A		
11. Fan Power Consumption ( with Heat Sink )	N/A		
12. Fan Bearing Type	N/A		
13. Fan Connector	N/A		
21. Cooling Module Noise	N/A		
15. Fan Operating Voltage Range	N/A		
16. Operating Temperature	-10 to + 70 deg. C		
17. Storage Temperature	-40 to + 70 deg. C		
18. Weight	191 g		
19. Life Expectance	N/A		
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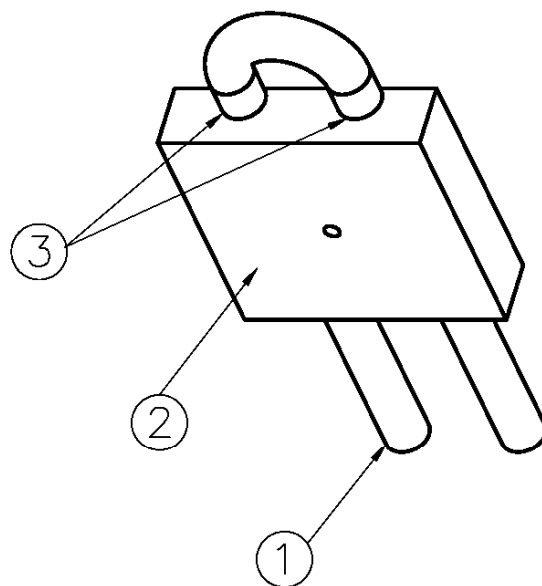
## 2.DIMENSION



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## 2.DIMENSION



3	Epoxy resin	epoxy	EMS 498-13A/B 4.5W/m·k	--
2	Heat Sink	AL1050	57.2*57.2*14 HF	1
1	Copper Tube	C1100	D9.5*d7.02*271.8L HF	1
項次 ITEM	名 稱 NAME	材 質 MATERIAL	規 格 SPECIFICATION	數量 QTY

零 件 表  
PART DETAIL LIST

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# 3.FAI & CPK TEST

## 1. FAI TEST

### FAI DATA SHEET

Part Number :	CM_2PASS	Supplier :		Date:	2021/4/23	New:	
Part Description :		ISR No :		Cavity / Tool		Revised :	
Revision :		Material Spec:		Inspector:		Resubmission:	

MOI-Method of inspection abbreviation: HG = Height gauge, MIC = Micrometer, DC = Dial Caliper, P = Protractor, OC = Optical Comparator, CG = Checking Gauge, CMM = Coordinate Measuring Machine,  
 OMM = Optical Coordinate Measuring Machine, HT = Hardness Trester, TG = Thickness Gauge, VIS = Visual, PG = Plug Gauge,

OTHER:

