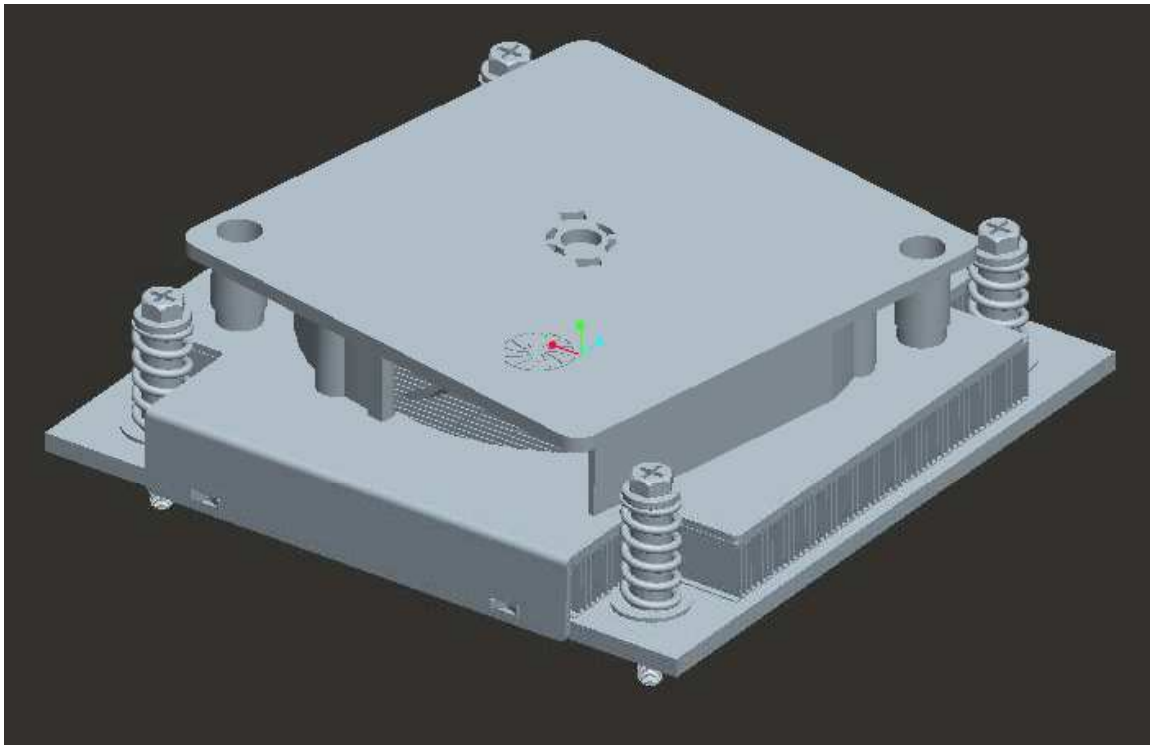
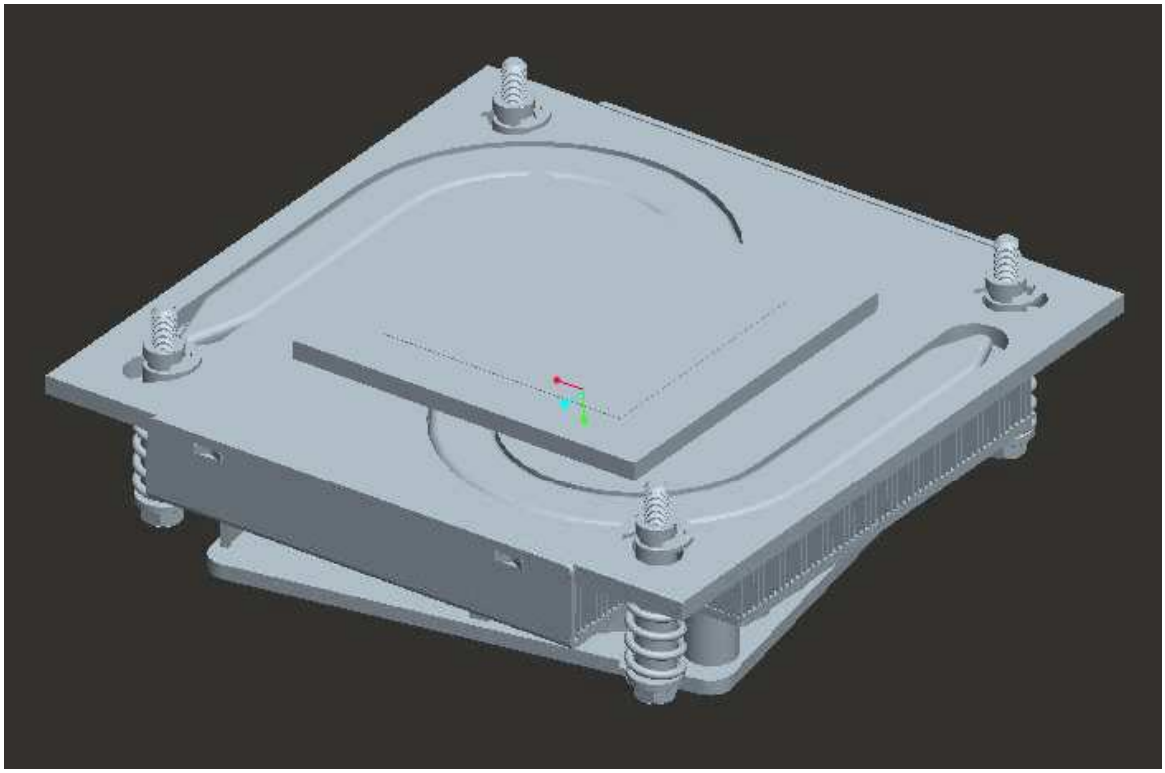
1. Contents

2. Product BOM

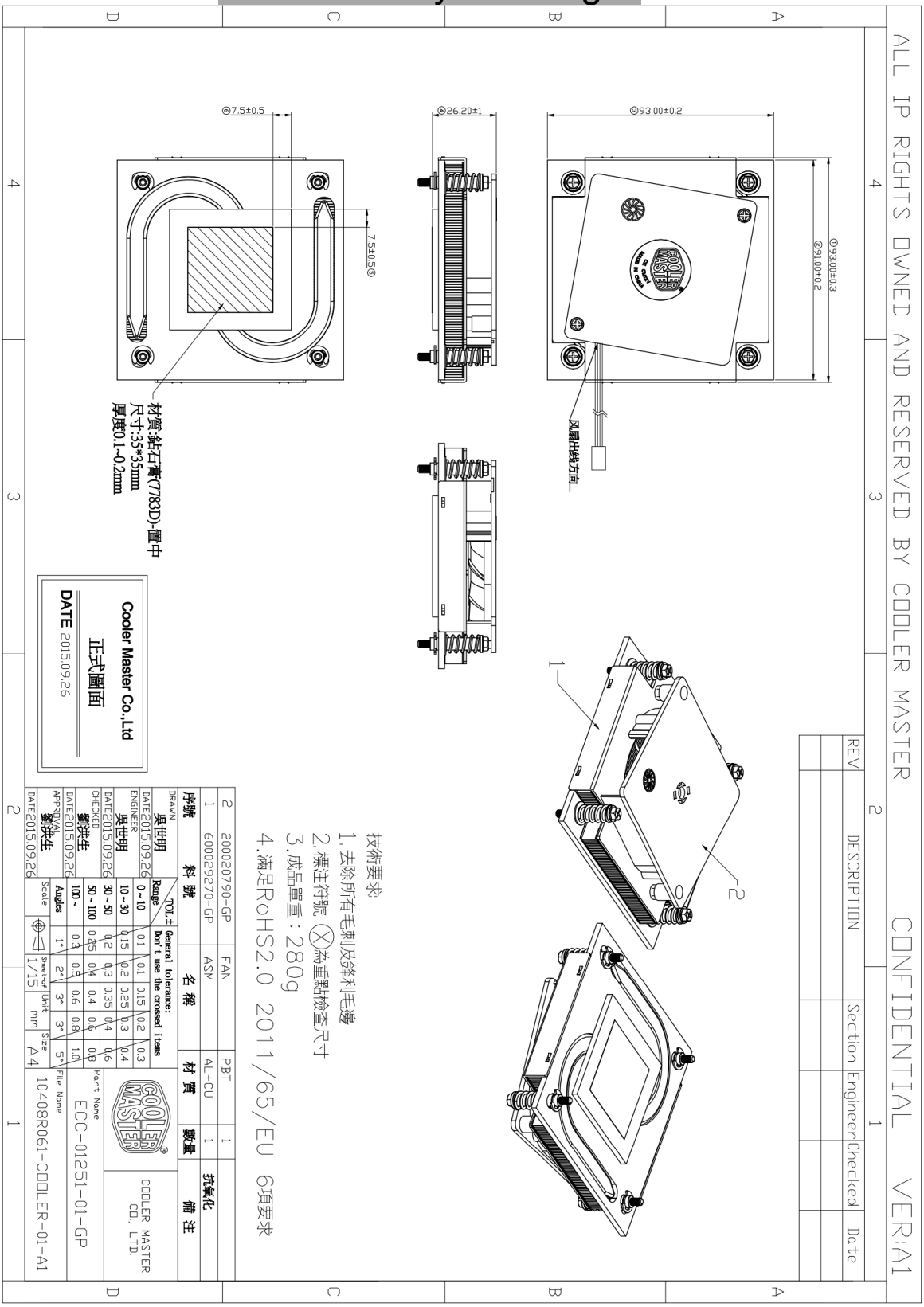
NO.	PART NO	PART NAME	QTY
1	600029270-GP	ASM 01	1
1.1	10408R061-ASM	ASM 02	1
1.1.1	10408R061-BASE	BASE 01	1
1.1.2	10408R061-FIN	FIN	1
1.1.3	10408R061-PIPE	PIPE	2
1.1.4	10408R061-BASE	BASE 02	1
1.1.5	10408R061-SPONGE	SPONGE	2
1.1.6	10408R061-COVER	COVER	1
1.1.7	500006290-GP	低溫錫膏	
1.2	150023080-GP	CPU SCREW	4
1.3	10408R061-SPRING	CPU SPRING	4
1.4	300011060-HF	SPU WASHER	4
1.5	300002012-GP	CPU ERING	4
1.6	359000530-GP3	FAN LABEL	1
1.7	150006130-GP	FAN SCREW	2
1.8	520000820-GP3	7783D	0.4g
2	200020790-GP	FAN	1

