Product Data Sheets

Customer: _____

Part No. : _____

CoolerMaster Model No.: PC-07680-01-GP2

N.W: 234.6g Edition: A2

Issued Date: 2022/09/09

Revision History：		
Date of Release	Revision No.	Description
2022.06.29	A1	Creaded
2022.09.09	A2	Modified the CPU screw`s thread length to be 5.0±0.20mm

Customer	Cooler Master		
Approved by	DCC	Checked by	Drafted by
	鐘建豐 Date:2022/09/09	周慧华 Date:2022/09/09	余洋 Date:2022/09/09

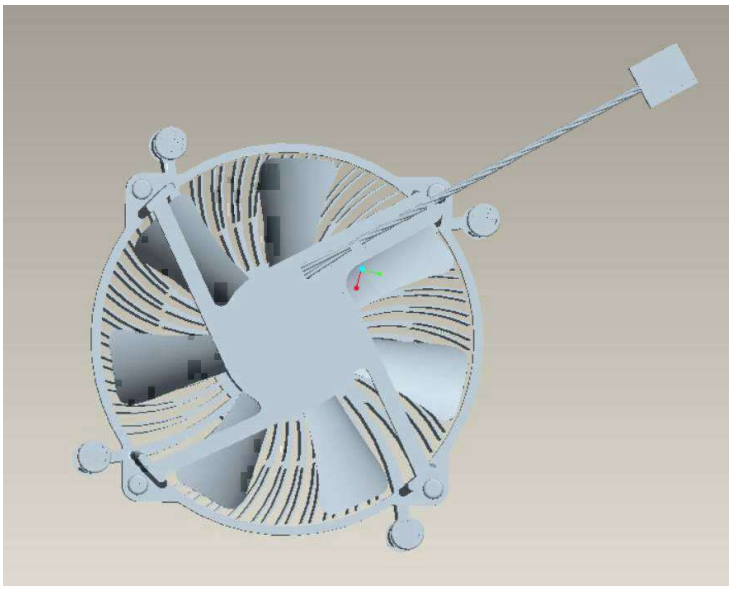
Cooler Master Co., Ltd.
TEL: +886 (2) 32340050 FAX : +886 (2) 32340051 www.coolermaster.com

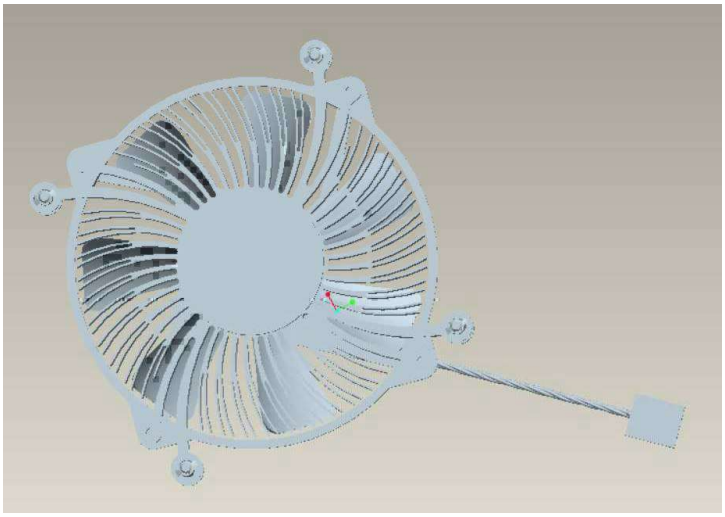
CONTENTS

1. COMPONENT LIST

NO.	PART NAME	Material	Description	QTY
1	HS	AL6063	鋁擠洗白	1/1
2	Screw	AISI1018	鍍鎳	4/1
3	spring	SWP	抗氧化	4/1
4	O-RIGN	SUS304H	脫脂	4/1
5	Fan-Screw	AISI1018	鍍黑鎳	4/1
6	Grease	7762	Ø32*0.2mm	0.25g
7	FAN	-------	Ø95*H25.4mm	1/1
8	CM-LABEL	XIAOYINLONG	Ø29*H0.2mm	1/1
9				
10				
11				
12				
13				
14				
15				
16				
17				

2.Whole Photo

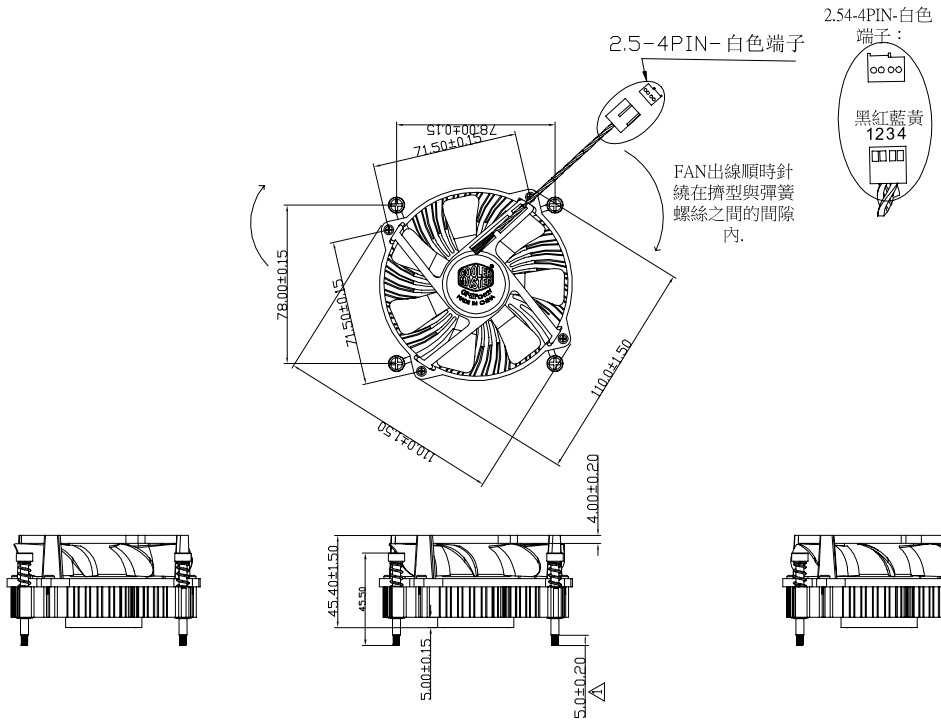


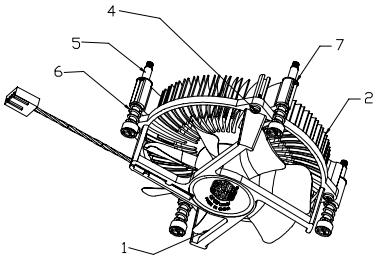


 CONFIDENTIAL VER:A1

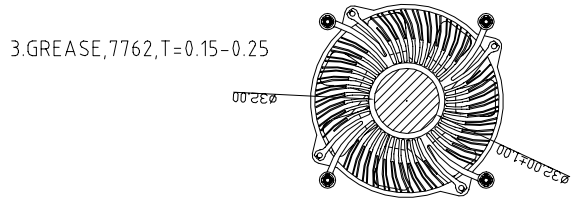
3.2D Drawing
3.1 cooler asm

REV	DESCRIPTION	Section	Engineer	Checked	Date
1	设变CPU SCREW螺丝的螺牙长度为5.0±0.20mm	C-3 , C-4	陳有定	周慧華	09.09.2022





NOTE：
1.制程：組裝.CPU功率：65W.
2.扣合壓力42±8磅;鉚柱高出PCB1.45mm.
3.外觀按一般QA檢驗規范.
4.風扇:成品轉速:4500±15%RPM
5.標示 X 的為重點檢驗尺寸
6.料件需符合RoHS2.0 2015/863/EU 10項物質要求.
7



8	LABEL	XIAOYINLONG	1	
7	oring	/	4	
6	SPRING	SWPC	4	
5	SCREW	AISI1018	4	
4	FAN SCREW	AISI1018	4	
3	GREASE	7762	0.25G	
2	HEATSINK		1	
1	FAN	/	1	
序號	名 稱	材 質	數量	備 注

臺達FAN參數			
啟動電壓	6V	MAX電流	0.60A（MAX)
額定電壓	12V	100%DUTY轉速	4500±15%

Cooler Master Co.,Ltd
正式圖面
DATE 2021.04.12

DRAWN 陳有定	TOL ± Range	General tolerance: Don't use the crossed items				
DATE 2021.04.12	0 ~ 10	0.1	0.1	0.15	0.2	0.3
ENGINEER 陳有定	10 ~ 30	0.15	0.2	0.25	0.3	0.4
DATE 2021.04.12	30 ~ 50	0.2	0.3	0.35	0.4	0.6
CHECKED 周慧華	50 ~ 100	0.25	0.4	0.4	0.6	0.8
DATE 2021.04.12	100 ~	0.3	0.5	0.6	0.8	1.0
APPROVAL 周慧華	Angles	1°	2°	3°	3°	5°
DATE	Scale		Sheet-of 1/9	Unit mm	Size A4	

COOLER MASTER CO., LTD.
Part Name PC-07680-01-GP2
File Name COOLER-01-A2

Cooler Master Co., Ltd.
www.coolermaster.com

樣品檢驗記錄表（散热片+风扇类）

版次:v1.0

檢驗日期:2022.05.11

客戶名:讯强	專案/機種名:PC-07680-01-GP2	PD:叶茂	數　量:5pcs
專案等級：	產品階段：	DQE:罗圳龙	檢驗數量:5pcs

	序號	標準尺寸	允許公差	測量儀器	檢驗單位	實際量測尺寸及狀況										結果判定		
						1	2	3	4	5	6	7	8	9	10	OK	NG	不良描述
尺寸檢驗	1	78.00	±0.15	2.5次元	PD	78.14	78.00	78.10	77.92	78.05						OK		
	2	71.50	±0.15	2.5次元	PD	71.52	71.56	71.58	71.52	71.56						OK		
	3	78.00	±0.15	2.5次元	PD	78.11	78.13	78.13	78.10	78.12						OK		
	4	71.50	±0.15	2.5次元	PD	71.51	71.56	71.42	71.50	71.47						OK		
	5	110.00	±1.50	卡尺	PD	110.12	110.10	110.08	110.16	110.04						OK		
	6	110.00	±1.50	卡尺	PD	110.13	110.15	110.11	110.13	110.10						OK		
	7	4.00	±0.2	卡尺	PD	4.04	4.06	4.10	4.08	4.02						OK		
	8	45.40	±1.50	卡尺	PD	45.22	45.42	45.20	45.32	45.04						OK		
	9	5.00	±0.15	卡尺	PD	5.01	5.03	5.01	5.02	5.00						OK		
	10	32.00	±1.00	卡尺	PD	31.50	31.50	31.50	31.50	31.50						OK		
	11	以下空白																
	12																	
	13																	
	14																	
	15																	
	16																	

		檢測項目	檢驗標準	PD	1	2	3	4	5	6	7	8	9	10	OK	NG	不良描述
功能測試	風扇	电压	12V	PD	12V	12V	12V	12V	12V						OK		
		工作电压		PD													
		电流	max0.6A	PD	386	395	414	387	412						OK		
		功率		PD													
		转数	4500±10%	PD	4444	4525	4541	4370	4507						OK		
		异音	无	PD	无	无	无	无	无						OK		
	螺絲	通/止規檢測		PD													
				DQE													

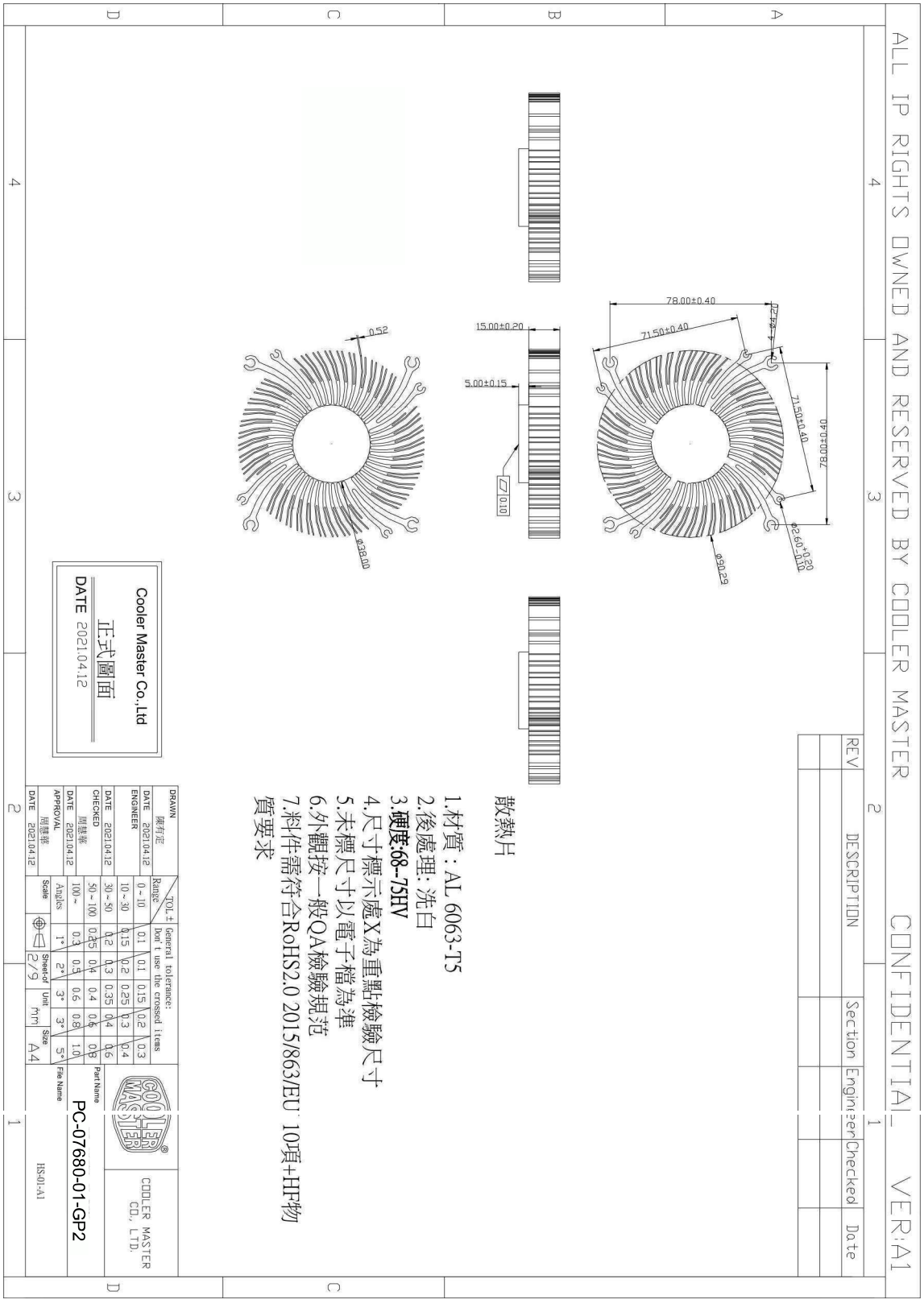
	序號	檢驗項目	檢驗工具	PD	DQE	OK	NG	不良描述
外觀檢驗	1	刮傷	卡尺/點規	无	无	OK		
	2	臟污	點規/目測	无	无	OK		
	3	變形	目測/卡尺	无	无	OK		
	4	配件	目測					
	5	导热膏	目測	无	无	OK		
	6							

產品磅力值	序號	客戶磅力值需求(lbf)	測试仪器	檢验单位	芯片高度（CPU段差）	實測值(lbf)				OK	NG	不良描述
	1	42±8	磅力測试计	PD	5.58mm	42.02	41.62	41.06	41.58	OK		

允收☑　拒收☐　特采☐	備註說明/會簽：
主管審核:何东力　檢驗人:罗圳龙	

備注：
如檢驗項目為廠商提供的部份，請附上對應資料一起給到主管簽核;

3.2 HS


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER CONFIDENTIAL VER:A1
78.00±0.40
71.50±0.40
ø60.20 +0.10 -0.10
ø50.29
15.00±0.20
5.00±0.15
0.10
0.52
ø38.00
散熱片
1.材質：AL 6063-T5
2.後處理: 洗白
3.硬度:68~75HV
4.尺寸標示處X為重點檢驗尺寸
5.未標尺寸以電子檔為準
6.外觀按一般QA檢驗規范
7.料件需符合RoHS2.0 2015/863/EU 10項+HF物質要求
Cooler Master Co.,Ltd
正式圖面
DATE 2021.04.12
DRAWN 陳有宏 DATE 2021.04.12
ENGINEER DATE 2021.04.12
CHECKED 周慧華 DATE 2021.04.12
APPROVAL 周慧華 DATE 2021.04.12
General tolerance: Don't use the crossed items
TOL± Range 0~10 10~30 30~50 50~100 100~
Angles 1° 2° 3°
Size A4 Unit mm Sheet of 2/9
COOLER MASTER CO., LTD.
Part Name PC-07680-01-GP2
File Name HS:01:A1

REV	DESCRIPTION	Section	Engineer	Checked	Date
⚠	设变CPU SCREW螺丝的螺牙长度为5.0±0.20mm	D-4	陳有定	周慧華	09.09.2022

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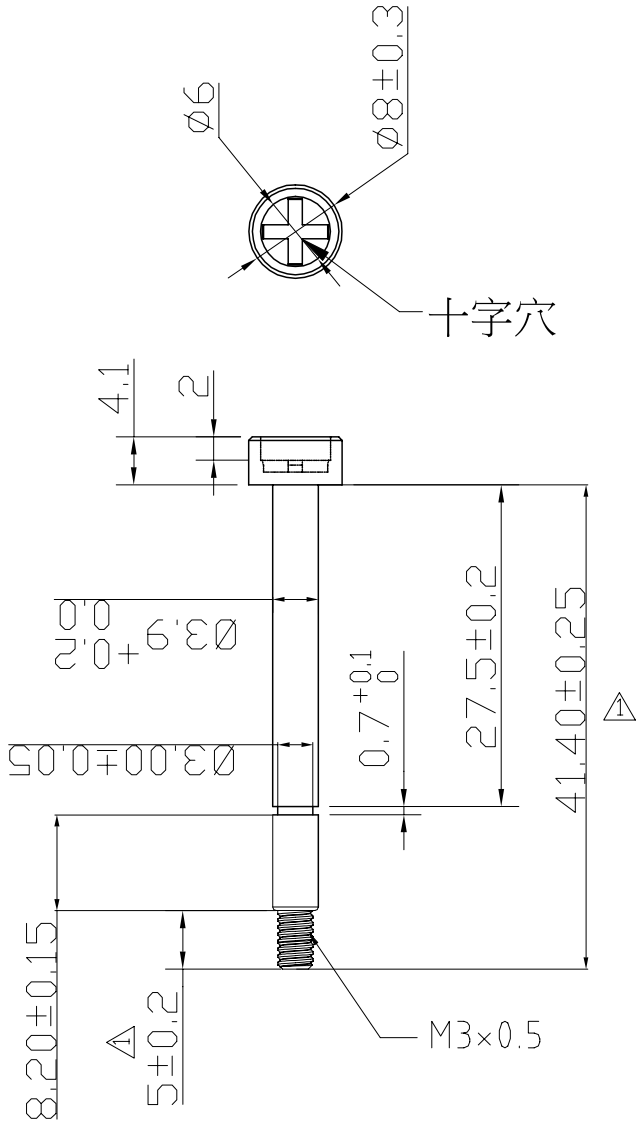
www.coolermaster.com

