DELTA ELECTRONICS, INC.

# Model Name: FHS-A6025B01

## Application:

- Intel Nehalem Socket 1366 2U
- Xeon (45nm) W5500/X5500/E5500/L5500 CPU sequence

## Pictures

## Thermal & Mechanical Spec.:

- Thermal performance for 130W CPU
- HSK Assembly Weight: 590 g (ref.)
- Clipping Force: 16 Kgf (ref.)

## Component Specification:

1. Heat Sink
   Type: Cu/Al Fins + Cu Base + 4x Heatpipes
   Material: A1100/ADC12/C1100 or Equivalent.
   Dimension: 90*90*64 mm
2. Thermal interface material 2
   Material: Dow Corning TC-5630 or Equivalent.
3. Fan
   *(60x60x25 mm with PWM Control)*
   Rated Voltage: 12 V
   Life Time:
   Two ball bearing 80000 hrs
   Connector:
   a. Lead wire: UL 1061 AWG#26
      pin 1: black wire--------(-)
      pin 2: yellow wire----------(+)
      pin 3: green wire---------(F00)
      pin 4: blue wire------------(PWM)
   b. Housing: Molex 47054-1000 or equivalent
   c. Terminal: Molex 2759T 08-50-0113 or equivalent

* All readings are typical values at rated voltage.

** Specifications are subject to change without notice*


**DELTA ELECTRONICS, INC.**
252, Shang Ying Road, Kuei San
TAOYUAN SHIEN 333,
TAIWAN,R.O.C.
TEL: 886-3-3591968 EXT 2073
FAX: 886-3-3591991

**DELTA PRODUCTS CORPORATION**
4405 CUSHING PARKWAY
FREMONT, CA 94538, U.S.A.
TEL: 1-510-668-5100
FAX: 1-510-668-0680

**DELTA ELECTRONICS(JAPAN), INC.**
DELTA SHIBADAIMON BLDG.
2-1-14 SHIBADAIMON, MINATO-KU,
TOKYO, 105-0012, JAPAN
TEL: 81-3-5733-1111
FAX: 81-3-5733-1211

**DELTA ELECTRONICS EUROPE LTD.**
2 YOUNG PLACE
KELVIN INDUSTRIAL ESTATE
EAST KILBRIDE, GLASGOW G75 OTD, U.K.
TEL: 44-1355-588888
FAX: 44-1355-588889


Date: 27-Apr-07

# Delta Electronics Corp.

# APPROVAL SHEET

**Customer Name .:**

**Model Name.:** **COOLER**

**Delta Part No.:** **FHS-A6025B01**

**Customer Part No.:**

**Spec Issue Date .:** **12/31/2015**

**Spec Revision :** **02**

**PLEASE SEND ONE COPY OF THIS SPECIFICATION BACK AFTER YOU SIGNED APPROVAL FOR PRODUCTION PRE-ARRANGMENT.**

**Approved By:** _____

**Date:** _____

| Approval | Check | Designer |
|---|---|---|
| Alex-Hsia | Alex-Hsia | Charles Chen |

# Delta Electronics Corp.

| REV. | Description | Drawn | Checked | Approved | Issue Date |
|---|---|---|---|---|---|
| **00** | **ISSUE SPEC** | Skyler-Huang01/05'10 | Charles. Chen 01/05'09 | Alex-Hsia 01/05'09 | |
| **01** | 1. CHANGE THE FAN P/N FROM 3620927211 TO 3620936511<br>2. CHANGE THE FAN LABEL P/N FROM 3266487800 TO 3266800100<br>3. MODIFY THE HEATPIPE P/N<br>4. CHANGE SCREW P/N FROM 3105464700 TO 3534205600<br>5. CORRECT THE CARTON SIZE | Skyler-Huang07/24'13 | Charles. Chen 07/24'13 | Charles. Chen 07/24'13 | |
| 02 | Change TIM from TC-1996 to TC-5630 | Charles. Chen 12/31'15 | Alex-Hsia 12/31'15 | Alex-Hsia 12/31'15 | |
| | | | | | |

| | | |
|---|---|---|
| Description: SAMPLE REVISION CODE LIST | | |
| Part No. | | REV |
| DELTA MODEL : FHS-A6025B01 | TOTAL 33 PAGE | 02 |

Delta Electronics Corp.

# CONTENTS

# Delta Electronics Corp.

# 1. SPECIFICATION

## Characters

| Item | Description |
|---|---|
| Scope | THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THE FAN HEATSINK |
| Application | INTEL CPU COOLER |
| Specification | |
| a: Thermal Resistance | 0.199 (℃/W) (REF.) |
| b: total weight | 590g (REF.) |
| c: clip force | 16 kgf (REF.) |

## BOM

| Item | Part Name | Material | Part NO. | Q'TY | Remark |
|---|---|---|---|---|---|
| 1 | COVER | PC | 3321021400 | 1 | |
| 2 | FAN | PBT | 3620936511 | 1 | |
| 3 | HEATSINK | AL1050&CU1100 | 3346397100 | 1 | |
| 4 | HEATPIPE | CU C1020 | 3460037000<br>3460037600<br>3460037700<br>3460037800 | 4 | |
| 5 | SCREW | SUS | 3534205600 | 4 | |
| 6 | TIM | DOW TC-5630 | 4021107300 | 0.2 g | Rev02 |
| 7 | SPRING | SWAP | 3461809700 | 4 | |
| 8 | CU BASE | CU1100 | 3346397300 | 1 | |
| 9 | AL BASE | ADC12 | 3346397200 | 1 | |
| 10 | FAN SCREW | SUS | 3109182300 | 2 | |
| 11 | E-CLIP | S20C | 3110262800 | 4 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

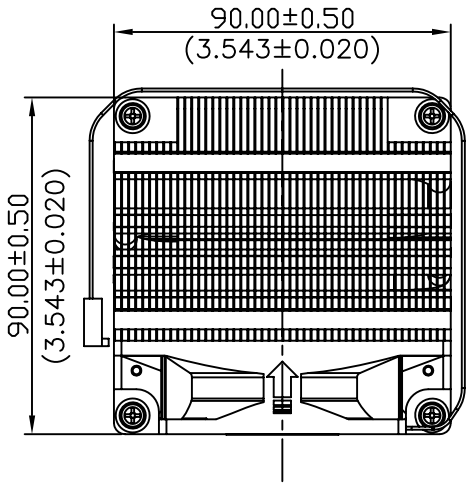
# 2. PRINT

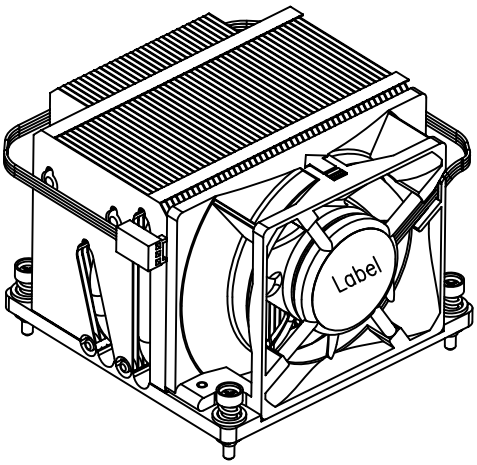
## Assembly Drawing

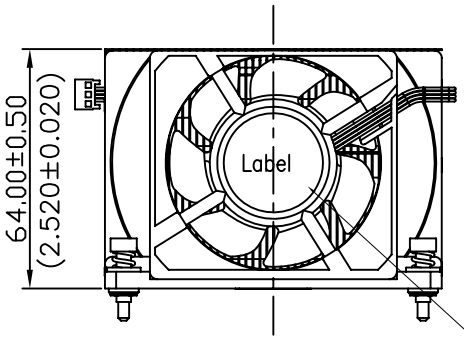
## Parts Drawing

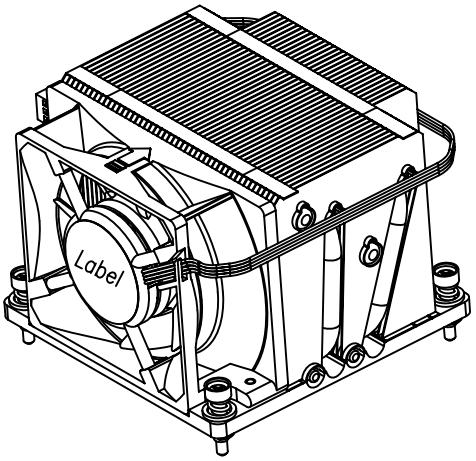
DRAWING:

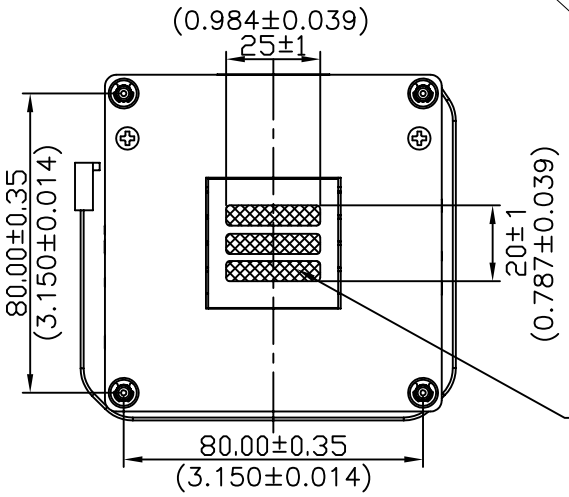
UNIT: mm (INCH)




FAN LABEL P/N:~~3266487800~~
1 3266800100

2 Dow Corning TC-5630 P/N:4021107300

TIM WEIGHT ON HSK MUST BE 200mg±30mg

台達電子工業股份有限公司
DELTA ELECTRONICS, INC.



DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | ( ) | | ( ) | | ( ) | |
|---|---|---|---|---|---|---|---|
| <30 | ±0.25 | DECIMALS | | UP~100 | ±0.2 | 250~300 | ±0.4 | UP~600 | ±1.5 |
| >30~100 | ±0.35 | X | ±0.3 | 100~150 | ±0.25 | 300~350 | ±0.45 | 600~900 | ±2.4 |
| >100~300 | ±0.5 | X.X | ±0.2 | 150~200 | ±0.3 | 350~400 | ±0.5 | 900~OVER | ±3.1 |
| ABOVE 300 | ±0.6 | X.XX | ±0.1 | 200~250 | ±0.35 | | | | |

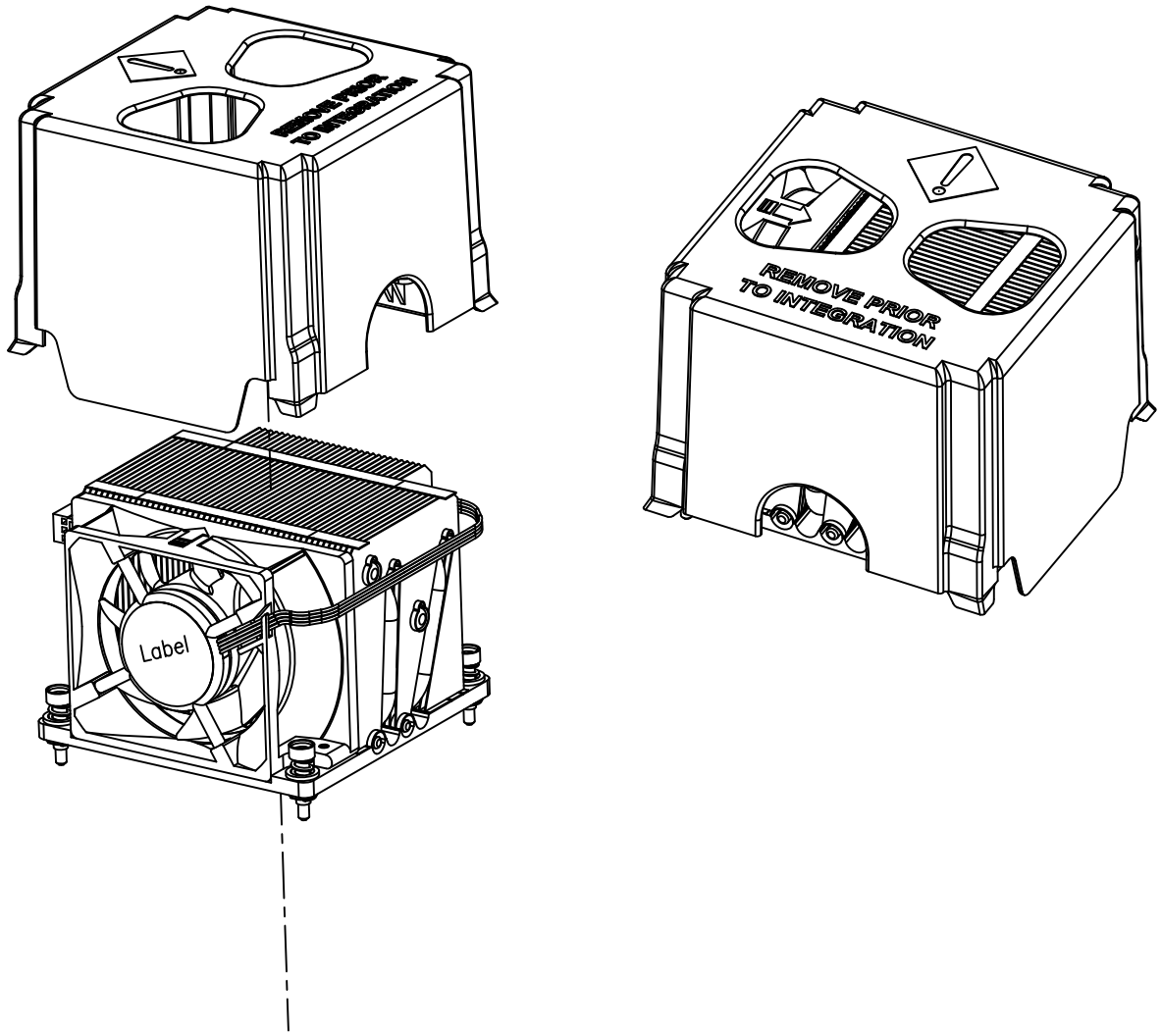
| SCALE | --- | UNIT | --- | USED ON | COOLER |
|---|---|---|---|---|---|

| | | |
|---|---|---|
| DELTA MODEL: FHS-A6025B01 | Drawn: Charles Chen | |
| CUSTOMER NAME: ------- | | |
| CUSTOMER P/N: ------- | | |
| THIRD ANGLE PROJECTION | Description: PRODUCTION SPEC. (PHYSICAL DIMENSION) | |
| A4 SIZE | Part No. FHS-A6025B01-PD | REV. 02 |
| | SHEET 1 OF 2 | ISSUE DATE: |

FRAME NAME : DF-PSLA4V-3R01.DWG

DRAWING:

UNIT: mm / (INCH)




台達電子工業股份有限公司
DELTA ELECTRONICS, INC.

DELTA MODEL: FHS-A6025B01

Drawn: Charles Chen



CUSTOMER NAME: -------

CUSTOMER P/N: -------

DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | DECIMALS | | ( ) | | | | ( ) | |
|---|---|---|---|---|---|---|---|---|---|
| <30 | :±0.25 | X | :±0.3 | UP~100 | :±0.2 | 250~300 | :±0.4 | UP~600 | :±1.5 |
| >30~100 | :±0.35 | X.X | :±0.2 | 100~150 | :±0.25 | 300~350 | :±0.45 | 600~900 | :±2.4 |
| >100~300 | :±0.5 | X.XX | :±0.1 | 150~200 | :±0.3 | 350~400 | :±0.5 | 900~OVER | :±3.1 |
| ABOVE 300 | :±0.6 | | | 200~250 | :±0.35 | | | | |

THIRD ANGLE PROJECTION

Description: PRODUCTION SPEC. (PHYSICAL DIMENSION)

A4 SIZE

Part No. FHS-A6025B01-PD

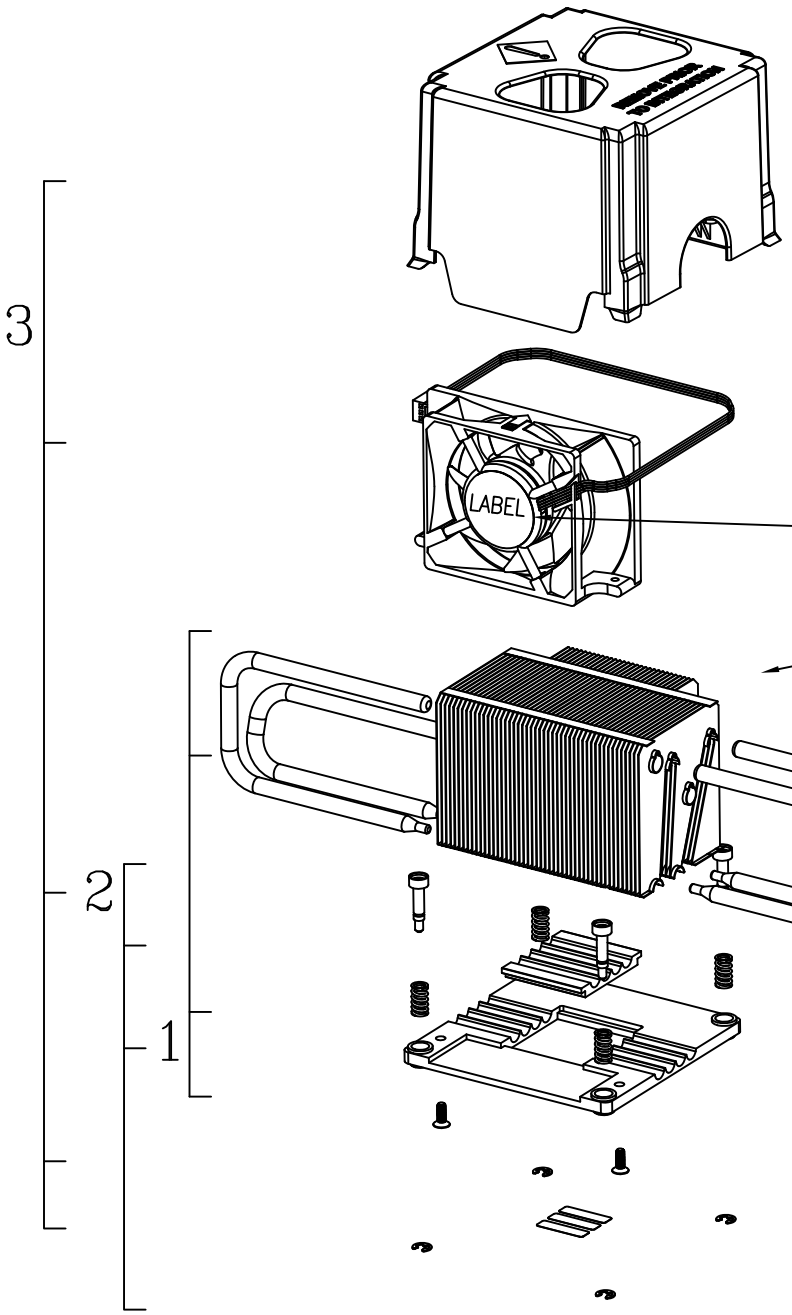
REV. 02

SCALE --- | UNIT --- | USED ON COOLER

SHEET 2 OF 2

ISSUE DATE:

FRAME NAME : DF-PSLA4V-3R01.DWG




COVER
3321021400

FAN ASSY
⚠1 ~~3620927211~~
3620936511

FAN LABEL
⚠3266800100

FIN
3346397100

HEATPIPE (4X)
~~3460094500~~ ~ ~~3460094800~~
⚠1 3460037000
3460037600
3460037700
3460037800

SCREW (4X)
~~3105464700~~
⚠1 3534205600

SPRING(4X)
3461809700

CU BASE
3346397300

AL BASE
3346397200

FAN SCREW(2X)
3109182300

TC-5630 ⚠2
4021107300

E CLIP(4X)
3110262800

台達電子工業股份有限公司
DELTA ELECTRONICS, INC.