DRAWING LOCATION	NOMINAL	+TOL	-TOL	Sample Number					Deviation from Nominal					Mean	% Tolerance		Accept/Reject		Inspection Method
				1	2	3	4	5	1	2	3	4	5		UPPER	LOWER	HIGH	LOW	
1	133.400	1.000	1.000	133.820	133.570	133.820	133.690	133.880	0.420	0.170	0.420	0.290	0.480		48%	0%	Accept	Accept	CMM
2	25.400	0.500	0.500	25.520	25.420	25.460	25.360	25.620	0.120	0.020	0.060	-0.040	0.220		44%	8%	Accept	Accept	CMM
3	57.20	0.200	0.200	57.200	57.170	57.220	57.200	57.290	0.000	-0.030	0.020	0.000	0.090		45%	15%	Accept	Accept	CMM
4	50.80	0.500	0.500	50.730	50.550	50.650	50.780	50.720	-0.070	-0.250	-0.150	-0.020	-0.080		0%	50%	Accept	Accept	CMM
5	28.60	0.100	0.100	28.594	28.587	28.669	28.600	28.612	-0.006	-0.013	0.069	0.000	0.012		69%	13%	Alert	Accept	CMM
6	57.20	0.200	0.200	57.160	57.180	57.160	57.170	57.210	-0.040	-0.020	-0.040	-0.030	0.010		5%	20%	Accept	Accept	CMM
7	28.600	0.100	0.100	28.622	28.629	28.628	28.610	28.658	0.022	0.029	0.028	0.010	0.058		58%	0%	Accept	Accept	CMM
8	25.400	0.150	0.150	25.533	25.523	25.550	25.378	25.457	0.133	0.123	0.150	-0.022	0.056		100%	15%	Alert	Accept	CMM
9	15.90	0.150	0.150	15.907	16.005	15.813	15.845	15.939	0.007	0.105	-0.087	-0.055	0.039		70%	58%	Alert	Accept	CMM
10	3.300	0.100	0.100	3.222	3.280	3.247	3.305	3.259	-0.078	-0.020	-0.053	0.005	-0.041		5%	78%	Accept	Alert	CMM
11	7.020	0.200	0.200	7.001	7.013	6.966	6.981	6.992	-0.019	-0.007	-0.054	-0.039	-0.028		0%	27%	Accept	Accept	CMM
12	9.50	0.200	0.200	9.481	9.513	9.502	9.551	9.525	-0.019	0.013	0.002	0.051	0.025		26%	10%	Accept	Accept	CMM
13	14.00	0.200	0.200	14.130	14.090	14.110	14.150	14.130	0.130	0.090	0.110	0.150	0.130		75%	0%	Alert	Accept	CMM
14	1.600	0.000	1.600	0.460	0.455	0.619	0.646	0.628	-1.140	-1.145	-0.981	-0.954	-0.972		-	72%	Accept	Alert	CMM
15-1	0.025	0.000	0.025	0.008	0.020	0.025	0.010	0.011	-0.017	-0.005	0.000	-0.015	-0.014		-	70%	Alert	Alert	CMM
15-2	0.025	0.000	0.025	0.003	0.006	0.014	0.006	0.005	-0.022	-0.019	-0.011	-0.019	-0.020		-	87%	Accept	Alert	CMM
15-3	0.025	0.000	0.025	0.007	0.006	0.005	0.005	0.005	-0.018	-0.019	-0.020	-0.020	-0.020		-	81%	Accept	Alert	CMM
15-4	0.025	0.000	0.025	0.007	0.012	0.009	0.008	0.007	-0.018	-0.013	-0.016	-0.018	-0.018		-	74%	Accept	Alert	CMM

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### 3.FAI & CPK TEST

#### 1.CPK TEST

Model:CM036-20001N(INC-2PASS)

日期：2021/11/14

Control map

No	1	2	3	4	5
(Project)	Size#3	Size#8	Size#13	Differential pressure	air-tight test
Central value of the spec	57.200	25.400	14.000		
UCL	57.400	25.550	14.200	500.000	0.020
LCL	57.000	25.250	13.800		
UNIT (unit)	mm	mm	mm	Kpa	Mpa
ave	57.200	25.395	14.002	314.251	0.000
max	57.248	25.438	14.047	329.990	0.000
min	57.152	25.352	13.950	304.598	0.000
1	57.186	25.373	13.983	317.8	0.0
2	57.236	25.404	14.007	314.1	0.0
3	57.227	25.406	14.046	315.0	0.0
4	57.238	25.396	13.958	316.6	0.0
5	57.177	25.400	14.028	313.3	0.0
6	57.232	25.430	13.995	305.1	0.0
7	57.233	25.438	14.011	315.6	0.0
8	57.180	25.398	14.018	317.4	0.0
9	57.229	25.399	14.090	312.6	0.0
10	57.212	25.398	14.014	321.5	0.0
11	57.152	25.362	14.038	312.7	0.0
12	57.239	25.429	14.044	316.8	0.0
13	57.164	25.383	13.954	307.0	0.0
14	57.162	25.352	14.014	311.3	0.0
15	57.207	25.429	14.041	307.9	0.0
16	57.174	25.408	14.005	324.8	0.0
17	57.208	25.391	13.992	304.6	0.0
18	57.207	25.356	13.965	313.9	0.0
19	57.207	25.386	14.047	316.3	0.0
20	57.173	25.396	14.027	314.3	0.0
21	57.164	25.424	14.014	318.6	0.0
22	57.192	25.420	13.962	316.2	0.0
23	57.176	25.352	14.004	307.4	0.0
24	57.234	25.358	13.950	310.4	0.0
25	57.244	25.416	13.968	330.0	0.0
26	57.234	25.375	14.046	314.2	0.0
27	57.248	25.436	13.952	321.5	0.0
28	57.194	25.436	13.963	312.7	0.0
29	57.209	25.370	14.018	316.8	0.0
30	57.240	25.390	13.962	307.0	0.0
31	57.174	25.353	13.997	311.3	0.0
32	57.157	25.372	13.965	307.9	0.0
33	57.153	25.389	14.013	324.8	0.0
34	57.186	25.416	14.041	304.6	0.0
35	57.154	25.374	14.011	316.5	0.0