3.3 CPU SCREW



技术要求：

1. 材質：AISI1018
2. 後處理：電鍍鎳,膜厚1.0um以上
3. 芯部硬度：280~360 Hv
4. 外部硬度：350~450 Hv
5. 破坏扭力測試需達 10 Kg f/mm
6. 鹽霧測試需達 8 H
7. 未標注圓角之處為自然圓角R0.3
8. 標示符號 Ⓧ 的為重點檢驗尺寸
9. 料件需符合RoHS2.0 2015/863/EU 10項物質要求

Cooler Master Co.,Ltd
正式圖面
DATE 2022.03.07

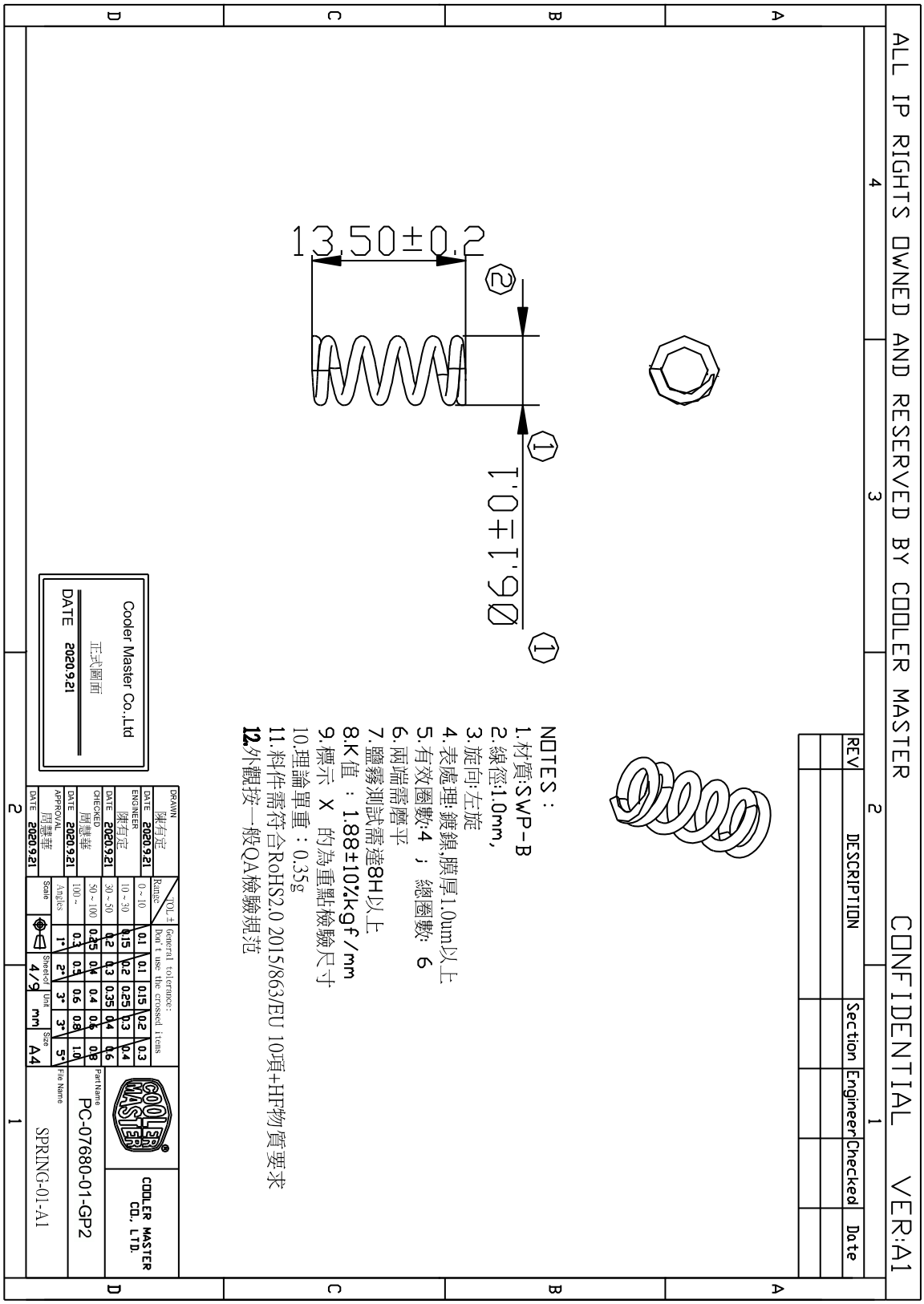
DRAWN 陳有定	TOL ± Range	General tolerance: Don't use the crossed items				
DATE 2020.9.21	0 ~ 10	0.1	0.1	0.15	0.2	0.3
ENGINEER 陳有定	10 ~ 30	0.15	0.2	0.25	0.3	0.4
DATE 2020.9.21	30 ~ 50	0.2	0.3	0.35	0.4	0.6
CHECKED 周慧華	50 ~ 100	0.25	0.4	0.4	0.6	0.8
DATE 2020.9.21	100 ~	0.3	0.5	0.6	0.8	1.0
APPROVAL 周慧華	Angles	1°	2°	3°	3°	5°
DATE 2020.9.21	Scale	Sheet-of 3/8	Unit mm	Size A4		

COOLER MASTER CO., LTD.

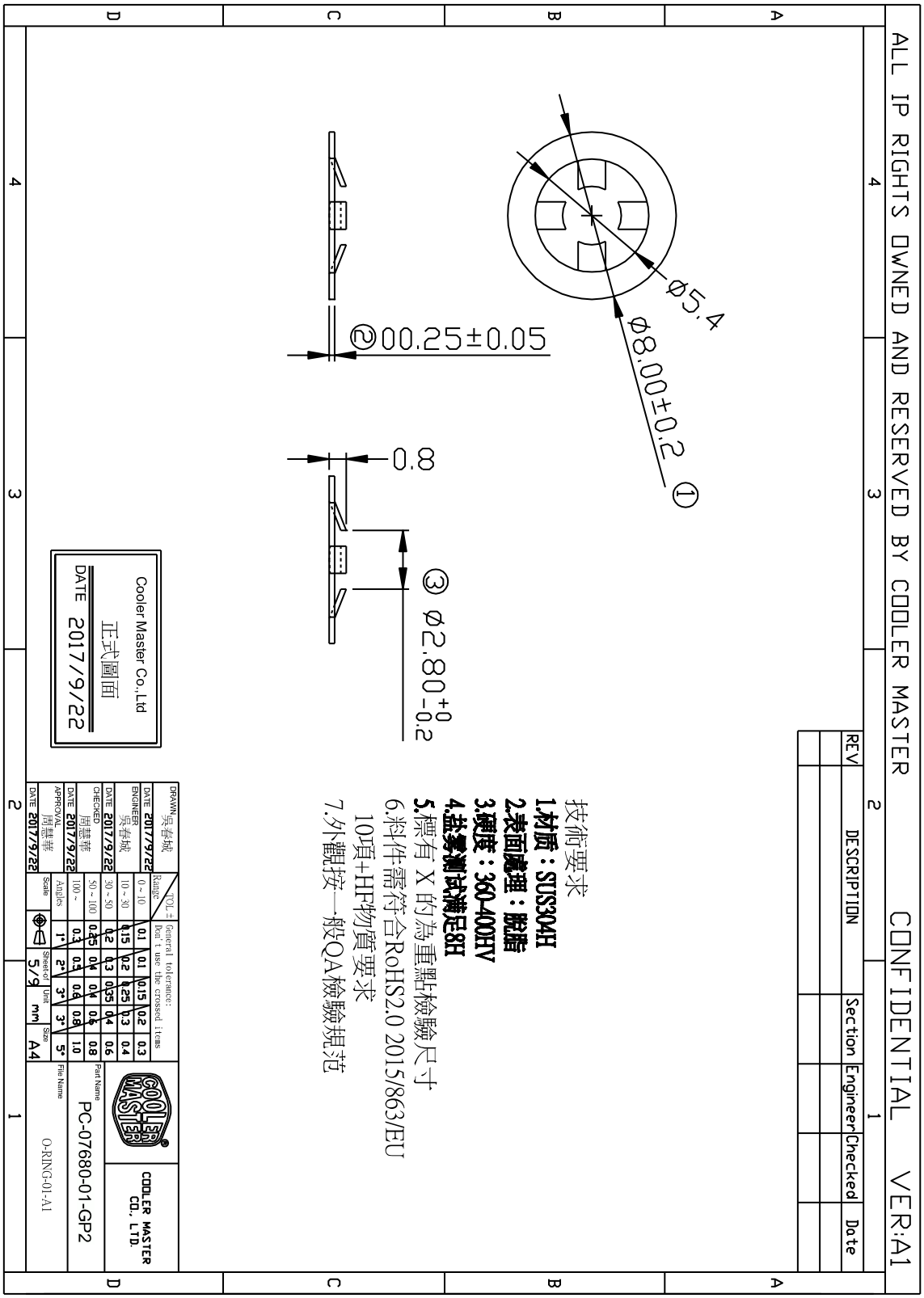
Part Name: PC-07680-01-GP2

File Name: CPU SCREW-01-A2

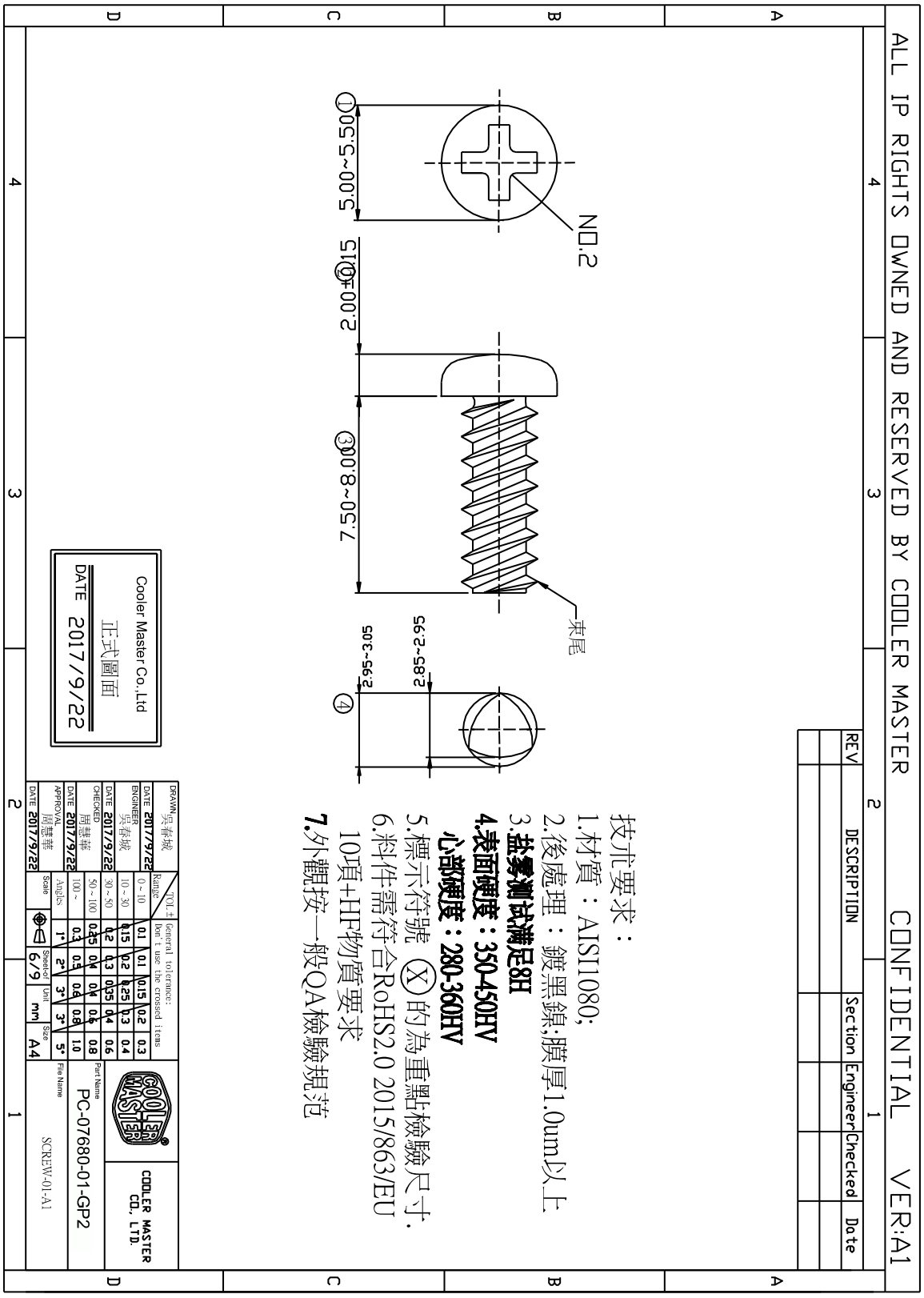
3.4 SPRING


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL VER:A1
REV
DESCRIPTION
Section
Engineer
Checked
Date
13.50±0.2
10±1.90
NOTES:
1.材質:SWP-B
2.線徑:1.0mm,
3.旋向:左旋
4.表處理:鍍鎳,膜厚1.0um以上
5.有效圈數:4 ; 總圈數: 6
6.兩端需磨平
7.鹽霧測試需達8H以上
8.K值 : 1.88±10%kgf/mm
9.標示 X 的為重點檢驗尺寸
10.理論單重 : 0.35g
11.料件需符合RoHS2.0 2015/863/EU 10項+HF物質要求
12.外觀按一般QA檢驗規范
Cooler Master Co.,Ltd
正式圖面
DATE 2020.9.21
DRAWN
陳有定
DATE 2020.9.21
ENGINEER
陳有定
DATE 2020.9.21
CHECKED
周慧華
DATE 2020.9.21
APPROVAL
周慧華
DATE 2020.9.21
General tolerance:
Don't use the crossed lines
TOL±
Ranges
10 ~ 30
30 ~ 50
50 ~ 100
100 ~
Angles
Scale
Sheet of
4/9
unit
mm
Size
A4
COOLER MASTER CO., LTD.
Part Name
PC-07680-01-GP2
File Name
SPRING-01-A1

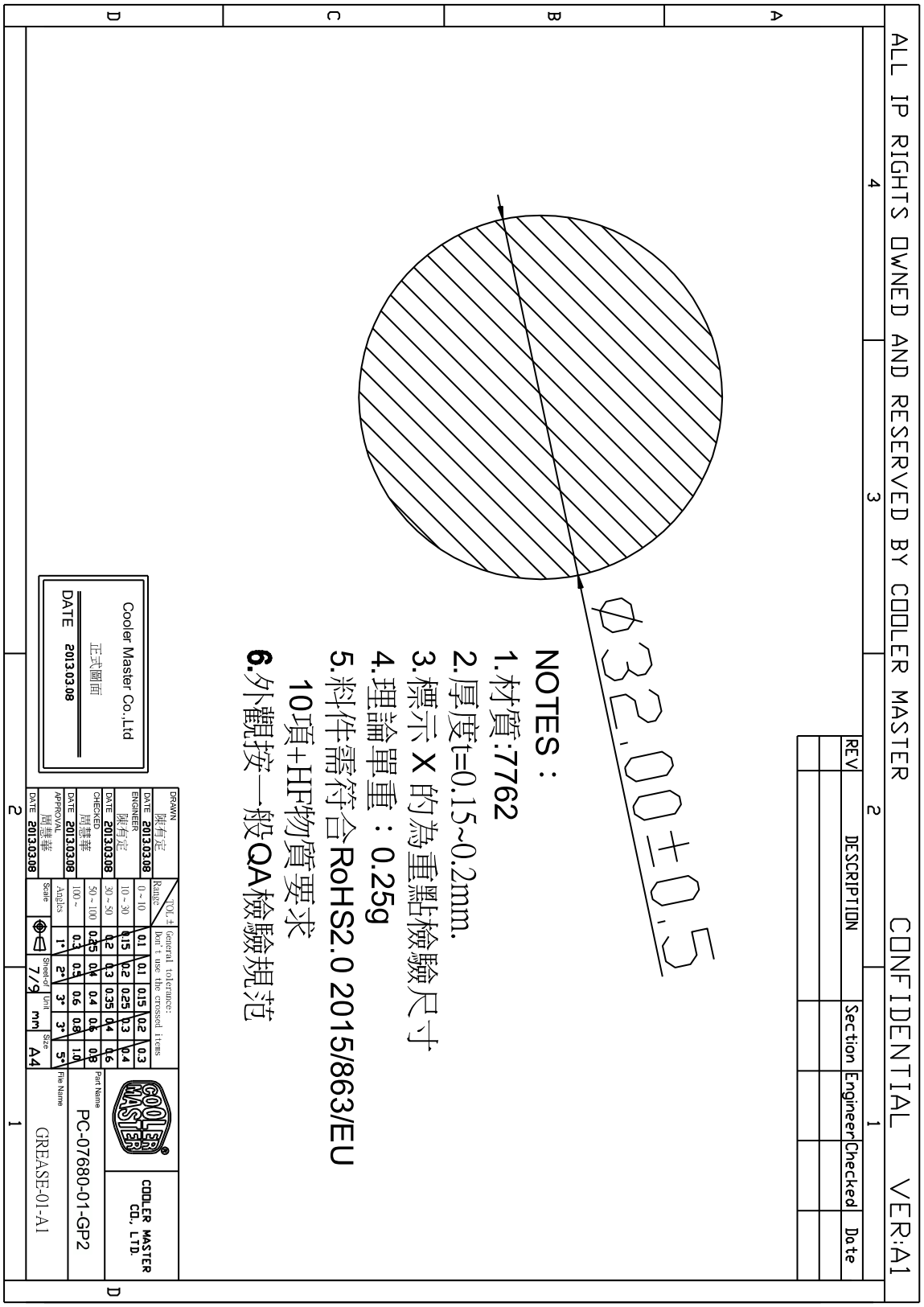
3.5 O-RING


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER CONFIDENTIAL VER:A1
REV
DESCRIPTION
Section
Engineer
Checked
Date
技術要求
1.材质：SUS304H
2.表面處理：脫脂
3.硬度：360-400HV
4.盐雾测试满足8H
5.標有 X 的為重點檢驗尺寸
6.料件需符合RoHS2.0 2015/863/EU
10項+HF物質要求
7.外觀按一般QA檢驗規范
Ø5.4
Ø8.00±0.2 ①
②00.25±0.05
0.8
③ Ø2.80 +0 -0.2
Cooler Master Co.,Ltd
正式圖面
DATE 2017/9/22
DRAWN 吳春城
DATE 2017/9/22
ENGINEER 吳春城
DATE 2017/9/22
CHECKED 周慧華
DATE 2017/9/22
APPROVAL 周慧華
DATE 2017/9/22
General tolerance:
Don't use the crossed items
Range
TOL
0 ~ 10 ±0.1 ±0.1 ±0.15 ±0.2 ±0.3
10 ~ 30 ±0.15 ±0.2 ±0.25 ±0.3 ±0.4
30 ~ 50 ±0.2 ±0.3 ±0.35 ±0.4 ±0.6
50 ~ 100 ±0.25 ±0.4 ±0.4 ±0.6 ±0.8
100 ~ Angles 1° 2° 3° 3° 5°
Scale Sheet of 5/9 Unit mm Size A4
COOLER MASTER CO., LTD.
Part Name PC-07680-01-GP2
File Name O-RING-01-A1