DELTA MODEL: FHS-A6025B01

Drawn: Charles Chen



CUSTOMER NAME: -------

CUSTOMER P/N: -------

DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | ( ) | | ( ) | | | | ( ) | |
|---|---|---|---|---|---|---|---|---|---|
| <30 | :±0.25 | DECIMALS | | UP~100 | :±0.2 | 250~300 | :±0.4 | UP~600 | :±1.5 |
| >30~100 | :±0.35 | X | :±0.3 | 100~150 | :±0.25 | 300~350 | :±0.45 | 600~900 | :±2.4 |
| >100~300 | :±0.5 | X.X | :±0.2 | 150~200 | :±0.3 | 350~400 | :±0.5 | 900~OVER | :±3.1 |
| ABOVE 300 | :±0.6 | X.XX | :±0.1 | 200~250 | :±0.35 | | | | |

THIRD ANGLE PROJECTION

Description: PRODUCTION SPEC. (ASSEMBLY ORDER)

A4 SIZE

Part No. FHS-A6025B01-AS

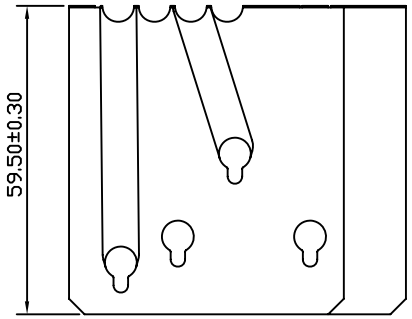
REV. 02

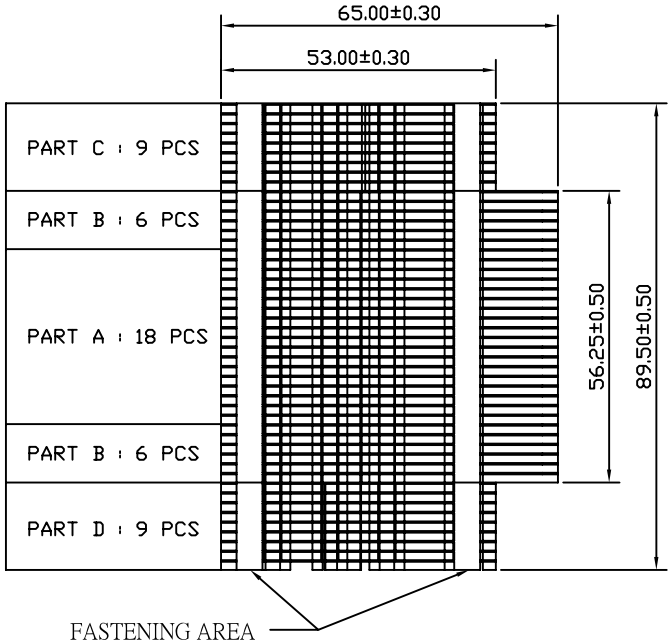
| SCALE | --- | UNIT | --- | USED ON | COOLER |
|---|---|---|---|---|---|

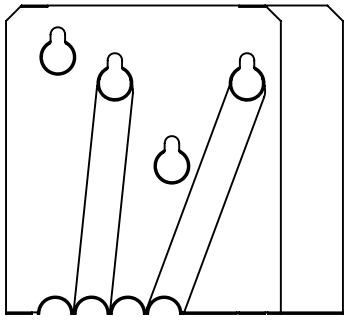
SHEET 1 OF 1

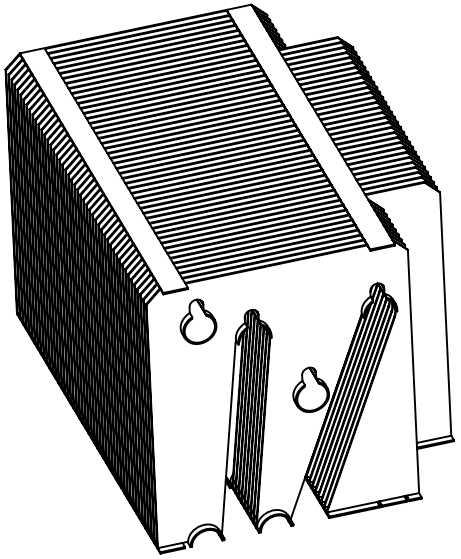
ISSUE DATE:

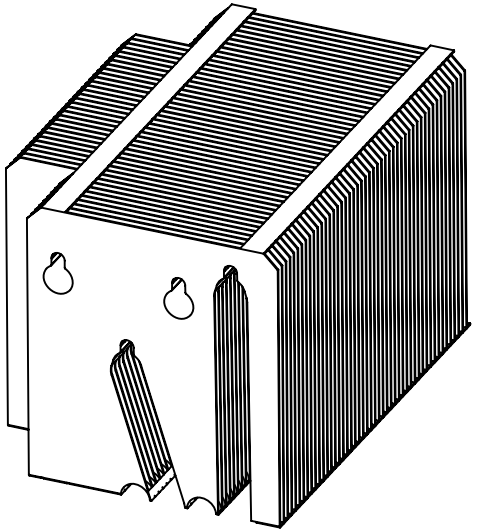
FRAME NAME : DF-PSLA4V-3R01.DWG







*1.SAMPLE TO BE SUBMITTED FOR DELTA ENGINEERING APPROVAL. PRODUCTION TO BE IN ACCORDANCE WITH APPROVAL SAMPLE.
*2.REMOVE ALL BURRS AND SHARP EDGES. SURFACE TO BE FREE FROM CONTAMINANTS.
*3.DEGREASED PART SHOULD BE FREE OF LOOSE PARTICLE.
*4.UNDEFINED RADII IS SMALLER THAN 0.5R UNLESS OTHERWISE SPECIFIED.

台達電子工業股份有限公司
DELTA ELECTRONICS, INC.



THIRD ANGLE PROJECTION

DIMENSIONAL TOLERANCES (  )  HOLES : ±0.05  ANGLES : ±0.5°

| ( ) | | (√) | | ( ) | | ( ) | |
|---|---|---|---|---|---|---|---|
| <30 | ±0.25 | DECIMALS | | UP~100 | ±0.2 | 250~300 | ±0.4 | UP~600 | ±1.5 |
| >30~100 | ±0.35 | X | ±0.5 | 100~150 | ±0.25 | 300~350 | ±0.45 | 600~900 | ±2.4 |
| >100~300 | ±0.5 | X.X | ±0.4 | 150~200 | ±0.3 | 350~400 | ±0.5 | 900~OVER | ±3.1 |
| ABOVE 300 | ±0.6 | X.XX | ±0.3 | 200~250 | ±0.35 | | | | |

| SCALE | 1/1 | UNIT | mm | USED ON | COOLER |
|---|---|---|---|---|---|

A3 SIZE

Drawn: Skyler Huang

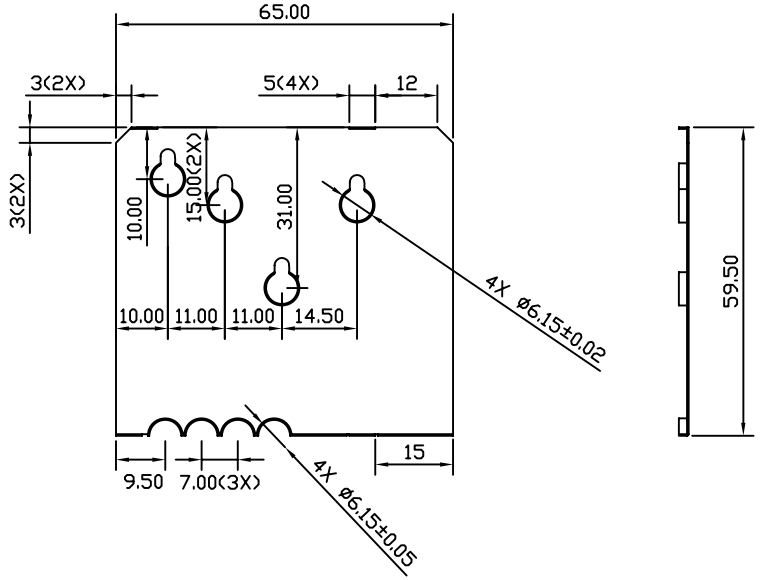
DESCRIPTION: HEATSINK

PART NO.: 3346397100

REV. --

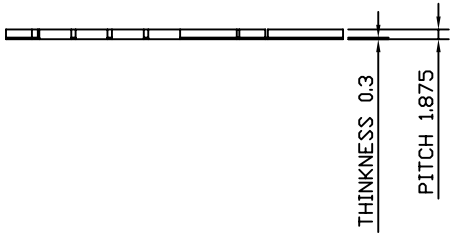
SHEET 1 OF 5

DF-ME3H-4R00










# PART A

NOTES:

*1.MATERIAL:C1100,THICKNESS 0.3±0.05 MM
FINISH:NICKEL-PLATING

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DELTA ELECTRONICS, INC.



THIRD ANGLE PROJECTION

DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | (√) | | ( ) | | ( ) | |
|---|---|---|---|---|---|---|---|
| <30 | ±0.25 | DECIMALS | | UP~100 | ±0.2 | 250~300 | ±0.4 | UP~600 | ±1.5 |
| >30~100 | ±0.35 | X | ±0.5 | 100~150 | ±0.25 | 300~350 | ±0.45 | 600~900 | ±2.4 |
| >100~300 | ±0.5 | X.X | ±0.4 | 150~200 | ±0.3 | 350~400 | ±0.5 | 900~OVER | ±3.1 |
| ABOVE 300 | ±0.6 | X.XX | ±0.3 | 200~250 | ±0.35 | | | | |

| SCALE | 1/1 | UNIT | mm | USED ON | COOLER |
|---|---|---|---|---|---|

A3 SIZE

Drawn: Skyler Huang

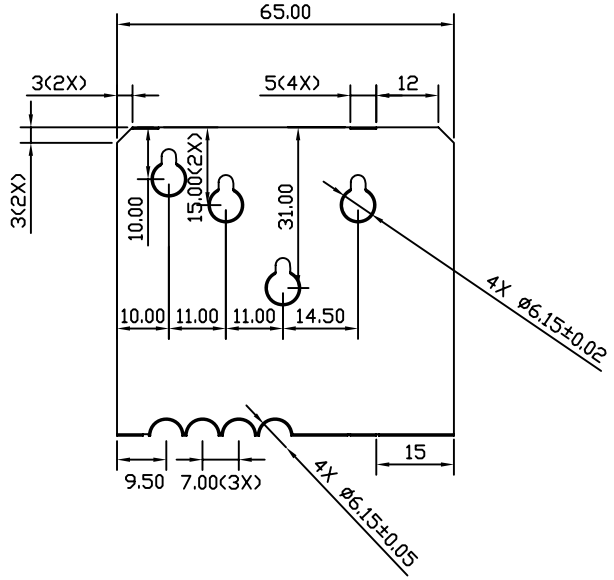
DESCRIPTION: HEATSINK

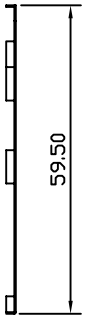
PART NO.: 3346397100

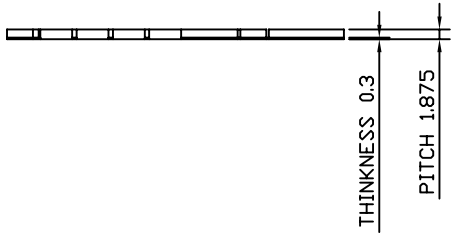
REV.: --

SHEET 2 OF 5

DF-ME3H-4R00




# PART B

NOTES:

*1.MATERIAL:ALUMINUM AL1050 OR AL1100,THICKNESS 0.3±0.05 MM
FINISH:NICKEL-PLATING

台達電子工業股份有限公司
DELTA ELECTRONICS, INC.