3. Product Photo



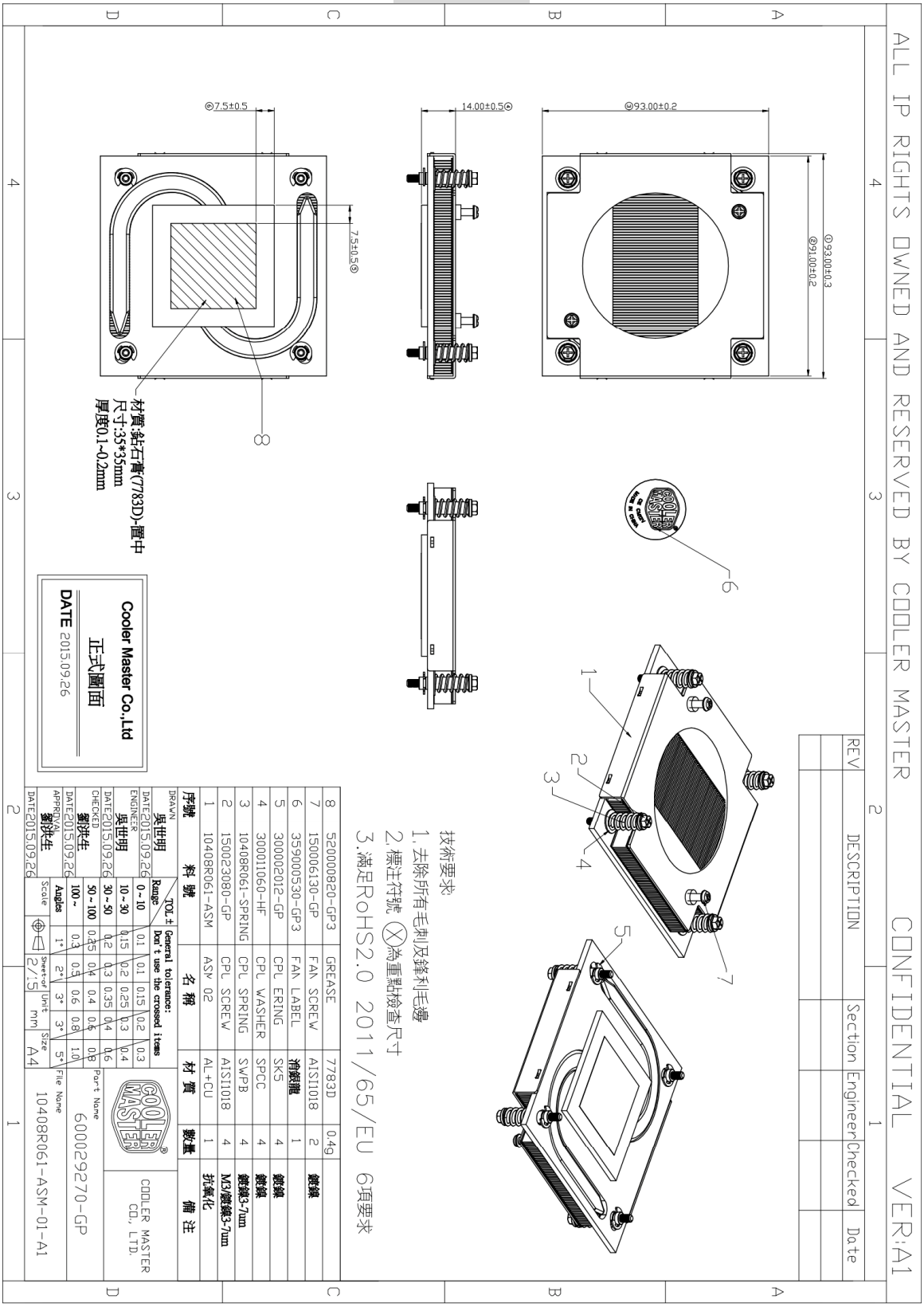


4.Assembly Drawing

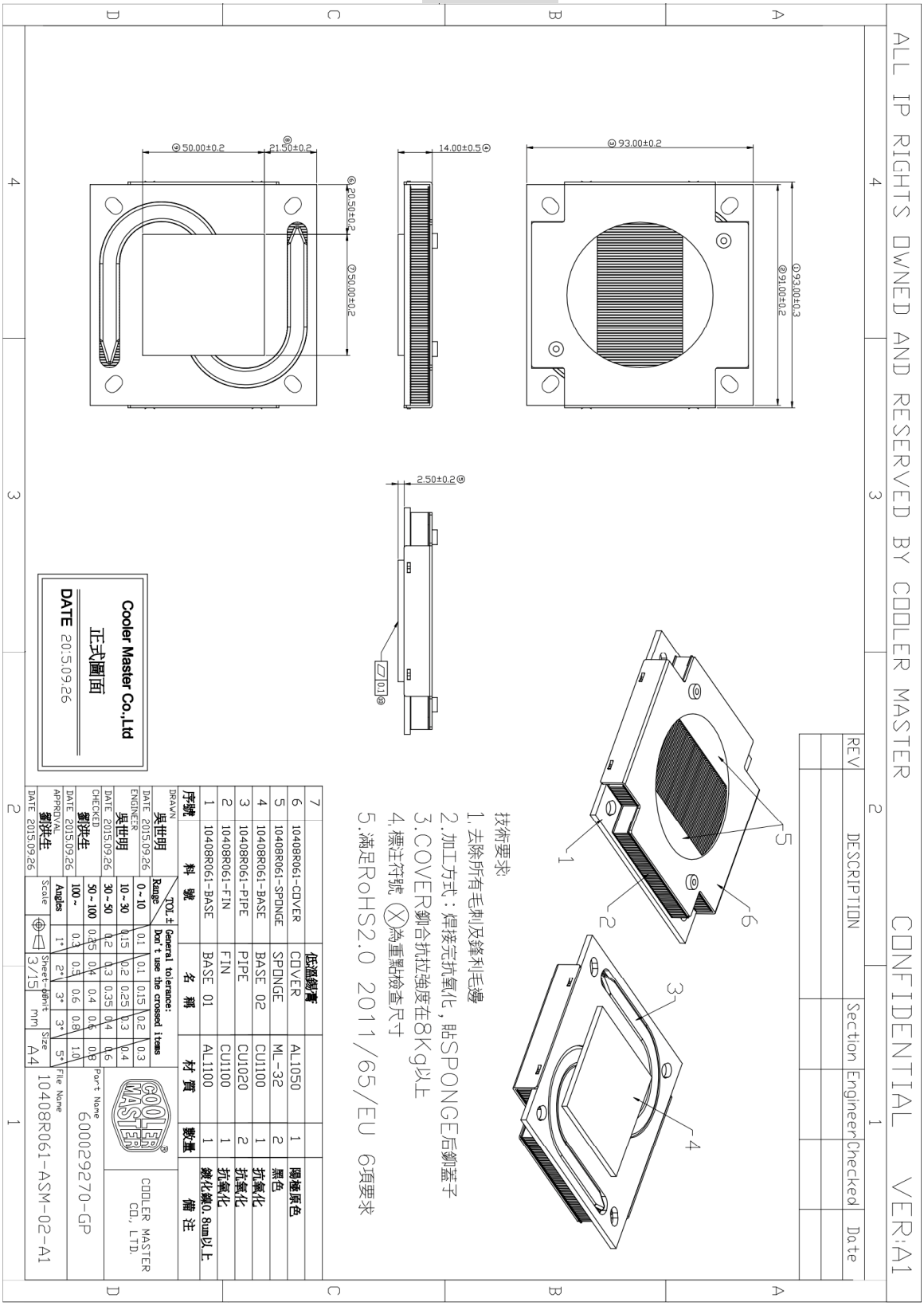


5. Specification & Drawing

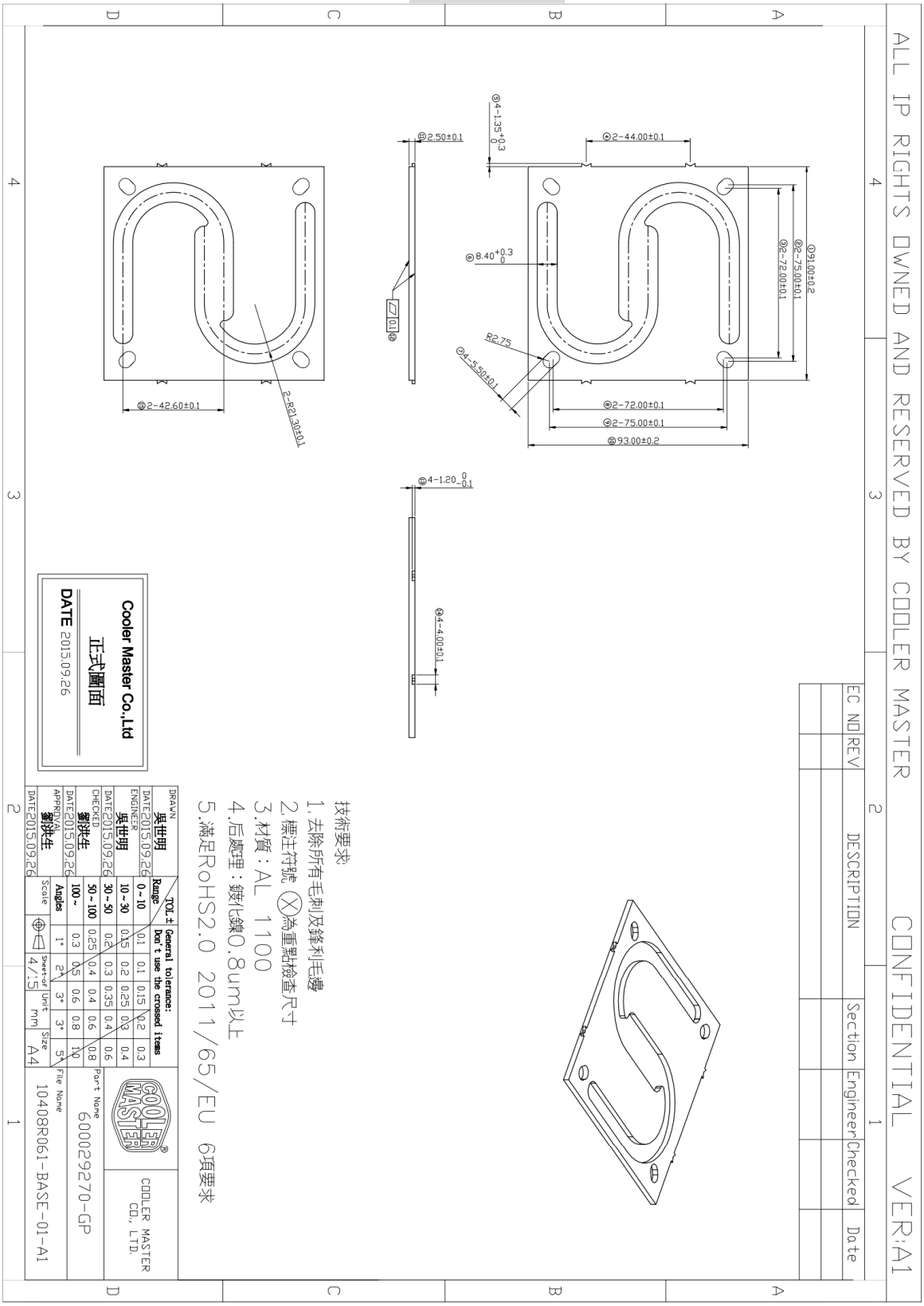
ASM 01



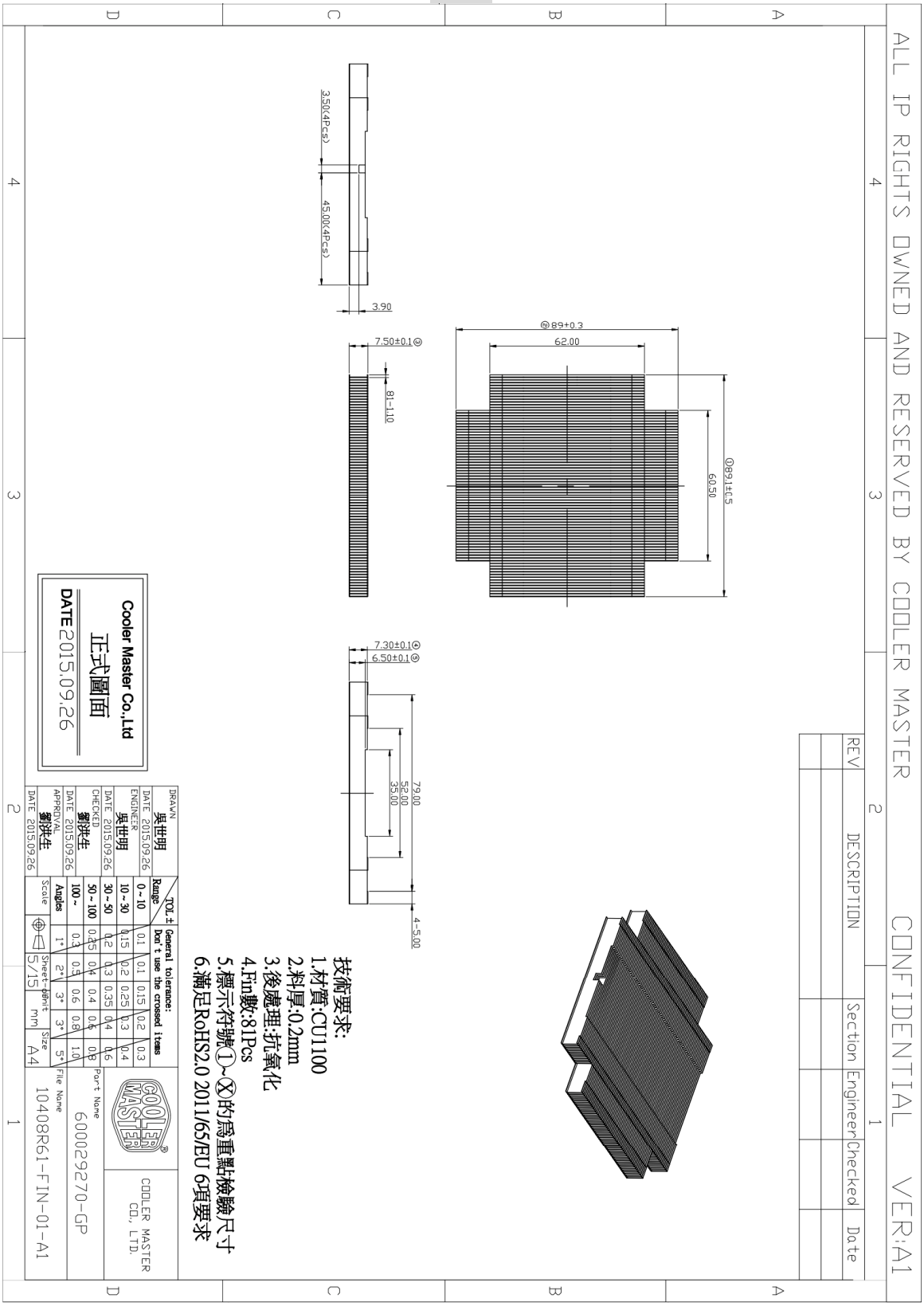
ASM 02


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER CONFIDENTIAL VER:A1
REV DESCRIPTION Section Engineer Checked Date
Ø50.00±0.2
21.50±0.2
20.50±0.2
Ø50.00±0.2
14.00±0.5
Ø93.00±0.2
Ø93.00±0.3
Ø91.00±0.2
2.50±0.2
0.1
技術要求
1.去除所有毛刺及鋒利毛邊
2.加工方式：焊接完抗氧化，貼SPONGE后鉚蓋子
3.COVER鉚合抗拉強度在8Kg以上
4.標注符號 Ⓧ為重點檢查尺寸
5.滿足RoHS2.0 2011/65/EU 6項要求
Cooler Master Co.,Ltd
正式圖面
DATE 2015.09.26
序號 料號 名稱 材質 數量 備注
7 低溫錫膏
6 10408R061-CDVER COVER AL1050 1 陽極原色
5 10408R061-SPONGE SPONGE ML-32 2 黑色
4 10408R061-BASE BASE 02 CU1100 1 抗氧化
3 10408R061-PIPE PIPE CU1020 2 抗氧化
2 10408R061-FIN FIN CU1100 1 抗氧化
1 10408R061-BASE BASE 01 AL1100 1 鍍化鎳0.8um以上
DRAWN 吳世明 DATE 2015.09.26
ENGINEER 吳世明 DATE 2015.09.26
CHECKED 劉洪生 DATE 2015.09.26
APPROVAL 劉洪生 DATE 2015.09.26
TOL± General tolerance: Don't use the crossed items
Range 0~10 10~30 30~50 50~100 100~
0.1 0.15 0.2 0.3 0.4
0.1 0.15 0.25 0.3 0.4
0.15 0.2 0.3 0.35 0.4
0.2 0.3 0.4 0.5 0.6
0.35 0.4 0.4 0.6 0.8
Angles 1° 2° 3° 5°
0.3 0.4 0.6 0.8 1.0
Scale 3/15 mm Sheet-point 3° Size A4
COOLER MASTER CO., LTD.
Part Name 60002970-GP
File Name 10408R061-ASM-02-A1