3.6 FAN SCREW


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL VER:A1
REV
DESCRIPTION
Section
Engineer
Checked
Date
技术要求：
1.材質：AISI1080;
2.後處理：鍍黑鎳;膜厚1.0um以上
3.盐雾测试满足8H
4.表面硬度：350-450HV
心部硬度：280-360HV
5.標示符號 Ⓧ 的為重點檢驗尺寸.
6.料件需符合RoHS2.0 2015/863/EU
10項+HP物質要求
7.外觀按一般QA檢驗規范
NO.2
束尾
Cooler Master Co.,Ltd
正式圖面
DATE 2017/9/22
DRAWN 宾春城 DATE 2017/9/22
ENGINEER 宾春城 DATE 2017/9/22
CHECKED 周慧華 DATE 2017/9/22
APPROVAL 周慧華 DATE 2017/9/22
Scale
Angles
Sheet-of 6/9
Unit mm
Size A4
COOLER MASTER CO., LTD.
Part Name PC-07680-01-GP2
File Name SCREW-01-A1

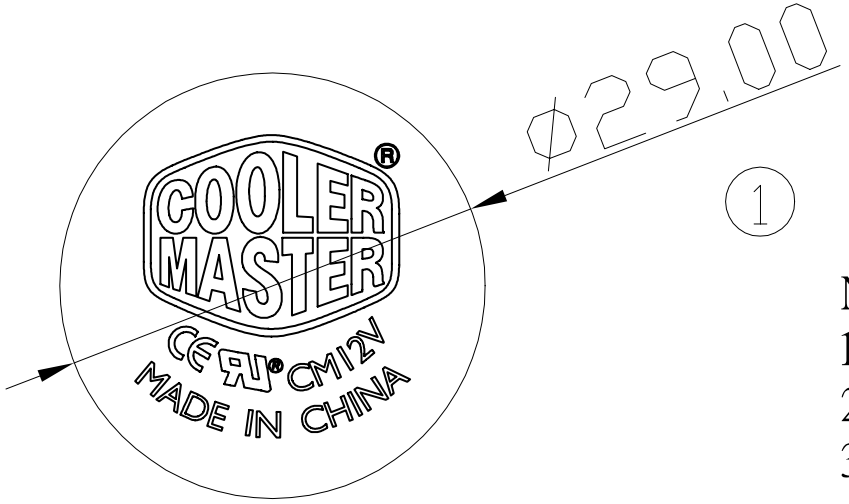
3.7 GREASE


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER CONFIDENTIAL VER:A1
REV
DESCRIPTION
Section
Engineer
Checked
Date
Φ32.00±0.5
NOTES :
1.材質:7762
2.厚度t=0.15~0.2mm.
3.標示 X 的為重點檢驗尺寸
4.理論單重 : 0.25g
5.料件需符合RoHS2.0 2015/863/EU
10項+HF物質要求
6.外觀按一般QA檢驗規范
Cooler Master Co.,Ltd
正式圖面
DATE 2013.03.08
DRAWN 陳有定 DATE 2013.03.08
ENGINEER 陳有定 DATE 2013.03.08
CHECKED 周慧華 DATE 2013.03.08
APPROVAL 周慧華 DATE 2013.03.08
COOLER MASTER CO., LTD.
Part Name PC-07680-01-GP2
File Name GREASE-01-A1
Size A4
Unit mm
Sheet of 7/9
Scale
Angles
Range
0 ~ 10
10 ~ 30
30 ~ 50
50 ~ 100
100 ~
TOL± general tolerance
Don't use the crossed items

CONFIDENTIAL VER:A1

3.8 CM -LABEL

REV	DESCRIPTION	Section	Engineer	Checked	Date



NOTE:
1.材質:25#消銀龍,表面需加護膜,耐高溫(-40~80).
2.顏色:Pantone320C,表面加護膜.
3.標示符號 1 ~ X 的為重點檢驗尺寸
4:料件需符合RoHS2.0 2015/863/EU 10項物質要求.

Cooler Master Co.,Ltd
正式圖面
DATE 2010.12.13

DRAWN 郭威 DATE 2010.12.13	TOL ± Range	General tolerance: Don't use the crossed items				
ENGINEER 郭威 DATE 2010.12.13	0 ~ 10	0.1	0.1	0.15	0.2	0.3
CHECKED 周慧華 DATE 2010.12.13	10 ~ 30	0.15	0.2	0.25	0.3	0.4
APPROVAL 周慧華 DATE 2010.12.13	30 ~ 50	0.2	0.3	0.35	0.4	0.6
	50 ~ 100	0.25	0.4	0.4	0.6	0.8
	100 ~	0.3	0.5	0.6	0.8	1.0
	Angles	1°	2°	3°	3°	5°
	Scale	Sheet-of 1/1	Unit mm	Size A4		

COOLER MASTER CO., LTD.

Part Name PC-07680-01-GP2

File Name Label-01-A1

13

4 Material of certificate

4.1 HS (AL6063T5)

亚 广东中亚铝业有限公司

6063-T5 合金材质报告

文件编号:QR/ZY-ZJ-01
产品的主要合金成分按国标 GB/T3190-2017
的要求执行。
合金成分表: GB/T3190-2017

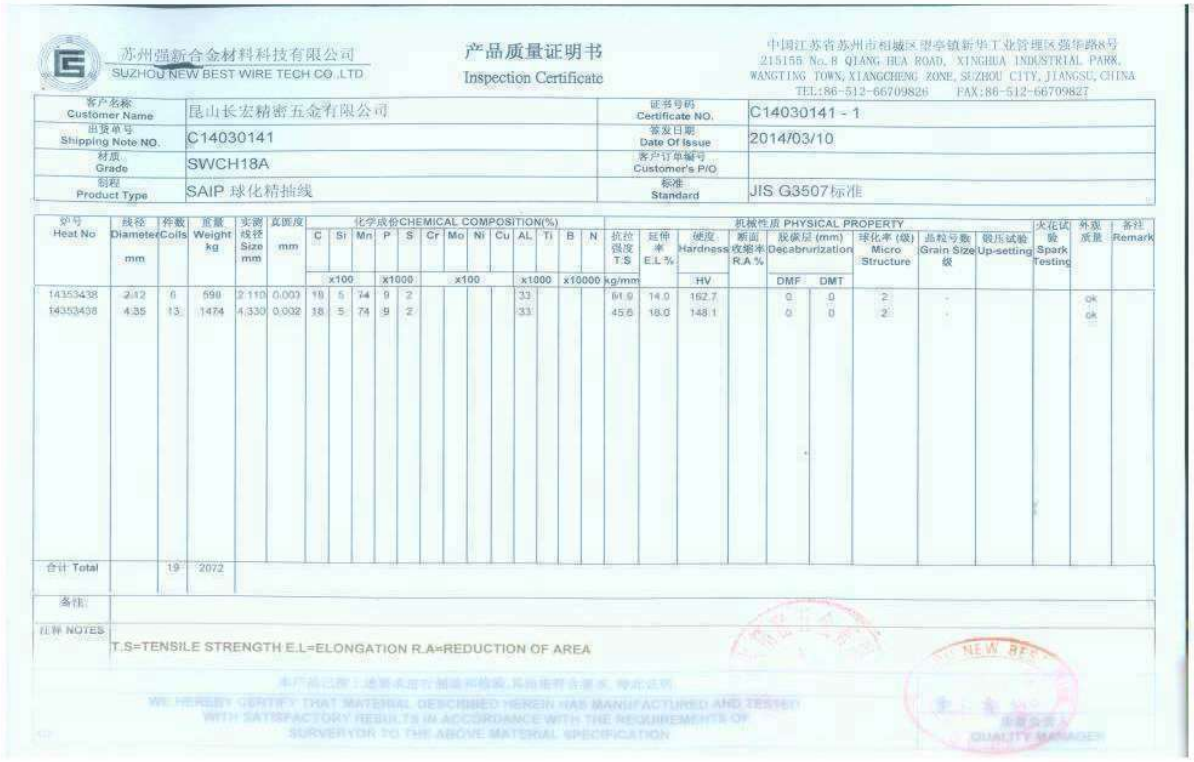
合金牌号	化学成分（质量分数）%											
	硅 Si	铁 Fe	铜 Cu	锰 Mn	镁 Mg	铬 Cr	锌 Zn	钛 Ti	锆 Zr	其它 单个	其它 合计	铝Al
6063	0.379	0.154	0.0093	0.029	0.62	0.0050	0.0025	0.0020	-	0.05	0.15	98.6

韦氏硬度：11HW

公司为了保护自然环境，美化自然环境，保障人们的身体康健。所有生产的产品的合金成分都符合国家（国际）标准要求，其中镉、铅、汞、沸水萃取法六价铬、多溴联苯之和、单溴联苯、二溴联苯、三溴联苯、四溴联苯、五溴联苯、六溴联苯、七溴联苯、八溴联苯、九溴联苯、十溴联苯、多溴二苯醚之和、单溴二苯醚、二溴二苯醚、三溴二苯醚、四溴二苯醚、五溴二苯醚、六溴二苯醚、七溴二苯醚、八溴二苯醚、九溴二苯醚、十溴二苯醚的含量都符合相关标准要求。

2017-7-18

4.2 SCREW(AISI1018)



苏州强新合金材料科技有限公司
SUZHOU NEW BEST WIRE TECH CO.,LTD

产品质量证明书
Inspection Certificate

中国江苏省苏州市相城区望亭镇新华工业管理区强华路8号
215155 No.8 QIANG HUA ROAD, XINGHUA INDUSTRIAL PARK,
WANGTING TOWN, XIANGCHENG ZONE, SUZHOU CITY, JIANGSU, CHINA
TEL:86-512-66709826 FAX:86-512-66709827

客户名称 Customer Name	昆山长宏精密五金有限公司	证书号码 Certificate NO.	C14030141 - 1
出货单号 Shipping Note NO.	C14030141	签发日期 Date Of Issue	2014/03/10
材质 Grade	SWCH18A	客户订单编号 Customer's P/O	
制程 Product Type	SAIP 球化精抽线	标准 Standard	JIS G3507标准

炉号 Heat No	线径 Diameter mm	件数 Coils	重量 Weight kg	实测 线径 Size mm	直圆度 mm	化学成份CHEMICAL COMPOSITION(%) C x100	Si	Mn	P x1000	S	Cr	Mo x100	Ni	Cu	AL x1000	Ti	B x10000	N	抗拉强度 T.S kg/mm²	延伸率 E.L %	硬度 Hardness HV	断面收缩率 R.A %	脱碳层 (mm) Decabrurization DMF	DMT	球化率 (级) Micro Structure	晶粒号数 Grain Size 级	锻压试验 Up-setting	火花试验 Spark Testing	外观质量	备注 Remark
14353438	2.12	6	599	2.110	0.003	18	5	74	9	2					33				61.9	14.0	162.7		0	0	2	-			OK	
14353438	4.35	13	1474	4.330	0.002	18	5	74	9	2					33				45.6	18.0	148.1		0	0	2	-			OK	
合计 Total		19	2072																											

备注

注释 NOTES T.S=TENSILE STRENGTH E.L=ELONGATION R.A=REDUCTION OF AREA

WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HEREIN HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF SURVEYOR TO THE ABOVE MATERIAL SPECIFICATION

QUALITY MANAGER

4.3 SPRING (SWP)

HONGDUK INDUSTRIAL CO., LTD
FACTORY:51, Jangheung-ro 39beon-gil, Nam-gu, Pohang-si, Gyeongsangbuk-do, Korea
TEL.:++82-54-271-3600 FAX:++82-54-271-3699

TEST CERTIFICATE
시 험 성 적 서

Date of Shipment : 2018 - 07 - 23
선적/출하일자
Date of Issue : 2018 - 07 - 20
발행일자

Customer 고객 HUI JUN	Wire Dimension & Grade(線徑, 種別) 0.6 mm SWP-B	Commodity 제품 Piano Wires	Specification 적용규격 JIS G 3522
Customer's PO No. 수주번호 HUIJUN KSTSW150615-40	Hongduk Industrial's Lot No / EX No. 지시번호 NS-5183/02	L/C No.(T/T No.D/A No) T/T	Total Coils 수량 20 / Total Net weight 총중량 1,000.00 kgs

A. Chemical Composition(%) Heat No : SF45079

		Chemical Composition(%)										
		C	Si	Mn	P	S	Cu	Cr	V	Al	O2	Ti	N1
Specification	Min	0.80	0.12	0.30									
	Max	0.85	0.32	0.60	0.025	0.025	0.20						
Actual		0.824	0.224	0.420	0.009	0.003	0.015						

B. Mechanical Properties

Item / Spec. / Coil No	Diameter 선경 0.6 mm		Tensile Strength	Torsion Value	Torsion State	Wrap	Bend	Coiling	Reduction of Area	Decarbur_ization	Defects	Appearance	Hardness	Coil weight	Remark
	Tolerance 허용치	Ovality 편경차	인장강도 (N/㎟)	비틀림횟수 (Turns)	비틀림상태	감기시험 (4xD)	굽힘시험 (90°)	코일링시험	단면감소율 (%)	탈탄	흠깊이 (mm)	외관	경도	중량 (kgs)	비고
Min	0.590		2,450			Good						Good			
Max	0.610	0.010	2,700								0.020				
7	0.598	0.001	2,519			Pass				Pass	0.007	Pass		50.00	
8	0.598	0.001	2,519			Pass				Pass	0.007	Pass		50.00	
9	0.598	0.001	2,519			Pass				Pass	0.007	Pass		50.00	
10	0.598	0.002	2,526			Pass				Pass	0.007	Pass		50.00	
11	0.598	0.002	2,526			Pass				Pass	0.007	Pass		50.00	
12	0.598	0.002	2,526			Pass				Pass	0.007	Pass		50.00	

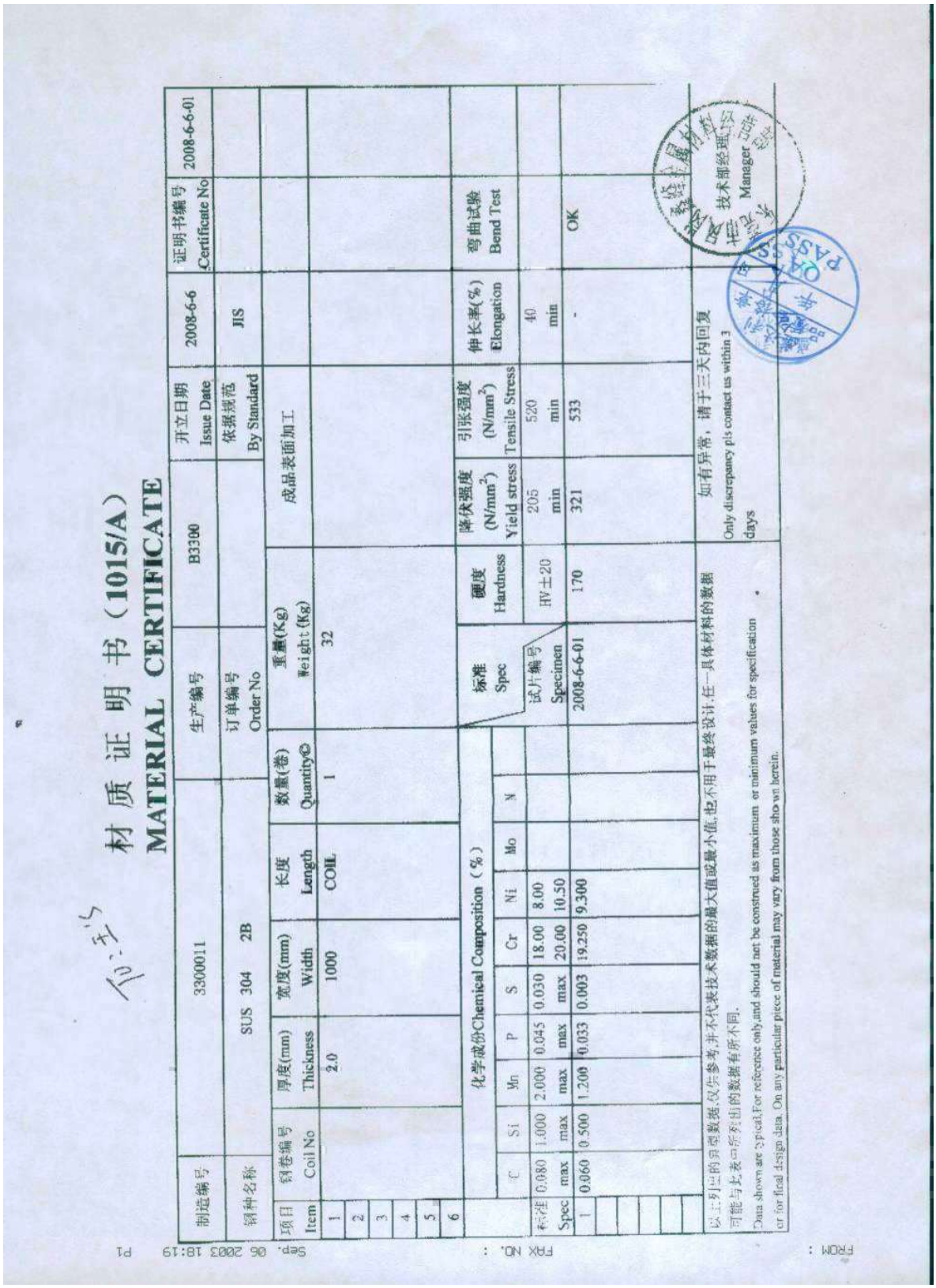
Y.H. NOH

Noh, Young-Hoon
Quality Control Team Manager

Continue

4.4 ORING(SUS304H)

Cooler Master Co., Ltd.
TEL: +886 (2) 32340050 FAX: +886 (2) 32340051 www.coolermaster.com



材质证明书（1015/A）

MATERIAL CERTIFICATE

制造编号	3300011	生产编号	B3300	开立日期 Issue Date	2008-6-6	证明书编号 Certificate No	2008-6-6-01
钢种名称	SUS 304 2B	订单编号 Order No		依据规范 By Standard	JIS		

项目 Item	钢卷编号 Coil No	厚度(mm) Thickness	宽度(mm) Width	长度 Length	数量(卷) Quantity©	重量(Kg) Weight (Kg)	成品表面加工							
1		2.0	1000	COIL	1	32								
2														
3														
4														
5														
6														

	化学成份Chemical Composition（%）										标准 Spec / 试片编号 Specimen	硬度 Hardness	降伏强度 (N/mm^2) Yield stress	引张强度 (N/mm^2) Tensile Stress	伸长率(%) Elongation	弯曲试验 Bend Test
	C	Si	Mn	P	S	Cr	Ni	Mo	N							
标准 Spec	0.080 max	1.000 max	2.000 max	0.045 max	0.030 max	18.00 20.00	8.00 10.50					HV±20	205 min	520 min	40 min	
1	0.060	0.500	1.200	0.033	0.003	19.250	9.300				2008-6-6-01	170	321	533	-	OK

以上列出的实测数据,仅供参考,并不代表技术数据的最大值或最小值,也不用于最终设计.任一具体材料的数据可能与此表中所列出的数据有所不同.