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### 3.FAI & CPK TEST

#### 2.CPK TEST

Model : CM036-20001N(INC-2PASS)

日期 : 2021/11/14

No	1	2	3	4	5
(Project)	Size#3	Size#8	Size#13	Differential pressure	air-tight test
Central value of the spec	57.200	25.400	14.000		
UCL	57.400	25.550	14.200	500.000	0.020
LCL	57.000	25.250	13.800		
UNIT (unit)	mm	mm	mm	Kpa	Mpa
ave	57.207	25.402	14.001	313.911	0.000
max	57.248	25.449	14.048	329.990	0.000
min	57.163	25.350	13.950	304.598	0.000
1	57.183	25.391	14.034	317.8	0.0
2	57.212	25.416	13.992	314.1	0.0
3	57.210	25.406	14.019	315.0	0.0
4	57.228	25.425	13.964	316.6	0.0
5	57.203	25.372	13.963	313.3	0.0
6	57.224	25.386	14.012	305.1	0.0
7	57.225	25.415	13.974	315.6	0.0
8	57.180	25.446	13.956	317.4	0.0
9	57.230	25.425	13.954	312.6	0.0
10	57.186	25.447	14.021	321.5	0.0
11	57.241	25.353	14.001	312.7	0.0
12	57.197	25.420	14.031	316.8	0.0
13	57.190	25.403	13.978	307.0	0.0
14	57.192	25.371	14.045	311.3	0.0
15	57.207	25.449	13.988	307.9	0.0
16	57.199	25.428	13.950	324.8	0.0
17	57.224	25.352	14.001	304.6	0.0
18	57.245	25.415	14.021	313.9	0.0
19	57.164	25.430	14.018	316.3	0.0
20	57.210	25.353	13.986	314.3	0.0
21	57.183	25.421	14.016	318.6	0.0
22	57.218	25.408	14.044	316.2	0.0
23	57.219	25.354	14.005	307.4	0.0
24	57.241	25.377	13.991	310.4	0.0
25	57.230	25.350	13.970	330.0	0.0
26	57.179	25.364	14.019	314.2	0.0
27	57.198	25.391	14.048	321.5	0.0
28	57.216	25.402	13.982	312.7	0.0
29	57.207	25.448	14.015	316.8	0.0
30	57.248	25.362	13.998	307.0	0.0
31	57.192	25.443	13.979	311.3	0.0
32	57.184	25.421	14.034	307.9	0.0
33	57.163	25.413	13.979	324.8	0.0
34	57.215	25.414	14.020	304.6	0.0
35	57.187	25.408	14.014	304.6	0.0

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# 3.FAI & CPK TEST

## Quality comprehensive confirmation DATA SHEET

Control run, Try run, Mass n

Approve

Review

Prepare

Model : CM036-20001N(INC-2PASS)