THIRD ANGLE PROJECTION

DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | (√) | | ( ) | | ( ) | |
|---|---|---|---|---|---|---|---|
| <30 | ±0.25 | DECIMALS | | UP~100 | ±0.2 | 250~300 | ±0.4 | UP~600 | ±1.5 |
| >30~100 | ±0.35 | X | ±0.5 | 100~150 | ±0.25 | 300~350 | ±0.45 | 600~900 | ±2.4 |
| >100~300 | ±0.5 | X.X | ±0.4 | 150~200 | ±0.3 | 350~400 | ±0.5 | 900~OVER | ±3.1 |
| ABOVE 300 | ±0.6 | X.XX | ±0.3 | 200~250 | ±0.35 | | | | |

| SCALE | 1/1 | UNIT | mm | USED ON | COOLER |
|---|---|---|---|---|---|

A3 SIZE

Drawn: Skyler Huang

DESCRIPTION: HEATSINK

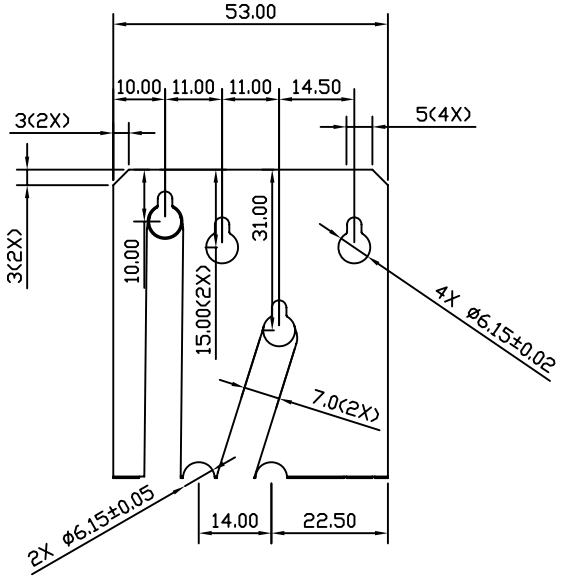
PART NO.: 3346397100

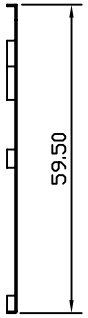
REV. --

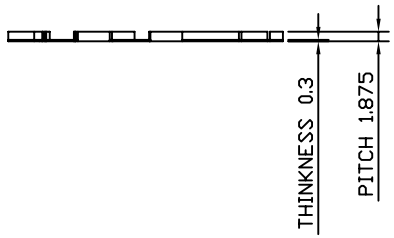
SHEET 3 OF 5

DF-MEA3H-4R00

# PART C




NOTES:

*1.MATERIAL:ALUMINUM AL1050 OR AL1100,THICKNESS 0.3±0.05 MM
FINISH:NICKEL-PLATING

台達電子工業股份有限公司
DELTA ELECTRONICS, INC.



THIRD ANGLE PROJECTION

DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | ( ) | | ( ) | | ( ) | |
|---|---|---|---|---|---|---|---|
| <30 | ±0.25 | DECIMALS | | UP~100 | ±0.2 | 250~300 | ±0.4 | UP~600 | ±1.5 |
| >30~100 | ±0.35 | X | ±0.5 | 100~150 | ±0.25 | 300~350 | ±0.45 | 600~900 | ±2.4 |
| >100~300 | ±0.5 | X.X | ±0.4 | 150~200 | ±0.3 | 350~400 | ±0.5 | 900~OVER | ±3.1 |
| ABOVE 300 | ±0.6 | X.XX | ±0.3 | 200~250 | ±0.35 | | | | |

| SCALE | 1/1 | UNIT | mm | USED ON | COOLER |
|---|---|---|---|---|---|

A3 SIZE

Drawn: Skyler Huang

DESCRIPTION: HEATSINK

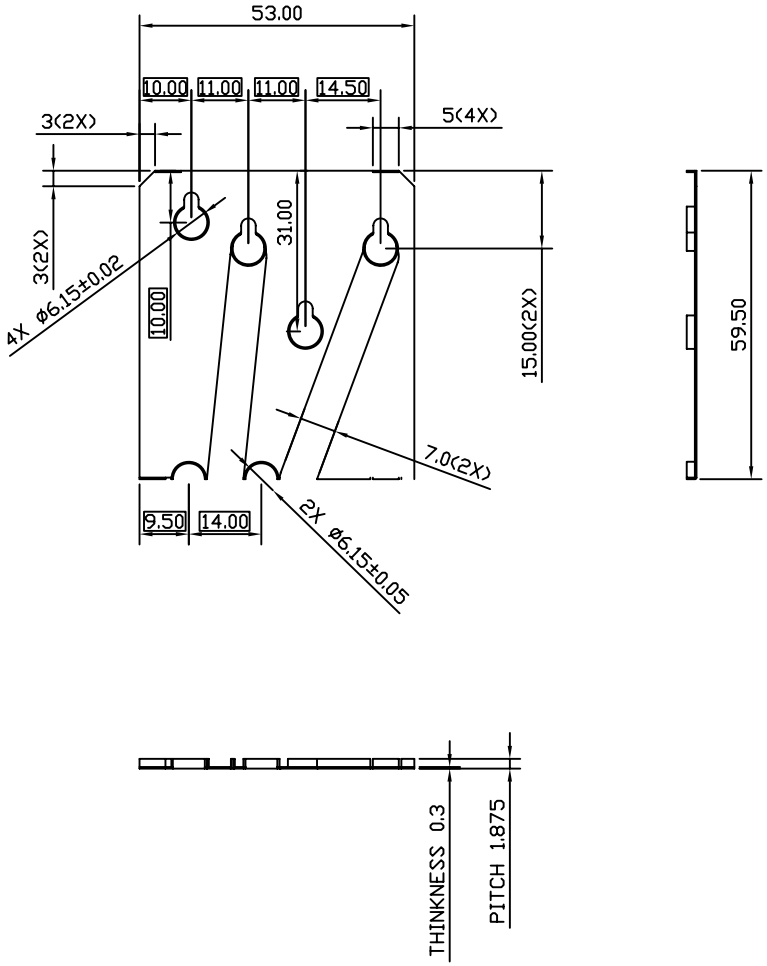
PART NO.: 3346397100

REV.: --

SHEET 4 OF 5

DF-MEA3H-4R00

# PART D




NOTES:

*1.MATERIAL:ALUMINUM AL1050 OR AL1100,THICKNESS 0.3±0.05 MM
FINISH:NICKEL-PLATING

台達電子工業股份有限公司
DELTA ELECTRONICS, INC.



THIRD ANGLE PROJECTION

DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | (✓) | | ( ) | | ( ) | |
|---|---|---|---|---|---|---|---|
| <30 | ±0.25 | DECIMALS | | UP~100 | ±0.2 | 250~300 | ±0.4 | UP~600 | ±1.5 |
| >30~100 | ±0.35 | X | ±0.5 | 100~150 | ±0.25 | 300~350 | ±0.45 | 600~900 | ±2.4 |
| >100~300 | ±0.5 | X.X | ±0.4 | 150~200 | ±0.3 | 350~400 | ±0.5 | 900~OVER | ±3.1 |
| ABOVE 300 | ±0.6 | X.XX | ±0.3 | 200~250 | ±0.35 | | | | |

| SCALE | 1/1 | UNIT | mm | USED ON | COOLER |
|---|---|---|---|---|---|

A3 SIZE

Drawn: Skyler Huang

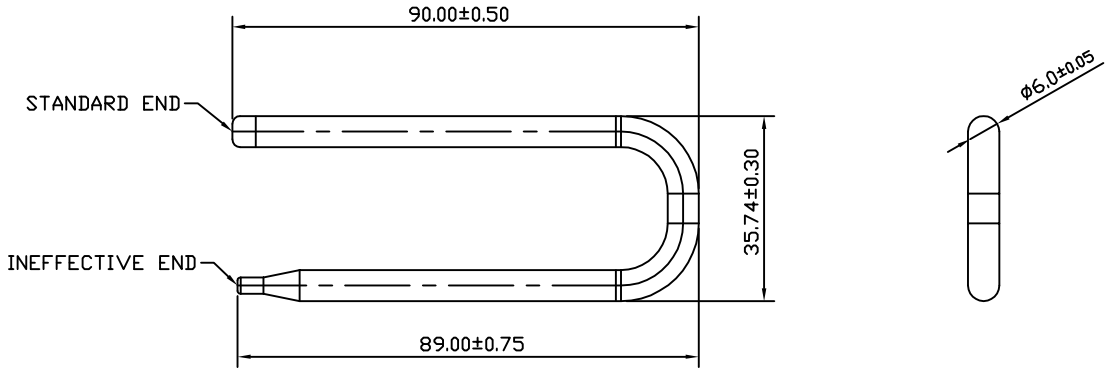
DESCRIPTION: HEATSINK

PART NO.: 3346397100

REV.: --

SHEET 5 OF 5

DF-MEA3H-4R00




NOTES:

1.MATERIAL OF CONTAINER:$\phi$6mm OFHC(C1020),
FINISH:NONE

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DELTA ELECTRONICS, INC.