Data shown are typical.For reference only,and should not be construed as maximum or minimum values for specification or for final design data. On any particular piece of material may vary from those shown herein.

如有异常，请于三天内回复

Only discrepancy pls contact us within 3 days

技术部经理 Manager

FROM : FAX NO. : Sep. 06 2003 18:19 P1

4.5 GREASE 7762

Cooler Master Co., Ltd.
TEL: +886 (2) 32340050 FAX: +886 (2) 32340051 www.coolermaster.com

Shin-Etsu

X-23-7762

Thermal Interface Material

Description of Use

Thermal grease (X-23-7762) is a thermal interface material developed by Shin-Etsu Chemical Co., Ltd. to meet the current and future thermal management requirements of high performance microprocessors. It is used to increase heat sink effectiveness by closing the air gap existing between the top of the processor and the fan heat sink. Air is a thermal insulator with a thermal conductivity of 0.027W/mK. The grease is applied to the raised area on top of the processor after the processor is in the socket. The fan heat sink is centered on the processor top, with the raised areas on the bottom of the heat sink and the processor top aligned. The fan heat sink is firmly pressed to evenly distribute the thermal grease until the metal of the heat sink is felt against the metal of the processor top. The excess grease can be removed by wiping with a soft cloth.

Typical Physical Properties

Appearance	Gray
Viscosity (25C)	1700 Poise
Bulk Thermal Conductivity	More than 4 W/mK (with solvent) More than 6 W/mK (w/o solvent, as X-23-7732)
Volatile Content (150C x 24hrs)	2.5%

Handling instruction

1. Suggest to store the material under 10 deg C. Once open the lid, please use it up as soon as possible.
2. Require stirring the material up before using.
3. X-23-7762 contains 2wt% of solvent as a diluted component for application of screen-printing. Therefore, require removing solvent after putting 7762 on substrate. Recommendable curing condition: 60 deg C x 30min

Shin-Etsu QA , TAKEFU

Date :Oct.13,2006
No. SI-MC-1034

To : SHIN-ETSU SILICONE TAIWAN CO.,LTD.

Information on ingredients of X-23-7762

Shin-Etsu product X-23-7762 is a mixture consisting of following ingredients.

Formulation of X-23-7762:

Ingredients	Contents
Silicone Oil	ca. 10%
Additive (Minor constituents)	
Metal Oxide Powder	ca. 20%
Metal Powder	ca. 70%

Your kind consideration and arrangements will be greatly appreciated.

Mikio Kobayashi
Manager
Quality Assurance Department
Takefu Plant
Shin-Etsu Chemical Co., Ltd.

4.6 25#消银龙（CM _LABEL)

高冠胶粘制品(中山)有限公司 产品说明书

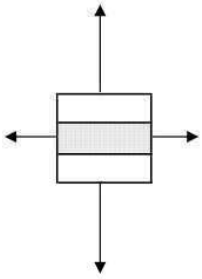
KK ENTERPRISE (ZHONGSHAN) CO.,LTD.SPECIFICATIONS

编号：A026

代号 Code	TLSMI1	品 名 Article Name	消银特多龙标签纸 METALIZED POLYESTER LABEL(I)（SILVER MATTE）

面 材 SURFACE MATERIAL			
材料名称 Article Name	聚酯膜 POLYESTER FILM	伸长率 % Elongation	——
厚度 mm Thickness	0.025 ± 0.003	颜色 Color	消银色 SILVER MATTE
基重 g/m² Basic Weight	35 ± 4	平滑度 Smoothness	GOOD
抗张力 kg/15mm Tensile Strength	——	印刷性 Printability	GOOD

胶系 Adhesive Base	压克力系(#9) ACRYLIC	剥离力 g/25.4mm Release Force	10 ± 5
胶厚 mm Coating Thickness	0.023 ± 0.003	保持力 hr/kg/20mm² Holding Power	8 ↑
上胶量 g/m² Dry Coating Weight	23 ± 3	耐候性 Weathering Resistance	GOOD
初期力 No/Boll Initial Tack	2 ↑	适用温度 ℃ Temp. Range	- 20 ~ 125
粘着力 Kg/25mm 180° Peel Adhesion	0.6 ↑	耐 溶 剂 Solvent Resistance	GOOD



底 纸 LINER			
材料名称 Article Name	PE 淋膜离型纸 PE LAMI. RELEASE PAPER	破裂强度 kg/cm² Breaking Strength	6.5 ↑
厚度 mm Thickness	0.140 ± 0.006	颜色 Color	黄色 YELLOW
基重 g/m² Basic Weight	116 ± 4	平滑度 Smoothness	GOOD
抗张力 kg/15mm Tensile Strength	8.0 ↑	斩 性 Die Cutting	GOOD

物性测试条件：23±2℃、65±5%RH 保存方式：阴凉通风避免阳光直射 保存时间：一年

REMARKS

以上诸项技术资料乃本公司采用公认可靠检验方法，经多次检验所得之平均数据。但为确保正确选择与使用本公司之产品，仍请你基于欲使用对象，先行对使用目的与条件作详尽了解与试用，或者通知本公司，以便为你提供更进一步的说明与服务。

THE TECHNICAL DATA ARE BASED ON THE RELIABLE EXPERIMENTS CARRIED BY THE COMPANY， WHICH HOWEVER ARE NOT TO GUARANTEE THOSE PROPERTIES AND CHARACTERISTICS COMPLETELY AS SPECIFIED THEREIN. KINDLY STUDY YOUR PURPOSE AND CONDITIONS TO USE THIS PRODUCT PREVIOUSLY IN DETAIL UPON YOUR OWN RESPONSIBILITY.

修订日期：2005.07.01（4.0版）

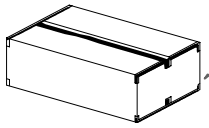
5.Metal / Plastic part reliability test record table

金屬/塑膠件信賴性測試記錄表

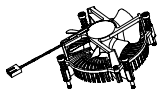
類別	檢驗項目	標準	Test 1	Test 2	Test 3
烤漆	百格(附著力)	ISO Class 1 ASTM Class 4B	N/A	N/A	N/A
	硬度	3H	N/A	N/A	N/A
	色差/光澤	依研華規範	N/A	N/A	N/A
	耐酒精	濃度95%酒精	N/A	N/A	N/A
	膜厚	液體塗裝：20~100μm	N/A	N/A	N/A
		粉體塗裝：40~100μm	N/A	N/A	N/A
印刷	耐酒精	濃度95%酒精	PASS	PASS	PASS
	附著力	不切割,不得有漆塊被撕起之情形	PASS	PASS	PASS
塑膠	扭拉力(埋銅釘)	(M3)-依實測值	N/A	N/A	N/A
	扭拉力(埋銅釘)	(M4)-依實測值	N/A	N/A	N/A
	導電值(導電漆)	依實測值	N/A	N/A	N/A
金屬	耐酒精(電鍍)	濃度95%酒精	PASS	PASS	PASS
	膜厚(電鍍)	電鍍膜厚應為5.0~8.0μm (平面5μm轉直角3μm)	5.2μm	5.8μm	5.3μm
	鹽霧(電鍍)	1.鍍鎳(NI)鹽水噴霧試驗12小時	PASS	PASS	PASS
		2.鍍鋅(Zn，五彩鋅，藍鋅等，鹽水噴霧試驗48小時	N/A	N/A	N/A
	色差/光澤(陽極)	依樣品或限度樣目視表面差異	PASS	PASS	PASS
	推拉力(nut/standoff 鉚合)依不同規格確認 (Ex. Nut M3, Standoff M3)	(Nut M3)-依實測值	N/A	N/A	N/A
		(Nut M3)-依實測值	N/A	N/A	N/A
		(Standoff M3)-依實測值	N/A	N/A	N/A
		(Rivet M2.5)-依實測值	N/A	N/A	N/A
備註	ACL：金屬參考研華M-10-A018檢驗規範；塑膠參考研華M-10-A008檢驗規範。 AKMC：金屬參考研華KAQ-A-120檢驗規範，塑膠參考研華KAQ-A-104檢驗規範。				

 CONFIDENTIAL VER:A1

REV	DESCRIPTION	Section	Engineer	Checked	Date

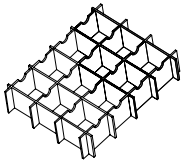


6. Encapsulation



5. Heatsink: 36PCS

4. Grease Cover: 36PCS

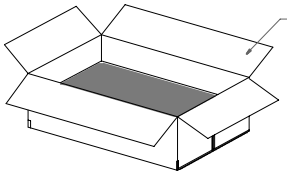


3. Hive: 3Pcs

One layer: 12pcs Heatsink

Total three layers: 12*3=36pcs Heatsink

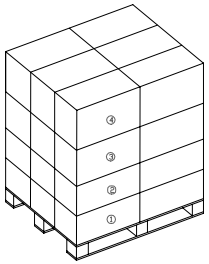
2. Partition: 4PCS

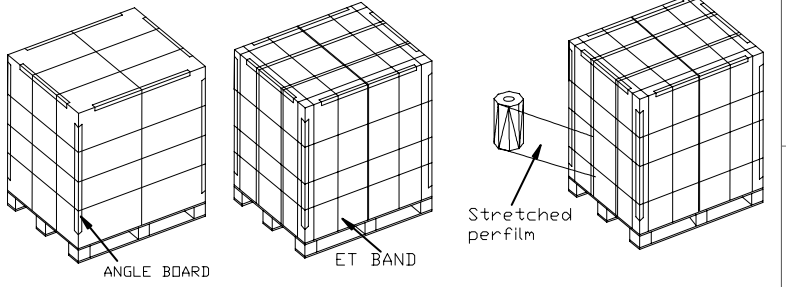


1. Carton: 1pcs

Total 3 hive in one carton

Total: 36pcs heatsinks in one carton





Note:
Pallet dimension is 120(L)x100(W)x11.4(H)cm
Total dimension is 120(L)x100(W)x93.8(H)cm

Total 36pcs Heatsinks in one carton
6 cartons/layer, 4 layers
Total coolers unit is 864 PCS

Carton dimension:L48.7cm*W39.0cm*H20.6cm

Part NO.	Part name	Dimension(mm)	Q'ty
Grease Cover	A110163A	37.4*37.4*15.5	1/1
Hive	A090005A	477*380*58	1/12
Partition	A080032A	477*380*3	4/36
Carton	A070065A	487*390*206	1/36

Cooler Master Co.,Ltd
正式圖面
DATE 2022.05.16

DRAWN YOUDING DATE 20220516	TOL± Range	General tolerance: Don't use the crossed items				
ENGINEER YOUDING DATE 20220516	0 ~ 10	0.1	0.1	0.15	0.2	0.3
CHECKED YOUDING DATE 20220516	10 ~ 30	0.15	0.2	0.25	0.3	0.4
APPROVAL ZHOUHH DATE 20220516	30 ~ 50	0.2	0.3	0.35	0.4	0.6
	50 ~ 100	0.25	0.4	0.4	0.6	0.8
	100 ~	0.3	0.5	0.6	0.8	1.0
	Angles	1°	2°	3°	3°	5°
	Scale		Sheet-of 1/1	Unit mm	Size A4	

COOLER MASTER CO., LTD.

Part Name PC--07680-01-GP2

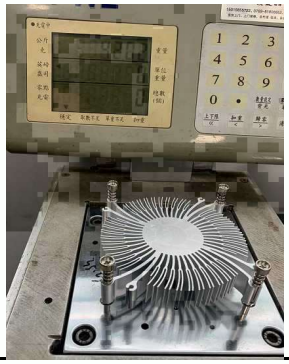
File Name 9401R001-ABC-01-T1

7.性能測試報告

PN	TC1	TC2	DT1	W	RPM	RTH1
SAMPLE-1#	48.1	27.6	20.5	65.1	4428	0.315
SAMPLE-2#	48.3	27.7	20.6	65.1	4410	0.317
SAMPLE-3#	48.3	27.7	20.6	65.1	4434	0.317
SAMPLE-4#	48.3	27.7	20.6	65	4422	0.317
SAMPLE-5#	46.9	26.2	20.7	65.1	4317	0.318

8. 壓力測試報告

PC-07680-01-GP2 磅力測试

序号	CPU断差高度(mm)	磅力(lbf)	图示	斷差面
1	5.58	42.02		
2	5.58	41.62		
3	5.58	41.06		

CPK重點尺寸分析報告

料　號	PC-07680-01-GP2	製造廠商	讯好	檢驗日期	2022.5.12
版　本	A1	廠商編號		模穴號	
品　名	成品	環境條件及附註事項: 溫度： 26℃， 溼度： 65% [RH]。			

項目	1	2	3	4	5	6	7	8	9		
儀器代號	IMI	IMI	IMI								
規格	78	78	5								
公差	0.15	0.15	0.15								
樣品編號	0.15	0.15	-0.15								
1	77.92	78.14	4.99								
2	77.99	78.01	5.04								
3	77.92	78.05	5.01								
4	78.02	77.89	5.04								
5	78.01	77.86	5.01								
6	78.03	77.87	5.05								
7	77.98	78.03	5.04								
8	77.99	77.99	4.95								
9	78.00	77.98	4.99								
10	78.10	78.05	4.98								
11	78.11	78.03	5.00								
12	78.01	78.12	5.03								
13	78.02	78.07	4.97								
14	78.10	78.05	4.96								
15	78.14	78.00	5.00								
16	78.13	78.05	5.03								
17	78.12	78.02	5.03								
18	78.02	78.04	5.03								
19	78.03	78.02	5.00								
20	77.90	77.87	4.97								
21	77.92	77.88	4.99								
22	77.95	77.98	4.95								
23	77.98	78.09	5.05								
24	78.01	78.03	4.95								
25	78.07	78.02	4.98								
26	78.07	78.00	4.98								
27	78.02	78.04	5.01								
28	78.01	78.03	4.97								
29	78.06	78.01	5.04								
30	78.00	78.00	4.96								
MAX	78.14	78.14	5.05								
MIN	77.90	77.86	4.95								
X	78.021	78.007	5.000								
σ	0.064	0.071	0.032								
Ca	#DIV/0!	#DIV/0!	0.000								
Cp	0.000	0.000	1.549								
Cpk	#DIV/0!	#DIV/0!	1.549								
判定	OK	OK	OK								
備注											

儀器代號: IMI－影像測量儀 ME－ 量測顯微鏡 HG－高度計 GA－PIN規 G－內孔規 N－游標卡尺 R－直尺 MM－分釐卡/千分尺
RO－真圓度機 DG—千分錶 S－硬度計 CMM－三次元 SV－表面粗糙儀/輪廓儀 RLC－電阻電感電容測試器 P－推拉力計 T－扭力計
LSM-鐳射測徑儀 G－磁束計 TG－牙規 RG －環規 BT－平衡儀 ST－ 彈簧彈力測試儀 O－其他

APPROVED BY:范柏青	CHECKED BY: 张浩	TESTED BY: 罗圳龙

5. Fan SPEC

DELTA ELECTRONICS, INC.
252, SHANG YING ROAD, KUEI SAN TEL : 886-(0)3-3591968
TAOYUAN HSIEN 333, TAIWAN, R. O. C. FAX : 886-(0)3-3591991

SPECIFICATION FOR APPROVAL

Customer:	COOLER MASTER		
Description:	DC FAN		
Customer P/N:	200007180-GP	REV:	
Delta Model NO.:	AFB0912VH-4E91	Delta Safety Model NO.:	AFB0912VH
Sample Rev:	06	Issue NO:	
Sample Issue Date:		Quantity:	

1. SCOPE:

THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THE DC BRUSHLESS AXIAL FLOW FAN. THE FAN MOTOR IS WITH SINGLE PHASE AND FOUR POLES.

2. CHARACTERS:

ITEM	DESCRIPTION
RATED VOLTAGE	12.0 VDC
OPERATION VOLTAGE	7.0 - 12.5 VDC
INPUT CURRENT	0.40 (MAX. 0.60) A (SAFETY CURRENT 0.60A)
INPUT POWER	4.80 (MAX. 7.20) W
SPEED	4500±10% R.P.M.
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	1.634 (MIN. 1.471) M^3/MIN. 57.70 (MIN. 51.93) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	8.60 (MIN. 6.97) mmH_2O 0.338 (MIN. 0.274) $inchH_2O$
ACOUSTICAL NOISE (AVG.)	47.5 (MAX. 51.5) dB-A
INSULATION TYPE	UL: CLASS A

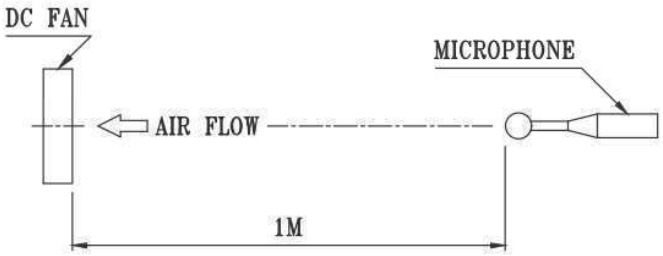
(continued)

PART NO: 731000120-GP2

DELTA MODEL: AFB0912VH-4E91

INSULATION STRENGTH	10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND (+) TERMINAL)
DIELECTRIC STRENGTH	5 mA MAX. AT 500 VAC 50/60 Hz ONE MINUTE, (BETWEEN FRAME AND (+) TERMINAL)
EXTERNAL COVER	OPEN TYPE
LIFE EXPECTANCE (L10) AT LABEL VOLTAGE	70,000 HOURS CONTINUOUS OPERATION AT 40 °C WITH 15 ~ 65 %RH.
ROTATION	CLOCKWISE VIEW FROM NAME PLATE SIDE
OVER CURRENT SHUT DOWN	THE CURRENT WILL SHUT DOWN WHEN LOCKING ROTOR
LEAD WIRE	UL 1061 -F- AWG #26 BLACK WIRE:NEGATIVE(-) RED WIRE:POSITIVE(+) YELLOW WIRE:TACHOMETER OUTPUT (F00) BLUE WIRE:SPEED CONTROL (PWM)

NOTES:
1. ALL READINGS ARE MEASURED AFTER STABLY WARMING UP THROUGH 10 MINUTES.
2. STANDARD AIR PROPERTY IS AIR AT (Td) 25°C TEMPERATURE, (RH) 65% RELATIVE HUMIDITY, AND (Pb) 760 mmHg BAROMETRIC PRESSURE.
3. THE VALUES WRITTEN IN PARENS , ( ), ARE LIMITED SPEC.
4. ACOUSTICAL NOISE MEASURING CONDITION:



NOISE IS MEASURED AT RATED VOLTAGE IN FREE AIR IN ANECHOIC CHAMBER WITH B & K SOUND LEVEL METER WITH MICROPHONE AT A DISTANCE OF ONE METER FROM THE FAN INTAKE.