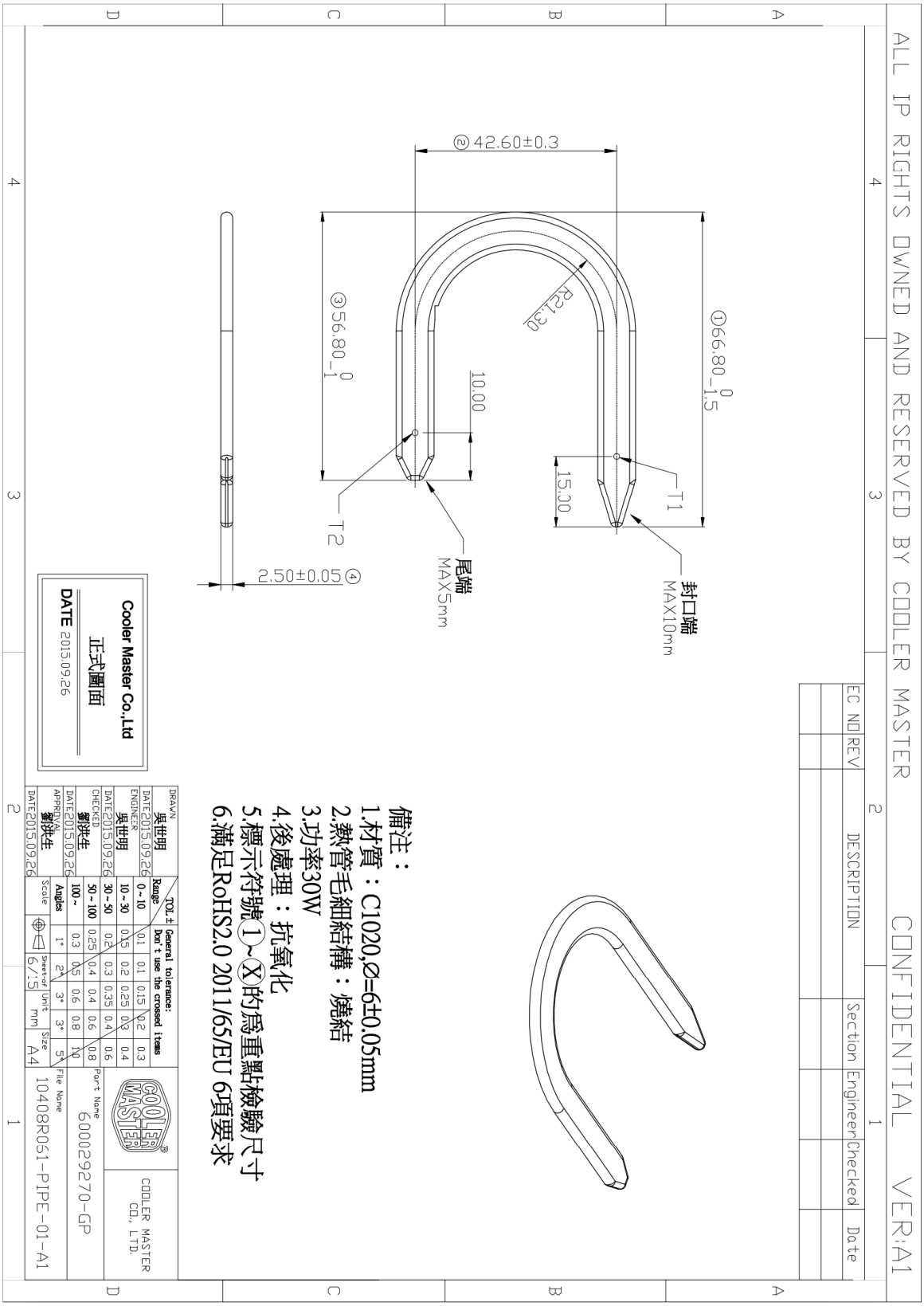
BASE 01


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER CONFIDENTIAL VER:A1
EC NO REV DESCRIPTION Section Engineer Checked Date
技術要求
1.去除所有毛刺及鋒利毛邊
2.標注符號 Ⓧ為重點檢查尺寸
3.材質：AL 1100
4.后處理：鍍化鎳0.8um以上
5.滿足RoHS2.0 2011/65/EU 6項要求
Cooler Master Co.,Ltd
正式圖面
DATE 2015.09.26
DRAWN 吳世明 DATE2015.09.26
ENGINEER 吳世明 DATE2015.09.26
CHECKED 劉洪生 DATE2015.09.26
APPROVAL 劉洪生 DATE2015.09.26
TOL± Range | General tolerance: Don't use the crossed items
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~ | 0.3 | 0.5 | 0.6 | 0.8 | 1.0
Angles | 1° | 2° | 3° | 3° | 5°
Scale 4/:5
Sheet of Unit mm
Size A4
COOLER MASTER CO., LTD.
Part Name 60002929-GP
File None 10408R061-BASE-01-A1
2-R21.30±0.1
2-42.60±0.1
2.50±0.1
4-1.35+0.3 0
2-44.00±0.1
8.40+0.3 0
R2.75
4-5.50±0.1
2-72.00±0.1
2-75.00±0.1
93.00±0.2
91.00±0.2
4-1.20 0 -0.1
4-4.00±0.1

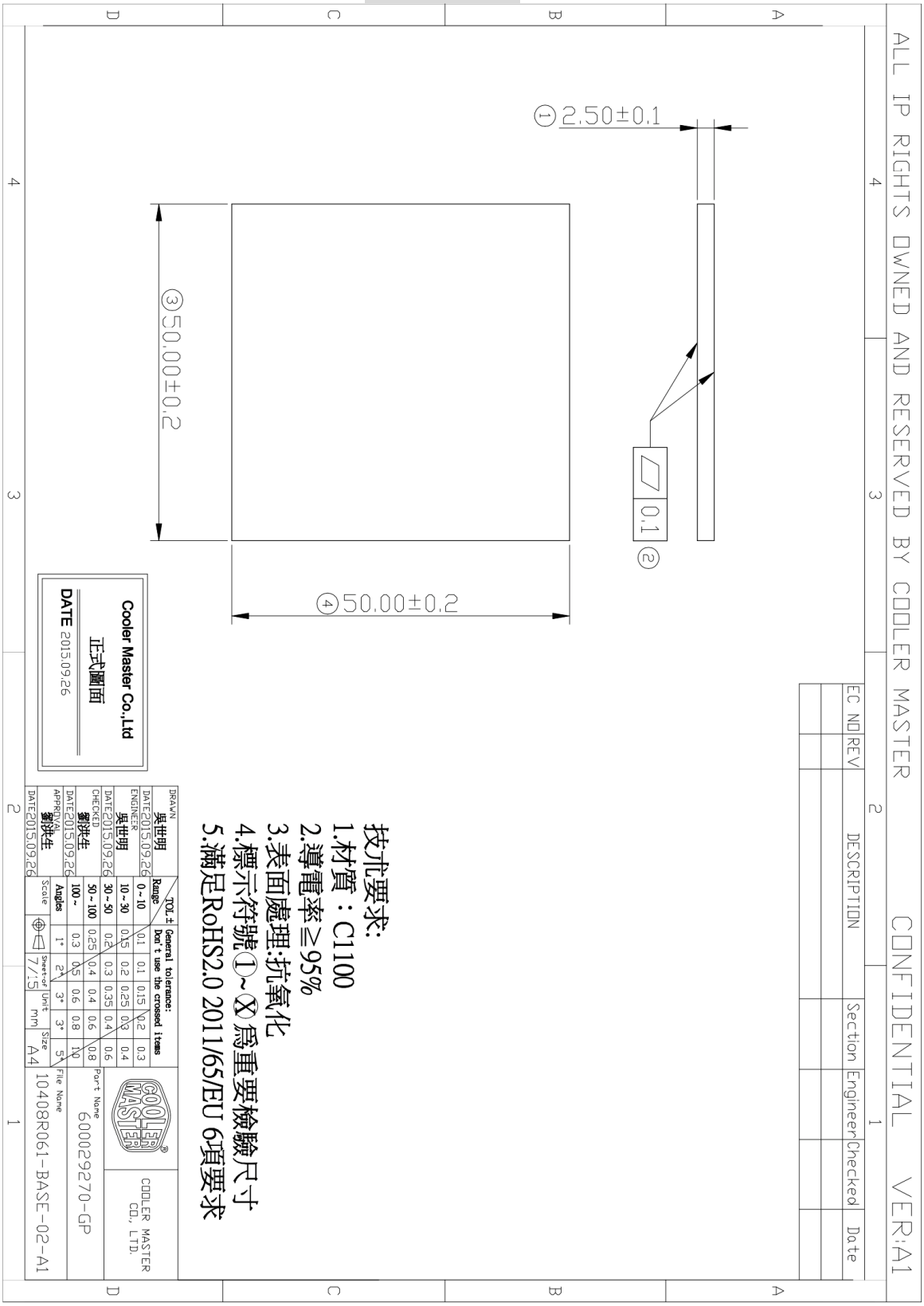
FIN


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL VER:A1
REV
DESCRIPTION
Section
Engineer
Checked
Date
3.50(4Pcs)
45.00(4Pcs)
3.90
7.50±0.1
81-1.10
89+0.3
62.00
91±0.5
60.50
7.30±0.1
6.50±0.1
79.00
52.00
35.00
4-5.00
技術要求:
1.材質:CU1100
2.料厚:0.2mm
3.後處理:抗氧化
4.Fin數:81Pcs
5.標示符號①~⑧的爲重點檢驗尺寸
6.滿足RoHS2.0 2011/65/EU 6項要求
Cooler Master Co.,Ltd
正式圖面
DATE 2015.09.26
DRAWN
吳世明
DATE 2015.09.26
ENGINEER
吳世明
DATE 2015.09.26
CHECKED
劉洪生
DATE 2015.09.26
APPROVAL
劉洪生
DATE 2015.09.26
TOL±
General tolerance:
Don't use the crossed items
Range
0 ~ 10
10 ~ 30
30 ~ 50
50 ~ 100
100 ~
Angles
Scale
Sheet-NO.
5/15
mm
Size
A4
COOLER MASTER CO., LTD.
Part Name
60002927O-GP
File Name
10408R61-FIN-01-A1

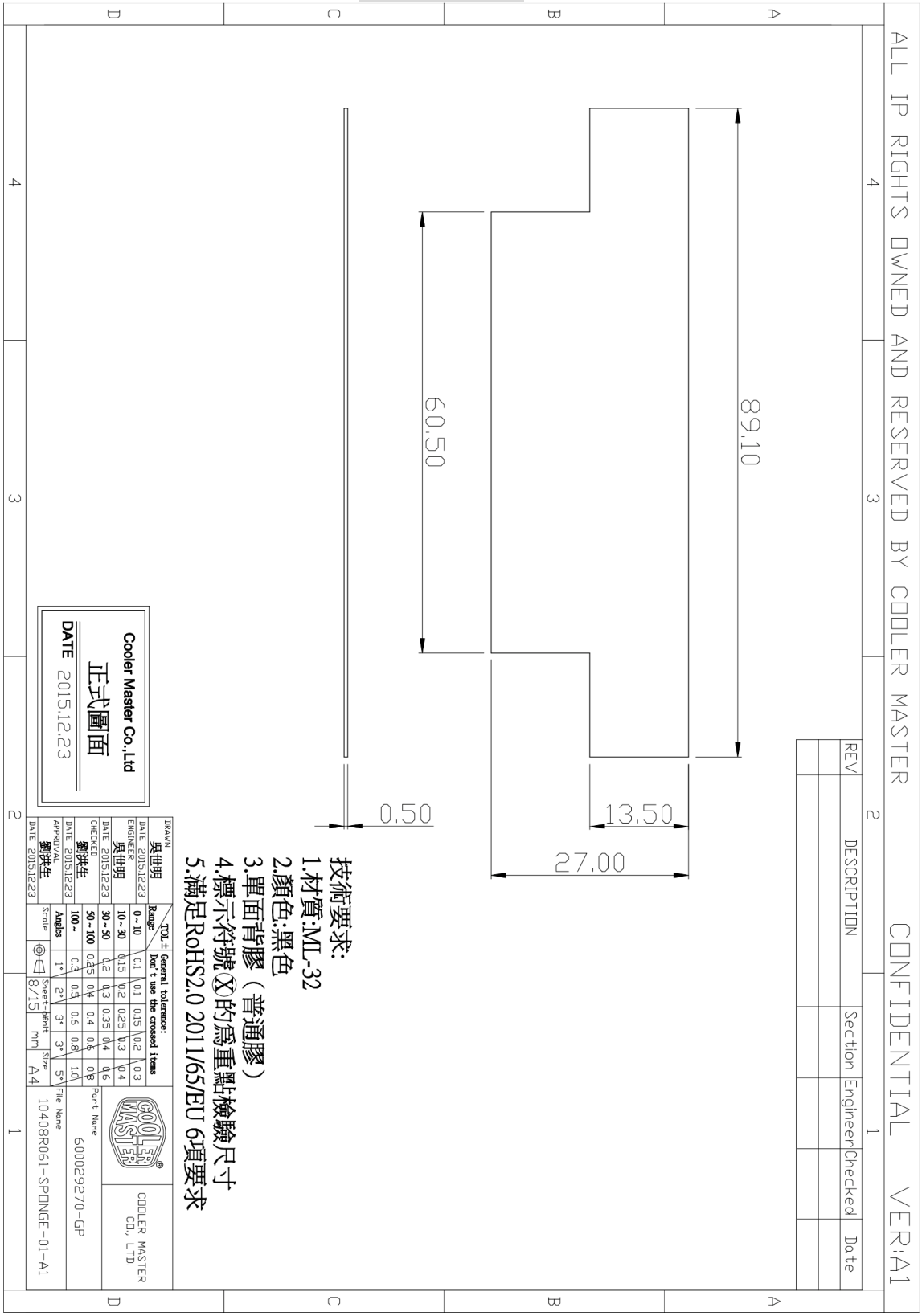
PIPE


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL VER:A1
EC NO REV DESCRIPTION Section Engineer Checked Date
② 42.60±0.3
①66.80 0 -1.5
③56.80 0 -1
R2.30
10.00
15.30
T1
T2
封口端
MAX10mm
尾端
MAX5mm
2.50±0.05 ④
備注：
1.材質：C1020,Ø=6±0.05mm
2.熱管毛細結構：燒結
3.功率30W
4.後處理：抗氧化
5.標示符號①~Ⓧ的爲重點檢驗尺寸
6.滿足RoHS2.0 2011/65/EU 6項要求
Cooler Master Co.,Ltd
正式圖面
DATE 2015.09.26
DRAWN 吳世明 DATE2015.09.26
ENGINEER 吳世明 DATE2015.09.26
CHECKED 劉洪生 DATE2015.09.26
APPROVAL 劉洪生 DATE2015.09.26
TOL± General tolerance: Don't use the crossed items
Range 0~10 10~30 30~50 50~100 100~
0.1 0.15 0.2 0.25 0.3
0.1 0.2 0.25 0.3 0.4
0.15 0.2 0.3 0.35 0.4
0.2 0.25 0.3 0.4 0.6
0.3 0.4 0.4 0.6 0.8
Angles 1° 2° 3° 3° 5°
Scale 6/:5
Sheet of
Unit mm
Size A4
COOLER MASTER CO., LTD.
Part Name 60002270-GP
File Name 10408R051-PIPE-01-A1