THIRD ANGLE PROJECTION

DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | (V) | | ( ) | | | | ( ) | |
|---|---|---|---|---|---|---|---|---|---|
| <30 | ±0.25 | DECIMALS | | UP~100 | ±0.2 | 250~300 | ±0.4 | UP~600 | ±1.5 |
| >30~100 | ±0.35 | X | ±0.3 | 100~150 | ±0.25 | 300~350 | ±0.45 | 600~900 | ±2.4 |
| >100~300 | ±0.5 | X.X | ±0.2 | 150~200 | ±0.3 | 350~400 | ±0.5 | 900~OVER | ±3.1 |
| ABOVE 300 | ±0.6 | X.XX | ±0.1 | 200~250 | ±0.35 | | | | |

| SCALE | | UNIT | | USED ON | |
|---|---|---|---|---|---|

A3 SIZE

Drawn: Skyler Huang

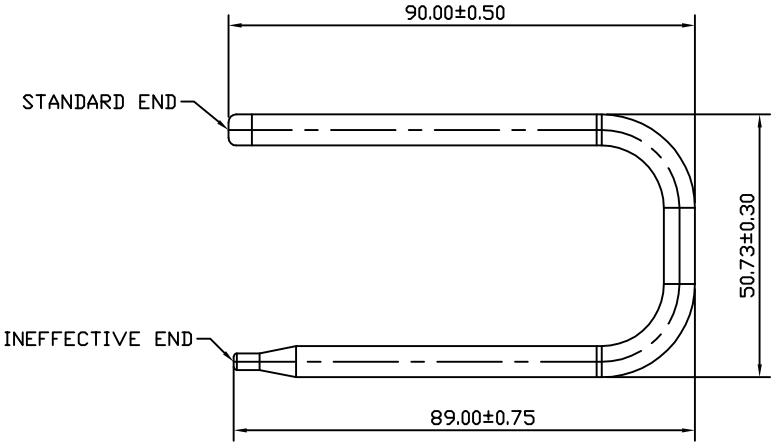
DESCRIPTION: HEATPIPE

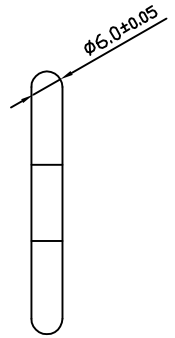
PART NO.: 3460037000

REV. 00

SHEET 1 OF 1

FRAME NAME : DF-MEA3H-4R01.DWG




NOTES:

1.MATERIAL OF CONTAINER:$\phi$6mm OFHC(C1020),
FINISH:NONE

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THIRD ANGLE PROJECTION

DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | (V) | | ( ) | | | | ( ) | |
|---|---|---|---|---|---|---|---|---|---|
| <30 | ±0.25 | DECIMALS | | UP~100 | ±0.2 | 250~300 | ±0.4 | UP~600 | ±1.5 |
| >30~100 | ±0.35 | X | ±0.3 | 100~150 | ±0.25 | 300~350 | ±0.45 | 600~900 | ±2.4 |
| >100~300 | ±0.5 | X.X | ±0.2 | 150~200 | ±0.3 | 350~400 | ±0.5 | 900~OVER | ±3.1 |
| ABOVE 300 | ±0.6 | X.XX | ±0.1 | 200~250 | ±0.35 | | | | |

| SCALE | | UNIT | | USED ON | |
|---|---|---|---|---|---|

A3 SIZE

Drawn: Skyler Huang

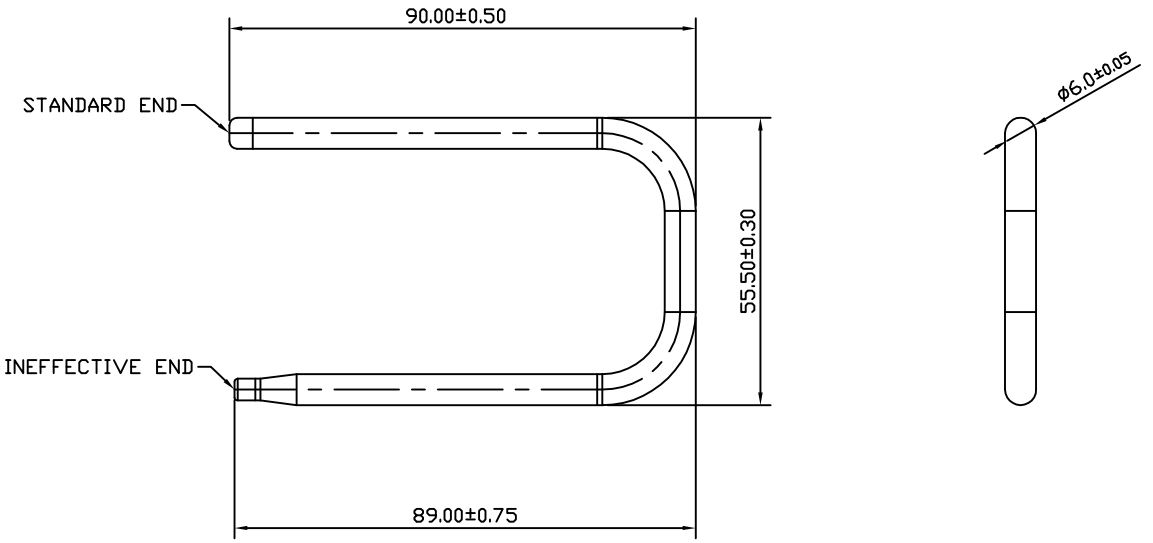
DESCRIPTION: HEATPIPE

PART NO.: 3460037600

REV. 00

SHEET 1 OF 1

FRAME NAME : DF-MEA3H-4R01.DWG




NOTES:

1.MATERIAL OF CONTAINER:$\phi$6mm OFHC(C1020),
FINISH:NONE

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DELTA ELECTRONICS, INC.



THIRD ANGLE PROJECTION

DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | (V) | | ( ) | | | | ( ) | |
|---|---|---|---|---|---|---|---|---|---|
| <30 | ±0.25 | DECIMALS | | UP~100 | ±0.2 | 250~300 | ±0.4 | UP~600 | ±1.5 |
| >30~100 | ±0.35 | X | ±0.3 | 100~150 | ±0.25 | 300~350 | ±0.45 | 600~900 | ±2.4 |
| >100~300 | ±0.5 | X.X | ±0.2 | 150~200 | ±0.3 | 350~400 | ±0.5 | 900~OVER | ±3.1 |
| ABOVE 300 | ±0.6 | X.XX | ±0.1 | 200~250 | ±0.35 | | | | |

SCALE | UNIT | USED ON

A3 SIZE

Drawn: Skyler Huang

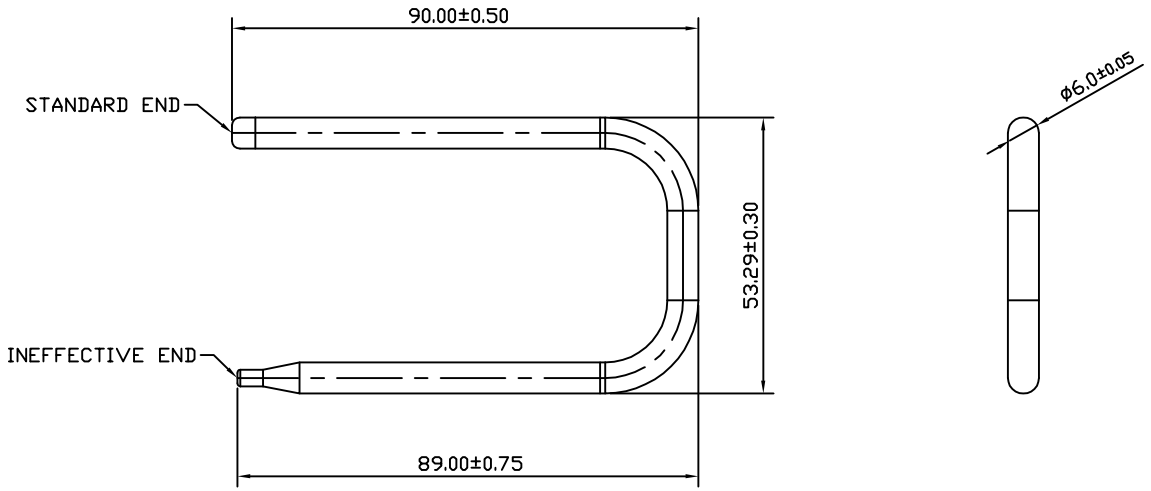
DESCRIPTION: HEATPIPE

PART NO.: 3460037700

REV. 00

SHEET 1 OF 1

FRAME NAME : DF-MEA3H-4R01.DWG




NOTES:

1.MATERIAL OF CONTAINER: 6mm OFHC(C1020),
FINISH:NONE

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THIRD ANGLE PROJECTION

DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | (V) | | ( ) | | | | ( ) | |
|---|---|---|---|---|---|---|---|---|---|
| <30 | ±0.25 | DECIMALS | | UP~100 | ±0.2 | 250~300 | ±0.4 | UP~600 | ±1.5 |
| >30~100 | ±0.35 | X | ±0.3 | 100~150 | ±0.25 | 300~350 | ±0.45 | 600~900 | ±2.4 |
| >100~300 | ±0.5 | X.X | ±0.2 | 150~200 | ±0.3 | 350~400 | ±0.5 | 900~OVER | ±3.1 |
| ABOVE 300 | ±0.6 | X.XX | ±0.1 | 200~250 | ±0.35 | | | | |