PART NO: 200007180-GP

DELTA MODEL: AFB0912VH-4E91

3. MECHANICAL:

3-1. DIMENSIONS ---------- SEE DIMENSIONS DRAWING

3-2. FRAME ---------- PLASTIC UL: 94V-0

3-3. IMPELLER ---------- PLASTIC UL: 94V-0

3-4. BEARING SYSTEM ---------- TWO BALL BEARINGS

3-5. WEIGHT ---------- 90 GRAMS

4. ENVIRONMENTAL:

4-1. OPERATING TEMPERATURE ---------- -10 TO +60 DEGREE C

4-2. STORAGE TEMPERATURE ---------- -40 TO +70 DEGREE C

4-3. OPERATING HUMIDITY ---------- 5 TO 90 % RH

4-4. STORAGE HUMIDITY ---------- 5 TO 95 % RH

5. PROTECTION:

5-1. LOCKED ROTOR PROTECTION

IMPEDANCE OF MOTOR WINDING PROTECTS MOTOR FROM FIRE IN 96 HOURS OF LOCKED ROTOR CONDITION AT THE RATED VOLTAGE.

5-2. POLARITY PROTECTION

BE CAPABLE OF WITHSTANDING IF REVERSE CONNECTION FOR POSITIVE AND NEGATIVE LEADS.

6. RE OZONE DEPLETING SUBSTANCES:

6-1. NO CONTAINING PBBs, PBBOs, CFCs, PBBEs, PBDPEs AND HCFCs.

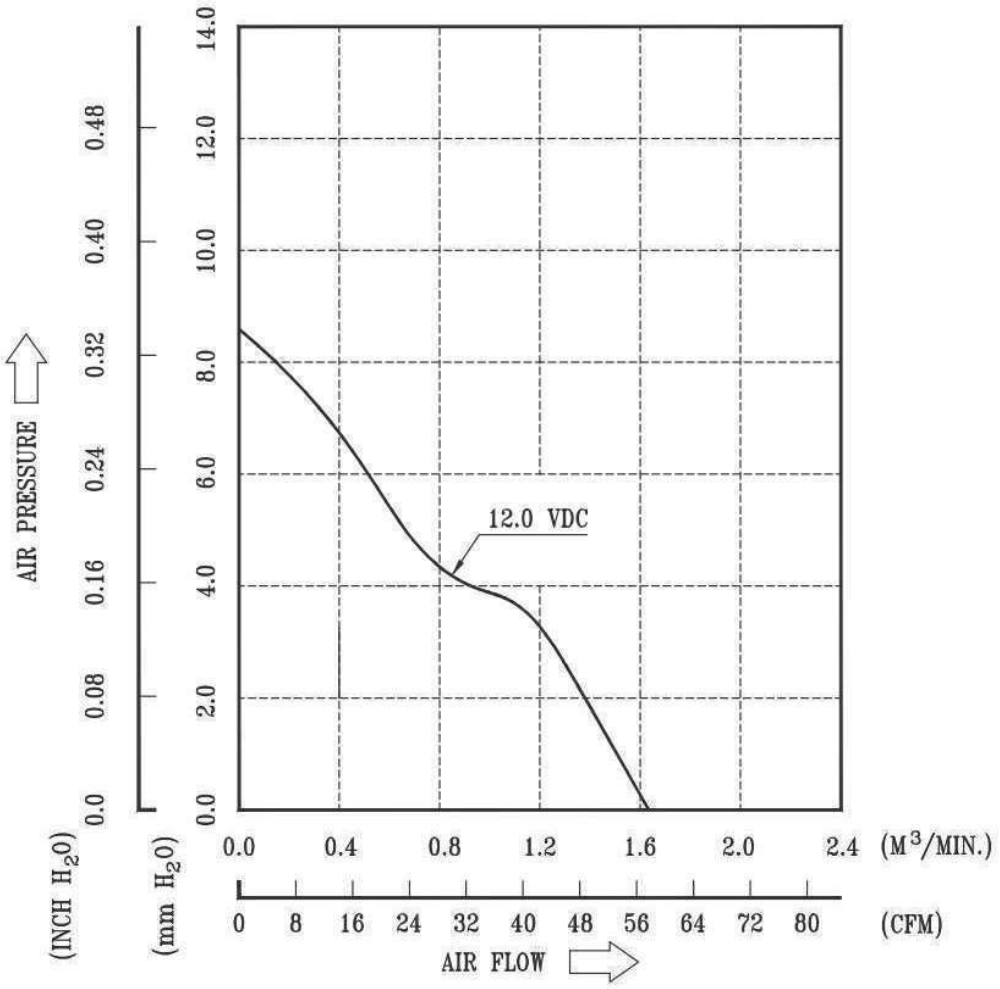
7. PRODUCTION LOCATION

7-1. PRODUCTS WILL BE PRODUCED IN CHINA OR THAILAND.

PART NO: 200007180-GP

DELTA MODEL: AFB0912VH-4E91

8. P & Q CURVE:



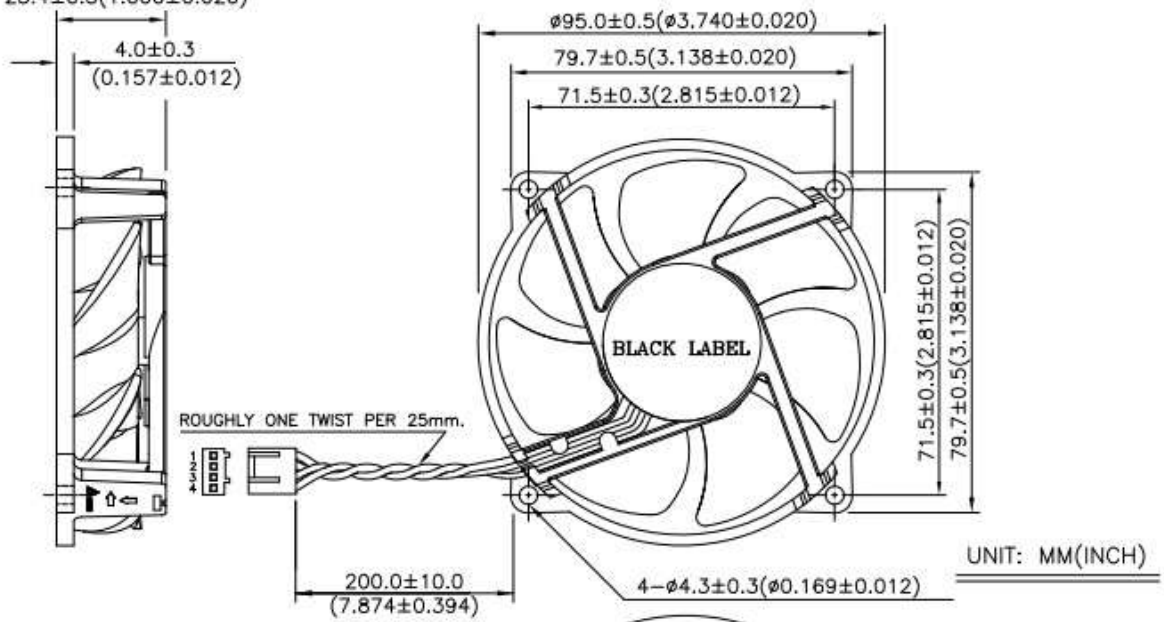
* TEST CONDITION: INPUT VOLTAGE ------- OPERATION VOLTAGE
TEMPERATURE -------- ROOM TEMPERATURE
HUMIDITY ---------- 65%RH

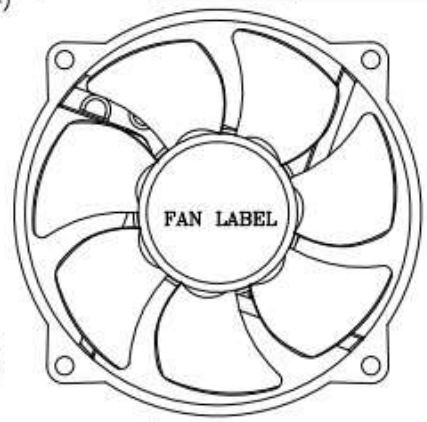
PART NO: 731000120-GP2

DELTA MODEL: AFB0912VH-4E91

9. DIMENSION DRAWING:

LABEL:





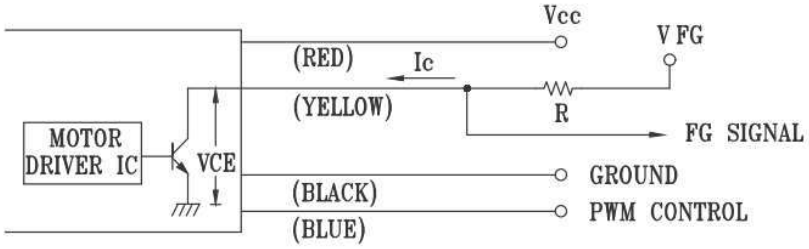
1. UL 1061 -F- AWG #26
   PIN 1 : BLACK WIRE: NEGATIVE(-)
   PIN 2 : RED WIRE: POSITIVE(+)
   PIN 3 : YELLOW WIRE: TACHOMETER OUTPUT (FOO)
   PIN 4 : BLUE WIRE: SPEED CONTROL (PWM)
2. HOUSING : CKM 25410108-04
3. TERMINAL : CKM 25410301
4. BALANCE MATERIAL : SUS FOIL
5. THIS PRODUCT IS RoHS COMPLIANT

A00

PART NO:	731000120-GP2
DELTA MODEL:	AFB0912VH-4E91

10. FREQUENCY GENERATOR (FG) SIGNAL:

10-1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



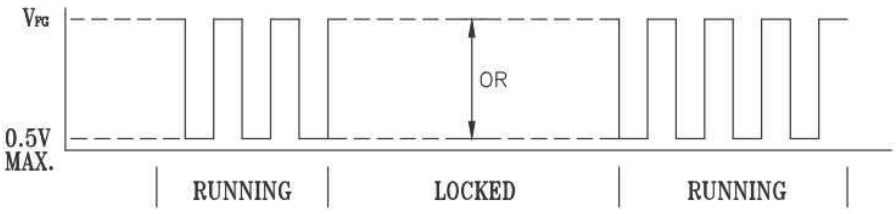
CAUTION: THE FG SIGNAL LEAD WIRE MUST BE KEPT AWAY FROM "+" LEAD WIRE & "-" LEAD WIRE.

10-2. SPECIFICATION:

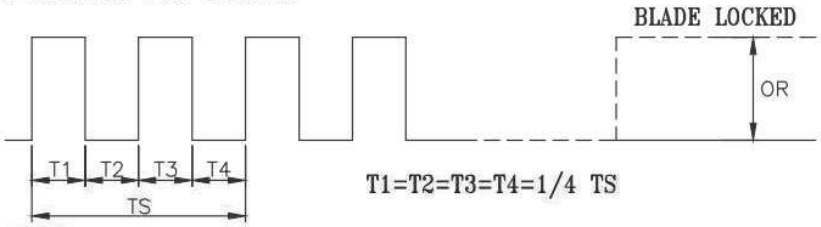
V_{CE} (sat)=0.5V MAX. V_{FG} =5.0V TYP. (Vcc MAX.)

Ic =5mA MAX. $R \geq V_{FG}/Ic$

10-3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES

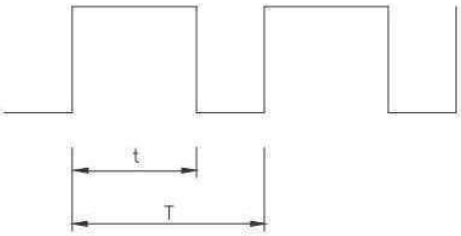


N=R.P.M
TS=60/N(SEC)
*VOLTAGE LEVEL AFTER BLADE LOCKED
*4 POLES

PART NO:	73100120-GP2
DELTA MODEL:	AFB0912VH-4E91

11. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~20 VDC



HIGH SIGNAL: 20 VDC MAX. 2.8 VDC MIN.

LOW SIGNAL: 0.8 VDC MAX. 0 VDC MIN.

DUTY CYCLE= $\frac{t}{T}$ *100(%)

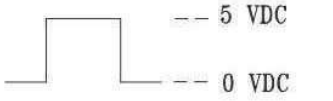
- THE PREFERRED OPERATING POINT FOR THE FAN IS 20K HZ.
- AT 100% DUTY CYCLE,THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- AT 0% DUTY CYCLE,THE ROTOR WILL STOP SPIN.
- WITH CONTROL SIGNAL LEAD DISCONNECTED,THE FAN WILL SPIN AT MAXIMUM SPEED.

12. SPEED VS PWM CONTROL SIGNAL:

(AT 25°C, RATED VOLTAGE & PWM SIGNAL AS FOLLOW)

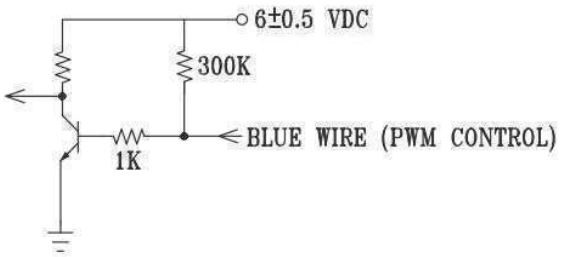
DUTY CYCLE (%)	SPEED R.P.M.	CURRENT (A) TYP.
100	4500±10%	0.40
75	3600±10%	0.22
50	2500±10%	0.10
25	1200±250	0.04
0	0	0.01

* PWM SIGNAL
PWM FREQUENCY = 20KHz



- MIN. START DUTY CYCLE : 30% (MAX.)
  WHEN DUTY CYCLE IS SET FOR MORE THAN 30%, THE FAN WILL BE ABLE TO START FROM A DEAD STOP.

13. PWM CONTROL LEAD WIRE INPUT IMPEDANCE:



DELTA

Application Notice

1. Delta will not guarantee the performance of the products if the application condition falls outside the parameters set forth in the specification.
2. A written request should be submitted to Delta prior to approval if deviation from this specification is required.
3. Please exercise caution when handling fans. Damage may be caused when pressure is applied to the impeller, if the fans are handled by the lead wires, or if the fan was hard-dropped to the production floor.
4. Except as pertains to some special designs, there is no guarantee that the products will be free from any such safety problems or failures as caused by the introduction of powder, droplets of water or encroachment of insect into the hub.
5. The above-mentioned conditions are representative of some unique examples and viewed as the first point of reference prior to all other information.
6. It is very important to establish the correct polarity before connecting the fan to the power source. Positive (+) and Negative (-). Damage may be caused to the fans if connection is with reverse polarity, if there is no foolproof method to protect against such error specifically mentioned in this spec.
7. Delta fans without special protection are not suitable where any corrosive fluids are introduced to their environment.
8. Please ensure all fans are stored according to the storage temperature limits specified. Do not store fans in a high humidity environment. We highly recommend performance testing is conducted before shipping, if the fans have been stored over 6 months.
9. Not all fans are provided with the Lock Rotor Protection feature. If you impair the rotation of the impeller for the fans that do not have this function, the performance of those fans will lead to failure.
10. Please be cautious when mounting the fan. Incorrect mounting of fans may cause excess resonance, vibration and subsequent noise.
11. It is important to consider safety when testing the fans. A suitable fan guard should be fitted to the fan to guard against any potential for personal injury.
12. Except where specifically stated, all tests are carried out at room (ambient) temperature and relative humidity conditions of 25°C, 65% RH. The test value is only for fan performance itself.
13. Be certain to connect an " 4.7µF or greater" capacitor to the fan externally when the application calls for using multiple fans in parallel, to avoid any unstable power.

Doc. No: FMBG-ES Form 001 Rev. 0001 Date: June 24, 2009

ONLINE CERTIFICATIONS DIRECTORY

GPWV2.E132003
Fans, Electric - Component

Page Bottom

Fans, Electric - Component

See General Information for Fans, Electric - Component

DELTA ELECTRONICS INC E132003
252 SHANG YING RD
KUEI SHAN
TAOYUAN HSIEN, 333 TAIWAN

DC fans, Model AFB followed by 0405, followed by HA, HHA, LA or MA, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0505, followed by HB, LB or MB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0512, followed by HB, HHB, LB or MB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0605, followed by H, L or M, followed by R00, R05, RR0 or RR05, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0805, followed by H, L or M, followed by (Y); Model AFB followed by 0612, 0624, followed by EH, SH, VH, followed by (Y); Model AFB0612LB followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0612, 0624, 0812, 0824, 0912 or 0924, followed by H, HB, HH, HHB, L, LB, LLB, M, MB, SHB or VHB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Models ASB0412MA, ASB0412LA, ASB0405MA followed by (Y); Model ASB followed by 0405, 0412, followed by HA, HHA, LA or MA, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model ASB followed by 0505, followed by HB, LB or MB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model ASB followed by 0512, 0524, followed by HB, HHB, LB or MB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model ASB followed by 0812, 0824, followed by HB, HHB, LB, LLB, MB, SHB or VHB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model ASB followed by 0612 or 0624, followed by II, IIII, L or M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model ASB followed by 0812, followed by L or M, followed by (Y); Model ASB followed by 0912 or 0924, followed by II, L or M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AUB followed by 0505, 0512 or 0524, followed by HB, HHB, LB or MB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AUB followed by 0612, 0624, followed by II, IIII, L or M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AUB followed by 0912, 0924, followed by H, HH, L, M or VH, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AUB followed by 0612 or 0624, followed by L, M, II or IIII, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AUB followed by 0812 or 0824, followed by HB, HHB, LB, LLB, MB, SHB or VHB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AUB followed by 0924, followed by L, M, II, NN or VII, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model BFB followed by 1212, followed by H, HH, L, LL, M or VH, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model BFB followed by 1224, followed by II, IIII, L, LL, M or VII, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model BFB followed by 1248, followed by H, HH, L, LL, M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model BFC followed by 1012, followed by A, B or C, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model DFB followed by 0405 or 0412, followed by H, L, LL, M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model DFB followed by 0612, 0812, 0912, 0824 or 0924 followed by H, L or M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model DFB followed by 0612, 0812, 0824, 0912 or 0924, followed by HH, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model DFB followed by 0424, followed by H, L, LL, M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model DFB followed by 0612, 0624, followed by H, HH, L or M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model DFC followed by 0612, 0812 or 0912, followed by "A" or "B", followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model DFD followed by 0612 or 0624, followed by H, HH, L or M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model SB followed by 0412, followed by H, L, LL or M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model SB followed by 0612, 0624, followed by HH, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model SB followed by 0612, 0624, 0812, 0824, followed by H, L or M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model SB followed by 0612, 0624, followed by HD, LD or MD, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model SB followed by 0812, 0824, followed by HH, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model SB followed by 0812, followed by MSA or MSG, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFC0612D(Y) where (Y) may be A through Z, 0 through 9, "-" or blank; Models AFB0612DH-8G33(Y), E47199 (Y), E47159(Y), DTC-CDA(Y), DTC-CDC(Y), FFR1212DHE(Y), FFR0812DHE(Y), KFB0612HD-8K16(Y), BFB0712HB-8A97(Y), KUC1012D(Y) series, where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Models TFA1424AG(Y), TFA1424AGL(Y), TFA1448(X)G(Y), TFA1448AGL(Y) series, where (X) may be A, B or C, (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank

Model AFB followed by 02505, followed by HA, HHA, LA or MA, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 02512, followed by HA, HHA, LA or MA, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0305, followed by -HA, -LA, -LLA, MA, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0312, followed by -HA, LA, LLA, MA, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 03505, followed by HA, LA, MA, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0405, followed by HD, LD or MD, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 03512, followed by LA, MA or HA, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0405, 0412 or 0424, followed by HD, HHD, LD, MD, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0412 or 0424, followed by HD, HHD, LD or MD, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0505, 0512, followed by HA, LA or MA, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0524, followed by HB, HHB, LB or MB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0605, followed by HB, HHB, LB, LLD, MB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0605, followed by LLD, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0605, followed by IIA, LA or MA, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0612, followed by HA, HB, HHB, LA, MA or MB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0612 or 0624, followed by IID, HHD, LB, LD, LLD, MD, VHB or VHD, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0624, followed by IIB, IIIIB, LB, MB or VIIB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0648, followed by EH, H, HH, L, M, SH or VH, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0705, followed by II, L or M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0712 or 0724, followed by H, HA, HH, HHA, L, LA, M, MA, VH or VHA, followed by (Y), where (Y) may be xxxxx, where x may

be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0748, followed by H, HH, L or MM, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0812 or 0824, followed by LL, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0812 or 0824, followed by H, L, LL, M, SH or VH, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0812 or 0824, followed by HB, HHB, LB, LLB, MB, SHB or VHB, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0848, followed by H, HH, L or M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0912 or 0924, followed by H, HH, L, M or VH, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB followed by 0948, followed by H, HH, L or M, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model WFB followed by 1212, followed by ME, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model WFB followed by 1212, followed by ME, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model WFB followed by 1212, 1224 or 1248, followed by VHE, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model WFB followed by 1248, followed by NHE, followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Models AFC0812D followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFC0912D followed by (Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Models AFB0512(Z)B-A(Y), AFB04512(Z)B(Y) Series, where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank, (Z) may be H, M and L; Models AFB02512MA-A(Y), AFB02512HA-A(Y), AFB02512HHA-A(Y), AFB0312LA-A(Y), AFB0312MA-A(Y), AFB0312HA-A(Y), AFB03512LA-A(Y), AFB03512MA-A(Y), AFB03512HA-A(Y), GFB1412EHT(Y), GFC1412DT(Y), AFB0748SH-SP(Y), BFB1712EHT(Y) Series, where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Model EFB followed by 0912 or 0924, followed by H, HH, L, M, SH or VH.

Models WFB1212H(Y), WFB1212HE(Y), WFB1212M(Y), WFB1212ME(Y), WFB1212L(Y), WFB1212LE(Y), WFB1224H(Y), WFB1224HE(Y), WFB1224M(Y), WFB1224ME(Y), WFB1224L(Y), WFB1224LE(Y), WFB1212IIII(Y), WFB1212IIIIE(Y), WFB1224IIII(Y), WFB1224IIIIE(Y), WFB1248IIE(Y), WFB1248ME(Y), WFB1248LE(Y), WFC1212B(Y), WFC1212BE(Y), KFB2348HHV(Y), KFB2348HHU(Y), KFB2348HV(Y), KFB2348HU(Y), KHB2348HHV(Y), KHB2348HHU(Y), KFB2324IIIIV(Y), KFB2324IIIIU(Y), KFB2524IIIIU(Y) Series, where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Model BFB followed by 1212, 1224 followed by HE.

Model BFB followed by 0305, 03505, followed by HP, LP, MP.

Model AFB or ASB followed by 0505 or 0512, followed by HA, LA or MA.

Model BFB followed by 0712, 0724, followed by H, L, M, suffixed (Y); Model LFB0512IID(Y)Series, where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Model BFC followed by 1212, followed by A, B; Models BFC1212C, BFC1224C, BFC1248C.

Model EFB followed by 0512, followed by IIIIA, IIA, LA or MA; Models EFB0505IIA, EFB0505MA, EFB0505LA followed by FOO or STD; Model EFB followed by 0505, followed by HA, LA or MA, followed by FOO or STD.

Model AFC followed by 0512, 0612, 0712, 0812, 0824, 0912 or 0924, followed by "A", "AB", "AD", "B", "BB", "BD" or "C"; Model AFC followed by 0912, followed by "A" or "B", followed by -(H), -(HH), -(M); Model ASC followed by 0612, 0812, 0912, followed by "A" or "B"; Model AFC0712D(Y), where (Y) may be A through Z, 0 through 9, "-" or blank.

Model ASB followed by 0605, followed by II, L, M, suffixed (Y); Model ASB followed by 0612, followed by II-SB, L-SB or M-SB, suffixed (Y); Model ASB followed by 0812 or 0824, followed by H, HH, L, LL or M, suffixed (Y); Model ASB followed by 0912, 0924, followed by H, HH, L, L-V, M, suffixed (Y); Model ASB followed by 0924, followed by H, HH, L or M, suffixed (Y); Model ASB0812L-SB, H-SB or M-SB suffixed (Y); Model ASB0912L-SB, ASB0912H-SB or ASB0912M-SB suffixed (Y); Model DSB followed by 0612, 0812, followed by H, H-N, L, L-N, M, M-N, suffixed (Y); Models DSB0624H-(Y), DSB0624M-(Y), DSB0624L-(Y), DSB0512HHB(Y), DSB0512HB(Y), DSB0512MB(Y), DSB0512LB(Y), DSB0512MD(Y), DSB0512LD(Y), DSB0612(X)-A(Y), DSB0612(X)D(Y), DSB0612(A)B(Y) Series, where (A) may be HH, H, M or L, (X) may be H, M or L, (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Model AFB followed by 0612, followed by II, IIII, L, M, followed by SB; Model AFB followed by 0812, followed by H, L or M, followed by SB; Model AFB followed by 0912, followed by H, L or M, followed by SB.

Model AFB followed by 1212, followed by HE, HHE, LE, ME, VHE; Model AFB followed by 1224, followed by HE, HHE, LE, ME, VHE; Model AFB followed by 1248, followed by HE(Y), HHE(Y), LE(Y), ME(Y), VHE(Y), L, M, H, HH, VH, SH; Model EFB followed by 1212, followed by HE(Y), HHE(Y), LE(Y), ME(Y), SHE (Y), VHE(Y); Model EFB followed by 1224, followed by HE(Y), HHE(Y), LE(Y), ME(Y), SHE(Y), VHE(Y); Model EFB followed by 1248, followed by HE(Y), HHE (Y), LE(Y), ME(Y), SHE(Y), VHE(Y); Models AFB1212SHE(Y), AFB1212EHE(Y), AFB1212GHE(Y), AFB1224SHE(Y), AFB1224EHE(Y), AFB1224GHE(Y), AFB1248SHE(Y), AFB1248EHE(Y), AFB1248GHE(Y); Model AFB1348 followed by SHE(Y), VHE(Y), HHE(Y), HE(Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Model AFB1348 followed by SHE(Y), VHE(Y), HHE(Y), HE(Y); Models AFB1312SHE(Y), AFB1312VHE(Y), AFB1312HHE(Y), AFB1312HE(Y), AFB1324SHE(Y), AFB1324VHE(Y), AFB1324HHE(Y), AFB1324HE(Y) Series; Models AFB1248MF(Y), AFB1248HF(Y), AFB1248HHF(Y), AFB1248VHF(Y), AFB1248SHF(Y), AFB1448HE(Y) series, where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Model BFB followed by 1012, followed by H(Y), HH(Y), VH(Y), SH(Y), EH(Y), L(Y), LL(Y) or M(Y); Model BFB followed by 1024, followed by H, HH, L, LL or M, suffixed (Y); Model BFB followed by 1212, followed by H, HH, L, LL, M or VH, suffixed (Y); Model BFB followed by 1224, followed by H, HH, L, LL or M, suffixed (Y); Model BFB followed by 1248, followed by H, HH, L, LL or M, suffixed (Y); Models BFC1012D-A(Y), BFB1012VH-3F16(Y), BFB12(X)(Z)-A(Y); Model SFB0412VH/HH/H/M(Y), BFB04512HA-SM(Y) Series; Model BFB04512(X)(Y) series, where (X) may be MD/HD/HHD/VHD, (Y) may be (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank; Models KFB2548HHU(Y), KFB2548HU(Y), BFB04512MD-S(Y) Series, where (X) may be 12, 24 or 48, (Z) may be GH, EH, SH or VH, (Y) may be (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Model BFB1224HHE-4J97(Y) Series; Model BFB followed by 1212, 1224, followed by HE, HHE, LE, ME or VH; Model BFB followed by 1248, followed by HE, LE or ME; Model BFB followed by 1612, followed by VH, H, L or M; Model BFB followed by 1624, followed by VH, H, L or M; Model BFB followed by 1648, followed by VH, H, L or M.

Models BFB0405HE, -LE, -ME, BFB0412HE, -HHE, -LE, -ME; Models BFB0412HN(Y), BSB0412HN(Y), where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Model AUB08(X)(Z)(Y) series, where (X) 12 or 24, (Z) may be VH, HH, H, M or L, (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank.

CSA INTERNATIONAL

CERTIFICATION RECORD

The company named below has been authorized by CSA International to represent the products listed in this record as "CSA Certified" and to affix the CSA Mark to these products according to the terms and conditions of the CSA Service Agreement and applicable CSA program requirements (including additional Markings).

File No: 091949_0_000

Class No: 3812 01 FANS AND BLOWERS

SUBMITTOR

4510824 Delta Electronics Inc
252 Shang Ying Rd
Kuei San
Taoyuan Hsien, 333
Taiwan

FACTORIES

4510824 Delta Electronics Inc
252 Shang Ying Rd
Kuei San
Taoyuan Hsien, 333
Taiwan

4665119 Delta Electronics (JiangSu) Ltd.
No 1688 Jiangxing East Rd
Wujiang Economic Development Zone
Wujiang City, Jiangsu 215200
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4678360 Delta Electronics (Thailand) Public Co., Ltd.
111 Moo 9 Wellgrow Ind Estate
Bangna-Trad Road, Tambon Bangwua
Amphur Bangpakong
Chachoengsao, Chachoengsao 24180
Thailand

4753103 Delta Electronics
(Dongguan) Co Ltd
HeTianXia High Tech Industrial Pk

AFB0848H	48	110	-
AFB0848HH	48	120	-
AFB08512LD	12	140	0 to 9, A to Z, blank or "-"
AFB08512MD	12	200	0 to 9, A to Z, blank or "-"
AFB08512HD	12	270	0 to 9, A to Z, blank or "-"
AFB08512HHD	12	360	0 to 9, A to Z, blank or "-"
AFB08512VHD	12	600	0 to 9, A to Z, blank or "-"
AFB0912H	12	300	STD, F00, R00, F05, R05, RR0, RR05, A to Z, 0 to 9, blank or "-"
AFB0912H-A	12	300	0 to 9, A to Z
AFB0912HF	12	280	0 to 9, A to Z
AFB0912HH	12	400	STD, F00, R00, F05, R05, RR0, RR05, A to Z, 0 to 9, blank or "-"
AFB0912HH-A	12	400	0 to 9, A to Z
AFB0912HHF	12	420	0 to 9, A to Z
AFB0912H-SB	12	300	-
AFB0912L	12	150	STD, F00, R00, F05, R05, RR0, RR05, A to Z, 0 to 9, blank or "-"
AFB0912L-A	12	150	0 to 9, A to Z
AFB0912LF	12	130	0 to 9, A to Z
AFB0912L-SB	12	150	-
AFB0912M	12	200	STD, F00, R00, F05, R05, RR0, RR05, A to Z, 0 to 9, blank or "-"
AFB0912M-A	12	200	0 to 9, A to Z
AFB0912MF	12	190	0 to 9, A to Z
AFB0912M-SB	12	200	-
AFB0912SH-A	12	1000	0 to 9, A to Z
AFB0912SHF	12	900	0 to 9, A to Z
AFB0912SH	12	900	0 to 9, A to Z
AFB0912SH-SP16	12	900	0 to 9, A to Z
AFB0912SH-SP20	12	900	0 to 9, A to Z
AFB0912VH	12	600	STD, F00, R00, F05, R05, RR0, RR05, A to Z, 0 to 9, blank or "-"
AFB0912VH-A	12	600	0 to 9, A to Z

VDE Prüf- und Zertifizierungsinstitut

GUTACHTEN MIT FERTIGUNGSÜBERWACHUNG

CERTIFICATE OF CONFORMITY WITH FACTORY SURVEILLANCE

Delta Electronics Inc.
252 Shangying Road
Guishan Industrial Zone
33341 TAOYUAN COUNTY
TAIWAN

ist berechtigt, für ihr Produkt /
is authorized to use for their product

Einbauventilator für IT-Geräte
Fan for building-in, IT-equipment

die hier abgebildeten markenrechtlich geschützten Zeichen
für die ab Blatt 2 aufgeführten Typen zu benutzen /
the legally protected Marks as shown below for the types referred to on page 2 ff.

REG 1764 oder/or REG 1764 oder/or VDE-REG 1764

Geprüft und zertifiziert nach /
Tested and certified according to

DIN EN 62368-1 (VDE 0868-1):2016-05; EN 62368-1:2014
IEC 62368-1:2014

Aktenzeichen: 5000878-2611-0007 / 259382
File ref.:

VDE Prüf- und Zertifizierungsinstitut GmbH
VDE Testing and Certification Institute
Zertifizierungsstelle / *Certification*

Ausweis-Nr. 1764 Blatt 1
Certificate No. *Page*

Weitere Bedingungen siehe Rückseite und Folgeblätter /
further conditions see overleaf and following pages

Offenbach, 1994-06-08
(letzte Änderung / updated 2019-03-18)

J. Richter

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Gutachten mit Fertigungsüberwachung

Ausweis-Nr. / *Certificate No.* 1764 — Blatt / *Page* 2

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
Delta Electronics Inc., 252 Shangying Road, Guishan Industrial Zone, 33341 TAOYUAN COUNTY, TAIWAN

Aktenzeichen / *File ref.*: 5000878-2611-0007 / 259382 / TL4 / SFK
letzte Änderung / *updated*: 2019-03-18
Datum / *Date*: 1994-06-08

Dieses Blatt gilt nur in Verbindung mit Blatt 1 des Gutachtens mit Fertigungsüberwachung Nr. 1764.
This supplement is only valid in conjunction with page 1 of the Certificate of Conformity with factory surveillance No. 1764.

Einbauventilator für IT-Geräte
Fan for building-in, IT-equipment

Typ(en) / *Type(s)*

ASB0612H/M/L/HH
ASB0624H/M/L/HH
BFB1212HE
AFB0605H/M/L
AFB0505HA/LA/MA
AFB0512HA/LA/MA
BFB0712H/L/M
BFB0724H/L/M
AFB0405LA/MA/HA/HHA
AFB0412LA/MA/HA/HHA
ASB0605L
ASB0605M
ASB0605H
DSB0812L/M/H
AFC0812A/B
AFC0912A/B
BFC1212A/B
BFB1212LL/L/M/H/HH/VH
BFB1224LL/L/M/H/HH/VH
AFB0405LD/MD/HD
AFB0412LD/MD/HD/HHD
AFB0424LD/MD/HD/HHD
AFB0612LA/MA/HA
ASB0812LL/L/M/H/HH
ASB0912L/M/H/HH
ASB0824LL/L/M/H/HH
ASB0924L/M/H/HH
AFB0705L/M/H
AFB0712L/M/H/HH/VH
AFB0724L/M/H/HH/VH

Fortsetzung siehe Blatt 3 /
continued on page 3

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Gutachten mit Fertigungsüberwachung

Ausweis-Nr. / *Certificate No.* 1764 — Blatt / *Page* 3

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
Delta Electronics Inc., 252 Shangying Road, Guishan Industrial Zone, 33341 TAOYUAN COUNTY, TAIWAN

Aktenzeichen / *File ref.*: 5000878-2611-0007 / 259382 / TL4 / SFK
letzte Änderung / *updated*: 2019-03-18
Datum / *Date*: 1994-06-08

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Einbauventilator für IT-Geräte
Fan for building-in, IT-equipment

Typ(en) / *Type(s)*

AFB0812LL/L/M/H/HH/VH/SH
AFB0824LL/L/M/H/HH/VH/SH
AFB0912L/M/H/HH/VH
AFB0924L/M/H/HH/VH
AFC0612A
AFC0612B
AFB0605LB/MB/HB/HHB
AFB0605LLD/LD/MD/HD/HHD
AFB0612LLD/LD/MD/HD/HHD/VHD
AFB0624LLD/LD/MD/HD/HHD/VHD
AFC0912A/B-(M/H/HH)
AFC0912A/B-F00(M/H/HH)
AFC0912A/B-R00(M/H/HH)
DSB0612L/M/H
BFB1012LL/L/M/H/HH(-F00/R00)
BFB1024LL/L/M/H/HH(-F00/R00)
BFC1012A/B(-F00/F05/R00)
BFC1012C(-F00)
AFB1212LE/ME/HE/HHE/VHE(-F00/F05/R00)
AFB1224LE/ME/HE/HHE/VHE(-F00/F05/R00)
BFB1224LE/ME/HHE(-F00/R00)
BFB1248LE/ME/HE(-F00/R00)
AFB0612/M-SB/H-SB
AFB0912/M-SB/H-SB(F00)
AFB02505LA/MA/HA
AFB02512LA/MA/HA/HHA
AFC0712A/B
AFB0305LLA/LA/MA/HA
AFB0312LLA/LA/MA/HA
ASB0912/M-SB/H-SB

Fortsetzung siehe Blatt 4 /
continued on page 4

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Ausweis-Nr. / *Certificate No.* 1764
Beiblatt / *Supplement*

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
Delta Electronics Inc., 252 Shangying Road, Guishan Industrial Zone, 33341 TAOYUAN COUNTY, TAIWAN

Aktenzeichen / *File ref.*	letzte Änderung / *updated*	Datum / *Date*
5000878-2611-0007 / 259382 / TL4 / SFK	2019-03-18	1994-06-08

Dieses Beiblatt ist Bestandteil des Gutachtens mit Fertigungsüberwachung Nr. 1764.
This supplement is part of the Certificate of Conformity with factory surveillance No. 1764.