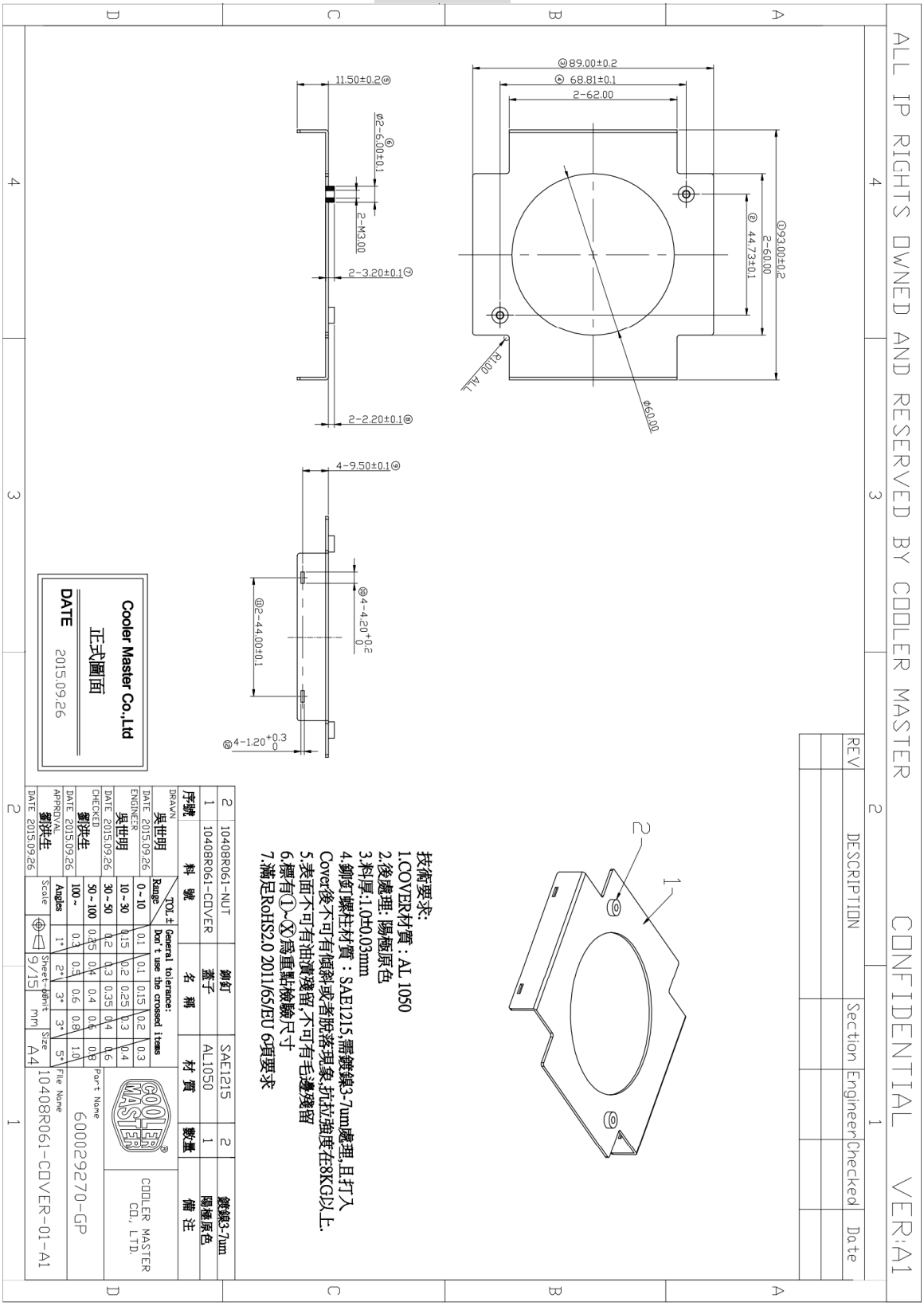
BASE 02


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL VER:A1
① 2.50±0.1
② 0.1
③ 50.00±0.2
④ 50.00±0.2
技术要求:
1.材質：C1100
2.導電率≧95%
3.表面處理:抗氧化
4.標示符號①~⑧ 爲重要檢驗尺寸
5.滿足RoHS2.0 2011/65/EU 6項要求
Cooler Master Co.,Ltd
正式圖面
DATE 2015.09.26
DRAWN 吳世明 DATE 2015.09.26
ENGINEER 吳世明 DATE 2015.09.26
CHECKED 劉洪生 DATE 2015.09.26
APPROVED 劉洪生 DATE 2015.09.26
General tolerance: Don't use the crossed items
TOL ± Range 0~10 10~30 30~50 50~100 100~
0.1 0.15 0.2 0.3 0.4
0.2 0.25 0.3 0.35 0.4 0.6
0.3 0.4 0.4 0.6 0.8
0.5 0.6 0.8 1.0
Angles 1° 2° 3° 5°
Scale 7/15
Sheet of
Unit mm
Size A4
COOLER MASTER CO., LTD.
Part Name 60002970-GP
File Name 10408R061-BASE-02-A1
EC NO REV DESCRIPTION Section Engineer Checked Date

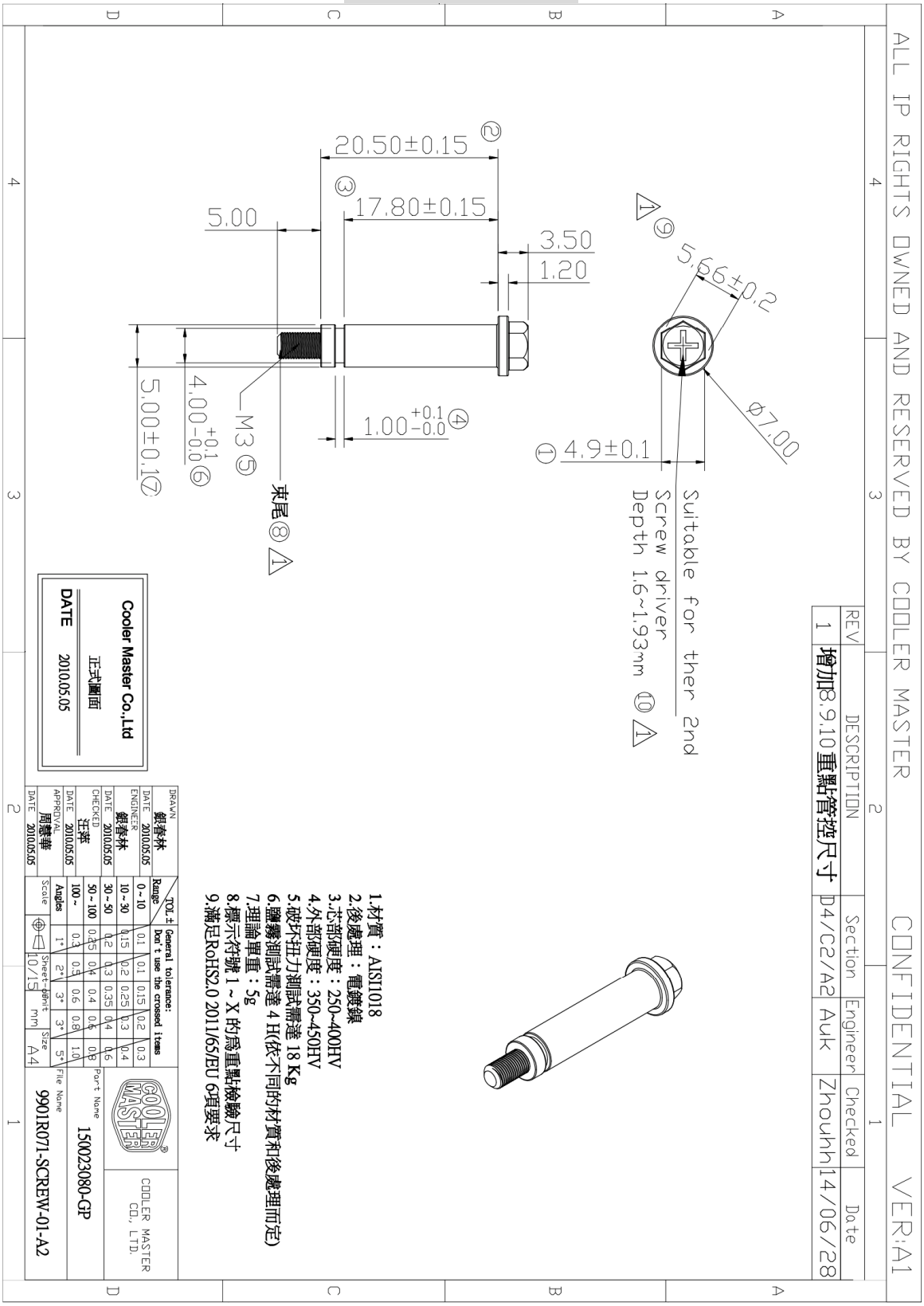
SPONGE


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL VER:A1
89.10
60.50
0.50
13.50
27.00
技術要求:
1.材質:ML-32
2.顏色:黑色
3.單面背膠（普通膠）
4.標示符號Ⓧ的爲重點檢驗尺寸
5.滿足RoHS2.0 2011/65/EU 6項要求
Cooler Master Co.,Ltd
正式圖面
DATE 2015.12.23
DRAWN 吳世明 DATE 2015.12.23
ENGINEER 吳世明 DATE 2015.12.23
CHECKED 劉洪生 DATE 2015.12.23
APPROVAL 劉洪生 DATE 2015.12.23
Range TOL± General tolerance: Don't use the crossed items
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 0.35 0.4 0.4 0.6 0.8
100~ 0.3 0.3 0.6 0.8 1.0
Angles 1° 2° 3° 3° 5°
Scale 8/15
mm
Sheet+Unit
Size A4
COOLER MASTER CO., LTD.
Part Name 600029270-GP
File Name 10408R051-SPONGE-01-A1
REV
DESCRIPTION
Section
Engineer
Checked
Date

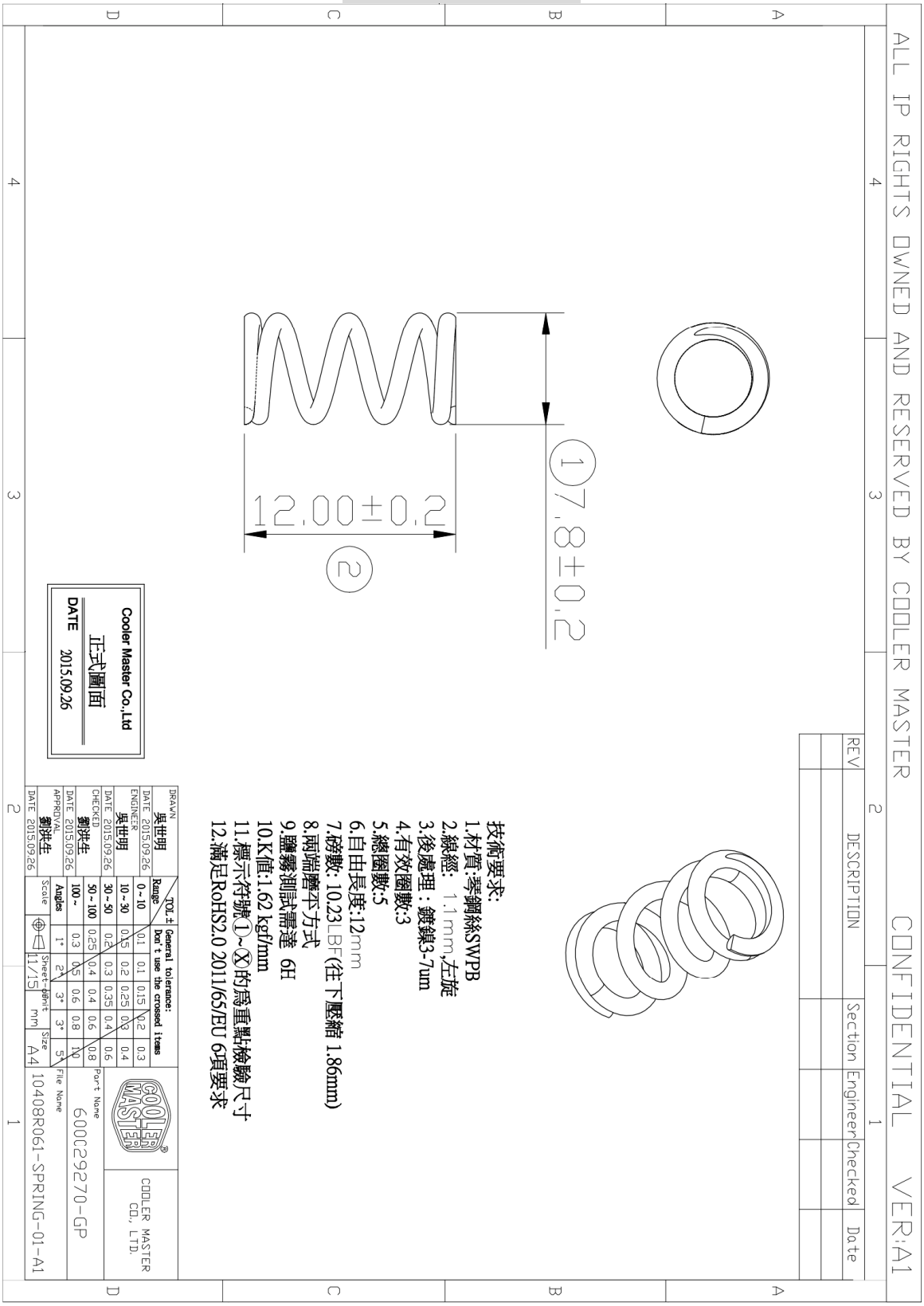
COVER


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL VER:A1
REV
DESCRIPTION
Section
Engineer
Checked
Date
Ø89.00±0.2
Ø 68.81±0.1
2-62.00
Ø93.00±0.2
2-60.00
Ø 44.73±0.1
R100 ALL
Ø60.00
11.50±0.2
Ø2-6.00±0.1
2-M3.00
2-3.20±0.1
2-2.20±0.1
4-9.50±0.1
Ø4-4.20+0.2 0
Ø2-44.00±0.1
4-1.20+0.3 0
技術要求:
1.COVER材質：AL 1050
2.後處理: 陽極原色
3.料厚:1.0±0.05mm
4.鉚釘螺柱材質：SAE1215,需鍍鎳3-7um處理,且打入Cover後不可有傾斜或者脫落現象,拉拉強度在8KG以上.
5.表面不可有油漬殘留,不可有毛邊殘留
6.標有①~⑦爲重點檢驗尺寸
7.滿足RoHS2.0 2011/65/EU 6項要求
Cooler Master Co.,Ltd
正式圖面
DATE 2015.09.26
序號 料號 名稱 材質 數量 備注
2 10408R061-NUT 鉚釘 SAE1215 2 鍍鎳3-7um
1 10408R061-COVER 蓋子 AL1050 1 陽極原色
DRAWN 吳世明 DATE 2015.09.26
ENGINEER 吳世明 DATE 2015.09.26
CHECKED 劉洪生 DATE 2015.09.26
APPROVAL 劉洪生 DATE 2015.09.26
TOL± General tolerance: Don't use the crossed items
Range 0~10 10~30 30~50 50~100 100~
0.1 0.15 0.2 0.3 0.4
0.1 0.2 0.3 0.4 0.6
0.15 0.25 0.35 0.4 0.6
0.2 0.3 0.4 0.6 0.8
0.3 0.4 0.6 0.8 1.0
Angles 1° 2° 3° 3° 5°
Scale
Sheet 9/15
Unit mm
Size A4
COOLER MASTER CO., LTD.
Part Name 60002929-GP
File Name 10408R061-COVER-01-A1