NO	Project(mm)	Control run								Try run								Reference
		Spec	Average	Standard deviation σ	Max	Min	NO.	Project ability cp cpk		Spec	Average	Standard deviation σ	Max	Min	NO.	Project ability cp cpk		
1	Size#3	57.00~57.40mm	57.207	0.022	57.248	57.163	35	2.972	2.875	57.00~57.40mm	57.200	0.031	57.248	57.152	35	2.136	2.135	
2	Size#8	25.25~25.55mm	25.402	0.031	25.449	25.350	35	1.611	1.587	25.25~25.55mm	25.395	0.026	25.438	25.352	35	1.892	1.825	
3	Size#13	13.80~14.20mm	14.001	0.027	14.048	13.950	35	2.426	2.419	13.80~14.20mm	14.002	0.032	14.047	13.950	35	2.110	2.085	
4	Differential pressure	≤500Kpa	313.911	6.132	329.990	304.598	35	13.589	10.115	≤500Kpa	314.251	5.927	329.990	304.598	35	14.059	10.446	
5	air-tight test	≤0.020Mpa	0.000	0.000	0.000	0.000	35	#DIV/0!	#DIV/0!	≤0.020Mpa	0.000	0.000	0.000	0.000	35	#DIV/0!	#DIV/0!	

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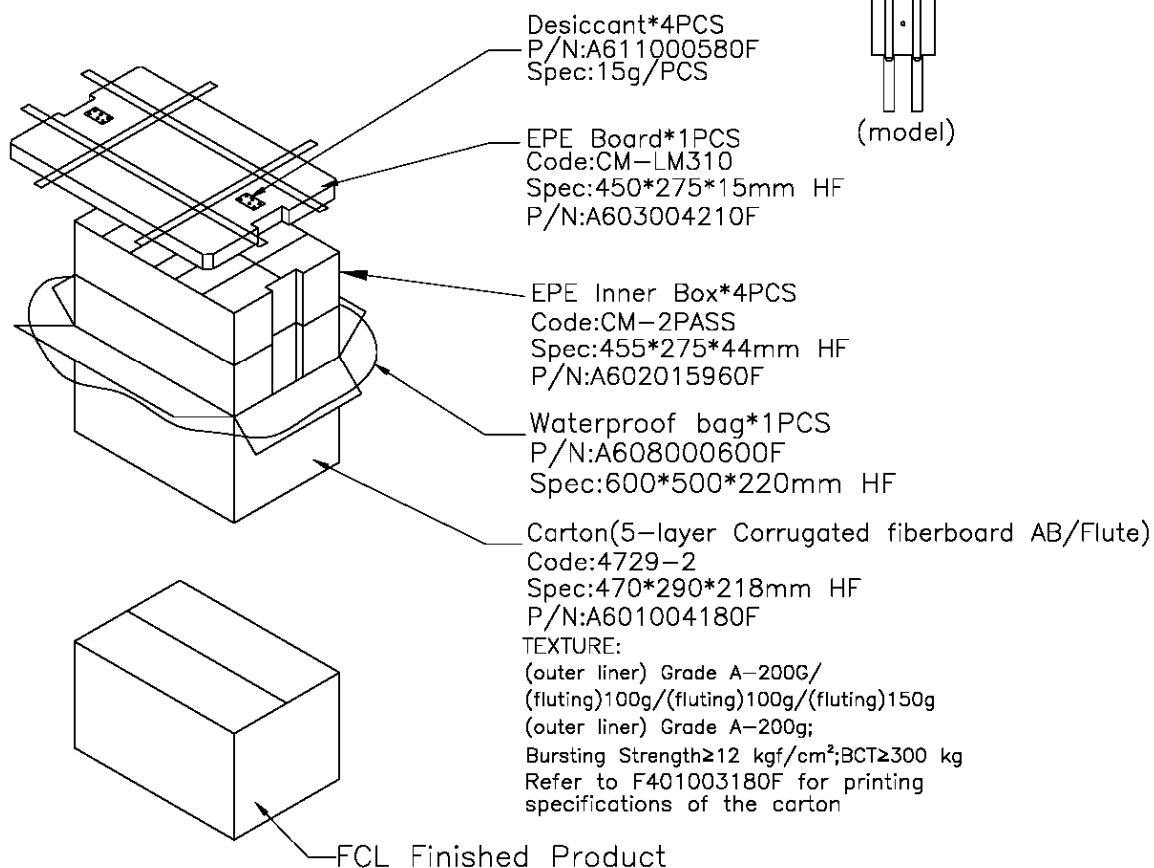
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## 4.Package