| SCALE | | UNIT | | USED ON | |
|---|---|---|---|---|---|

A3 SIZE

Drawn: Skyler Huang

DESCRIPTION: HEATPIPE

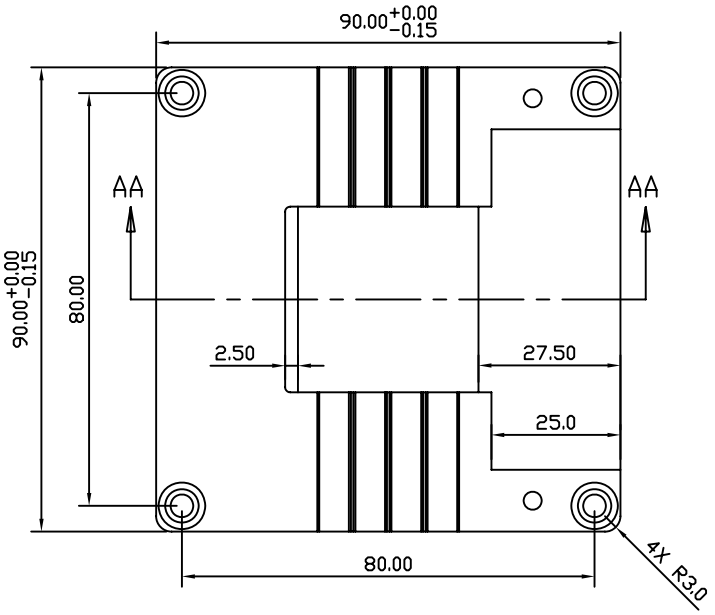
PART NO.: 3460037800

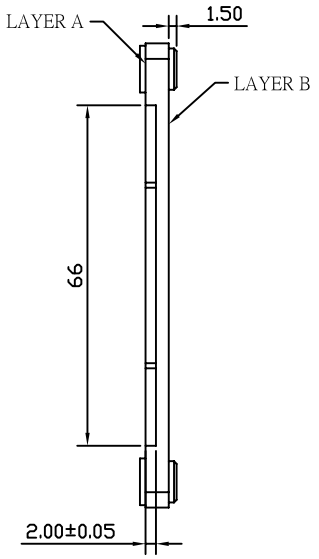
REV. 00

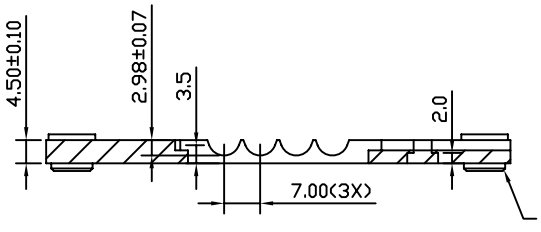
SHEET 1 OF 1

FRAME NAME : DF-MEA3H-4R01.DWG

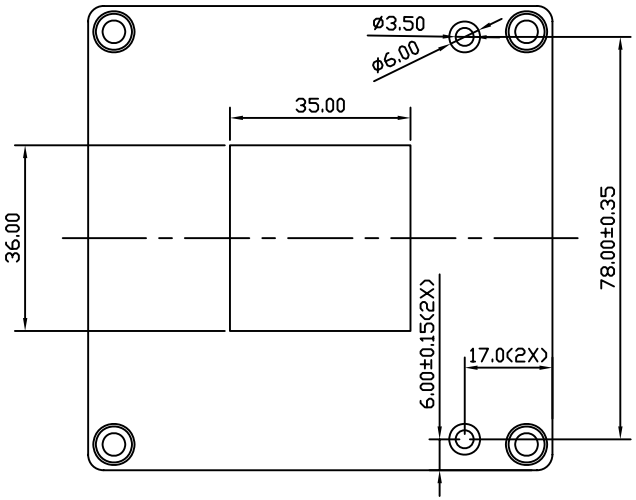
DRAWING:




SECTION AA




NOTES:
*1.MATERIAL: ADC12

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DELTA ELECTRONICS, INC.



THIRD ANGLE PROJECTION

DIMENSIONAL TOLERANCES (unless otherwise specified) HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | (✓) | | ( ) | | ( ) | |
|---|---|---|---|---|---|---|---|
| <30 | ±0.25 | DECIMALS | | UP~100 | ±0.2 | 250~300 | ±0.4 |
| >30~100 | ±0.35 | X | ±0.5 | 100~150 | ±0.25 | 300~350 | ±0.45 |
| >100~300 | ±0.5 | X.X | ±0.4 | 150~200 | ±0.3 | 350~400 | ±0.5 |
| ABOVE 300 | ±0.6 | X.XX | ±0.30 | 200~250 | ±0.35 | | |

| | | | | | |
|---|---|---|---|---|---|
| UP~600 | ±1.5 |
| 600~900 | ±2.4 |
| 900~OVER | ±3.1 |

| SCALE | 1/1 | UNIT | mm | USED ON | COOLER |
|---|---|---|---|---|---|

A3 SIZE

Drawn: Skyler Huang

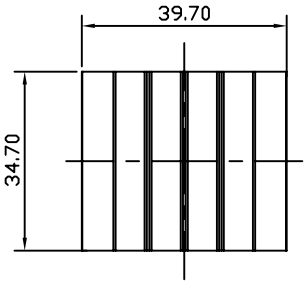
DESCRIPTION: AL BASE

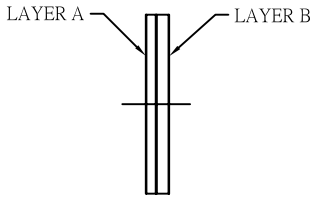
PART NO.: 3346397200

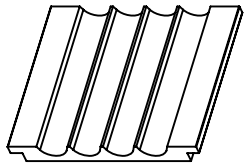
REV.: --

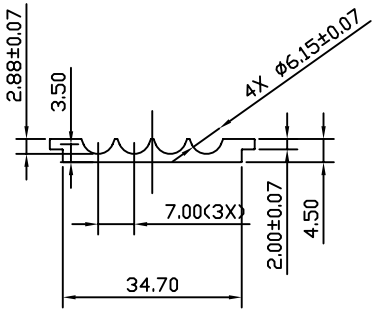
SHEET 1 OF 1

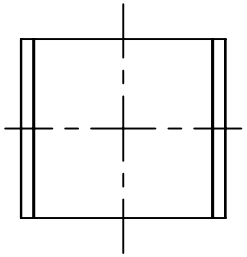
DF-MEA3H-4R00





NOTES:

*1.MATERIAL: CU C1100, MIN THERMAL CONDUCTIVITY 390 W/(m K)
THE CONDUCTIVE RATE MUST BE HIGHER THAN 95% IACS

| | | |
|---|---|---|
| 台達電子工業股份有限公司 DELTA ELECTRONICS, INC. | | Drawn: Skyler Huang |
| THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF DELTA ELECTRONICS, INC. AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SELL OF APPARATUSES OR DEVICES WITHOUT PERMISSION. | THIRD ANGLE PROJECTION | DESCRIPTION: CU BASE |
| DIMENSIONAL TOLERANCES ( ) <30 ±0.25 >30~100 ±0.35 >100~300 ±0.5 ABOVE 300:±0.6 (✓) DECIMALS X ±0.5 X.X ±0.4 X.XX±0.30 ( ) UP~100 ±0.2 100~150 ±0.25 150~200 ±0.3 200~250 ±0.35 250~300 ±0.4 300~350 ±0.45 350~400 ±0.5 ( ) UP~600 ±1.5 600~900 ±2.4 900~OVER ±3.1 HOLES : ±0.05 ANGLES : ±0.5° | A3 SIZE | PART NO.: 3346397300 REV. -- |
| SCALE 1/1 UNIT mm USED ON COOLER | | SHEET 1 OF 1 |

DF-MEA3H-4R00

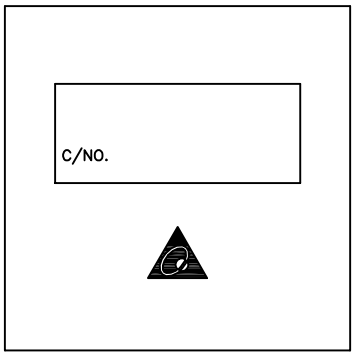
# 3. PACKING PLAN

## Packing Specification

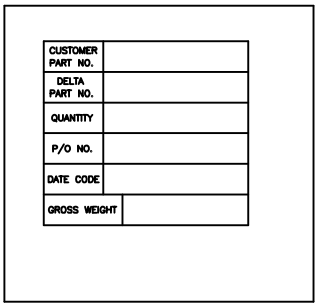
| CARTON ILLUSTRATE | SIZE | 450(L)*337(w)*196(H)(mm) ⚠ | PACKING QUANTITY | 2LAYERS/CARTON |
|---|---|---|---|---|
| | MATERIAL | 3 LAYERS"AB" FLUTE | CARTON WEIGHT | 0.62 kg (REF.) |

CARTON OUTSIDE DEMONDTRATE

FRONT

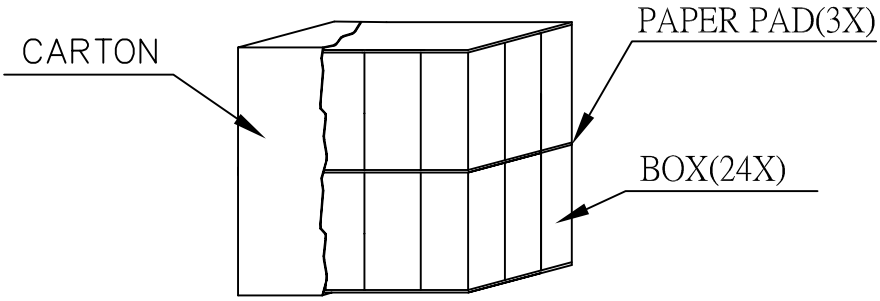



BACK




(ONE LABEL PER CARTON)

| PET TRAY PACKING ILLUSTRATE | SIZE | 104(L)*104(w)*18.5(H)(mm) | PACKING QUANTITY | 1PCS/PET TRAY |
|---|---|---|---|---|
| | MATERIAL | PET TRAY | | |
| | MATERIAL WEIGHT | 6g (REF.) | | |

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DELTA ELECTRONICS, INC.



DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | DECIMALS | ( ) | ( ) | | ( ) | |
|---|---|---|---|---|---|---|---|
| <30 | :±0.25 | X :±0.3 | UP~100 | :±0.2 | 250~300 | :±0.4 | UP~600 :±1.5 |
| >30~100 | :±0.35 | XX :±0.2 | 100~150 | :±0.25 | 300~350 | :±0.45 | 600~900 :±2.4 |
| >100~300 | :±0.5 | X.XX:±0.1 | 150~200 | :±0.3 | 350~400 | :±0.5 | 900~OVER :±3.1 |
| ABOVE 300 | :±0.6 | | 200~250 | :±0.35 | | | |

| SCALE | --- | UNIT | mm | USED ON | COOLER |
|---|---|---|---|---|---|

| DELTA MODEL: FHS-A6025B01 | Drawn: Skyler 07/24'13 |
|---|---|
| CUSTOMER NAME: ----- | |
| CUSTOMER P/N: ----- | |

THIRD ANGLE PROJECTION

Description: PRODUCTION SPEC. (PACKING ASSMEBLY)

A4 SIZE

Part No. FHS-A6025B01-PA

REV. 01

SHEET 1 OF 2 ISSUE DATE:

| | | | | |
|---|---|---|---|---|
| PART NO. | FHS-A6025B01 | | | |
| BASIC DATA | QUANTITY/CARTON | 24PCS (2 LAYERS/CARTON, 12PCS/LAYER) | | |
| | PRODUCTION NET WEIGHT | 14.2kg (REF.) | | |
| | PRODUCTION GROSS WEIGHT | 16kg (REF.) | | |
| 20(ft)CONTAINER ILLUSTRATE | SIZE | 5.889(L)*2.352(w)*2.386(H)m | PACKING QUANTITY | 20PALLETS/CONTAINER |
| | CONTAINER | STEEL | | |

CONTAINER FORM

CONTAINER LOADING MATHOD

| | | | | |
|---|---|---|---|---|
| PALLET | PALLET | PALLET | PALLET | PALLET |
| PALLET | PALLET | PALLET | PALLET | PALLET |

TOP VIEW

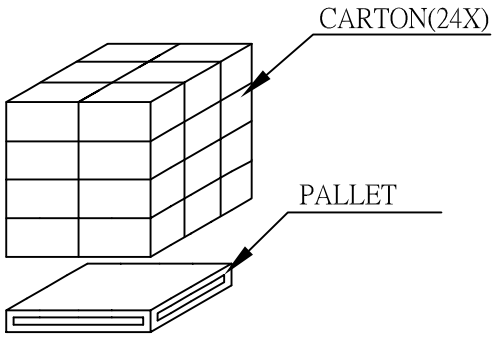
| | |
|---|---|
| PALLET | PALLET |
| PALLET | PALLET |

FRONT VIEW

| | | | | |
|---|---|---|---|---|
| PALLET LOADING ILLUSTRATE | SIZE | 117(L)*107(w)*13(H)cm | PACKING QUANTITY | 24 CARTONS/PALLET |
| | PALLET | WOOD | | |

PALLET ILLUSTRATE

PALLET LOADING MATHOD

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DELTA ELECTRONICS, INC.