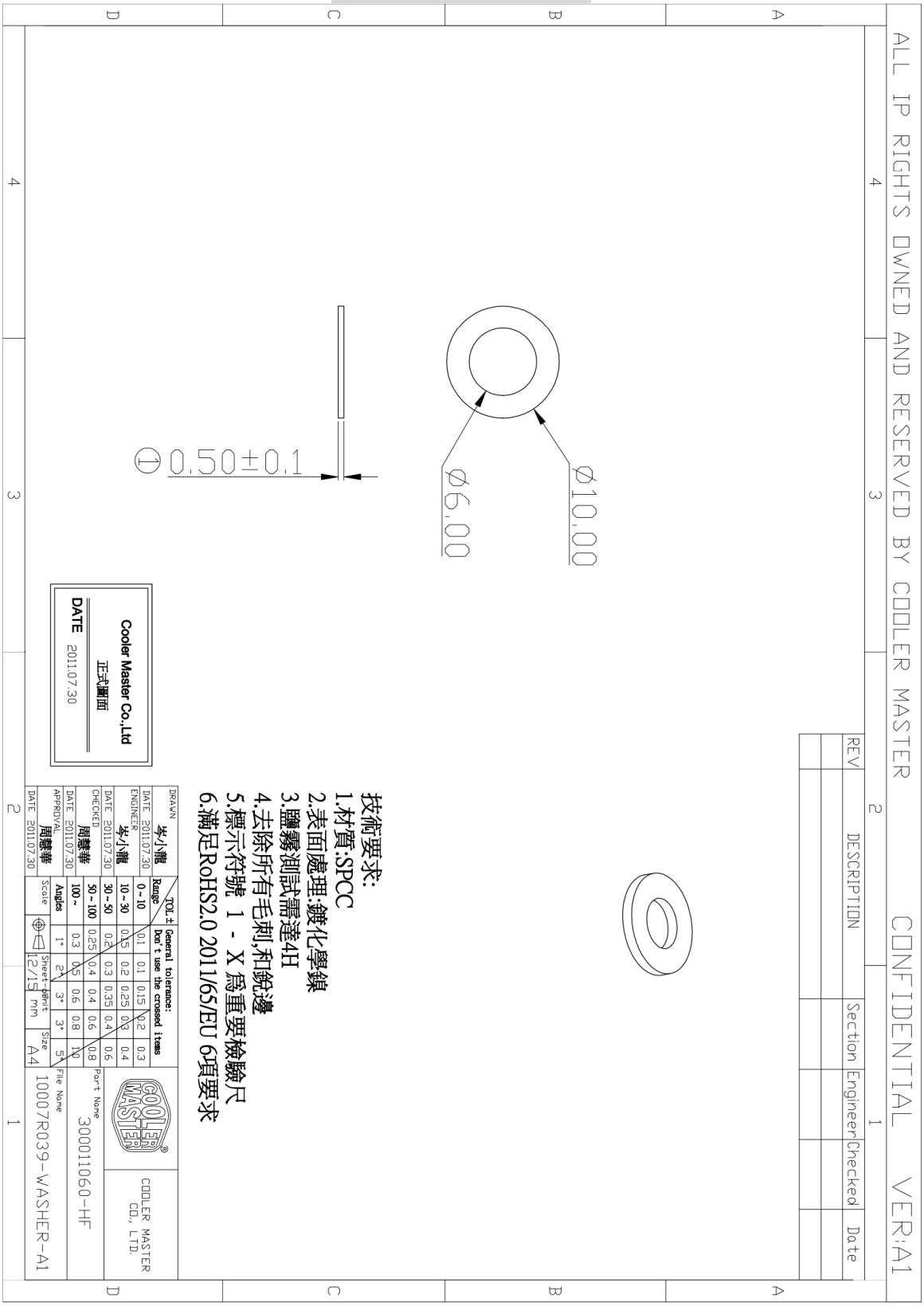
CPU SCREW


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL VER:A1
REV | DESCRIPTION | Section | Engineer | Checked | Date
1 增加8,9,10重點管控尺寸 D4/C2/A2 Auk Zhouhh 14/06/28
20.50±0.15
17.80±0.15
5.00
3.50
1.20
5.66±0.2
φ7.00
4.9±0.1
1.00 +0.1 -0.0
4.00 +0.1 -0.0
5.00±0.10
M3
束尾
Suitable for ther 2nd
Screw driver
Depth 1.6~1.93mm
1.材質：AISI1018
2.後處理：電鍍鎳
3.芯部硬度：250~400HV
4.外部硬度：350~450HV
5.破坏扭力測試需達 18 Kg
6.鹽霧測試需達 4 H(依不同的材質和後處理而定)
7.理論單重：5g
8.標示符號 1 ~ X 的爲重點檢驗尺寸
9.滿足RoHS2.0 2011/65/EU 6項要求
Cooler Master Co.,Ltd
正式圖面
DATE 2010.05.05
DRAWN 鍛春林 2010.05.05
ENGINEER 鍛春林 2010.05.05
CHECKED 汪慕 2010.05.05
APPROVAL 周慧華 2010.05.05
TOL± General tolerance: Don't use the crossed items
Range
0 ~ 10 0.1 0.1 0.15 0.2 0.3
10 ~ 30 0.15 0.15 0.2 0.25 0.3 0.4
30 ~ 50 0.2 0.2 0.3 0.35 0.4 0.5
50 ~ 100 0.35 0.4 0.4 0.6 0.8 0.8
100 ~ 0.3 0.5 0.6 0.8 1.0
Angles 1° 2° 3° 3° 5°
Scale 10/15
Sheet 1 of 1
mm Size A4
COOLER MASTER CO., LTD.
Part Name 150223080-GP
File Name 9901R071-SCREW-01-A2

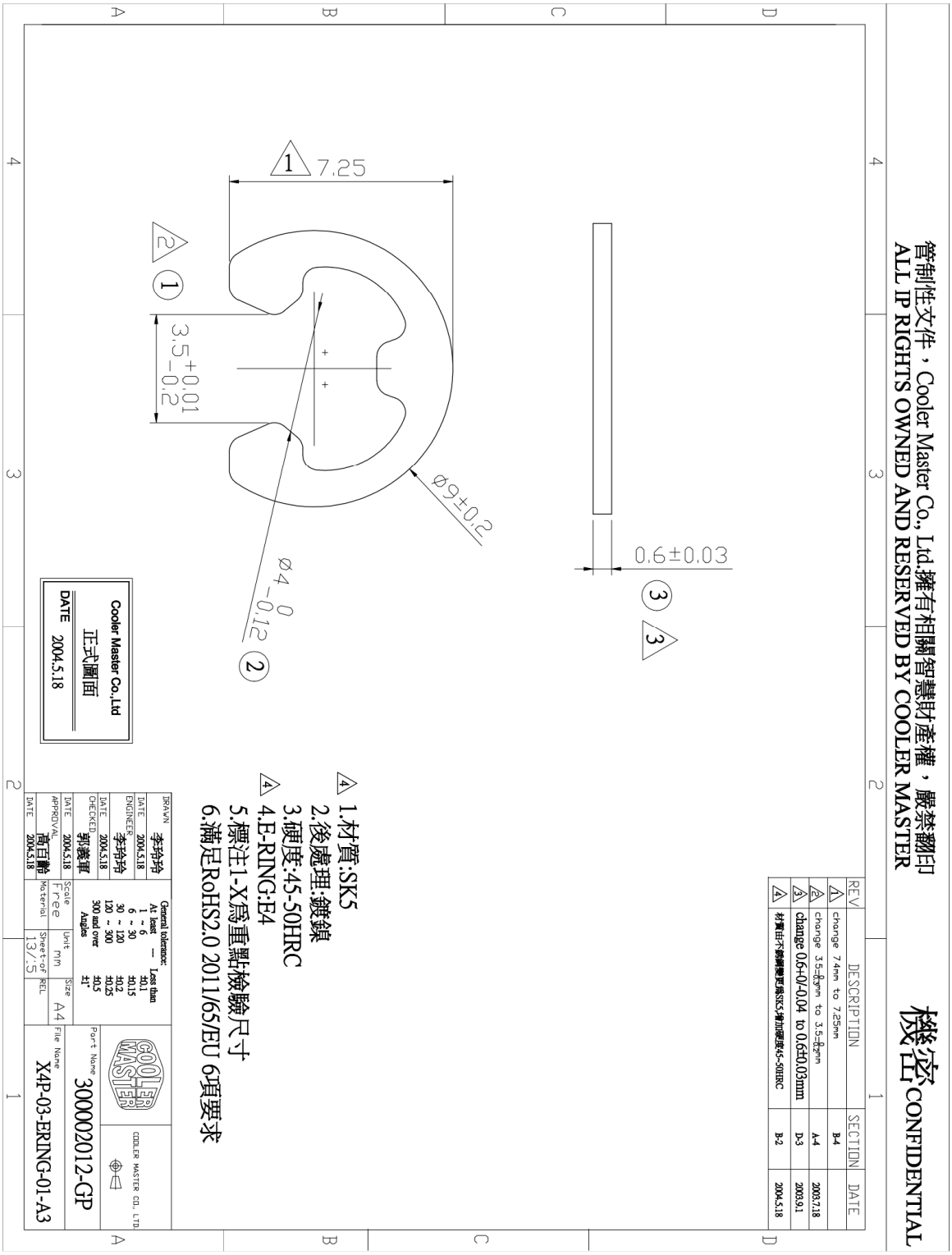
CPU SPRING


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL VER:A1
REV
DESCRIPTION
Section
Engineer
Checked
Date
技術要求:
1.材質:琴鋼絲SWPB
2.線經: 1.1mm,左旋
3.後處理 : 鍍鎳3-7um
4.有效圈數:3
5.總圈數:5
6.自由長度:12mm
7.磅數: 10.23LBF(往下壓縮 1.86mm)
8.兩端磨平方式
9.鹽霧測試需達 6H
10.K值:1.62 kgf/mm
11.標示符號①~⑦的爲重點檢驗尺寸
12.滿足RoHS2.0 2011/65/EU 6項要求
①7.8±0.2
12.00±0.2
②
Cooler Master Co.,Ltd
正式圖面
DATE 2015.09.26
DRAWN
吳世明
DATE 2015.09.26
ENGINEER
吳世明
DATE 2015.09.26
CHECKED
劉洪生
DATE 2015.09.26
APPROVAL
劉洪生
DATE 2015.09.26
TOL±
General tolerance:
Don't use the crossed items
Range
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~ 0.3 0.5 0.6 0.8 1.0
Angles 1° 2° 3° 5°
Scale
Sheet 1/1
Unit mm
Size A4
COOLER MASTER CO., LTD.
Part Name
6000292 70-GP
File Name
10408R061-SPRING-01-A1

CPU WASHER


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER CONFIDENTIAL VER:A1
REV
DESCRIPTION
Section
Engineer
Checked
Date
Ø10.00
Ø6.00
0.50±0.1
技術要求:
1.材質:SPCC
2.表面處理:鍍化學鎳
3.鹽霧測試需達4H
4.去除所有毛刺,和銳邊
5.標示符號 1 - X 爲重要檢驗尺
6.滿足RoHS2.0 2011/65/EU 6項要求
Cooler Master Co.,Ltd
正式圖面
DATE 2011.07.30
DRAWN 岑小龍 DATE 2011.07.30
ENGINEER 岑小龍 DATE 2011.07.30
CHECKED 周慧華 DATE 2011.07.30
APPROVAL 周慧華 DATE 2011.07.30
TOL± General tolerance: Don't use the crossed items
Range
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~ 0.3 0.5 0.6 0.8 1.0
Angles 1° 2° 3° 5°
Scale
Sheet 1 of 1
mm
Size A4
COOLER MASTER CO., LTD.
Part Name 3000110G0-HF
File Name 10007R039-WASHER-A1