## Procedure:

- Step:①Place the waterproof bag inside the carton,  
and put desiccants at each corner of the carton.
- ②Put finished products inside the EPE Inner box,  
8 units per tray, 4 trays stacked in total.  
Place a EPE board on the top,with BOPP tapes for wrapping.
- ③Place desiccants at each top corner of the EPE board  
and organize the bag opening.  
Finish the packing by sealing the carton with BOPP packing tapes.

Parts and raw materials used in this  
product shall not contain any prohibited  
and hazardous substance pertained to  
<List of Environmental Hazardous  
Substance Inspection Techniques and  
Standards> of Sunonwealth Electric  
Machine Industry Co., Ltd.

## 注意事項 NOTICE

Applicable Client:

For Customization

Applicable Model:

CM036-20001N

★: With this mark,  
inspect the dimension.

適用範圍  
SCOPE

SPEC. of MC	P/N of MC	QTY	Cuft	Code	Carton: Corrugate Fiberboard/ EPE Inner Box
470*290*218	A601004180F	32	1.05	4729-2	材質 MATERIAL

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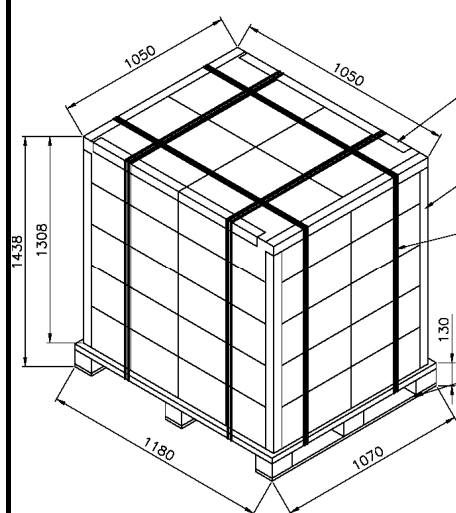
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## 4.Package



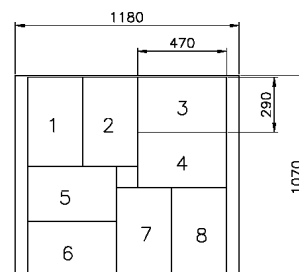
L-shaped pallet edge boards\*4PCS  
Spec:50\*50\*1000\*5mm GN  
P/N:A611000270G

L-shaped pallet edge boards\*4PCS  
Spec:50\*50\*1200\*5mm GN  
P/N:A611000720F

Packing Strap

Smoked wood pallet:  
Spec:1180\*1070\*130mm GN  
P/N:A609000560G

Carton Layout



NOTICE:

1. 8 cartons per layer, 6 layers in total (48 Carton/Pallet).
2. Tightly wrap around the pallet with wrapping films.

NO.	Model	SPEC. of carton	Carton/Pallet	pcs/Carton	pcs/Pallet	N.W	G.W
1.	CM036-20001N	470*290*218	48	32	1536	293	356

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# Notes

## I. 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.

## II. OTHER

1. 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, H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, or Cl<sub>2</sub>.
2. Unless otherwise noted, all testing of this module is conducted at 25°C ambient temperature and sixty-five percent (65%) relative humidity.
3. 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.
4. 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.

## III. 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 module 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 module proven to be defective.

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## Declaration of RoHS

### Control declaration of environment- related substances/ materials

1. In accordance with the Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU, Sunon product 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
17	Hexabromocyclododecane (HBCDD)		<1000ppm
18	Di-butyl Phthalate (DBP)		<1000ppm
19	Benzyl butyl Phthalate (BBP)		<1000ppm
20	Di-ethylhexyl Phthalate (DEHP)		<1000ppm
21	Di-isobutyl Phthalate (DIBP)		<1000ppm

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ISSUED DATE	12. 15. 2021
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