Einbauventilator für IT-Geräte
Fan for building-in, IT-equipment

Fertigungsstätte(n)
Place(s) of manufacture

Referenz/*Reference* **30009495**	Delta Electronics (Dongguan) Co., Ltd. Hetianxia village 523300 SHIJIE TOWN, DONGGUAN CITY Guangdong CHINA
Referenz/*Reference* **30011790**	Delta Electronics (Jiang Su) Ltd. No. 1688 Jiangxing East Road Wujiang Economy Developm. Zone 215200 WUJIANG CITY, SUZHOU CITY Jiangsu CHINA
Referenz/*Reference* **30013236**	Delta Electronics (Thailand) Public Co., Ltd. 111 Moo.9 Wellgrow Industrial Estate Bangna-Trad Road, Tambon Bangwa AMPHUR BANGPAKONG 24180 Chachoengsao THAILAND
Referenz/*Reference* **30020541**	DELTA Electronics (ChenZhou) Co.Ltd. Chen Zhou Export Zone 423038 CHENZHOU Hunan CHINA

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Gutachten mit Fertigungsüberwachung

Ausweis-Nr. / *Certificate No.*: 1764
Beiblatt / *Supplement*

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Delta Electronics Inc., 252 Shangying Road, Guishan Industrial Zone, 33341 TAOYUAN COUNTY, TAIWAN

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5000878-2611-0007 / 259382 / TL4 / SFK	2019-03-18	1994-06-08

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VDE Prüf- und Zertifizierungsinstitut GmbH
VDE Testing and Certification Institute
Fachgebiet TL4
Section TL4

VDE Prüf- und Zertifizierungsinstitut
Gutachten mit Fertigungsüberwachung

Ausweis-Nr. / *Certificate No.*: 1764
Infoblatt / *Info sheet*

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
Delta Electronics Inc., 252 Shangying Road, Guishan Industrial Zone, 33341 TAOYUAN COUNTY, TAIWAN

Aktenzeichen / *File ref.*	letzte Änderung / *updated*	Datum / *Date*
5000878-2611-0007 / 259382 / TL4 / SFK	2019-03-18	1994-06-08

Dieses Blatt gilt nur in Verbindung mit Blatt 1 des Gutachtens mit Fertigungsüberwachung Nr. 1764.
This supplement is only valid in conjunction with page 1 of the Certificate of Conformity with factory surveillance No. 1764.

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The approval is valid as long as the VDE specifications are in force, on which the certification is based on, unless it is withdrawn according to the VDE Testing and Certification Procedure (PM102E).
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Products containing the biocide dimethylfumarate (DMF) may not be marketed or made available on the EC market according to the Commission Decision 2009/251/EC.
The approval is solely signed on the first page.

DELTA ELECTRONICS, INC.

DC FAN LIFE EXPERIMENT REPORT

Available for these models with lower speed and same physical structure. All model may be followed by ARxx or AFxx series suffixes. This test report applies to **AFB92x92x25.4 mm** series as the right table	AFB0912VH-4E91			
	AFB0912VH-4E64			
Representative Test P/N :AFB0912VH-SP21（4E64）				
Equipment:1.Oven: E24-F0032		On/Off Cycles: Every 500 hours		

◎ **L_{10} Expectancy: 70,000 hours minimum @ fan rated voltage and the temperature of 40℃**

According to the equation for **Weibull distribution**, **MTTF ≒ 7×L10 = 490,000 hours**

And we rely on a zero failure Weibull test strategy and accelerated testing technique, to determine the total test time **(t)** for verifying the above life estimation by the equations,

$$t = 1.036 \times MTTF \times [(B_{r;c}) \div n]^{0.91} \div A_F \text{, and } A_F = 2^{(Ts-Tu)/10}$$

where, $(B_{r;c})$ is Poisson distribution factor with the failure number of r equal to 0 and the decimal confidence level of c equal to 0.90(90%).

Stress/ElevatedTemperature Ts (℃) (Actual Test Temperature)	Unstress Temperature Tu (℃)	Acceleration Factor A_F	Quantity of Test Devices n (pcs)	Poisson Distribution Factor $B_{r;c}$	Required test time with zero failure t (hours)	Actual test time with zero failure t (hours)	Verified MTTF 40 ℃ (hours)	Verified L_{10} 40 ℃ (hours)
60	40	4.00	56	2.303	6,956	6,956.0	490,033	70,005

Test Progress:

Date for Test Beginning	Date for Test Termination (at least)	Current Test Status			Current Total Test Time (hours)
2004/9/7 4:40 PM	2005/11/15 8:31 AM	☐ In process	☐ In process (exceed requested)	☑ Termination	**6956.0**

Herewith , we could assume as right on the basis of above test result. Besides, if the actual test time exceed the required, it comes out that those fans' L_{10} expectancy and MTTF are greater than the warrant. (**MTTF :** means Mean Time To Failures, it should be used in a non-repairable system setting. Now we show the MTTF in our life report, that's because we will not repair the failed fans during life experiment. **MTBF**: means Mean Time Between failures, it should be used in a repairable system setting.)

Temperature for MTTF Estimation (℃)	Acceleration Factor A_F	Estimated MTTF (hours)	Estimated L_{10} (hours)
25	11.31	1,386,023	198,003
30	8.00	980,066	140,009
40	4.00	490,033	70,005
50	2.00	245,017	35,002
60	1.00	122,508	17,501

Fan permission criteria for the measurement after test :
1. For current, the limit is less than spec.(max.).
2. For speed, the allowable decrease is less than 15%.
3. For noise, the limit is less than spec.(max.). + 3 dB

Test Result	☑ Accept ☐ Reject

QE File No.	Time-out for function test or others (hours)	Issued Date	Reported By	Approved By
DG04FNL240	3452.30	2005/11/15 9:00 AM	Guie.Lin	Gx.Xu

DELTA ELECTRONICS, INC.

DC FAN FUNCTION TEST RECORD FOR LIFE EXPERIMENT

Available for these models with lower speed and same physical structure. All model may be followed by ARxx or AFxx series suffixes. This test report applies to AFB92x92x25.4 mm series as the right table	AFB0912VH-4E91				
	AFB0912VH-4E64				

Required Test Time (hrs)	Date for Test Beginning	Date for Test Termination	Sample Size (pcs):	Failure (pcs):	Current Total Test Time (hrs)
6,956	2004/9/7 4:40 PM	2005/11/15 8:31 AM	56	0	**6956.0**

Representative Test P/N :AFB0912VH-SP21 (4E64)	Current Test Status	☐ In process	☐ In process (exceed requested)	☑ Termination
Equipment:1.Oven: E24-F0032		On/Off Cycles: Every 500 hours		

Test Data Between Initial Test and Final Test

Sample No.	Initial Test Current Spec. (A) **0.44Max.**	Final Test Current Spec. (A) **0.44Max.**	Deviation (%)	Initial Test Speed Spec. (RPM) **4140-4860**	Final Test Speed Spec. (RPM) **4140-4860**	Deviation (%)	Initial Test Noise Spec. (dB A) **51.5Max**	Final Test Noise Spec. (dB A) **51.5Max**	Deviation (%)
1	0.34	0.34	0.0	4674	4558	-2.5	48.0	48.7	1.5
2	0.34	0.33	-2.9	4595	4574	-0.5	48.7	49.0	0.6
3	0.32	0.33	3.1	4494	4444	-1.1	48.2	48.8	1.2
4	0.33	0.33	0.0	4511	4592	1.8	48.5	48.9	0.8
5	0.33	0.33	0.0	4595	4576	-0.4	48.1	48.7	1.2
6	0.35	0.34	-2.9	4629	4434	-4.2	48.7	49.0	0.6
7	0.34	0.35	2.9	4575	4614	0.9	48.2	48.9	1.5
8	0.34	0.34	0.0	4494	4507	0.3	48.8	49.1	0.6
9	0.35	0.35	0.0	4672	4563	-2.3	48.7	48.7	0.0
10	0.32	0.33	3.1	4597	4434	-3.5	48.2	48.9	1.5
11	0.31	0.32	3.2	4616	4526	-1.9	48.5	49.0	1.0
12	0.31	0.32	3.2	4702	4698	-0.1	48.8	48.9	0.2
13	0.31	0.33	6.5	4599	4545	-1.2	48.7	48.8	0.2
14	0.32	0.35	9.4	4572	4580	0.2	48.5	48.9	0.8
15	0.32	0.32	0.0	4627	4669	0.9	48.2	49.1	1.9
16	0.35	0.36	2.9	4592	4648	1.2	48.5	48.8	0.6
17	0.34	0.32	-5.9	4535	4448	-1.9	48.3	49.0	1.4
18	0.35	0.36	2.9	4627	4661	0.7	48.8	48.9	0.2
19	0.35	0.36	2.9	4575	4579	0.1	48.1	48.7	1.2
20	0.32	0.33	3.1	4497	4448	-1.1	48.2	48.9	1.5
21	0.36	0.36	0.0	4672	4557	-2.5	48.0	48.9	1.9
22	0.35	0.34	-2.9	4667	4544	-2.6	48.3	48.7	0.8
23	0.35	0.33	-5.7	4654	4493	-3.5	48.9	48.9	0.0
24	0.35	0.34	-2.9	4661	4532	-2.8	48.7	49.0	0.6
25	0.33	0.34	3.0	4527	4567	0.9	48.4	48.9	1.0
26	0.32	0.32	0.0	4592	4523	-1.5	48.5	48.7	0.4
27	0.34	0.34	0.0	4545	4541	-0.1	48.0	48.7	1.5
28	0.34	0.33	-2.9	4497	4478	-0.4	48.2	48.8	1.2
29	0.33	0.33	0.0	4484	4437	-1.0	48.5	49.1	1.2
30	0.34	0.31	-8.8	4500	4375	-2.8	48.1	49.0	1.9
31	0.34	0.32	-5.9	4541	4486	-1.2	48.2	48.7	1.0
32	0.35	0.36	2.9	4492	4568	1.7	48.6	48.8	0.4
33	0.34	0.34	0.0	4749	4556	-4.1	48.9	48.9	0.0
34	0.36	0.38	5.6	4621	4678	1.2	48.4	48.8	0.8
35	0.35	0.35	0.0	4595	4515	-1.7	48.1	48.7	1.2

QE File No.	Time-out for function test or others (hours)	Issued Date	Reported By	Approved By
DG04FNL240	**3452.30**	**2005/11/15 9:00 AM**	**Guie.Lin**	**Gx.Xu**

DELTA ELECTRONICS, INC.

DC FAN FUNCTION TEST RECORD
FOR LIFE EXPERIMENT

Available for these models with lower speed and same physical structure. All model may be followed by ARxx or AFxx series suffixes. This test report applies to AFB92x92x25.4 mm series as the right table	AFB0912VH-4E91				
	AFB0912VH-4E64				

Required Test Time (hrs)	Date for Test Beginning	Date for Test Termination	Sample Size (pcs):	Failure (pcs):	Current Total Test Time (hrs)
6,956	2004/9/7 4:40 PM	2005/11/15 8:31 AM	56	0	**6956.0**

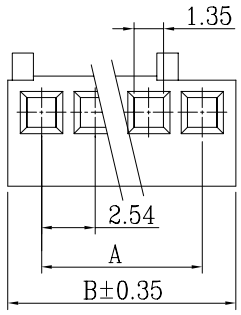
Representative Test P/N :AFB0912VH-SP21（4E64）	**Current Test Status**	☐ In process	☐ In process (exceed requested)	☑ Termination
Equipment:1.Oven: E24-F0032		On/Off Cycles: Every 500 hours		

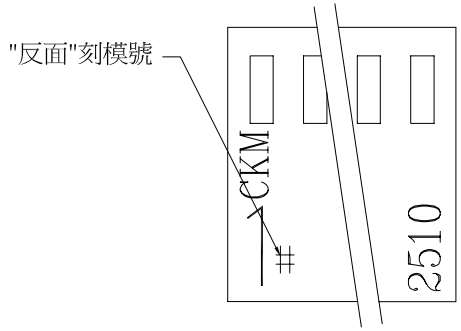
Test Data Between Initial Test and Final Test

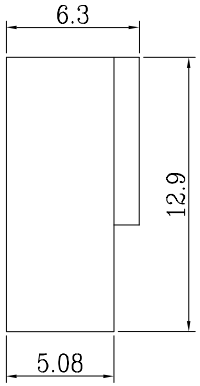
Sample No.	Initial Test Current Spec. (A) **0.44Max.**	Final Test Current Spec. (A) **0.44Max.**	Deviation (%)	Initial Test Speed Spec. (RPM) **4140-4860**	Final Test Speed Spec. (RPM) **4140-4860**	Deviation (%)	Initial Test Noise Spec. (dB A) **51.5Max**	Final Test Noise Spec. (dB A) **51.5Max**	Deviation (%)
36	0.34	0.36	5.9	4627	4528	-2.1	48.2	49.0	1.7
37	0.34	0.35	2.9	4594	4448	-3.2	48.5	49.1	1.2
38	0.34	0.33	-2.9	4527	4517	-0.2	48.8	48.7	-0.2
39	0.34	0.34	0.0	4742	4688	-1.1	48.5	48.9	0.8
40	0.29	0.30	3.4	4491	4363	-2.9	48.1	49.1	2.1
41	0.32	0.31	-3.1	4527	4471	-1.2	48.9	49.0	0.2
42	0.30	0.31	3.3	4496	4511	0.3	48.9	49.1	0.4
43	0.32	0.32	0.0	4521	4469	-1.2	48.7	48.9	0.4
44	0.36	0.37	2.8	4725	4733	0.2	48.5	49.0	1.0
45	0.37	0.34	-8.1	4669	4495	-3.7	48.5	48.7	0.4
46	0.32	0.32	0.0	4507	4460	-1.0	48.5	48.9	0.8
47	0.33	0.32	-3.0	4492	4464	-0.6	48.3	49.2	1.9
48	0.35	0.34	-2.9	4622	4643	0.5	48.1	49.1	2.1
49	0.32	0.32	0.0	4527	4461	-1.5	48.3	48.8	1.0
50	0.32	0.33	3.1	4556	4512	-1.0	48.4	49.0	1.2
51	0.31	0.33	6.5	4496	4457	-0.9	48.3	48.7	0.8
52	0.34	0.33	-2.9	4547	4427	-2.6	48.1	48.9	1.7
53	0.32	0.31	-3.1	4529	4500	-0.6	48.5	49.0	1.0
54	0.32	0.34	6.3	4472	4507	0.8	48.2	48.7	1.0
55	0.34	0.34	0.0	4517	4569	1.2	48.4	49.0	1.2
56	0.29	0.31	6.9	4396	4393	-0.1	48.8	49.1	0.6
X-Bar	0.333	0.335	-	4573.9	4528.0	-	48.43	48.90	-
σ	0.017	0.017	-	77.284	83.893	-	0.269	0.143	-

QE File No.	Time-out for function test or others (hrs)	Issued Date	Reported By	Approved By
DG04FNL240	**3452.30**	**2005/11/15 9:00 AM**	**Guie.Lin**	**Gx.Xu**

CKM2541H







NOTE:

1. Material:Nylon 66 UL94V-2
2. Material:Nylon 66 UL94V-0
3. Insulation resistance: 1000M ohm/min.
4. Withstand voltage: 1000V AC/minute.
5. Current rating: 3A AC/DC.
6. Voltage rating: 250V AC/DC

PART NO	LOGO	Material	顏色
25410108	CKM	1	米黃色
25410110	CKM	1	桔色
25410111	CKM	1	褐色
25410112	CKM	1	白色
25410113	CKM	2	白色
G 25410114	CKM	1	藍色

7.Dimensional and Ordering Information

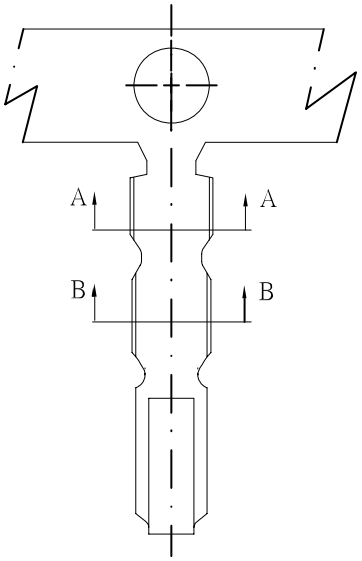
Part No.	POS	A	B
254101XX-02	2	2.54±0.20	5.7
254101XX-03	3	5.08±0.20	8.2
254101XX-04	4	7.62±0.20	10.8
254101XX-05	5	10.16±0.20	13.3
254101XX-06	6	12.70±0.20	15.9
254101XX-07	7	15.24±0.20	18.4
254101XX-08	8	17.78±0.20	20.9
254101XX-09	9	20.32±0.20	23.5
254101XX-10	10	22.86±0.25	26.0
254101XX-11	11	25.40±0.25	28.6
254101XX-12	12	27.94±0.25	31.1
254101XX-13	13	30.48±0.25	33.6
254101XX-14	14	33.02±0.25	36.2
254101XX-15	15	35.56±0.25	38.7
254101XX-16	16	38.10±0.25	41.3
254101XX-17	17	40.64±0.25	43.8
254101XX-18	18	43.18±0.25	46.3
254101XX-19	19	45.72±0.25	48.9
254101XX-20	20	48.26±0.25	51.4

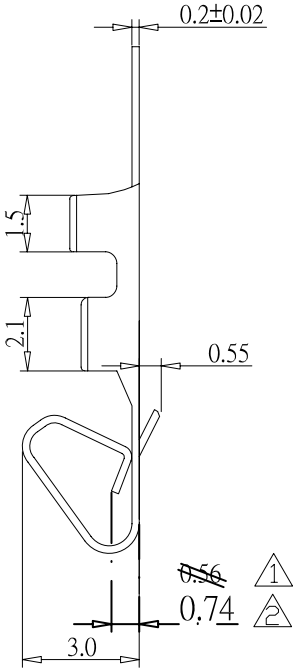
朝皇科技(深圳)有限公司
CHAO HUANG TECHN OLOGY (SHEN ZHEN) CO., LTD

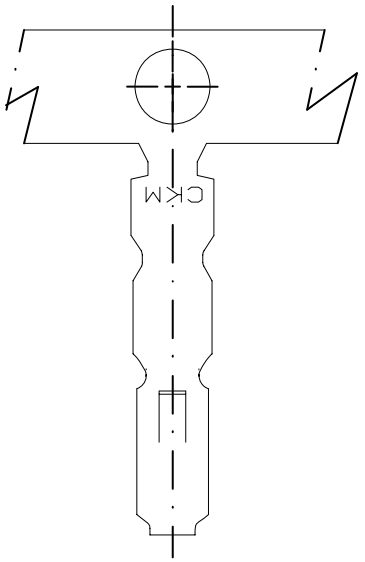
TOLERANCE: .X ±0.25 .XX ±0.15 .XXX ±0.10 X.° ±3° .X° ±1°	UNITS: mm	PAGE: 1/1	
CKM P/N: 254101XX-XX			
CUST P/N:			
DWG NAME: MX2.54-H			
REV: A SCALE: none	APPR.	CHECK	DRAW.