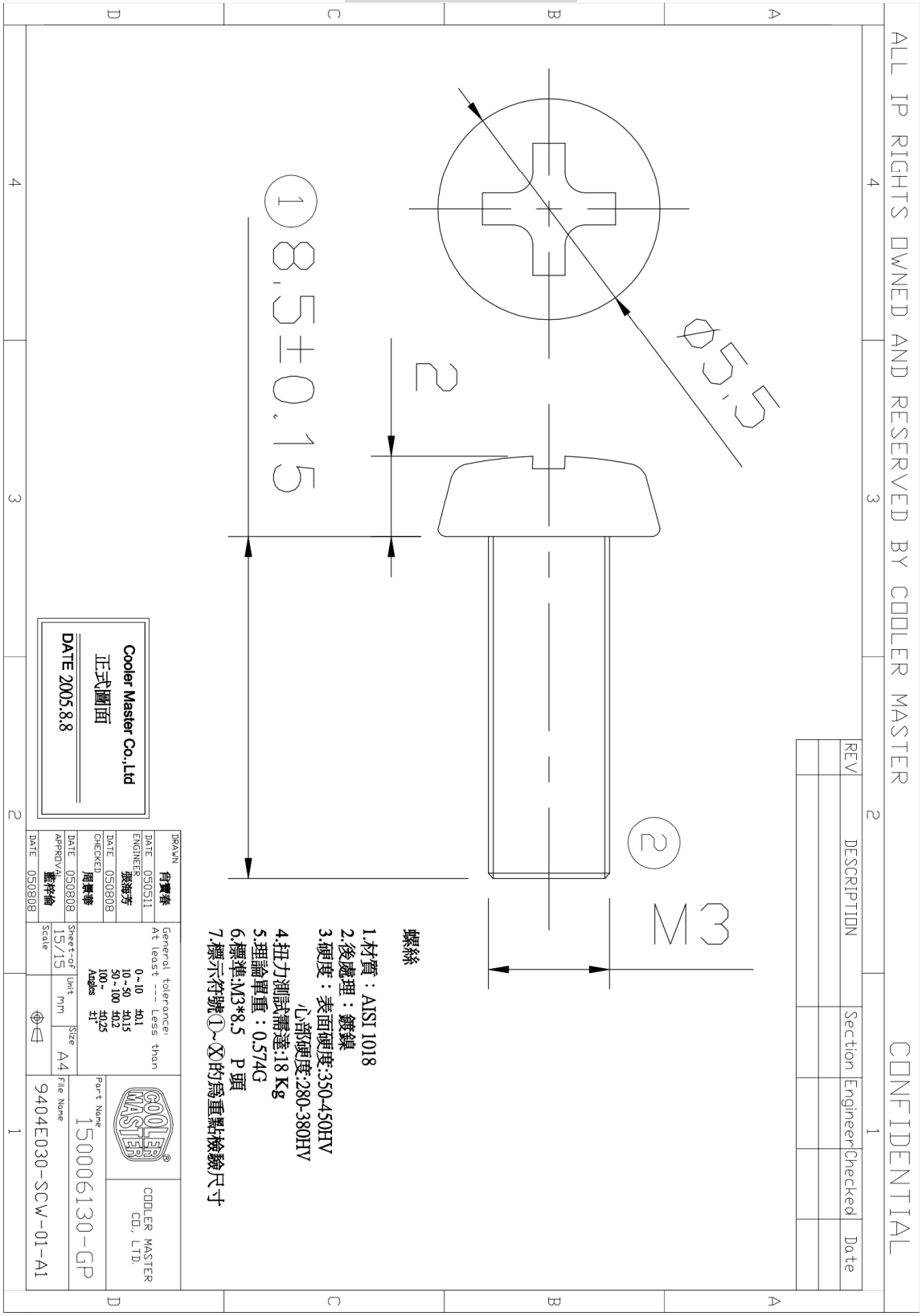
CPU ERING


機密 CONFIDENTIAL
管制性文件，Cooler Master Co., Ltd.擁有相關智慧財產權，嚴禁翻印
ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
REV DESCRIPTION SECTION DATE
1 change 7.4mm to 7.25mm B-4
2 change 3.5±0.1mm to 3.5±0.2mm A-4 2003.7.18
3 change 0.6-0/-0.04 to 0.6±0.03mm D-3 2003.9.1
4 材質由不銹鋼變更爲SK5,增加硬度45-50HRC B-2 2004.5.18
7.25
3.5+0.01 −0.2
Ø9±0.2
Ø4.0 −0.12
0.6±0.03
1.材質:SK5
2.後處理:鍍鎳
3.硬度:45-50HRC
4.E-RING:E4
5.標注1-X爲重點檢驗尺寸
6.滿足RoHS2.0 2011/65/EU 6項要求
Cooler Master Co.,Ltd
正式圖面
DATE 2004.5.18
DRAWN 李玲玲 2004.5.18
ENGINEER 李玲玲 2004.5.18
CHECKED 郭泰軍 2004.5.18
APPROVAL 高百齡 2004.5.18
General tolerance: At Least — Less than
1 ~ 6 ±0.1
6 ~ 30 ±0.15
30 ~ 120 ±0.2
120 ~ 300 ±0.25
300 and over ±0.5
Angles ±1°
Scale Free
Material
Unit mm
Sheet 1 of 1
Size A4
REL
CODLER MASTER CO., LTD.
Part Name 300002012-GP
File Name X4P-03-ERING-01-A3

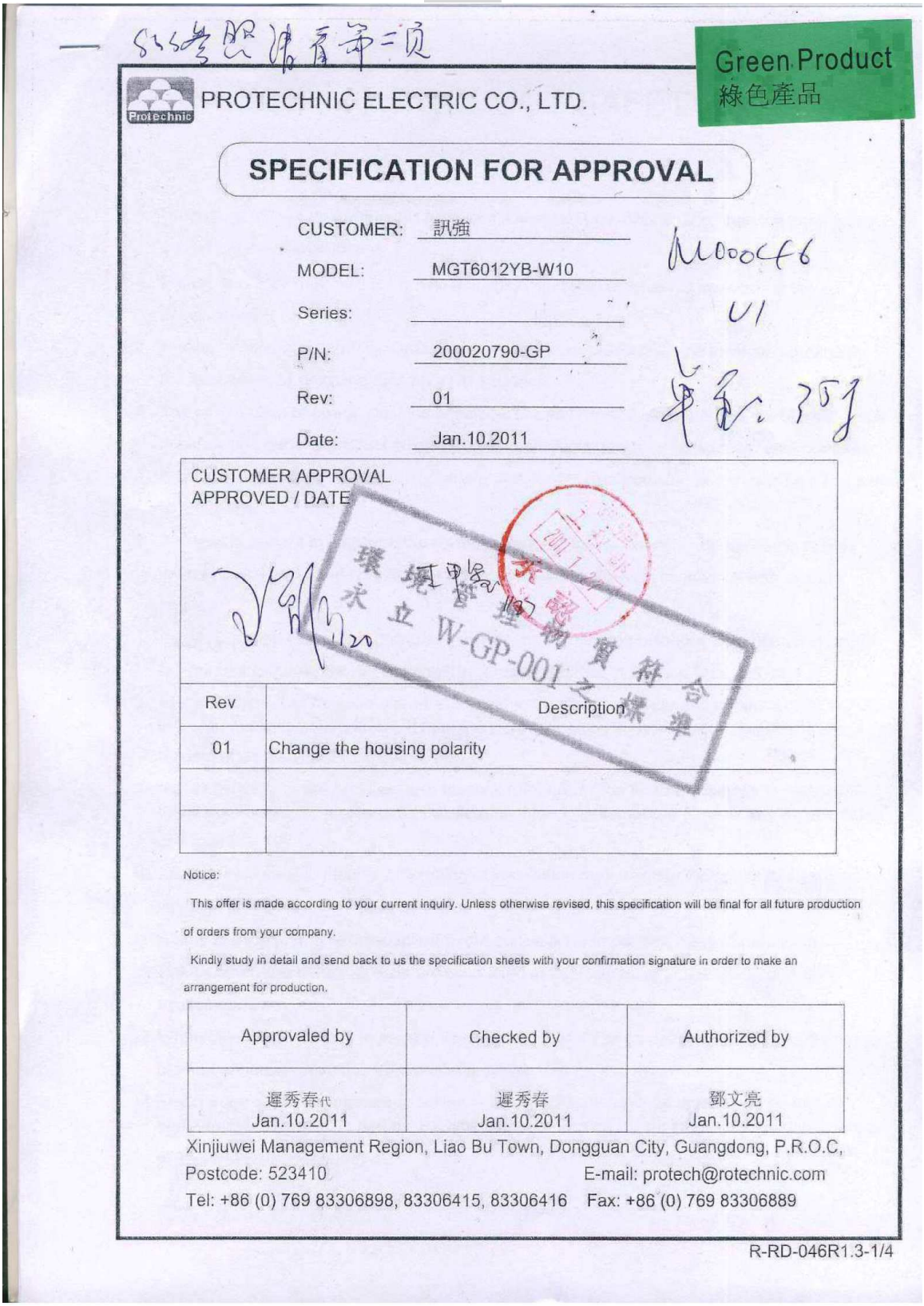
FAN LABEL

ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL VER:A1
REV
DESCRIPTION
Section
Engineer
Checked
Date
RoHS2.0
HF
MADE IN CHINA
Φ25①
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 的爲重點檢驗尺寸
4:THE MATERIAL/PART/ASSEMBLY SHOULD COMPLY TO" HP GSE HP-00011-00 REV.N " FOR ENVIRONMENT-RESTRICTED SUBSTANCES.
5:BFR/PVC/CFR FREE REQUIREMENT SHOULD COMPLY WITH "HP GSE 011-1 SECTION 3.15 REV.N".
6:ROHS 2.0 REQUIREMENT SHOULD COMPLY WITH " HP ROHS 2 COMPLIANCE SPECIFICATION REV.C1".
7.滿足RoHS2.0 2011/65/EU 6項要求
Cooler Master Co.,Ltd
正式圖面
DATE 2010.12.13
DRAWN 郭威 2010.12.13
ENGINEER 郭威 2010.12.13
CHECKED 周慧華 2010.12.13
APPROVAL 周慧華 2010.12.13
TOL± General tolerance: Don't use the crossed items
Range
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 0.5
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-Num 14/15
mm
Size A4
COOLER MASTER CO., LTD.
Part Name 35900530-GP3
File Name 9817R014-Label-A1

FAN SCREW


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL
REV
DESCRIPTION
Section
Engineer
Checked
Date
Ø5.5
2
①8.5±0.15
②M3
螺絲
1.材質：AISI 1018
2.後處理：鍍鎳
3.硬度：表面硬度:350-450HV
心部硬度:280-380HV
4.扭力測試需達:18 Kg
5.理論單重：0.574G
6.標準:M3*8.5 P頭
7.標示符號①~⑦的爲重點檢驗尺寸
Cooler Master Co.,Ltd
正式圖面
DATE 2005.8.8
DRAWN 肖寶春 DATE 050511
ENGINEER 張海芳 DATE 050808
CHECKED 周寶華 DATE 050808
APPROVAL 董梓倫 DATE 050808
General tolerance
At least --- Less than
0 ~ 10 ±0.1
10 ~ 50 ±0.15
50 ~ 100 ±0.2
100 ~ Angles ±0.25 ±1°
Sheet of 15/15
Unit mm
Size A4
Scale
COOLER MASTER CO., LTD.
Part Name 15006130-GP
File Name 9404E030-SCW-01-A1

FAN



PROTECHNIC ELECTRIC CO., LTD.

Green Product
綠色產品

SPECIFICATION FOR APPROVAL

CUSTOMER: 訊強

MODEL: MGT6012YB-W10

Series:

P/N: 200020790-GP

Rev: 01

Date: Jan.10.2011

CUSTOMER APPROVAL
APPROVED / DATE

Rev	Description
01	Change the housing polarity

Notice:

This offer is made according to your current inquiry. Unless otherwise revised, this specification will be final for all future production of orders from your company.

Kindly study in detail and send back to us the specification sheets with your confirmation signature in order to make an arrangement for production.

Approvaled by	Checked by	Authorized by
遲秀春代 Jan.10.2011	遲秀春 Jan.10.2011	鄧文亮 Jan.10.2011

Xinjiuwei Management Region, Liao Bu Town, Dongguan City, Guangdong, P.R.O.C,
Postcode: 523410 E-mail: protech@rotechnic.com
Tel: +86 (0) 769 83306898, 83306415, 83306416 Fax: +86 (0) 769 83306889

R-RD-046R1.3-1/4

	風扇-扇框-PBT-黑色-GP-S-M00046
2	風扇-扇葉-PBT-黑色-GP-S-M00046
3	風扇-絕緣架-PBT-白色-GP-S-M00046
4	風扇-貼紙-基材-GP-S-M00046
5	風扇-貼紙-油墨-紅色-GP-S-M00046
6	風扇-貼紙-油墨-黑色-GP-S-M00046
7	風扇-貼紙-油墨-綠色-GP-S-M00046
8	風扇-線材-PVC-藍色-GP-S-M00046
9	風扇 線材 PVC 紅色 GP S M00046
10	風扇-線材-PVC-黃色-GP-S-M00046
11	風扇-線材-PVC-黑色-GP-S-M00046
12	風扇-端子殼-nylon66-白色-GP2-S-M00046
13	風扇-端子殼-copper-GP-S-M00046
14	風扇-PCB-基材-黃色-GP-S-M00046
15	風扇-PCB-銅箔-GP-S-M00046
16	風扇-PCB-油墨-綠色-GP-S-M00046
17	風扇-PCB-油墨-白色-GP-S-M00046
18	風扇-IC-整體-GP-S-M00046
19	風扇-Hall-IC-GP-S-M00046
20	風扇-二極管-引腳-GP-S-M00046
21	風扇-二極管-引腳鍍層-GP-S-M00046
22	風扇-二極管-芯片-GP-S-M00046
23	風扇-二極管-芯片焊接-GP-S-M00046
24	風扇-二極管-樹脂封裝-GP-S-M00046
25	風扇-三極管-SOT23-GP-S-M00046
26	風扇-電容-ceramic powder-GP2-S-M00046
27	風扇-電阻-chip resistor-GP-S-M00046
28	風扇-漆包線-銅線-GP-S-M00046
29	風扇-漆包線-絕緣漆-GP-S-M00046
30	風扇-鐵芯-50H470-GP-S-M00046
31	風扇-軸芯-SUS420F-GP-S-M00046
32	風扇-磁條-rubber-GP-S-M00046
33	風扇-磁套-SECC-GP-S-M00046
34	風扇-錫絲-solder-GP-S-M00046
35	風扇-軸承-潤滑油脂LY552-GP-S-M00046
36	風扇-軸承-潤滑油脂LY551-GP-S-M00046
37	風扇-軸承-內外輪滾珠-GP-S-M00046
38	風扇-軸承-樹脂保持器-GP-S-M00046
39	風扇-彈簧-SUS304-GP3-S-M00046
40	風扇-扣環-MYLAR-GP-S-M00046

⚠ PRODUCT SAFETY

1. Protechnic will not guarantee this product if it is used in conditions other than the parameters outlined in this specifications.
2. Please contact Protechnic to confirm any customer requirements not specified in the specification.
3. Please handle fans carefully. Damage may result from pressure to the impeller, carrying by the lead wires, or dropping fans on a hard surface.
4. The introduction of power, dust water insects or other erosion elements into the hub will result in safety problems or product failure, except in products designed for special environments.
5. Items 1-4, mentioned above, are generally pertinent to our products, and should be a first point of reference.
6. It is very important to establish the correct polarity before connecting the fan to the power source, Positive (+) and Negative (-). Damage may be cause by connecting with reverse polarity.
7. Avoid operating Protechnic products in environments where poisonous or corrosive elements are present (organic, silicon, cyanogens, formal in phenol, H_2S, SO_2, NO_2, Cl_2, etc)
8. Please ensure that fans are stored according to the storage temperature specified. Do not store in a high humidity environment. If fans are stored for more than 6 months, Protechnic recommends testing of fans before using.
9. Not all series fans are provided with the lock rotor protection feature. Damage or failure will result from operating fans without this feature, if the impeller for the fan is in any way hindered or impaired.
10. Install fans carefully. Incorrect mounting or installation may result in excessive resonance, vibration and subsequent noise.
11. Safety is a top priority. Please utilize guard accessories to prevent injury to personnel.
12. Unless otherwise noted, all tests are conducted at 25°C ambient temperature, and 65% relative humidity.
13. When using multiple fans in parallel, connect an 'over 4.7μF 'capacitor externally to the fan to prevent abnormity resulting from unstable power.
14. Any change to the parameters specified in this specification will be determined by mutual agreement between both parties. Parameters not specified will be identical to the final sample approved by your company.