DIMENSIONAL TOLERANCES HOLES : ±0.05 ANGLES : ±0.5°

| ( ) | | DECIMALS | ( ) | | ( ) | | ( ) | |
|---|---|---|---|---|---|---|---|---|
| <30 | :±0.25 | X | :±0.3 | UP~100 | :±0.2 | 250~300 | :±0.4 | UP~600 | :±1.5 |
| >30~100 | :±0.35 | XX | :±0.2 | 100~150 | :±0.25 | 300~350 | :±0.45 | 600~900 | :±2.4 |
| >100~300 | :±0.5 | X.XX | :±0.1 | 150~200 | :±0.3 | 350~400 | :±0.5 | 900~OVER | :±3.1 |
| ABOVE 300 | :±0.6 | | | 200~250 | :±0.35 | | | | |

| SCALE | --- | UNIT | mm | USED ON | COOLER |
|---|---|---|---|---|---|

| | | |
|---|---|---|
| DELTA MODEL: FHS-A6025B01 | Drawn: Skyler 07/24'13 | |
| CUSTOMER NAME: ----- | | |
| CUSTOMER P/N: ----- | | |
| THIRD ANGLE PROJECTION | Description: PRODUCTION SPEC. (PACKING ASSMEBLY) | |
| A4 SIZE | Part No. FHS-A6025B01-PA | REV. 01 |
| | SHEET 2 OF 2 | ISSUE DATE: |

# 4. FAN

## Fan Specification

# SPECIFICATION FOR APPROVAL

Customer TMPBU

Description DC FAN

Part No. 3620936511 REV.

Delta Model No. AFB0612DH-BC01 REV. 01

Sample Issue No.

Sample Issue Date AUG.13.2012

PLEASE SEND ONE COPY OF THIS SPECIFICAITON BACK AFTER YOU SIGNED APPROVAL FOR PRODUCTION PRE-ARRANGMENT.

APPROVED BY:

DATE :

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

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

# SPECIFICATION FOR APPROVAL

**********

| | | | |
|---|---|---|---|
| Customer: | TMPBU | | |
| Description: | DC FAN | | |
| Customer P/N: | 3620936511 | REV: | |
| Delta Model NO.: | AFB0612DH-BC01 | **Delta Safety Model NO: N/A** | |
| Sample Rev: | 01 | Issue NO: | |
| Sample Issue Date: | AUG.13.2012 | Quantity: | |

1. SCOPE:

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

2. CHARACTERS:

| ITEM | DESCRIPTION |
|---|---|
| RATED VOLTAGE | 12.0 VDC |
| OPERATION VOLTAGE | 10.8 - 13.2 VDC |
| INPUT CURRENT | 0.31 (MAX. 1.20) A<br>**(CURRENT ON SAFETY LABEL 1.20A)** |
| INPUT POWER | 3.72 (MAX. 14.40) W |
| SPEED (FAN ONLY) | 7300±10% R.P.M. |
| SPEED (ON SINK) | 7200±10% R.P.M. |
| MAX. AIR FLOW<br>(AT ZERO STATIC PRESSURE) | 0.878 (MIN. 0.790 ) $M^3$/MIN.<br>31.01 (MIN. 27.91 ) CFM |
| MAX. AIR PRESSURE<br>(AT ZERO AIRFLOW) | 13.79 (MIN. 11.17 ) $mmH_2O$<br>0.543 (MIN. 0.440 ) $inchH_2O$ |
| ACOUSTICAL NOISE<br>(AVG. ON SINK) | 61.0 (MAX. 65.0) dB-A |
| INSULATION TYPE | UL: CLASS A |

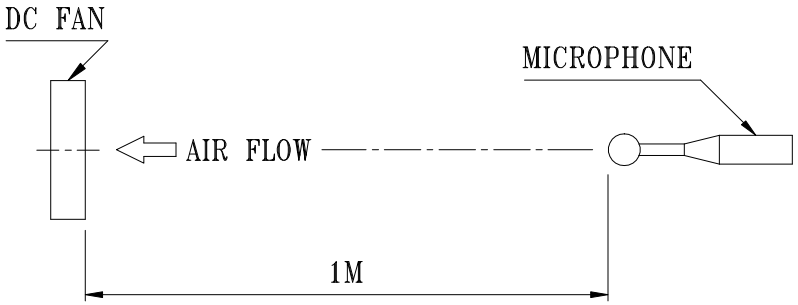
(continued)

PART NO: 3620936511

DELTA MODEL: AFB0612DH-BC01

| | |
|---|---|
| INSULATION STRENGTH | 10 MEG OHM MIN. AT 500 VDC<br>(BETWEEN FRAME AND (+) TERMINAL) |
| DIELECTRIC STRENGTH | 5 mA MAX. AT 500 VAC 50/60 Hz<br>ONE MINUTE, (BETWEEN FRAME AND<br>(+) TERMINAL) |
| EXTERNAL COVER | OPEN TYPE |
| LIFE EXPECTANCE<br>(AT LABEL VOLTAGE) | 80,000 HOURS CONTINOUS OPERATION<br>AT 45 °C WITH 15 ~ 65 %RH. |
| ROTATION | CLOCKWISE VIEW<br>FROM NAME PLATE SIDE |
| OVER CURRENT SHUT DOWN | THE CURRENT WILL SHUT DOWN WHEN<br>LOCKING ROTOR. |
| LEAD WIRE | UL 10368 -F- AWG #24<br>BLACK WIRE:NEGATIVE (-)<br>YELLOW WIRE:POSITIVE (+)<br>GREEN WIRE:TACHOMETER OUTPUT (F00)<br>BLUE WIRE:SPEED CONTROL (PWM) |

NOTES:
1. ALL READINGS ARE MEASURED AFTER STABLY WARMING UP THROUGH 10 MINUTES.
2. THE VALUES WRITTEN IN PARENS , ( ), ARE LIMITED SPEC.
3. 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: 3620936511

DELTA MODEL: AFB0612DH-BC01

3. MECHANICAL:

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

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

(THE CONTACT OF HALOGEN LESS THAN 1500 PPM FOR USING EDX ...ETC)

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

(THE CONTACT OF HALOGEN LESS THAN 1500 PPM FOR USING EDX ...ETC)

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

3-5. WEIGHT ---------- 85 GRAMS

4. ENVIRONMENTAL:

4-1. OPERATING TEMPERATURE ---------- -10 TO +70 DEGREE C

4-2. STORAGE TEMPERATURE ---------- -30 TO +85 DEGREE C

4-3. OPERATING HUMIDITY --- 85% RELATIVE HUMIDITY WITH 55 DEGREE C

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.

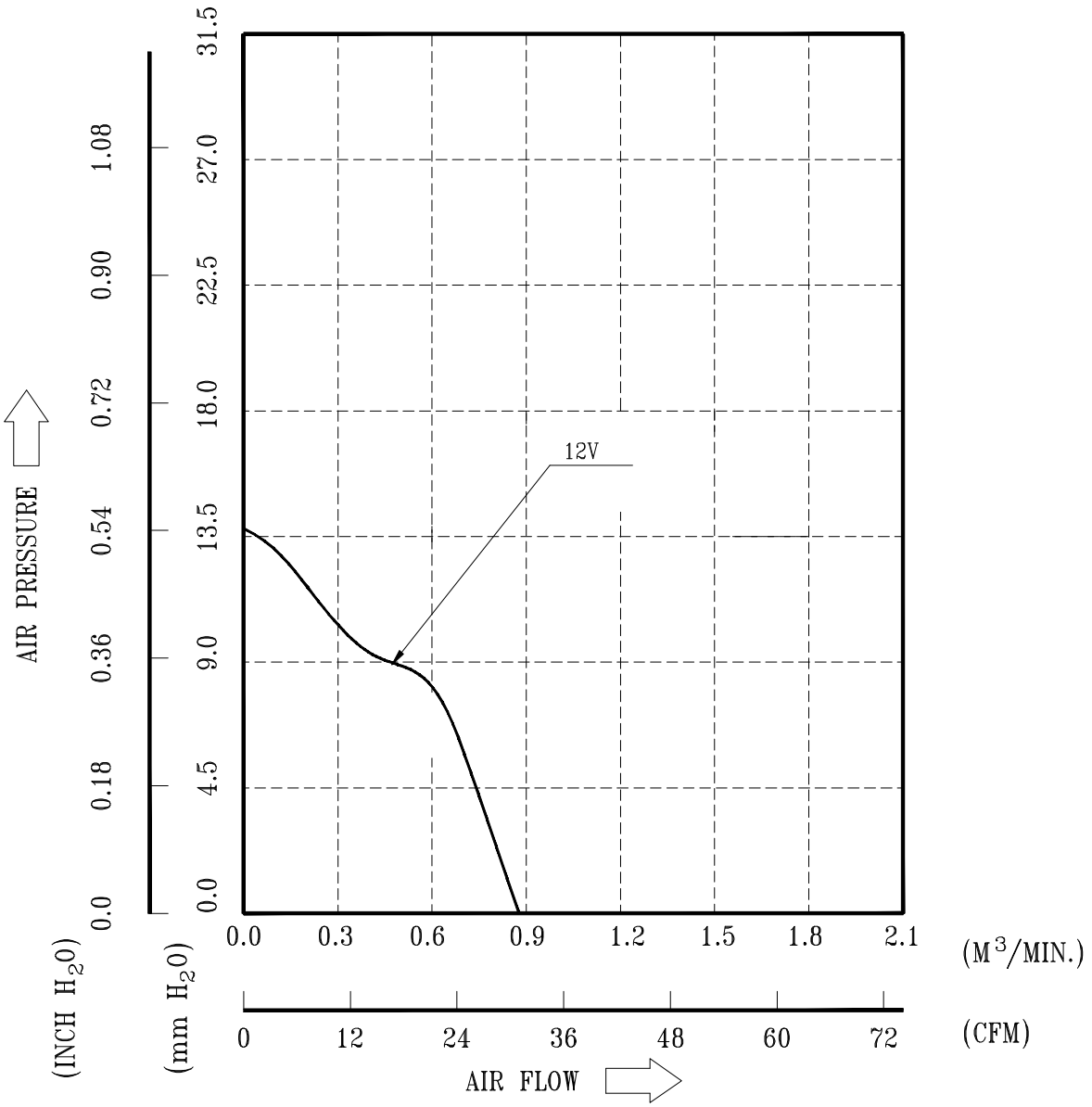
7. PRODUCTION LOCATION

7-1. PRODUCTS WILL BE PRODUCED IN CHINA OR TAILAND OR TAIWAN.