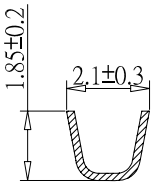
LTR	ECN	REVISION RECORD	DATE

CKM2541T

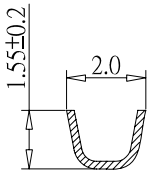








SEC A-A



SEC B-B

NOTE:

1. Terminal Material: SEE NOTE 5
2. Applicable wires: AWG#28 - #22
3. Insulation O.D.: 1.2-1.7mm
4. Q'ty / reel: 10,000 pcs
5. Bill of Part No:

NO	PART NO	Material	PLATED	LOGO	電鍍
1	25410301	磷銅	先鍍后衝	CKM	鍍錫50u"
2	25410303	青銅	先鍍后衝	CKM	鍍錫50u"
3	25410305	青銅	先鍍后衝	無"CKM"	鍍錫50u"
4	25410306	青銅	先衝后鍍	CKM	鍍半金1u"
5	25410307	磷銅	先衝后鍍	CKM	鍍半金1u"
6	25410308	磷銅	先衝后鍍	CKM	鍍錫

LTR	ECN	REVISION RECORD	DATE
2		增加尺寸	2008.08.18
1		增加尺寸	2007.08.30

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CHAO HUANG TECHN OLOGY (SHEN ZHEN) CO., LTD

TOLERANCE: .X ±0.25 .XX ±0.15 .XXX ±0.10 X.° ±3° .X° ±1°		UNITS: mm	PAGE: 1/1	
CKM P/N:	25410301,03,05,06,07			
CUST P/N:				
DWG NAME:	MX2.54-T 新模			
REV: B	SCALE: none	APPR.	CHECK	DRAW.

48

东 莞 市 领 亚 电 线 电 缆 有 限 公 司
Dongguan Linoya Cable&Wire Co.,Ltd.
No.2,The Fourth West Industrial Road,High-tech Industrial Development Zone, Songshan Lake,Dongguan City,Guangdong Province,China
Tel:(86)-769-85550688 Fax:(86)-769-85550398

承 认 书

SPECIFICATION FOR APPROVAL

产 品: 1061 16AWG~30AWG TS
PRODUCT

料 号: _____ 承认书编号: LY-E1061
PART NO. SHEET NO.

客 户: _____ 客户 料号: _____
CUSTOMER CUSTOMER NO.

UL/CSA STANDARD: UL 1061 Non-standard: _____

日 期: 2016-12-05
DATE:

CUSTOMER CONCLUSION: (客户判定)

☑ APPROVED (承认)

☐ LIMIED (允收)

☐ REJECT (拒收)

☐ CONDITIONAL APPROVAL (条件认可)

_____

_____

东莞市領亚电线电缆有限公司 工程課 2019-10-07 發行

INCLUDING THIS COVER TOTAL 3 PAGES
(含封面页共 3 页)

* PLEASE SIGNED AND FAX THE RESULT TO US.
(请于判定签名后将结果传回)

2020.06.29
AUTHORIZED SIGNATURES

东 莞 市 领 亚 电 线 电 缆 有 限 公 司

Dongguan Linoya Cable&Wire Co.,Ltd.
No.2,The Fourth West Industrial Road,High-tech Industrial Development Zone, Songshan Lake,Dongguan City,Guangdong Province,China
Tel:(86)-769-85550688 Fax:(86)-769-85550398

CABLE SPECIFICATION(线材承认书)

SPEC NO.		LY-E1061					PART NO.								
UL FILE NO.		E315618		UL STYLE			1061				NON-STANDARD				
CSA FILE NO.		242699		CSA STYLE			AWM I A				版本				B
CONSTRUCTION ITEM/ 结构项目				结构项目											
CONDUCTOR 导体	CONSTRUCTION 构造规格	AWG	16AWG	18AWG	20AWG	22AWG	24AWG	26AWG	28AWG	30AWG					
			26/0.254 ±0.007	34/0.178 ±0.007	21/0.178 ±0.007	17/0.160 ±0.007	11/0.160 ±0.007	7/0.160 ±0.007	7/0.127 ±0.007	7/0.100 ±0.007					
	MATERIAL /导体材质	-----	TINNED STRANDED COPPER CONDUCTOR												
	FILLER MATERIAL 填充材料	-----	\												
	OD / 绞合外径	mm	1.49	1.20	0.94	0.76	0.61	0.48	0.38	0.30					
INSULATION 绝缘	MATERIAL/材质	-----	SR-PVC(LOW METAL)												
	OD / 芯线外径	mm	2.00 ±0.10	1.70 ±0.10	1.50 ±0.10	1.30 ±0.10	1.15 ±0.10	1.00 ±0.05	0.90 ±0.05	0.80 ±0.05					
	AVERAGE THICKNESS 平均厚度	mm	0.23												
	COLOR / 颜色	-----	OPTIONAL												
OUTSIDE-SHIELD 外部遮蔽	SHIELD / 遮蔽方式	-----	\												
	CONSTRUCTION 构造	-----	\												
	CONSTRUCTION SIZE 构造尺寸	mm	\												
	MATERIAL/材质	-----	\												
	COVERAGE /遮蔽率	%	\												
JACKET 外被	MATERIAL/材质	-----	\												
	DIAMETER/线径	mm	\												
	AVERAGE THICKNESS 平均厚度	mm	\												
	SURFACE/外观	-----	BRIGHTNESS												
	COLOR/颜色	-----	\												
	MARKING COLOR /印字颜色	-----	OPTIONAL												
MARKING 印字	MARKING	-----	E315618 AWM STYLE 1061 80℃ 300V ( ) AWG VW-1 Linoya CSA 242699 AWM I A 80℃ 300V FT1 -F- LM												

东 莞 市 领 亚 电 线 电 缆 有 限 公 司

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Tel:(86)-769-85550688 Fax:(86)-769-85550398

CABLE SPECIFICATION(线材承认书)

SPEC NO.	LY-E1061		PART NO.		
UL FILE NO.	E315618	UL STYLE	1061	NON-STANDARD	
CSA FILE NO.	242699	CSA STYLE	AWM I A	版本	B

Electric characters

1.Voltage rating(额定电压) 300V

2.Temperature rating(额定温度) 80℃

3.operating temperature range（使用温度范围）-40℃ to +80℃

4.Spark test(火花测试) 3KV

5.Dielectric strength(耐压强度) AC-2000V/MIN

6.Insulation resistance(绝缘电阻) 10 M OHMS.KM MIN at 20℃

7.6.Conductor resistance(导体电阻) 14.6 OHMS/KM MAX at 20℃ (16AWG)
23.2 OHMS/KM MAX at 20℃ (18AWG)
36.7 OHMS/KM MAX at 20℃ (20AWG)
59.4 OHMS/KM MAX at 20℃ (22AWG)
94.2 OHMS/KM MAX at 20℃ (24AWG)
150 OHMS/KM MAX at 20℃ (26AWG)
239 OHMS/KM MAX at 20℃ (28AWG)
381 OHMS/KM MAX at 20℃ (30AWG))

Physical Characters

1.flame test(耐燃测试)
1.1 VW-1

2.Tensile strength before aging(老化前抗张强度测试)
2.1 insulation : >2.1kg/mm²

3.Tensile strength after aging(老化后抗张强度测试)
3.1 insulation : > 70%

4.Elongation before aging (老化前断裂伸长率)
4 .1 insulation : > 100%

5.Elongation after aging(老化后断裂伸长率)
5. 1insulation : > 70%

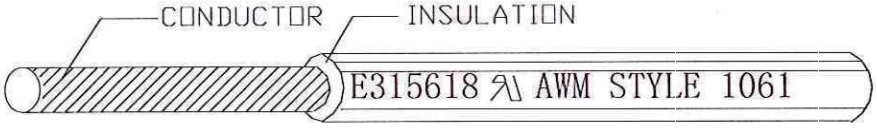
6.HEAT-SHOCK TEST:NO CRACK（136±1.0℃×1HR）

7.COLD-BEND TEST:NO CRACK（-10.0±1.0℃×4HR）

8.DEFORMATION TEST:50% MAX. （121±1.0℃×1HR）

Environmental requirements: 1. 不含双方签订的环保标准的 1 级管理物质

Cross drawing:
截面示意图



APPROVER	ZHENG	CHECK		DESIGNER	STON

DC FAN LIFE EXPERIMENT REPORT

Available for these models with lower speed and same physical structure. All model may be followed by ARxx or AFxx series suffixes. This test report applies to **AFB92x92x25.4 mm** series as the right table	AFB0912VH-4E91				
	AFB0912VH-4E64				
Representative Test P/N :AFB0912VH-SP21（4E64）					
Equipment:1.Oven: E24-F0032					

◎ **L_{10} Expectancy: 70,000 hours minimum @ fan rated voltage and the temperature of 40℃**

According to the equation for **Weibull distribution**, **MTTF ≒ 7×L10 = 490,000 hours**

And we rely on a zero failure Weibull test strategy and accelerated testing technique, to determine the total test time **(t)** for verifying the above life estimation by the equations,

$$t = 1.036 \times MTTF \times [(B_{r;c}) \div n]^{0.91} \div A_F \text{, and } A_F = 2^{(Ts-Tu)/10}$$

where, $(B_{r;c})$ is Poisson distribution factor with the failure number of r equal to 0 and the decimal confidence level of c equal to 0.90(90%).

Stress/ElevatedTemperature Ts (℃) (Actual Test Temperature)	Unstress Temperature Tu (℃)	Acceleration Factor A_F	Quantity of Test Devices n (pcs)	Poisson Distribution Factor $B_{r;c}$	Required test time with zero failure t (hours)	Actual test time with zero failure t (hours)	Verified MTTF 40 ℃ (hours)	Verified L_{10} 40 ℃ (hours)
60	40	4.00	56	2.303	6,956	6,956.0	490,033	70,005

Test Progress:

Date for Test Beginning	Date for Test Termination (at least)	Current Test Status			Current Total Test Time (hours)
2004/9/7 4:40 PM	2005/11/15 8:31 AM	☐ In process	☐ In process (exceed requested)	☑ Termination	6956.0

Herewith , we could assume as right on the basis of above test result. Besides, if the actual test time exceed the required, it comes out that those fans' L_{10} expectancy and MTTF are greater than the warrant. (**MTTF :** means Mean Time To Failures, it should be used in a non-repairable system setting. Now we show the MTTF in our life report, that's because we will not repair the failed fans during life experiment. **MTBF**: means Mean Time Between failures, it should be used in a repairable system setting.)

Temperature for MTTF Estimation (℃)	Acceleration Factor A_F	Estimated MTTF (hours)	Estimated L_{10} (hours)
25	11.31	1,386,023	198,003
30	8.00	980,066	140,009
40	4.00	490,033	70,005
50	2.00	245,017	35,002
60	1.00	122,508	17,501

Fan permission criteria for the measurement after test :
1. For current, the limit is less than spec.(max.).
2. For speed, the allowable decrease is less than 15%.
3. For noise, the limit is less than spec.(max.). + 3 dB

Test Result	☑ Accept ☐ Reject

QE File No.	Time-out for function test or others (hours)	Issued Date	Reported By	Approved By
DG04FNL240	3452.30	2005/11/15 9:00 AM	Guie.Lin	Gx.Xu

DC FAN FUNCTION TEST RECORD
FOR LIFE EXPERIMENT

Available for these models with lower speed and same physical structure. All model may be followed by ARxx or AFxx series suffixes. This test report applies to AFB92x92x25.4 mm series as the right table	AFB0912VH-4E91				
	AFB0912VH-4E64				

Required Test Time (hrs)	Date for Test Beginning	Date for Test Termination	Sample Size (pcs):	Failure (pcs):	Current Total Test Time (hrs)
6,956	2004/9/7 4:40 PM	2005/11/15 8:31 AM	56	0	**6956.0**

Representative Test P/N :AFB0912VH-SP21（4E64）	**Current Test Status**	☐ In process	☐ In process (exceed requested)	☑ Termination
Equipment:1.Oven: E24-F0032				

Test Data Between Initial Test and Final Test

Sample No.	Initial Test Current Spec. (A) **0.44Max.**	Final Test Current Spec. (A) **0.44Max.**	Deviation (%)	Initial Test Speed Spec. (RPM) **4140-4860**	Final Test Speed Spec. (RPM) **4140-4860**	Deviation (%)	Initial Test Noise Spec. (dB A) **51.5Max**	Final Test Noise Spec. (dB A) **51.5Max**	Deviation (%)
1	0.34	0.34	0.0	4674	4558	-2.5	48.0	48.7	1.5
2	0.34	0.33	-2.9	4595	4574	-0.5	48.7	49.0	0.6
3	0.32	0.33	3.1	4494	4444	-1.1	48.2	48.8	1.2
4	0.33	0.33	0.0	4511	4592	1.8	48.5	48.9	0.8
5	0.33	0.33	0.0	4595	4576	-0.4	48.1	48.7	1.2
6	0.35	0.34	-2.9	4629	4434	-4.2	48.7	49.0	0.6
7	0.34	0.35	2.9	4575	4614	0.9	48.2	48.9	1.5
8	0.34	0.34	0.0	4494	4507	0.3	48.8	49.1	0.6
9	0.35	0.35	0.0	4672	4563	-2.3	48.7	48.7	0.0
10	0.32	0.33	3.1	4597	4434	-3.5	48.2	48.9	1.5
11	0.31	0.32	3.2	4616	4526	-1.9	48.5	49.0	1.0
12	0.31	0.32	3.2	4702	4698	-0.1	48.8	48.9	0.2
13	0.31	0.33	6.5	4599	4545	-1.2	48.7	48.8	0.2
14	0.32	0.35	9.4	4572	4580	0.2	48.5	48.9	0.8
15	0.32	0.32	0.0	4627	4669	0.9	48.2	49.1	1.9
16	0.35	0.36	2.9	4592	4648	1.2	48.5	48.8	0.6
17	0.34	0.32	-5.9	4535	4448	-1.9	48.3	49.0	1.4
18	0.35	0.36	2.9	4627	4661	0.7	48.8	48.9	0.2
19	0.35	0.36	2.9	4575	4579	0.1	48.1	48.7	1.2
20	0.32	0.33	3.1	4497	4448	-1.1	48.2	48.9	1.5
21	0.36	0.36	0.0	4672	4557	-2.5	48.0	48.9	1.9
22	0.35	0.34	-2.9	4667	4544	-2.6	48.3	48.7	0.8
23	0.35	0.33	-5.7	4654	4493	-3.5	48.9	48.9	0.0
24	0.35	0.34	-2.9	4661	4532	-2.8	48.7	49.0	0.6
25	0.33	0.34	3.0	4527	4567	0.9	48.4	48.9	1.0
26	0.32	0.32	0.0	4592	4523	-1.5	48.5	48.7	0.4
27	0.34	0.34	0.0	4545	4541	-0.1	48.0	48.7	1.5
28	0.34	0.33	-2.9	4497	4478	-0.4	48.2	48.8	1.2
29	0.33	0.33	0.0	4484	4437	-1.0	48.5	49.1	1.2
30	0.34	0.31	-8.8	4500	4375	-2.8	48.1	49.0	1.9
31	0.34	0.32	-5.9	4541	4486	-1.2	48.2	48.7	1.0
32	0.35	0.36	2.9	4492	4568	1.7	48.6	48.8	0.4
33	0.34	0.34	0.0	4749	4556	-4.1	48.9	48.9	0.0
34	0.36	0.38	5.6	4621	4678	1.2	48.4	48.8	0.8
35	0.35	0.35	0.0	4595	4515	-1.7	48.1	48.7	1.2

QE File No.	Time-out for function test or others (hours)	Issued Date	Reported By	Approved By
DG04FNL240	**3452.30**	**2005/11/15 9:00 AM**	**Guie.Lin**	**Gx.Xu**

DC FAN FUNCTION TEST RECORD
FOR LIFE EXPERIMENT

Available for these models with lower speed and same physical structure. All model may be followed by ARxx or AFxx series suffixes. This test report applies to AFB92x92x25.4 mm series as the right table	AFB0912VH-4E91				
	AFB0912VH-4E64				

Required Test Time (hrs)	Date for Test Beginning	Date for Test Termination	Sample Size (pcs):	Failure (pcs):	Current Total Test Time (hrs)
6,956	2004/9/7 4:40 PM	2005/11/15 8:31 AM	56	0	**6956.0**

Representative Test P/N :AFB0912VH-SP21（4E64）	**Current Test Status**	☐ In process	☐ In process (exceed requested)	☑ Termination
Equipment:1.Oven: E24-F0032				

Test Data Between Initial Test and Final Test

Sample No.	Initial Test Current Spec. (A) **0.44Max.**	Final Test Current Spec. (A) **0.44Max.**	Deviation (%)	Initial Test Speed Spec. (RPM) **4140-4860**	Final Test Speed Spec. (RPM) **4140-4860**	Deviation (%)	Initial Test Noise Spec. (dB A) **51.5Max**	Final Test Noise Spec. (dB A) **51.5Max**	Deviation (%)
36	0.34	0.36	5.9	4627	4528	-2.1	48.2	49.0	1.7
37	0.34	0.35	2.9	4594	4448	-3.2	48.5	49.1	1.2
38	0.34	0.33	-2.9	4527	4517	-0.2	48.8	48.7	-0.2
39	0.34	0.34	0.0	4742	4688	-1.1	48.5	48.9	0.8
40	0.29	0.30	3.4	4491	4363	-2.9	48.1	49.1	2.1
41	0.32	0.31	-3.1	4527	4471	-1.2	48.9	49.0	0.2
42	0.30	0.31	3.3	4496	4511	0.3	48.9	49.1	0.4
43	0.32	0.32	0.0	4521	4469	-1.2	48.7	48.9	0.4
44	0.36	0.37	2.8	4725	4733	0.2	48.5	49.0	1.0
45	0.37	0.34	-8.1	4669	4495	-3.7	48.5	48.7	0.4
46	0.32	0.32	0.0	4507	4460	-1.0	48.5	48.9	0.8
47	0.33	0.32	-3.0	4492	4464	-0.6	48.3	49.2	1.9
48	0.35	0.34	-2.9	4622	4643	0.5	48.1	49.1	2.1
49	0.32	0.32	0.0	4527	4461	-1.5	48.3	48.8	1.0
50	0.32	0.33	3.1	4556	4512	-1.0	48.4	49.0	1.2
51	0.31	0.33	6.5	4496	4457	-0.9	48.3	48.7	0.8
52	0.34	0.33	-2.9	4547	4427	-2.6	48.1	48.9	1.7
53	0.32	0.31	-3.1	4529	4500	-0.6	48.5	49.0	1.0
54	0.32	0.34	6.3	4472	4507	0.8	48.2	48.7	1.0
55	0.34	0.34	0.0	4517	4569	1.2	48.4	49.0	1.2
56	0.29	0.31	6.9	4396	4393	-0.1	48.8	49.1	0.6
X-Bar	0.333	0.335	-	4573.9	4528.0	-	48.43	48.90	-
σ	0.017	0.017	-	77.284	83.893	-	0.269	0.143	-

QE File No.	Time-out for function test or others (hrs)	Issued Date	Reported By	Approved By
DG04FNL240	**3452.30**	**2005/11/15 9:00 AM**	**Guie.Lin**	**Gx.Xu**