R-RD-046R1.3-2/4

ITEMS	DESCRIPTION
Rated Voltage	D.C. 12V
Operating voltage	D.C. 5.0V~13.8V
Start up voltage	D.C. 5.0V (At 25°C Power ON/OFF)
Pulse Power operating	If duty cycle is 50% ,the frequency should ≧10Hz
Current	0.30A
Power	3.60W
Speed	5,500±10%rpm (At 25°C,To record speed after fan running normal, This time about 3~5minutes)
Air flow (at zero static pressure)	5.88CFM(0.167m^3/min) Min:5.30CFM (0.150m^3/min)
Air pressure (at zero air flow)	13.30mmH_2O (0.524inchH_2O) Min:10.77mmH_2O (0.424inchH_2O)
Acoustical noise	44.8dB(A) Max: 47.8dB(A)
Life expectancy	70,000hrs continuous at 40°C, 15~65% relative humidity
Insulation resistance	Min 10Meg Ohm between internal stator and lead wire (+) at 500VDC
Dielectric strength	5mA max at 600VAC 50Hz 1 second between frame and (+) terminal
Operating temperature and humidity	-10 to 70°C,5% to 90%RH
Storage temperature and humidity	-40 to 70°C,5% to 95%RH

Noise Test: (ISO10302)

1.Measurement within anechoic chamber under free air condition

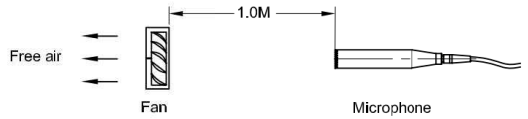
2.Microphone is placed at a distance of 1m on the axis of air intake side

3.Chamber background noise max 6.7dB(A)

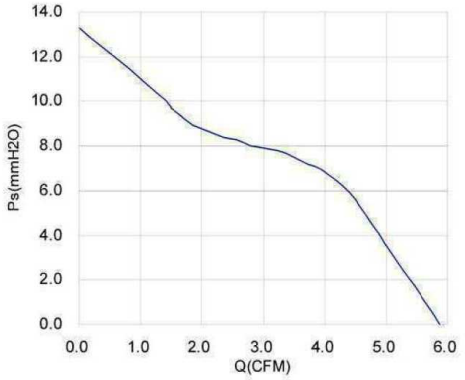
4.Using microphone: G.R.A.S 1/2 inch measure system 40AE+26CA
or 1 inch low measure system 40HF

5.Test system: National Instrument NI-4474 data acquisition system

6.Acoustical noise at rated speed



PQ curve: (Rated Voltage or rated voltage at 100%PWM if applied)

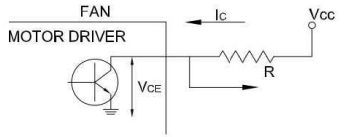


Output of rotary Signal:

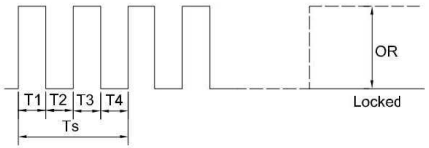
1.Output method- open collector metheod

2. Circuit Specification:

2-1.Specification:
Vcc: =15V MAX
Vce(sat):=1.0V MAX
Ic=5mA MAX
R≧Vcc/Ic



2-2. Frequency Generator Waveform:



One Fan Rotation
N: Revolution per minute (rpm).
T1~T4≒$\frac{1}{4}$Ts=$\frac{60}{4N}$ (sec).
Pulse width duty = T1÷(T1+T2) = 50±5%

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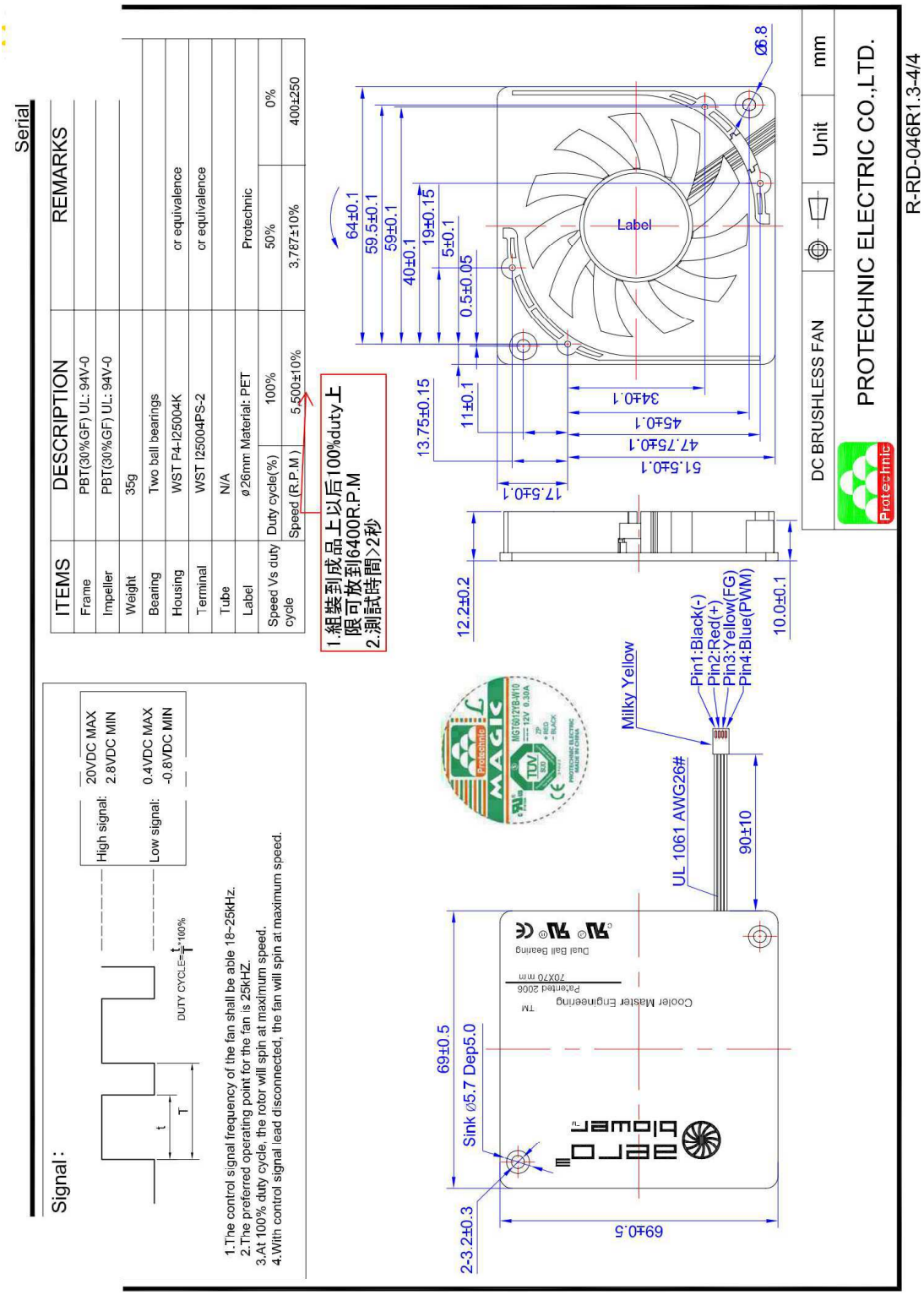
Serial
Signal:
High signal: 20VDC MAX 2.8VDC MIN
Low signal: 0.4VDC MAX -0.8VDC MIN
DUTY CYCLE=t/T*100%
1.The control signal frequency of the fan shall be able 18~25kHz.
2.The preferred operating point for the fan is 25kHZ.
3.At 100% duty cycle, the rotor will spin at maximum speed.
4.With control signal lead disconnected, the fan will spin at maximum speed.
ITEMS | DESCRIPTION | REMARKS
Frame | PBT(30%GF) UL: 94V-0
Impeller | PBT(30%GF) UL: 94V-0
Weight | 35g
Bearing | Two ball bearings
Housing | WST P4-I25004K | cr equivalence
Terminal | WST I25004PS-2 | cr equivalence
Tube | N/A
Label | ø26mm Material: PET | Protechnic
Speed Vs duty cycle | Duty cycle(%) | 100% | 50% | 0%
Speed (R.P.M.) | 5,500±10% | 3,787±10% | 400±250
1.組裝到成品上以后100%duty上限可放到6400R.P.M
2.測試時間>2秒
64±0.1
59.5±0.1
59±0.1
40±0.1
19±0.15
5±0.1
0.5±0.05
13.75±0.15
11±0.1
17.5±0.1
34±0.1
45±0.1
47.75±0.1
51.5±0.1
Ø6.8
Label
12.2±0.2
10.0±0.1
Milky Yellow
Pin1:Black(-)
Pin2:Red(+)
Pin3:Yellow(FG)
Pin4:Blue(PWM)
UL 1061 AWG26#
90±10
69±0.5
Sink Ø5.7 Dep5.0
69±0.5
2-3.2±0.3
Dual Ball Bearing
Cooler Master Engineering
Patented 2006
70X70 m.m
DC BRUSHLESS FAN
Unit
mm
PROTECHNIC ELECTRIC CO.,LTD.
R-RD-046R1.3-4/4

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

CERTIFICATE

No. B 10 11 31023 083

Holder of Certificate: **Protechnic Electric Co., Ltd.**
Longquan Industrial,
Xijiuwei Management Region, Liaobu Town,
523410 Dongguan City, Guangdong
PEOPLE'S REPUBLIC OF CHINA

Certification Mark:

Product: **Component fan**

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed on the product. It is not permitted to alter the certification mark in any way. In addition the certification holder must not transfer the certificate to third parties. See also notes overleaf.

Test report no.: 6121010139001

Date, 2010-11-04 (Bill Lin)

Page 1 of 4

A1 / 12.09

TÜV SÜD Product Service GmbH · Zertifizierstelle · Ridlerstraße 65 · 80339 München · Germany

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

CERTIFICATE
No. B 10 11 31023 083

Model(s):

MG(a)50(c)(d)(e)-(f)10, MG(a)50(c)(d)(e)-(f)15, MG(a)50(c)(d)(e)-(f)20, MG(a)60(c)(d)(e)-(f)10, MG(a)60(c)(d)(e)-(f)15, MG(a)60(c)(d)(e)-(f)20, MG(a)60(c)(d)(e)-(f)25, MG(a)60(c)(d)(e)-(f)38, MG(a)70(c)(d)(e)-(f)15, MG(a)70(c)(d)(e)-(f)20, MG(a)70(c)(d)(e)-(f)25
Please see attachment for details

Parameters:

Rated input voltage:	5, 12, 24 or 48 Vdc
Rated input current:	See attachment
Protection class:	III
Max. ambient temperature:	50 °C
Degree of protection against ingress of liquids:	Ordinary

Remark: When installing, all requirements of below mentioned test standards must be fulfilled.

Tested according to: EN 60950-1/A1:2010

Production Facility(ies): 31023, 47634

Page 2 of 4 Bill Li

A1 / 12.09

TÜV SÜD Product Service GmbH · Zertifizierstelle · Ridlerstraße 65 · 80339 München · Germany TÜV®

Attachment to the Certificate No. B 10 11 31023 083

Taiwan

The following models of Component Fan "MG(a)50(c)(d)(e)-(f)10, MG(a)50(c)(d)(e)-(f)15, MG(a)50(c)(d)(e)-(f)20, MG(a)60(c)(d)(e)-(f)10, MG(a)60(c)(d)(e)-(f)15, MG(a)60(c)(d)(e)-(f)20, MG(a)60(c)(d)(e)-(f)25, MG(a)60(c)(d)(e)-(f)38, MG(a)70(c)(d)(e)-(f)15, MG(a)70(c)(d)(e)-(f)20, MG(a)70(c)(d)(e)-(f)25" will be covered by above certificate:

Model-#	DC Ratings		Model-#	DC Ratings	
MG(a)5005L(e)-(f)10	5V	0.11A	MG(a)6024L(e)-(f)10	24V	0.08A
MG(a)5005M(e)-(f)10	5V	0.18A	MG(a)6024M(e)-(f)10	24V	0.11A
MG(a)5005H(e)-(f)10	5V	0.26A	MG(a)6024H(e)-(f)10	24V	0.13A
MG(a)5005X(e)-(f)10	5V	0.35A	MG(a)6024X(e)-(f)10	24V	0.19A
MG(a)5005L(e)-(f)15	5V	0.17A	MG(a)6024L(e)-(f)15	24V	0.10A
MG(a)5005M(e)-(f)15	5V	0.25A	MG(a)6024M(e)-(f)15	24V	0.13A
MG(a)5005H(e)-(f)15	5V	0.33A	MG(a)6024H(e)-(f)15	24V	0.16A
MG(a)5005X(e)-(f)15	5V	0.5A	MG(a)6024X(e)-(f)15	24V	0.21A
			MG(a)6024Y(e)-(f)15	24V	0.26A
MG(a)5012L(e)-(f)10	12V	0.08A			
MG(a)5012M(e)-(f)10	12V	0.10A	MG(a)6024L(e)-(f)20	24V	0.10A
MG(a)5012H(e)-(f)10	12V	0.12A	MG(a)6024M(e)-(f)20	24V	0.12A
MG(a)5012X(e)-(f)10	12V	0.19A	MG(a)6024H(e)-(f)20	24V	0.15A
			MG(a)6024X(e)-(f)20	24V	0.17A
MG(a)5012L(e)-(f)15	12V	0.07A	MG(a)6024Y(e)-(f)20	24V	0.19A
MG(a)5012M(e)-(f)15	12V	0.10A	MG(a)6024Z(e)-(f)20	24V	0.22A
MG(a)5012H(e)-(f)15	12V	0.14A			
MG(a)5012X(e)-(f)15	12V	0.20A	MG(a)6024L(e)-(f)25	24V	0.09A
MG(a)5012Y(e)-(f)15	12V	0.26A	MG(a)6024M(e)-(f)25	24V	0.12A
MG(a)5012Z(e)-(f)15	12V	0.35A	MG(a)6024H(e)-(f)25	24V	0.14A
			MG(a)6024X(e)-(f)25	24V	0.17A
MG(a)5024L(e)-(f)15	24V	0.08A	MG(a)6024Y(e)-(f)25	24V	0.20A
MG(a)5024M(e)-(f)15	24V	0.10A	MG(a)6024Z(e)-(f)25	24V	0.22A
MG(a)5024H(e)-(f)15	24V	0.13A	MG(a)6024U(e)-(f)25	24V	0.29A
MG(a)5024X(e)-(f)15	24V	0.16A	MG(a)6024V(e)-(f)25	24V	0.55A
MG(a)5024Y(e)-(f)15	24V	0.20A	MG(a)6024P(e)-(f)25	24V	1.0A
MG(a)5024Z(e)-(f)15	24V	0.25A			
			MG(a)6024L(e)-(f)38	24V	0.18A
MG(a)5012L(e)-(f)20	12V	0.09A	MG(a)6024M(e)-(f)38	24V	0.25A
MG(a)5012M(e)-(f)20	12V	0.12A	MG(a)6024H(e)-(f)38	24V	0.38A
MG(a)5012H(e)-(f)20	12V	0.18A	MG(a)6024X(e)-(f)38	24V	0.50A
MG(a)5012X(e)-(f)20	12V	0.24A	MG(a)6024Y(e)-(f)38	24V	0.60A
MG(a)5012Y(e)-(f)20	12V	0.30A	MG(a)6024Z(e)-(f)38	24V	0.75A
MG(a)5012Z(e)-(f)20	12V	0.40A	MG(a)6024U(e)-(f)38	24V	1.00A
MG(a)5012U(e)-(f)20	12V	0.50A			
			MG(a)6048L(e)-(f)38	48V	0.13A
MG(a)5024L(e)-(f)10	24V	0.07A	MG(a)6048M(e)-(f)38	48V	0.16A
MG(a)5024M(e)-(f)10	24V	0.08A	MG(a)6048H(e)-(f)38	48V	0.22A
MG(a)5024H(e)-(f)10	24V	0.09A	MG(a)6048X(e)-(f)38	48V	0.27A
MG(a)5024X(e)-(f)10	24V	0.10A	MG(a)6048Y(e)-(f)38	48V	0.36A
			MG(a)6048Z(e)-(f)38	48V	0.40A
MG(a)5024L(e)-(f)20	24V	0.06A	MG(a)6048U(e)-(f)38	48V	0.50A
MG(a)5024M(e)-(f)20	24V	0.08A			
MG(a)5024H(e)-(f)20	24V	0.10A	MG(a)7012L(e)-(f)15	12V	0.10A
MG(a)5024X(e)-(f)20	24V	0.15A	MG(a)7012M(e)-(f)15	12V	0.13A
			MG(a)7012H(e)-(f)15	12V	0.17A
MG(a)6005L(e)-(f)10	5V	0.16A	MG(a)7012X(e)-(f)15	12V	0.22A
MG(a)6005M(e)-(f)10	5V	0.25A	MG(a)7012Y(e)-(f)15	12V	0.28A
MG(a)6005H(e)-(f)10	5V	0.35A	MG(a)7012Z(e)-(f)15	12V	0.41A
			MG(a)7012U(e)-(f)15	12V	0.58A