PART NO: 3620936511

DELTA MODEL: AFB0612DH-BC01

8. P & Q CURVE:




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



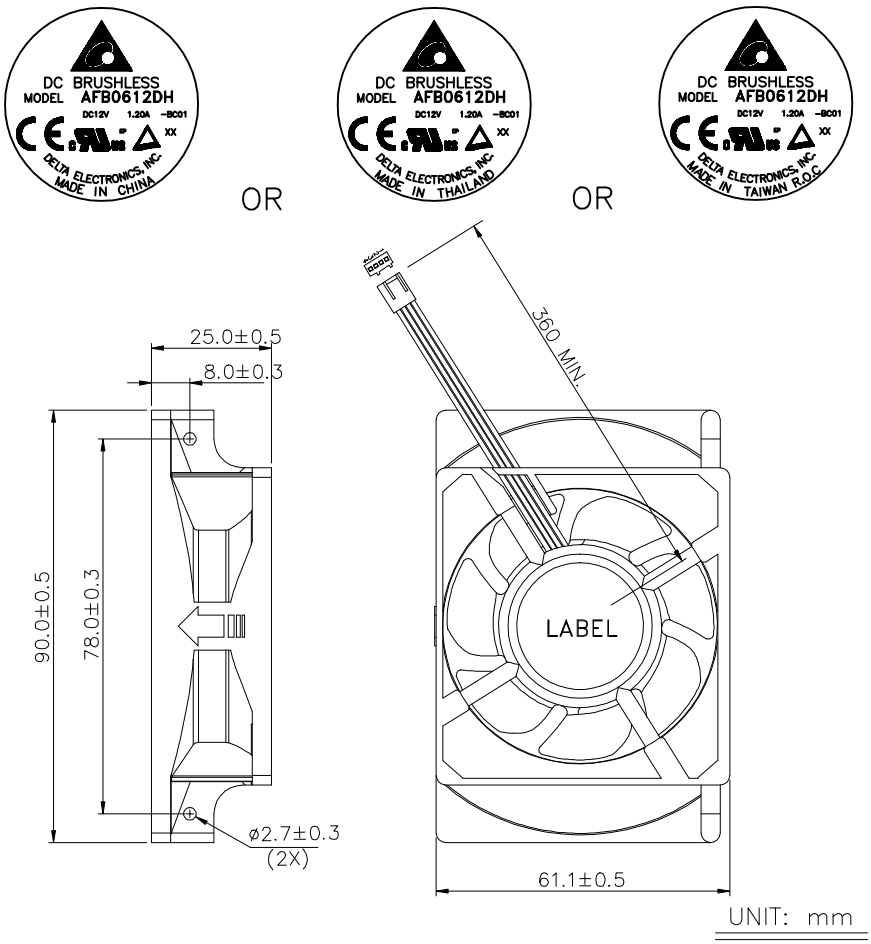
A00

PART NO: 3620936511

DELTA MODEL: AFB0612DH-BC01

9. DIMENSION DRAWING:

LABEL:

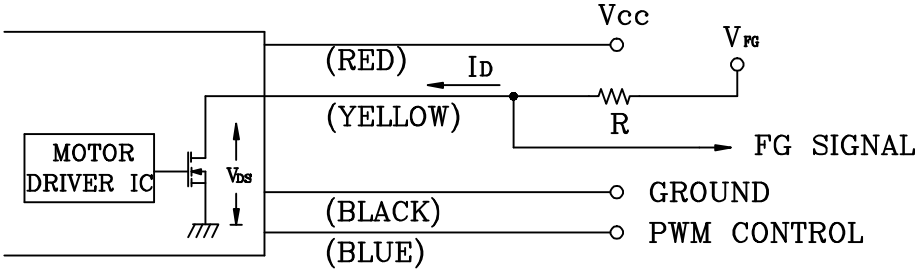



NOTES : 1. LEAD WIRE: UL 10368 -F- AWG #24
PIN 1: BLACK WIRE: NEGATIVE (-)
PIN 2: YELLOW WIRE: POSITIVE (+)
PIN 3: GREEN WIRE: TACHOMETER OUTPUT (F00)
PIN 4: BLUE WIRE: SPEED CONTROL (PWM)

2. HOUSING : MOLEX 47054-1000 OR EQUIVALENT
3. TERMINAL : MOLEX 2759T 08-50-0113 OR EQUIVALENT
4. THIS PRODUCT IS RoHS COMPLIANT
5. DELTA'S RESTRICTIONS ON HALOGEN APPLY ONLY TO BROMINATED AND CHLORINATED COMPOUNDS. NO OTHER HALOGEN IS RESTRICTED. SUBSTANCES RESTRICTIONS FOR HALOGEN-FREE (INCLUDE FAN PLASTIC PARTS, PWB BOARD, IC, ELECTRICAL MATERIALS & CABLE ASSY),
a. BROMINE(Br) < 900 PPM,
b. CHLORINE(Cl) < 900 PPM
c. (Br) + (Cl) < 1500 PPM.

## 10. FREQUENCY GENERATOR (FG) SIGNAL:

### 10-1. OUTPUT CIRCUIT - OPEN DRAIN MODE:



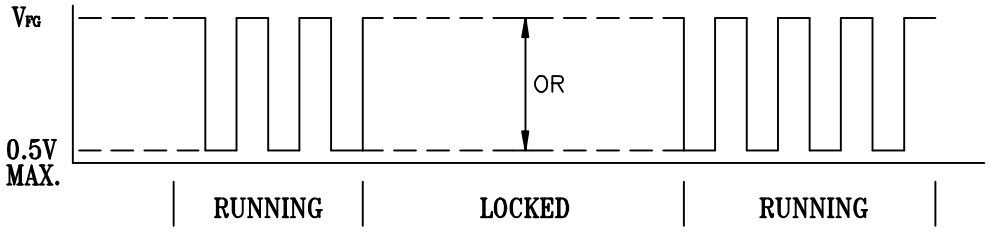

CAUTION: THE FG SIGNAL LEAD WIRE MUST BE KEPT AWAY FROM "+" LEAD WIRE & "−" LEAD WIRE.

### 10-2. SPECIFICATION:

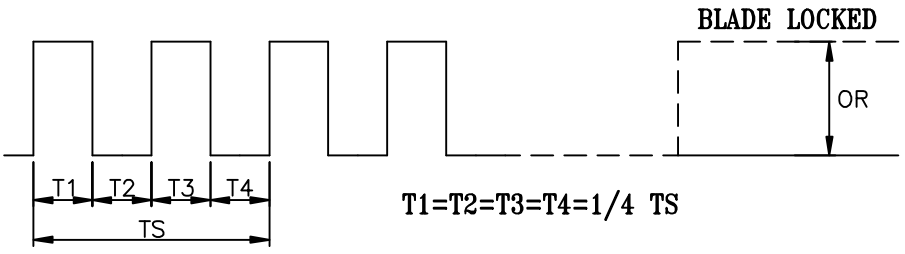
$V_{DS}$ (LINEAR)=0.5V MAX. $V_{FG}$ =5.0V TYP. (Vcc MAX.)

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

### 10-3. FREQUENCY GENERATOR WAVEFORM:




FAN RUNNING FOR 4 POLES



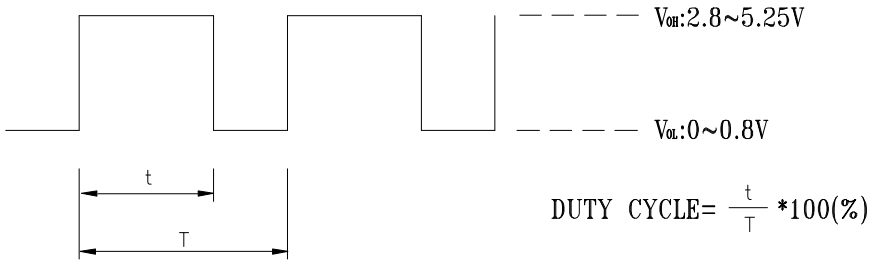

T1=T2=T3=T4=1/4 TS

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

A00

11. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~5.25 VDC

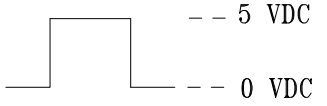



- THE FREQUENCY FOR CONTROL SIGNAL OF THE FAN SHALL BE ABLE TO ACCEPT A 21KHZ~28KHZ.
- THE PREFERRED OPERATING POINT FOR THE FAN IS 25K HZ.
- AT 100% DUTY CYCLE,THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- AT 0~10% DUTY CYCLE,THE ROTOR WILL SPIN AT MINIIMUM SPEED.
- WITH CONTROL SIGNAL LEAD DISCONNECTED,THE FAN WILL SPIN AT MAXIMUM SPEED.

12. SPEED VS PWM CONTROL SIGNAL:
(AT 25°C, RATED VOLTAGE & PWM SIGNAL AS FOLLOW)

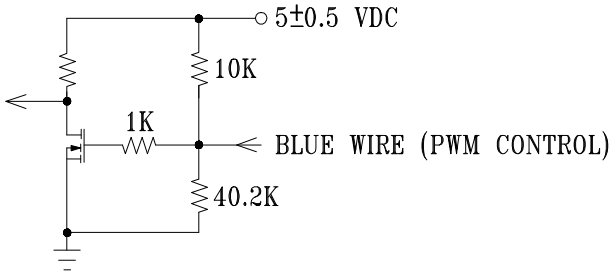
| DUTY CYCLE (%) | FAN ONLY | | FAN ON SINK | |
|---|---|---|---|---|
| | SPEED (R.P.M.) | CURRENT (A) TYP. | SPEED (R.P.M.) | CURRENT (A) TYP. |
| 100 | 7300±10% | 0.31 | 7200±10% | 0.31 |
| 0~10 | 1000±250 | 0.03 | 1000±250 | 0.03 |

* PWM SIGNAL
PWM FREQUENCY = 25KHz




- MIN. START DUTY CYCLE : 30%.
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:



# 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.