Model Description:

MG	A	60	12	L	S	-	f	25
MG	(a)	(b)	(c)	(d)	(e)	-	(f)	(g)

(a). Electric characteristic
A = Standard 2pin
T = Frequency generation 3pin or more

(b). Fan dimension
50 = 50 x 50 mm
60 = 60 x 60 mm
70 = 70 x 70 mm

(c). Input voltage
05 = 05Vdc
12 = 12 Vdc
24 = 24 Vdc
48 = 48 Vdc

(d). Fan speed
L = Low speed
M = Medium speed
H = High speed
X = Very high speed
Y = Most high speed
Z = Extremely high speed
U = Ultra high speed
V = Super speed
P = Final high speed

(e). Bearing type
B = Two ball bearings
C = One ball & one sleeve bearing
R = Rifle bearing
S = Sleeve bearing
F = Fluid dynamic bearing

(f). Version
f = A-Z, a-z, 0-100, PWM or blank for marketing purpose

(g). Thickness of frame
10 = 10 mm
15 = 15 mm
20 = 20 mm
25 = 25 mm
38 = 38 mm
76 = 76 mm

TÜV SÜD ASIA LTD. TÜV SÜD TAIWAN

Attachment to the Certificate No. B 10 11 31023 083

Taiwan

The following models of Component Fan "MG(a)50(c)(d)(e)-(f)10, MG(a)50(c)(d)(e)-(f)15, MG(a)50(c)(d)(e)-(f)20, MG(a)60(c)(d)(e)-(f)10, MG(a)60(c)(d)(e)-(f)15, MG(a)60(c)(d)(e)-(f)20, MG(a)60(c)(d)(e)-(f)25, MG(a)60(c)(d)(e)-(f)38, MG(a)70(c)(d)(e)-(f)15, MG(a)70(c)(d)(e)-(f)20, MG(a)70(c)(d)(e)-(f)25" will be covered by above certificate:

Model-#	DC Ratings		Model-#	DC Ratings	
MG(a)6012L(e)-(f)10	12V	0.09A	MG(a)7012L(e)-(f)20	12V	0.14A
MG(a)6012M(e)-(f)10	12V	0.12A	MG(a)7012M(e)-(f)20	12V	0.19A
MG(a)6012H(e)-(f)10	12V	0.17A	MG(a)7012H(e)-(f)20	12V	0.27A
MG(a)6012X(e)-(f)10	12V	0.23A	MG(a)7012X(e)-(f)20	12V	0.36A
MG(a)6012Y(e)-(f)10	12V	0.30A	MG(a)7012Y(e)-(f)20	12V	0.43A
			MG(a)7012Z(e)-(f)20	12V	0.63A
MG(a)6012L(e)-(f)15	12V	0.12A			
MG(a)6012M(e)-(f)15	12V	0.18A	MG(a)7012L(e)-(f)25	12V	0.12A
MG(a)6012H(e)-(f)15	12V	0.23A	MG(a)7012M(e)-(f)25	12V	0.17A
MG(a)6012X(e)-(f)15	12V	0.27A	MG(a)7012H(e)-(f)25	12V	0.22A
MG(a)6012Y(e)-(f)15	12V	0.37A	MG(a)7012X(e)-(f)25	12V	0.30A
			MG(a)7012Y(e)-(f)25	12V	0.39A
MG(a)6012L(e)-(f)20	12V	0.13A	MG(a)7012Z(e)-(f)25	12V	0.43A
MG(a)6012M(e)-(f)20	12V	0.15A			
MG(a)6012H(e)-(f)20	12V	0.21A	MG(a)7024L(e)-(f)15	24V	0.10A
MG(a)6012X(e)-(f)20	12V	0.23A	MG(a)7024M(e)-(f)15	24V	0.13A
MG(a)6012Y(e)-(f)20	12V	0.27A	MG(a)7024H(e)-(f)15	24V	0.16A
MG(a)6012Z(e)-(f)20	12V	0.38A	MG(a)7024X(e)-(f)15	24V	0.18A
			MG(a)7024Y(e)-(f)15	24V	0.21A
MG(a)6012L(e)-(f)25	12V	0.11A	MG(a)7024Z(e)-(f)15	24V	0.25A
MG(a)6012M(e)-(f)25	12V	0.13A			
MG(a)6012H(e)-(f)25	12V	0.17A	MG(a)7024L(e)-(f)25	24V	0.09A
MG(a)6012X(e)-(f)25	12V	0.20A	MG(a)7024M(e)-(f)25	24V	0.11A
MG(a)6012Y(e)-(f)25	12V	0.26A	MG(a)7024H(e)-(f)25	24V	0.13A
MG(a)6012Z(e)-(f)25	12V	0.31A	MG(a)7024X(e)-(f)25	24V	0.16A
MG(a)6012U(e)-(f)25	12V	0.38A	MG(a)7024Y(e)-(f)25	24V	0.20A
MG(a)6012V(e)-(f)25	12V	0.90A	MG(a)7024Z(e)-(f)25	24V	0.25A
MG(a)6012P(e)-(f)25	12V	1.56A			
MG(a)6012L(e)-(f)38	12V	0.35A			
MG(a)6012M(e)-(f)38	12V	0.50A			
MG(a)6012H(e)-(f)38	12V	0.75A			
MG(a)6012X(e)-(f)38	12V	0.95A			
MG(a)6012Y(e)-(f)38	12V	1.20A			
MG(a)6012Z(e)-(f)38	12V	1.50A			
MG(a)6012U(e)-(f)38	12V	1.80A			
MG(a)6012X(e)-(f)76	12V	2.6A			
MG(a)6012Y(e)-(f)76	12V	3.3A			
MG(a)6012Z(e)-(f)76	12V	4.2A			
MG(a)6012U(e)-(f)76	12V	5.0A			
Where (a) may be A or T , (e) may be S, B, C, R or F (f) may be A-Z, a-z, 0-100, PWM or blank for marketing purpose					

Model Description:

MG A 60 12 L S - f 25
MG (a) (b) (c) (d) (e) - (f) (g)

(a). Electric characteristic
A = Standard 2pin
T = Frequency generation 3pin or more

(b). Fan dimension
50 = 50 x 50 mm
60 = 60 x 60 mm
70 = 70 x 70 mm

(c). Input voltage
05 = 05Vdc
12 = 12 Vdc
24 = 24 Vdc
48 = 48 Vdc

(d). Fan speed
L = Low speed
M = Medium speed
H = High speed
X = Very high speed
Y = Most high speed
Z = Extremely high speed
U = Ultra high speed
V = Super speed
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(e). Bearing type
B = Two ball bearings
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R = Rifle bearing
S = Sleeve bearing
F = Fluid dynamic bearing

(f). Version
f = A-Z, a-z, 0-100, PWM or blank for marketing purpose

(g). Thickness of frame
10 = 10 mm
15 = 15 mm
20 = 20 mm
25 = 25 mm
38 = 38 mm
76 = 76 mm

Date: 2010-11-04

TUV SUD ASIA LTD. TÜV SÜD TAIWAN

Testing Laboratory

Bill Lin

Bill Lin

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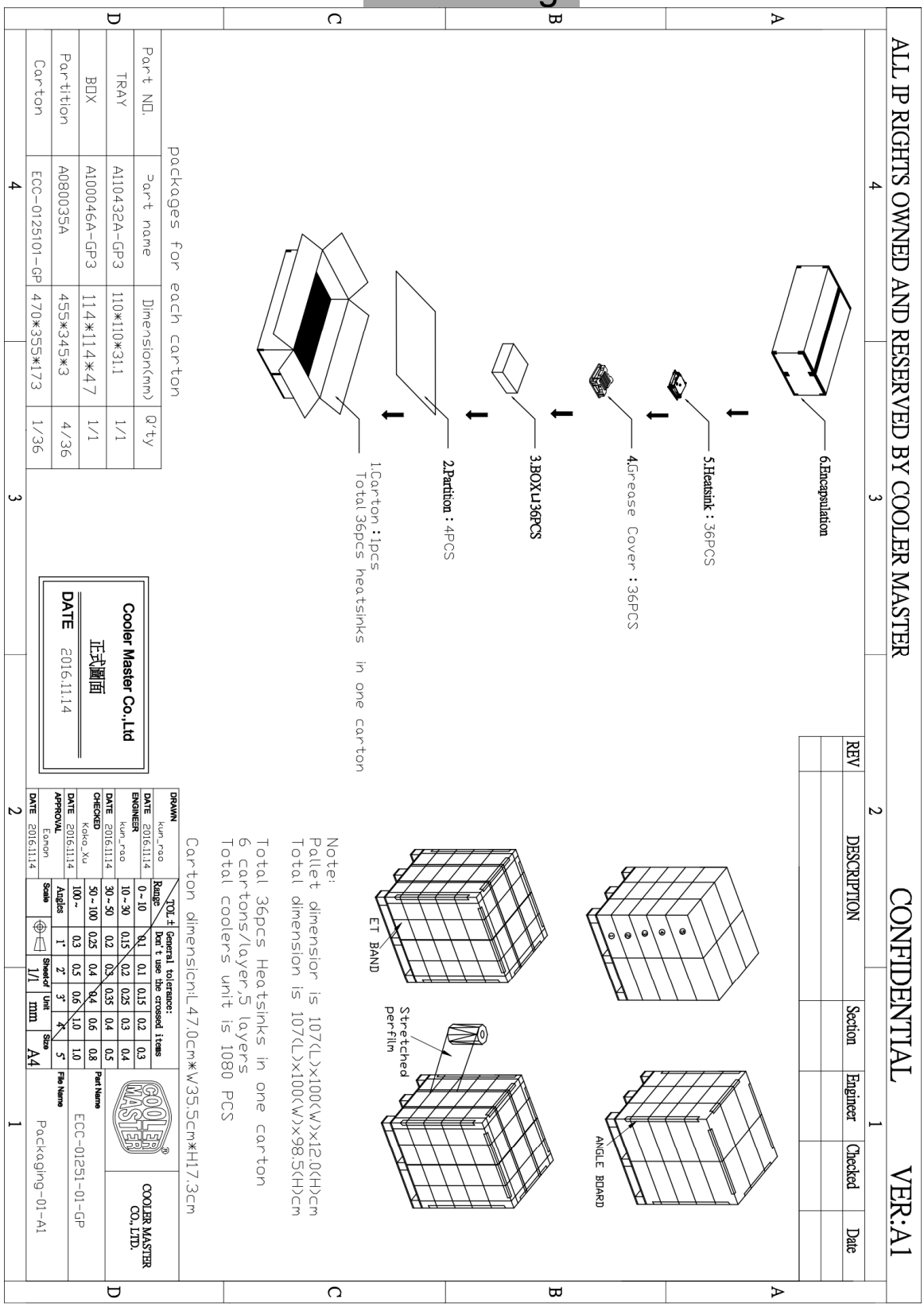
6. Packing


ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER
CONFIDENTIAL
VER:A1
REV
DESCRIPTION
Section
Engineer
Checked
Date
6.Encapsulation
5.Heatsink : 36PCS
4.Grease Cover : 36PCS
3.BOX:1 36PCS
2.Partition : 4PCS
1.Carton : 1pcs
Total 36pcs heatsinks in one carton
ANGLE BOARD
ET BAND
Stretched perfilm
Note:
Pallet dimension is 107(L)x100(W)x12.0(H)cm
Total dimension is 107(L)x100(W)x98.5(H)cm
Total 36pcs Heatsinks in one carton
6 cartons/layer,5 layers
Total coolers unit is 1080 PCS
Carton dimension:L47.0cm*W35.5cm*H17.3cm
packages for each carton
Part NO.
Part name
Dimension(mm)
Q'ty
TRAY
A110432A-GP3
110*110*31.1
1/1
BOX
A100046A-GP3
114*114*47
1/1
Partition
A080035A
455*345*3
4/36
Carton
ECC-0125101-GP
470*355*173
1/36
Cooler Master Co.,Ltd
正式圖面
DATE 2016.11.14
DRAWN
kun_rao
DATE 2016.11.14
ENGINEER
kun_rao
DATE 2016.11.14
CHECKED
Koko_Xu
DATE 2016.11.14
APPROVAL
Eamon
DATE 2016.11.14
General tolerance:
Range
TOL±
Don't use the crossed items
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
0.5
50 ~ 100
0.25
0.4
0.4
0.6
0.8
100 ~
0.3
0.5
0.6
1.0
1.0
Angles
1'
2'
3'
4'
5'
Scale
Sheet/
1/1
Unit
mm
Size
A4
COOLER MASTER CO, LTD.
Part Name
ECC-01251-01-GP
File Name
Packaging-01-A1